INDOT PUBLIC-PRIVATE AGREEMENT (DESIGN-BUILD DELIVERY)

Safer Drive 65

Technical Provisions

CONTRACT NO. R-41529-C

SUBMITTED DRAFT DATE: July 19, 2024

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1. PROJECT ADMINISTRATION

1.1 General

Design-Builder Contractor shall perform all Work in accordance with the DBA Documents, including Project Standards, this Section 1 and its RSPs and USPs; Government Approvals; and Government Rules.

1.2 Progress Meetings

The Design-Build Contractor shall hold Progress Meetings on a weekly basis, or at a frequency agreed upon with INDOT, at the field office, or other mutually agreed upon location. Design-Build Contractor shall prepare and provide a meeting agenda at least two (2) Business Days before the Progress Meeting. Design-Build Contractor shall document the Progress meeting with meeting minutes and distribute to INDOT for review and comment within (3) Business Days after the Progress Meeting. At a minimum, Progress meetings shall be attended by the relevant Key Personnel and the relevant additional personnel listed in Section 1.2.1.

The Design-Build Contractor shall coordinate with the Authorized Representative to confirm which INDOT personnel should be invited to the Progress Meetings. Other personnel for both Design- Build Contractor and INDOT will be invited on an as-needed basis as mutually agreed upon.

The Design-Build Contractor shall provide a rolling four-week look-ahead schedule at the Progress Meetings, to include, at a minimum, the number of work crews, work hours, delineation of daytime and night-time Work and the specific portions of the Work to be performed during the four-week period. Design-Build Contractor shall also discuss the status of the Project Schedule, including critical path activities, near critical path activities, current actual delays to the critical path activities, projected delays to the critical path activities and schedule recovery options.

At least once a month during the Progress Meetings, Design-Build Contractor shall review with INDOT's the draft invoice and draft Invoice Certificate reflecting the value of Work completed as of the date of the Progress meeting, in accordance with DBA Section 1.1.1 (Draft Invoice and Progress Meeting).

1.3 Progress Reports

The Design-Build Contractor shall submit a Progress Report to INDOT for review and comment monthly documenting progress of Design Work and

Construction Work. Content of the Progress Report shall include, at a minimum:

1. Executive summary
    a. Overall summary
    b. Summary of resolutions related to critical issues/noteworthy events since previous Progress Report
    c. Outstanding critical issues/significant events
2. Progress summaries
    a. PMP
    b. Utility Adjustment
    c. Design
    d. Construction
    e. Environmental
3. Quality - Design and construction
4. Safety
5. DBE and EEO compliance
6. Change management
    a. Deviations
    b. Change Orders
    c. Disputes
    d. Claims
7. Public Involvement and communication
8. Schedule
    a. Major milestone tracking
    b. Upcoming Activities
    c. TMP/closures
    d. Progress photography

1.4 Coordination with Other Projects

The Design-Build Contractor shall coordinate all work with other projects in accordance with DBA Section 25 (Cooperation and Coordination with Other Contractors and Adjacent Property Owners).

A non-comprehensive list of INDOT projects that may be under construction within the same timeframe as the Project is provided in Table 1-1.

Table 1-1: Adjacent INDOT Projects

Contract #	Project Location	Work Type	Status
TBD	Des. 1902858, I-65 near RP 22+36	Rest Stop Modernization, including modification of entrance/exit gores and auxiliary travel lanes	Anticipated to be let in 2025
T-41282-A	I-65 at Various Locations	Installation of ITS Traffic Mgmt systems, including at locations within project limits	Construction anticipated to be complete in October 2024
R-45445-A	I-65 from RP 16+00 to RP 29+00	Partial depth asphalt patching, milling, and resurfacing of pavement	Construction anticipated to be complete in August 2024

Information on INDOT projects is available on the contract letting page and the 18-month letting list on the INDOT website at:

https://www.in.gov/dot/div/contracts/letting/index.html

https://entapps.indot.in.gov/lettings/Dashboard

The Design-Build Contractor shall become fully informed of the conditions relating to construction of these and any other contracts under which the Work will be or is now being performed.

The Design-Build Contractor shall coordinate access to the Site with other contractor(s). Design-Build Contractor shall afford other contractors' reasonable opportunity for the delivery of their materials and the execution of their work, and shall properly integrate, incorporate, and/or coordinate its Work with theirs. Design-Build Contractor shall take due account of all such Work and shall arrange its methods of operation and storage of materials and equipment to cause a minimum of interferences with the work to be performed by other contractors, Utilities, or any Governmental Entity.

For the agencies listed below, the Design-Build Contractor shall coordinate with the following individuals for local projects, or the successor to any such position:

Kevin Hall,	Scott County Hwy Supervisor & Scottsburg Hwy Superintendent	812-752-8470
Tim Cochran,	Clark County Hwy Superindendent	812-246-9571

If any part of the Work depends on proper execution or impacts the work of any other contractor, Design-Build Contractor shall promptly report to INDOT any defect in work by another contractor which renders it unsuitable for such proper execution and results. Design-Build Contractor's failure to inspect and report such defects shall constitute an acceptance of the other contractor's work as fit and proper for the integration or incorporation of its Work, except as to defects that may develop in the other contractor's work after the execution of Design-Build Contractor's Work.

1.5 Project Management

1.5.1 Personnel

1.5.1.1 Key Personnel

Design-Build Contractor shall provide the following Key Personnel. One individual may not fill the role of more than one position (e.g., Design Manager cannot also be the Roadway Design Lead Engineer). The following describes the roles and responsibilities of the Key Personnel:

1. Project Manager: The Project Manager shall be responsible for all aspects of the Project, including overall design, environmental compliance, construction, quality management, and contract administration. The Project Manager shall have a minimum of 10 years of design-build experience managing the design and construction of highway and interstate projects that include major bridge structures, reconstruction and rehabilitation, and interchanges. The Project Manager shall be assigned to the Project full-time and shall be required to be on-site for the duration of the Project.

2. Design Manager: The Design Manager shall be responsible for the overall Project design and ensuring that all design requirements are met. The design manager shall have a minimum of 10 years' experience (design-build experience preferred) managing the design of highway and interstate projects that include major bridge structures, reconstruction and rehabilitation, and interchanges. The individual must be a registered professional engineer in the State of Indiana or be able to obtain licensure by award of the

DBA. The Design Manager shall be assigned to the Project full time and be readily available on-site when design activities are being performed both during design and construction.

3. Roadway Design Lead: The Roadway Design Lead is responsible for ensuring all roadway elements are completed and all design requirements are met. The Roadway Design Lead shall have a minimum of 10 years' experience (design-build experience preferred) designing highway and interstate projects that include bridge structures, reconstruction and rehabilitation, and maintenance of traffic. The Individual must be a registered professional engineer in the State of Indiana or be able to obtain licensure by award of the DBA. The Roadway Design Lead shall be available on-site for weekly meetings in the project office.

4. Construction Manager: The Construction Manager is responsible for managing the construction of the Project. The Construction Manager shall have a minimum of 10 years' experience (design-build experience preferred) managing the construction of highway and interstate projects that include bridge structures, reconstruction and rehabilitation, and complex maintenance of traffic. The Construction Manager shall be assigned to the Project full-time and will be required to be on site for the duration of the Project.

5. Safety Manager: The Safety Manager is responsible for all aspects of safety on the Project, including compliance, training, and development of specific safety requirements. The Safety Manager shall have a minimum of 5 years' experience managing safety on projects of similar size and complexity. The Safety Manager shall have certification from a recognized organization of industry standard such as the Board of Certified Safety Professionals (BCSP), The National Examination Board in Occupational Safety and Health (NEBOSH), or a similar recognized professional Health, Safety and Environmental (HSE) organization. The Safety Manager shall have authority to stop Work and experience in authorizing to stop Work. The Safety manager shall be familiar with FHWA work zone safety regulations and targeted/preferred experience shall be at least 5 years of experience working with roadway work zone safety and OSHA regulations.

6. Project Controls Lead: The Project Controls Lead is responsible for quality control, cost control, contract compliance, document control and schedule management. The Project Controls Lead shall have a minimum of 5 years' experience performing the duties described herein on projects of similar size and complexity.

1.5.1.2 Additional Personnel

Design Build Contractor shall provide additional personnel with the following roles and responsibilities:

1. Construction Superintendent(s): The Construction Superintendent(s) shall be responsible for supervision and oversight of all field Activities and construction operations. This person(s) shall be responsible for daily scheduling, supervising all construction activities and tasks, and ensuring the safety and compliance of the Site. The Construction Superintendent(s) shall report directly to the Construction Manager.

2. DBE Compliance Manager: The DBE Compliance Manager shall be responsible for overseeing DBE compliance in accordance with Section 4.3 of the DBA. The DBE Compliance Manager shall have experience in a similar role and be familiar with INDOT-certified DBE firms. Responsibilities shall include promotion of DBE contract opportunities and participation, administration of DBE contracts, prompt payment and resolution of any payment issues, and reporting of monthly DBE participation goals to INDOT.

3. Utility Coordination Manager: The Utility Coordination Manager shall be responsible for organizing and leading utility coordination activities. The Utility Coordination Manager shall be certified through INDOT's Utility Coordinator Certification Training and shall have a minimum of two years of experience as an INDOT certified Utility Coordinator with demonstrated experience in a similar role. The Utility Coordination Manager shall be responsible for completing the utility coordination process as defined in the Indiana Design Manual Chapter 104, 105 IAC 13, and the INDOT Utility Accommodation Policy.

4. Public Involvement Coordinator: The Public Involvement Coordinator shall be as described in

Section 19.2.2.1 (Public Involvement Coordinator).

1.5.2 Project Administration

1.5.2.1 Project Baseline Schedule

Design-Build Contractor shall develop the Project Baseline Schedule in accordance with Section 5.7 of the DBA.

1.5.2.2 Project Status Schedule

Design-Build Contractor shall submit Project Status Schedule updates to INDOT to reflect the current status of the Project and the Work, including Recovery Schedules, and schedule revisions due to approved Change Orders.

Design-Build Contractor shall submit the Project Status Schedule to INDOT for approval in accordance with Attachment 1-1 (Critical Path Method Schedule).

1.5.2.3 Final Schedule

Design-Build Contractor shall submit the Final Schedule to INDOT for approval in accordance with Attachment 1-1 (Critical Path Method Schedule).

1.5.2.4 Revisions

If it becomes necessary to add, combine, eliminate, or modify schedule Activities to reflect modifications to the Work, as approved by INDOT, it shall be reflected in the revised Project Schedule. Revisions to the Project Schedule and consequent realignment of funds between payment activities. Activities may be requested by Design-Build Contractor in accordance with, and subject to, changes to Work (e.g., Change Orders).

1.5.2.5 Time Impact Analysis

As part of a Change Order, Design-Build Contractor shall submit a written time impact analysis illustrating the influence of each claimed delay to INDOT. Each time impact analysis shall include a fragmentary network demonstrating how Design-Build Contractor proposes to incorporate the change, delay, or Design-Build Contractor request into the current Project Status Schedule. The time impact analysis shall demonstrate the time impact to each and every affected schedule Activity in the most recent Project Status Schedule at the time of the occurrence.

The time impact analysis Submittal shall include the details

of the change, including added, changed, or deleted data for schedule Activities and logic. If the current Project Status Schedule is revised subsequent to submittal of a time impact analysis but prior to its approval, Design–Build Contractor shall promptly indicate in writing to INDOT the need for any modification to its time impact analysis.

As part of the time impact analysis, Design-Build Contractor shall submit one electronic PDF Gantt chart and Primavera (.xer format) file, including all schedule Activities affected by the time impact analysis, grouped and sorted by WBS and compared to the current Project Baseline Schedule. In addition, Design-Build Contractor shall submit one electronic backup of the Project Schedule with the time impact analysis and a comprehensive narrative for each Change Request. Design-Build Contractor shall incorporate the results of the Change Notices from INDOT into the Project Status Schedule for the next Progress Report.

1.5.2.6 Recovery Schedule

Design-Build Contractor shall prepare and submit a Recovery Schedule as requested, and when required and otherwise in accordance with DBA Section 5.6 (Recovery Schedule). Design-Build Contractor shall submit the Recovery Schedule in a format in accordance with Attachment 1-1 (Critical Path Method Schedule). Design-Build Contractor shall include with the Recovery Schedule Submittal a narrative report describing Design-Build Contractor's proposed plan to regain lost schedule progress and to achieve the original contractual milestones in accordance with the Contract, including Substantial Completion by the Substantial Completion Deadline.

1.5.2.7 Resolution of Comments and Objections from INDOT

INDOT's exception, objection, rejection, or disapproval of a Submittal shall be deemed reasonable, valid, and binding if based on any of the following grounds or other grounds set forth elsewhere in the DBA Documents:

1. The Submittal or subject provision thereof fails to comply, or is inconsistent, with any applicable covenant, condition, requirement, standard (including Safety Standards), term or provision of the DBA Documents or Project Management Plan and component plans there under;

2. The Submittal or subject provision thereof is not of a

standard equal to or better than Good Industry Practice;

3. Design-Build Contractor has not provided all content or information required or reasonably requested in respect of the Submittal or subject provisions thereof, provided that (i) INDOT assume no duty, obligation or liability regarding completeness or correctness of any Submittal, including a Submittal that is to be delivered to a Governmental Entity as a proposed Governmental Approval, or in order to obtain, modify, amend, supplement, renew, extend, waive or carry out a Governmental Approval, and (ii) Design-Build Contractor shall have the subsequent opportunity to resubmit the Submittal with the required content or information;

4. Adoption of the Submittal or subject provision thereof, or of any proposed course of action thereunder, would result in a conflict with or violation of any Governmental Rule or Governmental Approval; or in the case of a Submittal that is to be delivered to a Governmental Entity as a proposed Governmental Approval, or in order to obtain, modify, amend, supplement, renew, extend, waive or carry out a Governmental Approval, it proposes commitments, requirements, actions, terms or conditions that are inconsistent with the Contract Documents, the Project Management Plan (and component plans thereunder), applicable Governmental Rules, the requirements of Good Industry Practice, or the policies of INDOT (except for policies that are incompatible with the Project's design- build contracting methodology).

5. Design-Build Contractor shall respond in writing to all comments, exceptions, disapprovals, and objections to a Submittal from INDOT and, except as provided below, make modifications to the Submittal as necessary to fully reflect and resolve all such comments, exceptions, disapprovals, and objections. Design-Build Contractor acknowledges that INDOT may provide comments, exceptions, disapprovals, and objections which reflect concerns regarding interpretation or preferences of the commenter or which otherwise do not directly relate to grounds set forth in above in clauses 1 thru 5. Design-Build Contractor agrees to undertake reasonable efforts to accommodate or otherwise resolve any such comments, exceptions, disapprovals, or objections

through the review processes described in this Section 5.3.2.8. If Design-Build Contractor does not accommodate or otherwise resolve any comment, exception, disapproval, or objection, Design-Build Contractor shall deliver to INDOT within a reasonable time period, not to exceed 14 days after receipt of comments, exceptions, disapprovals or objections from INDOT, a written explanation as to why modifications based on such comment, exception, disapproval or objection are not required. The explanation shall include the facts, analyses, and reasons that support the conclusion.

1.5.2.8 Partnering

INDOT and Design-Build Contractor have developed and intend to continue fostering a cohesive relationship to carry out their respective responsibilities under this Contract through a voluntary, non-binding partnering process drawing upon the strengths of each organization to identify and achieve reciprocal goals in accordance with Section 113 of the Standard Specifications.

The objectives of the partnering process are (a) to identify potential problem areas, issues and differences of opinion early, (b) to develop and implement procedures for resolving them in order to prevent them from becoming claims and disputes, (c) to achieve effective and efficient performance and completion of the Work in accordance with the Contract Documents, and (d) to create mutual trust and respect for each Party's respective roles and interests in the Project while recognizing the respective risks inherent in those roles.

1.5.3 Project Management Plan

Design-Build Contractor shall prepare a Project Management Plan (PMP, which is an umbrella document that describes Design-Build Contractor’s managerial approach, strategy, safety, and quality procedures to design and build the Project and achieve all requirements of the DBA Documents.

INDOT will audit and monitor the Activities described in the PMP to assess Design-Build Contractor performance. All commitments and requirements contained in the PMP shall be verifiable.

The PMP shall be submitted to INDOT for approval within 30 days of Notice to Proceed.

The general outline and minimum content of the PMP is described in Section 5.3.3.1 through 5.3.3.5.

1.5.3.1 Project Administration Plan

Design-Build Contractor shall prepare and submit a Project Administration Plan that satisfies the following components:

1. Organizational diagram, with all Key Personnel clearly identified
2. Management structure and personnel names and contact details, titles, and job roles
3. Design-Build Contractor’s contracting plan
4. Design-Build Contractor's main contractual arrangements with Subcontractors
5. Project Baseline Schedule
6. Quality control procedures to establish and encourage continuous improvement
7. Procedures to facilitate review and audit by INDOT
8. Auditing and management review of Design-Build Contractor’s own Activities under the PMP, and associated responsibilities for DBE participation.
9. Revisions to PMP - Procedures for preparation of amendments and submission of amendments to any part of the PMP
10. Internal organization systems
    a. A description of Design-Build Contractor’s team decision-making process, how internal disputes between team members will be resolved, and how Design-Build Contractor will avoid adverse impacts to the Project (cost, schedule, or quality) in the event of such disputes.
    b. A description of the methods to be used to establish lines of communication and documentation within Design-Build Contractor’s team, including communication among the sub-organizations and management personnel.
    c. A description of how Design-Build Contractor will interface with INDOT and its consultants; applicable

third-parties; relevant federal, State, and local agencies; and local police and fire departments on all matters including planned transportation and Utility infrastructure in the Project area.

d. Document management – The manner in which records will be maintained, including any specific systems Design-Build Contractor will use. A description of the Design-Build Contractor's approach to store and retain Project-related documents and information, including:

    i. In what medium (digital or otherwise) the documents will be maintained;

    ii. If electronic, what format will be used;

    iii. Design-Build Contractor's approach for security and backup of the Project documentation.

e. Response and mitigation measures for a Pandemic, including:

    i. Methods to ensure and maximize labor and Key Personnel availability and continuity;

    ii. Methods to ensure availability of supplies, materials, and equipment, including backup plans for unavailability due to a Pandemic.

1.5.3.2 Quality Management Plan

Design-Build Contractor shall prepare and submit a Quality Management Plan that satisfies the following components:

1. Organizational structure covering the activities to be performed in accordance with the DBA Documents

2. Personnel – Resource plan for Design-Build Contractor and its Subcontractors

3. Arrangements for coordinating and managing staff interaction with INDOT and its consultants, including Key Personnel and description of approach to coordinating Work of off-Site personnel

4. Names and contact details, titles, job roles, and specific experience required for the Key Personnel and for other principal personnel during Design Work

5. Names, contact details, titles, and job roles of principal personnel of Design-Build Contractor and any third-party with which Design-Build Contractor will coordinate activities

6. Provisions for its design and construction obligations with respect to Utilities

7. Design Quality Management Plan

    a. Responsibility of Design-Build Contractor and Affiliates, including constructability reviews

    b. Steps taken to ensure Design-Build Contractor and its Subcontractors meet the obligations imposed by their respective subcontracts

    c. Interfaces between Design-Build Contractor, Subcontractors, and independent certifiers during design, including interfaces between the structural design auditor, the safety auditor, and quality reviewers

    d. Coordination with Utility Owners

    e. Procedures describing how the principal Activities will be performed during the design stage: to include geotechnical Site investigation, surveys and mapping, environmental management, safety audit, structural audit, and checking

    f. QA/QC procedures, including a resource table for monitoring and auditing all design services, design review and certification, verification of Plans and Working Drawings; NDCs, FDCs; and Witness Points and Hold Points described in Section 6 (Quality Management)

    g. Procedures to establish Hold Points in design process where checking and review will take place

    h. Procedures to ensure accuracy, completion, and quality in Submittals to INDOT and Governmental Entities, including conformance with federal oversight requirements

    i. Procedures to establish and encourage continuous improvement, including corrective and preventive action procedures

8. Construction Quality Management Plan

    a. Complete procedures for preparing for and complying with Hold Points during Construction Work described in Section 6 (Quality Management)

    b. Project-specific construction quality control procedures

    c. Steps taken to ensure Design-Build Contractor and its Subcontractors and Suppliers meet the obligations imposed by their respective subcontracts

    d. Construction monitoring plan, including testing and inspection for which Design-

    e. Build Contractor is responsible for QA/QC

    f. Pre-activity meetings

    g. Control and traceability of materials

    h. Reporting procedures, methodologies, and corrective action relating to Nonconforming Work, including how INDOT will be involved

    i. Training, mentoring, and audits

    j. Establish procedures and schedules for preparing a Punch List and completing Punch List Work. Punch List(s) shall include an itemized list of Construction Work which remains to be completed, the existence, correction and completion of which will have no adverse effect on the normal and safe operation and use of the Project.

1.5.3.3 Environmental Management Plan

Design-Build Contractor shall prepare and submit an Environmental Management Plan that satisfies the following components:

1. Organizational structure covering the activities to be performed in accordancewith the DBA Documents and consistent with that in the Proposal

2. Environmental contact list

3. Personnel – Resource plan for Design-Build Contractor and its Subcontractors

a. Arrangements for coordinating and managing staff interaction with INDOT and its consultants, including Key Personnel and description of approach to coordinating Work of off-Site personnel

b. Names, contact details, titles, job roles and specific experience required for Key Personnel and for other environmental personnel

4. Subcontractors – Overall control procedures for Subcontractors

5. Environmental Compliance and Mitigation Plan (ECMP) as described in Section 14.3.2.1 (Environmental Compliance and Mitigation Plan)

6. Environmental compliance and mitigation training program as described in Section 14.3.2.2 (Environmental Compliance and Mitigation Training Program)

7. Methods for ensuring, documenting, and verifying adequate installation, maintenance, and repair of erosion and sediment control devices

8. Potential environmental risk and the approach to mitigate, eliminate, or reduce those risks

9. Methods and procedures for monitoring environmental commitments and for documenting and verifying that those have been implemented in the design and construction.

1.5.3.4 Safety Management Plan

Design-Build Contractor shall prepare and submit a Safety Management Plan that satisfies the following components:

1. Description of the Design-Build Contractor's organizational structure as it pertains to managing the safe performance of the Work in accordance with the DBA Documents and consistent with that in the Proposal.

2. List of the safety management resource personnel assigned to the Work for Design- Build Contractor and each of its Subcontractors.

3. Identify arrangements for coordinating and managing staff interaction with INDOT and its consultants,

including Key Personnel and description of approach to coordinating the Work with off-Site personnel.

a. Identify names, contact details, titles, project roles and specific experience required for Key Personnel, including Subcontractor personnel, and any other safety management personnel.

4. Design-Build Contractor's control procedures for maintaining Subcontractor compliance with its Safety Management Plan.

5. Design-Build Contractor shall identify it's policies, plans, training programs, Work Site controls, Incident management and response plans, standards, and procedures to ensure the health and safety of personnel, including response to a Pandemic, involved in the Project and the general public affected by the Project.

6. Identify procedures and controls for providing immediate notification to INDOT of all Incidents arising out of or in connection with the performance of the Work.

1.5.3.5 Public Involvement Plan

Design-Build Contractor shall prepare and submit a Public Involvement Plan (PIP) in accordance with Section 19.3 (Design-Build Contractor's Public Involvement Plan).

1.5.3.6 Revisions to the PMP

Design-Build Contractor shall submit a revised PMP to INDOT for approval in the event of the following:

1. The occurrence of any changes to Key Personnel, Quality Management Plan, Safety Plan, Project Baseline Schedule, or Project administration policies and procedures

2. The occurrence of other changes necessitating revision to the PMP, including as a result of any Change Order

3. As otherwise directed by INDOT

1.5.4 Electronic Document Management System

Design-Build Contractor shall submit a document management plan and system that satisfies the following requirements:

1. Uses data protocols, standards, and procedures compatible with those employed by INDOT (e.g., Autodesk Construction Cloud (ACC), SharePoint, ERMS, SiteManager, etc.). All Submittals shall be through INDOT's ACC platform. Design-Build Contractor shall implement any new operating practices required as a result of INDOT's amendments to any of its systems, standards, and procedures.

2. Provides a secure location for any interface, as may be required by INDOT, such that only authorized INDOT users have access and that such secure location is protected from loss, theft, damage, and unauthorized or malicious use.

3. Employs standards and procedures and provides appropriate training for Design-Build Contractor personnel to operate any INDOT data management system which INDOT may require in connection with the Project.

4. Provides a mechanism for the electronic transfer of meta-data along with the associated PDF images for uploading into an EDMS.

5. Provides INDOT with procedures and software for accessing all Project-related documents.

Design-Build Contractor shall train identified INDOT personnel to operate any Design- Build Contractor data management system approved by INDOT for Design-Build Contractor use in connection with the Project.

Design-Build Contractor shall submit all Submittals, Design Documents, and Construction Documents to INDOT in a legible and searchable electronic format in as small a file size as possible without loss of legibility.

Design-Build Contractor shall submit a detailed description of:

1. Method by which all Submittals, Design Documents, and Construction Documents will be uniquely coded, including the use of drawing numbers (Dwg. Nos.) for Plan sheets, and retrievable in a user-friendly format.

2. The routing, filing, control, and retrieval methods for all documents.

3. Methods to facilitate sharing of data, including procedures and software for accessing all Project-related documents.

4. All documents and data elements that will support records. These documents and data elements shall include, at a minimum: document class, document type/subtype, document name, form number, INDOT records series item number, INDOT agency item number, INDOT records series title, INDOT retention period, turnover media, turnover frequency, submission type, unique requirements, and remarks.

To allow for disaster recovery, Design-Build Contractor shall back up and store all Project-related documents in a secure off-Site area no less than on a weekly basis.

1.5.5 Facilities

1.5.5.1 Project Field Office

Design-Build Contractor shall provide for INDOT and their consulting team's exclusive use, one modified Type E field office meeting the following requirements immediately adjacent to or collocated with Design-Build Contractor's field office and within two miles of the Project Site in Clark or Scott County, Indiana. INDOT's field office shall be fully operational at least 60 days following NTP or at least 30 days prior to Commencement of Design whichever occurs earlier. INDOT's field office shall meet all of the requirements of Section 628.02 of the Standard Specifications, except:

1. INDOT's field office and all of its equipment and supplies shall be maintained and replenished in a satisfactory manner during the life of the contract and up to a maximum of six months after Final Acceptance or until released by INDOT.

2. Field office shall meet all local zoning requirements.

3. Field office shall be a permanent structure, with a minimum size of 5,000 square feet, minimum width of 50 feet, with a minimum of 15 cubicles at a minimum of 64 square feet each, and a minimum of 10 private offices. Each private office shall have at least 120 square feet of area, desk, office chair, folding table, bookcase, two side chairs, and a 3-foot-by-5-foot dry-erase board with eraser and multiple colored dry erase markers which shall be replenished for the term of the Contract.

4. Field office shall have one conference room suitable for hosting 20 people.

5. Field office shall have a kitchen/common area.

6. Field office shall have a secure, business-grade direct internet access (DIA) connection of at least 100 Mb/s in addition to 5G/LTE wireless failover for redundancy. The high- speed internet service and wifi connectivity shall be sufficient to provide simultaneous service to at

least 25 INDOT staff in addition to Design-Build Contractor staff.

7. All of the field office equipment and supplies listed in Section 628.02(b) of the Standard Specifications for a type E field office are required, except the requirements for the following items shall be modified as follows:

    a. 6 adding machines

    b. One set of conference room tables for 12 people with additional seating room for up to 20 people

    c. One audio visual speakerphone system for each conference room, such as a Meeting Owl 3 or equivalent system.

    d. Five Wi-Fi hotspots for field connectivity

    e. One projector, one screen, and two 75-inch or larger with minimum 4K HDR TVs with wireless computer mirroring capability.

    f. One field office desktop computer system with internet access meeting the following requirements:

        i. Processor – I7 Intel 4.6-GHz

        ii. Memory – 32 GB RAM

        iii. Hard Drive – 512 GB SSD

        iv. Optical Drive – 24X CD-RW, DVD-RW capability

        v. USB Ports – five USB 3- and four USB 2-compliant ports

        vi. Network – integrated or add-on 10/100/1000 Ethernet capability

        vii. Graphics – AMD 4GB Radeon RX550

        viii. Monitor – three external 22-inch wide-screen LCD

        ix. Keyboard – one external USB wireless 104-key keyboard

        x. Mouse – one external USB wireless three-button mouse

g. Five laptops and computer systems with internet access meeting the following requirements:

    i. Dell Mobile Precision Workstation 7770 CTO

    ii. Windows 10 Pro (Includes Windows 11 Pro License) English, French, Spanish

    iii. Intel Core i7-12850HX, 25MB Cache, 24 Threads, 16 Core, 2.1GHz to 4.8GHz, vPro

    iv. Intel Iris X Graphics

    v. vPro Manageability

    vi. 17.3-inch, FHD 1920 x 1080, 60 Hz, Anti-Glare, Non-Touch, 99% DCIP3, 500 Nits, IR Cam/Mic WLAN

    vii. FHD/IR Camera, ExpressSign-In, Intelligent privacy, Camera Shutter, Mic

    viii. 32GB, 1x32GB NECC 4800MHz DDR5 CAMM Module

    ix. M.2 2280 512 GB, Gen 4 PCIe x4 NVMe, Solid State Drive

    x. Monitor – ten external 22-inch wide-screen LCD

    xi. Keyboard – five external USB wireless 104-key keyboard

    xii. Mouse – five external USB wireless three-button mouse

    h. 10 four-drawer file cabinets

    i. 4 four-drawer fireproof file cabinets

    j. 10 folding office tables

    k. 10 folding office chairs

    l. 15 cubicle desks and chairs

    m. 15 two-drawer desk file cabinets for cubicles

    n. 120 linear feet of book shelving

    o. Two refrigerator/freezers with minimum

capacity of 20 cubic feet each

p. Two microwaves with minimum capacity of 1.9 cubic feet each

q. Two bottled drinking water dispensers having both hot and cold-water capabilities

r. Indoor toilet facilities for up to 25 staff with separate facilities for men and women

s. 25 wastepaper baskets

t. Five dry-erase boards, 3-foot-by-5-foot with erasers

u. Two dry-erase boards, 4-foot-by-8-foot with erasers

v. Multiple colored dry erase markers which shall be replenished for the term of the Contract

w. One GPS rover per RSP 105-C-235 (GPS Rover for Use by Project Personnel)

x. Two high-end, high output print capability of 50 PPM or greater, multifunctional all in one Epson Workforce Enterprise or HP Office LaserJet Enterprise models with 11- inch-by-17-inch color and Wi-Fi printing, copying, and scanning capability.

y. Adequate parking for not fewer than 25 vehicles including appropriate amount of handicap accessible spots (per local zoning requirements)

8. Design-Build Contractor shall provide cleaning services (floors, toilet facilities, kitchen/common area, and trash) on a regular basis, but no less than twice per week.

9. Design-Build Contractor shall provide regularly scheduled exterior maintenance service (lawn care, landscaping upkeep, and general exterior maintenance) with a weekly scheduled trash service dumpster (at least 5 cubic yards) and snow removal service.

1.5.5.2 Project Field Laboratory

Design-Build Contractor shall provide for INDOT's exclusive use, one type C field laboratory as specified in Section 628.02(f) of the Standard Specifications immediately adjacent to or collocated with Design-Build Contractor's field office and within one mile of the Project Site. In addition to the provisions of Section 628.02(f) of the Standard Specifications, Design-Build Contractor shall provide hot and cold running water (potable).

1. Design-Build Contractor shall provide internet service with Wi-Fi.

2. Design-Build Contractor shall provide:

    a. Three durable, portable cook stoves for drying samples, and propane fuel in containers of suitable size to be transported to the Site and with continuingly sufficient quantities for INDOT to use during the term of the Contract.

    b. In accordance with applicable ITMs and AASHTO T 23, concrete test beam forms, annually certified beam breaking machine (manual or hydraulic), and lime bath cure tanks required for INDOT quality assurance testing of concrete work elements. The quantity of equipment shall be sufficient to meet the production schedule of Design- Build Contractor.

3. The Project Field Laboratory and Project Field Office may be at the same location if agreed upon by INDOT and the Design-Build Contractor.

1.5.6 INDOT Contacts

INDOT Project Manager:

Indiana Department of Transportation
100 North Senate Avenue, Rm N758-MPD
Indianapolis, IN 46204
Attention: Kyanna Wheeler
Telephone: (812) 203-2009
E-mail: KWheeler@indot.in.gov

INDOT Construction Manager:

Indiana Department of Transportation Seymour District
185 Agrico Lane
Seymour, IN 47274

Attention: Ryan Cox
Telephone: (812) 569-3198
E-mail: rycox@indot.in.gov

Existing plans and as-built plans: Submit on-line request to:

Plans Information Request Form:
https://entapps.indot.in.gov/OPSM/Dashboard/UserRequest

1.6 Allowances, Payment Limitations, and Schedule of Values

1.6.1 Allowances

Allowances are not intended to address Nonconforming Work. In no event shall Design-Build Contractor be entitled to draw against the Allowances for correction of any Nonconforming Work or for Work performed during any Prohibited Closure.

In no event shall Design-Build Contractor be entitled to any additional time or extension of any Completion Deadline as a result of any pavement maintenance or patching described in this Section 1.6.1 and DBA Section 13.1.3 (Allowances).

Design-Build Contractor shall provide notice to INDOT at least 7 days in advance of performing the Work under this Section. Design-Build Contractor shall document and maintain a daily record of the Work performed under this Section and submit to INDOT the supporting documentation to include date performed, item description, location, measurement, calculation, and a detailed drawing within 5 business days of starting and completing the Work.

Design-Build Contractor shall submit payment requests for the Work with its normally scheduled recurring payment requests in accordance with Section 1.6.3 (Schedule of Values) and INDOT will issue payment for accepted work in accordance with DBA Section 13.2 (Invoicing and Payment) and the Project Standards.

The allowances are for use at INDOT's sole discretion, and INDOT, in its sole discretion, may limit use of or exceed the allowance, and Design-Build Contractor shall perform the Work, at the unit prices provided, for the duration of the Contract.

1.6.1.1 Pavement Patching Allowance

Design-Build Contractor shall be eligible to invoice against the Pavement Patching Allowance to address any Engineer-approved pavement patching Work requiring permanent asphalt pavement patching within the limits of roadway rehabilitation Work in accordance with Section 6.3.4 (I-65 Rehabilitation Pavement Design), Section 6.4.2-1 (I-65

Rehabilitation), Section 6.3.5 (SR 160 Ramps and SR 56 Ramps Rehabilitation Pavement Design), and Section 6.4.3-1 (SR 160 Ramps and SR 56 Ramps Rehabilitation) as of the Effective Date and until the contract has been accepted. Items of Work eligible for the payment from the Pavement Patching Allowance and unit prices shall be as specified in DBA Section 13.1.3.2.

1.6.1.2 Fiber Wrapping and Column Patching Allowance for Bridges

Design-Build Contractor shall be eligible to invoice against the Fiber Wrap and Column Patching Allowance to address any Engineer-approved bridge patching Work in accordance with Sections 12.1.2-4 and 12.1.2-5 (Specific Bridge Requirements) as of the Effective Date and until the contract has been accepted. Items of Work eligible for payment from the Fiber Wrapping and Column Patching Allowance and unit prices shall be as specified in DBA Section 13.1.3.2.

1.6.2 Payment Limitations

1.6.2.1 IDEM Notice of Termination

The amount payable for obtaining the IDEM Notice of Termination and providing evidence thereof acceptable to INDOT shall equal 0.50% of the Contract Price. Design-Build Contractor shall not be entitled to payment for this 0.50% of the Contract Price until Design-Build Contractor has obtained the IDEM Notice of Termination and provided evidence acceptable to INDOT.

1.6.2.2 Record Drawings

The amount payable for Record Drawings acceptable to INDOT shall equal 0.20% of the Contract Price. Design-Build Contractor shall not be entitled to payment for this 0.20% of the Contract Price until acceptable Record Drawings have been delivered to INDOT.

1.6.3 Schedule of Values

Within 14 days after the Effective Date, Design-Build Contractor shall prepare and submit a detailed Schedule of Values giving a complete breakdown of the lump sum portion of the Contract Price, setting forth the estimated value of the various categories of the Work. The Schedule of Values shall be subject to INDOT's approval, in its good faith discretion.

The Schedule of Values shall be developed by Design-Build Contractor by dividing the lump sum amounts making up the Contract Price into

components that represent the Work and, where possible, can be defined by key quantities installed. INDOT may provide a template defining the minimum items into which the Contract Price shall be divided in the Schedule of Values (e.g., the NSPE EJCDC C-620 Contractor's Application for Payment spreadsheet). The template may include the requirement that Design-Build Contractor define key quantities associated with certain Schedule of Value line items. The Schedule of Values shall take into consideration schedule monitoring and cost reporting requirements and shall be cost coded to identify costs uniquely by physical location, element of work, or any other coding requirements deemed necessary by INDOT.

Design-Build Contractor shall ensure that the dollar amounts of each scheduled value in the Schedule of Values in fact represent fair market cost allocations for the Work items listed. Each item in the Schedule of Values shall include its proportionate share of Design-Build Contractor overhead and profit. If requested by INDOT, Design-Build Contractor shall provide a detailed cost breakdown for any Work item in the Schedule of Values.

Design-Build Contractor shall not increase the cost of early activities, i.e., "front loading." If INDOT determines that "front loading" has occurred, it may direct Design-Build Contractor to conduct a complete reallocation of moneys until such "front loading" is corrected. Repeated attempts at "front loading" may result in refusal to process payment until such time as the Schedule of Values is acceptable to INDOT.

The Schedule of Values is for the purpose of enabling the Parties to determine the amount of progress payments owing. INDOT will base payments on an estimate of the percentage of Work completed. No progress payment shall be made for any Work that is not included in an INDOT-approved Schedule of Values.

Following INDOT's approval of the Schedule of Values, the Parties shall revise and finalize the form of invoice to correspond to the Schedule of Values, and INDOT will make progress payments based on the Schedule of Values and the Work performed through the payment period. The invoice showing progress made against the Schedule of Values shall be provided in both paper and electronic format (Excel or similar acceptable to INDOT). Invoicing for progress payments may be made no more frequently than once per month.

INDOT shall at any time have the right to conduct a detailed examination of the Schedule of Values. Design-Build Contractor shall cooperate with and, to the best of its ability, assist INDOT in such review, including providing all such information as may be reasonably required in connection therewith. INDOT may determine that, in relation to any Work Item, the relationship between progress payments and progress and

control of the work envisaged at the date of INDOT approval of the Schedule of Values has not been or will not be maintained. In such event, INDOT may require Design-Build Contractor to prepare a revised Schedule of Values that will, in INDOT's good faith opinion, restore, as far as reasonably practicable, said relationship and degree of control. The revised Schedule of Values will be due 30 days after delivery of Notice from INDOT. If Design-Build Contractor fails to provide an acceptable revised schedule within said 30-day period, INDOT may revise the Schedule of Values in any manner that it sees fit, based on the rate of progress of the work which INDOT anticipates and with the objective of restoring, so far as is reasonably practicable, said relationship and degree of control.

The Schedule of Values shall be updated in connection with each Change Order or deduction that modifies the Contract Price and submitted to INDOT for approval. Each Change Order or deduction shall be reflected on the Schedule of Values as a separate line item.

Design-Build Contractor shall not be entitled to submit any invoice or seek any payment for a design Submittal (or Design Work related thereto) until the later of (i) when such design Submittal is submitted to INDOT; and (ii) when Design-Build Contractor is entitled to submit such design Submittal (including, for any sequential design Submittal, that all prerequisites to such design Submittal have been satisfied).

1.7 Deliverables

Deliverables under this Section 1, a non-exhaustive list of which is set forth in Table 1-3, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 1-3: Deliverables

Deliverable	Deliverable Schedule	Section
Progress Reports	Monthly	1.2.3 & 1.2.4
Project Baseline Schedule	No later than commencement of Design Work	1.3.2.1
Project Status Schedule	Initial and periodic Submittal schedule per Attachment 1-1 (Critical Path Method Schedule)	1.3.2.2

Final Schedule	Submittal schedule per Attachment 1-1 (Critical Path Method Schedule)	1.3.2.3
Schedule Revisions	Included with next Project Status Schedule following occurrence	1.3.2.4
Time Impact Analysis	Included with next Project Status Schedule following occurrence	1.3.2.5
Recovery Schedule	As required by the referenced section	1.3.2.6
Project Management Plan	No later than 30 days following NTP	1.3.3
Revisions to the PMP	No later than 14 days after the occurrence of the change triggering the need for revisions to the PMP	1.3.3.6
Document Management Plan	No later than 30 days following NTP	1.3.4

Section 1 Attachments:

Attachment 1-1 Critical Path Method Schedule

2. QUALITY MANAGEMENT

2.1 General

Design-Build Contractor shall perform all Work necessary to meet the quality requirements for the Project, including schedule management, Submittals and electronic posting of documents, and other quality-related items, all in accordance with the DBA Documents, including Project Standards, this Section 2 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

2.2 Schedule Management

Design-Build Contractor shall schedule its Work to meet review time periods described in Section 1.2.2.8 (Submittal Review Time Periods) for Witness Points and Hold Points.

2.2.1 Witness Points

At each Witness Point, Design-Build Contractor shall submit the identified items to INDOT for review. Work may proceed beyond a Witness Point, at Design-Build Contractor's risk.

Witness Points for design are as follows:

1. Plan sheets not defined as Hold Points
    a. Preliminary layout, typical sections, and design computations not included with the Stage 1 review Submission.
    b. Supplemental geotechnical subsurface exploration and testing program described in Section 14 (Geotechnical)
    c. Finalized cross sections
    d. Level 1 FDCs, including red-line markups of RFC Plans
    e. Concept Drainage Report described in Section 7 (Hydraulics & Drainage)

In its reasonable discretion, INDOT reserves the right to add Witness Points to any aspect of the Project.

2.2.2 Hold Points

At each Hold Point, Design-Build Contractor shall submit the information required to INDOT for review and comment, or approval, as required. No Work relating to a Hold Point shall proceed beyond that Hold Point until Written Release is given by INDOT.

Hold Points shall occur for all construction Activities which require inspection by INDOT as described in the Standard Specifications, RSPs, USPs, or these Technical Provisions.

2.2.2.1 Hold Points for Construction

Hold Points for construction are as follows:

1. Vibration and noise abatement management plans
2. QC plan approval for grading and borrow sources
3. QC plan approval for HMA and temporary HMA paving
4. QC plan approval for concrete pavement
5. QC plan approval for stormwater management plan
6. QC plan approval for structural steel painting or metallizing
7. Pre-paving conference for roadway
8. Pre-pour conference for bridge decks
9. Fabrication plant inspections
10. Working Drawings
11. Pre-phase Site construction meeting
12. After reinforcing bar placement and prior to structural concrete placement
13. Structural concrete placement
14. Falsework plan approvals
15. Post tensioning technical data and details
16. Erection plan approval for overhead structural members
17. Removal plan approval for existing structures
18. Sound barrier Working Drawings and calculations
19. Work area access plan approval
20. ITS Submittals
21. Hazardous Materials removal plan, if required
22. Approval of CGSP (Rule 5) permit NOI and NOS

23. 401, 404, and CIF permit modifications
24. Approval of Project baseline schedule
25. Approval of Traffic Management Plan (TMP)
26. Approval of Temporary Traffic Control Plan (TTCP)
27. Approval of Work Zone Incident Management Plan (IMP) and Conference
28. Approval of Automated Work Zone Information (AWZIS) Implementation Plan
29. Approval of Unmanned Aircraft Systems (UAS) photography implementation plan
30. Commencement of Construction
31. NDC, Level 2 FDC, and Level 3 FDC revised Plans and engineering analysis and calculations (if applicable) shall be submitted for review and acceptance by INDOT prior to proceeding with Construction Work

2.2.2.2 Hold Points for Design

Hold Points for design are as follows:

1. Project Kickoff
2. Design Submittal Report
3. Commencement of Design
4. Required documentation for NEPA noise re-analysis, if required
5. Sound barrier design and Plans, if required
6. Hydraulic report Submittal, including scour calculation
7. Clark County Surveyor's Office plan review of regulated drains, if required
8. Scott County Surveyor's Office plan review of regulated drains, if required
9. Storage facility Submittal
10. Construction sequencing, MOT, and temporary traffic control Plans
11. MOT Level One design criteria checklist for each

major traffic phase

12. Level One design Criteria Checklist and calculations for Design Items
13. Level One and Level Two Design Exceptions
14. Level Two design criteria calculations for design items
15. Finalized typical sections and plan and profile grade
16. Clearances and geometrics for structures
17. Foundation review
18. Foundation design of overhead sign structures
19. Roadside barrier design
20. Load ratings for bridges
21. Geotechnical Design Report
22. Retaining wall design and details
23. Signing Plans
24. Lighting Plans, if required
25. ITS Plans
26. Requirements under USPs
27. Environmental permit revisions
28. Required documentation for NEPA Document modifications
29. Required documentation for IAD modifications
30. Temporary crossover design and location
31. Stage 1 Review Submission
32. Stage 3 Review Submission
33. RFC Plans with calculations
34. Working Drawings
35. NDCs
36. Level 2 and 3 FDCs
37. OpenRoads Designer (ORD) design files (.dgns) prepared with INDOT CAD Standards for plans

production including base, reference, and sheet files necessary to develop the plans

38. 3D model files of all 3D design elements, including but not limited to, 3D geometry, pavement and grading models, 3D bridges, drainage structures, guardrail, retaining walls in both .dgn and .ifc format and are detailed to a level consistent with the required information presented at each design submittal stage (e.g., Stage 1 Review Submission)

In its reasonable discretion, INDOT reserves the right to add Hold Points to any aspect of the Project.

2.3 Submittal and Electronic Posting Requirements

2.3.1 Overview

Design-Build Contractor will be provided access to the Project's dedicated website or file sharing system. All Submittals shall be made electronically in PDF, Microsoft Word, Microsoft Excel, and Primavera format through INDOT's designated Project website or file sharing system. Access and use will be described and provided by INDOT after NTP.

The date of a Submittal and timeframe by which it is submitted shall be in accordance with Section 3.4 (Design Submittal Package Requirements) and Section 1.2.2.8 (Submittal Review Time Periods). Submittals will not be considered complete until all required files are posted to INDOT's Project website or file sharing system.

All Submittals shall include a transmittal letter that shall include the date, purpose, contents, and any special handling requirements.

Design-Build Contractor shall respond to all comments and questions from reviews of Witness Point and Hold Point Submittals. INDOT will provide all review comments in a comment tracking form and Design-Build Contractor shall respond to the comments in this form.

Witness Point Submittals and Hold Point Submittals are subject to all Submittal and electronic posting requirements of this Section 2.

Subsequent to any initial Submittal, for any revised Submittal or update to an approved original Submittal, Design-Build Contractor shall include a redline document that clearly shows all changes from the previous version of the Submittal.

Design-Build Contractor shall maintain a complete and conformed set of current Released for Construction (RFC) Documents on the designated INDOT Project website or EDMS at all times. The Plans shall be updated in accordance with the approved Quality Management Plan procedures

as revisions are made. In addition, a file containing only the revised plan sheets shall be posted to the Project website or EDMS when revisions are made.

Current copies of all supporting Design Documents, correspondence, and other related materials shall be maintained on the designated INDOT Project website or file sharing system in a similar fashion.

Design-Build Contractor shall provide two full-size and two 11-by-17-inch bound hardcopy RFC Plan sets at INDOT's field office for INDOT's use. Design-Build Contractor shall update the hardcopies when revisions are made and shall replace and insert the new revised sheets.

2.3.2 Working Drawings

Working Drawing development, review, and approval shall be in accordance with the Standard Specifications and other Project Standards and shall be the responsibility of Design-Build Contractor and Lead Design Firm. INDOT will review the Design-Build Contractor- approved Working Drawings and design calculations for conformance with standard INDOT practice.

Working Drawings and supporting calculations, if applicable, developed by Design-Build Contractor shall be reviewed and shop drawing stamped by the Lead Design Firm or the applicable engineer of record. Lead Design Firm or the applicable engineer of record shall review and shop drawing stamp all working drawings and supporting calculations, if applicable, for the permanent components (e.g., MSE walls, sound barriers, sign foundation designs, precast prestressed bridge beams, structural steel, culvert structures, etc.). Design-Build Contractor may only review and stamp third party Working Drawings and supporting calculations, if applicable, for temporary components (e.g., metal deck forms, falsework plans, deck overhang formwork, and other items related to contractor means/methods including engineered erection plans, causeway designs, earth retention systems, etc.). Design-Build Contractor is prohibited from reviewing and stamping any internal, self-developed working drawings and supporting calculations, if applicable, to avoid a conflict of interest.

2.3.3 Items List

Design-Build Contractor shall submit a complete list of items representative of the Work to be performed for the Contract Price. The items list shall be from the pay item list on INDOT's website (https://www.in.gov/dot/div/contracts/pay/index.html), shall include any unique items as necessary, and shall be the current items list as of the Proposal Due Date. The items list shall include the item code, the item description, the item quantity, and the unit of measure for each item. Each item shall include a unit price of $0.00.

An initial items list shall be submitted to the INDOT Cost Estimation System (CES), and in accordance with any further instructions provided by INDOT at the Project Kickoff. The items list shall be broken out by each designation number or “Des. No.”. Prior to the start of construction, and as information becomes available throughout the term of the Contract, Design-Build Contractor shall submit items list updates to CES, and shall highlight those items added since the previous Submittal.

Design Plans shall include the list of pay items and quantities throughout each Plan set in accordance with the IDM requirements. Reducing redundancy of quantities and tables within a Plan set may be proposed by Design-Build Contractor for consideration, review, and approval at INDOT’s sole discretion.

2.3.4 Record Drawings

Design-Build Contractor shall prepare conformed, full-size sets of Record Drawings (a.k.a as-built drawings) based on the submittal packages developed in accordance with Section 7.4 (Design Submittal Package Requirements). The drawings shall conform to INDOT plan development and preparation guidelines for a Final Tracings Submission, including incorporation of construction changes (e.g., NDCs and FDCs). Record Drawings shall be signed and stamped by a Registered Professional Engineer. Design-Build Contractor shall include a transmittal letter with a comprehensive list of what is included with every Submittal. File naming convention shall follow INDOT requirements unless otherwise approved by INDOT. Record Drawings and design calculations shall be submitted to INDOT in electronic PDF files. Record Drawings and design calculations shall be posted to the Project website or file sharing system for INDOT review and comment. Accepted Record Drawings and design calculations shall be submitted on ERMS by Design-Build Contractor and Lead Design Firm.

Design-Build Contractor’s Lead Design Firm shall submit as-built MicroStation DGN files and ORD 3D modeling files, and .xml files to include 3D geometry, top finished grade surfaces, and bridge deck surfaces.

2.3.5 Final Documents

Design-Build Contractor shall furnish INDOT final electronic copy documentation in PDF, which shall include Record Drawings, engineering reports, design calculations, and Working Drawings. Design-Build Contractor shall furnish INDOT final ORD design and 3D modeling files (.dgn and .icf). The final documentation shall include a final items list with final as-built quantities. The final items list shall be submitted according to instructions provided by INDOT at the Project Kickoff, by designation number, with quantity calculations for each item.

Design-Build Contractor shall submit final documentation for completed Work to INDOT for review and acceptance as the Work progresses. The final electronic copy documentation shall be submitted as one complete package and shall be signed and stamped by a Registered Professional Engineer. All information requested shall be submitted on flash drives or hard drives to INDOT Central Office and the INDOT Greenfield District.

INDOT will prepare the final construction record, which will incorporate the above information along with inspection and test results collected by INDOT.

2.4 Deliverables

Deliverables under this Section 2, a non-exhaustive list of which is set forth in Table 2-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 2-1: Deliverables

Deliverable	Deliverables Schedule	Section
ORD Files	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction	2.2.2
Items list	Prior to the start of Work, but in no case later than 30 days after NTP	2.3.3
Updated items list	Monthly, as needed for items list updates	2.3.3
Record Drawings	On or before Final Acceptance	2.3.4
Final documents	Within 60 days after Final Acceptance	2.3.5

3. DESIGN REQUIREMENTS

3.1 General Design Requirements

Design-Build Contractor shall perform the Design Work in accordance with the DBA Documents, including Project Standards, this Section 3 and its RSP and USPs; Governmental Approvals; and Governmental Rules.

Only design firms included in the Statement of Qualifications that are prequalified with INDOT for the Work types specified, and that are sufficiently staffed and capable of performing the work, shall provide Professional Services for each related Work type on the Project's Design-Build Contractor team. Multiple design firms may work on Design-Build Contractor team; however, the firm designated as the Lead Design Firm in the Statement of Qualifications shall be the prime design firm (Lead Design Firm). Design-Build Contractor shall assign Registered Professional Engineers and Registered Professional Land Surveyors to be in direct responsible charge of all engineering and surveying Work, respectively. If services are required that are predominantly oriented toward other disciplines, such as geotechnical, environmental, landscaping, transportation planning, or architectural applications, Design-Build Contractor shall assign other professionally competent personnel registered or licensed in the State of Indiana included in the Statement of Qualifications to be in charge of the applicable Work.

Design-Build Contractor in the aggregate (including Subcontractors) shall be prequalified in the following Prequalification Work Type Certifications:

5.2 Environmental Document Preparation – CE

5.6 Waterway Permits

5.8 Noise Analysis and Abatement Design

5.9 Archaeological Investigations

5.10 Historical/Architectural Investigations

6.1 Topographic Survey Data Collection

7.1 Geotechnical Engineering Services

8.2 Complex Roadway Design

9.2 Level 2 Bridge Design

10.1 Traffic Signal Design

10.2 Traffic Signal System Design

10.3 Complex Roadway Sign Design

10.4 Lighting Design

10.5 Intelligent Transportation System Design

10.6 Intelligent Transportation System Integration

16.1 Utility Coordination

17.2 Small Structure and Pipe Hydraulic Design

17.3 Storm Sewer and Detention Design

17.4 Bridge Hydraulic Design

18.1 Pavement Analysis and Design

Plans shall be developed in accordance with Chapter 14 of the IDM. Except as expressly stated otherwise in these Scope of Services, only Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents will be required for submission to INDOT. Design-Build Contractor's file naming convention shall follow INDOT requirements (https://www.in.gov/dot/div/contracts/design/dmforms/EdDoc103-02-02NamingConventions.pdf) or as modified and approved by INDOT.

In addition to the Submittal requirements of Section 2 (Quality Management) and this Section, Design-Build Contractor shall submit Released for Construction Document packages developed in accordance with Section 7.4 (Design Submittal Package Requirements), conforming to INDOT plan development and preparation guidelines for a Final Tracings Submission, on ERMS in electronic PDF format files after review and resolution of all comments from INDOT. Design- Build Contractor shall send ERMS confirmation e-mails to the appropriate INDOT coordinator in accordance with Chapter 14-1.02(02) of the IDM, carbon copying the appropriate INDOT personnel.

3.2 Specific Design Requirements

Design-Build Contractor shall:

1. Consult with INDOT to understand INDOT's requirements for the Project and review all available data.
2. Use English units for preparation of Plans and Submittals.

3. Prepare full-size plan sheets in 22-inch-by-34-inch or 24-inch-by-36-inch format.

4. Provide investigations, analyses and design, necessary permits or permit revisions, and any other necessary items to design and construct the Project complete and in place.

5. Maintain and make available to INDOT, upon request, a Project record that includes a history of significant events, decisions, and correspondence, including changes and comments that influenced the development of the Project.

6. Perform additional surveys required for the Project and provide any design updates related to the changes in the topographic survey related to the Project.

7. Perform supplemental exploratory field Work, laboratory testing, and appropriate analyses and engineering calculations to produce the proposed design.

8. Provide video documentation of the existing condition of all routes being used for signed detours or haul routes.

9. Obtain and provide as-built survey, in a format as directed by INDOT, once construction is complete.

3.3 Design Criteria

The Project shall comply with the Project Standards shown in Section 18 (Applicable Standards), unless otherwise noted in the DBA Documents. Some USPs have been provided as part of the DBA Documents. Other USPs required to complete the Work shall be the responsibility of the Design-Build Contractor, subject to INDOT review and approval in its good faith discretion.

For erosion control measures, the IDEM Indiana Stormwater Quality Manual shall control in case of conflict.

3.4 Design Submittal Package Requirements

All Design Documents and other related documents for the Design Work shall be assembled into separate, single packages based on logical groupings and constructible units per designation number (“Des. No.”), as shown in DBA Exhibit 19 (Scope of Work). Unless otherwise approved by INDOT, Submittals shall be separated into packages by designation number (Des No) for I-70, US 35, US 40, and by design discipline. Each

design Submittal package shall consist of similar and coherent parts of the Project that can be checked and reviewed as a self-contained package with due consideration for accommodating interfaces with other Project components, including maintenance of traffic phasing or staged construction. At the Project Kickoff, Design-Build Contractor shall submit to INDOT for review, comment, and approval of a Design Submittal report identifying each package for the whole Project.

The design Submittal report shall include:

1. Package descriptions, including the scope of the Design Work within each package, including limits and interface points
2. Anticipated Submittal schedule for packages by discipline
3. Lead Design Firm's engineer of record for each package

The monthly Progress Report described in Section 1.3 (Progress Reports) shall include any revisions to the design Submittal report previously submitted at the Project Kickoff and in the previous month's Progress Report.

3.5 Project Kickoff

Design-Build Contractor shall plan, schedule, and hold a Project Kickoff with INDOT before Design Work commences. An agenda shall be submitted to INDOT for review and comment three (3) Business Days prior to the Project Kickoff. The goal of the Project Kickoff shall be to familiarize the Design-Build Contractor's design personnel and INDOT review personnel with the design concepts, issues, status, and review procedures, with the intent of making the subsequent design review more effective and efficient for all Parties.

The agenda shall include time for a discussion of the necessary Governmental Approvals, permitting processes, review times, and strategy for the mitigation of potential delays. These issues and specified review times shall be consistent with the Project Baseline Schedule.

All agreements, schedules, and understandings reached during the Project Kickoff shall be documented and submitted for approval by INDOT.

3.6 Design Exceptions

INDOT-Provided Design Exceptions are listed in Section 5.3.3 (INDOT-Provided Design Exceptions). The Design-Build Contractor may propose

additional Design Exceptions and follow INDOT's Design Exception process described in Chapter 40 of the IDM; however, INDOT reserves the right to reject, in its sole discretion, any proposed change that requires a Design Exception or does not otherwise conform to the requirements of the DBA Documents. All adjustments to the Project shall conform to Governmental Rules and Governmental Approvals. Delays due to approvals for Design Exceptions will not be considered eligible for a Change Order.

3.7 Deliverables

Deliverables under this Section 3, a non-exhaustive list of which is set forth in Table 3-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 3-1: Deliverables

Deliverable	Deliverable Schedule	Section
Stage 1 Review Submission	As required	3.1
Stage 3 Review Submission	As required	3.1
Released for Construction Documents	As required	3.1
As-built survey	By or before Contract Completion Date	3.2
Design Submittal report	At Project Kickoff and revisions with the Progress Report	3.4
Project Kickoff schedule and agenda	Three (3) Business Days prior to Project Kickoff	3.5
Design Exception documentation	As needed	3.6

4. CONSTRUCTION REQUIREMENTS

4.1 General

Design-Build Contractor shall perform the Construction Work in accordance with the DBA Documents, including Project Standards, this Section 4 and its, RSPs and USPs; Governmental Approvals; and Governmental Rules.

4.2 Survey Control Requirements

The Design-Build Contractor shall base all additional horizontal and vertical control on the control provided by INDOT in Attachment 4-1 after verification as required by this Section 4.2. The Design-Build Contractor shall verify all INDOT-provided control as described below in Section 4.2.1 (Validation of Survey Control Accuracy).

The Design-Build Contractor shall deliver to INDOT a listing of all survey control coordinate values, original computations, survey notes, and other records, including GPS observations and analysis made by the Design-Build Contractor upon request.

4.2.1 Validation of Survey Control Accuracy

The Design-Build Contractor shall field check all horizontal and vertical survey control provided by INDOT to verify that the control is accurate with the tolerances specified in the IDM, Part 1, Chapter 106 (Location Surveys).

If the Design-Build Contractor identifies a discrepancy with the horizontal or vertical survey control, the Design-Build Contractor shall notify the Engineer both verbally and in writing to indicate the discrepancy. The Design-Build Contractor shall work with INDOT to rectify each discrepancy.

After the Design-Build Contractor has verified the survey control is accurate or resolved any discrepancy with INDOT, the Design-Build Contractor shall submit a Notice to the Engineer titled “Validation of Survey Control Accuracy” that states the Design-Build Contractor has field checked all INDOT-provided horizontal and vertical survey control and that the control has been determined by the Design-Build Contractor to be accurate within the specified tolerances. The Design-Build Contractor shall include, along with the Notice of Validation of Survey Control Accuracy, all survey information used to verify control.

The Design-Build Contractor shall not begin any field activities or advance design until it has submitted the Notice of Validation of Survey Control Accuracy.

4.2.2 Additional Survey Control

The Design-Build Contractor shall establish and maintain additional survey control, as needed, and Project ROW monumentation throughout the duration of the Project. The Design-Build Contractor shall tie any additional horizontal and vertical control for the Project to the INDOT-supplied primary control network. If the Design-Build Contractor chooses to use GPS methods, the Design-Build Contractor shall meet the accuracy of the appropriate level of survey as defined in IDM Chapter 106 and shall utilize the primary control provided by INDOT.

4.2.3 Permanent Survey Control Network

The Design-Build Contractor shall establish and maintain a permanent survey control network. The control network shall consist of, at a minimum, monuments set in intervisible pairs at spacing of no greater than three miles.

4.2.4 Monuments

Monuments shall be in accordance with Section 615 of the Standard Specifications. The Design-Build Contractor shall replace all existing survey monuments and control points disturbed or destroyed during execution of the Work. The Design-Build Contractor shall make all survey computations and observations necessary to establish the exact position of all other control points based on the primary control provided by INDOT.

4.3 Specific Construction Requirements

Design-Build Contractor shall comply with the following requirements:

1. Design-Build Contractor will be permitted to work 24 hours per day, seven days per week, except for Holidays, in accordance with Section 9 (Maintenance of Traffic) Attachment 9-1 (IHCP Exception) and the Standard Specifications, or as otherwise restricted in the DBA Documents.

2. Design-Build Contractor shall complete all Work in the DBA except for final establishment of plantings and final remediation of the CSGP no later than the Substantial Completion Deadline.

3. Design-Build Contractor shall complete all Work in the DBA, except for final establishment of plantings and final remediation of the CSGP and remediation, no later than the Substantial Completion Deadline. The Design-Build Contractor shall complete all remaining Work (final establishment of plantings and final remediation of the CSGP, and remediation) no later than the Final Acceptance Deadline.

4. The Work shall be arranged and prosecuted such that all Work along

I-65 NB and SB within Design-Build Contractor's limits for reconstruction with added travel lanes are complete and open to traffic with no travel lane or shoulder restrictions prior to any period when travel lane or shoulder restrictions occur within the rehabilitation Work along I-65 NB or I-65 SB.

5. Prior to shifting traffic during each maintenance of traffic phase, Design-Build Contractor shall verify to the satisfaction of INDOT that existing and new pavement drainage is adequately functioning. Design-Build Contractor shall maintain, and where necessary, clean existing storm sewer inlets and pipes of all sediment and debris so that they provide positive drainage from NTP through Final Acceptance.

6. Design-Build Contractor shall perform all maintenance within the Project ROW, except for snow and ice removal from the open lanes and shoulders, until Final Acceptance, including maintaining INDOT's field office and laboratory area(s). Required maintenance shall include four equally spaced cycles of mowing per year, Pothole repair, pavement patching, roadway debris clean-up (dead animals, litter, motor vehicle crashes, Incidents, and similar conditions which create hazards to normal traffic condition and flow), impact attenuator repair, sign repair, lighting repair, guardrail repair, and other items as determined by INDOT. At any point during the Project, INDOT, in its sole discretion, may require the Design-Build Contractor to perform maintenance and declare Maintenance Priority Level 1, 2 or 3, with timeframes as set forth in the DBA Table 10-4, and the Design-Build Contractor shall prosecute work according to the timeframes listed in DBA Table 10-4.

7. Prior to NTP2, the Design-Build Contractor shall assess and document the existing condition of the pavement, guardrail, lighting, signs and all other highway appurtenances within the Project Limits. This documentation shall be provided to INDOT for review, and evaluation of any special maintenance required. All maintenance performed shall be in accordance with the Contract Documents.

8. INDOT and the Local Agencies are responsible for snow removal of active travel lanes within the Project limits. Design-Build Contractor shall perform snow removal in areas of the field office(s), laboratory areas, and other construction access points.

9. An IMSA certified Level II technician shall be available 24 hours per day to respond within two hours for any maintenance of traffic signal equipment issue within the Project limits.

4.4 Clearing Project Right of Way

Tree clearing of the Limited Access Right-of-Way from existing fence line to existing fence line shall be completed for the entire length of the Project by the Design-Build Contractor. Design-Build Contractor shall clear stumps in accordance with Section 201.03 of the Standard Specifications. Design-Build Contractor shall perform all other removals in accordance with Contract Documents.

4.5 Scheduling and Notification

Design-Build Contractor shall submit an updated construction Activity schedule to INDOT prior to each weekly Progress Meeting during Construction Work. The construction Activity schedule shall include all planned construction Activities, including fabrication, for the upcoming four weeks. This four-week look-ahead schedule of planned construction Activities shall also be submitted and discussed at weekly Progress Meetings, as described in Section 1.1.1 (Progress Meetings), to allow timely coordination of INDOT inspection activities.

Design-Build Contractor shall provide at least a 24-hour notice to INDOT for any schedule changes to the planned Construction Work requiring inspection Activities.

4.6 Construction Documentation

Design-Build Contractor shall document progress and observed construction performance during performance of the Construction Work. The documentation shall be in a digital format acceptable to INDOT and shall include:

1. Spreadsheets and computation books
2. Field Design Change documentation for design and construction changes
3. Any other construction documentation as requested by INDOT

Design-Build Contractor shall prepare and submit an Unmanned Aircraft Systems (UAS) Photography Implementation Plan to INDOT for review and approval. In this Plan, Design-Build Contractor shall describe the following at a minimum:

1. Description of UAS planning and operations, including any necessary notice to Project neighbors

2. UAS photography safety plan
3. Details of UAS photography acquisition and delivery schedule
4. Proposed format of flight logs and records to be retained for the term.
5. Documentation of FAA Part 107 qualifications for commercial UAS photography companies to be used on the Project.
6. Copy of any approved permits as applicable to UAS photography
7. Technical details of proposed ortho-mosaic photography, including proposed scale, resolution, photograph locations/perspectives based on the Project limits, and continuous coverage for the Project limits.
8. Process for distributing the data and interfacing with INDOT, including the number of photographs for each Project-specific location.

Design-Build Contractor shall perform UAS photography on a bi-weekly basis beginning at the commencement of Construction Work and ending at Final Acceptance, or as otherwise approved by INDOT, at its sole discretion. Design-Build Contractor shall submit high resolution, high quality digital UAS photography to INDOT on a bi-weekly basis for its review and use on the Project, including for the following purposes:

1. Supporting communications and public involvement coordination efforts
2. Documenting construction progress
3. Estimating quantities
4. Monitoring the location of construction workers and equipment
5. Evaluating and reviewing MOT within the Work zone
6. Assisting in Change Requests, Change Orders, and Dispute Resolution

Design-Build Contractor shall perform and submit high-resolution, high-quality digital UAS photography prior to the commencement of Construction Work and at Final Acceptance for the following:

1. Develop existing asset condition documentation prior to commencement of Construction Work, including LiDAR level 3D imagery and models.
2. Document existing pavement conditions on official detour routes

3. Develop as-built asset condition documentation for post-Project retention, including LiDAR level 3D imagery and models.

4.6.1 Required Logs

A comprehensive daily log for Construction Work Activities shall be prepared and maintained by the Project Manager or their designee(s) and made available to INDOT upon request. The daily log shall include all significant occurrences in a narrative form, including asserted occurrences, events, and conditions causing or threatening to cause any significant delay, disruption, or interference with the progress of any of the Work; significant injuries to person or property; and a listing of each Critical Path Activity depicted on the current monthly schedule update being actively prosecuted. The log shall also include traffic crashes and Movement Closures in effect at the time of the crash. Design-Build Contractor shall submit a copy of the crash report from Indiana State Police (ISP) and a report with locations and setup of the traffic control at the time of the crash to INDOT.

For Utility-related Activities, such data shall be maintained separately in a log for each Utility facility.

For Hazardous Materials Management, such data shall be maintained separately in a log for each Site.

4.6.2 Submittal Requirements

Design-Build Contractor shall complete and submit documentation prior to the bi-weekly Progress Meeting with records that include factual evidence, including progress photographs, that required activities have been performed, including the following:

1. Nonconforming Work status
2. Proposed corrective actions
3. Corrective actions completed

4.7 Material Certifications

Design-Build Contractor shall present information regarding prestressed/precast structural members and the fabricators of any structural steel and other metal structural members to INDOT as soon as it is available. Copies of documentation for all sources of supply shall be provided as soon as the sources are known, but no less than 30 days prior to delivery to the Project.

Design-Build Contractor shall use INDOT's current list of qualified manufacturers, producers, Suppliers, and fabricators for the specified materials (https://www.in.gov/indot/2736.htm), unless otherwise approved by INDOT in its sole discretion.

When Design-Build Contractor purchases materials from Suppliers shown on INDOT's approved materials list, Design-Build Contractor will be provided a materials certification, or a certificate of delivery, certificate of analysis, or certificate of compliance, as required, from the Supplier, that covers the materials and the source. All documentary evidence that materials conform to the procurement requirements shall be submitted to INDOT or its representative at the same time Design-Build Contractor receives such documentary evidence and prior to incorporation into the Work. If Design-Build Contractor wishes to purchase materials from a Supplier not shown on INDOT's approved materials list, Design-Build Contractor shall submit a request to INDOT for approval in its sole discretion. Design-Build Contractor shall obtain approval from INDOT prior to purchasing materials from a Supplier not shown on INDOT's approved materials list.

Documentary evidence that materials and equipment conform to the procurement requirements shall be available at the Site no less than 24 hours prior to incorporation into the Work or the use of such materials. This documentary evidence shall be retained at the Site and be sufficient to identify that the specific requirements, such as Construction Documents, Project Standards, and Governmental Rules, are fulfilled by the purchased materials and equipment. The substitution of specified materials is not to occur without prior approval by Design-Build Contractor's Design Manager and INDOT. Failure to acquire prior substitution approval prior to use constitutes as Nonconforming Work and is cause for rejection or rework.

4.8 Nonconforming Work

Nonconforming Work and the failed materials process shall be in accordance with DBA Section 6.7 (Nonconforming Work) and Directive 112 (Failed Materials) of the Division of Materials and Tests.

4.9 Deliverables

Deliverables under this Section 4, a non-exhaustive list of which is set forth in Table 4-1, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 4-1: Deliverables

Deliverable	Deliverable Schedule	Section
Validation of Survey Control Accuracy	Within 30 days following Notice to Proceed	4.2.1
Construction Work Activity schedule	By noon on Friday of each week during Construction Work	4.5
Construction documentation	Weekly, monthly, and Contract Completion Date	4.6
UAS photography	Prior to commencement of Construction Work, Bi-weekly, and at Contract Completion Date	4.6
Sources of supply of fabricated structural steel and prestressed/precast structural members and copies of documentation	As soon as known, but no less than 30 days prior to delivery	4.7
Material certifications	Upon receipt from Suppliers, but no less than 24 hours prior to incorporation into the Work	4.7

Section 4 Attachments:

Attachment 4-1 INDOT-Provided Survey Control

5. ROADWAY

5.1 General

The Design-Build Contractor shall perform all Roadway Work in accordance with the DBA Documents, including the Project Standards, this Section 5 and its RSPs and USPs; Government Approvals; and Government Rules.

5.2 Basic Configuration

The Reference Plans provided in the RID convey the general intent of the Project, but do not provide specific design requirements, recommendations, or INDOT-approved design solutions for the Project.

1. The Basic Configuration includes the following elements within the limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work):

    a. Minimum number of lanes for each roadway and ramp, as shown on the Reference Plans.

    b. Minimum widths of lanes, shoulders, medians, and buffer widths as shown on the Reference Plans.

    c. One travel lane shall be added in each direction to the inside of the existing lanes and will include the construction of new inside shoulders and a median barrier to separate traffic. The median barrier shall be either 45” concrete median barrier or MGS guardrail.

    d. The existing travel lanes and shoulders shall be fully removed and reconstructed.

    e. New underdrains and underdrain outlets shall be required. For all other drainage related items, refer to Section 7 (Hydraulics and Drainage).

    f. The existing interchange ramp configurations shall remain. Existing entrance and exit ramp gores and acceleration and deceleration lanes at SR 160 shall be improved to meet current design standards in IDM Chapter 48.

    i. Existing entrance and exit ramp gores and acceleration and deceleration lanes at Henryville Rest Area shall remain in place.

2. The Basic Configuration includes the following elements within the limits of Roadway Rehabilitation in accordance with DBA Exhibit 19 (Scope of Work):

a. Minimum number of lanes shall match the existing configuration for each roadway and ramp.

b. Minimum widths of lanes, shoulders, medians, and buffer widths shall match the existing configuration for each roadway and ramp.

c. The existing pavement shall be rehabilitated.

d. The existing interchange ramp configurations shall remain. Existing entrance and exit ramp gores and acceleration and deceleration lanes shall remain.

5.3 Roadway Design Requirements

Within the limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work), the minimum geometric design requirements shall be as shown in IDM Figure 53-1 and the following Work elements shall be included:

1. Minimum number of lanes for each roadway and ramp shall be as shown on the Reference Plans.
2. Minimum widths of lanes, shoulders, medians, and buffer widths shall be as shown on the Reference Plans.
3. The horizontal alignment of I-65 shall not be changed.
4. Existing entrance and exit ramp gores and acceleration and deceleration lanes shall be reconstructed in accordance with IDM Chapter 48.
5. The existing vertical clearances shall not be reduced. The vertical clearance provided shall meet the minimum set forth in Table 5-1.

Table 5-1: Vertical Clearances at Bridges

Structure Location	V.C. (Existing)*	V.C. (Minimum)
NBI 034870, Biggs Rd over I-65, I65-016-04221C	16’-6”	16’-6”
NBI 028160, SR 160 over I-65, 160-10-04223F	15’-11”	16’-6”
NBI 034900, Hebron Church Rd over I-65, I65-020-04224B	16’-2”	16’-6”
NBI 034930, County Line Rd over I-65, I65-023-04227B	15’-4”	15’-4”
NBI 034960, Leota Rd over I-65, I65-026-07253	15’-9”	15’-9”
NBI 034870, Lake Rd over I-65, I65-028-04232B	16’-0”	16’-0”

**Existing vertical clearances are as shown in the latest INDOT Bridge Inspection Report*

6. The added travel lanes section shall not terminate within the limits of the Henryville Rest Area. If the limits of added travel lanes construction along I-65 extend north of RP 22+00, the limits of added travel lanes construction must extend beyond RP 22+60.

5.3.1 General Design Requirements

The Design-Build Contractor shall comply with the following requirements:

1. The design speed for I-65 shall be 70 mph.

2. Embankments, benching, and structure backfill shall be constructed in accordance with Section 203 of the Standard Specifications with consideration of the Preliminary Geotechnical Engineering Investigation, as applicable.

3. At the north end of the Added Travel Lanes with Total Pavement Reconstruction along I-65, the Design-Build Contractor shall construct the full width typical section and transition the travel lanes per IDM Figure 502-2J to meet the existing travel lane location and travel lane width of the four-lane section. The northbound lane drop, the southbound lane add, and the median shoulder(s) shall terminate at the same station along I-65 and shall be constructed as follows:

    a. The northbound median side (left) travel lane shall be dropped using the yellow edge pavement marking with a 70:1 taper. After the lane drop is complete, a minimum separation distance of 400 feet shall be provided before the 6-lane section ends and the two remaining travel lanes are shifted, as necessary, to meet the existing location of the four-lane section travel lanes.

    b. The southbound median side (left) travel lane shall be developed with a 100-foot taper utilizing the yellow edge pavement marking.

4. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, the existing I-65 travel lane and shoulder pavement shall be reconstructed in accordance with Section 6 (Pavement).

5. Within the limits of Roadway Rehabilitation, existing travel lanes and shoulders shall be rehabilitated in accordance with Section 6 (Pavement).

6. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, reconstructed inside (left) and outside (right) shoulders shall be 12-foot paved, 13-foot usable. All reconstructed outside shoulders next to auxiliary and ramp lanes shall follow the

design requirements shown in IDM Figure 53-1. For locations adjacent to longitudinal barrier on the outside, the minimum offset shall be 2-foot from the edge of the paved shoulder and the shoulder shall be paved to the face of the longitudinal barrier in accordance with Indiana Design Memo 17-02.

7. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, proposed roadside ditches shall have a minimum 4-foot bottom width and minimum depth either as shown in the RID or in accordance with Section 7.2.4 (Design Requirements for Roadside and Median Ditches). Where a restrictive condition does not allow for a 4-foot bottom ditch, the Design-Build Contractor shall provide the locations, limits, and ditch cross sections to obtain INDOT approval for variations.

    a. For the purposes of this Section, a restrictive condition means a condition that would require additional right of way or cause an impact to any forest, wetland, stream, “do not disturb” zone identified in Section 14 (Environmental), or other environmentally sensitive area that is not the subject of any existing INDOT-Provided Approvals, other existing Governmental Approvals, or of pending applications for INDOT-Provided Approvals and would consequently require the Design-Build Contractor to seek a permit modification.

8. The clear zone for the I-65 typical tangent section shall be 30 feet from the edge of the outside travel lane.

    a. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, the maximum side slope within the clear zone shall be 4:1.

    b. If a maximum side slope of 4:1 within the clear zone cannot be achieved, roadside barrier shall be provided in accordance with IDM Chapter 49 (Roadside Safety).

9. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, for locations where guardrail is required, the graded area behind the guardrail post of 2 feet wide and a minimum of 1-foot depth of compacted aggregate shall extend beyond the back of the guardrail post to the hinge point of the side-slope.

10. The Design-Build Contractor shall not disturb the existing farm field fencing along the INDOT Limited Access Right-of-Way.

    a. If the Design-Build Contractor disturbs the farm field fence, the Design-Build Contractor shall be responsible for replacing the fence with an equal or better type fence in the existing location. No additional compensation will be given for the cost to the

Design-Build Contractor to replace the disturbed fence.

11. The design of the roadways and ramps shall not be less than the minimum requirements of Section 5.3 for each roadway or ramp unless otherwise approved by INDOT, in its sole discretion.

5.3.2 Special Design Requirements

5.3.2.1 Median Crossovers

Within the limits of Added Travel Lanes with Total Pavement Reconstruction, existing median crossover locations shall remain and be reconstructed at the locations shown in the Reference Plans.

5.3.2.2 Superelevation Requirements

Within the limits of Added Travel Lanes with Total Pavement Reconstruction, superelevation design shall be in accordance with IDM Chapter 43, except as modified below:

1. The superelevation runoff adjustment factor (b_w) shall equal 1.0.
2. The maximum gradient shall be 0.50.
3. The superelevation runoff distribution shall be 67 percent (2/3) on tangent and 33 percent (1/3) on the curve.

5.3.3 INDOT-Provided Design Exceptions

The Design Exceptions identified in this Section 5 shall apply only to the specific locations stated within the Design Exceptions. Design-Build Contractor shall submit separate Design Exceptions to INDOT for review and approval, including any variations to the approved Design Exceptions listed below.

INDOT has approved the Design Exceptions listed below for the Project.

5.3.3.1 Level One Design Exceptions

1. No Level One Design Exceptions have been obtained for the Project.

5.3.3.2 Level Two Design Exceptions

1. A Level 2 Design Exception for use of 2:1 Embankment Slopes has been approved by INDOT and is provided as Attachment 5-1.

5.4 Deliverables

Deliverables under this Section 5, a non-exhaustive list of which is set forth in Table 5-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 5-1: Deliverables

Deliverable	Deliverable Schedule	Section
Interchange Geometrics	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	5.1
Clear Zone Calculations and Curve Adjustments	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	5.1
Roll Plots at 1″ = 200′ Scale – including all geometric information, curve data, pavement markings, number of lanes, acceleration/deceleration lengths, bridges, road names, and topographic information	Stage 1 Review Submission	5.1
Guardrail Length of Need Calculations – including roadside barrier, end treatments, and impact attenuators	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	5.4.1
Design Exception Documentation, as applicable	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents, as applicable	5.4.3

Section 5 Attachments:

Attachment 5-1 Approved INDOT Level 2 Design Exception

6. PAVEMENT

6.1 General

Design-Build Contractor shall perform all Pavement Work in accordance with the DBA Documents, including Project Standards, this Section 6 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

For purposes of this Section 6, the word “lanes” shall mean all travel lanes, auxiliary lanes, collector-distributor lanes, ramp lanes, acceleration/deceleration lanes, and any other pavement on which traffic will normally travel. The word “shoulders” shall mean inside and outside shoulders and gore areas. The word “mainline” shall mean all lanes and shoulders. Ramps shall be considered to start at the theoretical back of gore and end at the edge of travel lane pavement for crossing roadways.

For the purposes of this Section 6, temporary pavement is defined as pavement that is in use by vehicular traffic for 24 months or less, or as shoulders, and portions thereof, that will be used for mainline, auxiliary, or ramp lanes. The use of existing shoulders as lanes shall be considered temporary pavement.

6.2 Administrative Requirements

6.2.1 Testing Requirements

All field and laboratory testing for pavement and associated materials conducted by the Design-Build Contractor shall be conducted in an accredited laboratory and performed by certified personnel who are qualified to perform INDOT test methods.

Pay factor adjustments, according to Section 401 and 501 of the Standard Specifications, shall not apply to the Work under this DBA.

6.3 Design Requirements

6.3.1 General Requirements

The pavements for this Project shall be as prescribed below. The pavement designs in this Section 6.3 may be included in the Plans and constructed as prescribed without further pavement design approvals by INDOT.

6.3.2 I-65 Reconstruction with Added Travel Lanes Pavement Design

Within the limits of Added Travel Lanes with Total Pavement Reconstruction, in accordance with DBA Exhibit 19 (Scope of Work), the Design-Build shall reconstruct mainline I-65. The Design-Build Contractor

shall choose between the HMA or PCC pavement design alternates described below for pavement types. The Design-Build Contractor shall use one consistent pavement type, PCCP or HMA, for the entirety of the limits of Added Travel Lanes with Total Pavement Reconstruction.

6.3.2.1 Pavement Design Alternate 1 (HMA)

The HMA pavement design shall be as follows:

1. The Design-Build Contractor shall remove the existing I-65 travel lanes and shoulders, including the existing subbase, within the limits of Added Travel Lanes with Total Pavement Reconstruction.

2. The Design-Build Contractor shall construct new I-65 travel lane pavement including added travel lane, inside shoulder less than or equal to 4 feet wide and 2 feet into outside shoulder using:

   165 lb/yd^2 QC/QA-HMA, 4, 58E, Surface 9.5 mm – SMA, on
   330 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate 19.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
   300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG 19.0 mm (drainage layer), on
   Base Seal, on
   330 lb/yd^2 QC/QA-HMA, 4, 58S, Base 19.0 mm (separation layer), on
   12 inches Cement Stabilized Subgrade in accordance with Attachment 6-3, on
   Natural Subgrade (A-6)

3. The Design-Build Contractor shall construct new I-65 inside shoulder wider than 4 feet and remaining width of outside shoulder using:

   165 lb/yd^2 QC/QA-HMA, 3, 58H, Surface 9.5 mm, on
   330 lb/yd^2 QC/QA-HMA, 3, 58H, Intermediate 19.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
   300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG 19.0 mm (drainage layer), on
   Base Seal, on
   330 lb/yd^2 QC/QA-HMA, 2, 58S, Base 19.0 mm (separation layer), on

12 inches Cement Stabilized Subgrade in accordance with Attachment 6-3, on
Natural Subgrade (A-6)

4. Additional requirements shall be as follows:

   a. The Design-Build Contractor shall design underdrains in accordance with IDM Part 6.

   b. The Design-Build Contractor shall detail the HMA sections in accordance with IDM Figure 602-3B.

6.3.2.2 Pavement Design Alternate 2 (PCCP)

The PCC pavement design shall be as follows:

1. The Design-Build Contractor shall remove the existing I-65 travel lanes and shoulders, including the existing subbase, within the limits of Added Travel Lanes with Total Pavement Reconstruction.

2. The Design-Build Contractor shall construct new I-65 travel lane pavement including added travel lane, inside shoulder less than or equal to 4 feet wide and 2 feet into outside shoulder using:

   13.0 inches Plain Jointed QC/QA-PCCP with 14-foot widened slab for outside lane, tied QC/QA-PCCP shoulders, and D-1 Contraction Joints spaced at 15 feet with 1.5” diameter Dowel Bars, on
   300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG 19.0 mm (drainage layer), on
   Base Seal, on
   330 lb/yd^2 QC/QA-HMA, 4, 58S, Base 19.0 mm (separation layer), on
   12 inches Cement Stabilized Subgrade in accordance with Attachment 6-3, on
   Natural Subgrade (A-6)

3. The Design-Build Contractor shall construct new I-65 inside shoulder wider than 4 feet and remaining width of outside shoulder using:

   13.0 inches Plain Jointed QC/QA-PCCP tied to adjacent travel lane concrete pavement and D-1 Contraction Joints spaced at 15 feet with 1.5” diameter Dowel Bars, on
   300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG 19.0 mm (drainage layer), on
   Base Seal, on

330 lb/yd^2 QC/QA-HMA, 2, 58S, Base 19.0 mm
(separation layer), on
12 inches Cement Stabilized Subgrade in accordance with Attachment 6-3, on
Natural Subgrade (A-6)

4. Additional requirements shall be as follows:

   a. The Design-Build Contractor shall design underdrains in accordance with IDM Part 6.

   b. The Design-Build Contractor shall detail the PCCP sections in accordance with IDM Figure 602-3S.

6.3.3 I-65 Reinforced Concrete Bridge Approach (RCBA) With Terminal Joint Pavement Design

Within the limits of Added Travel Lanes with Total Pavement Reconstruction, in accordance with DBA Exhibit 19 (Scope of Work), the Design-Build Contractor shall determine the need for terminal joints at each RCBA in accordance with IDM Chapter 409-2.04(01) Item 3.

1. If a Terminal Joint, Type HMA is required, the pavement design for 30 feet adjacent to the RCBA shall be as follows:

   a. The Design-Build Contractor shall construct new travel lanes and 2 feet into the outside shoulder using:

   165 lb/yd^2 QC/QA-HMA, 4, 58E, Surface 9.5 mm – SMA, on
   330 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate 19.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
   550 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
   6” Compacted Aggregate, No. 53, on
   Subgrade Treatment, Type IC (12 inches Coarse Aggregate No. 53), on
   Geotextile for Subgrade, Type 2B, on
   Natural Subgrade (A-6)

   b. The Design-Build Contractor shall construct the new inside shoulder and the remaining width of the new outside shoulder using:

   165 lb/yd^2 QC/QA-HMA, 3, 58H, Surface 9.5 mm, on
   330 lb/yd^2 QC/QA-HMA, 3, 58H, Intermediate 19.0 mm, on
   605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
   550 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
   6” Compacted Aggregate, No. 53, on
   Subgrade Treatment, Type IC (12 inches Coarse Aggregate No. 53), on
   Geotextile for Subgrade, Type 2B, on

Natural Subgrade (A-6)

c. Additional requirements shall be as follows:

i. HMA terminal joints shall be in accordance with INDOT Standard Drawings E 503-BATJ-01 and E 503-BATJ-03.

2. If a Terminal Joint, Type PCCP is required, the pavement design for 40 feet adjacent to the RCBA shall be as follows:

a. The Design-Build Contractor shall construct new travel lanes and shoulders using:

12.0 inches Jointed Reinforced Concrete Pavement (JRCP) with 14-foot widened slab for outside lane and tied JRCP shoulders, on
Subbase for PCCP, consisting of
3.0 inches Coarse Aggregate No. 8, on
6.0 inches Coarse Aggregate No. 53, on
Subgrade Treatment, Type IC (12 inches Coarse Aggregate No. 53), on
Geotextile for Subgrade, Type 2B, on
Natural Subgrade (A-6)

b. Additional requirements shall be as follows:

i. PCCP terminal joints shall be in accordance with INDOT Standard Drawings E 503-BATJ-01 and E 503-BATJ-02.

6.3.4 I-65 Rehabilitation Pavement Design

Within the limits of Roadway Rehabilitation, in accordance with DBA Exhibit 19 (Scope of Work), the Design-Build Contractor shall perform pavement rehabilitation as described in this Section 6.3.4.

6.3.4.1 I-65 HMA Patching

1. For I-65 existing composite (HMA on PCCP) travel lane pavement:

a. The Design-Build Contractor shall mark out the patching locations provided by the Engineer, then:

b. The Design-Build Contractor shall saw cut the existing asphalt pavement at each patch location and remove the existing asphalt pavement to the top of the existing concrete pavement. The Engineer shall visibly examine the condition of the existing concrete pavement, then:

i. If the existing concrete is not crumbling or showing signs of disintegration or cracking as

determined by the sole discretion of the Engineer, the Design-Build Contractor shall replace the asphalt with a Partial-Depth HMA Patch in Composite Pavement as described below in Section 6.3.4.1-1c.

ii. If the existing concrete is crumbling or showing signs of disintegration or cracking as determined by the sole discretion of the Engineer, the Design-Build Contractor shall saw cut and remove the existing concrete pavement and replace the existing composite pavement with a Full-Depth HMA Patch in Composite Pavement as described below in Section 6.3.4.1-1d.

c. The Design-Build Contractor shall construct Partial-Depth HMA Patch in Composite Pavement using:

HMA Patching, Partial Depth, Type D (8 inch minimum or match adjacent travel lane asphalt pavement thickness, whichever is greater), consisting of:

440 lb/yd^2 HMA Intermediate, Type D, on
Variable Depth (Minimum 440 lb/yd^2) HMA Base, Type D, on
Existing Concrete Pavement

d. The Design-Build Contractor shall construct Full-Depth HMA Patch in Composite Pavement using:

HMA Patching, Full Depth, Type D (18 inch minimum or match adjacent travel lane total pavement thickness, whichever is greater), consisting of:

440 lb/yd^2 HMA Intermediate, Type D, on
Variable Depth (Minimum 1,540 lb/yd^2) HMA Base, Type D, on
Subgrade Treatment, Type II (6 inches Coarse Aggregate No. 53), on
Geotextile for Subgrade, Type 2B, on
Natural Subgrade (A-6)

2. For I-65 existing outside shoulder asphalt pavement:

a. The Design-Build Contractor shall mark out the patching locations provided by the Engineer, then:

b. The Design-Build Contractor shall saw cut and remove the existing asphalt shoulder pavement and

replace the asphalt with a Full-Depth HMA Patch in Asphalt Pavement as described in Section 6.3.4.1-2c.

c. The Design-Build Contractor shall construct Full-Depth HMA Patch in Asphalt Pavement using:

HMA Patching, Full Depth, Type C (12.5 inch minimum or match adjacent shoulder total pavement thickness, whichever is greater), consisting of:

440 lb/yd^2 HMA Intermediate, Type C, on
Variable Depth (Minimum 935 lb/yd^2) HMA Base, Type C, on
Subgrade Treatment, Type II (6 inches Coarse Aggregate No. 53), on
Geotextile for Subgrade, Type 2B, on
Natural Subgrade (A-6)

6.3.4.2 I-65 HMA Mill and Overlay

1. After all I-65 HMA Patching is complete, the Design-Build Contractor shall mill the pavement surface of the I-65 travel lanes, inside shoulder, and outside shoulder using “Milling, Asphalt, 2 inches”, then:

2. The Design-Build Contractor shall fill any visible cracks 0.25 inches wide or greater using “Cracks in Asphalt Pavement, Fill” before applying tack coat, then:

3. The Design-Build Contractor shall construct a new asphalt surface course using:

   a. For I-65 travel lanes, inside shoulder less than or equal to 4 feet wide, and 2 feet into outside shoulder use:

   220 lb/yd^2 QC/QA-HMA, 4, 58E, Surface, 9.5 mm – SMA, on
   Milled Pavement

   b. For I-65 inside shoulder wider than 4 feet and remaining width of outside shoulder use:

   220 lb/yd2 QC/QA-HMA, 3, 58H, Surface, 9.5 mm, on
   Milled Pavement

6.3.5 SR 160 Ramps and SR 56 Ramps Rehabilitation Pavement Design

The Design-Build Contractor shall perform pavement rehabilitation on each of the four SR 160 Interchange Ramps in accordance with DBA Exhibit 19 (Scope of Work) in areas of Roadway Rehabilitation. If Roadway Rehabilitation Work at the SR 56 Interchange is included in the Contract in accordance with DBA Exhibit 19 (Scope of Work), then the Design-Build Contractor shall perform pavement rehabilitation on each of the six SR 56 Interchange Ramps. Patching locations on the SR 160 Ramps are provided in Attachment 6-2. The Design-Build Contractor shall request patching locations from the Engineer for the SR 56 Ramps if rehabilitation Work is required in accordance with DBA Exhibit 19 (Scope of Work).

The ramp rehabilitation shall be as described in this Section 6.3.5.

6.3.5.1 Ramp HMA Patching

1. For SR 160 and SR 56 existing travel lane and shoulder composite (HMA on PCCP) ramp pavement:

    a. The Design-Build Contractor shall mark out the patching locations provided by the Engineer, then:

    b. The Design-Build Contractor shall saw cut and remove the existing composite pavement and replace the existing composite pavement with a Full-Depth HMA Patch in Composite Ramp Pavement as described below in Section 6.3.5.1-1c.

    c. The Design-Build Contractor shall construct Full-Depth HMA Patch in Composite Ramp Pavement using:

        HMA Patching, Full Depth, Type C (12 inch minimum or match adjacent ramp total pavement thickness, whichever is greater), consisting of:
        440 lb/yd2 HMA Intermediate, Type C, on
        Variable Depth (Minimum 880 lb/yd2) HMA Base, Type C, on
        Subgrade Treatment, Type IC (12 inches Coarse Aggregate No. 53), on
        Natural Subgrade (A-6)

6.3.5.2 Ramp HMA Mill and Overlay

1. After all Ramp HMA Patching is complete, the Design-Build Contractor shall mill the pavement surface of the

ramp travel lanes, inside shoulder, and outside shoulder using “Milling, Asphalt, 1 inch”, then:

2. The Design-Build Contractor shall fill any visible cracks 0.25 inches wide or greater using “Cracks in Asphalt Pavement, Fill” before applying tack coat, then:

3. The Design-Build Contractor shall construct a new asphalt surface course using:

    165 lb/yd^2 QC/QA-HMA, 3, 58H, Surface, 9.5 mm, on
    Milled Pavement

6.3.6 Maintenance of Traffic Temporary Pavement Design

The existing I-65 outside shoulder asphalt pavement does not have enough structural strength to carry traffic for Maintenance of Traffic operations. The existing I-65 outside shoulder asphalt pavement shall be strengthened if used to maintain traffic. The Design-Build Contractor shall choose between the two temporary pavement design alternates described below for use within the Project Limits.

For Alternate 2, the use of a single-lift overlay is prohibited as an acceptable shoulder strengthening strategy. Multi-lift overlays may be approved by the INDOT Office of Pavement Engineering in its sole discretion if truck restrictions are implemented to reduce the volume of trucks on the shoulder pavement. Multi-lift overlays shall be a minimum of 4 inches thick.

6.3.6.1 Temporary Pavement Alternate 1 (Prescriptive)

1. For Temporary Pavement on the I-65 Outside Shoulder use:

    HMA for Temporary Pavement, Type D, consisting of:
    165 lb/yd2 HMA, Surface, Type D, on
    275 lb/yd2 HMA, Intermediate, Type D, on
    990 lb/yd2 HMA, Base, Type D, on
    Subgrade Treatment, Type II (6 inches Coarse Aggregate No. 53), on
    Geogrid, Type IB, on
    Natural Subgrade (A-6)

2. For Temporary Pavement Crossover in the I-65 Median use:

    HMA for Temporary Pavement, Type D, consisting of:
    165 lb/yd2 HMA, Surface, Type D, on
    275 lb/yd2 HMA, Intermediate, Type D, on

990 lb/yd2 HMA, Base, Type D, on
Subgrade Treatment, Type II (6 inches Coarse Aggregate No. 53), on
Geogrid, Type IB, on
Natural Subgrade (A-6)

3. The temporary pavement designs in this Section 6.3.6.1 are designed for a service life of two years. If changes in planned construction phases require a service life longer than two years, the Design-Build Contractor shall contact the District Pavement Engineer before the temporary pavement is constructed.

6.3.6.2 Temporary Pavement Alternate 2 (Performance-Based)

1. The Design-Build Contractor shall design all temporary pavement sections within the Project Right-of-Way in compliance with the DBA Documents and according to the applicable Project Standards. The Design-Build Contractor shall use the AASHTO Mechanistic Empirical Pavement Design Guide (MEPDG) and Indiana Design Manual (IDM) Chapter 604-2.0 to design the following pavement sections as applicable that each meet the criteria described in this Section 6.3.6.2:

    a. Temporary pavement for mainline I-65 (including shoulder strengthening).

    b. Temporary pavement for crossovers.

    c. Temporary pavement for ramps.

2. The Design-Build Contractor shall use AASTHOWare Pavement ME software version 2.6.2.2, herein referred to in this Section as “PavementME”, to model and analyze each proposed pavement section, unless otherwise noted. Pavement modeling in PavementME shall follow the requirements listed in IDM Chapter 604-2.0, except as modified in this Section. PavementME XML input files provided by INDOT are available for download (https://www.in.gov/indot/engineering/files/_DarWinME-Inputs.zip) and shall be used for the following:

    a. Truck Weight Road Group Factors.

    b. MSCR Hot-Mix Asphalt Surface Material for Seymour District.

c. MSCR Hot-Mix Asphalt Intermediate and Base Material for the State of Indiana.

d. Existing Asphalt Material for the State of Indiana.

e. Aggregate Material for No. 8 Stone.

f. Aggregate Material for No. 53 Stone.

3. The Design-Build Contractor shall submit a Report that includes all temporary pavement sections to the INDOT Office of Pavement Engineering for review and final approval as part of the Stage 1 Review Submission. The Report shall be signed and sealed by a Professional Engineer licensed in the State of Indiana and shall include, at a minimum, the following:

   a. A summary of each temporary pavement section.

   b. Documentation describing the assumptions used to design the temporary pavement, including traffic inputs, applicable design criteria, and geotechnical recommendations.

   c. Anticipated service life.

   d. Anticipated traffic loading.

   e. For overlays, both an AC_over_AC model and a “New Pavement” model. Existing asphalt pavement layers shall use the input file provided on the INDOT Office of Pavement Engineering website for existing asphalt material.

      i. The “AC_over_AC” model will be used to verify predicted IRI (functional and structural).

      ii. The “New Pavement” model will be used to verify predicted AC Bottom-Up Cracking (functional and structural).

   f. PavementME outputs for each temporary pavement section run at a minimum of 5 years.

6.3.6.2.1 Traffic Input Data for Performance-Based Temporary Pavement Design

The Design-Build Contractor shall use the traffic data inputs provided by INDOT as described in this Section 6.3.6.2.1.

6.3.6.2.1.1 Mainline I-65 Traffic Data South of SR 160

a. Initial AADT (2025) = 46,050 vehicles/day

b. Initial AADTT = 32.00% AADT (14,737 trucks/day)

c. Growth Rate = 0.50 percent

d. Operational Speed = Posted Work Site Speed Limit

e. Number of Lanes in Design Direction = Minimum Number of Lanes Proposed by the Design-Build Contractor for the Maintenance of Traffic Scheme in the Proposed Temporary Pavement Location

f. Percent Trucks in Design Direction = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes

g. Percent Trucks in Design Lane = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes or Based on Specific Lane Signage Proposed by the Design-Build Contractor, Subject to a Minimum of 20 Percent Trucks in Each Lane

h. Truck Weight Road Group Factors = Traffic Group C

6.3.6.2.1.2 Mainline I-65 Traffic Data North of SR 160

a. Initial AADT (2025) = 46,050 vehicles/day

b. Initial AADTT = 22.30% AADT (10,270 trucks/day)

c. Growth Rate = 0.54 percent

d. Operational Speed = Posted Work Site Speed Limit

e. Number of Lanes in Design Direction = Minimum Number of Lanes Proposed by the Design-Build Contractor for the Maintenance of Traffic Scheme in the Proposed Temporary Pavement Location

f. Percent Trucks in Design Direction = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes

g. Percent Trucks in Design Lane = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes or Based on Specific Lane Signage Proposed by the Design-Build Contractor, Subject to a Minimum of 20 Percent Trucks in Each Lane

h. Truck Weight Road Group Factors = Traffic Group C

6.3.6.2.1.3 SR 160 Ramps Traffic Data

a. Initial AADT (2024) = 3,793 vehicles/day

b. Initial AADTT = 5.25% AADT (200 trucks/day)

c. Growth Rate = 0.50 percent

d. Operational Speed = Posted Work Site Speed Limit

e. Number of Lanes in Design Direction = Minimum Number of Lanes Proposed by the Design-Build Contractor for the Maintenance of Traffic Scheme in the Proposed Temporary Pavement Location

f. Percent Trucks in Design Direction = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes

g. Percent Trucks in Design Lane = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes or Based on Specific Lane Signage Proposed by the Design-Build Contractor, Subject to a Minimum of 20 Percent Trucks in Each Lane

h. Truck Weight Road Group Factors = Traffic Group A

6.3.6.2.1.4 SR 56 Ramps Traffic Data

a. Initial AADT (2024) = 2,877 vehicles/day

b. Initial AADTT = 7.50% AADT (217 trucks/day)

c. Growth Rate = 0.50 percent

d. Operational Speed = Posted Work Site Speed Limit

e. Number of Lanes in Design Direction = Minimum Number of Lanes Proposed by the Design-Build Contractor for the Maintenance of Traffic Scheme in the Proposed Temporary Pavement Location

f. Percent Trucks in Design Direction = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes

g. Percent Trucks in Design Lane = As Shown in Chapter 604-2.01 of the IDM for the Proposed Number of Lanes or Based on Specific Lane Signage Proposed by the Design-Build Contractor, Subject to a Minimum of 20 Percent Trucks in Each Lane

h. Truck Weight Road Group Factors = Traffic Group A

6.3.6.2.2 Design Criteria for Performance-Based Temporary Pavement Design

1. Temporary pavement performance criteria and standards shall be as described in Section 6.4.5.2. The Design-Build Contractor shall select from the following pavement types within the Project Limits:

   a. Temporary Concrete Pavement.

   b. Temporary Hot-Mix Asphalt (HMA).

2. The minimum design life for temporary pavements shall be determined by the Design-Build Contractor based on the anticipated length of time the temporary pavement will be in service.

3. All PavementME designs shall use the climatic data stations listed below for the selected pavement type. Data for each station can be downloaded from the INDOT Office of Pavement Engineering website (https://www.in.gov/indot/engineering/pavement-design/) or the AASHTOWare Pavement ME Design software website (https://me-design.com/MEDesign/ClimaticData.html). All PavementME designs shall use a water table depth of 3 feet.

a. For temporary concrete pavement design, use (NARR) KY ID: 13810, 03893

b. For temporary HMA design, use (MERRA) IN ID: 142424, 142423, 143000, KY ID: 141848

4. All full-depth temporary pavement sections shall include a prepared subgrade recommended by a qualified Professional Engineer licensed in the State of Indiana.

5. Traffic shall only be maintained on pavements with a concrete surface material or an asphalt surface material.

6. Minimum reliability of PavementME design parameters shall be 95 percent.

6.4 Construction Requirements

6.4.1 I-65 Reconstruction with Added Travel Lanes

1. The Design-Build Contractor shall construct and maintain all proposed pavement sections within the Project Right-of-Way in compliance with the Contract and according to the applicable Project Standards.

2. For all concrete pavements, the final pavement surface shall be in accordance with Attachment 6-4 (RSP 504-R-757) for longitudinal tining.

3. The Design-Build Contractor shall use Spray Paving to construct all travel lane pavement consisting of HMA/SMA. Shoulders may be constructed with Spray Paving but are not required to use Spray Paving. Spray Paving shall be in accordance with Attachment 6-5 (RSP 401-R-417 & 401-R-418).

4. The Design-Build Contractor shall use Void Reducing Asphalt Membrane for SMA to seal longitudinal joints in all SMA surface courses in accordance with Attachment 6-6 (RSP 410-R-751).

5. The Design-Build Contractor shall construct a safety edge along all edges of new full-depth pavement sections in accordance with IDM Figure 602-3AA, except where a curb or barrier wall is present adjacent to the edge of pavement. Safey edges are not required where a single lift overlay is constructed.

6. Subgrade treatment shall be placed under all full-depth reconstruction pavement sections for travel lanes and shoulders. The subgrade treatment shall extend a minimum of 2 feet beyond the edge of paved shoulder. If the thickness of an HMA/SMA pavement section creates a wedge, determined by a 1:1 slope at the outside

edge of paved shoulder starting at the top of the pavement section, inclusive of the safety edge, and extending down to the top of the subgrade treatment, greater than 2 feet in width, then the subgrade treatment shall extend a minimum of 3 feet beyond the edge of paved shoulder.

7. Any required foundation soil improvements should be constructed as recommended by a by a Professional Engineer licensed in the State of Indiana.

6.4.2 I-65 Rehabilitation

1. The Design-Build Contractor shall request patching locations from the Engineer within 180 days following Notice-to-Proceed.

    a. Based on field observations, 6,615 square yards of the existing travel lane pavement area within the limits of the rehabilitation will require Partial-Depth HMA Patch in Composite Pavement in accordance with Section 6.3.4.1-1c.

    b. Based on field observations, 4,410 square yards of the existing travel lane pavement area within the limits of the rehabilitation will require Full-Depth HMA Patch in Composite Pavement in accordance with Section 6.3.4.1-1d.

    c. Based on field observations, 2,573 square yards of the existing shoulder pavement area within the limits of the rehabilitation will require Full-Depth HMA Patch in Asphalt Pavement in accordance with Section 6.3.4.1-2c.

2. The minimum length, in the direction of travel, of a partial-depth or full-depth patch shall be 6 feet and the minimum width of a partial-depth or full-depth patch shall be the width of the travel lane in which the patch is located.

3. HMA full-depth patching shall be performed in accordance with IDM Figure 603-3A.

4. The materials used to fill cracks shall be PG 64-22 only; emulsion materials shall not be used. The sealed cracks shall not be overbanded.

5. The Design-Build Contractor shall use Void Reducing Asphalt Membrane for SMA to seal longitudinal joints in all SMA surface courses in accordance with Attachment 6-6 (RSP 410-R-751).

6.4.3 SR 160 Ramps and SR 56 Ramps Rehabilitation

1. In addition to the patching locations provided in Attachment 6-2 (INDOT Provided Patching Locations), the Design-Build Contractor

shall request patching locations for the SR 56 Ramps, if applicable in accordance with DBA Exhibit 19 (Scope of Work), from the Engineer within 180 days following Notice-to-Proceed.

a. Based on field observations, 212 square yards of the existing SR 56 ramp pavement area within the limits of the rehabilitation will require Full-Depth HMA Patch in Composite Ramp Pavement in accordance with Section 6.3.5.1-1c.

2. The materials used to fill cracks shall be PG 64-22 only; emulsion materials shall not be used. The sealed cracks shall not be overbanded.

3. The Design-Build Contractor shall install a new Compacted Aggregate No. 53 wedge along the outer edges of both the inside and outside ramp shoulders.

4. A longitudinal construction joint shall not be constructed on the travel lane of any ramp pavement.

6.4.4 Henryville Rest Area Ramps Rehabilitation

The Design-Build Contractor shall not perform any Work beyond the gore at each of the four ramps in the Henryville Rest Area.

6.4.5 Temporary Pavements

6.4.5.1 Temporary Pavement Alternate 1 (Prescriptive)

1. Any required foundation soil improvements shall be constructed as recommended by a by a Professional Engineer licensed in the State of Indiana.

6.4.5.2 Temporary Pavement Alternate 2 (Performance-Based)

1. The Design-Build Contractor shall construct and maintain all temporary pavement sections within the Project Right-of-Way in compliance with the Contract and the performance requirements in this Section and according to the applicable Project Standards.

2. The Design-Build Contract shall construct a durable and maintainable pavement system that meets the following requirements during its service life:

   a. Friction number of the pavement shall be greater than 37.

   b. Predicted IRI shall not exceed 120 inches per mile at any time during the required service life of the temporary pavement.

c. IRI smoothness requirements shall apply for temporary pavements with posted speeds of 45 mph or greater, and a 16-foot straightedge shall apply for all other areas.

d. The temporary pavement surface shall be free of potholes, fatigue areas, duress, and rutting exceeding 0.25 inches.

e. Adequate cross slope shall be provided to drain water quickly from the surface of the temporary pavement.

3. If the Department believes, in its sole discretion, that these requirements are not being met, the Department will direct the Design-Build Contractor to conduct pavement testing to measure the pavement properties. Both the testing and corrective actions shall be considered part of the Work.

4. Any required foundation soil improvements shall be constructed as recommended by a Professional Engineer licensed in the State of Indiana.

6.4.5.2.1 Performance Standards for Temporary Concrete Pavements

1. The Design-Build Contractor shall construct and maintain temporary concrete pavements according to Project Standards and the following:

   a. There shall be no occurrences of faulting (0 inches) at any location on the temporary pavement.

   b. No pavement crack (transverse, longitudinal, or otherwise) on the temporary pavement shall exceed 0.125 inches in width.

   c. There shall be no use of roller-compacted concrete as temporary pavement.

6.4.5.2.2 Performance Standards for Temporary Hot-Mix Asphalt Pavements

1. The Design-Build Contractor shall construct and maintain temporary HMA pavements according to Project Standards and the following:

   a. No occurrence of pavement shoving shall exceed 2 square feet in area at any location.

b. No occurrence of pavement rutting shall exceed 0.4 inches in depth for surface pavement, and no occurrence of pavement rutting shall exceed 0.5 inches in depth for surface pavement and subgrade combined. Further, the average pavement rutting for any continuous 300-foot length of pavement shall not exceed 0.25 inches in depth, as determined by averaging the rut measurements at five locations spaced at least 50 feet apart but not more than 60 feet apart.

c. No depression exceeding 0.5 inches in depth (e.g., Pothole) shall exceed 0.5 square feet in area.

d. No bump exceeding 0.5 inches in height shall exceed 0.5 square feet in area.

e. No location of delamination or raveling shall exceed 0.5 square feet in area. Furthermore, the total delamination or raveling shall not exceed 3 square feet for all such locations.

f. There shall be no occurrences of fatigue cracking at any location on the MOT pavement.

6.5 Underdrains

1. Underdrains shall be provided in accordance with IDM Chapter 605 for all full-depth reconstruction pavement sections, including video inspection. The following underdrain design variations have been approved by INDOT for special circumstances where existing physical constraints will not permit underdrain to be designed and constructed in accordance with the Project Standards:

    a. The minimum underdrain trench depth shall be 18 inches.

    b. The freeboard to median inlet structures may be reduced to a minimum of 6 inches.

    c. The minimum underdrain freeboard to an open channel may be reduced to 12 inches. Where a 12-inch freeboard is utilized, the Design-Build Contractor shall install a cleanout port at the outlet location.

2. Underdrains shall be placed at the outside edge of paved shoulder for mainline I-65.

3. Geotextile filter fabric shall be used with underdrains in accordance with IDM Chapter 605. All existing underdrains, including, but not limited to, underdrain pipe, underdrain outlet pipe, aggregate for underdrains, geotextile for underdrains and outlet protectors within the reconstruction limits shall be completely removed.

4. After completion of the project, the Design-Build Contractor shall locate the “as-built” underdrain outlet and cleanout port locations using a GPS system. The GPS coordinates of the underdrain outlets and cleanout ports shall be sent to the District Pavement Asset Engineer.

5. A minimum of one underdrain outlet shall be installed at the beginning of new terminal joint pavement at RCBAs and a minimum of one underdrain outlet should be installed at the end of new terminal joint pavement at RCBAs.

6.6 Deliverables

Deliverables under this Section 6, a non-exhaustive list of which is set forth in Table 6-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 6-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Pavement Design Report for Performance-Based Temporary Pavements, as applicable	Stage 1 Review Submission, as applicable	6.3.6.2
Underdrain Outlet and Clean-Out Port Location Report.	Prior to Contract Completion Date	6.5
Request for Patching Locations	Within 180 Days Following Notice-to-Proceed	6.4.2 6.4.3

Section 6 Attachments:

Attachment 6-1 INDOT Pavement Design

Attachment 6-2 INDOT Provided Patching Locations

Attachment 6-3 Cement Stabilized Subgrade

Attachment 6-4 RSP 504-R-757 (Longitudinal Tining)

Attachment 6-5 RSP 401-R-417 and 401-R-418 (Spray Paving)

Attachment 6-6 RSP 410-R-751 (VRAM – SMA)

7. HYDRAULICS & DRAINAGE

7.1 General

The Design-Build Contractor shall perform all Hydraulic and Drainage Work in accordance with the DBA Documents, including the Project Standards, this Section 7 and its RSPs and USPs; Government Approvals; and Government Rules.

7.2 Design Requirements

The Design-Build Contractor shall provide the Stormwater Drainage System improvements for the Project. The Stormwater Drainage System shall meet the requirements of this Section 7.

The Design-Build Contractor shall maintain all Stormwater Drainage Systems within the Project Site from Commencement of Construction to the Final Acceptance Date.

7.2.1 General Design Requirements

1. The minimum time of concentration shall be 5 minutes.
2. Existing drainage patterns shall be maintained. Any alteration of existing drainage patterns shall be presented to INDOT Hydraulics for review and approval.
3. Drainage structures are prohibited within all travel lanes, auxiliary lanes, and ramp lanes.
4. The maximum distance between any two proposed drainage structures connected by a pipe shall be 400 feet.
5. Proposed Type 7 castings are prohibited within INDOT Limited Access Right-of-Way.
6. No drainage from the outside ditch shall be brought into a Storm Sewer or Median Drain in a roadway median. Where drainage from the outside ditch or flow from outside of the right-of-way is to be conveyed to the opposite side of the road, a separate Culvert shall be used that is not connected to the Storm Sewer or Median Drains.
7. For roadway reconstruction within or adjacent to floodplains, the proposed low edge of travel lane at any given cross-section shall not be lower than the existing travel lanes at any point.
8. Type N inlets shall be used in a non-paved median unless

there is a physical constraint prohibiting the use. If a physical constraint is present, a Type P inlet shall be used.

9. Proposed drainage structures shall be installed in a sequence that complies with the maintenance of traffic requirements as described in TP 09 (Maintenance of Traffic).

7.2.2 Design Requirements for Storm Sewers

1. Within the limits of Added Travel Lanes with Total Pavement Reconstruction, in accordance with DBA Exhibit 19 (Scope of Work), the Design-Build Contractor shall remove or fill all existing Storm Sewers under the existing I-65 pavement or within the existing median.

    a. Storm Sewers that are removed shall be backfilled with Structure Backfill, Type 5, in accordance with Section 211 of INDOT's Standard Specifications.

    b. Storm Sewers that are to be abandoned in place shall be filled with Structure Backfill, Type 5 in accordance with Section 211 of INDOT's Standard Specifications. The structure backfill shall be pumped or grouted to ensure the pipe is full.

    c. Existing Storm Sewers and Culverts within the limits of bridge slope walls may remain in place.

2. Within the limits of Roadway Rehabilitation, in accordance with DBA Exhibit 19 (Scope of Work), all existing Storm Sewers and Culverts under the existing I-65 pavement or within the existing median shall not be disturbed.

3. Storm Sewer hydraulic design criteria shall be as described in IDM Chapter 203-4.04, except as modified in this Section 7.2.2.

4. Inlets shall be designed to capture the 1% annual EP Design Frequency such that the calculated spread does not encroach upon any interstate travel lane.

5. A Storm Sewer may convey the 1% annual EP via pressure flow but the Hydraulic Grade Line (HGL) of the water within the pipe and upstream Storm Sewer may not enter the interstate travel lanes.

6. The Rational Method C-value for pavement shall be 0.90 and for grass shall be 0.30. IDM Figure 202-2E shall be used to determine all other C-values.

7. Within a non-paved median with MGS guardrail median barrier, each Median Drain inlet shall have a separate pipe that directly drains to the outside of the roadway.

    a. Flanking inlets will be permitted to be connected to the sag Median Drain inlet within the median.

8. Within a paved median with concrete median barrier, each Median Drain inlet shall have a separate pipe that directly drains to the outside of the roadway. If roadside topography makes a separate pipe that directly drains to the outside of the roadway infeasible for each Median Drain inlet, a maximum of four Median Drain inlets will be allowed to be connected within the median.

    a. Flanking inlets will be permitted to be connected to the sag Median Drain inlet and will not count towards the total four connected Median Drain inlets.

    b. The Median Drain inlets on directly opposite sides of the concrete median barrier at the same station may be connected and will count as a single inlet for the purpose of counting the total four connected Median Drain inlets.

9. The minimum longitudinal profile grade for a pavement section with concrete barrier, either within the median or along the outside shoulder, shall be 0.30%.

10. Slotted drains shall not be used in the drainage calculations.

    a. Trench drains may be used in the drainage calculations for spread if the minimal grate width is 12 inches and the grates are bolted down.

11. Flanking inlets are required at each sag Storm Sewer inlet location. If the flow to the sag Storm Sewer inlet is from both directions, then one flanking inlet shall be provided on both sides of the sag Storm Sewer inlet. If the flow to the sag Storm Sewer inlet is only from one direction, then only one flanking inlet is required on the side with flow.

    a. If the required distance from the sag Storm Sewer inlet to the flanking inlet is greater than the distance from the sag Storm Sewer inlet to the next adjacent upstream Storm Sewer inlet, then dual sag Storm Sewer inlets shall be provided. The dual inlets shall be two separate inlets connected by a 6’ section of pipe.

    b. The flanking inlets shall not to be considered in the spread calculations.

12. At superelevation transitions, an inlet shall be required with zero bypass so that water is not allowed to drain across the lanes.

13. The minimum downstream invert of a proposed Storm Sewer pipe that outlets to a roadside ditch shall be 6 inches above the ditch flowline elevation at the pipe outlet. If the downstream invert is less than 12 inches above the ditch flowline elevation at the pipe outlet, the following shall be required:

    a. The Design-Build Contractor shall provide a system HGL check that uses the depth of the water in the ditch as a tailwater constraint on the outlet pipe. The HGL of the water within the pipe and upstream Storm Sewer system shall remain below the rim elevation of any hydraulically connected manhole, inlet, catch basin, or other structure.

    b. The Design-Build Contractor shall submit the HGL check to the INDOT Office of Hydraulic Engineering for review and approval.

14. The downstream invert of a proposed Storm Sewer pipe that outlets directly to a Detention Facility or receiving water shall be above the Q100 water surface elevation of the Detention Facility or receiving water. If the downstream invert is less than the Q100 water surface elevation, the following shall be required:

    a. The Design-Build Contractor shall provide a system HGL check that uses the Q100 water surface elevation as a tailwater constraint on the outlet pipe. The HGL of the water within the pipe and upstream Storm Sewer system shall remain below the rim elevation of any hydraulically connected manhole, inlet, catch basin, or other structure.

    b. The Design-Build Contractor shall submit the HGL check to the INDOT Office of Hydraulic Engineering for review and approval.

15. All Storm Sewer designs shall be provided to INDOT Hydraulics for review regardless of the size of the pipes.

7.2.3 Design Requirements for Culverts

1. Culvert hydraulic design criteria shall be as described in IDM Chapter 203-2.0, except as modified in this Section 7.2.3.

2. The minimum pipe diameter for a Culvert shall be 36 inches.

3. If a dual hydrologic soil group is within a watershed, then the soil shall be considered undrained (D-soil) unless it can be shown that the average annual high-water table is more than 24 inches below the ground surface. This can be found using the USDA Web Soil Survey.

4. The Design-Build Contractor shall use HY-8 version 7.2 for all Culvert modeling and analysis.

    a. Reinforced concrete boxes and three-sided structures with a span of 18 feet or less shall be modeled with corner haunches as produced by the manufacturer.

5. The Design-Build Contractor shall replace the Culverts listed below within the limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work). Approved Hydraulic Memos for each Culvert are provided in Attachment 7-1 and may be used for each Culvert replacement without further coordination with INDOT. If the Design-Build Contractor chooses to pursue alternate Culvert designs, the Design-Build Contractor shall perform hydraulic design and analysis and obtain approval from the INDOT Office of Hydraulic Engineering in accordance with this Section 7.

    a. CLV-77582 – Sta. 412+21 “PR-Q”

    b. CLV-77581 – Sta. 441+18 “PR-Q”

    c. CLV-87621 – Sta. 484+47 “PR-Q”

    d. CLV-87639 *(CV I65-010-18.12)* – Sta. 488+88 “PR-Q”

    e. CV I65-010-18.35, Des. No. 2001599 – Sta. 501+27 “PR-Q”

    f. CLV-77580 *(CV I65-010-18.67)* – Sta. 517+93 “PR-Q”

    g. CLV-77579 – Sta. 535+17 “PR-Q”

    h. CLV-77578 – Sta. 86+82 “PR-SW Ramp”

    i. CLV-89179 – Sta. 542+33 “PR-Q”

    j. CLV-89181 – Sta. 561+46 “PR-Q”

    k. CV I65-010-19.90, Des. No. 2001598 – Sta. 582+14 “PR-Q”

    l. CLV-77577 – Sta. 596+10 “PR-Q”

6. The Design-Build Contractor shall replace the upstream and

downstream end section of the Culvert listed below within the limits of Roadway Rehabilitation in accordance with DBA Exhibit 19 (Scope of Work), unless rendered unnecessary by Work in accordance with DBA Exhibit 19 (Scope of Work) and Section 7.2.3 Item 7 below.

a. CV I65-010-22.77, Des. No. 2001595 – Sta. 732+56 “Q”

7. The Design-Build Contractor shall replace only those Culverts listed below that are within the proposed limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work). Approved Hydraulic Memos for each Culvert are provided in Attachment 7-1 and may be used for each Culvert replacement without further coordination with INDOT. If the Design-Build Contractor chooses to pursue alternate small structure designs, the Design-Build Contractor shall perform hydraulic design and analysis and obtain approval from the INDOT Office of Hydraulic Engineering in accordance with this Section 7.

a. CLV-89185 – Sta. 604+30 “PR-Q”

b. CLV-89187 – Sta. 609+48 “PR-Q”

c. CLV-89189 – Sta. 621+56 “PR-Q”

d. CLV-77576 – Sta. 628+36 “PR-Q”

e. CLV-89193 – Sta. 659+20 “PR-Q”

f. CLV-89191 – Sta. 663+25 “PR-Q”

g. CLV-89195 – Sta. 670+44 “PR-Q”

h. CLV-89197 – Sta. 673+49 “PR-Q”

i. CLV-89199 – Sta. 685+17 “Q”

j. CLV-89201 – Sta. 690+33 “Q”

k. CLV-89203 – Sta. 702+05 “Q”

l. CLV-89207 – Sta. 704+82 “Q”

m. CV I65-010-22.65, Des. No. 2001597 – Sta. 725+55 “Q”

n. CV I65-010-22.77, Des. No. 2001595 – Sta. 732+56 “Q”

8. Within the limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work), any existing Culvert not explicitly listed in this Section

7.2.3 shall be left undisturbed in place. If the Design-Build Contractor's proposed work impacts these Culverts, the Design-Build Contractor shall perform hydraulic design and analysis and obtain approval from the INDOT Office of Hydraulic Engineering for any modification or replacement in accordance with this Section 7.

9. Within the limits of Roadway Rehabilitation in accordance with DBA Exhibit 19 (Scope of Work), except as noted above in Section 7.2.3 Item 6 above, all existing Culverts shall not be disturbed.

7.2.4 Design Requirements for Roadside and Median Ditches

1. Roadside and median ditch hydraulic design criteria shall be as described in IDM Chapter 203-6.05, except as modified in this Section 7.2.4.

2. The minimum ditch grade shall be 0.30%.

    a. The ditch slope may be reduced in isolated locations if the ditch is concrete paved, and the variance is approved by the INDOT Office of Hydraulic Engineering.

3. Median ditches shall be designed to convey a 1% annual EP Design Frequency with a 0-foot serviceability freeboard to the edge of inside travel lane.

7.2.5 Design Requirements for Detention Facilities

1. Detention Facility hydraulic design criteria shall be as described in IDM Chapter 203-5.04, except as modified in this Section 7.2.5.

2. The 1% annual EP post-construction ("post") allowable stormwater release rate at any discharge point from the Project site shall be less than or equal to the 1% annual EP existing pre-construction ("pre") release rate, as shown in the following equation:

    a. $Q_{100,post} \leq Q_{100,pre}$

3. The minimum orifice diameter shall be 6 inches.

4. All surface detention facilities shall be dry-bottom and shall drain completely within 72 hours.

5. Surface detention is prohibited in the I-65 median.

6. All detention facilities shall be contained within INDOT Limited Access Right-of-Way.

7. The design pool elevation for a surface Detention Facility outside the roadway shall not encroach into the roadway clear zone if the depth is 2 feet or greater, unless it is located behind roadside barrier.

8. All detention facilities shall have an emergency overflow route capable of conveying the 1% annual EP directly to a roadside ditch.

    a. Overflow routes shall not encroach upon any travel lane, auxiliary lane, gore, or ramp lane.

9. Infiltration facilities are prohibited.

10. Pump stations are prohibited.

7.2.6 Design Requirements for Temporary Drainage During Maintenance of Traffic Operations

1. The Design-Build Contractor shall maintain positive drainage on all active travel lanes, auxiliary lanes, and ramp lanes during Maintenance of Traffic (MOT) operations.

2. The 20% annual EP shall be used for the design and analysis of temporary drainage systems and spread during MOT operations.

3. Spread from a 20% annual EP shall not encroach upon any active travel lane, auxiliary lane or ramp lane.

4. Slotted drain may be used for temporary calculations. Any slotted drain used for temporary drainage shall follow Indiana Standard Drawings E715-SLDR-01, E715-SLDR-02, and E715-SLDR-03.

7.3 Documentation Requirements

7.3.1 Preliminary Drainage Report

1. The Design-Build Contractor shall prepare a Preliminary Drainage Report to address applicable Storm Sewer, Culvert, and Detention Facility designs and requirements in a form similar to that provided in the Technical Proposal. The Design-Build Contractor shall submit the Preliminary Drainage Report with the Stage 1 Review Submission to INDOT for review and comment. At a minimum, the Report shall include the following:

    a. Coverage of the entire Project Right-of-Way, herein referred to as the “Project site”.

b. Map(s) or Figure(s) of the existing Project site that include:

   i. Aerial photography.

   ii. Existing 1-foot labeled contours.

   iii. Existing Culverts with flow-direction arrows.

      1. Identify each structure with its CLV or CV number.

   iv. Existing Median Drains and inlets.

   v. Existing ditches with flow-direction arrows.

   vi. Existing Culvert, Median Drain, and inlet drainage areas delineated.

   vii. Identification of each location where stormwater runoff enters and leaves the Project site.

   viii. Identification of floodways and floodplains.

   ix. Identification of all streams, creeks, and wetlands.

c. Map(s) or Figure(s) of the proposed Project site that include:

   i. Aerial photography.

   ii. Existing and proposed 1-foot labeled contours.

   iii. Existing Culverts that will remain with flow-direction arrows.

      1. Identify each structure with its CLV or CV number.

   iv. Proposed Culverts with flow-direction arrows.

   v. Existing Median Drains and inlets that will remain.

   vi. Proposed Storm Sewer and Median Drain layout.

   vii. Existing ditches that will remain with flow-direction arrows.

   viii. Proposed ditches with flow-direction arrows.

   ix. Proposed Culvert, Median Drain, and inlet drainage areas delineated, including drainage areas to Culverts, Median Drains, and inlets that will remain.

   x. Identification of each location where stormwater runoff enters and leaves the Project site.

      1. Each location where stormwater runoff leaves the

Project site shall have a comparison of existing and proposed peak discharge rates.

xi. Identification of floodways and floodplains.

xii. Identification of all streams and creeks.

xiii. Proposed location of all stormwater detention and storage facilities, including points of inlet and outlet, with conceptual grading for surface facilities.

d. Documentation of applied drainage criteria.

e. Discussion of drainage design approach and methodology.

2. The INDOT Office of Hydraulic Engineering reserves the right to independently verify that the design calculations provided in the Report meet the required criteria. If the INDOT Office of Hydraulic Engineering believes, in its sole discretion, that the design requirements for drainage systems provided in Section 7 are not being met, the INDOT Office of Hydraulic Engineering may reject the Preliminary Drainage Report and will notify the Design-Build Contractor, indicating which items do not meet criteria, and request a resubmittal.

7.3.2 Culvert Calculations Report

1. The Design-Build Contractor shall provide documentation of all hydraulic and hydrologic computations required in the design of each Culvert modified from the RID with the Stage 3 Review Submission, which at a minimum shall include the information listed in IDM Chapter 203-2.07.

7.3.3 Storm Sewer And Ditch (“Median Drain”) Calculations Report

1. The Design-Build Contractor shall provide documentation of all hydraulic and hydrologic computations required in the design of the stormwater drainage system improvements and facilities and all proposed ditches with the Stage 3 Review Submission, which at a minimum shall include the information listed in IDM Chapter 203-4.05 and the following:

   a. Inlet capacity and spread calculations for all roadway inlets in tabular form.

      i. Include a map(s) that show drainage area delineation and lane use for each inlet basin.

   b. Inlet capacity and channel flow characteristics for all inlets

within an unpaved depressed median.

i. Include a map(s) that show drainage area delineation and lane use for each inlet basin.

c. Pipe capacity calculations for each Storm Sewer pipe at the 1% annual EP as well as documentation of the full-flow pipe capacity of each pipe.

d. Documentation of the HGL within all Storm Sewer pipes for the 1% annual EP both in tabular form and shown on Storm Sewer profiles.

e. HGL calculations for any drainage system with a tailwater constraint as described in Section 7.2.2.

f. Design criteria used, including referenced IDM Figures with marks to note values used from tables.

g. All spreadsheets used for drainage calculations shall be provided to INDOT Hydraulics as Excel files.

7.3.4 Detention Calculations Report

1. The Design-Build Contractor shall provide documentation of all hydraulic and hydrologic computations required in the design of each Detention Facility with the Stage 3 Review Submission, which at a minimum shall include the information listed in IDM Chapter 203-5.06.

2. Input and output information from computer software used.

3. The summary table shall include existing discharge, proposed discharge without detention, and proposed discharge with detention.

7.4 Construction Requirements

7.4.1 Construction Requirements for Storm Sewers

1. The Design-Build Contractor shall provide GPS coordinates of all completed Storm Sewer outlets. The GPS coordinates will be incorporated into the tables of the final as-built plans. The accuracy of the GPS coordinates shall be within 3 feet.

2. Existing field tile drainage shall be maintained at all times. Any field tiles disturbed by the Design-Build Contractor shall be replaced. The Design-Build Contractor shall ensure a positive outlet for all encountered field tiles.

7.5 Post-Construction Stormwater Management

The Indiana Department of Environmental Management (IDEM) Construction Stormwater General Permit (CSGP) requires implementation of Post-Construction Stormwater Management quality and quantity measures. The Design-Build Contractor shall provide the Post-Construction Stormwater Management (PCSM) quality and quantity measures to accommodate flows generated from the Project for any points of discharge ("outfall") from the Project site that have a net increase in impervious surfaces.

The Design-Build Contractor shall design PCSM measures in accordance with IDM Chapter 204; INDOT Design Memorandum 22-22; and the INDOT Post-Construction Stormwater Management Guidance Document, current edition as of the execution date of this Section 7, provided as Attachment 7-2; except as modified in this Section 7.5. Additional guidance documents and calculation templates may be found on the INDOT Environmental Services Stormwater Division webpage at www.in.gov/indot/engineering/environmental-services/storm-water/.

7.5.1 Design Requirements for PCSM Measures

The Design-Build Contractor shall design PCSM measures in accordance with IDM Chapter 204; INDOT Design Memorandum 22-22; and the INDOT Post-Construction Stormwater Management Guidance Document, current edition as of the execution date of this Section 7, provided as Attachment 7-2; except as modified in this Section 7.5.1.

1. The minimum required sediment removal rate for all Post-Construction Stormwater Measures as Total Suspended Solids (TSS) is 80%.
2. Hydrodynamic Separators (HDS) or other Proprietary Devices are prohibited.
3. The Design-Build Contractor shall install seeding for each PCSM measure as described in Table 7-1.
    a. Seed Mixture R shall be in accordance with TP 15 (Aesthetics and Landscaping).
    b. All PCSM measures shall receive a Plant Growth Later, except as noted in Table 7-1, in accordance with TP 15 (Aesthetics and Landscaping).

Table 7-1: Plant Selection for PCSMs

PCSM	Seed Mixture R	Native Grass Seed Mix	Emergent Plant Seed Mix
Dry Turfgrass Swale	X		
Dry Native Grass Swale		X	
Filter Strip	X	X	
Dry Detention	X	X	
Wet Swale	X[A]		X[B]
Wet Retention Pond	X[A]		X[B]
Infiltration Basin		X[C]	
Infiltration Swale		X[C]	

A. Seed Mix shall be installed above the permanent pool elevation.
B. Seed Mix shall be installed below the permanent pool elevation.
C. Seed Mix shall be installed without plant growth layer.

4. Maintenance access to each PCSM measure shall not require modification of traffic.

    a. If guardrail protection or other safety control devices are required, each shall be included as part of the design plan.

5. Any underdrain, underground detention pipe, or other structure required for a PCSM measure not easily identifiable by sight shall have a 14-gauge tracer wire installed on top of the underdrain, underground detention pipe, or other structure for utility locating purposes.

7.5.2 Water Quality Documentation

1. The Design-Build Contractor shall submit design plans and all water quality calculations to the INDOT Stormwater Team Lead and MS4 Coordinator at PCSM@indot.IN.gov for approval.

2. The decision to omit a PSCM measure at a specific outfall must be approved by the INDOT Stormwater Team Lead and MS4 Coordinator in its sole discretion. The Design-Build Contractor shall submit infeasibility documentation to the INDOT Stormwater Team Lead and MS4 Coordinator in accordance with the INDOT Post-Construction Stormwater Management Guidance Document Section 3.04.

3. The Design-Build Contractor shall identify and label the location of each PCSM measure on the design plans. Each PCSM measure shall be assigned an asset identification number using the naming convention provided Attachment 7-3.

4. The Design-Build Contractor shall prepare an Inspection and Maintenance Manual for all PCSM measures and submit the Manual to the INDOT Stormwater Team Lead and MS4 Coordinator with the Final Water Quality Report.

    a. Inspection and maintenance templates for each type of PCSM measure, in an editable format, are available on the INDOT Environmental Services Stormwater Division webpage.

    b. The Design-Build Contractor shall fill out the appropriate template for each PCSM measure in the design plans and include each with the Manual.

5. Design-Build Contractor shall submit an as-built survey of each PCSM measure to the INDOT Stormwater Team Lead and MS4 Coordinator. Each as-built survey shall include the following:

    a. 1-foot contour data.

    b. The physical boundaries of each PCSM measure.

    c. The extents of seed mixture and/or sod installed.

    d. The location, size and invert elevations for all check dams, underdrain pipes, outlet structures, and outlet pipes.

6. The Design-Build Contractor shall install signs around each PCSM measure for identification and maintenance purposes at a minimum spacing of 100-ft on center.

    a. Each sign shall be 12” x 18” aluminum with white lettering on a blue background stating: “STORMWATER QUALITY FEATURE: SEE INDOT STORMWATER WEBPAGE”.

    b. Each sign shall be mounted 4 feet above the ground, measured from the top of grade to bottom of sign, on a stainless-steel u-channel post set in a 12-inch diameter concrete footing.

    c. The Design-Build Contractor shall coordinate each sign with the INDOT Stormwater Team Lead and MS4 Coordinator.

7.5.3 Preliminary Water Quality Report

1. The Design-Build Contractor shall submit a Preliminary Water Quality Report to the INDOT Stormwater Team Lead and MS4 Coordinator with the Stage 1 Review Submission for review and comment. The Preliminary Water Quality Report shall include the following:

    a. Report Narrative

    b. Project Location Map

    c. Exhibit(s) showing existing and proposed outfall locations with the anticipated net added impervious surface areas, in acres, provided for each proposed outfall.

    d. Exhibit(s) showing existing and proposed drainage areas delineated for each outfall, with contours on aerial mapping.

    e. Water Quality Volume (WQv) calculations for each outfall.

    f. Water Quality Treatment Rate (Qwq) calculations for flow through treatment measures.

    g. Exhibit(s) showing each anticipated PCSM measure location and the type of each anticipated measure, labeled with a preliminary asset identification number for each measure in accordance with Attachment 7-3.

    h. Exhibit(s) showing approximate sizes and geometry of each PCSM measure.

    i. Exhibit(s) showing anticipated permanent maintenance access locations for each PCSM measure.

    j. Signed, but not sealed, by a Professional Engineer licensed in the State of Indiana.

7.5.4 Final Water Quality Report

1. The Design-Build Contractor shall submit a Final Water Quality Report to the INDOT Stormwater Team Lead and MS4 Coordinator with the Stage 3 Review Submission for review, comment, resubmittal if resubmittal is requested, and final approval. The Final Water Quality Report shall include the following:

    a. Report Narrative

    b. Project Location Map

c. Exhibit(s) showing existing and proposed outfall locations with the final net added impervious surface areas, in acres, provided for each proposed outfall.

d. Exhibit(s) showing existing and proposed drainage areas delineated for each outfall, with existing and proposed contours, on aerial mapping.

e. Water Quality Volume (WQv) calculations for each outfall.

f. Water Quality Treatment Rate (Qwq) calculations for flow through treatment measures.

g. NRCS Soils information for all PCSM measure locations.

h. Percolation testing results if using infiltration measure(s).

i. Exhibit(s) showing each final PCSM measure location and the type of each final measure, labeled with a preliminary asset identification number for each measure in accordance with Attachment 7-3.

j. Exhibit(s) showing the final size and geometry of each PCSM measure.

k. Modeling input and output for all hydrologic and/or hydraulic models.

l. Hydrologic and Hydraulic model files.

m. Shapefile(s) that include the boundaries of each PCSM measure so each PCSM measure can be input into GIS for inspection and maintenance.

n. Exhibit(s) showing the permanent maintenance access locations for each PCSM measure.

o. Signed and sealed by a Professional Engineer licensed in the State of Indiana.

p. Complete Inspection and Maintenance Manual.

q. Plan detail sheets for each PCSM measure

2. The Design-Build Contractor shall include the following PCSM information on the final design plans:

a. Plan view sheets shall include the outline of all PCSM measures, labeled with preliminary asset identification numbers.

b. Profile sheets shall include the bottom flowline of all PCSM

measures, labeled with preliminary proposed asset identification numbers.

c. Plans will include locations of jurisdictional streams and wetlands.

d. Plans shall include a design table for all PCSM measures, which will list proposed asset identification number, alignment, station, and offset. For linear PCSM measures, list starting and ending station and offset.

7.6 Deliverables

Deliverables under this Section 7, a non-exhaustive list of which is set forth in Table 7-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 7-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
Preliminary Drainage Report	With Stage 1 Review Submission	7.3.1
Design Calculation Reports	With Stage 3 Review Submission	7.3.2 7.3.3 7.3.4
Preliminary Water Quality Report	With Stage 1 Review Submission	7.5.3
Final Water Quality Report	With Stage 3 Review Submission	7.5.4
Inspection and Maintenance Manual	With Final Water Quality Report	7.5.4
Storm Sewer Outlet Location Report	Prior to Contract Completion Date	7.4.1

Section 7 Attachments:

Attachment 7-1 Approved INDOT Hydraulic Memorandums for Culverts (Small Structures)

Attachment 7-2 INDOT Post-Construction Stormwater Management Guidance Document (Dated 1/8/2024)

Attachment 7-3 PCSM Asset Naming Guidance

8. SIGNING, MARKINGS, AND LIGHTING

8.1 General

Design-Build Contractor shall perform all traffic Work in accordance with the DBA Documents, including Project Standards, this Section 8 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

8.2 Signing

Design-Build Contractor shall design, install, and maintain sign structures on all routes open to traffic within the Project Limits until Final Acceptance.

8.2.1 Design and Construction Requirements

1. Design-Build Contractor shall be responsible for furnishing and installing all required permanent signs and structures in accordance with the Indiana Manual on Uniform Traffic Control Devices (IMUTCD), the IDM, the Standard Specifications and the INDOT Standard Drawings.

2. Design-Build Contractor shall remove and replace all existing signing, sign structures and foundations and construct all new required signing for roadways in accordance with project standards within the limits of Added Travel Lanes with Total Pavement Reconstruction in accordance with DBA Exhibit 19 (Scope of Work).

3. Overhead sign structures and panel signs shall be installed for any left lane drops within the project limits. The overhead signs shall be placed at 1 mile and 1/2 mile in advance of the lane drop and at the beginning of lane drop taper point. For the left lane drop on I-65 Northbound at the northern limits of the Added Travel Lanes with Total Pavement Reconstruction, in accordance with DBA Exhibit 19 (Scope of Work), the three existing overhead sign structures and panel signs listed below shall be removed, relocated, and installed on new foundations at the applicable location:

    a. Cantilever Overhead Sign Structure and “Left Lane Ends 1 Mile” Panel Sign – Existing Location: I-65 NB, RP 15+21

    b. Cantilever Overhead Sign Structure and “Left Lane Ends 1/2 Mile” Panel Sign – Existing Location: I-65 NB, RP 15+66

    c. Cantilever Overhead Sign Structure and “Left Lane Ends Merge Right” Panel Sign: I-65 NB, RP 16+21

4. An existing sign inventory shall be completed prior to sign removals or relocations. The existing signing plans shall be submitted at the same time as the proposed signing plan submittals.

5. Design-Build Contractor shall use standard sign structures and foundations. Any required special sign structures shall be designed per Chapter 502-1.01 of the IDM and applicable Project Standards. The special sign structures, support and foundation calculations shall be submitted to INDOT for review and approval.

6. For each panel sign location, Design-Build Contractor shall indicate on the Plans the sign panel(s) and the sign support on the corresponding completed cross section. The proper vertical and horizontal clearances, sign sizes and offsets, foundations, number of lanes, and lane widths shall be labeled on the sign cross sections. “Desirable” offset for panel sign locations as defined in the IDM and standard drawings shall be used unless right of way does not allow enough room to attain the desirable offset.

7. Sign locations shall be designed so that sign placement does not impact a wetland area.

8. The proposed sign locations shall be coordinated with other disciplines such as landscaping, fencing, signals, utility, drainage, guardrail, and all other roadside features to assure proper clearances and adequate sight distances.

9. The signing plans also shall include the location and type of delineation devices including pavement markings, pavement messages/arrows, raised pavement markers, and post- and barrier-mounted delineators.

10. Constant cross section single arm cantilever sign structures will not be permitted.

11. All signs along the mainline I-65, and associated ramps shall be “freeway” size.

12. For purposes of sign design, all interchanges shall be classified as major, category A, as defined in IMUTCD Section 2E.

13. All panel signs shall be designed using E(M) Font.

14. Design-Build Contractor shall coordinate with Indiana Logo Sign Group for all the work involved with Logo signs in accordance with the USP for Indiana Logo Signs.

15. Sign structures shall not be mounted on the bridge overpass structures except for mile- markers on structures over waterways will be allowed.

16. No signs shall be banded or installed to utility poles, lighting poles, or overhead or cantilever sign structure uprights.

8.3 Pavement Markings

8.3.1 General Requirements

Design-Build Contractor shall design, install, and maintain pavement markings and delineation on all routes open to traffic within the Project Limits until Final Acceptance.

8.3.2 Design and Construction Requirements

1. Design-Build Contractor shall remove and replace all required pavement markings, raised pavement markers, delineators, and delineator posts for roadways within the Project Limits in accordance with Project Standards.

2. Pavement markings, markers, and delineators shall conform to the requirements of the Indiana Manual on Uniform Traffic Control Devices (IMUTCD), the IDM, the Standard Specifications and the Standard Drawings.

3. Pavement markings shall conform to the Standard Drawings.

4. All permanent pavement markings, and associated grooving for markings, shall be placed when MOT phasing operations for this contract or adjacent contracts will not result in damage to the completed work. Maintenance of traffic phasing will dictate permanent pavement marking and grooving for markings operations. Permanent pavement marking and grooving for markings operations shall occur only when future maintenance of traffic phasing does not require removal of said markings.

5. Grooved wet reflective preformed plastic material shall be used for permanent lane lines on all surfaces on I-65 and interchange ramps. The edge lines on I-65 and interchange ramps can be preformed plastic or multi-component for PCCP pavements and preformed plastic or thermoplastic for HMA pavements. All other marking materials shall be designed and applied per the requirements of the current standards.

6. New snow plowable raised pavement markers shall be installed within the Project Limits and incidental construction areas.

7. Retro-reflectivity shall be measured on all longitudinal durable markings in accordance with section 808 of the Standard Specifications.

8. Lane use indication arrows shall be incorporated into the project at locations of lane merges and any option lanes. The design shall be based on the current version of standards.

9. For PCCP pavement, black markings shall be used in combination with the white or yellow markings to provide sufficient contrast with the PCCP. IDM Figure 502-2D and Attachment 8-1 (INDOT Contrast Marking Typical) shows the arrangement of the contrast markings for edge lines and lane lines.

8.4 Lighting

8.4.1 Design and Construction Requirements

Design-Build Contractor shall maintain lighting within the INDOT Limited Access Right-of-Way in accordance with Project Standards and Utility Owner requirements.

8.4.1.1 New Roadway Lighting

No new roadway lighting is required for this Project.

8.4.1.2 Existing Roadway Lighting

All existing conventional pole lighting components along I-65 and at the ramp gores at the SR 160 interchange shall remain in place, including but not limited to light poles, luminaries, handholes, conduits, wirings, cable duct, service points, and electrical components.

All existing conventional pole lighting components along I-65 and at the ramp gores at the Henryville Rest Area interchange shall remain in place, including but not limited to light poles, luminaries, handholes, conduits, wirings, cable duct, service points, and electrical components. New lighting at this interchange will be installed by others under a separate contract for Rest Stop Modernization as identified in Section 1.4 (Coordination with Other Projects).

All existing conventional pole lighting components along I-65 and at the ramp gores at the SR 56 interchange shall remain in place, including but not limited to light poles, luminaries, handholes, conduits, wirings, cable duct, service points, and electrical components.

If the Design-Build Contractor impacts any existing roadway lights or associated components, the light and any associated components necessary for continual lighting operation shall be replaced in kind by the Design-Build Contractor. Existing underground light wires shall be located in accordance with Section 16.2.1 (Standard of Care Applicable to Utility Work).

The Design-Build Contractor shall provide Notice to INDOT at least two weeks before the removal of any light impacted

by the proposed Work.

8.4.2 Maintenance of Existing Roadway Lighting

The Design-Build Contractor shall repair light outages, pole knockdowns, or any other electrical or lighting problem to the satisfaction of the Engineer within 5 calendar days of Notice. The Design-Build Contractor shall coordinate all repairs with the Seymour District Traffic Engineer or representative.

The Design-Build Contractor shall maintain existing highway illumination levels at the SR 160 interchange and at the SR 56 interchange during construction of the Project, either by maintenance of existing lighting or by installation of temporary lighting for use until new lighting fixtures are installed and operational.

The Design-Build Contractor shall maintain existing highway illumination levels at the Henryville Rest Area interchange prior to construction by others beginning for Rest Stop Modernization as identified in Section 1.4 (Coordination with Other Projects). Maintenance of existing highway illumination levels shall be either by maintenance of existing lighting or by installation of temporary lighting for use until new lighting fixtures are installed and operational. Once construction by others begins for Rest Stop Modernization as identified in Section 1.4, the Design-Build Contractor will no longer be responsible for maintenance of highway illumination at the Henryville Rest Area interchange.

Temporary lighting may consist of portable light assemblies or luminaires attached to wood poles. Temporary overhead electrical service may be used only for non-breakaway poles.

The Design-Build Contractor shall remove temporary lighting once it is no longer needed. Design-Build Contractor shall be responsible for the power of any and all temporary lighting that may be required, and it is the Design-Build Contractor's responsibility to schedule and coordinate all Utility connections.

8.4.3 Electrical Service for Lighting

Design-Build Contractor shall coordinate with Utility Owner(s) and INDOT to deliver metered power to all lighting equipment installed or modified under this Project. Design-Build Contractor shall be responsible for all Work required to obtain metered power to lighting equipment, including application, coordination, and construction required by Utility Owner(s).

Each lighting system shall clearly identify the power service location and power company provider based on jurisdiction.

8.5 Traffic Signals

If Roadway Rehabilitation Work at the SR 56 Interchange is included in the Contract in accordance with DBA Exhibit 19 (Scope of Work), then the Design-Build Contractor shall remove and replace all existing traffic signal detector loops and detector housings within the ramp pavement. All traffic signal equipment installed under the Project shall be new.

Existing traffic signal operation and detection shall be maintained during all phases of the Roadway Rehabilitation.

8.5.1 Traffic Control Device Verification for Signal

The Design-Build Contractor shall schedule two meetings with INDOT per intersection signal installation to verify the traffic control device Work as follows:

a. At the completion of all cabling and wiring.

b. Prior to traffic control device activation.

The meetings shall be coordinated and scheduled a minimum of 72 hours in advance of each individual meeting date.

8.6 Deliverables

Deliverables under this Section 8, a non-exhaustive list of which is set forth in Table 8-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 8-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Roll Plots at 1″ = 200′ Scale – including all existing and proposed signs, proposed pavement markings, and proposed lighting as applicable	Stage 1 Review Submission, Stage 3 Review Submission	8.2 8.3 8.4
Sign Structure Calculations	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8.2
Existing and Proposed Signing Plans	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8.2.1
Pavement Marking Plans	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8.3.1 8.3.2

Lighting Plans, as applicable	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents, as applicable	8.4
Traffic Signal Details	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8.5

Section 8 Attachments:

Attachment 8-1 INDOT Contrast Marking Typical

9. MAINTENANCE OF TRAFFIC

9.1 General

Design-Build Contractor shall perform all Maintenance of Traffic (MOT) Work in accordance with the DBA Documents, including Project Standards, this Section 9 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall design and construct MOT in a manner that minimizes traffic impacts, vehicular delay, and the exposure to potential hazards for motorists, pedestrians, and personnel in the work zone and vicinity. This Section defines specific requirements, restrictions, and permit durations for lanes, ramps, and local streets.

9.2 Administrative Requirements

9.2.1 Required Personnel

9.2.1.1 Maintenance of Traffic Manager

In addition to the requirements identified in Section 1.2 (Project Management), the Design-Build Contractor's Maintenance of Traffic Manager shall be responsible for the following:

1. Coordinate MOT activities with INDOT, law enforcement agencies, emergency response providers, school systems, federal, State, and local public agencies whose operations affect, or are affected by, the Project construction and/or MOT.

2. Implement traffic management strategies and lead development of the Transportation Management Plan (TMP).

3. Monitor and document crashes within and adjacent to the Project and provide a weekly report to INDOT summarizing findings.

4. Monitor and document condition of the open travel lanes and shoulder pavement, guardrail, cable barrier, drainage, lighting, ITS, and other appurtenances within the Project Limits, and provide a weekly report to INDOT summarizing findings.

5. Supervise the activities of the Certified Worksite Traffic Supervisor and Incident Management Liaison.

6. Manage and coordinate MOT plan design, switching procedures, construction phasing, implementation, adjustments, and changes.

9.2.1.2 Certified Worksite Traffic Supervisor

The Design-Build Contractor shall provide a Certified Worksite Traffic Supervisor (CWTS) in accordance with Section 801.03 of the Standard Specifications. The CWTS shall ensure that all traffic control devices including temporary concrete barrier, meet acceptable standards as outlined in the plans, specifications, and ATSSA's "Quality Standards for Work Zone Traffic Control Devices" prior to installation, and throughout the duration of construction. The CWTS, or designee as approved by INDOT, shall inspect all temporary traffic control devices daily and record these daily inspections in the weekly traffic control device report. The CWTS, or designee as approved by INDOT, shall be on-site when Construction Work is occurring until Final Acceptance. The CWTS shall be under the supervision of the Maintenance of Traffic Manager.

9.2.1.3 Incident Management Liaison

The Design-Build Contractor shall designate an Incident Management Liaison to organize and participate with the TMP Team. A minimum of four (4) weeks prior to the start of Construction Work, the Incident Management Liaison shall contact and coordinate with the INDOT Work Zone Incident Management Program Director, who will arrange and conduct a detailed incident management training session for the Design-Build Contractor's Key Personnel, superintendents, and lead foremen.

Kathy Borgmann
Work Zone Incident Management Program Director
Traffic Management Center
8620 East 21st Street Indianapolis, IN 46219
(317) 899-8619
kborgmann@indot.in.gov

The Design-Build Contractor shall invite INDOT project personnel and provide INDOT with notice of the training two (2) weeks prior to the session. This training shall familiarize Design-Build Contractor's personnel with the incident management procedures developed by the TMP Team that need to be followed throughout the Project. This training shall be conducted at a frequency as agreed upon with INDOT for the term of the Contract as personnel are added

to the Project. Documentation of this training, including dates performed and a list of all attendees, with signatures, shall be provided to INDOT within five (5) calendar days of performing the training. Design-Build Contractor and Incident Management Liaison shall coordinate resources on the job and cooperate with all the emergency services providers as necessary for efficient response in emergency situations. The Incident Management Liaison shall be under the supervision of the Maintenance of Traffic Manager.

9.2.2 Transportation Management Plan Team Meetings

The Design-Build Contractor shall engage with INDOT and Governmental Entities, including law enforcement agencies, emergency response providers, school systems, and other agencies whose operations affect, or are affected by, the Project construction and/or MOT (collectively, the "TMP Team"). Design-Build Contractor shall schedule, host, and prepare the agenda for all recurring meetings with the TMP Team. An option for virtual attendance shall be provided by the Design-Build Contractor for all meetings. INDOT will identify the required invitees for the TMP Team and provide to the Design-Build Contractor. INDOT will be the primary contact for the TMP Team.

The Design-Build Contractor shall maintain a contact list of TMP Team members. This list shall include, at a minimum, the following: name, affiliation, work phone, and email. The list shall be sorted in alphabetical order by affiliation and then last name.

9.2.2.1 Initial TMP Team Meeting

The Design-Build Contractor shall prepare and host an initial TMP Team meeting at least six (6) weeks prior to initial installation of the traffic control devices for the beginning MOT phase.

9.2.2.2 Monthly TMP Team Meetings

The Design-Build Contractor shall prepare and host monthly TMP Team meetings from Commencement of Construction to Substantial Completion. The meeting schedule and frequency may be adjusted upon the agreement of the TMP Team members and approval by INDOT. Design-Build Contractor shall prepare an agenda to cover the following objectives at these meetings:

1. Review and discuss the approved MOT Plans.
2. Review and discuss the Design-Build Contractor's MOT details, including review of MOT and traffic-related environmental commitments, work zone crash rate,

crash rate trends, and work zone queueing.

3. Disseminate Project MOT information to TMP Team, including schedules and details regarding MOT phase shifts; lane and shoulder widths; shoulder, lane and road closures; and detours.

4. Obtain MOT input from TMP Team and prepare and distribute meeting minutes.

5. Review the approved TMP (including the TTCP, the TOP and PIP), its implementation and discuss any comments requiring amendment to the document.

6. Review the approved Incident Management Plan (IMP), its implementation and discuss any comments requiring amendment to the document.

7. Review all Incidents within and adjacent to the Project limits, and discuss mitigation measures, as needed.

8. Review emergency responder access.

The Design-Build Contractor shall notify members of the TMP Team of meetings at least fourteen (14) calendar days prior to any scheduled meeting and distribute a meeting agenda at least two (2) business days in advance. The Design-Build Contractor shall prepare meeting minutes and distribute to the TMP Team within five (5) calendar days after the meeting.

9.3 Design and Construction Requirements

9.3.1 Transportation Management Plan

The Design-Build Contractor shall prepare, implement, and maintain a TMP for the Project. The TMP shall be consistent with the plans submitted with the Proposal. Design-Build Contractor shall obtain INDOT approval of the TMP prior to initiation of any Construction Work. Design-Build Contractor shall prepare and submit updates to the TMP to INDOT for approval no later than fourteen (14) calendar days after the identification of a necessary change to the Work, including the MOT scheme.

The TMP shall be developed in coordination with and be consistent with the PIP and include procedures to communicate TMP information to the Public Information Officer for communication of all MOT Work to the public, affected Governmental Entities, and other affected parties prior to implementation of any MOT phase or phase change.

The TMP shall include each of the following components and shall comply

with the Project Standards and Contract Documents:

1. Temporary Traffic Control Plan (TTCP)

    a. Procedures for communication of all MOT phase installations and changes with the affected groups.

    b. Descriptions of contact methods and response times of the CWTS to address any MOT conditions needing attention during all hours.

    c. Identification of measurable limits for the repair and replacement of traffic control devices, including pavement markings.

    d. Work zone and work area access descriptions, plans, and mapping for construction traffic and emergency services, to include, the acceleration and deceleration details and locations for ingress and egress into the work area for each construction phase.

    e. Construction haul route descriptions, plans, and mapping for each construction phase.

    f. Frequency of inspection and methods of maintenance of all traffic control devices in use by the Project.

    g. Procedures for modification, change and amendment to the MOT Plans.

2. Incident Management Plan (IMP)

    a. Identification of staging areas where equipment or vehicles needed for incident clearance response can be stored and have reasonable and safe access to the construction zones.

    b. Processes to determine the placement, spacing, messaging, and design of temporary panels signs to provide advance warning of construction zone and closures.

    c. Provisions to provide continuous access to established truck routes and any Hazardous Material routes.

    d. Identification and details for the strategies and methods planned to be used for elimination and mitigation of adverse traffic impacts, to include but not limited to, law enforcement, pavement markings, regional signing, traffic signal timing and phasing, automated work zone information systems, queue detection and warning, mobile queue warning vehicles, lane designations for truck traffic, or other methods for traffic during each construction phase.

3. Public Involvement Plan, in accordance with Section 19 (Public Involvement).

9.3.2 Temporary Traffic Control Plan

The Design-Build Contractor shall prepare a Temporary Traffic Control Plan (TTCP), submit for INDOT approval, and implement the approved TTCP. An approved TTCP shall be included with each applicable RFC package Submittal. The TTCP shall become part of the appropriate TMP as amendments once the TTCP is approved by INDOT.

The TTCP shall define how Design-Build Contractor is to phase construction and detail all the required elements of the physical work zone.

In addition to the requirements in the IDM, the TTCP shall include the following information:

1. A cover page/title sheet signed and sealed by a Registered Professional Engineer.
2. Standard Drawings used for MOT Plans and MOT design.
3. MOT Plans. The MOT Plans shall detail phases and shall identify all movement closures anticipated during the Work.
4. Haul routes required for the purpose of Construction Work.
5. Written procedures, plan details, diagrams, and scheduled sequencing information in a bar chart style format to show each switching procedure between each controlled MOT phase change, winter shutdown if applicable, and contract change. The written switching procedure shall consist of the methods, actions, lane restrictions, timing, queue mitigation strategies, signing and other items necessary to complete the traffic switch. The phone numbers and duties of the supervising personnel assigned to perform the Work shall be part of the switching procedure documentation.
6. Written procedures, diagrams, and plan details to describe the process for transitioning from temporary signage and temporary pavement markings to permanent signing and permanent pavement marking.
7. Written procedures, diagrams, and plan details to describe Design-Build Contractor coordination with the construction and maintenance projects of Governmental Entities that are adjacent to or near the Project. The documentation shall include a coordination clause listing other adjacent or nearby construction projects. At a minimum, this shall include the projects listed in Table 1-1 in Section 1.4 (Coordination with Other Projects).

8. Written procedures, diagrams, and plan details requiring Design-Build Contractor to maintain existing access to all properties within the Project limits for the duration of the Construction Work, except as provided elsewhere in the Contract. Appropriate information about access modifications shall be made available to the property owners as required in the PIP.

In addition to the requirements in the IDM and Design Memorandums, the MOT Plans shall include the following information for each phase of construction:

1. Locations and details for traffic shifts and lane closures
2. Use of temporary roadways
3. Proposed mitigation measures for traffic impacts
4. Detailed ingress and egress access locations to the work area for emergency response providers, law enforcement agencies, and performance of the Work.
5. Temporary local road, sidewalk or path closures and detour routes.

9.3.3 Work Zone Incident Management

9.3.3.1 Incident Management Plan

The Design-Build Contractor shall prepare and submit the Incident Management Plan (IMP) as part of the TMP for review and approval by INDOT. The IMP shall include procedures for interaction with INDOT, INDOT's consultants, emergency responders, and other Governmental Entities.

Design-Build Contractor shall coordinate resources on the job and cooperate with all the emergency service providers as necessary for efficient response in emergency situations.

The Design-Build Contractor shall establish procedures for the detection, verification, response, management, and clearance of incidents within or adjacent to the work zone. These procedures shall be discussed at TMP Team meetings and are subject to INDOT review and approval.

The Design-Build Contractor shall designate an Incident Management Liaison to participate in the TMP Team who shall coordinate all incident response requirements with INDOT's Work Zone Incident Management Program Director.

9.3.3.2 Work Zone Incident Management Meetings and Notification Requirements

The Incident Management Liaison shall conduct Work Zone Incident Management meetings. These meetings shall be focused solely on information for emergency management and incident responders.

The Incident Management Liaison shall prepare and distribute incident management information, including presentation slides, maps, diagrams, and photos as approved by INDOT, to agencies identified by the TMP Team, including local emergency management and incident responders. This information shall be distributed at least 24 hours before planned Work Zone Incident Management meetings to give attendees an opportunity to review the material before the meeting.

The Incident Management Liaison shall update maps at a minimum of once per change of phase in maintenance of traffic plan or at the request of INDOT. The maps shall be 11 inches by 17 inches, in color, to an engineering scale, and include at a minimum the following:

1. Outline of the roadway geometry
2. Open travel lanes/ramps colored in green
3. Closed travel lanes/ramps with active construction in orange
4. Closed travel lanes/ramps accessible to emergency traffic in red
5. Temporary emergency vehicle access points with identifiers
6. Rally points for emergency vehicle escorts into the Work area with identifiers defined by INDOT
7. Control points, such as mile markers and block numbers
8. Emergency road closure, diversion, points with identifiers
9. Diversion equipment and their locations
10. All entrance and exit ramps identified and labeled.

The Incident Management Liaison shall meet with local emergency responder representatives at least fourteen (14)

calendar days prior to a major change in the MOT traffic patterns and coordinate with INDOT TMC.

9.3.3.3 Incident Response

The Incident Management Liaison shall coordinate Design-Build Contractor's resources in response to an Incident either in the Project limits, work zone, or portions of the roadways where traffic is in queues approaching the work zone. Design-Build Contractor shall provide to INDOT, a minimum of (30) calendar days in advance of Commencement of Construction, the name(s), mobile phone(s), and email addresses for the Incident Management Liaison and their designee(s), and Design-Build Contractor shall cause such designees' phone and email contact information to remain current until Final Acceptance. The assigned designee shall be available and on-call 24 hours a day, seven days a week. If necessary, in the event of an Incident, the designees shall have a response time of less than 30 minutes to the Incident site to oversee the use of Design-Build Contractor's resources to help resolve the Incident.

In the event of an Incident within or adjacent to the Project limits while Construction Work is underway, Design-Build Contractor's personnel shall assist in establishing road or ramp closures to isolate Incident scenes in an emergency (as requested by INDOT, emergency responders, or law enforcement, each in their sole discretion). Design-Build Contractor's heavy equipment may be required to assist in moving wreckage or debris from the travel lanes if requested by emergency responders or law enforcement and realigning temporary barriers to facilitate reopening the road to normal traffic (as requested). The Incident Management Liaison shall coordinate these activities with INDOT and emergency responders on the scene.

Design-Build Contractor shall contact the appropriate law enforcement agency for disabled vehicles in active lanes and shoulders.

To assist INDOT, emergency responders or law enforcement with emergency road, ramp or lane closures, Design-Build Contractor shall supply at a minimum the following pieces of equipment to be located as defined in the TMP:

1. (1) each Flashing arrow sign shall be provided for each

interstate mainline approach to the work zone and each mainline exit ramp. Traffic control drums shall be provided with each flashing arrow sign of sufficient quantity for a single lane closure.

2. (10) each Portable Changeable Message Signs (PCMS) shall be available on the Project Site for use at the discretion of the Engineer, in accordance with Section 9.3.6.

3. (32) feet Type III Barricades shall be provided for each entrance ramp within the work zone, and for each entrance ramp one interchange in advance of the work zone for all bounds. Traffic control drums shall be placed at each interchange of sufficient quantity to close off turn lanes.

4. (1) each Road Closure Sign Assembly shall be provided for each entrance ramp within the work zone, and for each entrance ramp one interchange in advance of the work zone for all bounds.

9.3.4 Design Criteria

Maintenance of traffic shall be in accordance with Contract Documents, Indiana Design Manual (IDM) Chapter 503, Design Memorandums, and the Indiana Manual on Uniform Traffic Control Devices (IMUTCD). All conflicting speed limit signs shall be removed, covered, or revised to indicate the proper speed limit. All construction activity within construction clear zone shall be protected with temporary traffic barrier, except for the outside shoulder strengthening, pavement patching, maintenance during construction, and pavement markings, which shall be performed using lane restrictions in accordance with the IHCP, provided as Attachment 9-1 (IHCP Exception).

The maintenance of traffic layout shown on the Reference Plans is for information only. The Design-Build Contractor shall submit a traffic maintenance plan for review and approval. The Design-Build Contractor's traffic maintenance plan shall adhere to the approved Transportation Management Plan (TMP) for this project.

The information listed below shall be incorporated into the MOT Plans and the TMP.

9.3.4.1 General Design Criteria

1. Construction Zone Design Speed

   a. The construction zone design speed for MOT features on the approaches to the work zone on I-65

shall be the existing posted speed limit. The posted advisory speed on ramps may be used once vehicles have departed from mainline I-65.

b. On I-65, the construction zone design speed shall be 70 mph and the work zone speed limit shall be 55 mph. Design speeds for crossovers shall be 55 mph in accordance with the standard drawings.

c. The construction zone design speed on local streets shall be the posted speed limit.

2. Lanes and Shoulders

a. The minimum MOT lane width shall be 11 feet on I-65 and ramps.

b. The minimum MOT shoulder width shall be 2 feet on I-65 and ramps, unless approved otherwise by INDOT in its sole discretion.

c. When a travel lane is 4 feet or less from guardrail or concrete barrier of any kind (median, bridge, cutwall, etc), it shall be delineated in accordance with the IDM.

d. The minimum MOT lane width on local streets shall match existing lane widths up to 11 feet.

e. Lane and shoulder widths equal or greater than the conditions existent prior to NTP2 shall be provided along I-65 throughout the limits of the Project from December 1 through March 31, unless otherwise approved by INDOT in its sole discretion.

f. Two lanes of traffic shall be maintained at all times in each direction on I-65 throughout the Project, except during periods of preapproved lane closures in accordance with the IHCP.

g. Regulatory signing shall be provided to prohibit trucks from traveling on the existing shoulders used for MOT phasing.

h. A minimum of four (4) temporary pavement message markings shall be provided in advance of designated truck lanes.

i. All lane restrictions and ramp closures shall be in accordance with the IHCP. If lane restrictions or

ramp closures are utilized, the hours of restriction shall be as set out in the IHCP.

j. Acceleration and deceleration lanes in accordance with IDM Chapter 48 shall be provided at all I-65 entrance and exit ramps that are open to traffic.

k. All lane shifts shown in plans will have the deflection point defined by station and offset such that the total lateral movement can be calculated. If reverse curves are used for lane shifts, the PI of the curves shall be located by station and offset and include the radius of the curve. The reverse curves shall be separated by a minimum tangent length of 200-ft.

3. The maximum length of work zone traffic restrictions along I-65 northbound or southbound shall be 7.4 miles, unless otherwise approved by INDOT in its sole discretion. Where temporary crossovers are used for construction, the maximum length of the work zone traffic restriction as measured from the beginning of the first temporary crossover to the end of the last temporary crossover may exceed 7.4 miles.

4. Temporary Crossovers for Contraflow Lanes

   a. Where the Design-Build Contractor chooses to cross traffic over to the opposing travel lanes as part of MOT, temporary pavement shall be constructed. Temporary pavement shall be removed after construction is complete. Temporary pavement for crossovers shall be in accordance Section 6 (Pavement).

   b. The proposed locations and drainage design for each temporary crossover shall be prepared and provided with the Stage 1 Review Submission for INDOT review and approval. This submittal shall include the documented evaluation and design for the implementation and maintenance of a temporary drainage system for pavement surface drainage and conveyance of median drainage. Final location and design of the temporary crossovers shall have prior approval by INDOT before installation.

   c. Lane width in the temporary crossovers shall be 16-feet for single lane crossovers and 13-feet or greater for dual lane crossovers.

d. Temporary crossover pavement markings shall be 10 inches in width and shall be delineated with temporary raised pavement markings (TRPMS) on both edge lines and the lane line (if applicable) spaced at 20 feet on center.

e. A full array of temporary buzz strips shall be provided in advance of temporary crossovers. Temporary buzz strips shall be placed in accordance with the applicable standard drawing.

f. Design-Build Contractor shall use Attachment 9-2 (INDOT WZSS Guidance on Panel Signs for Split Crossovers) as criteria in addition to all other Contract Documents and temporary traffic control standards.

g. A minimum of four (4) temporary pavement message markings shall be provided in advance of split lane temporary crossovers to identify the contraflow, limited access lane(s) and designated trucks lanes.

h. Design-Build Contractor shall provide a minimum of two (2) temporary panel signs in advance of traffic entering a temporary crossover. The panel signs shall be used to identify divided traffic or lane split ahead, identify which lane(s) leads to crossed- over lanes, identify which lanes have trucks prohibited, if applicable to the work zone, show the crossed-over lanes will function as express lanes with no access to interchanges, identify the next interchange available to the express lane, or show lane guidance for upcoming routes and interchanges. Each temporary panel sign shall be a minimum of 200 square feet in size. See Attachment 9-2 (INDOT WZSS Guidance on Panel Signs for Split Crossovers) for additional guidance on the crossover signing requirements.

5. Design-Build Contractor shall identify, design, and implement an advance queue warning strategy using an Automated Work Zone Information System (AWZIS) in accordance with Attachment 9-3 (Automated Work Zone Information System). The system shall include all necessary equipment to accommodate a minimum of (6) PCMS per bound of travel on I-65. A single set of temporary buzz strips shall be placed across all lanes

1000 feet in advance of each AWZIS PCMS on I-65.

6. Temporary lane shift pavement markings shall be a minimum of 8” in width.

7. Work will be permitted between December 1 and March 31, for each year of construction, subject to compliance with the Contract Documents and INDOT approval. Design Build Contractor shall submit a traffic plan for this work to INDOT for review and approval.

8. Drainage shall be maintained at all times, during all phases of construction such that there shall be no standing water on the travel way or shoulders during MOT. Additional drainage requirements are provided in Section 7 (Hydraulics and Drainage)

9. Design-Build Contractor shall install missing reference mile markers prior to initiation of MOT and shall maintain reference mile markers during construction.

10. Design-Build Contractor shall have PTQ Trucks on-Site and ready for deployment when traffic queueing is anticipated, and it shall deploy PTQ Trucks any time traffic queueing is occurring because of lane closures, including but not limited to, lane closures, rolling slowdowns, ramp closures, and traffic stoppages on I-65. If unexpected traffic queueing begins occurring on a regular or repeated basis because of the MOT configuration or Design-Build Contractor’s activities, Design-Build Contractor shall deploy PTQ Trucks until such condition causing the traffic queueing can be corrected and resolved. This Work shall be performed in accordance with RSP 801-T-236.

11. Design-Build Contractor shall coordinate the services and use of local Law Enforcement Officers (LEO) and Indiana State Police (ISP) for all traffic restrictions, including but not limited to, lane closures, rolling slowdowns, and traffic stoppages. This work shall be performed in accordance with RSP 801-R-672.

12. A full array of temporary buzz strips shall be provided in conjunction with the advanced signage on I-65 and be updated with any location changes of advanced signing. Temporary buzz strips shall be placed in accordance with the applicable standard drawings.

9.3.5 Construction Access and Haul Routes

The Design-Build Contractor shall obtain and comply with the conditions of all necessary Governmental Approvals from the appropriate Governmental Entities for temporary roadways, including Construction Work and, as applicable, haul routes.

All local streets used for access shall be maintained in good, clean, safe conditions at all times. This includes, but is not limited to, keeping pavement markings fresh and repair of potholes.

The Design-Build Contractor shall maintain construction access roads and haul roads in a good, clean, safe condition at all times while used for the delivery of materials required for the Work.

The Design-Build Contractor shall not use local streets through residential neighborhoods for access to the Site without written approval of the local jurisdiction. Deliveries and hauling to and from the Site shall be performed via designated haul routes along the Project.

9.3.6 Portable Changeable Message Signs

Design-Build Contractor shall provide, operate, relocate, and maintain Portable Changeable Message Signs (PCMS) in accordance with "INDOT Guidelines for Portable Changeable Message Signs (PCMS)", Indiana MUTCD, and other Project Standards for the term of the Contract.

In additional to any PCMS required by the Design-Build Contractor's design, the Design-Build Contractor shall maintain an extra ten (10) PCMS on the Project Site that are in good working condition for use at the discretion of the Engineer. These additional PCMS's shall be available on the Project Site until Substantial Completion.

Design-Build Contractor shall coordinate the placement, messaging, relocation, and operation of each PCMS with INDOT. PCMS's shall be placed a minimum of seven days in advance of road closures and traffic restriction to alert motorists of changing traffic patterns.

9.3.7 Public Notification

The Design-Build Contractor shall notify all applicable 911 offices, police departments, local fire departments, city engineering departments, public transit agencies, and the affected school districts in writing a minimum of fourteen (14) calendar days prior to scheduled closures.

The Design-Build Contractor shall provide written copies of these notifications to INDOT.

The Design-Build Contractor shall provide notification of construction activities to the following individuals and agencies at least 14 calendar days prior to beginning the construction activities and at least 14 days

prior to each Maintenance of Traffic Change:

1. Indiana Dept of Environmental Mgmt – 800-457-8283
2. Scott County EMS – 812-754-0500
3. Scott County Sheriff – 812-752-8400
4. Clark County EMS – 812-246-0357
5. Clark County Sheriff – 812-283-4471
6. Scottsburg Fire Dept – 812-752-7287
7. Scottsburg Police Dept – 812-752-4462
8. Monroe Twp Fire Dept – 812-294-1738
9. Indiana State Police – 317-232-8248

9.3.8 Restrictions for Construction Work

The requirements of this Section apply throughout the term of the Contract.

9.3.8.1 State or Local Road Movement Closures

The Design-Build Contractor shall comply with the requirements and commitments defined in the IHCP, provided as Attachment 9-1 (IHCP Exception), if it elects to use the permitted closure(s) or restrictions(s).

Full closure(s) of I-65 NB or SB are not permitted.

The automated work zone information system (AWZIS) shall be operational for all work requiring I-65 lane closures.

The I-65 NB and SB exit ramp to the Henryville Rest Area may be closed one-time each for a maximum duration of 180 days each. The Design-Build Contractor shall cooperate and coordinate the work to be performed during this closure, and any service outage of the rest area with the Indiana State Police, INDOT Facilities and other INDOT departments.

9.4 Deliverables

Deliverables under this Section 9, a non-exhaustive list of which is set forth in Table 9-1, shall be submitted in hard copy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 9-1: Deliverables

Deliverable	Deliverable Schedule	Section
Transportation Management Plan (TMP) for Construction Work	Draft TMP within 30 days after NTP; Final TMP 30 days prior to commencement of Construction Work; updates as needed.	9.3.1
Temporary Traffic Control Plan (TTCP)	Draft TTCP within 30 days after NTP; Final TTCP 30 days prior to commencement of Construction Work for each buildable unit; updates as needed.	9.3.2
Incident Management Plan (IMP)	Draft IMP within 30 days after NTP; Final IMP 30 days prior to commencement of Construction Work; updates as needed.	9.3.3
Incident management training documentation	Within 5-days after completion of training for each training session	9.3.3.1
Temporary Crossover Location & Design	With Stage 1 Review Submission	9.3.4.1

Section 9 Attachments:

Attachment 9-1 IHCP Exception

Attachment 9-2 INDOT WZSS Guidance on Panel Signs for Split Crossovers

Attachment 9-3 Automated Work Zone Information System

10. INTELLIGENT TRANSPORTATION SYSTEM

10.1 General

The Design-Build Contractor shall perform Intelligent Transportation System (ITS) Work in accordance with the DBA Documents, including Project Standards, this Section 10 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

10.2 Design and Construction Requirements

1. The Design-Build Contractor shall be responsible for furnishing and installing all required ITS components within the Project Limits.

2. The Design-Build Contractor shall develop the ITS plans in accordance with the IDM, Special Provisions, Standard Specifications, IMUTCD, and INDOT Standard Drawings.

3. The Design-Build Contractor shall be responsible for all Electrical power, and supporting infrastructure to provide a complete, fully operational ITS that is ready to be integrated and controlled by INDOT Traffic Management Center (TMC).

10.2.1 Material and Equipment Requirements

All material and equipment provided shall be compatible with existing INDOT ITS deployments and the Design-Build Contractor shall ensure a seamless integration with existing systems. The Design- Build Contractor shall furnish all materials for ITS Work elements. The Design-Build Contractor shall submit material specifications and details to INDOT for approval prior to ordering.

10.2.2 ITS Components

The Design-Build Contractor shall be responsible for keeping all existing ITS features operational throughout the duration of the Contract. Any ITS feature damaged or removed by construction activity shall be replaced by Design-Build Contractor to current INDOT standards and specifications.

Existing underground ITS wiring shall be located in accordance with Section 16.2.1 (Standard of Care Applicable to Utility Work) and in coordination with INDOT ITS at ITS_Locates@indot.IN.gov.

The following ITS components are present with the Project Limits:

10.2.2.1 CCTV Towers

All existing CCTV towers, including CCTV towers installed in Contract T-41282, shall remain in place. If any CCTV

tower is impacted by the proposed Work, the Design-Build Contractor shall relocate the impacted CCTV tower on new foundations. The Design-Build Contractor shall provide all ITS components required to re-establish the functionality of the relocated CCTV tower. The final location and selection of ITS components of any relocated CCTV tower shall be subject to review and approval by INDOT.

10.2.2.2 Dynamic Message Sign Structures

All existing Dynamic Message Sign (DMS) structures, including DMS structures installed in Contract T-41282, shall remain in place. If any DMS structure does not meet span, lateral, or vertical clearance requirements due to the proposed Work, the Design-Build Contractor shall replace the DMS structure on new foundations. The Design-Build Contractor shall provide all ITS components required to establish the functionality of the replaced DMS structure. Foundations shall meet the requirements listed in the Project Standards. The final location and selection of ITS components of any replaced DMS structure shall be subject to review and approval by INDOT.

10.2.2.3 Automated Traffic Recorder Station

Design-Build Contractor shall replace the existing Automated Traffic Recorder (ATR) station at Mile Marker 19.8 with all new equipment for a 3-lane ATR station in both the northbound and southbound directions (total 6-lane ATR) in accordance with the INDOT Standard Drawings and Attachment 10-1 (ITS USPs). Design-Build Contractor shall submit ATR station drawings and equipment for approval prior to ordering. This replacement shall consist of full replacement of the site including cabinet, road sensors, and conduit infrastructure. ATR infrastructure shall be as defined in Attachment 10-1 (ITS USPs). The Design-Build Contractor shall submit full site plans and cut sheets for all electronics used for approval by INDOT.

10.2.2.4 Electrical Service Points

Design-Build Contractor shall coordinate with Utility Owner(s) to deliver metered power to all ITS equipment installed or modified under this Project, in accordance with Section 16 (Utilities). The Design-Build Contractor shall coordinate with the Electrical utility provider to determine the final location of service points. Design-Build Contractor shall be responsible for all Work required to obtain a power connection, including any applications, coordination,

permits, or construction required by Utility Owner(s). Design-Build Contractor shall coordinate and provide power supply, transformer, conduit, wiring and any other equipment required for Utility Owner(s) to provide electricity to the final location of the service points. All costs for obtaining power to the location shall be the responsibility of the Design-Build Contractor.

10.2.3 Safety and Maintenance Access

The design shall provide safe maintenance access to ITS equipment for use by INDOT ITS maintenance personnel. When placement of ITS equipment outside of the edge of shoulder is infeasible, Design-Build Contractor shall locate ITS equipment such that future maintenance operations shall not require lane closures or traffic modifications.

Maintenance access points shall be indicated on the ITS plans submitted by the Design-Build Contractor and shall be subject to review and approval by INDOT.

10.3 Deliverables

Deliverables under this Section 10 a non-exhaustive list of which is set forth in Table 10-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 10-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Roll Plots at 1″ = 200′ Scale – including all existing and proposed ITS elements	Stage 1 Review Submission, Stage 3 Review Submission	10.2
ITS Plans	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	10.2
As-Built Drawings (PDF and Microstation)	Final Acceptance	10.2
Manufacturers documentation submittals for all equipment used in the Project	Final Acceptance	10.2

Section 10 Attachments:

Attachment 10-1 ITS USPs

11. GEOTECHNICAL

11.1 General

Design-Builder Contractor shall perform all Geotechnical Work in accordance with the DBA Documents, including Project Standards, this Section 11 and its RSPs and USPs; Government Approvals; and Government Rules.

INDOT-provided Geotechnical Data Reports (GDR) are provided in Attachments 11-1 to 11-13. The baseline conditions described in the GDR reflect INDOT's interpretation of the anticipated subsurface conditions. The Design-Build Contractor is required to fully understand the technical concepts, terms, and descriptions used in defining the conditions in the GDR.

The GDR and the conditions presented were developed using the geotechnical information and data gathered through exploratory field methods, field and laboratory testing and other data, analyses, evaluations, professional opinions, and experiences in similar ground conditions. The Design-Build Contractor may rely on this GDR for the baseline conditions of the Project, but shall not solely rely on this GDR as the only input for planning, designing, or performing the Work, including selecting and designing the means, methods, equipment, techniques, sequences, and procedures of construction to be used, except where prescribed. To fulfill this responsibility, in part, the Design-Build Contractor shall employ an INDOT pre-qualified geotechnical engineer to review the GDR. The Design-Build Contractor will be deemed to have studied the contract documents and the geotechnical data provided in the GDR, to have had the opportunity to inspect the soil and rock samples recovered from the borings, and to have planned and conducted supplemental geotechnical work and analyses as necessary to gain a complete understanding of the anticipated ground conditions and the associated design and construction parameters for their final design.

11.2 Geotechnical Data Report

The GDR provides preliminary geotechnical data obtained by INDOT for the Work. Design-Build Contractor shall review and interpret the geotechnical data provided by INDOT in order to determine if the geotechnical requirements of the Project have been met. Design-Build Contractor shall provide the geotechnical Work necessary to satisfy Project requirements.

The Design-Build Contractor may use GDR boring information for design of a bridge or wall foundation if the boring is within 30 feet of the foundation. Design-Build Contractor shall be responsible for all other geotechnical Work necessary to satisfy Project requirements.

11.3 Supplemental Geotechnical Work

Design-Build Contractor shall perform any necessary supplemental subsurface exploration and testing necessary to satisfy Project requirements and support its design approach and construction methods. Design-Build Contractor shall be responsible for the sufficiency, reliability, and accuracy of all Work and for determining the form and nature of the subsurface evaluation of the Site.

Design-Build Contractor shall submit a subsurface exploration and testing program identifying all supplemental field and laboratory testing to be performed to establish the geotechnical conditions and parameters used for analysis and design. The subsurface exploration and testing program shall be submitted to INDOT for review and approval. At a minimum, the Submittal shall include a rationale for the development of the program, parameter selection, descriptions of the methods of analyses, and Plan sheets showing all test boring locations. Supplemental test borings shall be selectively located based on geologic conditions, field observations, design considerations, and the minimum criteria specified in the Project Standards.

All exploratory field and laboratory testing work shall be completed in accordance with the applicable ASTM and AASHTO requirements and the Project Standards.

Design-Build Contractor shall determine the coordinate location, station, and offset from the alignment in addition to the ground surface elevation for each exploratory element performed.

11.3.1 Boring and Rock Core Logs

Final test boring and rock core logs shall be prepared and presented using gINT software as supplied by Bentley Systems Inc. INDOT will provide the electronic template for the current version of gINT.

After collecting soil and rock samples, Design-Build Contractor shall perform laboratory tests to determine material properties and verify design assumptions. Sufficient testing shall be performed to satisfy Design-Build Contractor that results are representative of and characterize in-situ conditions.

11.3.2 Geotechnical Design Reports

Design-Build Contractor shall prepare Geotechnical Design Reports addressing all of the Project's geotechnical Work. A Geotechnical Design Report shall be written for individual Project elements or groups of Project elements. Geotechnical Design Reports shall be submitted to INDOT for review and approval.

All design calculations and computer program results shall be checked and initialed by a Registered Professional Engineer and included in the corresponding Geotechnical Design Report.

Each Geotechnical Design Report shall contain final typed boring logs updated with laboratory test results, and the results of all in-situ testing, geophysical testing, and laboratory testing. An electronic copy of the INDOT-format gINT data used to create the boring logs shall be submitted with each report.

Each Geotechnical Design Report shall contain sufficient and clearly organized analysis to support design and construction recommendations being made.

11.3.2.1 Analysis

Each Geotechnical Design Report shall contain a separate section entitled "Geotechnical Analysis." The geotechnical analysis shall consider the design requirements of other design disciplines requiring geotechnical information for design and construction. The analysis shall satisfy the expectations of the Project Standards. Analysis shall include, but not be limited to, the following information:

1. An assessment of the engineering properties of all soil and rock types, including the expected average and range of soil and rock strengths and deformational properties, and the selected design parameters for anticipated soil and rock types. A discussion shall be included regarding the rationale for the selected parameters;

2. Settlement magnitude and duration;

3. Embankment stability risks;

4. Analysis of bridge foundations which shall include axial and lateral performance of individual foundation elements and groups of foundation elements with anticipated deflections;

5. The impacts of groundwater and flood events on design and construction from a geotechnical perspective;

6. Seismic site class; and

7. External and global stability of retaining walls.

11.3.2.2 Recommendations

Each Geotechnical Design Report shall contain a separate section entitled “Geotechnical Recommendations.” At a minimum, this section shall include the following information:

1. A narrative describing the interpretation of the pertinent geotechnical data used as a basis for selection, design, and construction of the proposed elements relative to the anticipated sequence and means and methods of construction;

2. Preparation of subgrade and foundation soil for support of construction activity and permanent construction and actions to be taken during construction to improve the soil as deemed necessary based on Site observations;

3. Requirements for geotechnical instrumentation and monitoring summaries determined to be necessary to validate designs by the Design-Build Contractor;

4. Geotechnical risk management for design and construction;

5. Fill and backfill material requirements if different than required by the Project Standards;

6. Any necessary ground improvements for support of, stability of, and/or control of settlement and deformations, including seismic, for embankment fill and foundation elements; and,

7. For foundations, the method used to field-verify the required resistance.

11.3.2.3 Construction Considerations

The Geotechnical Design Report shall contain a discussion of construction considerations, e.g., anticipated sequence of construction, that impact the geotechnical recommendations.

If a static foundation load testing program is proposed as part of the Design-Build Contractor’s design, the testing program shall be included in the Technical Proposal and detailed in discussion, sketches, sequencing, and quantity with a conclusion on the anticipated outcome and planned inclusion into the final design.

11.4 Deliverables

Deliverables under this Section 11, a non-exhaustive list of which is set forth in Table 11-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 11-1: Deliverables

Deliverable	Deliverable Schedule	Section
Supplemental subsurface exploration and testing program	30 days prior to performing subsurface exploration and testing	11.2.2
Geotechnical Design Reports	60 days prior to Stage 3 Review Submission, unless a revised schedule is approved by INDOT, in its sole discretion, with respect to a specific geotechnical design report	11.2.3

Section 11 Attachments:

Attachment 11-1 Maintenance of Traffic Considerations (Pavement Core Report)

Attachment 11-2 Geotechnical Evaluation (Roadway)

Attachment 11-3 Geotechnical Evaluation (Roadway - Addendum 2)

Attachment 11-4 Geotechnical Evaluation (Roadway - Addendum 1 Rev 1)

Attachment 11-5 Geotechnical Evaluation (Signs)

Attachment 11-6 Geotechnical Evaluation (Signs - Addendum 1)

Attachment 11-7 Geotechnical Evaluation (Noise Barrier)

Attachment 11-8 Geotechnical Evaluation (Sheet Pile Cutoff Wall)

Attachment 11-9 Geotechnical Evaluation (Culverts)

Attachment 11-10 Geotechnical Evaluation (Culverts - Addendum 1 Rev 1)

Attachment 11-11 Geotechnical Evaluation (Bridges)

Attachment 11-12 Geotechnical Evaluation (Bridges - Addendum 1)

Attachment 11-13 Geotechnical Evaluation (Bridges - Addendum 2)

12. STRUCTURES

12.1 General

Design-Build Contractor shall perform all structures Work in accordance with the DBA Documents, including Project Standards, this Section 12 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

12.2 Design Requirements

Design-Build Contractor shall comply with the following general requirements for the bridges listed in DBA Exhibit 19 (Scope of Work):

12.2.1 General Design Requirements

1. All structure replacements shall be designed for HL-93 loading in accordance with the AASHTO LRFD Standards, 9th Edition, 2020 specifications, and all subsequent interims. The structures shall be designed for actual dead load plus an additional 35 pounds per square foot for future wearing surface, plus 15 pounds per square foot for non-removable deck forms. The 15 psf requirement shall apply to structures utilizing beam-type superstructures. Structures shall be designed for construction loads in accordance to the Indiana Design Manual 403-4.0. For rehabilitations, all superstructure and substructure members shall be designed in accordance with the bridge design methodology by work type provided in IDM Figure 412-3A. New work shall match the existing bridge. It is the responsibility of the Design-Build Contractor to fit the new parts to the old.

2. All bridges shall be constructed with respect to the 2024 Indiana Department of Transportation Standard Specifications.

3. I-65 bridge superstructures included within the Base Bid package shall be widened to accommodate the minimum sections described herein.

4. Where overpassing bridge piers are located within the clear zone of I-65 and not otherwise protected from collision, existing or proposed crashwalls shall meet the minimum height requirement for TL-3 in accordance with NCHRP20-07(395).

5. New bridge decks and reinforced concrete slab superstructures shall be a minimum of 8 inches in depth unless otherwise noted herein, utilize Class C concrete and epoxy coated rebar, and provide 2.5 inches of clearance to the top mat of reinforcing.

6. Where existing bridges are to be modified, existing beams and

substructures shall not be overstressed by more than 5 percent. This allowance does not apply to Load Rating. Foundation design loads shall not exceed original design capacity by more than 10 percent. Loading for existing elements shall be in accordance with the AASHTO Standard Specification, 17th Ed. (2002).

7. Where loads to an existing substructure are increased above allowances identified in 12.2.1-6, the Design-Build Contractor shall strengthen or replace any remaining portions of the existing substructure or foundations that would not adequately support the proposed superstructure.

8. The Load Rating Request for bridges shall be submitted to and approved by the Department, using the Load Rating Request Application as described in IDM 14- 2.04(09), before structural member working drawings will be approved. Where working drawings are not required, the load rating shall be submitted to and approved by the Department, utilizing the Load Rating Request Application as described in IDM 14-2.04 (09), prior to work being performed on superstructure elements.

9. Use of lightweight, semi-lightweight, self-consolidating, internally cured, and high- performance concrete for permanent bridge structural components shall be subject to review and approval from INDOT Division of Materials and Tests. Mix specifications and requirements for fabrication and handling shall be provided by Design-Build Contractor in a unique special provision for review and approval by INDOT before implementation.

10. All bridges with beams as the primary structural member shall have a minimum of four beam lines, including any construction phases in which existing beams are utilized.

11. Superstructure designs shall not include side-by-side box beams or NEXT Beams.

12. Steel beams shall be grade 50 or 70. Weathering steel shall be used, where steel beams are used for superstructure or full replacements and bridge widenings with existing weathering steel beams. Where weathering steel is utilized, details shall be provided to minimize staining of MSE walls, abutments and/or piers per IDM 407-2.01(03). Where painted steel beam structures are to be widened, new non-weathering steel beams shall be painted to match existing beams. Hinges or pin-and-hanger type connections are not allowed. Fracture critical elements and fatigue prone details (AASHTO Category “E” or “F”) are not permissible.

13. The bridges shall be composite and shall also be continuous over interior supports. Bridge decks shall be Class C concrete with epoxy

coated reinforcing steel. The cross- sections of new decks shall include a minimum 1½-inch monolithic wearing surface except where otherwise noted. Concrete clearances to reinforcing steel shall be in accordance with the IDM, except as otherwise designated herein.

14. The number of beams, beam sizes/type, and spacing may vary as long as all IDM, AASHTO and other requirements noted herein are satisfied.

15. Fixed bearings shall be designed as shown in the Standard Drawings or as configured in Attachment 12-1 (Fixed Elastomeric Bearing Details).

16. Integral and Semi-integral end bents shall be used wherever feasible, unless noted otherwise. Existing end bents with expansion joints shall be converted to semi-integral. Semi-integral end bents shall utilize elastomeric bearings at every beam line. Semi-integral end bents shall conform to the standards shown in Attachment 12-2 (Semi-Integral End Bent Details).

17. All reinforcing steel in the bridge deck shall be Grade 60 and spaced no more than eight inches on center. This spacing is inclusive of the primary deck reinforcement, distribution reinforcement, and temperature and shrinkage reinforcement.

18. Concrete bridge railing shall be used on all bridge structures and shall be TL-5 minimum for all I-65 structures, unless otherwise noted herein. The Design-Build Contractor shall place barrier delineators on new and existing concrete bridge railing and transitions.

19. The Design-Build Contractor shall place snowplowable raised pavement markers on all lane lines on new reinforced concrete bridge decks. The Design-Build Contractor shall not place snowplowable raised pavement markers on lane lines on bridge decks with rigid or thin overlay treatments.

20. For all bridge structures except for bridge rehabilitation at County Line Road over I-65 (NBI 034930), all existing reinforced concrete bridge approach (RCBA) Slabs shall be removed. New, full-width RCBA slabs shall be constructed at all bridges, except for bridge rehabilitation at County Line Road over I-65 (NBI 034930). Approach slabs may be poured concurrently with bridge decks. Existing terminal joints shall be replaced. The Design-Build Contractor shall construct INDOT standard bridge railing and railing transition in areas of RCBA reconstruction. The minimum top cover provided in Approach Slabs shall be 2.5 inches.

21. Design-Build Contractor shall provide drainage in accordance with

the IDM on both new and existing portions of bridge decks. Wherever possible, new deck drains shall be minimized and drainage shall be directed to riprap drainage turnouts located beyond an approach concrete bridge railing transition, and outside the limits of any MSE wall backfill. Bridge deck drain outlets shall be no closer than 10 ft from the face of a substructure element. Bridges scoped for Preventive Maintenance shall not include drainage modifications unless otherwise specified herein.

22. Foundation design and construction shall be in accordance with the recommendations in the Final Geotechnical Report developed by the Design-Build Contractor. The Design-Build Contractor shall complete RSP 701-B-132 based on the Final Geotechnical Report for each bridge location. Foundation Review requirements shall be in accordance with IDM Section 408-1.06.

23. A bronze benchmark shall be installed at each structure. Tablets will be furnished by the Department and shall be set in the new concrete at the locations directed.

24. End bents located behind MSE walls shall have a deep foundation system extending at least 10 ft below the bottom of the MSE walls.

25. If driven pile foundations are used, the method for driving piles for this project shall be as specified in Section 701.05(b) of the Department's Standard Specifications.

26. Widening of any footing shall be accomplished using deep foundations and not spread footings, except where founded on rock as noted herein.

27. For widening of existing structures, at a minimum, the existing substructure units shall be checked for minimum seat length per AASHTO seismic guidelines and retrofitted as required.

28. All driven piling for the project shall be in accordance with the Final Geotechnical Report developed by the Design-Build Contractor. Pile shoes shall be used for H-piles driven to rock.

    a. A dynamic pile load test shall be performed at each end bent and each pier where driven piles are installed.

    b. INDOT will perform dynamic monitoring for the purpose of obtaining the nominal driving resistance, pile driving stresses, pile integrity, and pile driving system performance. Dynamic monitoring will be conducted by PDA in accordance with ASTM D 4945.

    c. Where noted at locations herein, the steel H-piles shall be required to be socketed into rock using 24" diameter cores in

accordance with the recommendations in the Final Geotechnical Report. The Design-Build Contractor shall install steel shear studs to the bottom of the steel piles prior to installing the piles in the cored holes in rock in accordance with project plans and specifications.

29. Where drilled shafts are proposed:

    a. INDOT will perform integrity testing consisting of ASTM D-6760 Crosshole Sonic Logging, ASTM D-5882 Low Strain Pulse Echo Methods, and ASTM D-7949 Thermal Integrity Profiling. Design-Build Contractor shall coordinate with INDOT and install appropriate elements to facilitate testing. Each method will be performed on 100 percent of drilled shaft bridge foundations.

    b. Based upon the installation and testing data, Design-Build Contractor's geotechnical engineer shall validate that drilled shafts were adequately constructed. If not adequately constructed, Design-Build Contractor's engineer shall recommend solutions for review and approval by INDOT. All testing shall be in accordance with the RSP 728-B-203 (Drilled Shaft Foundations).

30. Design and construct foundations and structures to meet the following performance criteria:

    a. Post-construction settlement of bridge piers and abutments: Less than 1.0-inch total settlement and less than 0.5-inch differential between adjacent piers or abutments.

    b. Lateral deflection at top of foundations for non-seismic loading: As required for serviceability of the Design-Build Contractor's design, but not to exceed 1.0 inch.

31. New Pavement Ledges shall be 9" wide unless otherwise noted herein.

32. Seismic design of the structure shall be based on the soil profile type as recommended in Final Geotechnical Report developed by the Design-Build Contractor, unless the site is improved over a sufficiently large plan area, either by ground improvement or by excavation of soft or loose soils to alter the soil profile type, or unless site-specific site response analysis is performed.

33. The I-65 structures shall be constructed in phases as necessary to accommodate the MOT Plans and the maintenance-of-traffic requirements described in Section 9 (Maintenance of Traffic) and herein.

34. Surface seal shall be applied to new concrete, in accordance with

IDM and Standard Specification requirements. Alternative mixes may be proposed in accordance with Construction Memo 24-03 which, if approved, will waive the surface sealing requirements. Existing superstructure surfaces to remain, except those to be overlaid, shall be sealed prior to opening to traffic.

35. Concrete patching shall be provided as required for the existing concrete superstructures and substructures to remain. An approximate quantity of patching is designated in Section 12.2.2 as an allowance for each location.

36. Galvanic anodes shall be used in all concrete patching locations where non-epoxied rebar is exposed, and along all interfaces of existing and new concrete, such as, but not limited to, superstructure or substructure widening. Galvanic anodes shall be securely tied to the ends of the existing reinforcing bars at locations where portions of the existing structure have been removed by saw cutting. Bolts may be tacked welded at the end of the existing reinforcing and the anode tie wire may be wrapped around it. See Attachment 12-3 (Embedded Galvanic Anodes) for spacing of anodes.

37. Requirements for structures to receive a Rigid Deck Overlay:

    a. The existing overlay shall be removed, if present, prior to hydrodemolition.

    b. The existing bridge deck shall be milled to 0.5-inch depth and hydrodemolition performed to remove unsound concrete. Milling depth may be variable (no less than 0.25 inches) if necessary to maintain Load Rating or to match the required profile with adjacent pavement.

    c. The Design-Build Contractor shall place a rigid bridge deck overlay on the existing and widened deck surface unless otherwise noted. The minimum cross-slope shall be 1.5 percent. Construction joints in the overlay shall not correspond with joints in the deck. The minimum bridge deck overlay thickness shall be 1.75 inches.

    d. Bridge deck overlay material shall be either: a) Latex modified Portland cement concrete (LMC), or b) alternative overlay materials per Construction Memo 24-03.

    e. Full depth and partial depth bridge deck patching shall be performed as required. An amount equal to 10 percent of the deck area is estimated to require partial depth patching. An amount equal to 5 percent of the deck area is estimated to require full depth patching.

f. Widened bridge decks shall be a minimum of 8 inches in depth and utilize Class C concrete with epoxy coated rebar.

38. Requirements for structures to receive a Superstructure Replacement:

    a. The existing superstructure, including all bearings, shall be completely removed and replaced.

    b. New beam superstructures shall be continuous throughout the length of the bridge.

    c. Existing substructures shall be modified as necessary to create continuous structures with semi-integral end bents.

39. Requirements for structures to be Widened:

    a. The cross-section of the bridges shall be widened to carry the full traveled way width. Widening of bridges shall extend to the centerline of median, while providing a 1-inch gap between NB and SB bridges. Widening shall be accomplished on the median side only unless noted otherwise.

    b. Reinforcing bar lap splices and development lengths on new portions of the structure shall be calculated and detailed in accordance with AASHTO LRFD, 9th Edition (2020).

    c. A portion of the existing concrete bridge deck coping shall be sufficiently removed to connect the widened deck and to remove unsound concrete. Saw-cutting of the existing deck over an existing beam is prohibited. Connection of new reinforcing to existing reinforcing shall be attained using splices in accordance with LRFD requirements. Temporary supports and formwork shall be in accordance with the Standard Specifications.

    d. Full depth saw cutting of bridge decks will be allowed for widened superstructures of reinforced concrete slab-type bridges only. Partial depth saw-cutting will be permitted for bridges with decks on beams, provided existing reinforcement shall not be damaged in the process of partial depth saw-cutting. The use of chemically anchored reinforcement shall follow AASHTO LRFD and IDM.

    e. Where a structure is to be widened, new beams or slabs shall be of similar material and type as the existing superstructure, to prevent undesirable differential deflection between the existing and the widened portions of the structure. The proposed pier widening will be of the same general configuration and dimensions as the existing piers, except where minimum design

dimensions exceed those of existing dimensions. The fixity at each pier shall match existing. Beam depths shall be adjusted as required to meet minimum vertical clearance or freeboard requirements.

f. All bearings placed on widened portions of a bridge support shall be of matching material and type as the bearings on existing portions. If the Contractor chooses to place a different bearing type on widened portions, then that same bearing type shall also be placed on existing portions. Semi-integral End Bents shall be in accordance with 12.2.1.16.

g. Where a structure crosses a waterway, the widened portions of all piers shall consist of a solid wall pier from the existing stem to the centerline of median.

40. Riprap drainage turnouts shall be reconstructed at the ends of bridge rail transitions, on shoulders that receive drainage. Modified concrete curb turnouts shall be constructed to direct water from the bridge to the turnout.

41. At all bridges, signage shall be placed on the outside shoulders of the bridge ends, facing oncoming traffic. A bridge marker shall be posted at the same bridge corner.

42. The use of temporary causeways or cofferdams may require amendment to the applicable waterway permits by the Design-Build Contractor.

12.2.2 Specific Bridge Requirements

1. Bridge Nos. 1 & 2: I-65 NB & SB over Caney Fork

   a. See DBA Exhibit 19 (Scope of Work) for Structure and Designation Numbers.

   b. The bridges shall be rehabilitated and widened in accordance with Section 12.2.1 Items 39 and 40, and as described herein.

   c. The typical section for these bridges shall consist of three 12 ft lanes in each direction. The inside shoulders shall be a minimum of 13’-10½” and the outside shoulders shall be a minimum of 12’-8½”.

   d. The existing concrete girder superstructure shall be removed in its entirety and the bridge widened as described herein. New beams shall be composite with the proposed 8” concrete deck.

   e. The existing end bents shall be widened using steel H-piles socketed into rock per recommendations in the project geotechnical report. The end bents shall be converted to semi-

integral in accordance with Attachment 12-2.

f. The existing hammerhead piers shall have the hammerhead portions of the cap and stems removed. The piers shall be widened on both sides and shall be founded on spread footings in rock in accordance with the recommendations of the project geotechnical report.

g. The Design-Build Contractor shall perform concrete patching at each end bent and pier as necessary (estimated at 235 SF total).

h. The existing RCBAs shall be removed and replaced as needed for widening of the bridge and construction of the semi-integral end bents. New terminal joints, if required, shall be installed in accordance with INDOT Standards.

i. Class 1 riprap scour protection shall be installed along the existing slopes. The placement of riprap shall follow IDM guidelines.

j. The Design-Build Contractor shall clear debris and brush within median and to Right of Way limits.

k. The Design-Build Contractor shall place riprap drainage turnouts at the NE and NW outside corners of the bridge approaches. The placement of riprap turnouts shall be taken to beyond the toe of slope, in accordance with IDM Figure 17-5I.

l. The Design-Build Contractor shall remove the existing concrete crane mats along the southbound bridge piers at the Caney Fork Crossing. The existing ground under the crane mats shall also be excavated around the piers so the ground line on both faces of the piers is at the same elevation prior to removal of the bridge superstructure.

2. Bridge Nos. 3 & 4: I-65 NB & SB over Blue Lick Creek

a. See DBA Exhibit 19 (Scope of Work) for Structure and Designation Numbers.

b. The bridges shall be rehabilitated and widened in accordance with Section 12.2.1 Items 39 and 40, and as described herein.

c. The typical section for these bridges shall consist of three 12 ft lanes in each direction and shall have a clear roadway width of 62’-7”. The inside shoulders shall vary along the length of bridge and shall be a minimum of 13’-7½” and the outside shoulders shall be a minimum of 12’-5½”.

d. The existing concrete girder superstructure shall be removed in its entirety and the bridge widened as described herein. New beams shall be composite with the proposed 8” concrete deck.

e. The existing end bents shall be widened using steel H-piles socketed into rock per recommendations in the project geotechnical report. The end bents shall be converted to semi-integral in accordance with Attachment 12-2.

f. The existing hammerhead piers shall have the hammerhead portions of the cap and stems removed. The piers shall be widened on both sides and shall be founded on spread footings in rock in accordance with the recommendations of the project geotechnical report.

g. The Design-Build Contractor shall perform concrete patching at each end bent and pier as necessary (estimated at 120 SF total).

h. The existing RCBAs shall be removed and replaced as needed for widening of the bridge and construction of the semi-integral end bents. New terminal joints, if required, shall be installed in accordance with INDOT Standards.

i. Class 1 riprap scour protection shall be installed along the existing slopes and around the piers to supplement existing riprap. The placement of riprap shall follow IDM guidelines.

j. The Design-Build Contractor shall clear debris and brush within median and to Right of Way limits.

k. The Design-Build Contractor shall place riprap drainage turnouts at the NW and SW outside corners of the bridge approaches. The placement of riprap turnouts shall be taken to beyond the toe of slope, in accordance with IDM Figure 17-5I.

3. Bridge Nos. 5 & 6: I-65 NB & SB over Brownstown Road

a. See DBA Exhibit 19 (Scope of Work) for Structure and Designation Numbers.

b. These bridges are not anticipated to require any work as part of the base bid requirements for this design-build project. If the Design-Build Contractor includes these bridges in the scope of work as identified in DBA Exhibit 19 (Scope of Work), these bridges shall be widened in accordance with Section 12.2.1 Item 40, and as described herein.

c. The typical section for these bridges shall consist of three 12 ft lanes in each direction. The inside shoulders shall be a

minimum of 13’-10½” and the outside shoulders shall be a minimum of 13’-5”.

d. The inside bridge railing and coping shall be removed as needed to widen to the median. The existing 8” concrete deck shall be cleaned and retained without overlay. The top of widened deck shall be constructed so as to match the top of existing deck.

e. After removal of the bridge deck and prior to installation of the proposed bridge deck in accordance with 105.03, the exposed shear connectors shall be inspected for damage. Any shear connector with damage that compromises the structural integrity of the shear connectors shall be removed and replaced in accordance with 711.33.

f. The Design-Build Contractor shall tine the proposed bridge deck surface in accordance with 704.05 and 504.03.

g. The integral end bents shall be widened using existing median piles that were installed during the original 2016 construction. The exposed piles shall be cut to the proper elevation and the end bent cap extended to the median as required.

h. The Design-Build Contractor shall remove all corrosion from the portion of the existing piles to be embedded into the proposed end bents before casting the pile cap. The piles shall be cleaned according to 619.08(g). If more than 1% of the cross section is removed, the Design-Build Contractor shall contact the Department for further instruction.

i. Portions of the existing MSE wall and attached fence shall be removed in accordance with 105.03. The finished wall and coping shall match existing geometry and aesthetics. Stability of the MSE wall during construction shall be checked by a qualified engineer licensed in the State of Indiana.

j. All structural steel for widening shall be A709 Grade 50W. The new girders for the proposed widening shall match the existing beam size.

k. The existing approach slabs shall be replaced and widened as required. The existing concrete curb and modified concrete turnouts along the outside corners shall also be replaced. The existing riprap drainage turnouts at the four outside corners shall be retained.

l. Vertical Clearance for Brownstown Road for the widened bridge structures shall be 14’-6” minimum.

m. Underpass Luminaires shall be installed along both abutments of the widened structure. All Underpass Luminaires shall be mounted on the vertical face of the of the MSE wall coping.

4. Bridge No. 7: County Line Road over I-65 NB & SB

   a. See DBA Exhibit 19 (Scope of Work) for Structure and Designation Numbers.

   b. This bridge is not anticipated to require any work as part of the base bid requirements for this design-build project. If the Design-Build Contractor includes this bridge in the scope of work as identified in DBA Exhibit 19 (Scope of Work), this bridge shall be rehabilitated by patching and fiber wrapping piers #2 and #4, including wrapping each of the three columns for a height of 4 feet from the crash wall and wrapping each nose at the base of each pier.

   c. The Design-Build Contractor shall perform approximately 75 SF of total substructure concrete patching and 400 SF of total fiber wrapping at existing piers #2 and #4.

   d. Existing vertical clearances for I-65 under this bridge shall be retained as part of any HMA resurfacing work on I-65.

5. Bridge Nos. 8 & 9: I-65 NB & SB over Pigeon Roost Creek

   a. See DBA Exhibit 19 (Scope of Work) for Structure and Designation Numbers.

   b. The bridges shall be rehabilitated and overlaid in accordance with Section 12.2.1 Item 38, and as described herein. The existing superelevation rates shall be maintained.

   c. The typical section for these bridges shall consist of two 12 ft lanes in each direction. The existing inside and outside shoulders shall be retained at 5’-6” and 10’-0”, respectively.

   d. The end bents shall be converted to semi-integral in accordance with Attachment 12-2. The existing expansion joints and minimum five feet of the existing deck shall be removed as part of the semi-integral conversion.

   e. The existing beam ends shall be patched and fiber wrapped as necessary prior to encasement in the semi-integral end bent diaphragm concrete.

      i. The northbound bridge shall include fiber wrapping at minimum span A at abutment #1 at beam #6 and span C at abutment #4 at beams #2, #3, and #4 for a distance of 5 feet

beyond the face of new semi-integral abutment limits as well as the box girder on each side and bottom. Substructure patching shall be performed at isolated locations on the interior piers. Substructure patching locations shall be fiber wrapped.

ii. The southbound bridge shall include fiber wrapping at minimum span A at abutment #1 at beams #4 and #5 and span C at abutment #4 at beams #1, #2, and #6 for a distance of 5 feet beyond the face of new semi-integral abutment limits as well as the box girder on each side and bottom. Substructure patching shall be performed at isolated locations on the interior piers. Patching locations shall be fiber wrapped.

f. The existing 2'-9" bridge railing shall be retained along both bridge copings. The bridge railing transitions shall be removed and TFC bridge railing transitions shall be constructed on the new RCBAs. The bridge railing transitions shall be surface sealed.

g. The existing RCBAs shall be removed and replaced as needed for construction of the semi-integral end bents. The top of the new RCBAs shall be constructed so as to match the top of the overlaid deck surface. New terminal joints, if required, shall be installed in accordance with INDOT Standards.

h. As part of the HMA resurfacing on the pavement beyond the bridges, a wedge and level pavement transition detail shall be required to bring the approach pavement up to the correct elevation to match the bridge deck overlay.

i. New MGS guardrail transitions and height transitions shall be installed at the ends of concrete bridge transition railings as needed to tie-in to existing guardrail.

j. Class 2 riprap scour protection shall be installed around existing piers. Revetment riprap shall be installed along the existing slopes to supplement existing. The placement of riprap shall follow IDM guidelines.

k. The Design-Build Contractor shall perform all necessary patching, consisting of approximately 25 SF of superstructure patching, 10 SF of substructure patching and 150 SF of fiber wrapping on the northbound bridge. The Design-Build Contractor shall perform all necessary patching, consisting of approximately 25 SF of superstructure patching, 100 SF of substructure patching and 290 SF of fiber wrapping on the southbound bridge. Substructure patching locations shall be

fiber wrapped.

l. The Design-Build Contractor shall clear debris and brush within median and to Right of Way limits.

m. The Design-Build Contractor shall place riprap drainage turnouts at each of the four outside corners of the bridge approaches. The placement of riprap turnouts shall be taken to beyond the toe of slope, in accordance with IDM Figure 17-5I.

12.2.3 Retaining Wall Structure Requirements

1. All walls shall be designed in accordance with all Department and AASHTO specifications. Foundation requirements shall be in accordance with the recommendations detailed in the Final Geotechnical Report provided by the Design-Build Contractor. Settlement and deflection tolerances shall be in accordance with AASHTO specifications.

2. Permanent retaining wall types shall not include timber, modular block, bin wall, gabion wall, or prefabricated modular wall types. Sheet pile or H-pile and precast concrete lagging wall types shall include a reinforced concrete facing. Extensible ground reinforcement shall not be used. Wall types are subject to approval by the Department.

3. Proposed MSE walls shall be in accordance with the Standard Specifications, AASHTO Specifications, and FHWA-NHI-10-024, GEC 11. Material specifications for wall types other than MSE walls shall be in accordance with the Department's Standard Specifications and AASHTO specifications. All retaining wall components shall be designed for a minimum service life of 75 years, or 100 years if part of a bridge abutment. Timber elements shall not be used to resist permanent loads for new retaining walls. All retaining wall structures located within the clear zone shall be shielded by a traffic barrier.

4. Where exposed heights of retaining walls present significant grade differences (greater than 2 ft), appropriate fall hazard protection in the form of chain link type fence shall be installed directly on top of the retaining wall structures. Fence placed on top of MSE retaining walls shall be in accordance with Standard Drawing E 731-MSEW-03.

5. Concrete railing with moment slab shall be used at locations of retaining wall structures in accordance with the INDOT Standard Drawings.

6. A representative of the MSE Wall manufacturer shall be onsite during all wall preparation and construction activities.

7. Cut-off Walls

    a. For locations requiring short fill walls for purposes of retaining the proposed embankment without impacting the existing or proposed adjacent roadside drainage ditches or structures, a steel sheet pile wall with minimum section modulus of 11.52 in^3/ft may be used.

    b. When used, the cut-off walls shall be installed beyond the limits of the required moment slab along the outside of the lanes.

    c. The wall shall be designed and installed in accordance with the Standard Specifications.

8. Noise abatement walls

    a. Noise abatement walls, or sound barrier systems, shall be designed and installed at the locations required, per Table 14-3 of Section 14, in accordance with RSP 620-R-483.

    b. Only absorptive sound barrier systems type 1 or type 2 shall be used for noise abatement walls.

12.3 Deliverables

Deliverables under this Section 12, a non-exhaustive list of which is set forth in Table 12-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 12-1: Deliverables

Deliverable	Deliverable Schedule	Section
Structure Design Plans	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	12.2
Structure Design Calculations	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	12.2
Load Ratings	Stage 3 Review Submission and On or Before Final Acceptance	2.2.4 & 12.2
As-Built Drawings (PDF and Microstation)	On or Before Final Acceptance	2.3.4 & 12.2

Section 12 Attachments:

Attachment 12-1 Fixed Elastomeric Bearing Details

Attachment 12-2 Semi-Integral End Bent Details

Attachment 12-3 Embedded Galvanic Anodes

13. RIGHT-OF-WAY

13.1 General

Design-Build Contractor shall perform all Right of Way (ROW) Work in accordance with the DBA Documents, including the Project Standards, this Section 13 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

All Work must be performed within INDOT ROW or as permitted by written agreement with landowners. All approvals to access, cross, or construct on any properties outside of INDOT owned ROW must be provided to INDOT and are subject to Federal and State rules for acquiring Project ROW.

13.2 Project ROW

13.2.1 ROW Limits

The Project ROW limits shall be the existing INDOT Limited Access ROW. No new land acquisition is anticipated for this Project.

13.2.2 Additional Properties

No Additional Properties are anticipated to be necessary in the prosecution of the Work.

See DBA Section 7.1.3 for terms and conditions with respect to Additional Properties.

13.3 Monument and Fence Construction

Design-Build Contractor shall maintain the existing ROW fence in the Project ROW. If the Design-Build Contractor disturbs a section of the existing ROW fence, the Design-Build Contractor shall replace the disturbed section with 48-inch farm field type fence. If any Additional Properties are acquired, the Design-Build Contractor shall install ROW fence along the acquired INDOT Limited Access ROW. The ROW fence shall consist of 48-inch farm field type fence.

If any Additional Properties are acquired, the Design-Build Contractor shall install ROW monuments and/or markers along the acquired INDOT Limited Access ROW in accordance with applicable Project Standards.

If any Additional Properties are acquired, the Design-Build Contractor shall submit fencing Plans illustrating types and locations of proposed fencing, gates, and monumentation to INDOT for review and approval. Design-Build Contractor shall provide INDOT with written justification for the design of the wildlife fencing. Design-Build Contractor shall provide INDOT with written

justification for proposed gate locations, including a full listing of gates and their intended maintenance purpose.

13.4 Gates

If any Additional Properties are acquired, the Design-Build Contractor shall coordinate with INDOT to determine the location, size, and locking requirements for any proposed gates in the INDOT Limited Access ROW fencing. Gates in the INDOT Limited Access ROW fencing may be required for maintenance access by INDOT, subject to the final design of Design-Build Contractor.

13.5 Deliverables

Deliverables under this Section 13, a non-exhaustive list of which is set forth in Table 13-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated. The following are required in the event of Additional Property acquisition.

Table 13-1: Deliverables

Deliverable	Deliverable Schedule	Section
Fencing Plans	Submit with Stage 3 Review Submission and Released for Construction Documents	13.2
Gate Plans	Within 30 days of NTP	13.3

14. ENVIRONMENTAL

14.1 General

Design-Build Contractor shall perform the Environmental Work in accordance with the DBA Documents, including Project Standards, this Section 14 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall comply with all conditions of the NEPA Document and all Governmental Approvals and Other Approvals, whether obtained by INDOT or by Design-Build Contractor, for this Project.

14.2 Environmental Personnel

The Design-Build Contractor shall designate the following environmental personnel:

14.2.1 Environmental Compliance Manager

The Environmental Compliance Manager (ECM) shall be responsible for implementation of all the environmental design and construction commitments and conditions identified in the Environmental Approvals. The ECM shall be a full-time, on-site staff member for the term of the Contract and report to the Design-Build Contractor's Project Manager. The ECM shall have a minimum of five years of experience with a demonstrated expertise in a similar role with managing environmental construction compliance, permitting compliance, environmental reporting, and overall environmental compliance with transportation construction projects. The ECM shall have the authority to stop or redirect Construction Work as needed at any time to maintain environmental compliance for the Project. The ECM shall be the primary liaison with INDOT for any environmental or permitting issues. The ECM and Stormwater Quality Manager (described below) positions can be filled by a single individual.

14.2.2 Construction Stormwater General Permit Storm Water Quality Manager

The Storm Water Quality Manager (SWQM) shall meet the requirements of a Construction Stormwater General Permit (CSGP) SWQM as defined in Section 205 of the Standard Specifications. The SWQM shall be one of the following: Certified Erosion Sediment and Storm Water Inspector (CESSWI), Certified Inspector of Sediment and Erosion Control (CISEC), or Certified Professional in Erosion and Sediment Control (CPESC), or an approved equivalent. The SWQM must also have completed INDOT's Construction Stormwater Management Training. The SWQM shall be a full-time, on-site staff member for the term of the Contract and report to the Design-Build Contractor's Project Manager. The ECM (described

above) and SWQM positions can be filled by a single individual. The name of the SWQM shall be furnished to the Engineer at, or prior to, the pre-construction conference. If the designated individual is replaced during the contract, a replacement shall be designated, and notification given to the Engineer within 24 hours.

14.3 Design and Construction Requirements

14.3.1 Permits and Approvals

Design-Build Contractor shall comply with all approved NEPA Document and Permits as described in this section. Design-Build Contractor shall complete all documentation of environmental studies and re-evaluations caused by actions not identified in the NEPA Document.

INDOT will provide certain Environmental Approvals as described in Table 14-1. Design-Build Contractor shall obtain all other Environmental Approvals and any modifications, renewals, reapplications, and extensions of the INDOT-Provided Approvals required in connection with the Work and the Project.

The INDOT Provided Approvals may have expiration dates. The Design-Build Contractor shall submit any request for time extension(s), as appropriate, to INDOT at least six months in advance of the expiration dates. Table 14-2 lists the Governmental Approvals the Design-Build Contractor is expected to obtain in order to complete the Work.

There may be other Governmental Approvals required based on Design-Build Contractor's final design. The Design-Build Contractor shall be responsible for identifying, applying for, and obtaining approval of any additional Permits as required by the Design-Build Contractor's final design. Design-Build Contractor shall comply with the requirements described in these applications and any modifications made during the application process. Design-Build Contractor shall secure any required permit modifications, time extensions, and compensate the agency for additional mitigation required as a result of permit modifications.

For all Governmental Approvals and/or modifications of Governmental Approvals that are Design-Build Contractor's responsibility, Design-Build Contractor shall submit complete draft applications to INDOT for review and approval prior to INDOT's submittal to the appropriate Governmental Entity. INDOT will provide comments on the completed and submitted draft applications within the review time periods specified in DBA Section 3.2.2 (Time Periods).

Table 14-1 INDOT Provided – Approvals

Agency	Permit/Approval	Approval Date / Anticipated Approval Date
Federal Highway Administration (FHWA)	Categorical Exclusion (CE) Level 4 (Lead Des. No. 1700135)	Approved by FHWA January 17, 2023
Indiana Department of Transportation (INDOT) Environmental Policy Office (EPO)	Note to File for CE Level 4 – Reduced Scope (Lead Des. No. 1700135)	May 31, 2023
INDOT EPO	Re-evaluation for CE Level 4 – Modified Scope (Lead Des. No. 1700135)	Anticipated approval by INDOT October 2024
INDOT EPO	Programmatic Categorical Exclusion (PCE) for SR 56 Ramp Rehabilitation (Des. No. 2400664)	Anticipated approval by INDOT October 2024
U.S. Army Corps of Engineers (USACE)	Approved Jurisdictional Determination (LRL-2021-85-dds)	Approved by USACE January 18, 2022, Expires January 18, 2027
USACE	Section 404 of the Clean Water Act Nationwide Permit (NWP) (LRL-2021-85-dds)	Approved by USACE July 5, 2022, Expires March 14, 2026
Indiana Department of Environmental Management (IDEM)	Section 401 Water Quality Certification Individual Permit (2022-448-72-JBT-A)	Approved by IDEM June 28, 2022, Expires June 28, 2026
IDEM	Individual Isolated Wetland Permit (IWIP 2022-448-72-JBT-A)	Approved by IDEM June 28, 2022, Expires June 28, 2026.
IDEM	Construction Storm Water General Permit (CSGP)	Approved by IDEM June 27, 2022, Expires June 28, 2027. Design-Build Contractor shall reapply for permit based on modified design

Table 14-2: Governmental Approvals – Design-Build Contractor Responsibility

Agency	Permit/Approval	Approval Date / Anticipated Approval Date
IDEM	CSGP – Erosion Control	Prior to Construction Work
TBD	Any other permits as determined necessary, based on Design-Build Contractor's design	TBD

14.3.1.1 NEPA Documents

Design-Build Contractor shall comply with the approved Categorical Exclusion Level 4 (CE-4), Programmatic Categorical Exclusion (PCE), and environmental reevaluations noted above. The Design-Build Contractor shall immediately notify INDOT of any changes to the project that may require additional documentation under NEPA or any related policy or regulation.

INDOT, in consultation with any local, state, or Federal agencies, shall determine any additional requirements. Design-Build Contractor shall be responsible for providing INDOT with all technical analysis and documentation required. INDOT will review documentation for accuracy and completeness. No coordination or documentation shall be sent to external agencies without the prior approval of INDOT. Any project schedule or cost impacts associated with this process are the sole responsibility of the Design-Build Contractor.

Design-Build Contractor shall comply with and track the fulfilment of all environmental commitments as described in Section 14.3.2.1.

14.3.1.2 IDEM Construction Stormwater General Permit

Design-Build Contractor shall obtain and maintain the CSGP before the start of any land- disturbing activities. Design-Build Contractor may obtain multiple CSGPs for distinct phases of the Work. Erosion control measures shall be in accordance with Chapter 205 of the IDM, the Standard Specifications, and Environmental Approvals. Design-Build Contractor shall follow the procedures in IDM 205-1.0 and the INDOT Waterway Permitting Manual. Design-Build Contractor shall prepare and submit the CSGP package(s) to INDOT for preliminary review. Design-Build Contractor is responsible for all CSGP submittals to IDEM, any fees, and all coordination with IDEM following submittal.

The Design-Build Contractor shall install, maintain, and inspect erosion and sediment control measures in accordance with Section 205 of the Standard Specifications. The Design-Build Contractor shall designate a SWQM that meets the requirements of a CSGP SWQM as defined in Section 205 of the Standard Specifications. The SWQM shall be one of the following: CESSWI, CISEC, or CPESC, or an approved equivalent. The SWQM shall have completed INDOT’s Construction Stormwater Management

Training.

14.3.2 Environmental Compliance

Design-Build Contractor shall comply with the commitments as included in the approved NEPA document, governmental approvals, or agency approvals.

14.3.2.1 Environmental Compliance and Mitigation Plan

Pursuant to Section 1.5.3.3 (Environmental Management Plan), Design-Build Contractor shall develop and maintain an Environmental Compliance and Mitigation Plan (ECMP). The ECMP shall be submitted to INDOT for review and approval as part of the PMP. The ECMP shall include all environmental commitments and required mitigation listed in the Scope of Services, Environmental Approvals, and Governmental Approvals.

Design-Build Contractor shall prepare quarterly updates to the ECMP, which shall include a checklist that documents all impacts and anticipated impacts to environmental resources identified in the Scope of Services, Environmental Approvals, and Governmental Approvals. The checklist shall be submitted with the ECMP for INDOT approval. Design-Build Contractor shall submit an updated checklist to INDOT for approval within one week after the end of each quarter of the year.

The ECMP shall describe the appropriate controls applicable during the management, design, construction/installation, and documentation of environmental compliance and mitigation efforts. The ECMP shall include procedures designed to ensure that requirements of Environmental Law and Environmental Approvals are satisfied.

The ECMP shall include:

1. A description of how full compliance shall be achieved with regard to Project environmental commitments, conditions of Environmental Approvals, Environmental Law, and procedures to interface with INDOT during Design Work and Construction Work.

2. A plan of how environmental commitments shall be incorporated into the Project and addressed.

3. Design-Build Contractor's environmental compliance process, structure, organization location, level of

documentation, forms of communication, and QA/QC processes and procedures.

4. A response plan that includes procedures to follow if unanticipated discoveries are encountered during Project development, such as threatened or endangered species or historical and archaeological sites. The response plan shall be developed to keep the Project in compliance with Environmental Approvals, Environmental Law, and Governmental Approvals at all times.

5. A corrective action plan that includes procedures that shall be followed if it is discovered the Project is not in compliance with Environmental Approvals, Environmental Law, and Governmental Approvals.

14.3.2.2 Environmental Compliance and Mitigation Training Program

Design-Build Contractor shall develop and implement a mandatory environmental compliance and mitigation training program and present the training program to Design-Build Contractor's supervisory personnel, equipment operators, construction personnel, and any Subcontractor personnel who will perform Work within the Planned ROW Limits. The training shall provide an understanding of the necessary environmental compliance requirements and any environmentally sensitive areas of the Project.

The training program shall be focused on the specific environmental concerns for laborers and contractors who are working in a specific location. Concerns for one location may differ from those in another location. The training program shall be submitted to INDOT for review and approval and cover, at a minimum, the following elements:

1. Erosion and sediment control measures – sequencing, implementation, installation, and maintenance.

2. Maintaining approved limits of disturbance.

3. Avoidance and minimization of impacts to "Do Not Disturb Environmentally Sensitive Areas", including trees, wetland areas, and activities that would require modifications to waterway permits.

4. Wildlife education and reporting, including habitat

protection for Indiana bats, northern long eared bats, migratory birds, and bald eagles, and what to do if any of these species is found.

5. Seasonal Work restrictions, including trees and waterways.

6. Pumping and dewatering operations.

7. Aquatic invasive species decontamination and removal.

8. Accidental discovery of archaeological sites, archaeological material, or human remains.

9. Impacts and consequences for departure from approved operating procedures.

10. Encountering unknown hazardous materials.

The environmental compliance and mitigation training program shall be a component part of the PMP. Design-Build Contractor shall not allow personnel to enter the Planned ROW Limits without completing the required training. Design-Build Contractor shall provide updates to this training program to INDOT as necessary to meet current requirements and new commitments and to ensure the training is implemented by the appropriate personnel. Project bulletins shall be posted on-Site to inform previously trained employees of updates and/or changes to environmental conditions. Design-Build Contractor shall maintain a list of trained individuals including name, company, type and date of training, and make the information available for INDOT review.

14.3.3 Hazardous Materials

Design-Build Contractor shall adhere to the requirements of DBA Section 7.10 (Hazardous Materials Management) and Section 202.09 of the Standard Specifications related to Hazardous Materials. Design-Build Contractor shall work with INDOT Site Assessment & Management (SAM) and appropriate governmental entities to develop plans for the management, excavation, and/or disposal of any Hazardous Materials or Recognized Environmental Conditions (RECs) encountered on the Site. Design-Build Contractor shall obtain all Governmental Approvals required for the management and/or disposal of Hazardous Materials and Recognized Environmental Conditions encountered on the Site. Design-Build Contractor shall obtain final documentation and required Governmental Approvals for Hazardous Materials Management Work

performed on the Site.

14.3.3.1 Hazardous Materials Management Plan

Design-Build Contractor shall prepare, implement, and maintain a Hazardous Materials Management Plan (HMMP), for the handling, storage, management, transportation and/or disposal of Hazardous Materials, and the closure and removal of USTs or aboveground storage tanks (ASTs), whether encountered on or brought onto the Project Site by the Design-Build Contractor, encountered or brought onto the Project site by a third party, or otherwise, during the term of the project. Design-Build Contractor shall submit the final HMMP to INDOT for review and approval in its good faith discretion within 60 days of NTP; approval of the Plan by INDOT shall be a condition of commencement of Construction Work. The HMMP shall comply with all applicable Environmental Laws, including the Occupational Health and Safety Act (OSHA), the Resource Conservation and Recovery Act (RCRA), including provisions pertaining to the removal and closure of USTs, the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and state and local counterparts or equivalent Governmental Rules.

The HMMP shall include provisions for notifying all on-Site workers, including Subcontractors, of the potential exposure to Hazardous Materials on the Project, and for exposure to Hazardous Materials by personnel who enter the Site regardless of their affiliation in accordance with Governmental Rules. The HMMP shall require that all personnel handling Hazardous Materials or Recognized Environmental Conditions be trained and certified at least to the minimum requirements established in accordance with Governmental Rules.

The HMMP shall include procedures for ensuring that all applicable certifications, licenses, authorizations and Governmental Approvals for Design-Build Contractor and Subcontractor personnel handling Hazardous Materials are current and valid through the duration of the Work.

The HMMP shall include the following contents at a minimum:

1. Responsible personnel
2. Site information
3. Site map

4. Procedures for handling any Hazardous Materials or Recognized Environmental Conditions encountered on Site

5. Spill Prevention Plan, including:

    a. Potential spill sources

    b. Spill reporting

    c. Spill prevention and response training

    d. Spill containment

    e. Spill prevention

    f. Spill response report form(s)

    g. Bulk storage containment

6. Procedural plan for unanticipated Hazardous Material discoveries

7. Procedural plan for the excavation and disposal of any Hazardous Materials and Recognized Environmental Conditions in accordance with the requirements of the Environmental Approvals.

14.3.3.2 Red Flag Investigation

A Red Flag Investigation was completed and approved by INDOT on September 30, 2021. The following sites have been identified as containing hazardous materials and/or regulated substances. The Design-Build Contractor shall coordinate with the owner of a Hazardous Waste Permit from the U.S. Environmental Protection Agency for proper handling, transport, and disposal of waste.

1. Circle K 0130, 414 SR 160 W, Scottsburg, AI #7878, is located adjacent to the project area in the southeast quadrant of the I-65/SR 160 interchange as a Leaking Underground Storage (LUST) site. IDEM issued a No Further Action Approval Determination Pursuant to Remediation Closure Guide letter, dated January 8, 2014, following the recording of an Environmental Restrictive Covenant (ERC) on the deed of the property for a release reported in 1993. The ERC includes a groundwater use restriction. A second release was reported to IDEM on January 10, 2017. The release was a surface spill that occurred during product delivery, and contaminated soil was subsequently removed from the

spill area. IDEM issued a No Further Action Approval Determination Pursuant to Spill Response and Limited Subsurface Investigation Report, dated June 23, 2017. Due to the ERC and proximity of the site to the project area, coordination will be conducted with the IDEM project manager, Lynette Schrowe, LSchrowe@idem.in.gov.

2. Circle K 0130, 414 SR 160 W, Scottsburg, AI #7878, is located adjacent to the project area in the southeast quadrant of the I-65/SR 160 interchange as an Institutional Control site. An ERC was recorded on the deed of the property on December 2, 2013 for a release reported in 1993. The ERC includes a groundwater use restriction. Due to the ERC and proximity of the site to the project area, coordination will be conducted with the IDEM project manager, Lynette Schrowe, LSchrowe@idem.in.gov.

14.3.3.3 Release of Hazardous Materials

Design-Build Contractor shall comply with the following provisions regarding Design-Build Contractor Releases of Hazardous Materials on the Site:

8. Release of Hazardous Materials shall be reported to the IDEM Office of Emergency Response (OER), Spill Line at (888) 233-7745. This shall occur as soon as action has been taken to either contain/control the extent of the release, or protect persons, animals, or fish from harm or further harm. The contact must be made no later than within 24 hours of a release from a UST and within two hours of discovery of a spill.

9. Design-Build Contractor shall take appropriate response actions for Design-Build Contractor Releases of Hazardous Materials occurring on the Site as follows:

    a. Identify the spilled material from a safe distance.

    b. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand, or by other available means.

    c. Cordon off the area of the spill.

    d. Deny entry to the cordoned off area to all but response personnel.

    e. Contact IDEM OER Spill Line at (888) 233-7745.

f. Contact INDOT Operations Support.

14.3.4 Noise Analysis and Mitigation

Based on the noise study completed for the project in July 2021, of the twenty-two noise barriers modeled INDOT has identified one location as listed in Table 14-3 where noise abatement is necessary, based on the abatement having been determined to be feasible and reasonable.

Table 14-3 – Noise Barrier Analysis Summary

Proposed Barrier	CNE	Length (feet)	Average Height (feet)	Benefited Receptors*	Feasibility Criteria Met	Design Goal Met
NB 3	1	1,485	13.80	25	Yes	Yes

Proposed Barrier	Cost of Barrier (assuming $30/sq ft)	Cost per Benefited Receptor	Cost Effective Threshold**	Cost Reasonable Criteria Met
NB 3	$ 614,786.00	$ 24,591.44	$25,000	Yes

Noise Barrier 3 (NB 3) is located along the east side of I-65 northbound lanes, approximately 0.5 mile south of SR 160.

The Design-Build Contractor shall be responsible for designing and constructing abatement measures in accordance with the applicable Project Standards.

Design-Build Contractor shall complete a re-evaluation of the noise analysis during final design. The Design-Build Contractor shall be responsible for modification, design, and construction of all noise abatement measures determined feasible and reasonable based on the final design. The noise re-evaluation shall be coordinated with and submitted to INDOT EPO to obtain necessary approvals.

14.3.4.1 Construction Noise

Design-Build Contractor shall design and construct the Project in accordance with local, State, and federal noise regulations, policies, and guidelines.

14.3.5 Cultural Resources

If Design-Build Contractor encounters any Differing Site Condition in a previously unknown (or constructively unknown) archaeological, paleontological, biological, or cultural resource or artifact, Construction Work within 100 feet around the area shall cease and reasonable measures shall be implemented to avoid harm to the affected portion of the Site. Design-Build Contractor shall promptly (but in no event later than

24 hours after becoming aware of such item) notify INDOT by phone, by email, or in person, to be followed by Notice within 24 hours thereafter, and shall proceed in accordance with INDOT Construction Memorandum 13-14 and the Standard Specifications. Design-Build Contractor shall provide Notice to INDOT within 24 hours after encounter of the Differing Site Condition. Design-Build Contractor shall ensure an on-Site evaluation is conducted and treatment plan(s) is developed, as needed. If, after any applicable treatment plan(s) have been fully executed, the Differing Site Condition is determined in consultation with INDOT and the State Historic Preservation Office not to be eligible for inclusion on the National Register of Historic Places (NRHP), ground-disturbing Work that is consistent with applicable stipulations of the treatment plan(s) may continue.

Design-Build Contractor shall have a qualified professional archaeologist on-call who can respond and report to the Site within four hours in case of discovery of any Differing Site Conditions. The qualified professional archaeologist shall have experience with documentation, excavation, and mitigation of historic and prehistoric archaeological sites, including the documentation and interpretation of buried archaeological sites in urban and alluvial settings.

Design-Build Contractor shall be responsible for any archaeology and above ground historic property surveys and any associated additional mitigation for Construction Work outside the Planned Construction Limits.

14.3.6 Water Quality

Blue Lick Creek is listed as impaired for Impaired Biotic Communities (IBCs) and E. coli. Lodge Creek is listed for IBC and E. coli. Workers who are working in or near water with E. coli shall wear appropriate personal protection equipment, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

Concerning IBCs, Best Management Practices (BMPs) shall be used to avoid further degradation to the streams.

14.3.7 Air Quality

Design-Build Contractor shall maintain construction equipment in proper mechanical condition. Mobile Source Air Toxics (MSAT) and diesel emission reduction strategies shall be utilized to limit diesel and other emissions from construction equipment, such as limiting idling times, or reducing the number of trips. Fugitive dust generated during land clearing and demolition procedures shall be controlled in accordance with the Standard Specifications.

14.3.8 Wetlands and Waters of the U.S.

The Project includes permanent and temporary impacts to wetlands,

wetland areas, and waterways. The impacted waterway and wetlands are summarized in the Environmental Approvals. INDOT will provide waterway and wetland mitigation for the impacts contained within the Planned Construction Limits, Governmental Approvals, and Environmental Approvals. Mitigation of additional wetland and waterway impacts due to Design-Build Contractor's design shall be the responsibility of the Design-Build Contractor. Modifications shall be submitted to INDOT to obtain the necessary Governmental Approvals. INDOT will review additional wetland and waterway impacts as prepared and requested by the Design-Build Contractor with INDOT and will confirm mitigation approach.

14.3.8.1 Temporary Impacts to Streams, Wetlands, and Floodplains

The Project may have temporary stream impacts during Construction Work. Temporary impacts are defined as regulated activity; typically fill that is intentionally placed within jurisdictional waterways for construction purposes and that is of an impermanent nature. Design-Build Contractor shall restore the temporarily affected area to preconstruction conditions or in accordance with the Released for Construction Documents corresponding to the time when the Design-Build Contractor ceases use of the temporarily impacted area or prior to expiration of the permit authorizing the temporary impact, whichever occurs first. Additional stream stabilization measures may be required by INDOT to ensure the stability of the restored section and as required by Governmental Approvals. Design-Build Contractor shall limit temporary stream impacts to those impacts authorized by the Project Governmental Approvals.

The streams with anticipated temporary impacts are provided in the INDOT-provided permits. The specific location of the anticipated temporary stream impacts are provided in the tables in the Section 404 and Section 401 INDOT-Provided Approvals. Earthen materials shall not be used for temporary stream diversions, stream crossings, or cofferdams due to the potential for washout during storm events and downstream sediment deposition (unauthorized fill) resulting from erosion. All temporary fill material shall be of a non-erosive nature.

Restoration plans for streams, wetlands, and floodplains shall be dictated by waterway INDOT- Provided Approvals. Design-Build Contractor shall be responsible for final design and construction of all stream and wetland restoration required by the Project Governmental Approvals and

Technical Provisions. The following elements shall be incorporated into restoration for additional Work proposed by Design-Build Contractor:

1. Removal of all construction and temporary fill material
2. Use of timber mats or similar materials when working within wetland areas to prevent soil compaction.
3. Deconsolidation and, as applicable, scarification of compacted soils
4. Replacement of topsoil and, as applicable, organic matter lost to erosion and sediment control measures.
5. Reestablishment of grades to preconstruction conditions
6. Removal of temporary stream crossings, pump-arounds, and/or causeways
7. Restoration of stream banks with woody vegetation
8. Replant any area within 50 feet of a streambank that was disturbed temporarily and that was vegetated preconstruction with native vegetation similar to preconstruction species composition, with the exception of Utility corridors.

Design-Build Contractor shall monitor the restoration of temporary impacts for compliance with requirements and conditions of Project Governmental Approvals. Additional remediation efforts shall be implemented by Design-Build Contractor, if determined necessary by INDOT.

14.3.9 Tree Clearing

Design-Build Contractor shall keep tree clearing and snag removals within the Planned Construction Limits and within time-of-year restriction requirements. Trees may only be cleared October 1 – March 31 annually. Design-Build Contractor shall comply with the IAC for handling and transporting of cleared trees. Design-Build Contractor shall be responsible for Environmental Approvals and Governmental Approvals necessary for any proposed Work outside the Planned Construction Limits. If any changes to the Project by the Design-Build Contractor result in additional impacts to trees beyond the permitted impacts, then Design-Build Contractor shall submit the required documentation to assist INDOT with acquiring any necessary Environmental Approval or modification to existing Environmental Approval.

Design-Build Contractor shall revegetate all disturbed areas within the Planned Construction Limits in accordance with TP Section 15 (Aesthetics and Landscape Architecture).

14.3.10 Terrestrial Wildlife

14.3.10.1 Terrestrial Wildlife Avoidance and Minimization

Design-Build Contractor shall incorporate invasive-free mulches, topsoil and seed mixtures in accordance with Section 15 (Aesthetics and Landscape Architecture). The known invasive species list can be found on the IDNR website (http://www.in.gov/dnr/3123.htm).

14.3.10.2 Bat Inspection and Mitigation Measures

The Site is within the range of the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). The following mitigation and minimization measures shall be implemented by the Design-Build Contractor as part of the Work:

1. Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all INDOT and FHWA environmental commitments, including applicable avoidance and minimization measures (AMMs).

2. Direct temporary lighting shall be directed away from suitable habitat from April 1 through September 30 annually.

3. Use downward facing, full cut-off lens lights with same intensity or less for replacement lighting, and direct lighting away from suitable habitat when installing or replacing existing permanent lights.

4. Ensure tree removal is limited to that specified in the Project Plans. Ensure all Design- Build Contractor personnel understand clearing limits and how the limits are marked in the field.

5. Modify all phases/aspects of the project to avoid tree removal. If tree removal cannot be avoided perform tree removal between October 1 and March 31 annually. Any in season tree removal will need to be evaluated by INDOT/INDOT ETR contractor and approval obtained from USFWS.

6. Do not remove documented Indiana bat or northern

long-eared bat roosts that are still suitable for roosting, or trees within 0.25 mile of roosts or documented foraging habitat any time of year.

USFWS Bridge/Structure Assessments shall be coordinated and performed by a qualified individual if a structure was inspected two years or longer from the date of the previous inspection. If construction at any location begins after July 17, 2026, Design-Build Contractor shall be responsible for performing an inspection. Inspections of the structures shall check for presence of bats/bat indicators (i.e., guano, staining) and/or absence of use of the structure. If signs of bats are documented during the inspections, the INDOT District Environmental Manager shall be contacted immediately. If bats are present, Work shall stop and the bat species using the structure shall be identified. If the bat species is determined to be federally protected, then Work shall remain stopped and coordination with USFWS will be required.

Design-Build Contractor shall not handle dead or injured bats, regardless of species, and any other federally listed species that are found at the Site in order to preserve biological material in the best possible condition, and to protect personnel from exposure to diseases, such as rabies. Design-Build Contractor personnel shall ensure that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Design-Build Contractor personnel finding a dead, injured, or sick specimen of any bat, regardless of species, or other endangered or threatened species, shall promptly notify INDOT.

14.3.10.3 Migratory Birds

The Project is subject to the Migratory Bird Treaty Act (MBTA). Every effort shall be made by the Design-Build Contractor not to disturb any nests with eggs or young. If impacts are unavoidable, Design-Build Contractor shall coordinate with INDOT prior to disturbance.

Intentional taking of migratory birds or nests with eggs or young without a federal permit is prohibited by the Migratory Bird Treaty Act, 16 U.S.C. 703-712. During the period between May 1 and September 7 annually, Work on bridge structures with migratory birds may be allowed, provided the procedures below are implemented.

Design-Build Contractor is not required to take any special action for bridge Work performed entirely on the deck as

long as Design-Build Contractor does not require access to areas where birds are nesting and Work will not result in the disturbance of nesting adults, or to their eggs or young.

Disturbance is defined as any activity that results in reproductive failures or the killing of eggs or young.

For bridge structures that have previous or current evidence of use by bird species protected under MBTA, the Design-Build Contractor shall use exclusionary devices to deter birds from nesting beneath the deck prior to the start of Construction Work. If birds are present, Design- Build Contractor shall determine the status of the birds, their nests, and young and shall take any and all actions necessary to meet the requirements of the MBTA. Any exclusionary devices must be in place prior to start of nesting season (April 30 of each year), removal of nest prior to egg laying and continuous inspection and removal of new nests is required. Once activity indicates eggs are present Work must stop and coordination with INDOT EWPO shall be required for appropriate course of action.

For bridge Work performed from September 8 to April 30 annually, no special actions by the Design-Build Contractor are necessary after an inspection is conducted to determine that no birds are present.

Measures designed to avoid and minimize impacts to migratory birds nesting on structures shall be implemented prior to April 30 each year and be maintained throughout the nesting season. Design- Build Contractor shall develop a Project-specific avoidance and minimization plan that shall be submitted to INDOT for review and approval as part of the ECMP. INDOT will coordinate plan as prepared and requested by the Design-Build Contractor with INDOT Environmental Services Division.

Avoidance and minimization measures shall include the following:

1. After inspection and confirmation that no active nests with eggs or young are present, the Design-Build Contractor shall remove existing nests and other nesting debris from the bridge girders or other surfaces that will be impacted by the Project.

2. After nest removal, exclusion devices shall be installed on the structure if the start of construction will be delayed until a date after April 30 annually. Exclusion

devices may include plastic sheeting, canvas, burlap or other material to block access to the underside of bridges and exterior girders. Ledge protectors, such as coil, pin and wire, may be placed on structures to prevent nest building where appropriate. Design-Build Contractor shall not use weather resistant polypropylene netting with 0.25 inch or smaller openings as it can trap adult birds.

3. After nest removal, hazing or harassment devices using sight or sound to scare the birds away may be installed on the structure. Materials may include mylar flagging and auditory speakers. Other sensory deterrents such as active construction, predator models, scare balloons and sonic devices may also be used.

4. Design-Build Contractor shall inspect the underside of the existing structure on a routine basis to ensure that nests are removed prior to egg laying and that exclusion devices that have been damaged are repaired. If eggs or young are present, construction activity that may impact those nests shall cease and the Design-Build Contractor shall contact INDOT. No additional contract time shall be granted if eggs or young are found.

5. Nests may be screened from construction to prevent impacts. Work may continue if the active nests will not be destroyed and if parent birds will not be precluded from tending their nests to the extent that eggs or young are negatively impacted.

6. If birds penetrate the barrier or nest building has commenced, Design-Build Contractor shall determine how birds are entering the underside of the bridge and adjust or repair the barrier to prevent further access. If nest building or repair of existing nests has begun, but no eggs or young are present in the nests based upon visual inspection of the nest and activity of the adults, Design-Build Contractor shall remove the nests.

7. Design-Build Contractor shall not disturb any nests with eggs or young. If active nests with eggs or young are found that would be affected by construction activities, Work shall be delayed until an evaluation of nesting status and avoidance and minimization measures implemented or the birds fledge from the

nest.

14.3.11 Do Not Disturb- Environmentally Sensitive Areas

"Do Not Disturb- Environmentally Sensitive Area" are areas within the Planned Construction Limits in which Design-Build Contractor shall not be allowed to perform any Work. Wetlands, streams, or other water bodies outside the Planned Construction Limits are also considered to be "Do Not Disturb- Environmentally Sensitive Areas".

The "Do Not Disturb- Environmentally Sensitive Areas" shall consist of the following:

1. Wetlands, streams and waterbodies shall not be impacted above the impact thresholds provided in Appendix 14-1 (USACE Section 404 Permit and IDEM Section 401/Isolated Wetland Permit Application).

The Work restrictions are based upon the assumption that all Governmental Approvals within the Planned Construction Limits have been received.

Design-Build Contractor shall install and continually maintain temporary protective resource fencing and "Do Not Disturb-Environmentally Sensitive Area" temporary signs adjacent to all "Do Not Disturb-Environmentally Sensitive Areas". The temporary protective resource fencing shall be installed along the limits of the disturbance, adjacent to the "Do Not Disturb- Environmentally Sensitive Areas" prior to the start of construction activities. All Design-Build Contractor personnel shall be made aware of all designated "Do Not Disturb-Environmentally Sensitive Areas". Temporary protective resource fencing, and signage shall be installed along the limits of all wetland areas within the Project ROW Limits prior to the start of construction.

14.3.11.1 Avoidance and Minimization

Design-Build Contractor shall avoid impacts to trees, wetland, streams, and other water bodies until initiation of Construction Work in the area of the resource. Design-Build Contractor shall use good industry practice to eliminate and/or limit the impacts to what have been permitted.

Design-Build Contractor's final designs shall emphasize the avoidance and minimization of impacts.

Design-Build Contractor shall park, service, and maintain equipment in designated areas as approved by INDOT. These areas shall be located a minimum of 5 feet away from all existing streams, wetlands, other "Do Not Disturb-Environmentally Sensitive Areas" and their immediate

watersheds.

Prior to construction, parking and turning areas for heavy equipment outside the construction limits but within the Project ROW shall be identified and located to minimize soil erosion, tree clearing, and impacts to other identified resources. Stable construction entrances shall be provided at the points where construction traffic shall enter an existing roadway.

Design-Build Contractor shall notify INDOT in writing within 24 hours of inadvertent impacts to wetlands or waterways for which activities are not permitted. Inadvertent impacted areas shall be immediately restored to the full satisfaction of INDOT and the appropriate Governmental Entities.

14.4 Deliverables

Deliverables under this Section 14, a non-exhaustive list of which is set forth in Table 14-4, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 14-4: Deliverables

Deliverable	Responsible Party	Deliverable Schedule	Section
Governmental Approvals and Permits, including: CSGP – Erosion Control	Design-Build Contractor	Prior to Construction Work	14.3.1
Modifications to Governmental Approvals and Permits (if required)	Design-Build Contractor	Prior to Construction Work	14.3.1
Time extension requests for Governmental Approvals and Permits (if required)	Design-Build Contractor	60 days prior to expiration date(s)	14.3.1
Spill Prevention, Control, and Counter-measure Plan (SPCCP)	Design-Build Contractor	Within 90 days of NTP	14.3.3.1
Hazardous Materials Management Plan (HMMP)	Design-Build Contractor	Within 60 days of NTP	14.3.3.1
Environmental Resource Impacts Checklist	Design-Build Contractor	Quarterly	14.3.2.1

Environmental Compliance and Mitigation Plan (ECMP)	Design-Build Contractor	Within 30 days of NTP then quarterly updates	14.3.2.1
Environmental Compliance and Mitigation Training Program	Design-Build Contractor	Within 60 days of NTP	14.3.2.2
Environmental Compliance and Mitigation Training Program materials	Design-Build Contractor	Within 30 days of NTP and annual updates	14.3.2.2

Section 14 Attachments

Attachment 14-1 Approved Permits & Permit Applications

15. AESTHETICS AND LANDSCAPING

15.1 General

Design-Build Contractor shall perform the Aesthetics, Landscaping Elements, and Plantings Work in accordance with the DBA Documents, including the Project Standards, this Section 15 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

The Project mainline traverses primarily through rural open farmland and woodlands. Typical retail / food and beverage uses are found at some interchanges. Design-Build Contractor shall complement and blend the interface of the Work with these adjacent conditions.

15.2 Design Requirements

The Design-Build Contractor shall use the seed mixes listed in Table 15-1 for all bare and disturbed areas and comply with 621 of the Standard Specs unless an enhancement is proposed by a local municipality or agency and Approved by INDOT.

The Design-Build Contractor shall use sodding in accordance with 621 of the Standard Specs as required by the IDM.

Table 15-1 Seed & Sod Table

Seed Name	Location
Seed Mixture R	All clear zones and medians unless Drainage conditions require the use of Native Grass Seed Mix.
Native Grass Seed Mix	Typical for use beyond 30’ clear zone. For Post-Construction Stormwater Measures, refer to Section 7.6 (Post Construction Stormwater Management) for seed mix and when seed mix is applicable.
Emergent Plant Seed Mix	For Post-Construction Stormwater Measures, refer to Section 7.6 (Post Construction Stormwater Management) for seed mix and when seed mix is applicable.

15.3 Construction Requirements

15.3.1 General Requirements

Design-Build Contractor shall install plantings and other landscape materials using Project Standards. Design-Build Contractor shall install all plantings in a timely manner in relation to the other Work to minimize bare earth. Sod shall be placed within 24 hours of cutting and watered-in during the same shift.

15.3.2 Plant Growth Layer

Design-Build Contractor shall provide soil conditions that can establish and sustain permanent vegetation in accordance with current RSP for Plant Growth Layer. Topsoil shall be salvaged in adequate amounts necessary to revegetate disturbed surfaces within the ROW. Reuse of topsoil shall depend on soil sampling and testing results described below. The Contractor shall balance the topsoil salvaged or imported with that needed to complete the requirements of the contract.

The Design-Build Contractor shall take all steps necessary to prevent the contamination of existing topsoil prior to salvaging or after salvaging. Any topsoil contaminated during the duration of construction shall be removed from site and replaced from a viable topsoil source approved by the Engineer. Any topsoil replaced shall meet the same requirements.

15.3.3 Soil Sampling and Testing Procedures

Prior to disturbance, the Design-Build Contractor shall pull plant growth layer soil samples at a minimum every half-mile along mainline roadway in each direction and within each quadrant of each interchange, including native seed areas. Samples shall be a homogenized mix of 3 separate samples per the requirements above.

Design-Build Contractor shall pull soil samples for testing by hand auger in accordance with Sections 3.6.6 (Topsoil/Plant Growth Layer Sampling) and 3.6.8 (Hand Augers) of the INDOT Geotechnical Design Manual. Samples shall be bagged, logged, and labeled by location, in clean non-contaminating zip-lock material. Bag samples shall be a minimum of 1.0 pounds.

Design-Build Contractor shall have the samples tested using testing methods that comply with Section 5.21 (Topsoil and Plant Growth Layer Testing) of the INDOT Geotechnical Design Manual. Plant Growth Layer tests shall be performed by an INDOT-approved geotechnical laboratory, and test results shall be used to determine necessary soil amendments for plant material establishment. Amendments for the soil shall be determined and implemented on a test-by-test basis, not an average over the entire project.

All imported soil sources shall be tested prior to delivery on-site. Soil tests shall determine what amendments are necessary for the successful establishment of the plantings. Design-Build Contractor shall incorporate all amendments into soil prior to placement or a written method of incorporating amendments after topsoil

placement shall be submitted for approval by INDOT.

Design-Build Contractor shall submit all soil testing reports to INDOT for review and comment prior to installation of planting materials. The soil testing reports shall be completed and submitted to INDOT as a component of the nutrient management plan and coordinated with its requirements.

15.3.4 Nutrient Management Plan

Design-Build Contractor shall prepare and submit a nutrient management plan, including topsoil test results, map showing sample locations, the proposed approach to the amendment placement (including type and amounts) to INDOT for review and comment prior to installation of planting materials.

Design-Build Contractor shall comply with the Indiana Natural Resources Conservation Service (NRCS) Nutrient Management Code 590.

Before performing planting establishment areas including seeding / sodding, Design-Build Contractor shall sample and test soils for texture, pH, organic matter, phosphorus, and potassium needs in accordance with Project Standards and requirements of the Office of Geotechnical Services. Nutrient plan shall focus on improvement to root growth emphasizing phosphorus and potassium over nitrogen.

Design-Build Contractor shall use the soil test results and obtain the services of an Indiana-certified nutrient management planner to develop a Nutrient Management Plan for nitrogen, phosphorus, potassium, organic matter, sulfur, and limestone input levels for planting areas.

15.3.5 Herbicide

Design-Build Contractor shall treat all areas to receive planting, other than seeded areas, with a pre-emergent herbicide prior to planting. Pre-emergent herbicide treatments used shall not be detrimental to the intended replacement plantings. The application of herbicide shall follow RSP 624-M-024 (Herbicide Treatment) and the manufacturer's recommendations. The application of the pre-emergent herbicide shall be in compliance with the Noxious Weed Control Plan.

Design-Build Contractor shall treat any perennial weed species with a post-emergent non-selective herbicide not less than two weeks prior to beginning soil preparation activities.

Perennial weed treatment shall be as per the Department's

standards and in accordance with the approved Noxious Weed Control Plan.

15.3.6 Noxious Weed Control Plan

Design-Build Contractor shall perform the control of noxious weed species within the Project Limits until Final Acceptance.

Design-Build Contractor shall prepare and submit a Noxious Weed Control Plan to INDOT for review and comment prior to the commencement of eradication or removal work. If chemical controls are proposed, they shall be applied by a certified pesticide applicator. At a minimum, removal is required of all regulated species found in Indiana Code as well as the invasive species categorized as “high” on the Indiana Invasive Species Council list found at the following location: https://www.entm.purdue.edu/iisc/invasiveplants.html.

15.4 Deliverables

Deliverables under this Section 15, a non-exhaustive list of which is set forth in Table 15-4, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 15-4: Deliverables

Deliverable	Deliverable Schedule	TP Section
AEIP	Approval required prior to starting aesthetics or landscape Work.	15.3.1
Soil Test Reports	Minimum of one group of 3 samples, homogenized into one (1) sample per half mile of mainline in both directions of travel and an additional group of 3 sample homogenized into one (1) sample at each interchange.	15.4.3
Nutrient management plan	Approval required prior to any soil preparation seeding or planting	15.4.4
Plant certification package	A minimum of one year after initial inspection and approval of the Plant Establishment Work	15.4.7

16. UTILITIES

16.1 General

Design-Build Contractor shall perform Utility coordination and Utility Adjustment Work in accordance with the DBA Documents, including Project Standards, this Section 16 and its RSPs and USPs; Governmental Approvals; and Governmental Rules.

16.2 Utility Coordination Requirements

Design-Build Contractor shall act in good faith to continue the positive relationship that INDOT has developed with the Utility Owners.

Design-Build Contractor utility coordination shall be performed by an INDOT Certified utility coordinator. Design-Build Contractor shall coordinate, cooperate, and work with those Utility Owner representatives on the Utility contact list (initially, the list set forth in RID, to be updated as new or substitute contacts are identified).

Design-Build Contractor shall be responsible for Utility coordination necessary to complete Utility Adjustments and other Work as required, including identifying and resolving Utility Adjustments resulting from the Project design and construction. The current status of utilities is provided in Attachment 16-1 (RSP 107-R-169 (Statements About Existing Conditions of Utilities, Additional Right-of-Way, and Encroachments)).

For each Utility Adjustment, Design-Build Contractor, in coordination with the Utility Owner, shall verify that the Utility, as designed and constructed, is compatible with and interfaces properly with the Project.

Design-Build Contractor shall coordinate with Utility Owners to include timing of Utility Adjustment Work in the Project Schedules.

Design-Build Contractor shall keep Utility Owners well informed of Project Schedules and notify Utility Owners at least 48 hours in advance of any Work in the vicinity of the Utility. Coordination shall also occur for Utilities designated as Protection in Place, whether by Design-Build Contractor or by the Utility Owner. If a Utility Adjustment by a Utility Owner is contingent on the Work or another Utility Owner’s Work, Design-Build Contractor shall keep all parties informed of the status and estimated completion dates for the advance Work.

Design-Build Contractor shall keep Utility Owners well informed of changes to the Project that may affect Utility Adjustment Plans or their facilities.

Design-Build Contractor shall cooperate with the Utility Owners to resolve Adjustment and installation issues to the extent that such Adjustments and

installations are part of the Utility Adjustment Work, as otherwise set forth in the Contract Documents, and without causing INDOT to incur any unnecessary expense to the Project or causing the Utility Owners to incur unnecessary expense.

16.2.1 Standard of Care Applicable to Utility Work

Design-Build Contractor shall contact Indiana 811 prior to commencing any Construction Work and follow all laws and rules governing its work around utilities. Design-Build Contractor shall be responsible to request mark-outs for Non-Indiana 811 Mapped Utilities, whose owners are not members of the 811 locate systems.

Design-Build Contractor shall support and secure Utilities so as to avoid damage and keep them fully maintained and functional during construction. Design-Build Contractor shall not move or remove any Utility without the Utility Owner's written consent. At the completion of the Work, the condition of all Utilities shall be safe and permanent.

If any Utilities are damaged by Design-Build Contractor's Work, Design-Build Contractor shall notify the affected Utility Owner within 2 hours of the Incident. The Utility Owner may cause the damage to be repaired at the Design-Build Contractor's expense.

16.2.2 Utility Owner's Right to Inspect

The Utility Owner has the right to inspect the Work that is to be performed by Design-Build Contractor on the Utility Owner's facilities. Inspection and notification requirements shall be included in the Utility Agreement.

16.2.3 Meetings and Coordination

Within 30 Business Days of NTP, Design-Build Contractor shall schedule one meeting with each Utility Owner potentially impacted by the Project. This meeting is for the purpose of reviewing all items related to Utility Adjustments, including all items that affect Project Schedules and the initiation of Utility Agreements.

If the Design-Build Contractor's proposed design requires the relocation of a Utility, the Design-Build Contractor shall schedule at least bi-weekly joint utility meetings with the Utility Owner(s) to discuss Project progress, issues, and planned Work for all phases of Utility Adjustments, including design and construction. These meetings shall include the Key Personnel of Design-Build Contractor and INDOT personnel that are responsible for Utilities. Design-Build Contractor shall provide meeting facilities. With input from INDOT, Design-Build Contractor shall develop and distribute

an agenda for these meetings. Design-Build Contractor shall keep minutes of the meetings and distribute copies of the minutes within five Business Days after the meeting date to all meeting participants and other designated representatives of the Utility Owner(s), even if not present.

Design-Build Contractor shall notify INDOT at least five Business Days in advance of each meeting with a Utility Owner's representative and shall allow INDOT or its representative the opportunity to participate. Design-Build Contractor shall also provide to INDOT, or its representative, copies of all correspondence between Design-Build Contractor and any Utility Owner within seven days after sending or receiving.

16.2.4 Utility Adjustment Master Plan

Within 30 days after the issuance of NTP, Design-Build Contractor shall submit an initial Utility Adjustment master plan to INDOT for its records showing all known existing Utilities and proposed Utility Adjustments. Design-Build Contractor shall update the Utility Adjustment master plan and submit it to INDOT monthly to reflect all changed information then known to Design- Build Contractor and shall distribute copies for discussion at scheduled Utility meetings.

Updates shall be submitted to INDOT for review and comment.

16.3 Utility Work Plans, Agreements and Permits

Design-Build Contractor shall prepare and submit signed Utility Work Plans and Utility Agreements to INDOT for review and approval using the template provided in Attachment 16-2 (Utility Work Plan and Agreement Template). INDOT will review Utility Work Plans for completeness and compliance with encroachment policies and provide responses within 10 Business Days. Upon approval of a Utility Work Plan, INDOT will execute the Utility Agreement and issue a Utility permit.

Design-Build Contractor is responsible to obtain, or ensure the Utility has obtained, the required permits before the Utility Adjustment Work begins.

16.4 Deliverables

Deliverables under this Section 16, a non-exhaustive list of which is set forth in Table 16-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 16-1: Deliverables

Deliverable	Deliverable Schedule	Section
Utility Adjustment Master Plan	Within 30 days of NTP and updated monthly	16.1.4
Type 1, 2, & 3 Utility Work Plans and Agreements	As required to accommodate the Design-Build Contractor's construction schedule	16.2
Design-Build Contractor's Utility Conflict Matrix	Within 120 days from the effective date of the NTP	16.3

Section 16 Attachments:

Attachment 16-1 RSP 107-R-169 (Statements About Existing Conditions of Utilities, Additional Right-of-Way, and Encroachments)

Attachment 16-2 Utility Work Plan and Agreement Template

17. ABBREVIATIONS AND DEFINITIONS

Unless otherwise specified, wherever the following abbreviations or definitions are used in this Scope of Services, they have the meanings set forth below. References to Sections and Appendices mean Sections and Appendices of this Scope of Services unless otherwise specified.

17.1 Abbreviations

Acronym	Definition
°C	Degrees Celsius
°F	Degrees Fahrenheit
AADT	Average Annual Daily Traffic
AADTT	Average Annual Daily Truck Traffic
AASHTO	American Association of State Highway and Transportation Officials
ABC	Accelerated Bridge Construction
AC	Asphalt Concrete
ACBF	Air-Cooled Blast Furnace (related to slag in Standard Specifications)
ACBRS	Articulated Concrete Block Revetment System
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AM	Ante Meridiem (before noon)
AMM	Avoidance and Minimization Measures
AMS	Aerospace Material Specification
ANSI	American National Standards Institute
AREMA	American Railway Engineering and Maintenance-of-Way Association
AST	Aboveground Storage Tank
ASTM	American Society of Testing and Materials
ATC	Alternative Technical Concept
ATIS	Advanced Traveler Information System

Acronym	Definition
ATMS	Advanced Traffic Management System
ATR	Automatic Traffic Recorder
ATS	Acceptance Testing Specifications
AV	Audio Visual
AWG	American Wire Gauge
AWS	American Welding Society
AWZIS	Automated Work Zone Information System
BCSP	Board Certified Safety Professionals
BMP	Best Management Practice
BNC	Bayonet Neill-Concelman type connector
BO	Biological Opinion
CADD	Computer-Aided Drafting and Design
CAPP	Certified Aggregate Producer Program
CARS	Condition Acquisition Reporting System
CC	Carbon Copy
CCTV	Closed Circuit Television
CD	Compact Disc or Collector/Distributor, depending upon context
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Cost Estimation System
CESSWI	Certified Erosion Sediment and Storm Water Inspector
CFR	Code of Federal Regulations
CFS	Cubic feet per second
CFT	Cubit Feet
CG	Container Grown
CGL	Commercial General Liability

Acronym	Definition
CIB	Contract Information Book
CIF	Construction in a Floodway
CIP	Cast-in-Place
CIPP	Cured-in-Place Thermosetting Resin Pipe Liner
CISEC	Certified Inspector of Sediment and Erosion Control
CLOMR	Conditional Letter of Map Revision
CMP	Construction Monitoring Plan or Corrugated Metal Pipe, as context may require
COM	Comcast Communications
CPESC	Certified Professional in Erosion and Sediment Control
CPL	Contractor's Pollution Liability (insurance)
CPM	Critical Path Method
CPT	Cone Penetration Test
CPU	Central Processing Unit
CQM	Construction Quality Manager
CQMP	Construction Quality Management Plan
CR	County Route
CRCP	Continuously Reinforced Concrete Pavement
CSGP	Construction Stormwater General Permit (formerly Rule 5 permit)
CSL	Cross-Hole Sonic Log
CSS	Context Sensitive Solution
CWTS	Certified Worksite Traffic Supervisor
CYS	Cubic Yards
DB	Design-Build
DBE	Disadvantaged Business Enterprises
DC	Direct Current
DCP	Dynamic Cone Penetrometer

Acronym	Definition
DE	Design Exception
DHCP	Dynamic Host Configuration Protocol
DIA	Direct Internet Access or Diameter, as context may require
DMS	Dynamic Message Sign
DNS	Domain Naming Service
DQM	Design Quality Manager
DQMP	Design Quality Management Plan
DTM	Digital Terrain Model
DVD	Digital Versatile Disc
EA	Expenditure Authorization, Environmental Assessment, or Each, as context may require
EB	Eastbound
ECM	Environmental Compliance Manager
ECMP	Environmental Compliance and Mitigation Plan
EDMS	Electronic Document Management System
EEO	Equal Employment Opportunity
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ENT	Enterprise Products
EP	Exceedance Probability
EQMP	Environmental Quality Management Plan
ERMS	INDOT's Electronic Records Management System
ERS	Ethernet Routing Switch
ESA	Environmentally Sensitive Area
ETL	Electronic Testing Laboratories
EWPO	Ecology and Waterway Permitting Office

Acronym	Definition
F/O	Fiber Optic
FAA	Federal Aviation Administration
FAST	Freeway and Arterial System of Transportation
FC or fc	Foot-candle(s) or “F” Shape Standard Barrier, as context may require
FCC	Federal Communications Commission
FDC	Field Design Change
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FT	“F” Shape Truck Barrier
ft.	Foot or Feet, as context may require
FTP	File Transfer Protocol
FWCA	Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 et seq.), as amended
GB	Gigabyte
GBR	Geotechnical Baseline Report
GDR	Geotechnical Data Report
GHz	Gigahertz
GIS	Geographic Information System
GP	General Purpose
GPS	Global Positioning System
GRI	Geosynthetic Research Institute
HDR	High Dynamic Range
HEC	Hydraulic Engineering Center (hydraulic design software from Davis, California)
HGL	Hydraulic Grade Line
HMA	Hot Mix Asphalt

Acronym	Definition
HMMP	Hazardous Materials Management Plan
HPMS	Highway Performance Monitoring System
HPS	High Pressure Sodium
HSE	Health, Safety and Environmental
HVAC	Heating Ventilation and Air Conditioning
I-65	Interstate 65
IAC	Indiana Administrative Code
IAD	Interstate Access Document
IAW	Indiana American Water
IC	Indiana Code
ID	Identification
IDEM	Indiana Department of Environmental Management
IDM	Indiana Design Manual
IDNR	Indiana Department of Natural Resources
IDV	Indiana Design Vehicle
IES	Illuminating Engineer Society
IHCP	Interstate Highway Congestion Policy
IHPC	Indiana Historic Preservation Commission
IMI	Irving Materials Incorporated
IMP	Incident Management Plan
IMPO	Indianapolis Metropolitan Planning Organization
IMSA	International Municipal Signal Association
IMTA	Indiana Motor Truck Association
IMUTCD	Indiana Manual on Uniform Traffic (Control) Devices
IN SWMP	Indiana Stream and Wetland Mitigation Program
in.	Inch or Inches, as context may require

Acronym	Definition
INDOT	Indiana Department of Transportation
IP	Internet Protocol
IRI	International Roughness Index
ISO	International Organization for Standardization or Insurance Services Office (in context of insurance)
ISP	Indiana State Police
ITM	Indiana Test Method
ITS	Intelligent Transportation System
JPCP	Jointed Plain Concrete Pavement
JPEG	Joint Photographic Experts Group
JRCP	Jointed Reinforced Concrete Pavement
ksi	Kips per Square Inch
LBS	Pounds
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEG	London Engineering Group
LEO	Law Enforcement Officer
LFT	Linear Feet
LiDAR	Laser Image Detection and Ranging
LLF	Light Loss Factor
LMC	Latex Modified Concrete
LMC-VE	Latex Modified Concrete – Very Early (Strength)
LOS	Level of Service
LRFD	Load and Resistance Factor Design (an AASHTO specification)
LRFR	Load and Resistance Factor Rating
LS	Lump Sum
LWD	Light Weight Deflectometer

Acronym	Definition
MB	Megabyte
MBTA	Migratory Bird Treaty Act
MCI	MCI / Verizon Wireless
MEPDG	Mechanistic-Empirical Pavement Design Guide
MFN	Metro Fibernet
MGS	Midwest Guardrail System
Min.	Minimum
MISO	Midcontinent Independent System Operator
mm	Millimeter
MOA	Memorandum of Agreement
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MOV	Metal Oxide Varistor
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxics
MSE	Mechanically Stabilized Earth
N/A	Not Applicable
NAD	North American Datum
NAVD88	North American Vertical Datum of 1988
NB	Northbound
NBI	National Bridge Inventory
NBIS	National Bridge Inspection Standards
NCHRP	National Cooperative Highway Research Program
NDC	Notice of Design Change

Acronym	Definition
NDE	Nondestructive Examination
NDT	Non-Destructive Testing
NEBOSH	National Examination Board in Occupational Safety and Health
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NGVD29	National Geodetic Vertical Datum of 1929
NHI	National Highway Institute
NHS	National Highway System
No.	Number
NOI	Notice of Intent (submitted to IDEM)
NOT	Notice of Termination (from IDEM)
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTCIP	National Transportation Communications for ITS Protocol
NTD	Note To Draft
NTP	Notice to Proceed
OAPL	Overhead Arrow per Lane (signs)
OC	On Center or Overcrossing, as context may require
OER	Office of Emergency Response (IDEM)
OFAC	Office of Foreign Assets Control of the United States Department of the Treasury
ODOT	Ohio Department of Transportation
OG	Open Graded
OH	Overhead

Acronym	Definition
OHWM	Ordinary High Water Mark
OIT	Operator Interface Terminal
OJT	On-the-Job Training
OSHA	Occupational Safety and Health Administration
OTDR	Optical Time-Domain Reflectometer
PBS	Project Baseline Schedule
PC	Point of Curvature
PCB	Polychlorinated Biphenyl or Printed Circuit Board, as context may require
PCC	Point of Compound Curve or Portland Cement Concrete
PCCP	Portland Cement Concrete Pavement
PCI	Prestressed Concrete Institute
PCMS	Portable Changeable Message Signs
PDA	Pile Driving Analyzer
PDF	portable document format
PE	Professional Engineer or Polyethylene, as context may require
PHMA	Perpetual Hot Mix Asphalt
PI	Point of Intersection or Public Involvement, as context may require
PIP	Public Involvement Plan
PLC	Programmable Logic Controller
PM	Project Manager or Post Meridiem (after noon), as context may require
PMP	Project Management Plan
PPE	Personal Protective Equipment
PPM	Pages Per Minute
PROWAG	Public Rights-of-Way Accessibility Guidelines
psf	Pounds per Square Foot
psi	Pounds per Square Inch

Acronym	Definition
PSPL	Project Specific Professional Liability
PT	Point of Tangency or Post-Tensioning, as context may require
PTQ	Protect the Queue
PTZ	Pan, Tilt, and Zoom
PVC	Point of Vertical Curvature or Polyvinyl Chloride, as context may require
PVI	Point of Vertical Intersection
PVT	Point of Vertical Tangency
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan
QMP	Quality Management Plan
QP	Qualified Professional
QPL	Qualified Products List
RAM	Random Access Memory
RCB	Reinforced Concrete Box
RCBA	Reinforced Concrete Bridge Approach
RCP	Reinforced Concrete Pipe
RCU	Remote Control Unit
REC	Recognized Environmental Condition
RF	Radio Frequency
RFC	Released for Construction
RFI	Request for Information or Radio Frequency Interference, as context may require
RFP	Request for Proposals
RFQ	Request for Qualifications
RID	Reference Information Document
ROD	Record of Decision

Acronym	Definition
ROW	Right of Way
RP	Reference Point
RPLS	Registered Professional Land Surveyor
RPM	Raised Pavement Marker
RSP	Recurring Special Provision
RSS	Reinforced Soil Slope
SAE	Society of Automotive Engineers
SB	Southbound
SC	Subscriber Connector
SCADA	Supervisory Control and Data Acquisition
SFEIS	Supplemental Final Environmental Impact Statement
SFT	Square Foot
SHPO	State Historic Preservation Officer
SMA	Stone Mix Asphalt
SPC	Seismic Performance Category, Stored Program Control, or Silver-Plated Copper, as context may require
SPCCP	Spill Prevention, Control, and Counter-Measure Plan
SR	State Route
SSD	Saturated, Surface Dry (Bulk Specific Gravity) or Solid State Drive, as context may require
SSPC	The Society for Protective Coatings
STD	Standard
STIP	Statewide Transportation Improvement Program
SUE	Subsurface Utility Engineering
SWM	Storm Water Management
SWPPP	Storm Water Pollution Prevention Plan
SWQCP	Storm Water Quality Control Plan

Acronym	Definition
SWQM	Storm Water Quality Manager
SYS	Square Yards
TCDS	INDOT's Traffic Count Database System
TCE	Temporary Construction Easement or Thermal Control Engineer, as context may require
TCLP	Toxicity Characteristic Leaching Procedure
TCP	Traffic Control Plan
TCP/IP	Transmission Control Center/Internet Protocol
TGB	Guardrail Transition Type TGB
TIA	Telecommunications Industry Association
TL	Test Level (crash testing criteria)
TMA	Truck Mounted Attenuator
TMC	Traffic Management Center
TMP	Transportation or Traffic Management Plan
TOP	Traffic Operations Plan
TPM	Temporary Pavement Marking
TS	Traffic Signal or Thermal Spray, as context may require
TTB	Temporary Traffic Barrier
TTCP	Temporary Traffic Control Plan
TTS	Travel Time Signs
TVSS	Transient Voltage Surge Suppressors
UAS	Unmanned Aircraft System
UHPC	Ultra-High Performance Concrete
UPS	Un-Interruptible Power Supply
US	United States Highway
USACE	United States Army Corps of Engineers
USB	Universal Serial Bus

Acronym	Definition
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USP	Unique Special Provision
UST	Underground Storage Tank
UV	Ultra-Violet
VGA	Video Graphics Array
VLAN	Virtual Local Area Network
VMP	Veterans Memorial Parkway
VPD	Vehicles Per Day
VRAM	Void Reducing Asphalt Membrane
VSL	Variable Speed Limit
VWIM	Virtual Weigh in Motion
W	Watts, With, West, Waste Flow Rate, or Width, as context may require
WB	Westbound
WBS	Work Breakdown Structure
WEAP	Wave Equation Analysis Pile Driving
WHPA	Wellhead Protection Area
WSEL	Water Surface Elevation
ZOI	Zone of Intrusion

17.2 Definitions

Act means IC § 8-15.7.

Active Design Memoranda means those current design memoranda effective as of the Setting Date.

Activity has the meaning set forth in TP Attachment 1-1 (Critical Path Method Schedule).

Adjust means to perform a Utility Adjustment**. Adjustment** means a Utility Adjustment.

Adjustment Standards means the standard specifications, standards of practice, and construction methods that a Utility Owner customarily applies to facilities (comparable to those being Adjusted on account of the Project) constructed by the Utility Owner (or for the Utility Owner by its contractors), at its own expense. Unless the context requires otherwise, references in the DBA Documents to a Utility Owner's "applicable Adjustment Standards" refer to those that are applicable pursuant to DBA Section 7.3 (Utility Adjustments).

Alternative Technical Concept means a Deviation approved by INDOT as set forth in DBA Attachment 2 to Exhibit 7 (Design-Build Contractor's Proposal Commitments).

Allowance(s) means each of the Pavement Patching Allowance and the Fiber and Column Patching Allowance, individually or collectively, depending upon the context.

Authorized Representative has the meaning set forth in DBA Section 26.5.1 (Designation of Representatives; Cooperation with Representatives).

Basic Configuration has the meaning set forth in Section 5.2 (Basic Configuration).

Betterment has, with respect to a given Utility being Adjusted, the meaning (if any) set forth in the Utility Agreement(s) applicable to the Utility; in all other cases, "Betterment" means any upgrading of the Utility in the course of such Utility Adjustment that is not attributable to the construction of the Project and is made solely for the benefit of and at the election of the Utility Owner, including an increase in the capacity, capability, level of service, efficiency, duration, or function of an Adjusted Utility over that which was provided by the existing Utility.

Notwithstanding the foregoing, the following are not considered Betterments unless otherwise provided in the applicable Utility Agreement(s):

Any upgrading which is required for accommodation of the Project;

Replacement devices or materials that are of equivalent standards although not identical;

Replacement of devices or materials no longer regularly manufactured with an equivalent or next higher grade or size;

Any upgrading required by applicable Governmental Rules;

Replacement devices or materials that are used for reasons of economy (e.g., non- stocked items may be uneconomical to purchase);

Any upgrading required by the Utility Owner's applicable Adjustment Standards; and

Any discretionary decision by a Utility Owner that is contemplated within a particular standard described in clause (f) above.

With respect to any Replacement Utility Property Interest, "Betterment" has the meaning (if any) set forth in the applicable Utility Agreement(s). In all other cases, a Replacement Utility Property Interest shall be considered a Betterment, except to the extent that reinstallation of a Utility in the Replacement Utility Property Interest (i) is necessary in order to meet the requirements of the DBA Documents, or (ii) is called for by Design-Build Contractor in the interest of overall economy for the Project.

Books and Records means any and all documents, books, records, papers or other information of, or in the possession of, any DB-Related Entity or Affiliate relating to the Project, MOT Limits, Planned ROW Limits, Project ROW, Utility Adjustments or Work (including with respect to Change Orders, Relief Events, Compensation Events, Claims and Disputes), including:

all Design Documents and Construction Documents (including drawings, specifications, Submittals, Subcontracts, invoices, schedules, meeting minutes, budgets, forecasts and change orders);

all budgets, certificates, claims, Claims, correspondence, daily time sheet and supervisor's daily reports, data (including test data), cost accounting data, documents, expert analyses, facts, files, information, investigations, materials, notices, payroll documents, plans, projections, proposals, records, reports, requests, samples, schedules, settlements, statements, studies, surveys, tax returns and information, tests, test results, vehicular traffic information, operational information analyzed, categorized, characterized, created, collected, generated, maintained, processed, produced, prepared, provided, recorded, stored or used by any DB-Related Entity in connection with the Project;

union agreements;

insurance, welfare and benefits records;

payroll registers;

earnings records;

payroll tax forms;

material invoices and requisitions;

material cost distribution work sheet;

equipment records (list of company equipment, rates, etc.);

Subcontractors' (including Suppliers) invoices;

Subcontractors' and agents' payment certificates;

canceled checks;

job cost report;

job payroll ledger;

general ledger;

cash disbursements journal;

Project schedules (including any Project Schedule);

all documents that relate to each and every Claim and Dispute, together with all documents that support the amount of Losses that are the subject of each Claim or Dispute;

work sheets used to prepare the Claim or Dispute establishing the cost components for items of the Claim or Dispute, including labor, benefits and insurance, materials, equipment, Subcontractors, all documents that establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals;

email;

network servers, data storage devices, backup tapes/media;

letters and correspondence; and

with respect to all of the above, any information that is stored electronically or on computer-related media.

For purposes of the requirements of the DBA Documents to maintain Books and Records, the term "Books and Records" includes documents or information that are subject to the attorney-client privilege, but for purposes of requirements of the DBA Documents to provide access to Books and Records, the term specifically excludes documents or information that are subject to the attorney-client privilege and are identified in a privilege log as attorney-client privileged information.

Business Day means any day that is not a Saturday, Sunday, Holiday, or other day on which (a) INDOT is officially closed for business, or (b) banks located in Indiana are required or authorized by law or executed order to close.

Certificate of Final Acceptance means the formal written acknowledgment issued by INDOT to Design-Build Contractor that Design-Build Contractor has achieved Final Acceptance and all Work has been fully completed in accordance with the DBA Documents.

Certificate of Substantial Completion means the formal written acknowledgment issued by INDOT to Design-Build Contractor that Design-Build Contractor has achieved Substantial Completion.

Certified Worksite Traffic Supervisor is one of the personnel as defined in Section 9.2.1.2 (Certified Worksite Traffic Supervisor (CWTS)).

Change in Adjustment Standards means any change in Adjustment Standards after the Setting Date that directly affects the design or construction of Utility Adjustments and is:

necessary to conform to Governmental Rules or Change in Law, or

adopted by the applicable Utility Owner after the Setting Date, excluding any such changes in Adjustment Standards known to Design-Build Contractor as of the Setting Date.

A Change in Law that changes, adds to or replaces Adjustment Standards, as well as revisions to the Technical Provisions to conform to such Change in Law, shall be treated as a Change in Adjustment Standards rather than an INDOT-Directed Change to the Technical Provisions.

Change in Law means the enactment, adoption, modification, repeal or other change in any Governmental Rule that occurs after the Proposal Date (including any change in the judicial or administrative interpretation of any Governmental Rule, or adoption of any new Governmental Rule) which is materially inconsistent with Governmental Rules in effect on the Proposal Date, but excluding:

(a) Any change in or new Governmental Rule which was passed or adopted

but not yet effective as of the Setting Date;

(b) A change in a Project Standard or Utility Standard;

(c) A change in the way a Governmental Rule is applied or interpreted as a result of:

i. The failure of any DB-Related Entity to comply with a Governmental Rule or any Governmental Approval; or

ii. Any act or omission of any DB-Related Entity or any Design-Build Contractor Fault;

(d) A change in any Governmental Rule relating to taxes; or

(e) A change in Governmental Rule which was not in force at issuance of the NTP but which (i) had been published as a draft bill or draft statutory instrument or otherwise specifically referred to prior to the issuance of the NTP; (ii) a party experienced and competent in the implementation of works or services similar to the Work would have reasonably foreseen or anticipated prior to the issuance of the NTP, including adoption of a national interoperability standard; or (iii) is substantially the same as a Governmental Rule in force prior to issuance of the NTP.

Change of Control means any assignment, sale, financing, grant of security interest, transfer of interest or other transaction of any type or description, including by or through voting securities, asset transfer, contract, merger, acquisition, succession, dissolution, liquidation or otherwise, that results, directly or indirectly, in a change in possession of the power to direct or control or cause the direction or control of the management of Design-Build Contractor or a material aspect of its business. A Change of Control of a shareholder, member, partner or joint venture member of Design-Build Contractor may constitute a Change of Control of Design-Build Contractor if such shareholder, member, partner or joint venture member possesses the power to direct or control or cause the direction or control of the management of Design-Build Contractor. Notwithstanding the foregoing, the following shall not constitute a Change of Control:

(a) A change in possession of the power to direct or control the management of Design- Build Contractor or a material aspect of its business due solely to a bona fide transaction involving beneficial interests in the ultimate parent organization of a shareholder, member, partner or joint venture member of Design-Build Contractor, (but not if the shareholder, member, partner or joint venture member is the ultimate parent organization), unless the transferee in such transaction is at the time of the transaction suspended or debarred or subject to a proceeding to suspend or debar from bidding, proposing or contracting with any federal or State department or agency;

(b) An upstream reorganization or transfer of direct or indirect interests in Design-Build Contractor so long as no change occurs in the entity with ultimate power to direct or control or cause the direction or control of the management of Design-Build Contractor;

(c) A transfer of interests between managed funds that are under common ownership or control other than a change in the management or control of a fund that manages or controls Design-Build Contractor; or

(d) The exercise of minority veto or voting rights (whether provided by Governmental Rules, by Design-Build Contractor's organizational documents or by related member or shareholder agreements or similar agreements) over major business decisions of Design-Build Contractor, provided that if such minority veto or voting rights are provided by shareholder or similar agreements, the INDOT have previously received copies of such agreements.

Change Order has the meaning set forth in DBA Section 14.1(a) (Definition of Change Orders).

Commencement of Construction has the meaning set forth in DBA Section 5.5.1 (Conditions to Commencement of Construction).

Commencement of Design has the meaning set forth in DBA Section 5.4.1 (Conditions to Commencement of Design).

Completion Deadline means the Substantial Completion Deadline or Final Acceptance Deadline, as the context may require.

Completion Milestone means Substantial Completion or Final Acceptance.

Conduit means any conduit, casing, sleeve, hanger, attachment, or blockout for installation or protection of Utilities attached to or installed through structures, and any associated pull-ropes for Utility cables.

Construction Documents means all Released for Construction Documents, Working Drawings and samples necessary for construction of the Project in accordance with the DBA Documents.

Construction Manager is one of the Key Personnel as defined in Section 1.5.1.1 (Key Personnel).

Construction Quality Management Plan means the plan described in Section 1.5.3.2 (Quality Management Plan).

Construction Superintendent is one of the additional personnel as defined in Section 1.5.1.2 (Additional Personnel).

Construction Work means all Work to build or construct, reconstruct, rehabilitate, make, form, manufacture, furnish, install, integrate, supply, deliver or equip the Project or the Utility Adjustments.

Contaminated Groundwater means any extracted, pumped and/or ponded groundwater that contains Hazardous Materials.

Contract means a best value, lump sum price, design-build contract.

Contract Documents see **DBA Documents**.

Contract Price has the meaning set forth in the DBA Section 13.1.1.

Cost and Pricing Data means detailed back-up information regarding the basis for the cost estimates for development, design, construction, operations, and maintenance of the Project in the Proposal. Cost and Pricing Data shall include supporting data, technical memoranda, calculations, formulas, unit and materials prices (if applicable) and such other cost, charge and fee information used by or on behalf of Design-Build Contractor in the creation and derivation of the Proposal, including copies of all offers and all data and information received from all Subcontractors (at all tiers) identified in the Proposal and any other potential Subcontractors that provided data and information used as the basis for the Scope Proposal and the Contract Price.

Cost Liability means the obligation to bear the cost of a Utility Adjustment (as between the INDOT and the Utility Owner), whether arising out of common or statutory law or contract, as determined by INDOT, in its sole discretion.

Critical Path means the critical path on the Project Baseline Schedule which ends on the Substantial Completion Deadline or the Final Acceptance Deadline, as applicable (i.e., the term shall apply only following consumption of all available Float in the schedule for Substantial Completion or Final Acceptance, as applicable). The lower-case term “critical path” means the sequence of activities on the Project Baseline Schedule that must be completed on schedule to complete the Project within the minimum time needed for completion of the entire Project. This is the longest duration path (or “chain”), in terms of time, of logically connected activities of D&C Work on the Project Baseline Schedule (as such schedule is statused and updated in accordance with this DBA, which may include, pursuant to Section 15.1.4.3 (Compensation Event or Relief Event Package) a time impact analysis under Section 14.6.2.3 (Delay Analysis)) ending with the relevant deadline in respect thereof (ultimately, the Final Acceptance Date), corrected for any improper logic, improper activity durations, and errors.

CSGP means the Construction Stormwater General Permit regulation of the Indiana Department of Environmental Management, found at

https://www.in.gov/idem/stormwater/files/final_gen_permit_inra00000_construction.pdf.

Culvert means any pipe or small structure that is used to convey overland water flow directly from one side of the roadway to the other side of the roadway.

DBA Documents has the meaning in DBA Section 1.2 (DBA Documents).

DBE Goal means the goal for percentage of work to be performed by the certified DBE that is established by INDOT in the DBA Section 4.3.2 (DBE Participation Goals).

DB-Related Entity(ies) means Design-Build Contractor, any Subcontractor, any Affiliate or any of their respective employees, agents, representatives, shareholders, directors or officers, and/or any other Person for whom Design-Build Contractor may be legally or contractually responsible.

Design-Build Contractor means the successful Proposer that enters into the DBA with INDOT.

Design-Build Contractor Release of Hazardous Materials means:

(a) Release of Hazardous Materials attributable to any act or omission of any DB-Related Entity or any Design-Build Contractor Fault, provided that the removal of Hazardous Materials by any DB-Related Entity in accordance with the requirements of the DBA Documents shall not be a "Design-Build Contractor Release of Hazardous Material";

(b) Release of Hazardous Materials arranged to be brought onto the Site or elsewhere by any DB-Related Entity; regardless of cause; or

(c) Use, containment, storage, management, handling, transport and disposal of any Hazardous Materials by any DB-Related Entity in violation of the requirements of the DBA Documents or any applicable Governmental Rule or Governmental Approval.

Design-Build Contractor's Utility Conflict Matrix has the meaning set forth in DBA 7.4.1 (Utility Information and Supplemental Utility Investigation).

Design Document means any drawing (including plan, elevation, section, detail and diagram), specification, report, calculation, record and submittal necessary for design of the Project in accordance with the DBA Documents, following approval thereof by INDOT and others as required by the DBA Documents.

Design Exception means formal written documentation for any exception to the controlling design criteria approved as described in Chapter 40-8.0 of the

IDM that follows the process described in Section 3.6 (Design Exceptions), or the "Design Exceptions" set forth in Section 5.3.3 (INDOT-Provided Design Exceptions).

Design Manager is one of the Key Personnel as defined in Section 1.5.1.1 (Key Personnel).

Design Quality Management Plan means the plan described in Section 1.5.3.2 (Quality Management Plan).

Design Work means all Work of design, engineering, survey, geotechnical, architecture, landscape architecture, and aesthetics for the Project, Additional Properties acquisition, or Utility Adjustments.

Detention Facility means all oversized in-line pipes, surface ponds, and associated drainage structures, weirs, and berms used to temporarily store water on the Project site until it can be released to meet the Project discharge rates.

Deviation means any change, deviation, modification or alteration from the technical requirements of the DBA Documents (excluding those of the DBA Documents listed in DBA Section 1.3.1(a)(i) (Order of Precedence) and DBA Section 1.3.1(a)(ii) (Order of Precedence). For purposes of this definition, "Deviation" includes Design Exceptions.

Disadvantaged Business Enterprise has the meaning set forth in 49 CFR § 26.5.

Effective Date means the date of the DBA identified in the preamble of the DBA.

Environment means air, soils, submerged lands, surface waters, groundwaters, land, stream sediments, surface or subsurface strata, biological resources, including endangered, threatened and sensitive species, natural systems, including ecosystems, and historic, cultural, archaeological and paleontological resources or artifacts.

Environmental Approvals means all Governmental Approvals arising from or required by any Environmental Law in connection with development of the Project as applicable to the Project, including the NEPA Documents.

Environmental Compliance Manager has the meaning defined in Section 14.2.1 (Environmental Compliance Manager).

Environmental Compliance and Mitigation Plan means the plan described in Section 14.3.2.1 (Environmental Management Plan).

Environmental Determination means the final disposition of the environmental assessment under NEPA, as articulated in the NEPA Documents.

Environmental Law means (1) any Governmental Rule applicable to the Project or the Work, now or hereafter in effect, regulating, relating to, or imposing liability or standards of conduct concerning the Environment or otherwise to generation, production, emissions, discharges, storage, use, handling, transportation, treatment, disposal, remediation, Release of Hazardous Materials or threatened Release of Hazardous Materials or other hazardous, toxic, or dangerous waste, pollutants, contaminants, substances, or materials in or into the Environment, including into the air, surface water, or groundwater, or onto land and (2) any requirement and/or standard that pertains to the protection of the Environment, or to the management of Hazardous Materials, or generation, production, emissions, discharges, storage, use, handling, transportation, treatment, disposal, remediation, Release of Hazardous Materials or threatened Release of Hazardous Materials or other hazardous, toxic, or dangerous waste, pollutants, contaminants, substances, or materials in or into the Environment, contamination of any type whatsoever, or health and safety matters with respect to Hazardous Materials, set forth in any Governmental Approval or other criteria or guidelines promulgated, pursuant to Governmental Rules applicable to the Project or Work, as each of the foregoing have been or are amended, modified, or supplemented from time to time (including any present and future amendments thereto and reauthorizations thereof) including those relating to:

(a) The manufacture, processing, distribution, use, re-use, treatment, storage, disposal, transport or handling of Hazardous Materials or other hazardous, toxic, or dangerous waste, pollutants, contaminants, substances, or materials;

(b) The protection of public health, public welfare, public safety or the Environment (including protection of nonhuman forms of life, the land, surface water, groundwater, and air);

(c) Air, soil, surface and subsurface strata, stream sediments, surface water, and groundwater;

(d) The Release of Hazardous Materials or other hazardous, toxic, or dangerous waste, pollutants, contaminants, substances, or materials;

(e) Protection of wildlife, endangered, threatened, and sensitive species and / or designated critical habitat, wetlands, water courses and water bodies, parks and recreation lands, cultural, historical, archaeological, and paleontological resources or artifacts, and natural resources;

(f) The operation and closure of underground or aboveground storage tanks;

(g) Health and safety of employees and other persons with respect to Hazardous Materials or other hazardous, toxic, or dangerous waste, pollutants, contaminants, substances, or materials; and

(h) Notification, documentation and record keeping requirements relating to the foregoing.

Without limiting the above, the term “Environmental Law” shall also include the following (all as amended):

(i) The National Environmental Policy Act (42 U.S.C. §§ 4321 *et seq*.), as amended (“NEPA”);

(ii) The Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act (42 U.S.C. §§ 9601 et seq.), as amended ("CERCLA");

(iii) The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments (42 U.S.C. §§ 6901 et seq.), as may be further amended;

(iv) The Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. §§ 11001 et seq.), as amended;

(v) The Clean Air Act, as amended by the Clean Air Act Amendments (42 U.S.C. §§ 7401 et seq.), as amended;

(vi) The Water Pollution Control Act, as amended by the Clean Water Act (33 U.S.C. §§ 1251 et seq.), as amended;

(vii) The Toxic Substances Control Act (15 U.S.C. §§ 2601 et seq.), as amended;

(viii) The Hazardous Materials Transportation Act (49 U.S.C. §§ 1801 et seq.), as amended;

(ix) The Oil Pollution Act (33 U.S.C. §§ 2701, et seq.), as amended;

(x) The Insecticide, Fungicide and Rodenticide Act (7 U.S.C. §§ 136 et seq.), as amended;

(xi) The Safe Drinking Water Act (42 U.S.C. §§ 300 et seq.), as amended;

(xii) The Radon Gas and Indoor Air Quality Research Act (42 U.S.C. §§ 7401 et seq.), as amended;

(xiii) The Occupational Safety and Health Act (29 U.S.C. §§ 651 et seq.), as amended;

(xiv) The Endangered Species Act (16 U.S.C. §§ 1531 et seq.), as amended;

(xv) The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 et seq.), as amended;

(xvi) The National Historic Preservation Act (16 U.S.C. §§ 470 et seq.), as amended;

(xvii) The Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668 et seq.), as amended;

(xviii) The Migratory Bird Treaty Act (16 U.S.C. §§ 703 et seq.), as amended;

(xix) The Marine Mammal Protection Act (16 U.S.C. §§ 1361 et seq.), as amended;

(xx) The Surface Mining Control and Reclamation Act (30 U.S.C. § 1201 et seq.), as amended; and

(xxi) Section 4(f) of the U.S. Department of Transportation Act (49 U.S.C. § 303), as amended.

Environmental Management Plan means the plan described in Section 1.5.3.3 (Environmental Management Plan).

Error means an error, omission, inconsistency, inaccuracy, deficiency or other defect.

Existing Improvement means the existing ITS and related improvements within the Project Right-of-Way as of the Setting Date.

Existing Utility Property Interest means any right, title or interest in real property (e.g., a fee or an easement) claimed by a Utility Owner as the source of its right to maintain an existing Utility in such real property, which is compensable in eminent domain.

Federal Requirements means the provisions required to be part of federal-aid construction contracts, including the provisions set forth in DBA Exhibit 11.

Field Design Change means any revision proposed by Design-Build Contractor deemed necessary to address any situation discovered after the Released for Construction Documents have been submitted to INDOT.

Final Acceptance means acceptance of the Project by INDOT as evidenced by issuance of a Certificate of Final Acceptance in accordance with DBA Section 22.4 (Final Acceptance).

Final Acceptance Date means the date on which Final Acceptance occurs.

Final Acceptance Deadline has the meaning set forth in DBA Section 5.2.2 (Final Acceptance Deadline).

Final Payment means payment by INDOT of the final installment of the price under the DBA but excluding payment for Work during Notices of Termination, and unused amounts of the Allowances, and any other amounts that INDOT is authorized to withhold in accordance with the DBA Documents.

Final Schedule means the schedule described in Section 1.5.2.3 (Final Schedule) and TP Attachment 1-1 (Critical Path Method Schedule).

Final Tracings Submission means all the Submittals for Final Tracings Submission described in Chapter 14-2.0 of the IDM, unless stated otherwise in the DBA Documents.

Float means the amount of time that any given activity or logically connected sequence of activities shown on the Project Baseline Schedule may be delayed before it will affect Design-Build Contractor's ability to achieve a Completion Milestone by its applicable Completion Deadline. "Float" generally means the difference between early completion times and late completion times for activities as shown on the Project Schedule and shall include any float contained within an activity as well as any period containing an artificial activity (that is, one which is not encompassed within the meaning of the word "Work").

Flood means:

The first 15 cumulative days of High-Water Events during the term between April and November each year shall not be considered a Flood. Any additional day(s) of a High-Water Event beyond the first 15 cumulative days during the term are considered a Flood. High-Water Events between December and March are expected and shall not be considered a Flood.

Force Majeure Event has the meaning set forth in DBA Exhibit 1.

Geotechnical Data Report means the following report included among the Reference Information Documents: Geotechnical Data Reports and Appendices prepared by Terracon Consultants, Inc. dated March 17, 2022,

July 11, 2022, July 14, 2022, January 25, 2023, February 11, 2022, October 18, 2022, October 24, 2022, November 16, 2022, April 21, 2023, December 8, 2021, September 27, 2022, September 27, 2022, and August 9, 2021, collectively identified as RID Geotechnical Data Report.

Geotechnical Design Report means the report by Design-Build Contractor described in Section 11.3.2 (Geotechnical Design Reports).

Good Industry Practice has the meaning set forth in DBA Exhibit 1.

Governmental Approval means any permit, license, consent, concession, grant, franchise, authorization, waiver, certification, exemption, filing, lease, registration or ruling, variance or other approval, guidance, protocol, mitigation agreement, agreement or memoranda of agreement/understanding, and any revision, modification, amendment, supplement, renewal or extension of any of the foregoing, required by or with any Governmental Entity in order to perform the Work or any Utility Adjustment Work being performed by a Utility Owner, but excluding (a) any such approvals relating to the work to be performed by other contractors as specifically described in the DBA Documents and (b) any such approvals required by or with a Governmental Entity in its capacity as a Utility Owner. Governmental Approvals include Environmental Approvals. Other Approvals are not Governmental Approvals.

Governmental Entity means any federal, state, local or foreign government and any political subdivision or any governmental, quasi-governmental, judicial, public or statutory instrumentality, administrative agency, authority, body or entity other than the INDOT.

Governmental Rule means any statute, law, regulation, ordinance, rule, judgment, order, executive order, decree, permit, concession, grant, franchise, license, agreement, directive, guideline, policy requirement or other governmental restriction or any similar form of decision of or determination by, or any interpretation or administration of any of the foregoing by, any Governmental Entity, which is applicable to the Work, the Project, the Site or any Utility Adjustment work being performed by a Utility Owner, whether now or hereafter in effect.

Hazardous Materials means any element, chemical, compound, mixture, substance, product, waste or other material, whether solid, liquid or gaseous, which is or becomes defined, listed, classified, regulated, or addressed in any way under any Environmental Laws, or any other substances or conditions (including mold and other mycotoxins, fungi or fecal matter) which may create any unsafe or hazardous condition or pose any threat or harm to the environment or human health and safety. “Hazardous Materials” includes the following:

(a) Any substance, product, waste or other material of any nature whatsoever which may give rise to liability under any Environmental Law or common law theory based on negligence, trespass, intentional tort, nuisance or strict liability or under any reported decisions of a state or federal court;

(b) Hazardous waste, hazardous materials, hazardous substances, hazardous constituents, and toxic substances, ignitable, corrosive and reactive substances or related materials, whether solid, liquid or gas, including substances defined as or included in the definition of "hazardous substance," "hazardous waste," "hazardous material," "extremely hazardous waste," "acutely hazardous waste," "radioactive waste," "radioactive materials," "bio-hazardous waste," "pollutant," "toxic pollutant," "contaminant," "restricted hazardous waste," "infectious waste," "toxic substance," "toxic waste," "toxic material," or any other term or expression intended to define, list or classify substances by reason of properties harmful to health, safety or the indoor or outdoor environment (including harmful properties such as ignitability, corrosivity, reactivity, carcinogenicity, toxicity, reproductive toxicity, "TCLP toxicity" or "EP toxicity" or words of similar import) under any applicable Environmental Law;

(c) Any petroleum or crude oil and any fraction thereof, including any refined petroleum product or any additive thereto or fraction thereof, and any waste oil or waste petroleum byproduct or fraction thereof or additive thereto, but excluding petroleum and petroleum products contained within regularly operated motor vehicles;

(d) Any solvent, solvent waste, including any refined solvent product, and any waste solvent or waste solvent byproduct, including any additive, byproduct or fraction of any of the foregoing;

(e) Any drilling fluids, produced waters and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal resources;

(f) Any flammable substances or explosives, including unexploded ordnance;

(g) Any radioactive materials;

(h) Any asbestos or asbestos-containing materials in structures and or other improvements on or in the Site (other than mineral asbestos naturally occurring in the ground);

(i) Silica;

(j) Any lead, cadmium, or lead-based paint or any other heavy metal-based paint or material, or any metal listed in or regulated by the Resource

Conservation and Recovery Act (42 U.S.C. §§ 6901 et seq.);

(k) Any radon or radon gas;

(l) Any methane gas or similar or regulated gaseous materials;

(m) Any urea formaldehyde foam insulation;

(n) Electrical equipment and components which contain any oil or dielectric fluid containing polychlorinated biphenyls;

(o) Pesticides, herbicides or fungicides;

(p) Any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any Governmental Entity or which may or could pose a hazard to the health and safety of any humans in the vicinity of the Project or to the environment; and

(q) Soil, surface water or groundwater containing any of the Hazardous Materials as defined above.

Hazardous Materials Management means sampling, characterization, stock-piling, storage, backfilling in place, asphalt batching, recycling, treatment, collection, containment, clean-up, remediation, transportation, management in place and/or off-Site disposal of Hazardous Materials or Contaminated Groundwater, or Recognized Environmental Conditions, whichever is the most technically appropriate and cost-effective approach authorized under Governmental Rules, using Good Industry Practice.

Hazardous Materials Management Plan means the plan described in Section 14.3.3 (Hazardous Materials).

High-Water Event means when the water surface elevation meets or exceeds the documented 100-year Base Flood Elevation (BFE) for any of the water crossings within the Project.

Hold Point means any mandatory verification point that requires Design-Build Contractor to submit items identified in Section 2.2.2 (Hold Points) to the INDOT for review, comment, observation and examination. Additional Hold Points may be added by INDOT pursuant to Section 2.2.2 (Hold Points).

Holiday has the meaning set forth in Section 101.28 of the Standard Specifications, provided, however, that Sundays shall not, on their own, be considered Holidays.

IDEM Notice of Termination means the Notice that IDEM issues to close out their CSGP Permit when construction of the Project has been completed and specific conditions have been met.

INDOT-Caused Delay has the meaning set forth in DBA Exhibit 1.

INDOT-Provided Approval means any Governmental Approval for the Project obtained or to be obtained by the INDOT as specifically listed and identified as such in Table 14-1 (INDOT- Provided Approvals). Refer also to Section 14.3.1 (Permits and Approvals).

INDOT's Project Manager means the individual designated by INDOT to manage the Project.

Incident means a localized disruption to the free flow of traffic or safety of users in or adjacent to the Site.

Incident Management Liaison means the individual designated by Design-Build Contractor as described in Section 9.2.1.3 (Incident Management Liaison) and Section 9.3.3 (Work Zone Incident Management).

Incident Management Plan means Design-Build Contractor's plan for detection and response to Incidents as described in Section 9.3.3.1 (Incident Management Plan).

Indiana Design Manual means the Indiana Design Manual 2013, the version currently in effect as of the Setting Date.

INDOT Limited Access Right-of-Way (ROW) has the meaning set forth in the IDM.

INDOT's Utility Accommodation Policy means the policy found at https://www.in.gov/indot/3787.htm.

Intellectual Property means all current and future legal and/or equitable rights and interests in know-how, patents (including applications), copyrights (including moral rights), trademarks (registered and unregistered), service marks, trade names, trade secrets, trade secret rights, designs (registered and unregistered), design rights, utility models, circuit layouts, plant varieties, business and domain names, inventions, solutions embodied in technology, and other intellectual activity, and applications of or for any of the foregoing, subsisting in or relating to the Project, Project design data or Project traffic data. Intellectual Property includes toll-setting and traffic management algorithms, and software used in connection with the Project (including software used for management of traffic on the Project), and Source Code and Source Code Documentation. Intellectual Property is distinguished from physical construction and equipment itself and from data, sketches, charts, calculations, drawings, plans, depictions, specifications, layouts, depictions, manuals, electronic files, artwork, correspondence, other Submittals and other documentation that disclose Intellectual Property.

Key Personnel means an/those individual(s) appointed by Design-Build Contractor and approved by INDOT from time to time to fill the respective "Key Personnel" position(s) identified in Section 1.5.1.1 (Key Personnel). The specific individuals appointed by Design-Build Contractor and approved by INDOT initially to fill certain of the Key Personnel positions are identified in DBA Exhibit 3 (Key Personnel). Key Personnel include those identified as such in the Technical Proposal.

Known or Suspected Hazardous Materials means Hazardous Materials and Recognized Environmental Conditions that are known or reasonably expected to exist as of the Setting Date from information or analysis contained in or referenced in the Reference Information Documents, or Hazardous Materials that would have become known to Design-Build Contractor by undertaking Reasonable Investigation prior to the Proposal Date.

Lead Design Firm means the design consulting firm(s) with primary responsibility for the design of the Work.

Level 1 FDC means any Field Design Change that is a minor change in the field that does not require additional engineering analysis and calculations. Markups are sufficient to complete the Work and the item(s) shall be updated in the Record Drawings.

Level 2 FDC means any Field Design Change that is more substantive than a Level 1 FDC, requiring Plan revisions, but does not require additional engineering analysis and calculations.

Level 3 FDC means any Field Design Change that is significant requiring revised Plan sheets and engineering analysis and calculations.

Level One Design Exception means any of the Design Exceptions set forth in Section 5.3.3.1 (Level One Design Exceptions) or any other Design Exception to the controlling design criteria described in Chapter 40-8.02(01) of the IDM.

Level Two Design Exception means any of the Design Exceptions set forth in Section 5.3.3.2 (Level Two Design Exceptions) or any other Design Exception to the controlling design criteria described in Chapter 40-8.02(02) of the IDM.

Liquidated Damages means liquidated damages determined under (i) DBA Section **Error! Reference source not found.** (Key Personnel Liquidated Damages), (ii) DBA Section **Error! Reference source not found.** (Liquidated Damages for Late Opening to Traffic and Late Completion), (iii) DBA Section **Error! Reference source not found.** (Movement Closures and Movement Charges); (iv) DBA Section **Error! Reference source not found.** (Movement Charges for Prohibited Closures); or (v) DBA

Section **Error! Reference source not found.** (Noncompliance Event Deductions).

Local Agencies means the City of Scottsburg, Scott County, Clark County, and any other Governmental Entity, other than the INDOT, owning property within the Site or with jurisdiction over any such property, or that otherwise has property that interfaces with the Project.

Long-Stop Date means the date that is 270 days after the Substantial Completion Deadline, or Extended Substantial Completion Deadline, as the context may require. Design-Build Contractor shall be in default under the DBA Documents if Substantial Completion is not achieved by this date.

Losses includes any loss, damage, injury, liability, obligation, cost, response cost, expense (including attorneys', accountants' and expert witnesses' fees and expenses (including those incurred in connection with the enforcement of any indemnity or other provision of the DBA Documents)), fee, charge, deductible or increased premium, demand, investigation, proceeding, action, suit, claim, Claim, judgment, penalty, fine or Third-Party Claims, in each case whether actual, prospective, or contingent and whether or not currently ascertainable. "Injury" includes injury to or death of persons, damage or loss of property, harm or damage to natural resources, and loss of or damage to valuable papers and records.

Main or Trunkline Utility means an underground Utility, which is not a Service Line, and which relative to the particular system of which it is a part, (a) is a larger line serving as a main line to connecting tributary lines and (b) serves a larger area, all as determined by INDOT, in its sole discretion. In determining whether a facility should be considered a Main or Trunkline Utility, INDOT may refer to definitions in the relevant manual or code, if any, of the Utility Owner.

Maintenance of Traffic Manager is one of the key personnel as defined in Section 9.2.1.1 (Maintenance of Traffic Manager).

Maintenance Priority Level 1, 2, or 3 means the priority level INDOT will use to assign a maintenance condition in the work zone requiring Design-Build Contractor to start performing the Work within a set time period, where Level 1 is the highest priority and Level 3 is the lowest priority.

Median Drain means all pipes and inlets used to drain a roadway median; see Storm Sewer.

Misidentified Utility means a Main or Trunkline Utility, where the Utility Information specifically provided in Section 16 (Utilities) (as relates to Main or Trunkline Utilities only) does not identify the subject Main or Trunkline Utility within the boundary lines of the Project ROW with Reasonable Accuracy.

Necessary Basic Configuration Change means a change in the Basic Configuration that is necessary to meet the requirements of the DBA Documents as the result of an Error in the Basic Configuration (with the understanding that a change shall be deemed "necessary" only if the Error creates a problem in which Design-Build Contractor is unable to meet the requirements of the DBA Documents without a material change in the Basic Configuration).

NEPA Documents has the meaning set forth in DBA Exhibit 1.

New Approval means either: (a) a new Governmental Approval of the same type as any INDOT-Provided Approval; or (b) a revision, modification, or amendment to any INDOT- Provided Approval.

New Utility means any Utility constructed or installed as a result of the Project for the purpose of providing service to the Project, either directly or indirectly.

Non-Indiana 811 Mapped Utility(ies) means a Utility(ies) owned or operated by a Utility Owner that is not a member of Indiana 811. “Non-Indiana 811 Mapped Utilities” are not “Misidentified Utilities.”

Nonconforming Work means any aspect of the Work that (a) does not comply with the requirements of the DBA Documents, the Governmental Approvals, applicable Governmental Rules, the Design Documents or the Construction Documents, or (b) is not consistent, or is incompatible with, its age, function, performance, and use when properly maintained in accordance with Good Industry Practice and the requirements of the DBA Documents, or both.

Notice means a written notice, request, demand, instruction, certificate, consent, explanation, agreement, approval, notification, correspondence, order or other communication given under the DBA Documents to a Party that complies with the prescriptions set forth in DBA Section 26.11 (Notices and Communications).

Notice of Design Change means any change or revision proposed by Design-Build Contractor’s design team deemed necessary to address situations discovered after the Released for Construction Documents have been submitted.

Notice to Proceed means a written authorization issued by INDOT pursuant to DBA Section 5.1.2 (Notice to Proceed 1) or DBA Section 5.1.3 (Notice to Proceed 2), or both, depending upon the context, that permits Design-Build Contractor to proceed with certain Work.

Open Book Basis means providing INDOT all underlying assumptions, price quotes and data associated with pricing or compensation (whether of Design-

Build Contractor or INDOT) or adjustments thereto, including assumptions as to costs of the Work, schedule, composition of equipment spreads, equipment rates, labor rates, productivity, estimating factors, design and productivity allowance, contingency and indirect costs, risk pricing, discount rates, interest rates, and other items reasonably required by INDOT to satisfy itself as to the reasonableness of the amount.

Other Approval means any permit, license, consent, authorization, approval or similar document issued to Design-Build Contractor by, or agreement entered into between Design- Build Contractor and any Governmental Entity, Utility Owner, property owner or other third-party having regulatory jurisdiction over any aspect of the Project or Work or having any property interested affected by the Project or Work that is not a Governmental Approval.

Other INDOT Contractor means any contractor or consultant, except any DB-Related Entity relating to the Project, that INDOT contracts to perform other or additional work on or near the Site.

Party means Design-Build Contractor or INDOT, as the context may require, and "Parties" means Design-Build Contractor and INDOT, collectively.

Person means any individual, corporation, joint venture, limited liability company, company, voluntary association, partnership, trust, unincorporated organization or Governmental Entity, as well as INDOT.

Plan means (only where capitalized) any plan, profile, typical cross-section, standard drawing, Working Drawing, and supplemental drawing or exact reproduction thereof which show the location, character, dimensions, and details of the Work.

Planned Right-of-Way (ROW) Limits has the meaning set forth in DBA Exhibit 19 1.2.1 (Project Limits). The "Planned ROW Limits" are the boundaries of the real property that INDOT made or will make available to Design-Build Contractor for permanent improvements included in the Project.

Pothole means a roadway surface condition greater than 0.5 square feet in area and 1 inch in depth.

Potential Hazardous Materials Sites means the specific sites identified in Section 14.3.3 (Hazardous Materials).

Preliminary Project Baseline Schedule means the "Preliminary Project Baseline Schedule" in DBA Exhibit 15 (Preliminary Project Baseline Schedule).

Professional Services means all Work performed under this Contract other than Construction Work, including the following services and Work: (a) design

and engineering; (b) surveying; (c) Utility Adjustment design; (d) environmental permitting and compliance services; and (e) public involvement.

Progress Meeting has the meaning set forth in Section 1.2 (Progress Meetings).

Progress Report has the meaning set forth in Section 1.3 (Progress Reports).

Project means the improvements to be designed and constructed by Design-Build Contractor and all other Work to be provided by Design-Build Contractor in accordance with the DBA Documents.

Project Administration Plan means the plan described in Section 1.5.3.1 (Project Administration Plan).

Project Advertisement means July 19, 2024.

Project Baseline Schedule means the logic-based critical path schedule for all Work through Final Acceptance, as more particularly described in Section 1.5.2.1 (Project Baseline Schedule) and TP Attachment 1-1 (Critical Path Method Schedule).

Project Controls Lead has the meaning set forth in Section 1.5.1.1 (Key Personnel).

Project Kickoff has the meaning set forth in Section 3.5 (Project Kickoff).

Project Manager means Design-Build Contractor's Project Manager, except as context may otherwise require (e.g., reference to INDOT's Project Manager), and is one of the Key Personnel as defined in Section 1.5.1.1 (Key Personnel).

Project Management Plan means the document, including approved changes and revisions, prepared by Design-Build Contractor and approved by INDOT describing quality assurance, quality control and other activities necessary to manage the development, design and construction of the Project, containing component parts approved by INDOT, plans and documentation, as described in Section 1.5.3 (Project Management Plan).

Project Right of Way or **Project ROW** means the Planned ROW Limits plus the Additional Properties, excluding therefrom any portion of the Planned ROW Limits eliminated from the Project by a Change Order.

Project-Specific Locations means areas in which Design-Build Contractor proposes temporary Project-specific activities in connection with the Construction Work outside the MOT Limits and Project ROW, such as

construction work sites, temporary work areas, lay down areas, staging areas, storage areas, stockpiling areas, earth work material borrow sites, equipment parking areas, and similar areas.

Project Schedule has the meaning as set forth in DBA Exhibit 1.

Project Standards has the meaning set forth in Table 18-1 (Standards and References) in Section 18.3 (List of Project Standards).

Project Status Schedule means a Submittal provided by Design-Build Contractor showing Work progress information through a given update interval and forecasts Design-Build Contractor's remaining plan to complete the Work in accordance with Section 1.5.2.2 (Project Status Schedule) and TP Attachment 1-1 (Critical Path Method Schedule).

Proposal means the written offer of Design-Build Contractor submitted in response to the Request for Proposals, as it may have been supplemented or amended.

Proposal Commitments means commitments made by the Design-Build Contractor in its Technical Proposal, which either meet or exceed the applicable requirements of the DBA Documents. None of these shall limit, modify, discharge, eliminate, or reduce the requirements of the DBA Documents. Inclusion of a commitment shall not form the basis of any Claim against INDOT or shift to INDOT the risk of, or liability for, any site condition, event, approval, or consent that has otherwise been allocated to Design-Build Contractor under the DBA Documents. As mutually agreed upon between INDOT and Design-Build Contractor, these commitments are set forth in Attachment 1 to DBA Exhibit 7 (Proposal Commitments).

Proposal Due Date means January 10, 2025.

Proposer means the entity submitting a Technical and Scope Proposal for the Project in response to this Project Advertisement.

Proprietary Intellectual Property means Intellectual Property created, used, applied or reduced to practice in connection with the Project or the Work that derives commercial value from its protection as a trade secret under applicable Governmental Rules or from its protection under patent law.

Protection in Place or **Protect in Place** means any activity undertaken to avoid damaging a Utility which does not involve removing or Adjusting that Utility, including staking the location of a Utility, avoidance of a Utility's location by construction equipment, installing steel plating or concrete slabs, encasement in concrete, temporarily de-energizing power lines, and installing physical barriers. For example, temporarily lifting power lines without cutting them would be considered Protection in Place; whereas temporarily moving power lines to another location after cutting them would

be considered a Temporary Adjustment. The term “Protection in Place” includes both temporary measures and permanent installations meeting the foregoing definition.

Public Involvement Coordinator has the meaning set forth in Section 19.2.2.1 (Public Involvement Coordinator).

Public Involvement Plan means the plan described in Section 1.5.3.5 (Public Involvement Plan).

Public Records Act means IC § 5-14-3 and relevant provisions the Act, as amended from time to time.

Punch List means the list of Work that remains to be completed after achievement of Substantial Completion or as a condition of Final Acceptance, and shall be limited to minor incidental items of Work necessary to correct imperfections which by virtue of not being completed, will not, individually or collectively, have any adverse effect on the safety, use or operability of the Project. Work required to comply with all applicable Governmental Rules or Governmental Approvals is not “Punch List Work.”

Quality Management Plan means the plan described in Section 1.5.3.2 (Quality Management Plan).

Reasonable Accuracy means with respect to the description or identification of a Utility in the Utility Information:

(a) The Utility's actual centerline location is located at or less than five feet distant from the horizontal centerline location indicated therefor in the Utility Information (without regard to vertical location);

(b) The Utility Information shows an active and existent Utility as not abandoned;

(c) The Utility Information shows a non-existent or inactive Utility as abandoned; or

(d) The Utility has an actual nominal diameter (excluding casings and any other appurtenances) greater than 12 inches, and its actual nominal diameter is either greater than or less than the diameter shown in the Utility Information by 25% or less of the diameter shown in the Utility Information.

Any other inaccuracies in the Utility Information (e.g., as to type of material or encasement status) shall have no impact on "reasonable accuracy" of its identification and shall not result in a determination that the Utility was not identified with "reasonable accuracy." If there is any discrepancy between any of the components of the Utility Information, only the most accurate

information shall be relevant for purposes of determination of "reasonable accuracy."

Reasonable Investigation means the following activities by appropriate, qualified professionals:

(a) Visit and visual inspection of the Site and adjacent locations, except areas to which access rights have not been made available by the Setting Date;

(b) Review and analysis of all Reference Information Documents;

(c) Review and analysis of INDOT-Provided Approvals available prior to the Setting Date;

(d) Reasonable inquiry with Utility Owners, including request for and review of Utility information provided by Utility Owners;

(e) Review and analysis of material Governmental Rules applicable to the Project or the Work as of the Setting Date;

(f) Performance, review and analysis of corings, borings and other investigations within the MOT Limits and Project ROW; and

(g) Other review, analytical and investigative activities consistent with Good Industry Practice that are sufficient to familiarize Design-Build Contractor with surface and subsurface conditions, including the presence of Utilities, Hazardous Materials (including Hazardous Materials at the Potential Hazardous Materials Sites), archaeological, paleontological and cultural resources or artifacts, and species listed as threatened or endangered under any federal or State endangered species Governmental Rule, affecting the Site or surrounding locations; except that none of the foregoing activities includes original research of private records not contained or referenced in the DBA, Reference Information Documents or Technical Provisions.

Recognized Environmental Condition has the meaning set forth in ASTM 1527-13.

Record Drawings has the meaning set forth in Section 2.3.4 (Record Drawings).

Recovery Schedule means the schedule Design-Build Contractor is required to provide under Section 1.3.2.6 (Recovery Schedule).

Recurring Special Provisions means approved additions or revisions to the Standard Specifications with the intent to be used on multiple contracts.

Reference Information Documents means the documents and information provided on INDOT's project-specific Autodesk Construction Cloud (ACC) at

https://acc.autodesk.com/docs/files/projects/79e3d776-2c83-4750-8537-573e983ff8d1?folderUrn=urn%3Aadsk.wipprod%3Afs.folder%3Aco.5r-u3Sd0RFm0818DXLUlwg&viewModel=detail&moduleId=folders.

Reference Plans means the preliminary roadway plans and the preliminary bridge plans contained in the ACC Reference Information Documents (RID).

Registered Professional Engineer means a person who is duly licensed and registered by the State to engage in the practice of engineering and, if applicable, is duly licensed and registered in the state where the engineering work is being performed.

Registered Professional Land Surveyor means a person who is duly licensed and registered by the State to engage in the practice of boundary or property surveying or other similar professional practices in the state where such services are being performed.

Regulations means regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation, Title 49 CFR Part 21, as they may be amended from time to time.

Release of Hazardous Materials means any spill, leak, emission, release, discharge, injection, escape, leaching, dumping or disposal of Hazardous Materials into the soil, air, water, groundwater or environment, including any exacerbation or disturbance of an existing release or condition involving Hazardous Materials, including off-Site migration or deposition.

Released for Construction Documents means the final documents for construction signed and stamped by a Registered Professional Engineer and certified by the Project Controls Lead and appropriate personnel, as described in Sections 2.3 (Submittal and Electronic Posting Requirements) and 3.1 (General Design Requirements).

Replacement Utility Property Interest means any permanent right, title or interest in real property outside of the MOT Limits and Planned Project ROW (e.g., a fee or an easement) which is acquired for a Utility being reinstalled in a new location as a part of the Utility Adjustment Work. The term specifically excludes any statutory right of occupancy or permit granted by a Governmental Entity for occupancy of its real property by a Utility.

Roadway Design Lead is one of the Key Personnel as defined in Section 1.5.1.1 (Key Personnel).

ROW Certification means written certification that (a) all residential occupants have been relocated to decent, safe and sanitary housing,

commercial and non-profit businesses and improvements have been relocated out of the portion of the Project ROW or Project-Specific Location being certified, and (b) the Project ROW or Project-Specific Location being certified was acquired in accordance with FHWA directives.

Safety Manager is one of the Key Personnel as defined in Section 1.5.1.1 (Key Personnel).

Safety Plan means the plan described in Section 1.5.3.4 (Safety Management Plan).

Safety Standards means those provisions of the Technical Provisions that INDOT, FHWA, or AASHTO considers being important measures to protect public safety, worker safety or the safety of property. As a matter of clarification, Technical Provisions primarily directed at durability of materials or equipment, where the durability is primarily a matter of life cycle cost rather than protecting public or worker safety, are not Safety Standards.

Schedule of Values means the estimated cost/planned value for 100% of the Work, which documents the WBS and approved Project Baseline Schedule, as it may be updated from time to time, in accordance with Section 1.6.3 (Schedule of Values) and DBA Section 13.2.1 (Schedule of Values). The Schedule of Values may also refer to the Preliminary Schedule of Values, NTP1 Schedule of Values, NTP2 Schedule of Values and any Revised Baseline Schedule of Values, as and when any of the foregoing corresponds with then-current Project Baseline Schedule.

Scope of Work means the Scope of Work in DBA Exhibit 19 (Scope of Work).

Seismic Event means the trembling or shaking movement of the earth's surface that produces ground motions at the Site that, if prior to the Final Acceptance Date, directly impacts, and causes damage to, temporary or permanent works of the Project.

Service Line (also referred to as a service lateral or lateral) means (a) any Utility line, the function of which is to directly connect the improvements on an individual property (e.g., a single family residence or an industrial warehouse) to another Utility line located off such property, which other Utility line connects more than one such individual line to a larger system, and any cable or Conduit that supplies an active feed from a Utility Owner’s facilities to activate or energize a Local Agency’s lighting and electrical systems, traffic signal systems, traffic control systems, copper or fiber communication systems or irrigation systems. The term also includes any Utility on public or private property that services structures located on such property.

Setting Date means September 30, 2024.

Site means the Temporary ROW Limits, the Project ROW, and the MOT Limits, together with those areas designated in writing by INDOT for performance of the Work and such additional areas as may, from time to time, be designated in writing by INDOT for Design-Build Contractor's use in performance of the Work. For purposes of insurance (subject to any notification and other requirements imposed by the insurer(s) for approval), indemnification, safety and security requirements, Indiana's Common Construction Wage Act requirements, and payment for use of equipment, the term "Site" shall also include (a) the field office sites, (b) any property used for bonded storage of material for the Project approved by INDOT under the Standard Specifications, (c) staging areas dedicated to the Project, and (d) areas where activities incidental to the Project are being performed by Design-Build Contractor or Subcontractors covered by the worker's compensation policy included in the insurance described in DBA Exhibit 18 (Insurance Coverage Requirements), but excluding any permanent locations of Design-Build Contractor or such covered Subcontractors.

Source Code and Source Code Documentation means software written in programming languages, such as C and Fortran, including all comments and procedural code, such as job control language statements, in a form intelligible to trained programmers and capable of being translated into object or machine readable code for operation on computer equipment through assembly or compiling, and accompanied by documentation, including flow charts, schematics, statements of principles of operations, architectural standards, and commentary, explanations and instructions for compiling, describing the data flows, data structures, and control logic of the software in sufficient detail to enable a trained programmer through study of such documentation to maintain and/or modify the software without undue experimentation. Source Code and Source Code Documentation also include all modifications, revisions, additions, substitutions, replacements, updates, upgrades and corrections made to the foregoing items.

Special Provisions means the Unique Special Provisions and/or Recurring Special Provisions that revise the Standard Specifications.

Stage 1 Review Submission means the Submittal review stage described as Stage 1 in Chapter 14-2.0 of the IDM, unless stated otherwise in the DBA Documents.

Stage 3 Review Submission means the Submittal review stage described as Stage 3 in Chapter 14-2.0 of the IDM, unless stated otherwise in the DBA Documents.

Standard Specifications means INDOT's Standard Specifications effective as of the Setting Date, excluding Division 100 (except for (a) any definitions or abbreviations within Section 101 of Division 100 as applied to the balance of the then-applicable Standard Specifications; and (b) any section of

Division 100 specifically referenced as applicable within this Agreement), with any references within the balance of the then-applicable Standard Specifications to provisions within such Division 100 being deemed to be to analogous provisions within this Agreement, or otherwise as agreed by the Parties.

State means the State of Indiana.

Storm Sewer means all pipes and inlets within a roadway or shoulder pavement used to drain the roadway or shoulder pavement, including Median Drains.

Storm Water Drainage System means any Storm Sewer, Culvert, or Detention Facility used to capture and direct rainfall on the Project Site or rainfall that drains to the Project Site from outside the Project Site to a point of discharge from the Project Site.

Storm Water Quality Manager has the meaning set forth in Section 14.2 (Environmental Personnel).

Subbase means all materials that are part of the pavement section except for (a) the HMA Surface, Intermediate, or Base Layers, (b) the Portland Concrete Cement Pavement, or (c) the Subgrade.

Subcontract means an agreement between Design-Build Contractor and one or more third parties providing for such third-party to perform any part of the Work or provide any materials, equipment, labor or supplies for any part of the Work, or any such agreement between a Subcontractor and its lower tier Subcontractor or a Supplier and its lower tier Supplier, at any tier.

Subcontractor means any Person with whom Design-Build Contractor has entered into any Subcontract and any other Person with whom any Subcontractor has further subcontracted any part of the Work, at any tier.

Subgrade has the meaning given in the Standard Specifications.

Submittal means any package, document, work product, deliverable, or other written or electronic end product or item required under the DBA Documents to be delivered or submitted to the INDOT. Refer to Section 3 (Design Requirements) for further information defining, and restrictions relating to, a design “Submittal”.

Substantial Completion means the date, as determined by INDOT, when the Project has satisfied the conditions set forth in DBA Section 22.1.1.2 (Requirements).

Substantial Completion Date means the date on which Substantial Completion occurs.

Substantial Completion Deadline has the meaning set forth in DBA Section 5.2.1 (Substantial Completion Deadline).

Supplier means any Subcontractor that supplies machinery, equipment, materials or systems to Design-Build Contractor or any Subcontractor in connection with the performance of the Work and that does not perform Work at the Site. Persons, who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other items or persons to or from the Site shall not be deemed to be performing Work at the Site. The term "Supplier" includes fabricators and material dealers.

Temporary Adjustment means (a) any interim Adjustment of a Utility (i.e. the installation, removal and disposal of the interim facility) pending installation of the permanent facility in the same or a new location, and (b) any removal and reinstallation of a Utility in the same location with or without an interim Adjustment.

Temporary Traffic Control Plan means the plan described in Section 9.3.2 (Temporary Traffic Control Plan).

TMP Team has the meaning set forth in Section 9.2.2 (Transportation Management Plan Team Meetings).

Traffic Incident Management Plan means Design-Build Contractor's Incident Management Plan for detection and response to Incidents as described in Section 9.3.3.1 (Incident Management Plan).

Traffic Management Center means the Indiana Department of Transportation Traffic Management Center (in Indianapolis, Indiana), where information about the regional transportation network is collected and combined with other operational and control data to manage the regional transportation network and to produce traveler information.

Transportation Management Plan means the plan described in Section 9.3.1 (Transportation Management Plan).

Type 1 Utility Adjustment means a Utility Adjustment for which INDOT is responsible for negotiating and entering into a Utility Agreement, developing Utility Work Plans, and completing (or causing the completion of) the Utility Adjustment Work.

Type 2 Utility Adjustment means a Utility Adjustment for which INDOT is responsible for negotiating and entering into a Utility Agreement and developing Utility Work Plans, and Design-Build Contractor is responsible for completing or causing the completion of the Utility Adjustment Work.

Type 3 Utility Adjustment means any Utility Adjustment, other than a Type 1 Utility Adjustment, Type 2 Utility Adjustment, or Type 4 Utility Adjustment

that is required for a reason other than as a direct result of a Relief Event or a Compensation Event, for which Design-Build Contractor is responsible for negotiating the Utility Agreement for INDOT, developing Utility Work Plans, and completing or causing the completion of the Utility Adjustment Work, as more particularly set forth in the DBA Documents and the applicable Utility Agreement and Utility Work Plans.

Unidentified Utility means a Main or Trunkline Utility, where the Utility Information specifically provided in Section 16 (Utilities) (as relates to Main or Trunkline Utilities only) incorrectly indicates that the subject Main or Trunkline Utility does not exist anywhere within the boundary lines of the Project Right of Way.

Unique Special Provisions means additions or revisions to the Standard Specifications that pertain only to a specific situation on a contract that is not covered by an existing Recurring Special Provision or other standard contract document, and is intended only for a single use in a specific contract.

Unknown Hazardous Materials means:

(a) Hazardous Materials that meet all of the following criteria:

(i) The Hazardous Materials are in, on, or under (i) the MOT Limits, or (ii) parcels added to the MOT Limits due to a Relief Event or a Compensation Event, in each case, as of the date that INDOT makes available the affected parcel to Design-Build Contractor;

(ii) The Hazardous Materials are not Known or Suspected Hazardous Materials; and

(iii) The Hazardous Materials are not required to be removed and disposed of due to a Design-Build Contractor Release of Hazardous Materials; or

(b) Hazardous Materials other than Design-Build Contractor Release of Hazardous Materials on any parcels added to the Project ROW due to a Relief Event or a Compensation Event.

For purposes of this definition, “makes available” means (i) the Effective Date for parcels acquired as of the Effective Date or (ii) as to parcels not yet acquired as of the Effective Date, the date Design-Build Contractor first receives access to the parcel in accordance with the DBA Documents.

Hazardous Materials at the Potential Hazardous Materials Sites shall not be considered Unknown Hazardous Materials.

Uniform Act means the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. 4601, *et seq*., as amended, 49 CFR Part 24, and all associated regulations and policies.

Utility means a privately, publicly, or cooperatively owned line, facility or system (including municipal and/or government lines, facilities and systems) for transmitting or distributing communications, cable television, power, electricity, gas, oil, crude products, water, steam, waste, or any other similar commodity, including any irrigation system and any fire or police signal system as well as streetlights. The necessary appurtenances to each Utility facility (including fire hydrants as appurtenances to water lines) shall be considered part of such Utility. Any Service Line connecting directly to a Utility shall be considered an appurtenance to that Utility, regardless of the ownership of such Service Line.

Utility Adjustment means the relocation (temporary or permanent), abandonment and or dormancy, Protection in Place, removal (of previously abandoned Utilities as well as of newly abandoned Utilities), replacement, reinstallation, and/or modification of existing Utilities necessary to accommodate construction, operation, maintenance and/or use of the Project (each a separate "type" of Utility Adjustment). For any Utility crossing the MOT Limits and Project ROW, the Work associated with the Utility Adjustment for each crossing of the MOT Limits or Project ROW by that Utility shall be considered a separate Utility Adjustment. For any Utility installed longitudinally within the MOT Limits or Project ROW, the Utility Adjustment Work for each continuous segment of that Utility located within the MOT Limits and Project ROW shall be considered a separate Utility Adjustment.

Utility Adjustment Plans means the plans, specifications, and cost estimates furnished for a particular Utility Adjustment.

Utility Adjustment Work means all efforts and costs necessary to accomplish the required Utility Adjustment, including negotiating and entering into all applicable Utility Agreements, coordination, design, design review, permitting, construction, inspection, maintenance of records, relinquishment of Existing Utility Property Interests, preparation of Utility Joint Use Acknowledgements, and acquisition of Replacement Utility Property Interests, whether provided by Design-Build Contractor or by the Utility Owners. The term also includes any reimbursement of Utility Owners that is Design-Build Contractor's responsibility pursuant to DBA Section 7.4 (Updating Utility Information; Supplemental Utility Investigation by Design-Build Contractor). Any Utility Adjustment Work furnished or performed by Design-Build Contractor is part of the Work; any Utility Adjustment Work furnished or performed by a Utility Owner is not part of the Work.

Utility Agreement means an agreement, as may be amended from time to time, between either

(a) INDOT or INDOT and a Utility Owner, or (b) Design-Build Contractor (or a Major Subcontractor) and a Utility Owner, in either case, providing specific details for the Adjustment of one or more particular Utilities. A document is a Utility Agreement if it meets the foregoing definition, without regard to the title or form of the document.

Utility Easement means a permanent replacement easement and/or other interest in real property (excluding a franchise) located outside of the Planned ROW Limits that is necessary for an Adjustment.

Utility Information means certain information as provided in the Reference Information Documents and, with respect to Main or Trunkline Utilities, in Section 16 (Utilities) as well as subsequent information as collected by Design-Build Contractor in Design-Build Contractor's Utility Conflict Matrix.

Utility Owner means any private entity or public body (including city, county, state, public corporation or public district) that owns and/or operates a Utility, including cooperative utilities.

Utility Owner Project means the design and construction by or at the direction of a Utility Owner of a new Utility other than as part of an Adjustment. Utility Owner Projects shall be entirely the financial obligation of the Utility Owner.

Utility Plan means the final installation details and construction documents that are prepared for Utilities being Adjusted to accommodate the Project in compliance with INDOT's Utility Accommodation Policy.

Utility Work Plan means a signed agreement documenting the scope of Utility Adjustment Work to carry out one or more Utility Adjustments to accommodate the Project, as further described in 105 IAC 13 and INDOT's Utility Accommodation Policy.

Witness Point means any point that requires Design-Build Contractor to submit items identified in Section 2.2.1 (Witness Points) to the INDOT for review, comment, observation and examination. Additional Witness Points may be added by INDOT pursuant to Section 2.2.1 (Witness Points).

Work means all of the administrative, design, engineering, real property acquisition support services, Utility Adjustment, other Utility relocation and support services, procurement, legal, professional, manufacturing, supply, installation, construction, environmental mitigation and management, supervision, management, testing, verification, labor, materials, equipment, maintenance, documentation and other duties, services and cost reimbursements to be furnished and provided by Design-Build Contractor as required by the DBA Documents, including all efforts necessary or appropriate to achieve Final Acceptance of the Project and to fulfill the Warranties, except for those efforts which the DBA Documents expressly

specify will be performed by the INDOT or other Persons. In certain cases, as determined by INDOT, the term is also used to mean the products of the Work.

Working Drawing means any supplementary bridge plan, stress sheet, shop drawing, erection plan, falsework plan, framework plan, cofferdam plan, bending diagram for reinforcement, or any other supplementary plan, detailed drawing, design drawing, NDC, FDC, or similar data that Design-Build Contractor is required to submit for review and comment, except as may be designated as a Hold Point.

Written Release means all comments from the INDOT have been addressed on a Submittal to the satisfaction of INDOT, and INDOT releases the Submittal by means of a letter, e-mail delivered by or on behalf of INDOT's Project Manager, or through INDOT's documents sharing system.

18. APPLICABLE STANDARDS

18.1 Introduction

Design-Build Contractor shall design and construct the Work in accordance with the relevant requirements of the Project Standards listed in Table 18-1 of this Section 18. In some instances, only specific sections of the referenced standard apply, as specified in these Technical Provisions. The DBA defines the order of precedence for the DBA Documents.

Design-Build Contractor shall use the most current version of each standard or reference listed in Table 18-1 as of the Setting Date, unless expressly stated otherwise in the DBA Documents.

Any standards, manuals and guidelines that are not included within the definition of Project Standards must be approved by INDOT prior to use by Design-Build Contractor. Any manuals or documents other than those reflected herein or elsewhere in the DBA Documents require INDOT's prior approval before use in the Work. Design-Build Contractor shall obtain advance prior written approval from INDOT for any Deviation from the Project Standards, in addition to complying with any other requirements regarding requested Deviations set forth in the DBA Documents.

18.2 Modifications to INDOT Standards

The following notes apply to the INDOT standards used on the Project:

1. For purposes of this Project, all provisions of standards, including the figures and tables, are mandatory, and guidelines are to be applied as requirements. All words such as "should" or "must" shall mean "shall" unless the context requires otherwise, as determined in the sole discretion of INDOT. Design-Build Contractor shall disregard qualifying words such as "usually," "normally," and "generally." References to INDOT practices and policies shall be construed to be mandatory requirements unless the context requires otherwise. It shall be in INDOT's sole discretion to determine when the context does not require a provision to be mandatory.

2. If the INDOT standard expires during the course of this Project, Design-Build Contractor shall contact INDOT to determine whether the standard shall continue to be used or will be replaced.

3. When a reference to "Engineer" relates to design responsibilities or other technical issues, "Engineer" shall mean Design-Build Contractor's Design Manager, Lead Engineering Firm, or engineer of

record. When a reference to “Engineer” relates to administrative issues, “Engineer” shall mean INDOT. It shall be in INDOT’s sole discretion to determine whether the context refers to technical or administrative responsibilities. All references to INDOT offices and personnel shall mean Design-Build Contractor’s similar offices and personnel.

4. All references related to measurement for payment, method of measurement, basis of payment, extra work, contract adjustments, adjustment of unit prices, quality adjustments, or similar phrases shall be disregarded by Design-Build Contractor.

5. References to “additional work,” “adjustment to compensation,” “extra work,” “pay extra,” “at the expenses to the Department,” or similar phrases shall be disregarded by Design-Build Contractor. Payment, as more fully described in the DBA, will be full compensation for all Work performed pursuant to the DBA Documents unless specific provisions for additional payments are contained in the DBA Documents.

6. No changes have been made to provisions in any standards that do not apply to this Project, but that provide general information (e.g., descriptions of INDOT divisions and their duties, descriptions of legal authority, or descriptions of internal INDOT procedures); however, in some cases it may not be clear whether rights or responsibilities are applicable to Design-Build Contractor. If it is unclear whether specific provisions in the standards are applicable to Design-Build Contractor, Design- Build Contractor shall notify INDOT and INDOT shall make that determination in its sole discretion.

7. Design-Build Contractor shall disregard the paragraphs within the standards relating to questions. All questions shall be taken to INDOT.

8. When a standard refers to items that will be performed or provided by INDOT or by a division or employee of INDOT, Design-Build Contractor shall construe the requirements as applying to Design-Build Contractor unless otherwise specified in the DBA Documents, or unless the context requires otherwise. It shall be in INDOT’s sole discretion to determine when the context requires otherwise.

9. When a standard refers to an action being necessary or needed, Design-Build Contractor shall construe the action as required, unless the context requires otherwise, as determined in the sole discretion of INDOT.

10. Phrases relating to item(s) or activity(ies) that “will be” conducted, that

are “most easily accomplished by,” that “are recommended,” that are “desired,” that are “usually necessary,” that “should preferably be” done, that “might require,” that are “necessary” or “as necessary”, and that are “required” or “done” shall be construed to be mandatory requirements unless the context requires otherwise, as determined in the sole discretion of INDOT. Phrases relating to activity(ies) that should not be conducted, such as “is not normally used,” “is not good practice,” “should never be done,” “cannot be used,” or “should be avoided,” shall be construed as prohibited. It shall be in INDOT’s sole discretion to determine when the context either requires or does not require a provision to be mandatory.

11. Where the notes refer to items that are indicated in the Plans or special provisions or required in the Plans or special provisions, “plans or special provisions” shall mean Design-Build Contractor’s Plans or special provisions.

12. References to approved products or materials shall mean such products or materials approved by INDOT.

13. Design-Build Contractor shall use forms as required to report the same information and in the same format as INDOT forms shown in the standards.

14. If Design-Build Contractor believes that an item in the standards is unclear, Design-Build Contractor shall notify INDOT. Regardless of whether Design-Build Contractor notifies INDOT, INDOT shall always have the right to notify Design-Build Contractor if Design-Build Contractor is interpreting a requirement incorrectly.

15. All references to “you” or “your” shall mean Design-Build Contractor unless otherwise directed by INDOT.

16. When a standard refers to items that will be performed or provided by INDOT or by a division or employee of INDOT, Design-Build Contractor shall construe the requirements as applying to Design-Build Contractor unless otherwise specified in the DBA Documents, or unless the context requires otherwise. It shall be in INDOT’s sole discretion to determine when the context requires otherwise.

18.3 List of Project Standards

The Applicable Standards shall be, but not limited to, those listed in Table 18-1, with approval of other standards in INDOT’s sole discretion.

IS: Industry standard, Design-Build Contractor’s responsibility to acquire.

W: Standard available online at Author/Agency's website, Design-Build Contractor's responsibility to acquire. Web sites are listed for some of the standards listed below for information only. The Web sites listed are not guaranteed to be correct. It is ultimately Design-Build Contractor's responsibility to locate the required standard and to determine if the standard has been modified pursuant to this RFP.

Table 18-1: Standards and References

Author/Agency	Title	Availability
INDOT	Standard Specifications http://www.in.gov/dot/div/contracts/standards/book/index.html	W
INDOT	Recurring Special Provisions & Plan Details http://www.in.gov/dot/div/contracts/standards/rsp/index.html	W
INDOT	INDOT Directives https://www.in.gov/indot/div/mt/directives/directives.htm	W
INDOT	INDOT Standard Drawings http://www.in.gov/dot/div/contracts/standards/drawings/index.html	W
INDOT	INDOT Design Memos https://www.in.gov/dot/div/contracts/standards/memos/memos.html	W
INDOT	Design Manual (IDM) including Design Memoranda http://www.in.gov/indot/design_manual/design_manual_2013.htm	W
INDOT	Approved Materials List http://www.in.gov/indot/div/mt/appmat/appmat.htm	W
INDOT	Indiana Manual on Uniform Traffic Control Devices (IMUTCD) http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html	W
INDOT	Traffic Management Strategic Deployment Plan http://www.in.gov/indot/3045.htm	W
INDOT	Work Zone Safety Mobility Policy http://www.in.gov/dot/div/contracts/standards/	W
INDOT	Professional Services Contract Administration Manual https://www.in.gov/indot/2400.htm	W
INDOT	Construction Memorandums http://www.in.gov/dot/div/contracts/conmemo/con_memo.htm	W
INDOT	Geotechnical Design Manual, Guidelines, Memoranda, Forms, and Approved Contractors, Consultants, & Materials http://www.in.gov/indot/2804.htm	W

Author/Agency	Title	Availability
INDOT	Public Involvement Policies and Procedures Manual http://www.in.gov/indot/2366.htm	W
INDOT	Total Storm Management Manual http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=jtrp docs	W
INDOT	Storm Water Management Field Guide https://www.in.gov/indot/files/Indiana_Storm_Water_Field_Guide.pdf	W
INDOT	Utility Accommodation Policy http://www.in.gov/indot/3787.htm	W
INDOT	Utility Facility Relocations on Construction Contracts (105 IAC 13) http://www.in.gov/indot/3787.htm	W
INDOT	Bridge Inspection Manual https://www.in.gov/dot/div/contracts/standards/bridge/inspector_manual/ index.htm	W
INDOT	Manual for Frequency of Sampling and Testing and Basis for Use of Materials http://www.in.gov/indot/2736.htm	W
INDOT	Procedural Manual for Preparing Environmental Documents https://www.in.gov/indot/files/Procedural_Manual_for_Preparing_Enviro nmental_Studies_2008.pdf	W
INDOT	Waters of the US Documentation https://www.in.gov/indot/files/Waters%20of%20the%20US%20Documen tation.pdf	
INDOT	Waterway Permitting Manual https://www.in.gov/indot/files/Waterway-Permit-Manual%20-%204%202019%20POSTING.pdf	W
INDOT	Cultural Resources Manual https://www.in.gov/indot/crm/	W
INDOT	Traffic Noise Analysis Procedure https://www.in.gov/indot/files/2017%20INDOT%20Noise%20Policy.pdf	W
INDOT	Real Estate Manuals http://www.in.gov/indot/2493.htm	W
INDOT	Right-of-Way Engineering Manual, and Revisions http://www.in.gov/indot/2731.htm	W
INDOT	Site Assessment & Management Manual https://www.in.gov/indot/files/Site%20Assessment%20%20Management%20Manual.pdf	W
INDOT	Cost Estimation System (CES) – Designer Instructions http://www.in.gov/dot/div/contracts/CES%20Designer%20Instructions.pdf	W

Author/Agency	Title	Availability
INDOT	Interstate Highways Congestion Policy https://www.in.gov/indot/3602.htm	W
INDOT	INDOT Bridge Aesthetics Policy https://www.in.gov/indot/files/Bridge%20Aesthetic%20Policy%207-18- 18.pdf	W
INDOT	INDOT Public Art and Landscaping Policy https://www.in.gov/indot/2727.htm https://www.in.gov/indot/files/POM_20-01_Rev_Public_Art_Landscaping_Policy_2020-04-2.pdf	W
INDOT	INDOT Office of Hydraulic Engineering Design Guides https://www.in.gov/indot/engineering/hydraulic-engineering/	W
AASHTO	T88, T194 and T289	IS
AASHTO	A Guide for Transportation Landscape and Environmental Design	IS
AASHTO	Guide for the Planning, Design, and Operation of Pedestrian Facilities	IS
AASHTO	Guide for the Development of Bicycle Facilities	IS
AASHTO	A Guide for Achieving Flexibility in Highway Design	IS
AASHTO	A Policy on Geometric Design of Highways and Streets	IS
AASHTO	Roadside Design Guide	IS
AASHTO	A Policy on Design Standards – Interstate System	IS
AASHTO	Highway Safety Design and Operations Guide	IS
AASHTO	Roadway Lighting Design Guide	IS
AASHTO	LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals	IS

Author/Agency	Title	Availability
AASHTO	An Informational Guide for Roadway Lighting	IS
AASHTO	Standard Specifications for Transportation Materials and Methods of Sampling and Testing	IS
AASHTO	LRFD Bridge Design Specifications	IS
AASHTO	Standard Specifications for Highway Bridges	IS
AASHTO	Manual for Bridge Evaluation	IS
AASHTO	Guide Design Specifications for Bridge Temporary Works	IS
AASHTO	LRFD Guide Specifications for Accelerated Bridge Construction	IS
AASHTO	LRFD Bridge Construction Specifications	IS
AASHTO	Bridge Security Guidelines	IS
AASHTO	Manual on Subsurface Investigations	IS
AASHTO	Manual for Assessing Safety (MASH)	IS
AASHTO	Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition, with Interims thru 2022	IS
AASHTO/AWS	D1.5M/D1.5:2010 Bridge Welding Code	IS
AASHTOWare	Bridge Rating (BrR) Tool for Rating Bridge Superstructures	IS
AISC	American Institute of Steel Construction – Steel Construction Manual	IS
FAA	Notice of Proposed Construction or Alteration https://oeaaa.faa.gov/oeaaa/external/portal.jsp	W

Author/Agency	Title	Availability
FHWA	Flexibility in Highway Design http://www.fhwa.dot.gov/environment/publications/flexibility/	W
FHWA	Code of Federal Regulations, Title 23 (Highways), Chapter 1, Part 752 Landscape and Roadside Development http://www.fhwa.dot.gov/legsregs/directives/cfr23toc.htm	W
FHWA	FHWA-RD-03-031: Distress Identification Manual for the Long-Term Pavement Performance Program https://www.fhwa.dot.gov/publications/research/infrastructure/pavement s/ltpp/reports/03031/03031.pdf	W
FHWA	FHWA-NHI-016-072 - Geotechnical Engineering Circular No. 5: Geotechnical Site Characterization	IS
FHWA	FHWA-NHI-16-009 & 010 - Geotechnical Engineering Circular No. 12: Design and Construction of Driven Pile Foundations, Volumes I & II https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	Manual on Uniform Traffic Control Devices (MUTCD) http://mutcd.fhwa.dot.gov/	W
FHWA	Indiana Manual of Uniform Traffic Control Devices (IMUTCD) https://www.in.gov/dot/div/contracts/design/mutcd/2011rev1MUTCD.htm	W
FHWA	Roadway Lighting Handbook http://safety.fhwa.dot.gov/roadway_dept/night_visib/lighting_handbook/	W
FHWA	FHWA-NHI-14-007 - Geotechnical Engineering Circular No. 7: Soil Nail Walls https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-IF-99-015 - Geotechnical Engineering Circular No. 4: Ground Anchors and Anchored Systems https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-IF-02-054 – Geotechnical Engineering Circular No. 6: Shallow Foundations https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-NHI-18-024 - Geotechnical Engineering Circular No. 10: Drilled Shafts: Construction Procedures and LRFD Design Methods Manual https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-NHI-00-043 – Mechanically Stabilized Earth Walls and Reinforced Slopes Design and Construction Guidelines	IS

Author/Agency	Title	Availability
FHWA	FHWA-NHI-10-024 - GEC 11 Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Volume 1 https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-NHI-10-025 - GEC 11 Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Volume II https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	FHWA-NHI-16-027 & 028 - Geotechnical Engineering Circular No. 13 Ground Modification Methods Reference Manual - Volumes I & II https://www.fhwa.dot.gov/engineering/geotech/library_listing.cfm?TitleSt art=G	W
FHWA	Technical Manual for Design and Construction of Road Tunnels – Civil Elements, Report No. FHWA – NHI-10-034 https://www.fhwa.dot.gov/bridge/tunnel/library.cfm	W
FHWA	Program Guide Utility Relocation and Accommodation http://www.fhwa.dot.gov/reports/utilguid/	W
FHWA	Highway Performance Monitoring System (HPMS) Field Manual http://www.fhwa.dot.gov/ohim/hpmsmanl/hpms.cfm	W
FHWA	Railroad-Highway Grade Crossing Handbook https://safety.fhwa.dot.gov/hsip/xings/com_roaduser/fhwasa18040/	W
FHWA	FHWA-NHI-15-004 LRFD Seismic Analysis and Design of Bridges Reference Manual	IS
FHWA	FHWA-NHI-06-088/089, NHI Course No. 132012, Soils and Foundations, Ref. Manual, Vols. I & II	IS
FHWA	FHWA-NHI-11-032, LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, NHI Course. No 130094 Reference Manual, Geotechnical Engineering Circular No. 3	IS
FHWA	FHWA-NHI-15-004, LRFD Seismic Analysis and Design of Bridges Reference Manual, NHI Course No. 130093 and 130093A	IS
FHWA	FHWA-HFI-18-031, GEC 9: Design, Analysis, and Testing of Laterally Loaded Deep Foundations that Support Transportation Facilities	IS
FHWA	FHWA-NHI-16-027, Geotechnical Circular No. 13, Ground Modifications Methods – Reference Manual Volume 1	IS
FHWA	FHWA NHI-16-028, Geotechnical Circular No. 13, Ground Modification Methods – Reference Manual Volume II	IS

Author/Agency	Title	Availability
ADA	Americans with Disabilities Act Accessibility Guidelines	IS
ANSI A300 (Part 1)	Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance – Standard Practices	IS
ANSI A300 (Part 2)	Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance – Standard Practices – Part 2 – Fertilization	IS
ANSI A300 (Part 3)	Tree Care Operations – Tree, Shrub and Other Woody Plant – Standard Practices – Part 3 – Tree Support Systems	IS
ANSI Z60.1	American Standard for Nursery Stock	IS
ANSI Z133.1	Safety Requirements for Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and for Cutting Brush	IS
ANSI/IESNA RP-8-00	American National Standard Practice for Roadway Lighting	IS
ANSI/EIA/TIA	American National Standards Institute/Electronic Industries Alliance/Telecommunications Industry Association (ANSI/EIA/TIA) – 222-G Structural Standards for Antenna Supporting Structures and Antennas 568A 568B.3 Optical Fiber Cabling Components Standards 606 Administration Standard for Telecommunications Infrastructure	IS
TIA/EIA	The Telecommunications Industry Association & Electronic Industries Alliance Standards	IS
ASTM	Annual Books of Standards	IS
Hortus Third	A Concise Dictionary of Plants Cultivated in the United States and Canada (L. H. Bailey Hortorium, 1976)	IS
IDEM	Indiana Storm Water Quality Manual http://www.in.gov/idem/stormwater/2363.htm	W
IDEM	Rule 5 Permit https://www.in.gov/idem/stormwater/2331.htm	W
IDEM	Section 401 Water Quality Certification https://www.in.gov/idem/wetlands/2344.htm	W

Author/Agency	Title	Availability
IDEM	Isolated Wetlands Permit https://www.in.gov/idem/wetlands/2343.htm	W
IDNR	Indiana Drainage Handbook http://www.in.gov/dnr/water/4893.htm	W
IDNR	Guidelines for the Hydrologic-Hydraulic Assessment of Floodplains in Indiana http://www.in.gov/dnr/water/5710.htm	W
IEEE	National Electric Safety Code	IS
IES	Roadway Lighting Handbook, RP-8, Addendum: "Designing the Lighting System – Using Roadway Lighting"	IS
IES	DG-5-94, Recommended Lighting for Walkways and Class 1 Bikeways	IS
IES	RP-8-00, American National Standards for Roadway Lighting	IS
IHPC	Certificate of Appropriateness https://www.indy.gov/activity/historic-preservation-certificate-of-appropriateness	W
INDOT Aviation	Indiana Tall Structure Permit https://www.in.gov/indot/2808.htm	W
CIE	International Lighting Commission – CIE 127-2007, Technical Report: Measurement of LEDS	IS
Motorola	R56 Standards and Guidelines for Communication Sites	IS
NTCIP	National Transportation Communication for ITS Protocol Standards	IS
IGGA	Guide Specification - Next Generation Concrete Surface (NGCS) Construction on Newly Constructed Roadways https://www.igga.net/specifications/	W
ITE	Manual of Transportation Engineering Studies	IS
ITE	Traffic Engineering Handbook	IS
ITE	Preemption of Traffic Signals Near Railroad Crossings: An ITE Recommended Practice	IS

Author/Agency	Title	Availability
ITE	Equipment and Material Standards	
NCHRP	NCHRP Report 480, A Guide to Best Practices for Achieving Context Sensitive Solutions	IS
NEMA	National Electrical Manufacturer Association	IS
NFPA	NFPA 70 - National Electric Code	IS
NFPA	National Electric Safety Code	IS
NFPA	502-Standard for Road Tunnels, Bridges and Other Limited Access Highways	IS
NFPA	Standard for the Installation of Lightning Protection Systems, NFPA 780	IS
NECA	National Electrical Contractors Association Standard of Installation	IS
NETA	International Electrical Testing Association Standard ATS	IS
UL	Underwriters Laboratories, Inc., Lightning Protection Components, UL 96 and UL 96A	IS
USACE	Section 404 Permit https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program- and-Permits/Obtain-a-Permit/	W
Telcordia	GR 196 Core Issue 2, Generic Requirements for Optical Time Domain Reflectometer (OTDR)	IS
TRB	Highway Capacity Manual	IS
TRB	NCHRP Report 529, Guideline and Recommended Standard for Geofoam Application in Highway Embankments	IS
Bellcore	Technical Advisories and Technical Requirements	IS
PCI	Bridge Design Manual Volume I & II	IS

Author/Agency	Title	Availability
PCI	Design Handbook	IS
PCI	Full Depth Deck Panel Guidelines, For Accelerated Bridge Deck Replacement or Construction https://www.pci.org/PCI/Design_Resources/Transportation_Engineering_Resources/Precast_Bridge_Decks.aspx	W
CRSI	Concrete Reinforcing Steel Institute Manual of Standard Practice	IS
Access Board	Public Rights-of-Way Accessibility Guidelines (PROWAG) https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way	W

19. PUBLIC INVOLVEMENT

19.1 General

Design-Build Contractor shall perform the public involvement Work in accordance with the DBA Documents, including Project Standards, this Section 19 and its RSPs and USPs; Government Approvals; and Government Rules.

Reference to INDOT in this Section includes any communications or public relations firms contracted by INDOT to facilitate the implementation of the Project Public Involvement Plan.

19.2 Public Involvement Responsibilities

19.2.1 INDOT

INDOT will have the responsibility of preparing, maintaining and implementing the Project Public Involvement Plan (PIP).

INDOT will appoint an internal Public Involvement Manager to implement the Project PIP and lead the INDOT internal communications team designated for the Project.

INDOT will identify appropriate points of contact for the Design-Build Contractor within the INDOT internal communications team regarding Public Involvement activities.

INDOT will serve as the official spokesperson for the Project.

INDOT will draft all messages, talking points, and event scripts for interviews and external announcements for the Project.

INDOT will coordinate all media relations activities for the Project, such as press releases, media events and advisories, and media interviews, including those with Design-Build Contractor staff.

INDOT will develop content for and maintain the Project website and applicable social media accounts.

INDOT will forward email, letters, and other forms of correspondence from the public regarding design and construction issues to Design-Build Contractor Public Involvement Coordinator for response.

19.2.2 Design-Build Contractor

The Design-Build Contractor shall support INDOT in administering the Project PIP in accordance with this Section 19.

The Design-Build Contractor shall only share public-information-related correspondence as specifically directed by INDOT or as specified in this Section 19.

The Design-Build Contractor shall appoint a Public Involvement Coordinator, in accordance with Section 1.5.1.2 (Additional Personnel) and Section 19.2.2.1 (Public Involvement Coordinator).

The Design-Build Contractor shall communicate with the INDOT Public Involvement Manager through its Public Involvement Coordinator.

The Design-Build Contractor shall designate a deputy Public Involvement Coordinator to serve as a backup if the Public Involvement Coordinator is unavailable.

1. The deputy Public Involvement Coordinator shall assist in the performance of the functions described in this Section 19.

2. The deputy Public Involvement Coordinator shall participate in Public Involvement activities at the discretion of the Public Involvement Coordinator.

The Design-Build Contractor shall provide INDOT with a prioritized after-hours call list within 30 days after NTP. The call list shall include the contact information for the Design-Build Contractor Public Involvement Coordinator and deputy Public Involvement Coordinator, including mobile phone numbers and email addresses.

19.2.2.1 Public Involvement Coordinator

The minimum experience for the Public Involvement Coordinator shall be three years within the past ten years of experience coordinating information on public projects, preferably on large highway improvement projects.

The Public Involvement Coordinator shall work and coordinate with the INDOT Public Involvement Manager and INDOT internal communications team in accordance with this Section 19.

The Public Involvement Coordinator shall be responsible for identifying public information issues related to the Design-Build Contractor’s Work, and for formulating and implementing strategies to address those issues, in coordination with the INDOT Public Involvement Manager and the Project PIP.

The Public Involvement Coordinator shall be available at the field office as necessary to respond to the communication needs of the Work and shall be readily available by telephone during all business hours with immediate computer and email access.

The Public Involvement Coordinator shall participate in Progress Meetings in accordance with Section 1.2 (Progress Meetings) and Traffic Management Plan meetings in accordance with Section 9.2.2.2 (Monthly TMP Team Meetings).

The Public Involvement Coordinator shall participate in INDOT-organized public meetings.

The Public Involvement Coordinator shall have full access to all Design-Build Contractor Project details and schedules.

The Public Involvement Coordinator shall provide written notices to the INDOT Public Involvement Manager as necessary if construction and traffic impacts change, or as requested by INDOT.

The Public Involvement Coordinator shall provide weekly written updates to the INDOT Public Involvement Manager that include at a minimum the following regarding the upcoming week:

1. Planned construction activities and any associated closures or detours;

2. Project status; and

3. Other information relevant to the public and neighborhoods in proximity to the Project.

The Public Involvement Coordinator shall assist INDOT in preparing responses to correspondence from the public.

The Public Involvement Coordinator shall participate in media interviews or other media information support activities at INDOT's request.

19.3 Design-Build Contractor Public Involvement Plan

The Design-Build Contractor shall prepare and submit to INDOT its own Public Involvement Plan that works with the Project PIP and identifies how

the Design-Build Contractor will implement the Design-Build Contractor's requirements set forth in this Section 19.

The Design-Build Contactor PIP shall identify the Public Involvement Coordinator and deputy Public Involvement Coordinator.

19.4 Design-Build Contractor's Response to Inquiries and Comments

The Design-Build Contractor shall forward questions or comments received from residents, businesses, or other members of the public to the INDOT Public Involvement Manager within four hours of receipt. INDOT will work with the Design-Build Contractor to develop a response within one business day. The Design-Build Contractor shall take the necessary steps to facilitate a response in no more than one business day.

If the Design-Build Contractor receives a public complaint regarding the Work, the Design-Build Contractor shall notify INDOT within four hours. The Design-Build Contractor shall provide the necessary information, staff support, and representation to assist in resolving the issue.

On occasions specified by INDOT, the Design-Build Contractor shall commit its Project Manager or designee to serve as a spokesperson for the Project for technical and safety issues with certain designated audiences.

At INDOT's request, Design-Build Contractor shall provide information, photos, renderings, and other graphics to support INDOT public involvement activities within three (3) Business Days.

19.5 Media Relations

Media relations will be led by INDOT and its Public Involvement Manager unless otherwise specified in this Section 19.

Although media relations are the responsibility of INDOT, Design-Build Contractor shall participate in media interviews or other media information support activities at the request of INDOT and its Public Involvement Manager. When participating in media inquiries and interviews, Design-Build Contractor shall provide information that complies with INDOT messaging and other standards, including requirements for advance Project information, Project progress and accountability, and timely response to media inquiries.

If contacted by Media, Design-Build Contractor shall direct the Media to contact the INDOT Public Involvement Manager and inform the INDOT Public Involvement Manager within one hour of being contacted. Any request for media interviews shall be coordinated with the INDOT Public Involvement Manager prior to interviews. INDOT or its designated Public Involvement Manager will be the media spokesperson. Design-Build Contractor shall provide INDOT and its Public Involvement Manager with information and access to Project staff for press interviews, as requested.

If requested by INDOT, the Design-Build Contractor shall provide information and materials to INDOT that meets local broadcast and print media requirements and deadlines. All Project information released to the news media will be reviewed and distributed by INDOT and its Public Involvement Manager.

The Design-Build Contractor shall not interface with the media without the expressed written consent of the INDOT Public Involvement Manager and as specifically directed by INDOT. Design-Build Contractor shall immediately notify INDOT and its Public Involvement Manager of any situations, including Incidents and emergencies, that may attract media attention.

At INDOT's request, the Design-Build Contractor shall conduct tours of the Project Site for media, local, state, or federal government officials, or INDOT management. The Design-Build Contractor shall provide required safety equipment for tour participants.

19.6 Public Notifications

The Design-Build Contractor shall notify INDOT of any necessary or appropriate communications to the public or affected residential or business contacts. As directed by the INDOT, this shall include direct contact with affected parties for updates on upcoming events.

The Design-Build Contractor shall provide the specific notifications listed in Table 19-1 to the INDOT Public Involvement Manager via its Public Involvement Coordinator.

Table 19-1: Notifications

Notice	Requirement
Road and Lane Restrictions	14 days prior to each restriction.

Weekly Construction Updates	Construction updates shall be provided weekly and shall identify all planned traffic shifts, Movement Closures and Utility shut-downs and activities. Updates shall cover at a minimum the prior week and project out the next six weeks.
Property Access Notification	Non-emergency and emergency access may be required on private properties outside the Planned ROW Limits. Design-Build Contractor shall be responsible for securing permission to access private property from property owner. Design-Build Contractor shall supply information to INDOT documenting access approval from the property owner prior to accessing property
Road and Driveway Closures	Notice and personal contact in advance of closure, as specified in Maintenance of Traffic (MOT), Haul Routes, and Access During Construction Technical Provisions.
Road Closures impacting School Access	Changes in roads used by school bus routes will be discussed with the school systems a minimum of 28 days prior to when they are planned to take place so the school systems can adjust routes in a timely manner. Where roads are severed, provisions for turnarounds will be included during the final design phase of the Project.
Road Closures impacting transit system operations	For routes with transit system operations, written notice shall be sent to the transit system operator 28 days prior to when a route will be affected.

19.7 Public Forums and Meetings

At the request of INDOT, the Design-Build Contractor shall participate in INDOT-organized public forums and meetings.

19.8 Coordination with Traffic Management Plans

The Public Involvement Coordinator shall coordinate with the Project Manager, Construction Manager, Incident Management Liaison, and other Project staff and assist INDOT to communicate construction traffic information to the public and other affected parties. In addition, the Design-Build Contractor shall assist INDOT in coordinating traffic communications with adjacent construction projects in accordance with Section 1.4 (Coordination with Other Projects). The Public Involvement Coordinator shall coordinate with INDOT prior to communicating with existing TMP groups and other Project stakeholder groups for development of the Project TMP.

19.8.1 Maintenance of Traffic and Access

The Design-Build Contractor shall provide INDOT information related to maintenance of traffic and access that impacts commuters, residents and businesses. The information shall be provided to INDOT at least

twenty-eight days prior to any revision to access and/or a change in construction phase. Information shall include the following:

- Purpose of the change
- Area affected and dates of impact;
- Alternate routes and detours;
- Maps and/or graphics depicting the routes and detours; and,
- A contact person for further information

19.8.2 Traffic Conditions

Design-Build Contractor shall inform the INDOT Public Involvement Manager of any Incidents or unexpected traffic conditions, such as road obstructions, within 15 minutes of detection.

19.8.3 Commercial Vehicle Access and Restriction Information

Thirty days prior any activity taking place that may restrict or impede the movement of commercial vehicles due to reduced lane widths, reduced height clearances, or lower weight limits, the Design-Build Contractor shall coordinate with INDOT and shall assist INDOT in providing the following agencies with a description, start date and end date of the event:

- Indiana State Police
- Indiana Department of Revenue and INDOT Overweight/Oversize Section
- Local Departments of Public Works in Indiana
- INDOT Seymour District
- Emergency Responders

19.8.4 Emergency Vehicle Access

The Design-Build Contractor shall provide INDOT relevant access/closure information for the purpose of emergency vehicle coordination. The Design-Build Contractor shall provide such information to the appropriate TMP stakeholders, as identified by INDOT.

19.9 Methods and Tools for Disseminating Information

The methods and tools listed in this Section shall be employed by the Design-Build Contractor, with INDOT approval, to disseminate information to the public by INDOT in a timely fashion.

19.9.1 Highway Advisory Radio (HAR) Messaging

Design-Build Contractor shall provide timely and accurate information daily or as requested by INDOT for HAR messages. INDOT will coordinate and author HAR messaging.

19.9.2 Dynamic Message Signs (DMS) Messaging

Design-Build Contractor shall prepare and submit accurate information to INDOT for review at least 28 days in advance of traffic restrictions due to planned construction activities.

19.9.3 Collateral Materials

Upon request from INDOT, the Design-Build Contractor shall assist with producing written materials regarding construction issues specific to the Project, which may include schedule, lighting, or other issues. The INDOT will be responsible for final approval and making these materials available to the public as requested through U.S. mail, e-mail, Project web site, social media and at individual and group meetings.

19.9.4 Correspondence and E-Mail

INDOT will forward email, letters, and other forms of correspondence from the public regarding design and construction issues to Design-Build Contractor Public Involvement Coordinator. Design-Build Contractor shall assist INDOT in preparing responses to correspondence within one business day; however, INDOT will be responsible for responding to all correspondence.

Design-Build Contractor shall forward to INDOT all requests Design-Build Contractor receives for Project-related information via telephone, email, and letters to and from the public within one business day of the request. Project-related correspondence shall include communications from the public, businesses, community groups, and government.

19.10 Deliverables

Deliverables under this Section 19, a non-exhaustive list of which is set forth in Table 19-2, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 19-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
General construction schedule	28 days prior to construction in any area of Project	19.6
Updates to general construction schedule	Weekly	19.6
Maintenance of traffic and access change notifications	28 days prior to access revision	19.8.1
Notice to INDOT of Incidents or unexpected traffic conditions	Within 15 minutes of detection	19.8.2
Notice to INDOT of restrictions to movement of commercial vehicles	30 days prior to restrictions	19.8.3

108-C-215 CRITICAL PATH METHOD SCHEDULE

(Revised 05-20-23)

~~The Standard Specifications are revised as follows:~~

~~SECTION 108, AFTER LINE 219, INSERT AS FOLLOWS:~~

~~108.04.1~~ Critical Path Method Schedule

(a) General Requirements

The Contractor shall provide a project schedule using the critical path method, CPM, in place of the bar graph type schedule required in accordance with 108.04. In addition to the submittals required herein, the CPM schedule shall be used to develop all schedules provided by the Contractor at scheduling meetings held in accordance with 108.04.

The CPM schedule shall show the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the work in the specified contract time.

The Contractor shall be responsible for ensuring that all work sequences are logical and that the schedule reflects a coordinated plan. The CPM schedule shall indicate the order and interdependence of activities and the sequence for accomplishing the work.

The CPM schedule shall include sufficient detail to allow the Engineer to readily identify the work and evaluate the progress of each activity. The CPM schedule shall include activities for all work to be performed by the Contractor and subcontractors. The schedule shall also include activities specific to the project to be performed by the Department, other units of government, regulatory agencies, utilities and any other parties necessary to complete the work. The schedule shall reflect the scope of work, construction phasing, maintenance of traffic requirements, environmental requirements, utility and railroad coordination, coordination with other contractors, and any other work included in the contract. The schedule shall include activities for working and shop drawing preparation, Contractor submittals, submittal review time by the Engineer, material procurement and fabrication, and the delivery of materials, plant, and equipment and other similar activities.

Failure by the Contractor to include any element of work or to accurately reflect the relationships among the work activities required for performance of the Contract does not excuse the Contractor from completing all required work within the specified time.

(b) Definitions

The following definitions shall be applied to the terms used in this specification and shall not be taken to modify in any way the definitions in 101.02 through 101.79.

> ***Activity*** *– A discrete, identifiable task or operation that takes time, has a definable start and stop date, furthers the work's progress, and can be used to plan, schedule, and monitor a project.*

Attachment 1-1

Activity Calendar *– A set of days assigned to a specific activity on which work for the activity may be scheduled.*

Activity Calendar Day *– A day on which work is scheduled to be performed on a specific activity.*

Activity Identification (ID) Number *– A unique, alphanumeric identification code assigned to a specific activity.*

Activity Network Diagram *– A graphic representation of a CPM schedule, including a timescale, which shows the relationships among activities.*

Bar Chart *– A graphic representation of a schedule without relationship lines displayed. A timescale appears along the horizontal axis.*

Baseline CPM Schedule *– An accepted CPM schedule showing the original plan to complete the entire project.*

Calendar ID – *An alphanumeric identification code assigned to an activity calendar.*

Closure Period – *The original or revised maximum duration specified in the contract for the closure of a road, ramp, bridge, or other facility.*

Constraint *– A restriction imposed on the start or finish dates of an activity that modifies or overrides the activity's logic relationships.*

Contract Completion Date *– The original date or revised date specified in the contract for completion of the project.*

Controlling Activity *– The first incomplete activity on the Critical Path.*

Critical Activity *– Any activity on the critical path.*

Critical Path *– The longest path of activities which determines the scheduled completion date of the project.*

Data Date *– The first day in a baseline CPM schedule or the first day for performance of the remaining work in a monthly update CPM schedule. For a final CPM schedule, it is the date that the last activity was completed.*

Delayed Start Date – *The original or revised date specified in the contract prior to which work on the project is prohibited.*

Final CPM Schedule *– The last CPM schedule containing actual start and finish dates for every activity.*

Free Float *– The amount of time an activity can be delayed and not delay a successor.*

Incentive/Disincentive, I/D, Date – *The original or revised date specified in the contract for completion of a specified portion of the project. Completion of the specified work prior to the I/D date may entitle the Contractor to additional compensation. Completion of the specified work after the I/D date may result in a credit to the Department.*

Intermediate Completion Date *– The original or revised date specified in the contract for completion of an interim milestone, phase or other portion of the project.*

Milestone *– An activity with no duration that is typically used to represent the beginning or end of the project or an interim phase. Includes, but is not limited to, intermediate completion dates and the contract completion date.*

Monthly Update CPM Schedule *– A CPM schedule produced by incorporating the project's actual progress into the baseline CPM schedule.*

Open End *– The condition that exists when an activity has either no predecessor or no successor, or when an activity's only predecessor relationship is a finish-to-finish or only successor relationship is a start-to-start.*

Original Duration *– The estimated time, expressed in activity calendar days, required to perform an activity.*

Predecessor *– An activity that is defined by schedule logic to precede another activity. A predecessor may control the start or finish date of its successor.*

Relationship *– The interdependence among activities. Relationships link an activity to predecessors and successors.*

Remaining Duration *– The estimated time, expressed in activity calendar days, required to complete an activity.*

Schedule *– Activities organized by relationships to depict the plan for execution of a project.*

Scheduled Completion Date *– The completion date forecast by the CPM schedule. The schedule may also forecast intermediate completion dates or durations for milestones, phases, or other portions of the project.*

Successor *– An activity that is defined by schedule logic to succeed another activity. The start or finish date of a successor may be controlled by its predecessor.*

Total Float *– The amount of time an activity can be delayed and not delay the contract completion date.*

(c) Required CPM Schedule Submissions

1. Baseline CPM Schedule

The baseline CPM schedule submittal shall consist of a CPM schedule in accordance with 108.04.1(d) and a narrative report in accordance with 108.04.1(e). The baseline CPM schedule data date shall be the date of the notice to proceed and the CPM shall not include any actual start or actual finish dates for any activity. The baseline CPM schedule submittal shall be made no later than the date of the preconstruction conference.

If the Contractor fails to submit the baseline CPM schedule by the date of the preconstruction conference, the Department will withhold progress estimates until the baseline CPM schedule is submitted.

2. Monthly Update CPM Schedule

The monthly update CPM schedule submittal shall consist of a CPM schedule in accordance with 108.04.1(d) and a narrative report in accordance with 108.04.1(e). The first monthly update CPM schedule shall be submitted by the 7th of the month following acceptance of the baseline CPM schedule. Each succeeding monthly update CPM schedule shall be submitted by the 7th of each succeeding month. The CPM schedule data date shall be the last date of the month prior to submittal. The CPM shall not include any actual start or actual finish dates later than the data date for any activity.

If the 7th day of an individual month is a Saturday, Sunday, or a holiday on which work has been suspended, the monthly update CPM schedule shall be submitted by the first business day following the 7th.

If the Contractor fails to submit a monthly update CPM schedule by the required date, the Department will withhold progress estimates until the monthly update CPM schedule submittal is made.

3. Final CPM Schedule

The final CPM schedule shall consist of a CPM schedule in accordance with 108.04.1(d). The final CPM schedule shall be submitted no later than 30 calendar days after final acceptance. The final CPM schedule shall depict the actual start and finish dates for each activity. The data date of the final CPM schedule shall be the date of final acceptance. If the Contractor fails to submit the final CPM schedule by the required date, the Department will withhold progress estimates until the final CPM schedule is submitted.

4. Acceptance of Schedules

The Engineer will provide written notice within 14 calendar days of receipt of a baseline, monthly update, or final CPM schedule that the schedule is either accepted or rejected. If the notice indicates that a schedule is rejected, the contractual basis for rejection will be identified. If the Engineer does not respond in writing to the submittal of a schedule within the allotted time, the schedule shall be considered to be accepted.

The Engineer's written notice of acceptance or rejection may include questions, comments, or request additional information. The next CPM schedule submittal's narrative report shall address all questions, comments, or additional information requested by the Engineer.

Rejected baseline CPM schedules shall be resubmitted until accepted by the Engineer. If acceptance of a baseline CPM schedule is not obtained within 45 calendar days of the date of the preconstruction conference, the Department will withhold progress estimates until the baseline CPM schedule is accepted.

A rejected monthly update CPM schedule which immediately follows an accepted baseline or monthly update CPM schedule will not require resubmittal. Monthly update CPM schedules that are rejected for a second consecutive month shall be resubmitted within 14 days of the date of the rejection notification. Subsequent rejections will require additional submittals until acceptance. If the Contractor fails to submit a monthly update CPM schedule requiring resubmittal by the required date, the Department will withhold progress estimates until the monthly update CPM schedule is submitted.

Rejected final CPM schedules shall be resubmitted until accepted by the Engineer. Resubmittal of a final CPM schedule shall be made within 14 calendar days of receipt of rejection notification. If the Contractor fails to resubmit a rejected final CPM schedule by the required date, the Department will withhold progress estimates until the final CPM schedule is submitted.

The Engineer's review of a submitted schedule will be for compliance with the specifications. Acceptance by the Engineer does not relieve the Contractor of responsibility for the accuracy or feasibility of the schedule. Acceptance of a schedule does not constitute a modification of the contract or endorsement or validation of the Contractor's logic, activity durations, or assumptions in creating the schedule. Acceptance of a schedule does not guarantee that the project can be performed or completed as scheduled. Omissions and errors in a CPM schedule shall be corrected in the next CPM schedule submittal and will not entitle the Contractor to a contract adjustment.

5. Float and Scheduled Completion

Total float belongs to the project and shall be a shared commodity between the Contractor and the Department. Float is not for the exclusive use or benefit of either party. Either party has full use of float until is it depleted.

Float generated during the course of the project due to the efficiencies of either party shall be considered to be part of total float.

Float generated during the course of the project due to favorable weather within a calendar month, where the number of days of inclement weather is less than the normal inclement weather days for the month, shall be considered to be part of total float.

Negative float generated during the course of the project due to factors within the control of the Contractor will not be a basis for requesting time extensions. Time extension requests shall be developed in accordance with 108.04.1(f).

A CPM schedule may indicate a scheduled completion date in advance of the contract completion date or scheduled completion of work associated with an intermediate completion date, I/D date, or closure period prior to the corresponding contract date or period. However, the Department shall not be liable in any way for the Contractor's failure to complete the project prior to the contract completion date or complete work associated with any intermediate contract date or period prior to the original or revised date or period. Any costs incurred by the Contractor as a result of such a failure shall be the responsibility of the Contractor. The Contractor will not be entitled to claim or recover any such cost from the Department.

An accepted schedule that indicates a scheduled completion date in advance of the contract completion date will be considered to have total float equal to the time between the scheduled completion date and the contract completion date.

(d) CPM Schedule Technical Requirements

The CPM schedule shall be generated using software completely compatible with Primavera Contractor 5.0 by Primavera Systems Inc., Bala Cynwyd, PA.

Each CPM schedule submittal shall include the following:

1. *A letter of transmittal identifying the schedule submittal and contents.*

2. *A narrative report in accordance with 108.04.1(e). No narrative report is required for the final CPM schedule.*

3. *An electronic file of the schedule in Primavera .XER format that is completely compatible with and may be directly imported into Primavera Contractor 5.0 without any loss or modification of data or need for any conversion or other software. Any electronic schedule file submitted by the Contractor that is not completely compatible with the Department's Primavera Contractor 5.0 software will be rejected.*

4. *A copy of the critical path gantt chart, including lines representing relationships between activities, measuring 11 in. x 17 in. or larger. This item is not required for a final CPM schedule.*

The CPM schedule shall meet the following requirements:

1. *The first activity on a schedule shall be a milestone for the notice to proceed. The last activity on a schedule shall be a milestone for the contract completion date and shall reflect the date of notice of presumptive completion of the entire contract in accordance with 105.15(b). The schedule shall not include activities related to the final inspection, performance of punchlist work, or removal of construction signs.*

2. *All intermediate completion dates or I/D dates shall be shown in the schedule as milestones.*

3. *Baseline CPM schedules shall indicate that milestones associated with the contract completion date, all intermediate completion dates, all I/D dates, and all closure periods meet contract requirements.*

4. *Monthly update CPM schedules shall indicate that milestones associated with the contract completion date, all intermediate completion dates, all I/D dates, and all closure periods meet contract requirements unless the narrative report indicates that there is an unresolved delay situation which is beyond the control of the Contractor.*

5. *Codes for phase, location and responsibility shall be assigned for each activity. Additional activity codes may be used if approved by the Engineer.*

6. *Activities associated with work performed on a closed facility during a closure period shall be assigned a distinct activity phase code to allow a comparison of the scheduled closure period to the contract closure period.*

7. *Each activity shall have a unique description and activity identification number which shall not be modified or re-assigned after acceptance of the baseline CPM schedule.*

8. *Each activity description shall generally describe the work type and location and shall be associated with only one operation.*

9. *Each construction related activity shall have an original duration not to exceed 20 activity calendar days unless approved by the Engineer. It is permissible for activities related to fabrication, utility relocation, permit acquisition, and other non-construction activities to have longer original durations.*

10. *Activities for submittal reviews by the Department shall allow reasonable durations, but in no case less than 14 calendar days unless otherwise specified or approved by the Engineer.*

11. *Each activity, except the first activity, shall have at least one predecessor.*

12. *Each activity, except the last activity, shall have at least one successor.*

13. *No start-to-finish activity relationships shall be used. Activity finish-to-start relationships shall include no lags. Finish-to-finish or start-to-*

start activity relationships may use lags that include fewer days than the original duration of the predecessor activity.

14. *The use of lags with a negative value shall not be used for any activity relationship type.*

15. *All activities shall have their start and finish tied to the logic of the schedule.*

16. *Activities shall not be constrained unless noted herein or approved by the Engineer. The contract completion date, intermediate completion dates, and I/D dates shall be constrained using a finish on or before constraint. Delayed start dates shall be constrained using a start on or after constraint.*

17. *Each activity shall be assigned to an activity calendar. A CPM schedule may utilize more than one activity calendar, but only one activity calendar shall be assigned to each activity. All activity calendars shall be project calendars as classified by Primavera.*

18. *Activity calendars associated with construction activities shall include a minimum number of non-work days for the months of April through November, inclusive, equal to the number of above normal inclement weather days shown in 101.02. However, the number of non-work days included in calendars associated with bridge, traffic, and road construction activities shall be equal to or greater than the tabulated value related to B, T, or R contracts respectively, regardless of the type of contract involved.*

19. *Activity calendars for non-work activities, including but not limited to submittals, reviews, procurement, fabrication, cure times, and utility relocations performed by others shall not show any non-work days.*

20. *Seasonal weather conditions and Contractor scheduled shut down periods shall be considered and included in the activity calendars for all work scheduled from December 1 through March 31.*

21. *CPM schedule calculations shall be performed using the following settings: retained logic; contiguous activity durations for individual activities; critical path based on longest path; and total float based on activity finish dates.*

(e) Narrative Reports

The Contractor shall submit a narrative report with each baseline CPM and monthly update CPM schedule submittal to describe and elaborate on the work identified in the CPM schedule. Conflicting information between the narrative report and associated CPM schedule will be cause for rejection of a baseline or monthly update CPM schedule.

Information included in narrative reports will not be considered to meet the requirements for contractual notice of a changed condition in accordance with 105.16 or requests for additional contract time in accordance with 108.04.1(f). Separate correspondence meeting the applicable requirements shall be submitted by the Contractor to serve as notice of a changed condition or a request for additional contract time.

For the baseline CPM schedule submittal, the narrative report shall include the following:

1. *An explanation of the overall plan to complete the project, including where the work will begin and how the work and crews will progress through the project.*

2. *Statements comparing the scheduled completion date or duration to the contract completion date, all intermediate completion dates, all I/D dates, and all closure periods.*

3. *An explanation of the planned work schedule, including the planned number of workdays per week, planned number of shifts per day, whether night shifts are planned, number of hours planned per shift, holidays planned to be observed, extent of work planned for the winter months, and how the schedule calendars accommodate the required number of adverse weather days for each month. If multiple crews are planned, the above information shall be provided for each crew.*

4. *Description of the work to be completed each construction season and during each winter for multi-year projects.*

5. *A detailed description of any unresolved actual or anticipated problems or issues. If a contractual notice of a changed condition or a claim in accordance with 105.16 has been submitted and the Department response is pending, the description shall indicate dates associated with each Contractor submittal.*

6. *A description of any unresolved actual or anticipated delays, including identification of the type of delay, the cause of the delay, responsibility for the delay, identification of all delayed critical activities, the effect of the delay on other activities and project milestones and identification of actions required to mitigate the delay. If the Contractor has submitted a request for additional contract time in accordance with 108.04.1(f) and the Department response is pending, the description shall indicate the date of the Contractor submittal.*

7. *A detailed description of the critical path.*

8. *An explanation of the use of any constraints, including the reason and purpose for each constraint.*

9. *A statement describing the status of any required permits.*

10. *A statement describing the reason for the use of each lag.*

11. *A list of all proposed exceptions to this specification included in the schedule that require approval by the Engineer along with an explanation of why the exception is appropriate.*

For each monthly update CPM schedule submittal, the narrative report shall include the following:

1. *A statement comparing the scheduled completion date to the contract completion date and any change in the scheduled completion date from the previous accepted submittal.*

2. *An explanation if the scheduled completion date is projected to occur after the contract completion date.*

3. *A statement comparing the scheduled completion of work associated with each intermediate completion date, I/D date, or closure period in the contract as well as any changes in these scheduled dates or closure periods from the previous accepted submittal.*

4. *An explanation if work associated with any contract milestone date or closure period is projected to occur after the dates or projected to require a longer duration than set out in the contract.*

5. *A list of activities that have been added or deleted from the schedule since the last accepted submittal and an explanation for the addition or deletion.*

6. *A list of all changes in activity relationships, predecessors, or successors since the last accepted submittal and an explanation for each change.*

7. *A list of activities with original durations that have been changed since the last accepted submittal along with an explanation regarding how the change is planned to be accomplished.*

8. *A description of the work performed since the last accepted submittal.*

9. *A description of and explanation for any changes between the work performed since the last accepted submittal and the work planned at the time that submittal was made.*

10. *A detailed description of any unresolved problems that are anticipated or that have been encountered. If a contractual notice of a changed condition or a claim in accordance with 105.16 has been submitted and*

the Department response is pending, the description shall indicate the date of the notice or claim submittal.

11. *A statement that identifies any unresolved actual and anticipated delays. The statement should include identification of the delayed activity, the party apparently responsible for the delay, the type of delay, the cause of the delay, the effect of the delay on other activities and project milestones and identification of actions required to mitigate the delay. If the Contractor has submitted a request for additional contract time in accordance with 108.04.1(f) and the Department response is pending, the statement shall indicate the date of the Contractor request.*

12. *A detailed description of the critical path.*

13. *A list of activities which have become critical since the last accepted submittal.*

(f) Extension of Contract Time

If the Contractor believes work on the contract has been delayed for reasons beyond its control, a written request for extension of contract time may be submitted in accordance with 108.08. The Contractor's request for extension of time shall be submitted in conjunction with the first monthly update CPM schedule submittal that is made after the delay mitigation work is complete. A monthly update CPM schedule which accompanies a time extension request shall utilize a data date which is the date that the delay mitigation work is complete.

The determination of contract time extension will be based solely on the Engineer's comparison of the monthly update CPM schedule submittal associated with the time extension request and the last accepted schedule prior to the beginning of the delay event.

Delays or suspensions of work due to the Contractor's failure to comply with the specifications will not be cause for additional compensation or extension of contract time.

(g) Method of Measurement

Baseline, monthly update, and final CPM schedules will not be measured for payment.

(h) Basis of Payment

Baseline, monthly update, and final CPM schedules will be paid for at the contract unit price for lump sum for CPM Schedule. Payment for CPM Schedule will be made on the 1st estimate after acceptance of the baseline CPM schedule.

Payment will be made under:

Pay Item	***Pay Unit Symbol***
CPM Schedule	*LS*

Attachment 1-1

All costs necessary to provide baseline, monthly update, and final CPM schedules, as well as all schedules provided at scheduling meetings shall be included in the cost of the pay item for CPM Schedule.

SURVEY CONTROL BOOK

FOR

I-65 ATL CLARK/SCOTT COUNTY

CLARK/SCOTT COUNTIES, INDIANA

IF FOUND, PLEASE RETURN TO

INDIANA DEPARTMENT OF TRANSPORTATION
100 N. SENATE AVE., N642
INDIANAPOLIS, IN, 46204

Attachment 4-1

AMERICAN STRUCTUREPOINT, INC.

SURVEY PARTY

CHIEF SURVEYOR	**JEFF DOUGLASS**
PROJECT SURVEYOR	**JOHN N. HOOD**
CHIEF OF FIELD PARTY	**CHRIS SAMSEL**
CHIEF OF FIELD PARTY	**JORDAN PARKS**

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MOBILE LIDAR Validation Report	**124-143**

GENERAL INFORMATION

Field survey was performed by combining traditional ground survey supplemented with mobile LiDAR. We partnered with two sub-consultants, the first being BLN to provide traditional ground survey for the southern half of the project then the second was ESP Associates to collect and map mobile LiDAR of the pavement surfaces of the length of the project. Our work was defined and performed in accordance with I.C. 25-21.5; 865 I.A.C. 1-12; and the INDOT Design Manual, the order of precedence shall be:

a. I.C. 25-21.5
b. 865 I.A.C. 1-12
c. INDOT Design Manual

Horizontal Data: INGCS Clark-Floyd-Scott. The NGS Online Positioning User Service (OPUS) was used to establish the INGCS coordinate for Base Station Point 300. OPUS file: 03910280.20o OP1580258054100. All control points and section corners were measured using RTK vectors from this base station.

HORIZONTAL CONTROL

This survey is based upon the Indiana Geospatial Coordinate System's (InGCS) "Clark/Scott/Floyd" zone per NAD 83 (2011) epoch 2010.00 and is reported in U.S. Survey Feet and decimal parts thereof. **The “Boone" and “Hendricks” zones have identical parameters. These zones were developed to minimize the differences between ground-measured horizontal distances and the corresponding grid coordinate (map) distances within the counties bearing these zones' names.**

InGCS "Clark", "Scott" and “Floyd” Zone Parameters
Geometric Datum: NAD 83(2011) epoch 2010.00
Projection Type: Transverse Mercator
Central Meridian: 85°36'00" west longitude
Central Meridian scale factor: 1.000021
Latitude of Grid Origin: 38°09'00" north latitude
False Northing: 36,000.000 m (118,110.00 U.S.Ft)
False Easting: 240,000.000 m (787,400.00 U.S.Ft)

VERTICAL CONTROL

Based on an observation using the NGS Online Positioning User Service (OPUS), 1988 datum. Elevations of temporary benchmarks and control point are based on differential leveling using a Trimble DiNi digital level. Survey data was collected for this project from January 27th, 2020 through November 19th, 2021.

HORIZONTAL CONTROL & REFERENCES

Attachment 4-1

From: opus <opus@ngs.noaa.gov>
Date: January 28, 2020 at 7:37:22 PM EST
To: samselcj@yahoo.com
Subject: OPUS solution : 03910280.20o OP1580258054100
Reply-To: ngs.opus@noaa.gov

FILE: 03910280.20o OP1580258054100

2005 NOTE: The IGS precise and IGS rapid orbits were not available
2005 at processing time. The IGS ultra-rapid orbit was/will be used to
2005 process the data.
2005

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: samselcj@yahoo.com DATE: January 29, 2020
RINEX FILE: 0391028n.20o TIME: 00:36:13 UTC

SOFTWARE: page5 1801.18 master53.pl 160321 START: 2020/01/28 13:25:00
EPHEMERIS: igu20902.eph [ultra-rapid] STOP: 2020/01/28 19:33:00
NAV FILE: brdc0280.20n OBS USED: 15282 / 16972 : 90%
ANT NAME: TRMR10 NONE # FIXED AMB: 111 / 112 : 99%
ARP HEIGHT: 2.3 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.0757)

X:	367224.795(m)	0.002(m)	367223.899(m)	0.002(m)
Y:	-4977780.118(m)	0.003(m)	-4977778.705(m)	0.003(m)
Z:	3957779.372(m)	0.008(m)	3957779.273(m)	0.008(m)

LAT:	38 35 58.58200	0.006(m)	38 35 58.60936	0.006(m)
E LON:	274 13 9.21752	0.002(m)	274 13 9.18487	0.002(m)
W LON:	85 46 50.78248	0.002(m)	85 46 50.81513	0.002(m)
EL HGT:	164.605(m)	0.005(m)	163.391(m)	0.005(m)
ORTHO HGT:	198.300(m)	0.032(m)	[NAVD88 (Computed using GEOID18)]	

	UTM COORDINATES (UTM (Zone 16))	STATE PLANE COORDINATES (SPC (1301 IN E))
Northing (Y) [meters]	4273050.768	372055.556
Easting (X) [meters]	606169.233	90060.250
Convergence [degrees]	0.76071667	-0.07118889
Point Scale	0.99973881	0.99996788
Combined Factor	0.99971299	0.99994205

US NATIONAL GRID DESIGNATOR: 16SFH0616973050(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DM4646	INFC FALLS CITY CORS ARP	N382048.315	W0854458.829	28199.4
DM4656	INSG SCOTTSBURG CORS ARP	N384103.137	W0854743.301	9477.0

58 INSY SEYMOUR CORS ARP N385736.280 W0855142.432 40631.9

NEAREST NGS PUBLISHED CONTROL POINT
HZ1678 E 60 N383630.561 W0854635.282 1055.0

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

Point No.	Northing	Easting	Elevation	Description
100	299731.5753	734874.4411	603.523	MNS/CPT
101	299240.7393	734867.8773	608.444	MNS/CPT
102	298752.8302	734860.8558	613.356	MNS/CPT
103	298265.1588	734853.2937	617.268	MNS/CPT
104	297774.0989	734847.0737	617.438	MNS/CPT
105	297256.7246	734901.5043	615.435	MNS/CPT
106	296654.6783	734832.2544	613.895	MNS/CPT
107	296165.3547	734823.6897	610.922	MNS/CPT
108	295676.9587	734817.3674	605.106	MNS/CPT
109	295186.0084	734810.4435	598.3	MNS/CPT
110	294696.9322	734803.5504	591.725	MNS/CPT
111	294207.1661	734796.6857	590.882	MNS/CPT
112	293717.4434	734789.7434	597.365	MNS/CPT
113	293227.9003	734782.885	604.289	MNS/CPT
114	292737.8282	734776.1631	609.202	MNS/CPT
115	292248.7131	734768.9282	610.086	MNS/CPT
116	291759.0866	734762.6862	606.708	MNS/CPT
117	291269.4368	734756.8572	602.352	MNS/CPT
118	290781.4221	734768.3666	598.044	MNS/CPT
119	290290.8603	734820.7723	594.704	MNS/CPT
120	289792.0753	734917.4515	592.939	RBS/CPT
121	289362.2105	735037.7428	590.008	RBS/CPT
122	288895.5221	735183.9551	588.943	MNS/CPT
123	288421.9803	735305.1781	588.5	MNS/CPT
124	287939.8979	735395.4673	593.145	MNS/CPT
125	287452.0156	735454.8353	601.564	MNS/CPT
126	286962.9035	735482.6741	609.998	MNS/CPT
127	286473.6639	735483.4862	618.33	MNS/CPT
128	285983.5122	735481.1036	623.86	MNS/CPT
129	285493.5241	735478.3851	625.98	MNS/CPT
130	285004.7806	735475.4807	627.593	MNS/CPT
131	284514.9886	735472.8495	629.184	MNS/CPT
132	284024.9359	735470.671	630.628	MNS/CPT
133	283534.4777	735481.1968	633.607	MNS/CPT
134	283047.4321	735534.4139	638.48	MNS/CPT
135	282639.7187	735614.9346	643.766	MNS/CPT

Point No.	Northing	Easting	Elevation	Description
136	282276.5796	735705.4514	647.666	MNS/CPT
137	281788.548	735828.9272	649.322	MNS/CPT
138	281313.4012	735949.7356	644.314	MNS/CPT
139	280836.7762	736067.5336	637.539	MNS/CPT
140	280367.3654	736155.7975	631.285	MNS/CPT
141	279891.0427	736207.6066	625.086	MNS/CPT
142	279407.7789	736223.7894	618.832	MNS/CPT
143	278915.0322	736223.2125	612.931	MNS/CPT
144	278424.2342	736210.3268	610.941	MNS/CPT
145	277939.8728	736192.4531	613.072	MNS/CPT
146	277438.4456	736220.8607	616.953	MNS/CPT
147	276937.5553	736199.3667	618.441	MNS/CPT
148	276456.4096	736207.6022	618.335	MNS/CPT
149	275977.3678	736205.7962	616.87	MNS/CPT
150	275440.6043	736210.2129	615.136	MNS/CPT
151	274964.7649	736216.4632	614.333	MNS/CPT
152	274473.0841	736215.6328	612.791	MNS/CPT
153	273983.4283	736214.602	611.185	MNS/CPT
154	273489.3842	736213.3781	609.674	MNS/CPT
155	315212.6145	733514.0976	553.126	MNS/CPT
156	314725.3551	733544.0887	554.026	MNS/CPT
157	314239.2022	733569.8994	554.647	MNS/CPT
158	313759.1298	733609.8731	555.446	MNS/CPT
159	312998.8843	733653.1052	555.46	MNS/CPT
160	312510.508	733693.0816	557.87	MNS/CPT
161	312032.8756	733717.8813	558.606	MNS/CPT
162	311555.0883	733754.4156	560.565	MNS/CPT
163	311080.6367	733821.7573	561.682	MNS/CPT
164	310611.0797	733919.0009	565.184	MNS/CPT
165	310148.9216	734044.1573	569.99	MNS/CPT
166	309695.5234	734200.1698	574.635	MNS/CPT
167	309288.0389	734370.4067	577.487	MNS/CPT
168	308883.8116	734552.9463	578.257	MNS/CPT
169	308435.5398	734737.9942	579.971	MNS/CPT
170	307980.0492	734892.1508	581.107	RBS/CPT

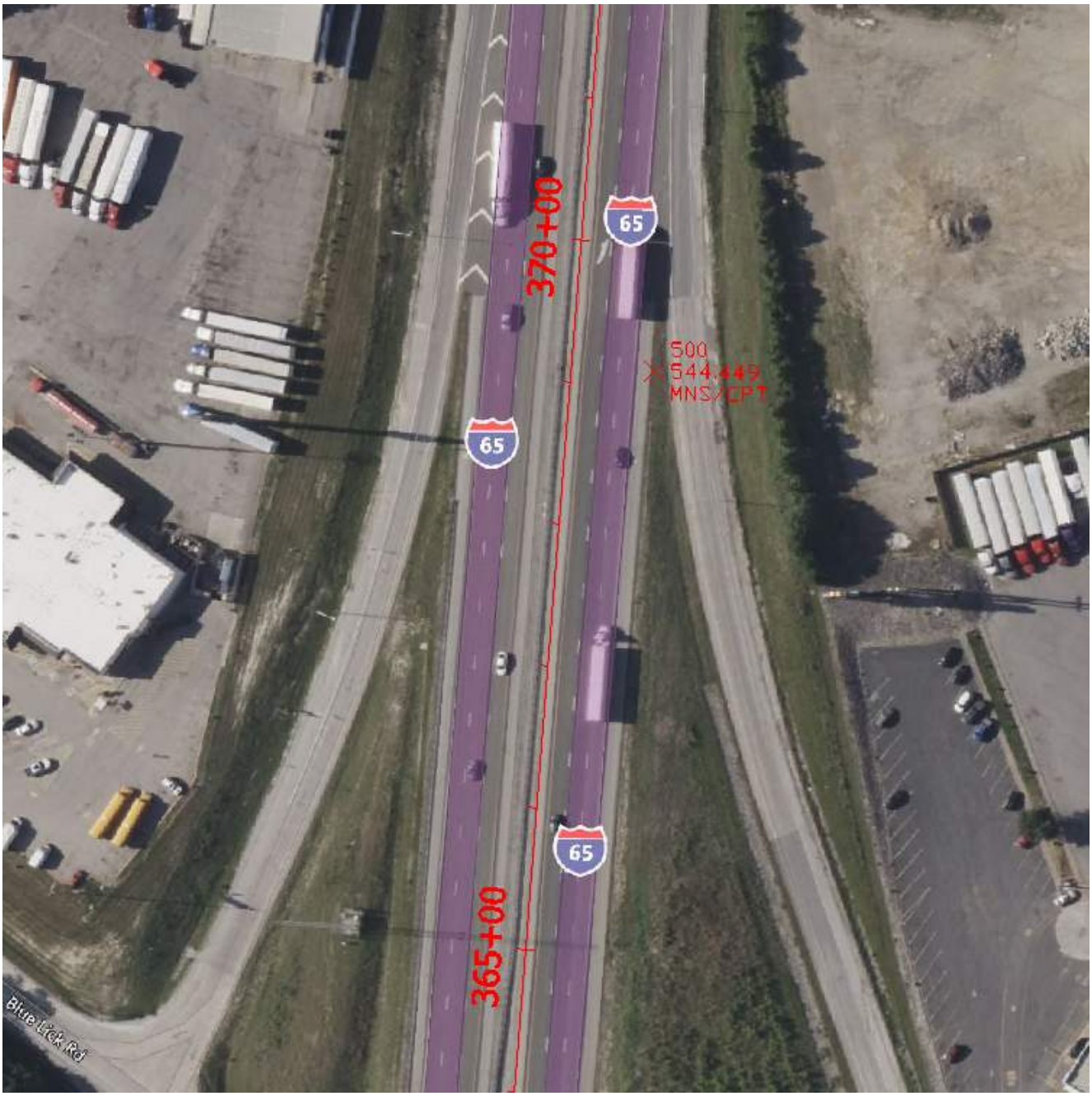
Point No.	Northing	Easting	Elevation	Description
171	307516.5413	735024.5119	582.141	MNS/CPT
172	307036.5518	735128.0931	583.912	MNS/CPT
173	306556.9204	735203.1059	586.171	MNS/CPT
174	306076.6913	735247.9531	586.047	MNS/CPT
175	305594.781	735264.5337	583.167	MNS/CPT
176	305113.4913	735251.9142	580.587	MNS/CPT
177	304632.7826	735211.2574	577.652	MNS/CPT
178	304144.777	735141.553	576.445	MNS/CPT
179	303660.8171	735064.3497	578.187	MNS/CPT
180	303177.7501	734994.6177	581.796	MNS/CPT
181	302685.1037	734940.6833	585.004	MNS/CPT
182	302186.9479	734910.657	589.578	RBS/CPT
183	301698.0069	734902.1653	594.268	MNS/CPT
184	301208.4174	734893.3743	596.865	RBS/CPT
185	300712.8094	734888.612	598.718	MNS/CPT
186	300220.5839	734881.4215	600.232	MNS/CPT
187	283874.7566	734879.4071	643.039	RBS/CPT
188	283896.875	735386.3326	650.36	MNS/CPT
189	283898.1979	736026.6114	636.065	RBS/CPT
190	307903.8808	735119.0522	603.044	RBS/CPT
191	307864.644	734804.6432	599.351	MNS/CPT
300	281903.7539	735733.7087	650.59	RBS/BASE
301	298369.0936	734814.506	623.128	RBS/BASE
302	260334.6234	736755.6904	581.554	RBS/BASE
303	273490.803	736341.1383	610.025	MNS/CPT
304	273987.4929	736345.4489	609.905	RBS/CPT
305	274473.6185	736346.2878	611.972	RBS/CPT
306	274961.8908	736356.7426	613.782	MNS/CPT
307	275447.829	736369.2208	614.692	MNS/CPT
308	275977.3989	736346.2652	617.257	MNS/CPT
309	276456.7164	736347.5379	618.876	MNS/CPT
310	276942.4394	736360.6492	618.872	MNS/CPT
311	277439.7075	736360.0711	616.574	MNS/CPT
312	277933.3714	736359.7039	614	MNS/CPT
313	278424.6761	736350.2785	611.469	MNS/CPT

Point No.	Northing	Easting	Elevation	Description
314	278914.8862	736351.6531	613.123	MNS/CPT
315	279407.8493	736351.1159	619.484	MNS/CPT
316	279895.9554	736334.9307	626.51	MNS/CPT
317	280385.1444	736282.3709	632.959	MNS/CPT
318	280868.4809	736191.5942	639.143	MNS/CPT
319	281343.705	736074.4328	644.193	MNS/CPT
320	281821.4046	735953.4068	649.3	MNS/CPT
321	282306.6941	735830.9636	647.584	MNS/CPT
322	282665.0945	735740.6412	642.797	MNS/CPT
323	283068.7064	735660.8313	637.104	MNS/CPT
324	283543.6391	735608.0437	632.306	MNS/CPT
325	284023.767	735598.8287	630.426	MNS/CPT
326	284518.3387	735601.192	629.029	MNS/CPT
327	285005.5646	735603.1461	627.591	MNS/CPT
328	285496.0743	735606.0462	625.848	MNS/CPT
329	285984.9174	735608.8662	623.744	MNS/CPT
330	286475.5601	735611.4102	618.338	MNS/CPT
331	286968.4293	735610.2335	610.925	MNS/CPT
332	287462.6375	735582.5325	602.441	MNS/CPT
333	287961.3762	735522.0348	594.051	MNS/CPT
334	288446.083	735429.6939	589.396	MNS/CPT
335	288929.6733	735307.4427	589.87	MNS/CPT
336	289420.9175	735160.252	590.111	RBS/CPT
337	289829.3693	735042.587	591.635	MNS/CPT
338	290315.2641	734946.8104	593.421	MNS/CPT
339	290791.8582	734894.9707	596.646	MNS/CPT
340	291269.4317	734883.3125	601.563	MNS/CPT
341	291760.4168	734890.1772	606.604	MNS/CPT
342	292245.6571	734898.0179	609.944	MNS/CPT
343	292738.0596	734904.185	609.085	MNS/CPT
344	293227.0023	734911.1649	604.245	MNS/CPT
345	293717.9663	734918.1037	597.333	MNS/CPT
346	294205.3836	734927.1794	590.672	RBS/CPT
347	294695.8244	734932.1527	591.699	MNS/CPT
348	295186.2466	734938.9905	598.289	MNS/CPT

Point No.	Northing	Easting	Elevation	Description
349	295678.0952	734945.9045	605.114	MNS/CPT
350	296166.8484	734953.0154	611.185	MNS/CPT
351	296662.9783	734961.4718	613.759	RBS/CPT
352	297773.5566	734978.0519	616.644	RBS/CPT
353	298264.9831	734982.4135	617.232	MNS/CPT
354	298752.765	734988.8348	613.455	MNS/CPT
355	299244.818	734995.8191	608.482	MNS/CPT
356	299730.1101	735002.2859	603.52	MNS/CPT
357	300222.2988	735008.9772	600.421	MNS/CPT
358	300714.6515	735016.4354	598.617	MNS/CPT
359	301205.1815	735023.0475	597.195	MNS/CPT
360	301694.0027	735030.173	594.238	MNS/CPT
361	302182.043	735040.7248	589.378	MNS/CPT
362	302671.1593	735070.229	584.807	MNS/CPT
363	303161.6139	735121.3994	581.273	MNS/CPT
364	303642.3685	735191.2842	578.222	MNS/CPT
365	304126.0135	735267.9167	576.401	MNS/CPT
366	304612.2361	735337.4767	578.26	MNS/CPT
367	305103.2088	735379.824	581.156	MNS/CPT
368	305594.4032	735392.5062	583.863	MNS/CPT
369	306084.2403	735376.2826	586.711	MNS/CPT
370	306574.5534	735330.1585	586.814	MNS/CPT
371	307059.5337	735255.2284	584.593	MNS/CPT
372	307544.6813	735149.8369	582.863	MNS/CPT
373	308015.5793	735018.124	581.802	MNS/CPT
374	308481.5688	734857.8839	580.781	MNS/CPT
375	308935.8876	734670.4658	579.014	MNS/CPT
376	309338.0264	734489.0228	576.688	MNS/CPT
377	309746.2985	734318.8473	573.406	MNS/CPT
378	310190.1258	734165.5019	568.987	MNS/CPT
379	310639.0132	734043.6253	564.304	MNS/CPT
380	311100.1432	733949.8908	561.087	MNS/CPT
381	311557.2429	733892.6533	559.387	MNS/CPT
382	312047.0255	733861.7889	558.739	MNS/CPT

Point No.	Northing	Easting	Elevation	Description
383	312523.07	733819.8641	557.848	MNS/CPT
384	313004.8779	733795.3524	555.319	RBS/CPT
385	313768.6096	733737.648	555.38	MNS/CPT
386	314272.7249	733715.5813	554.663	MNS/CPT
387	314733.9988	733683.8425	553.953	MNS/CPT
388	315218.7165	733645.5122	552.985	MNS/CPT
500	242805.4187	738380.4342	544.449	MNS/CPT
501	243295.9352	738424.8435	532.83	MNS/CPT
502	243790.5339	738457.0969	519.695	MNS/CPT
503	244283.458	738477.467	506.774	MNS/CPT
504	244781.7612	738509.7955	497.127	MNS/CPT
505	245280.333	738542.4239	494.341	MNS/CPT
506	245772.5661	738568.6215	492.534	MNS/CPT
507	246358.8539	738583.1327	490.085	RBF/BLN
508	246850.9535	738560.5183	487.485	MNS/CPT
509	247335.4692	738524.8479	486.759	MNS/CPT
510	247821.3494	738474.6968	494.454	MNS/CPT
511	248312.8679	738423.4954	508.057	MNS/CPT
512	248807.8513	738372.6362	521.937	MNS/CPT
513	249300.0729	738322.373	531.556	MNS/CPT
514	249790.3504	738272.3752	530.978	MNS/CPT
515	250284.9351	738222.1098	520.7	MNS/CPT
516	250789.5426	738174.4668	505.263	RBS/CPT
517	251280.3375	738119.4061	494.075	MNS/CPT
518	251768.5444	738069.0082	493.005	MNS/CPT
519	252254.6821	738017.9026	497.403	MNS/CPT
520	252747.8251	737968.1744	501.536	MNS/CPT
521	253236.1373	737917.8051	505.931	MNS/CPT
522	253726.1144	737867.4838	510.299	MNS/CPT
523	254211.8298	737818.0748	514.738	MNS/CPT
524	254699.3155	737767.2373	519.348	MNS/CPT
525	255188.112	737716.8711	524.194	MNS/CPT
526	255677.6626	737661.7763	529.806	MNS/CPT
527	256166.1892	737590.6865	534.719	MNS/CPT

Point No.	Northing	Easting	Elevation	Description
528	256647.7517	737504.9744	538.467	RBS/CPT
529	257129.8049	737392.6452	543.349	RBS/CPT
530	257603.4234	737275.0993	547.961	RBS/CPT
531	258078.0159	737151.8223	553.656	MNS/CPT
532	258510.2294	737043.9602	558.195	MNS/CPT
533	258932.5589	736940.8597	562.362	MNS/CPT
534	259403.7564	736842.3748	566.376	MNS/CPT
535	259871.779	736740.6731	567.097	RBS/CPT
536	260375.5174	736649.1689	562.367	RBS/CPT
537	260869.3375	736565.6101	558.74	MNS/CPT
538	261346.1807	736525.2841	552.786	MNS/CPT
539	261823.0586	736461.1458	548.42	RBS/CPT
540	262299.2009	736400.9109	545.258	MNS/CPT
541	262776.9204	736362.117	541.191	MNS/CPT
542	263256.6872	736337.1747	537.05	MNS/CPT
543	263735.1828	736322.2632	532.825	MNS/CPT
544	264213.9325	736317.9325	534.89	MNS/CPT
545	264694.1736	736319.028	546.701	MNS/CPT
546	265173.2237	736320.7562	560.478	MNS/CPT
547	265653.3839	736322.1761	574.177	MNS/CPT
548	266133.408	736323.5634	587.357	MNS/CPT
549	266612.6075	736324.4798	594.698	MNS/CPT
550	267092.8275	736325.8229	593.958	MNS/CPT
551	267572.8043	736327.2893	592.98	MNS/CPT
552	268052.3632	736328.6376	591.696	MNS/CPT
553	268532.5343	736330.0559	589.277	MNS/CPT
554	269013.0249	736331.3364	588.04	MNS/CPT
555	269493.7687	736333.1643	586.837	MNS/CPT
556	269977.5528	736341.8952	585.046	RBS/CPT
557	270456.6966	736337.8109	589.991	RBS/CPT
558	270938.7873	736339.7412	602.828	RBS/CPT
559	271417.4804	736342.0915	614.701	RBS/CPT
560	271898.016	736338.961	618.749	MNS/CPT
561	272377.8533	736339.7605	614.029	MNS/CPT
562	272918.8186	736340.0223	609.201	MNS/CPT
563	260256.8428	736887.7216	579.771	MNS/CPT
564	260387.4961	736290.9514	579.55	MNS/CPT



Attachment 4-1



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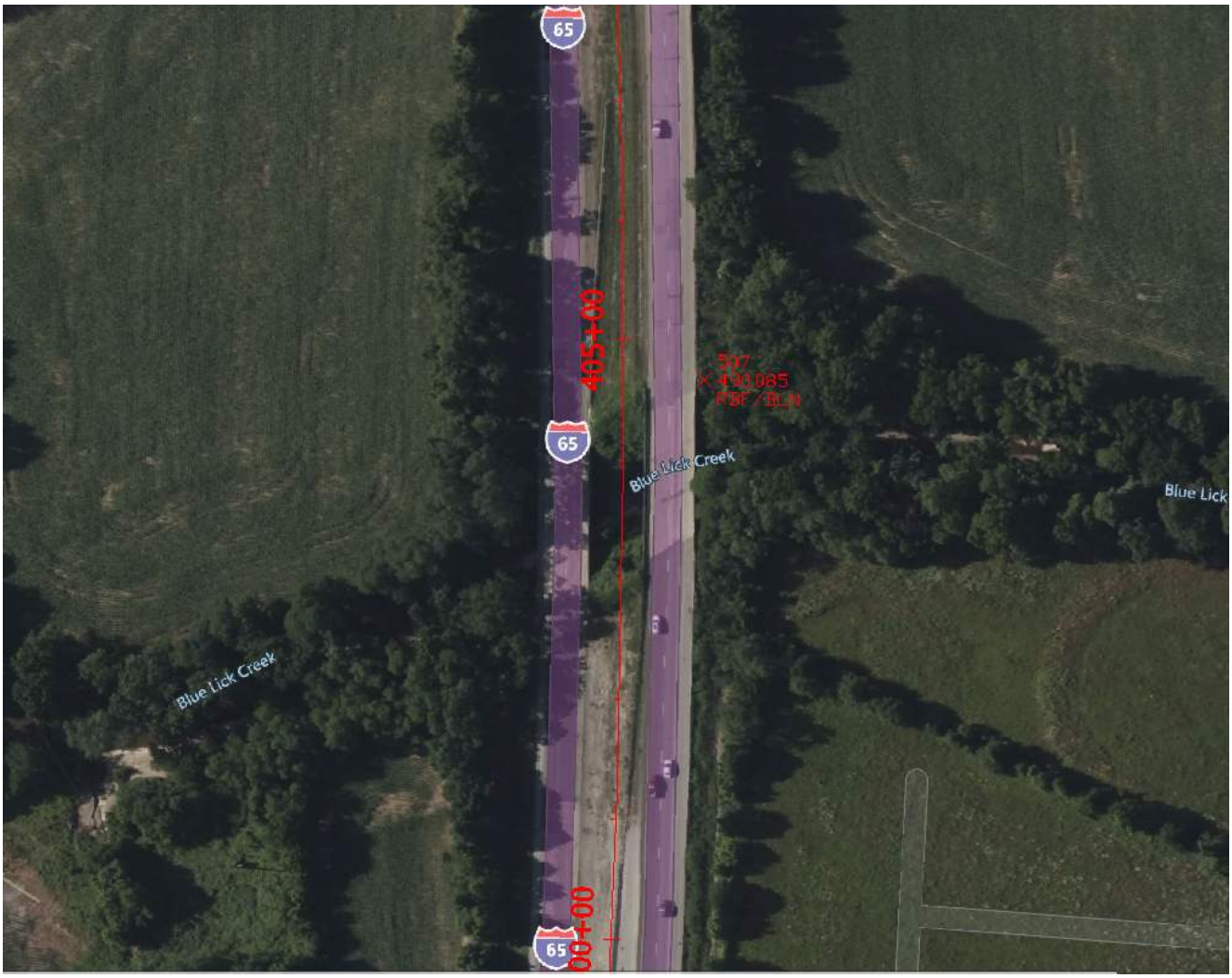

Attachment 4-1



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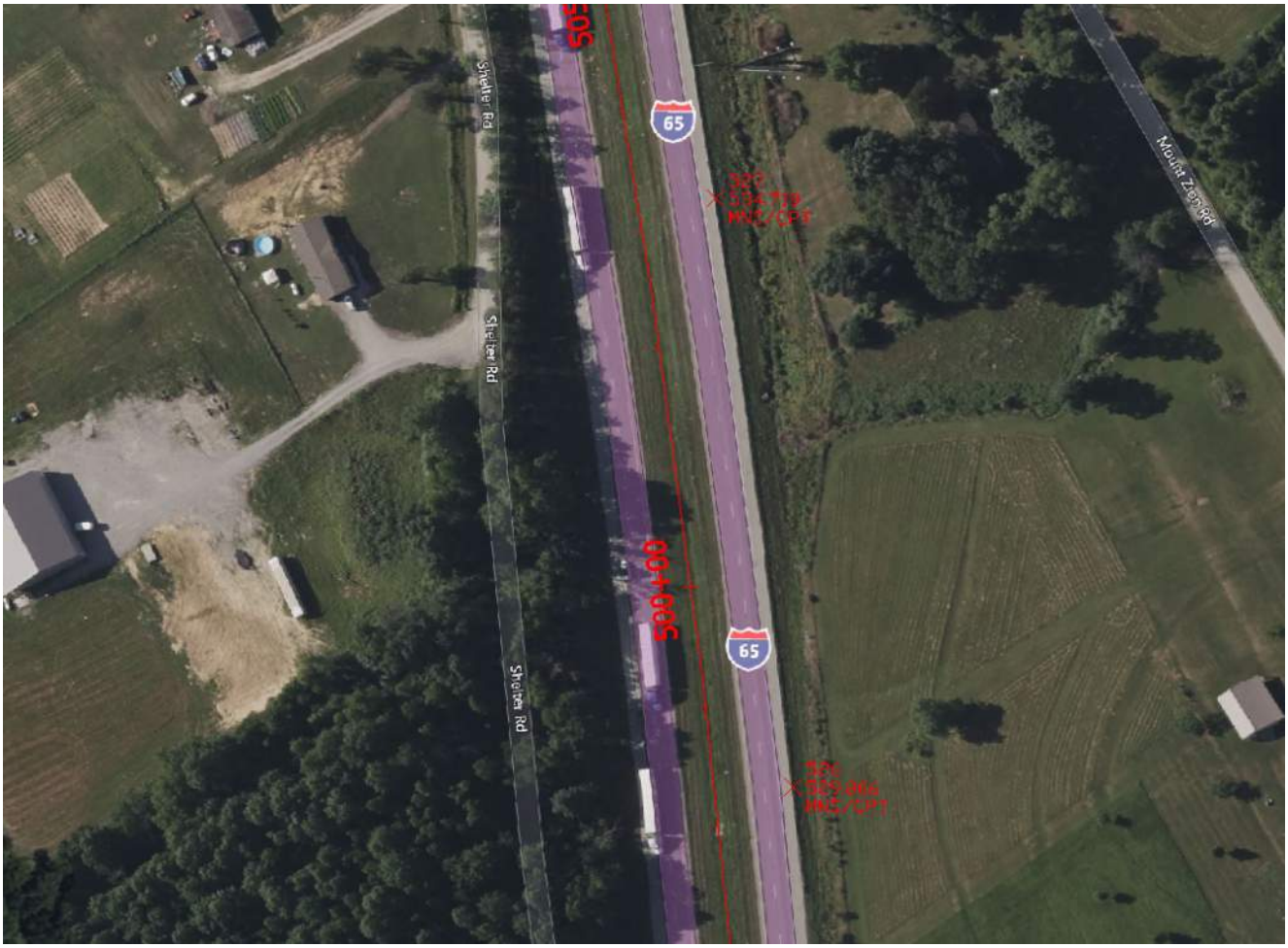

Attachment 4-1



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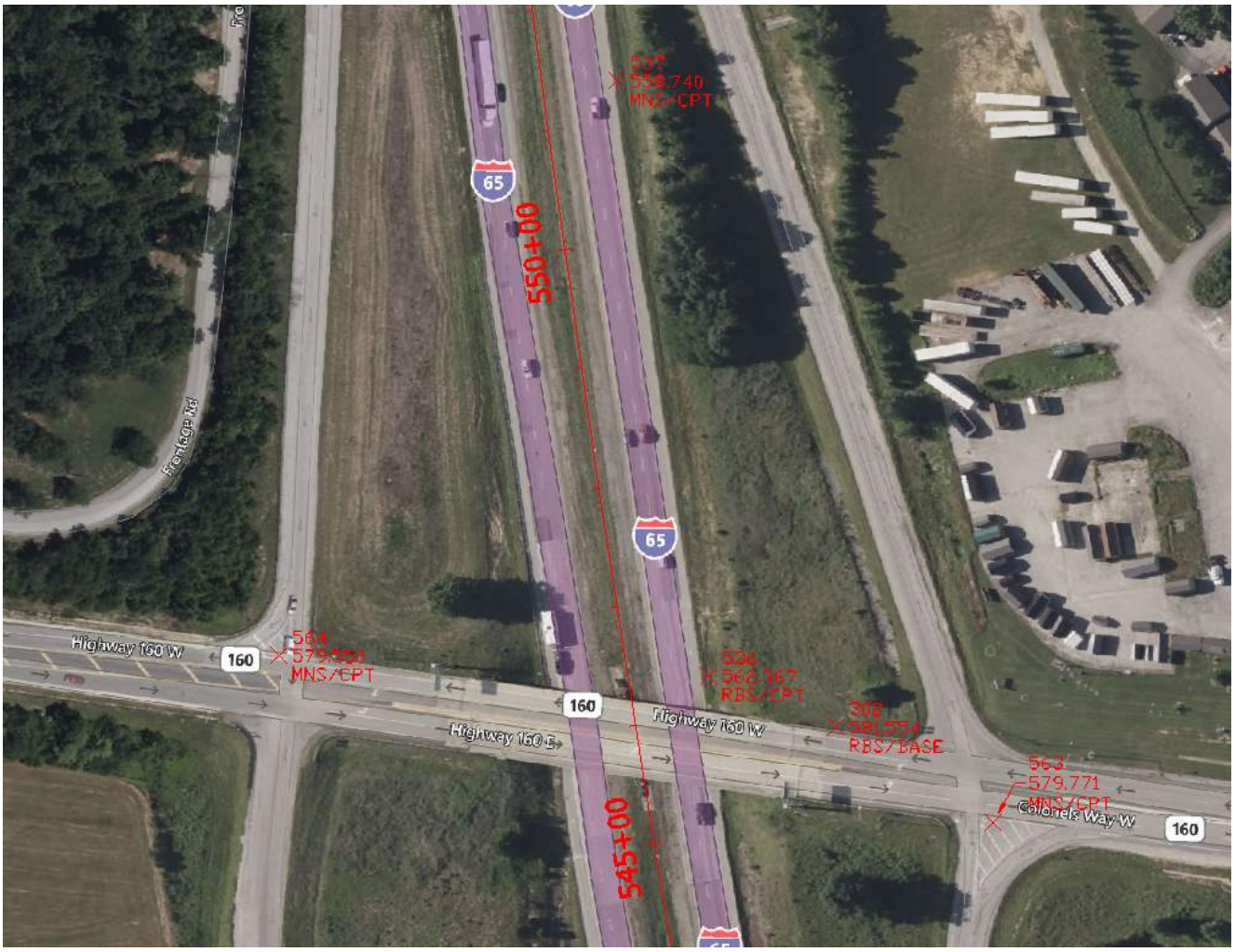

Attachment 4-1



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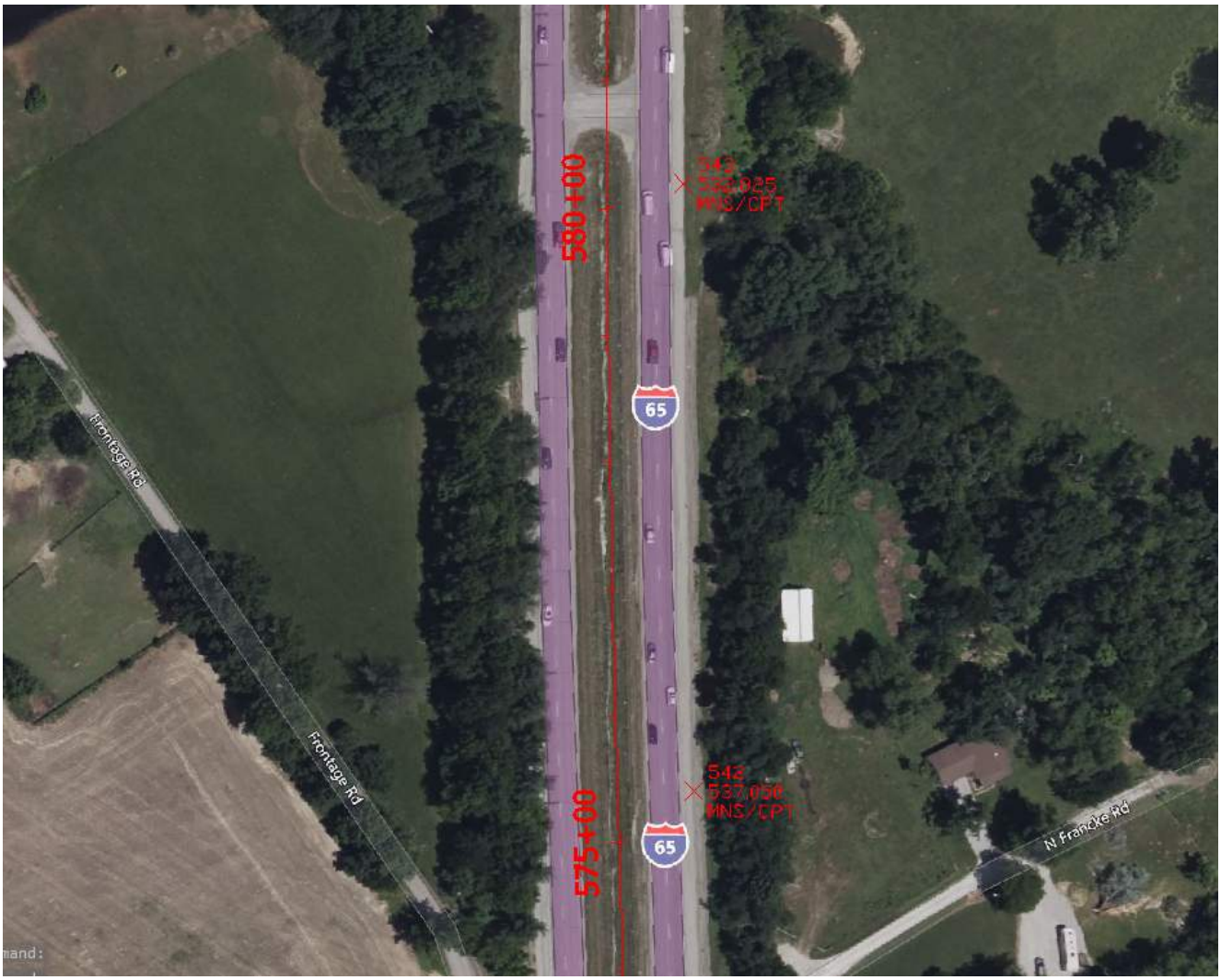

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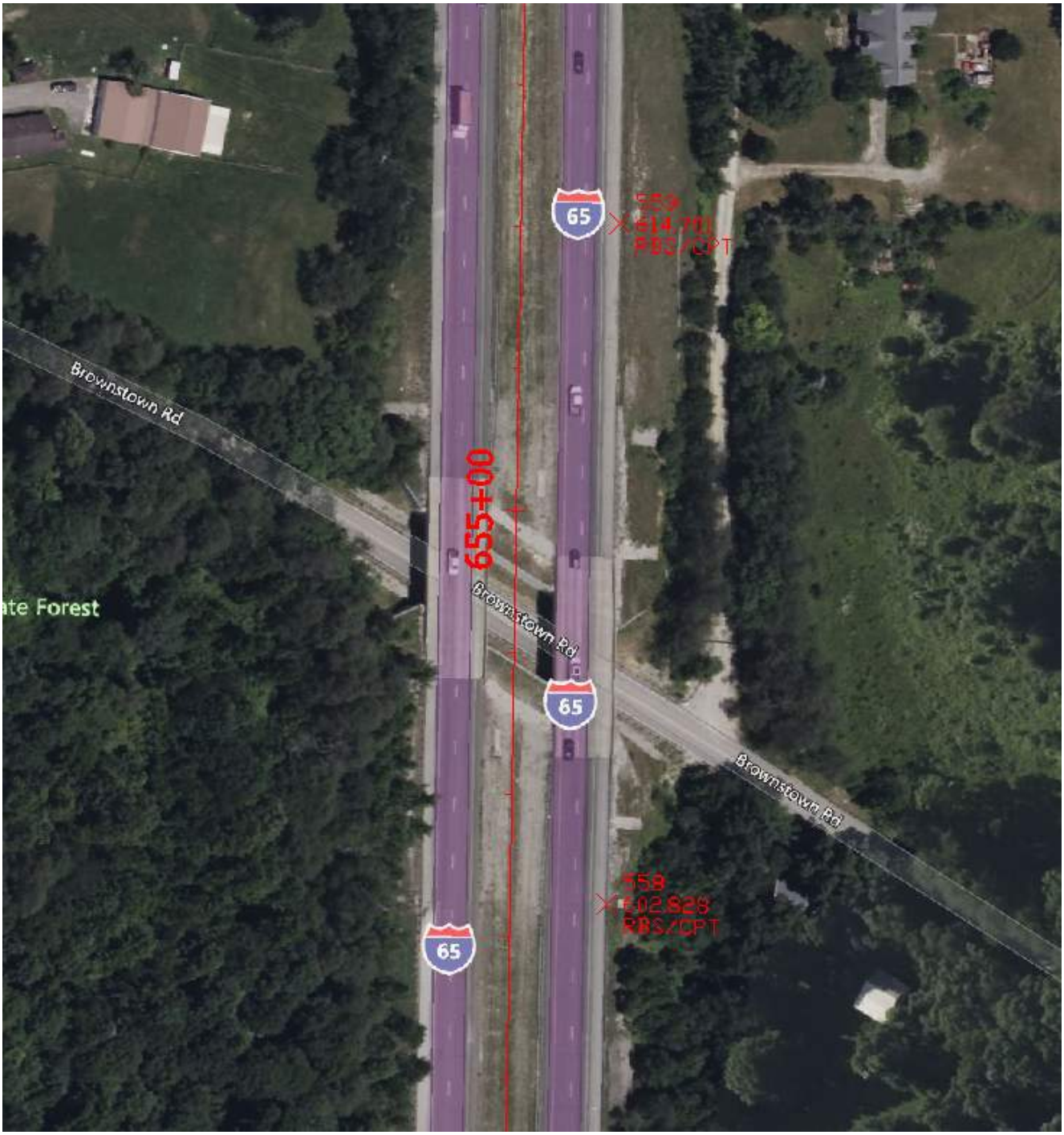

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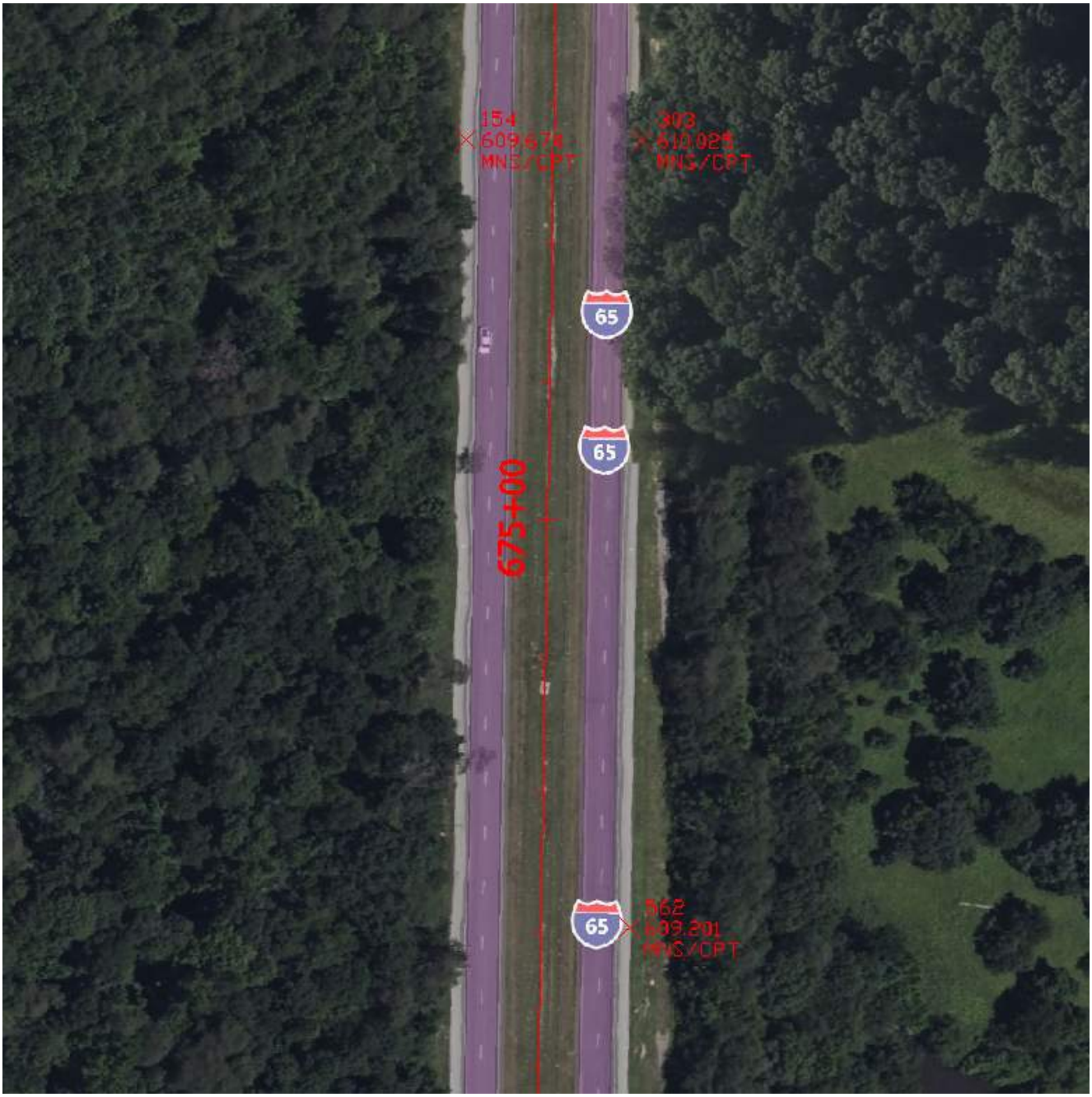
Attachment 4-1



Attachment 4-1



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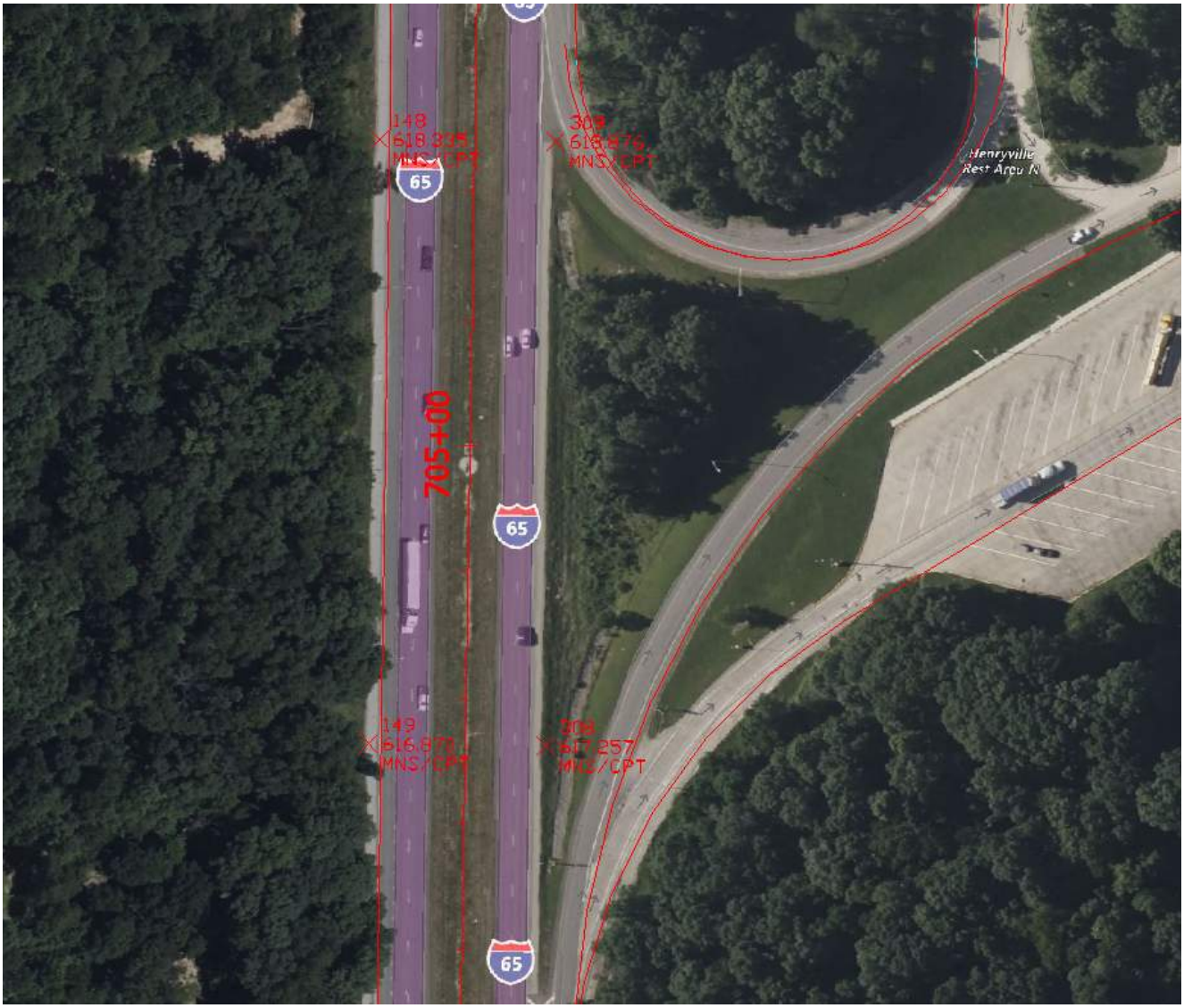
Attachment 4-1



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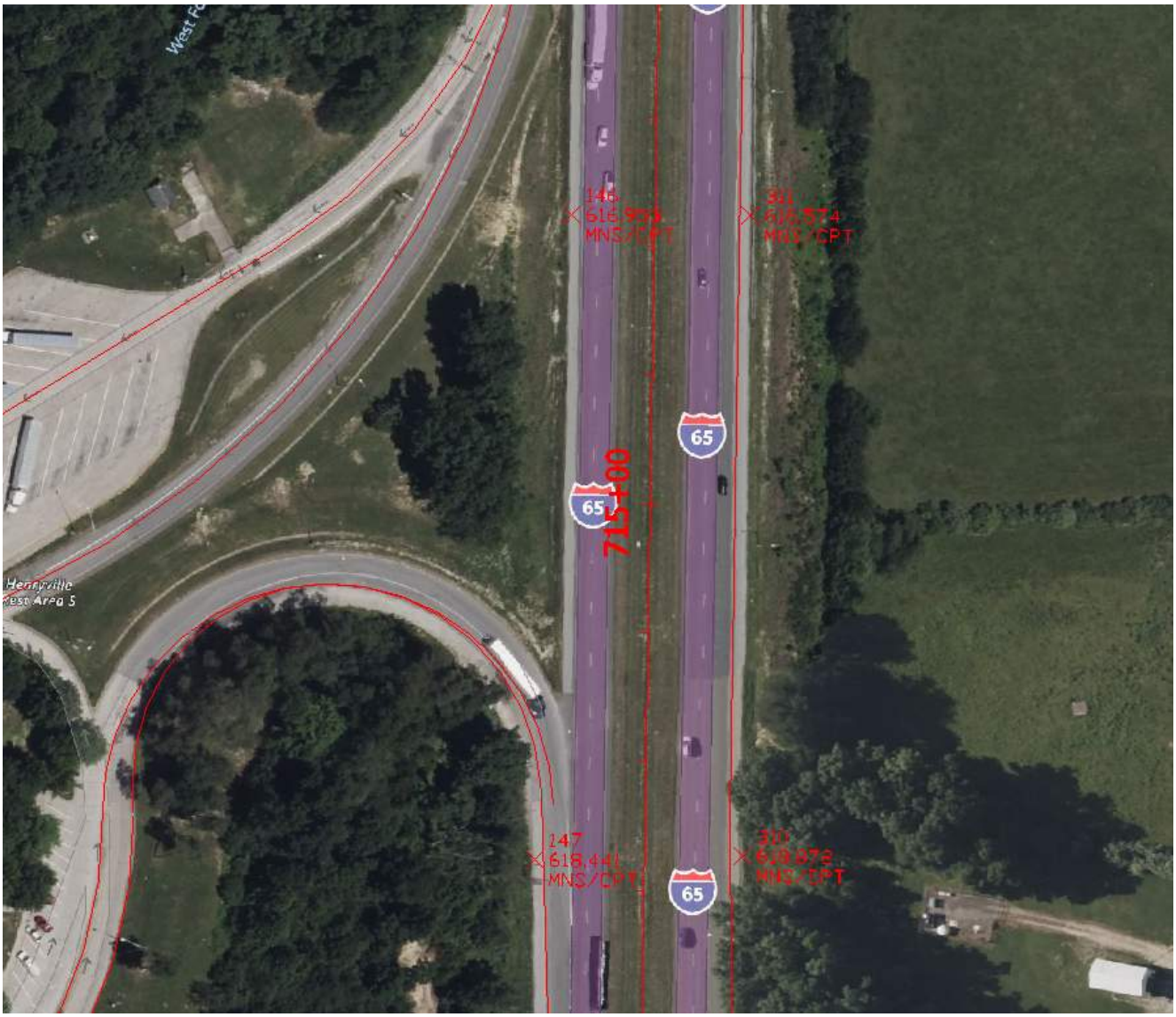

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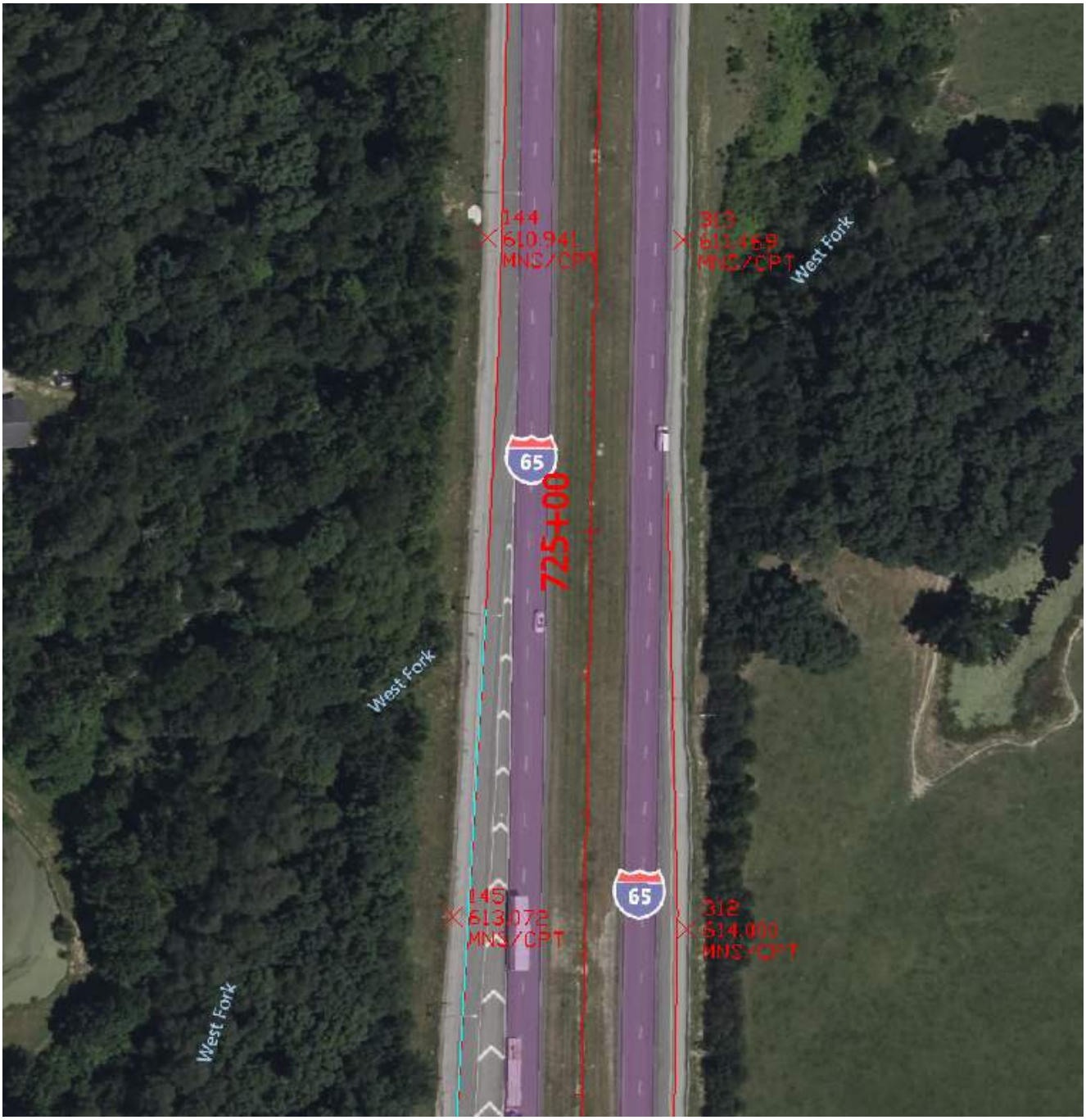

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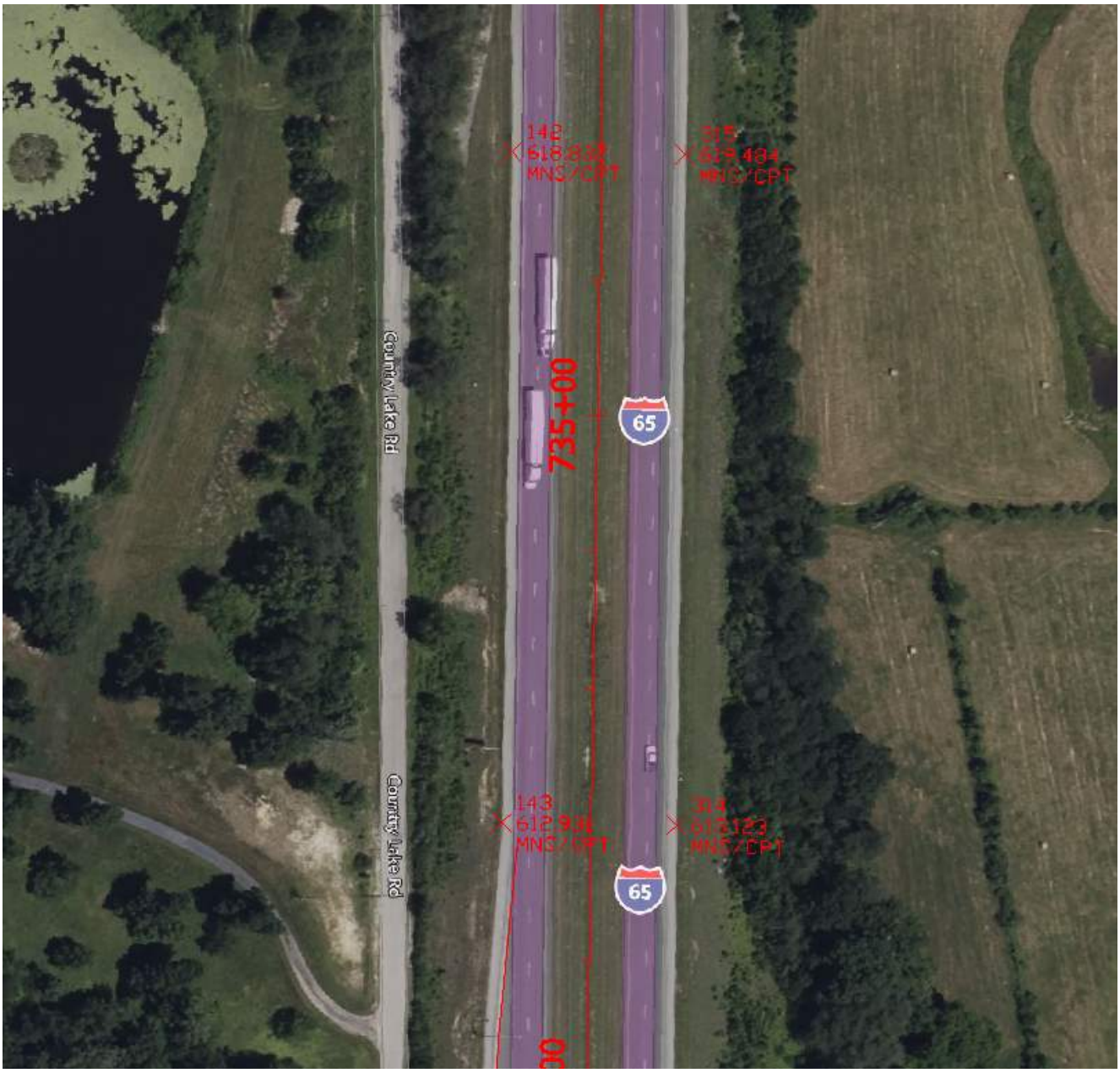

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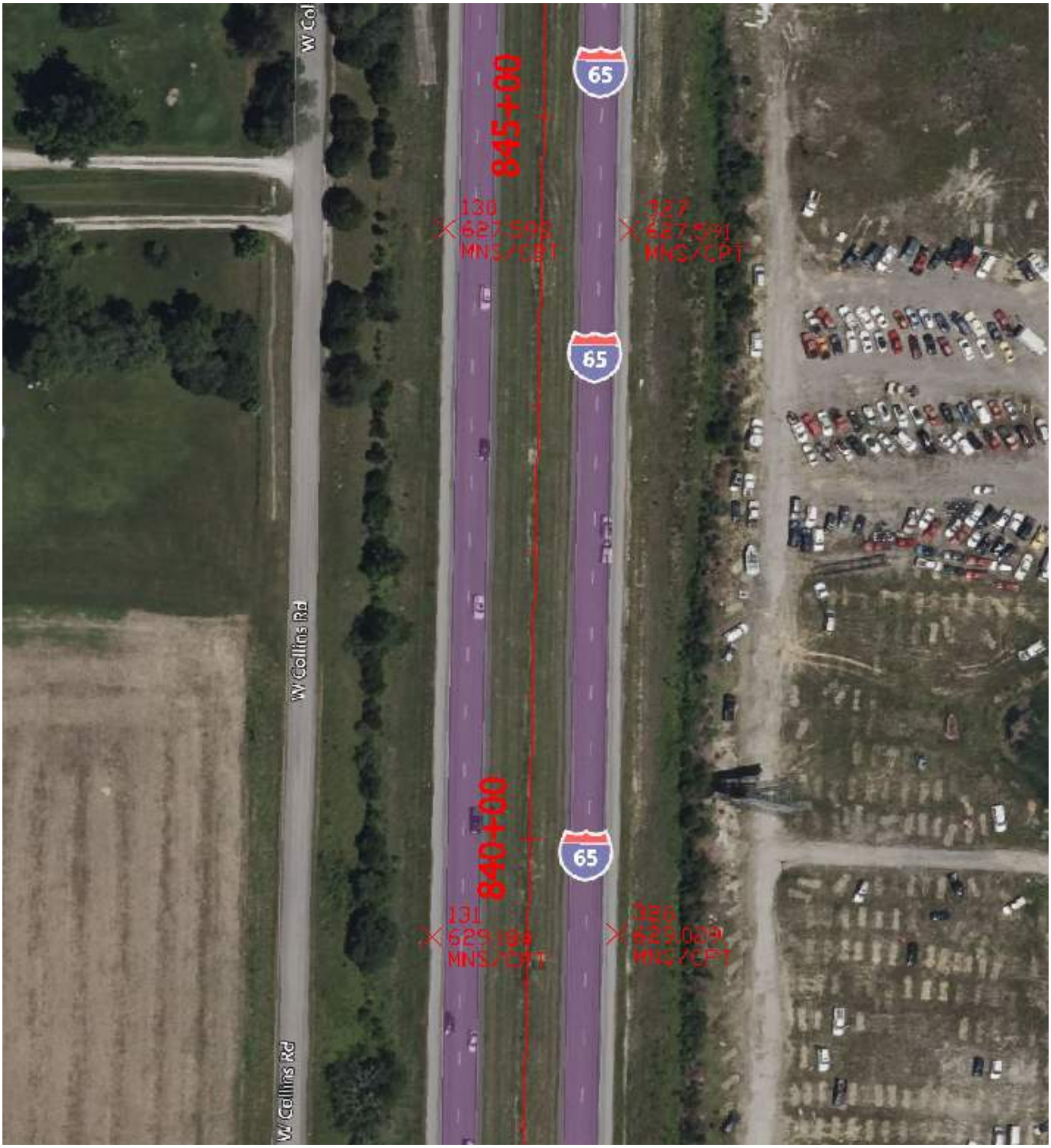

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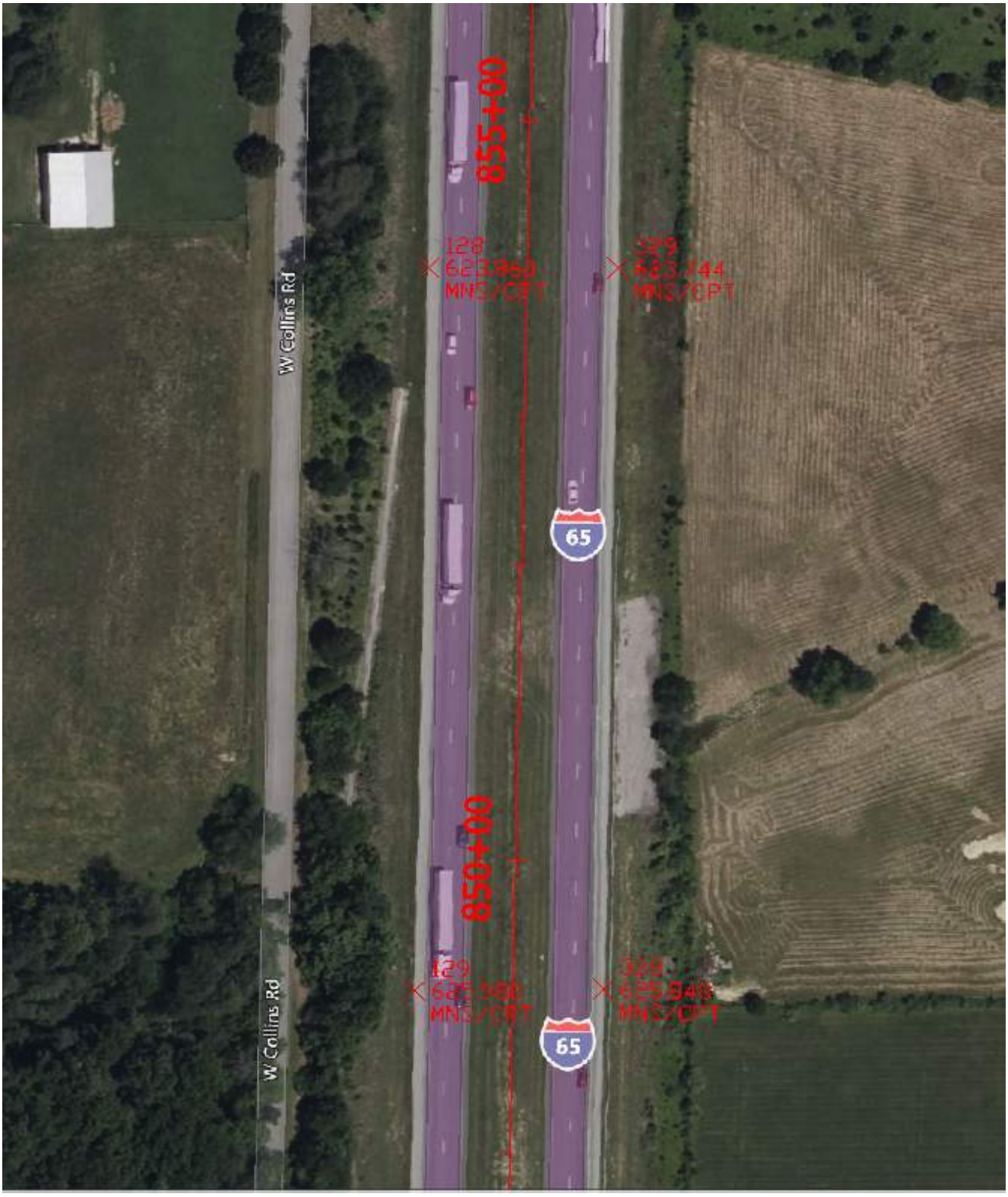

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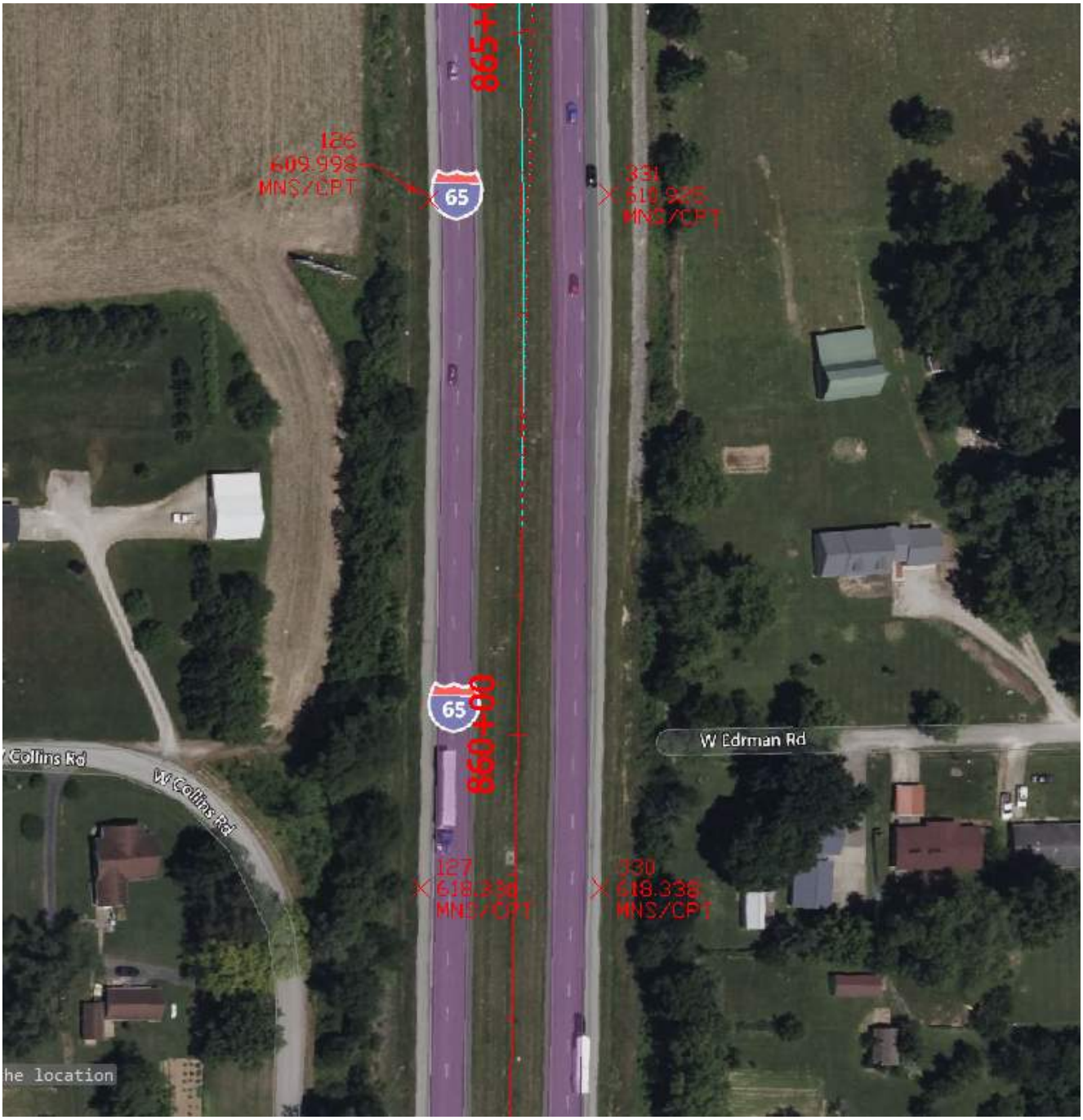

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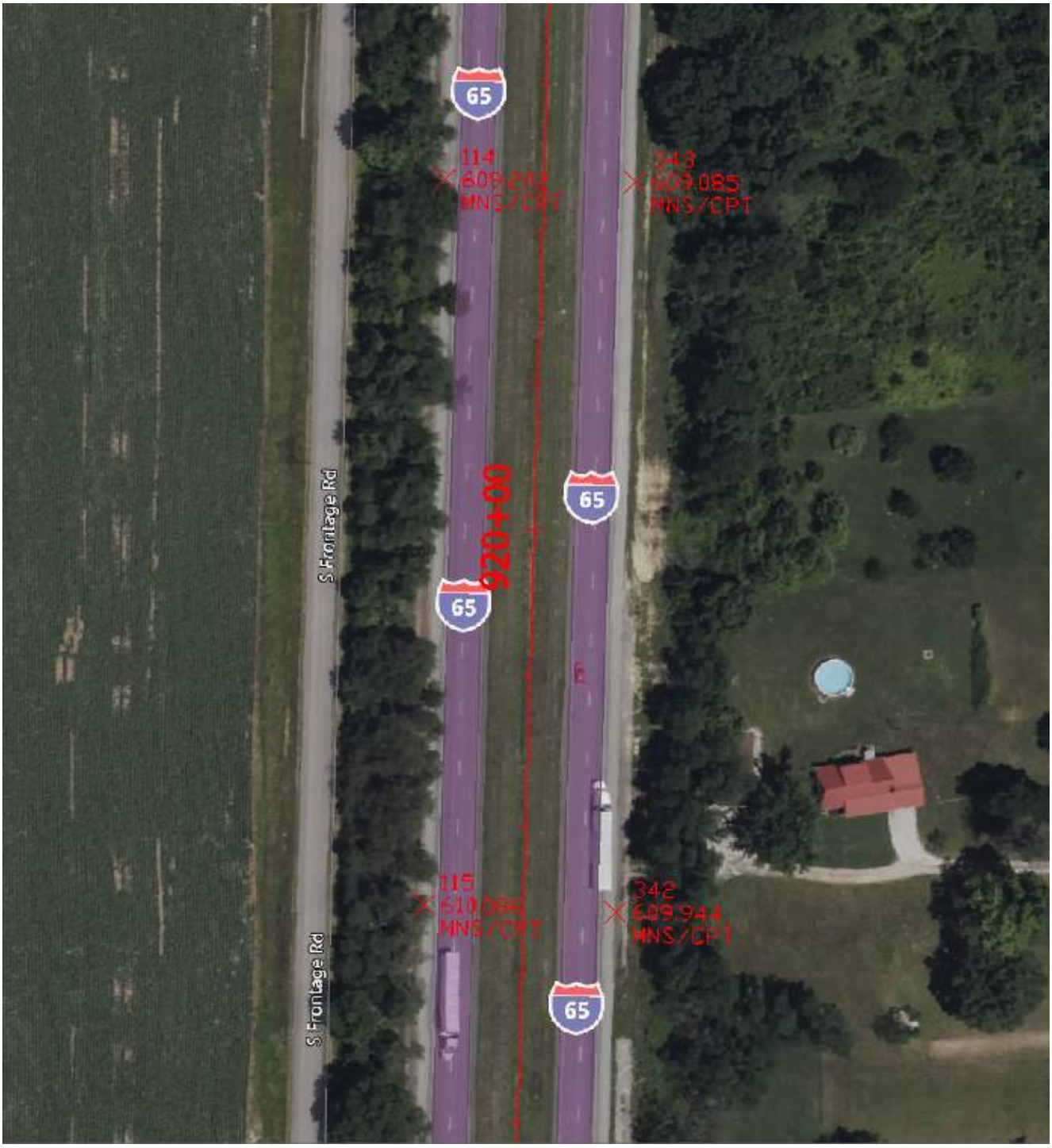

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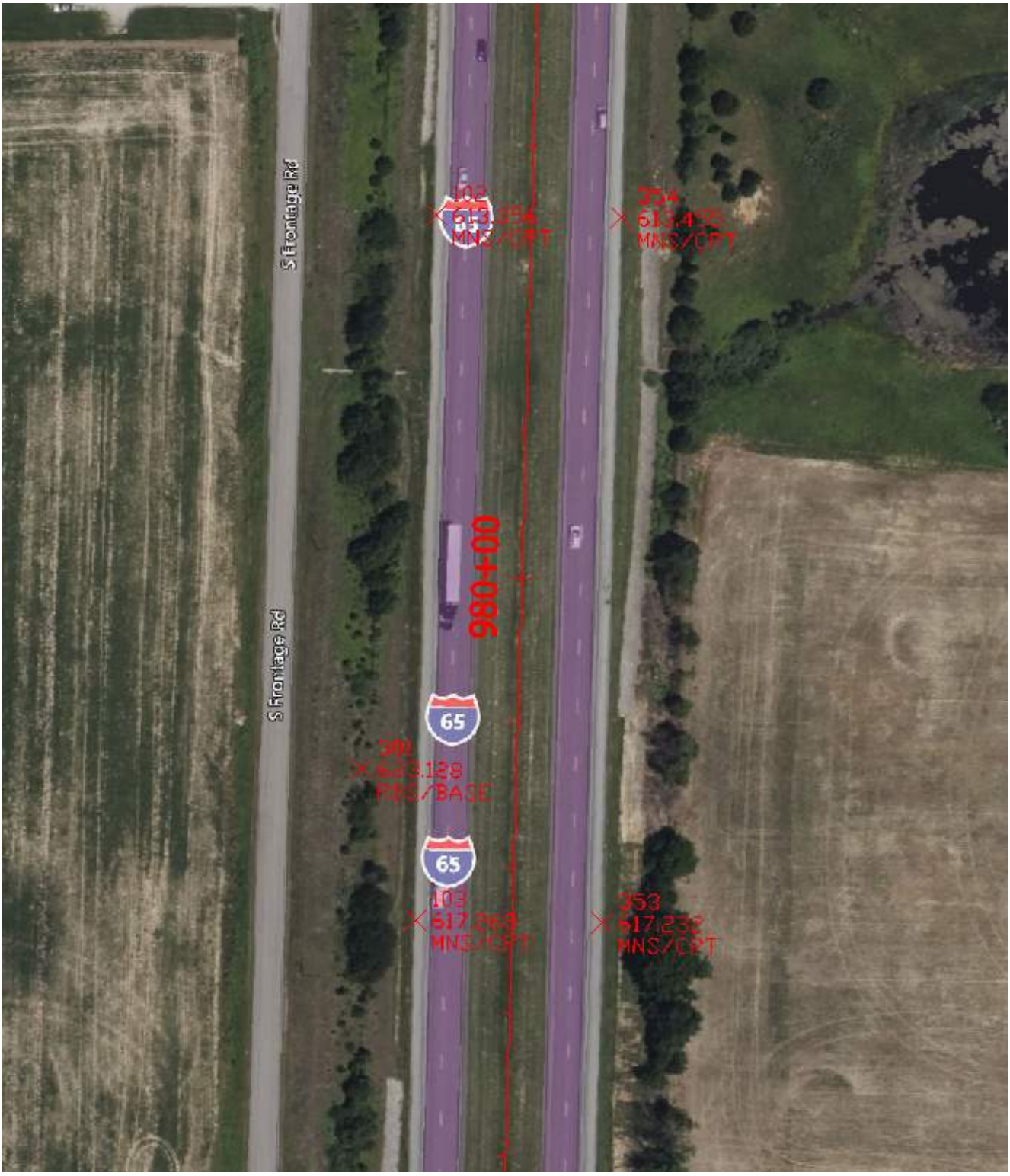

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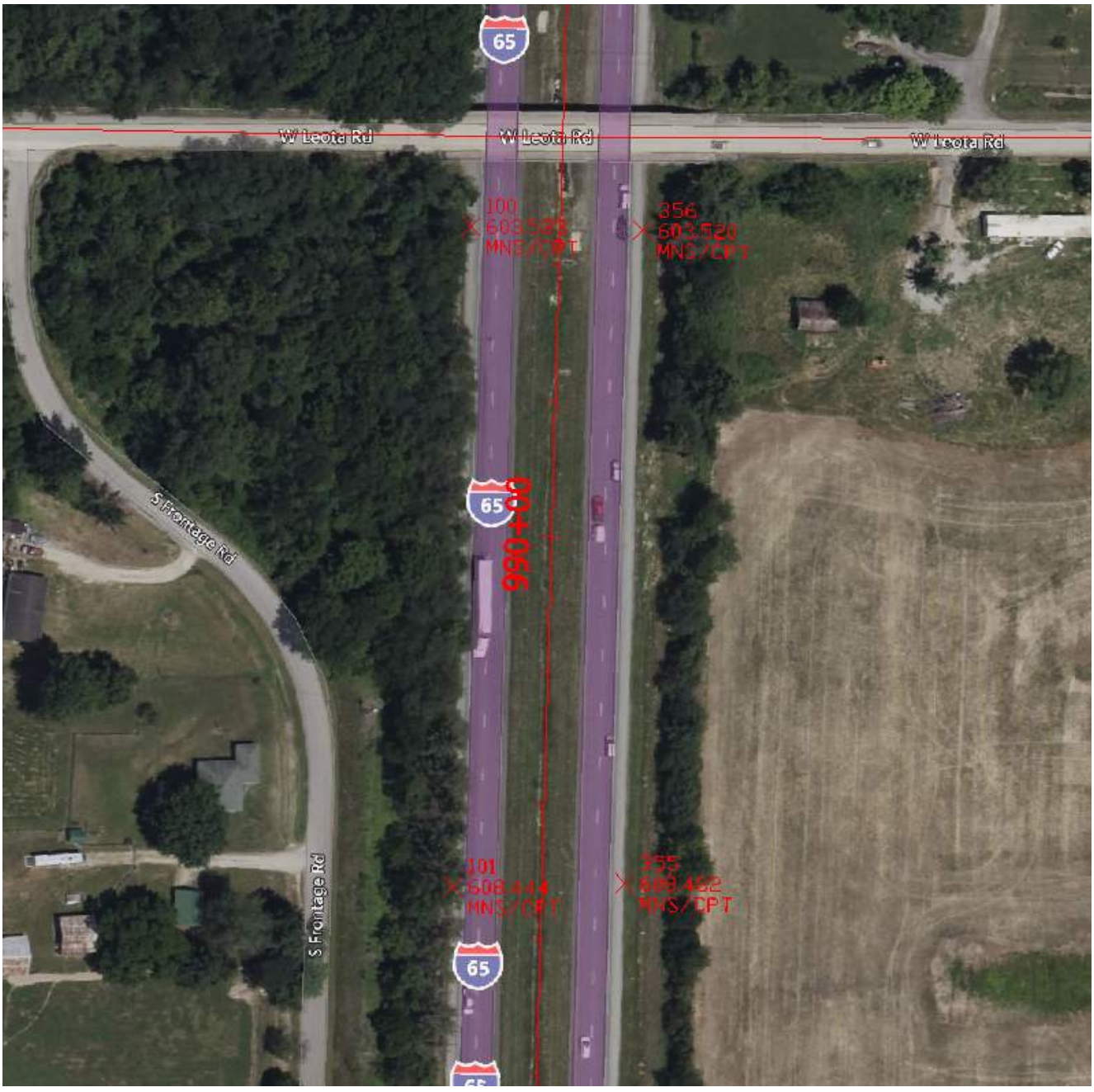

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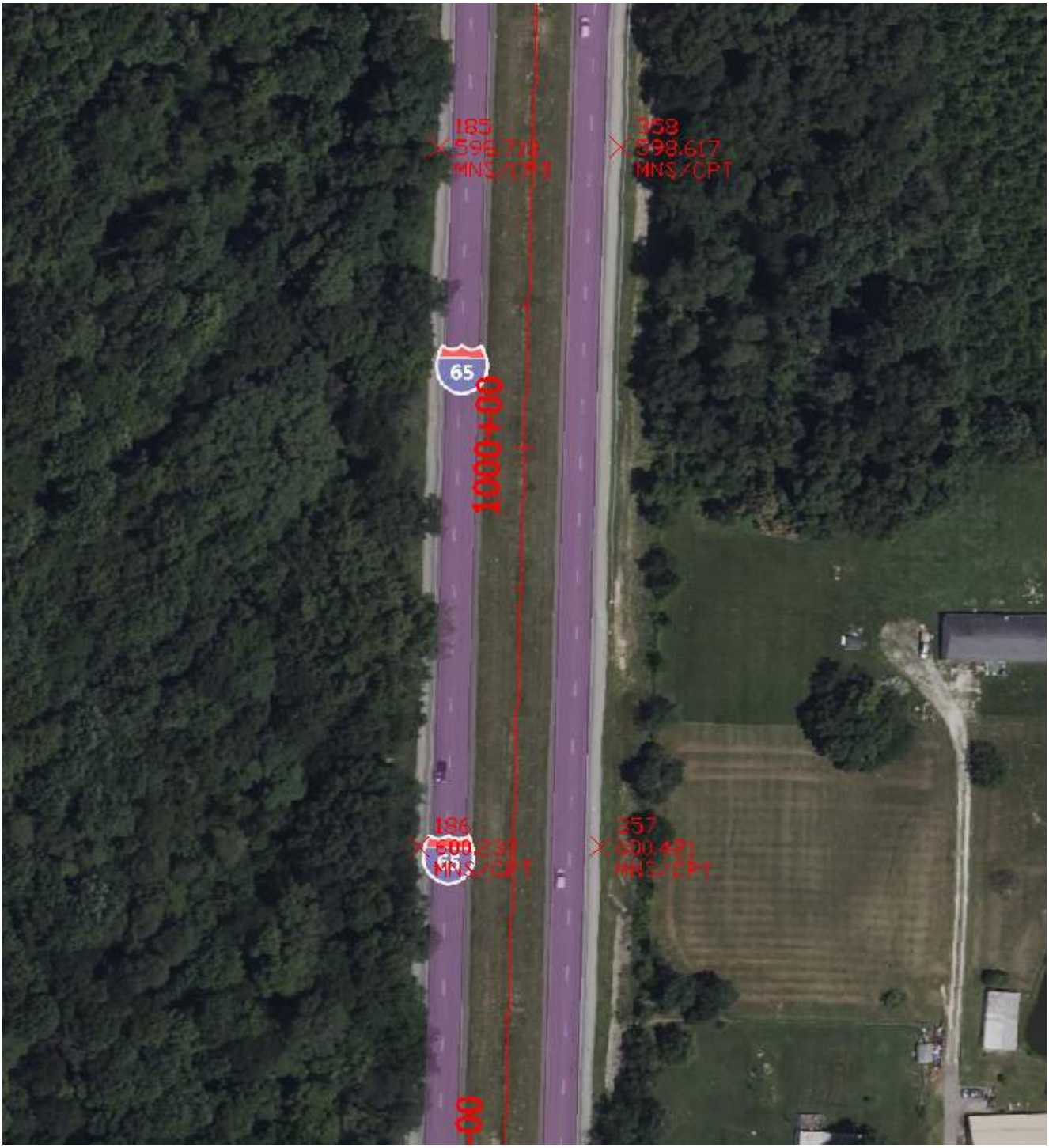

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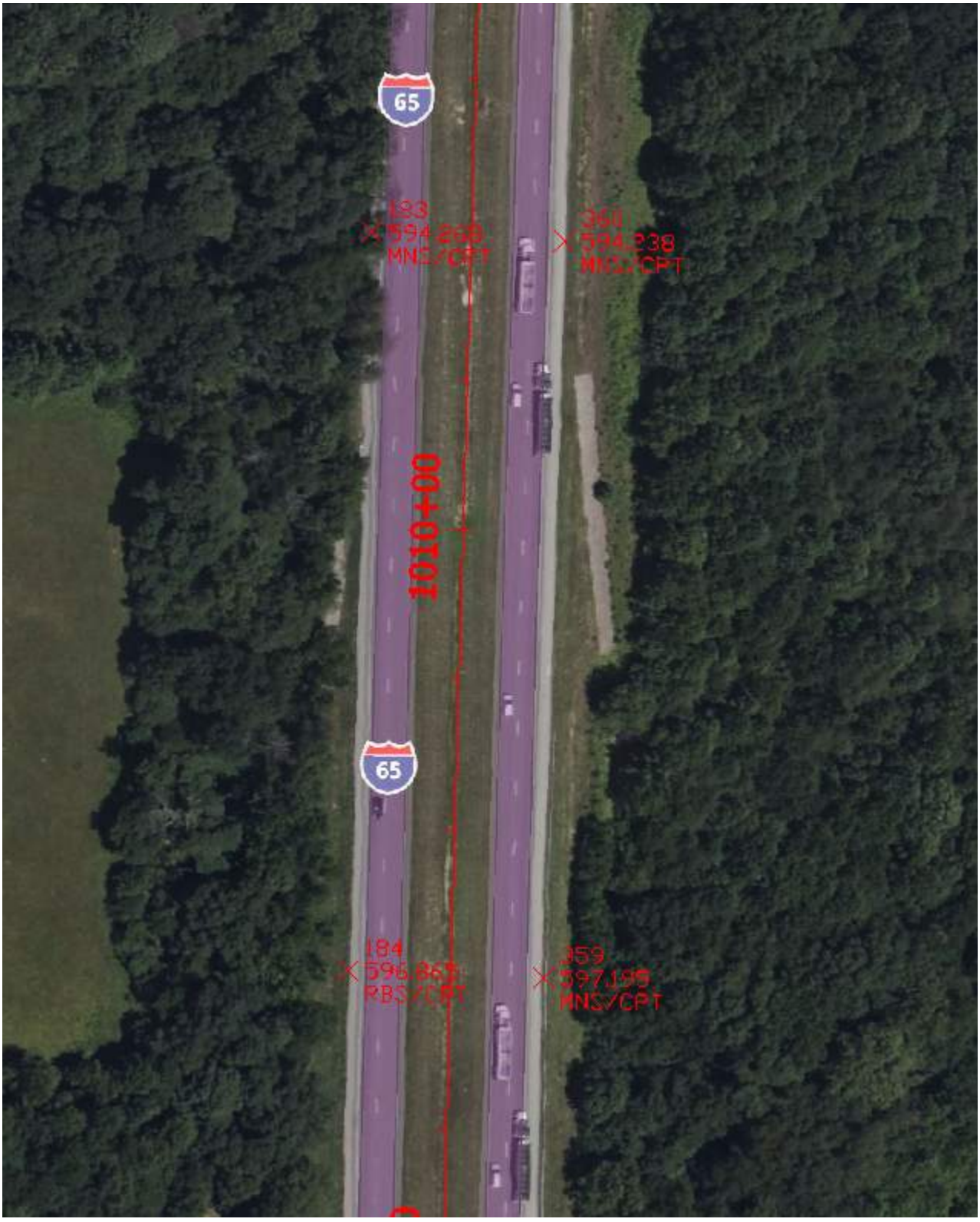

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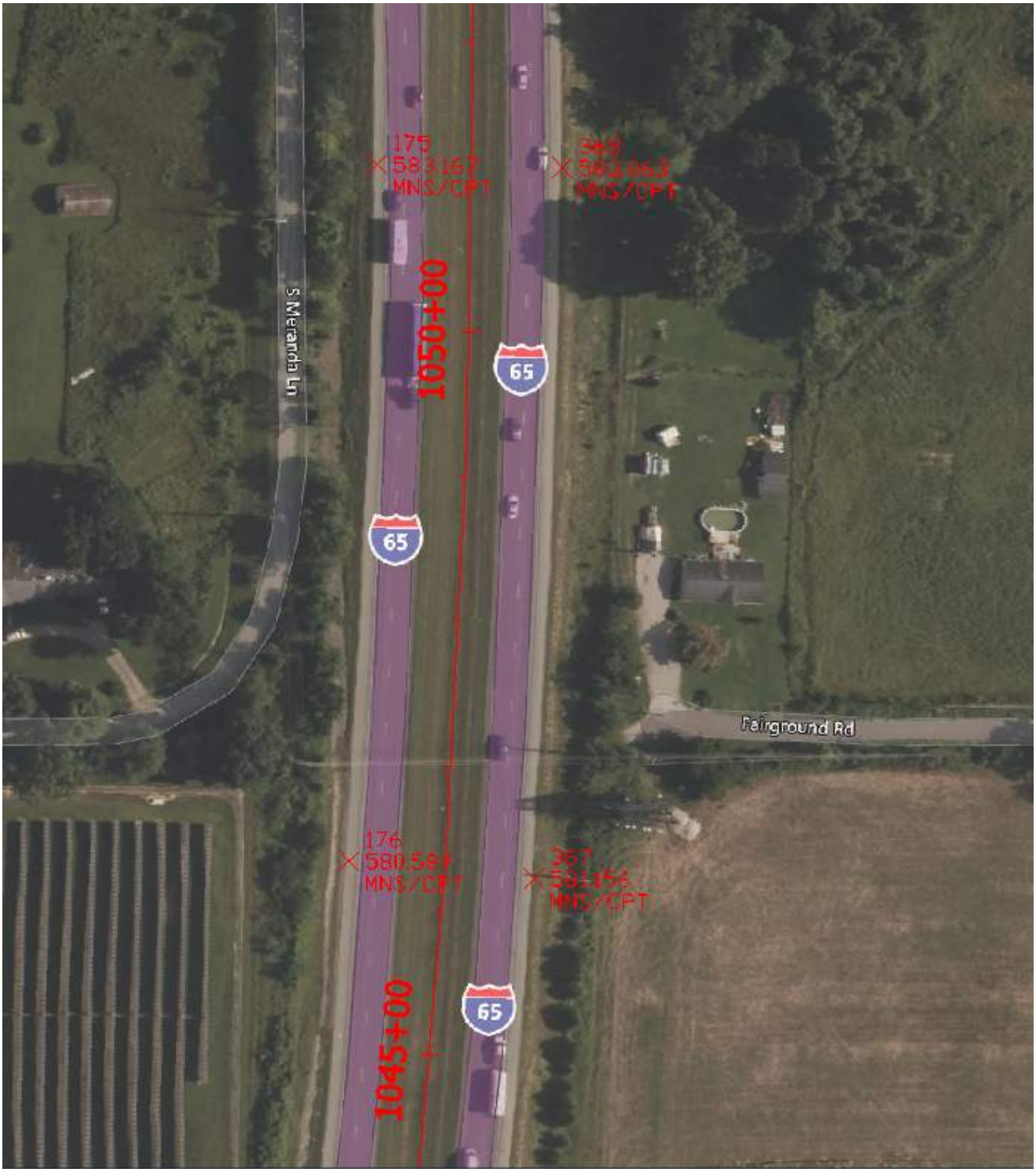

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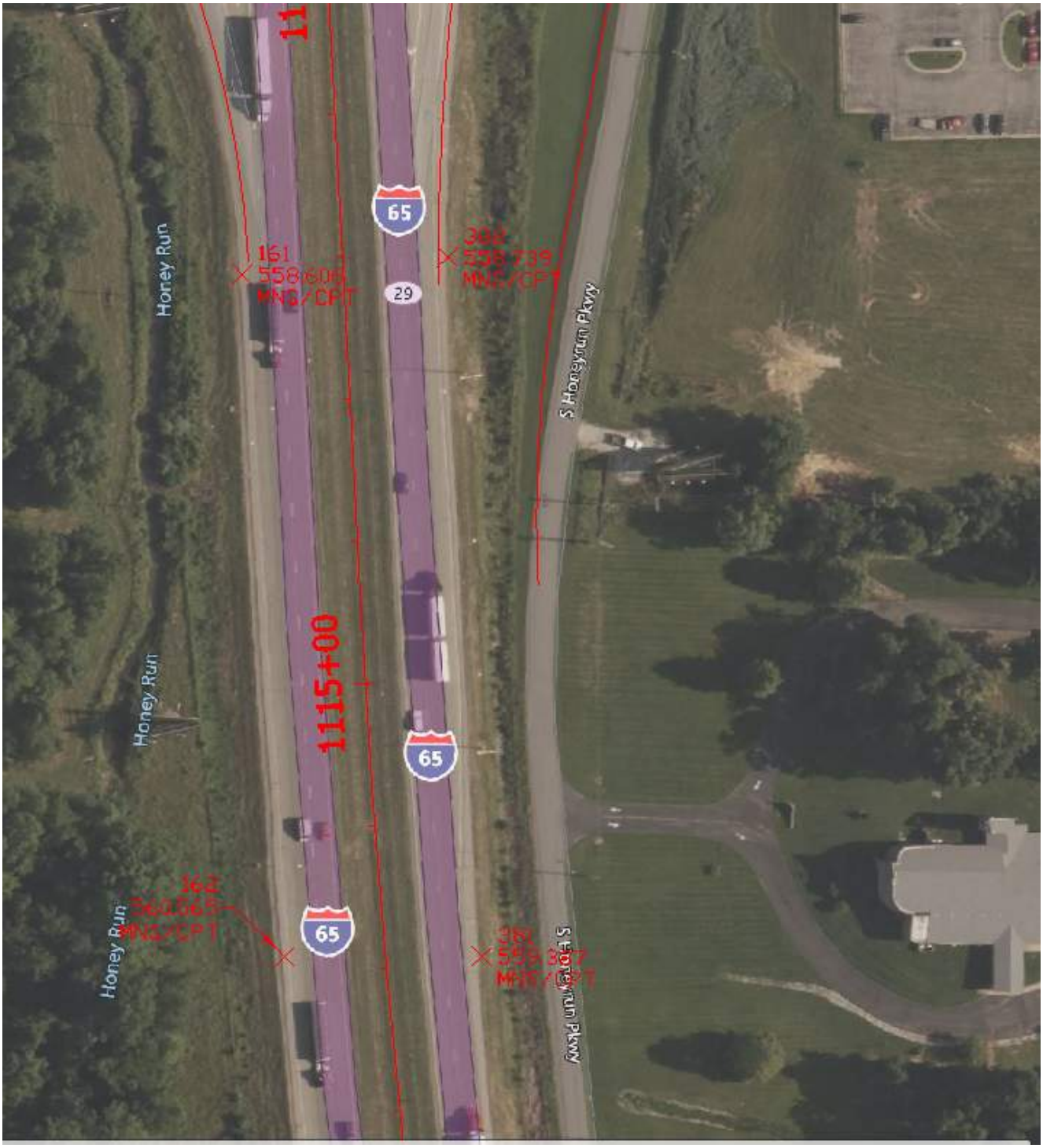

Attachment 4-1



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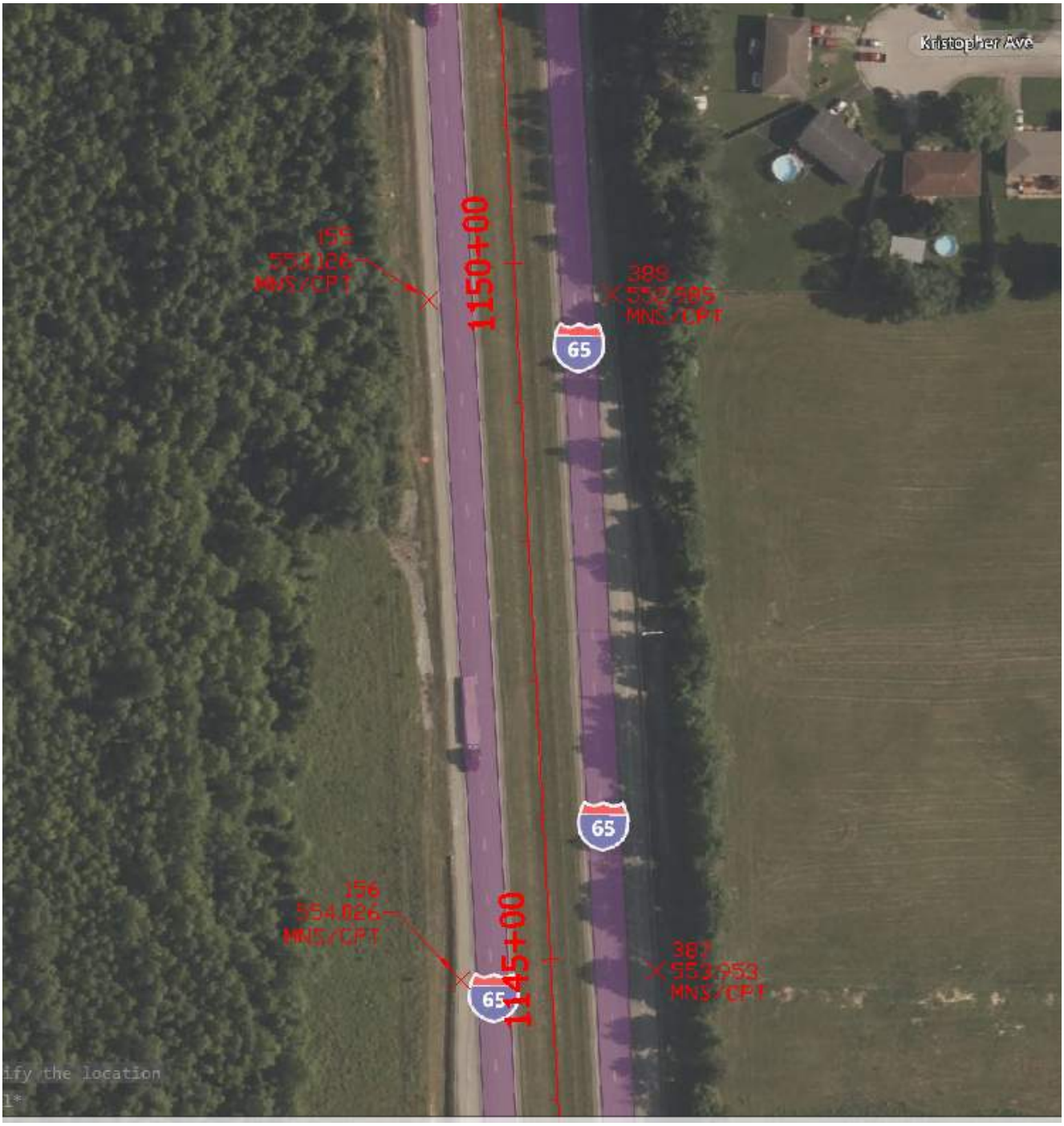
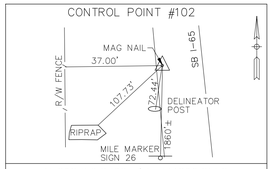


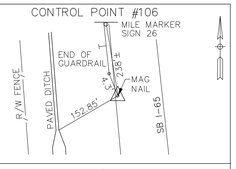
Attachment 4-1

CONTROL POINT #102



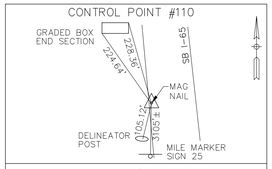
N: 298752.8302 / E: 734860.8558

CONTROL POINT #106



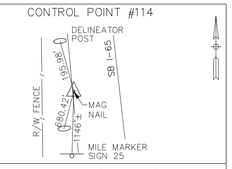
N: 296654.6783 / E: 734832.2544

CONTROL POINT #110



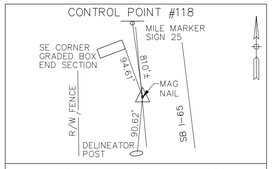
N: 294696.9322 / E: 734803.5504

CONTROL POINT #114



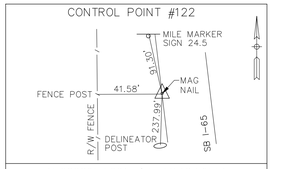
N: 292737.8282 / E: 734776.1631

CONTROL POINT #118



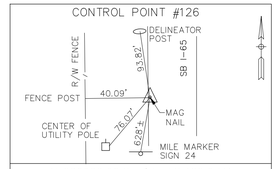
N: 290781.4221 / E: 734768.3666

CONTROL POINT #122



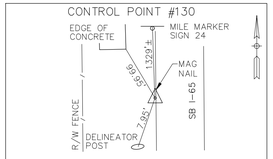
N: 288895.5221 / E: 735183.9551

CONTROL POINT #126



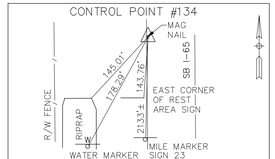
N: 286962.9035 / E: 735482.6741

CONTROL POINT #130



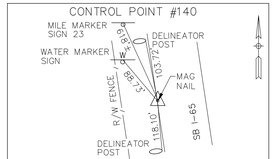
N: 285004.7806 / E: 735475.4807

CONTROL POINT #134



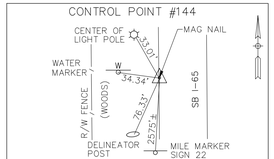
N: 283047.4321 / E: 735534.4139

CONTROL POINT #140



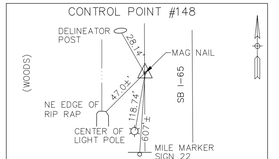
N: 280367.3654 / E: 736155.7975

CONTROL POINT #144



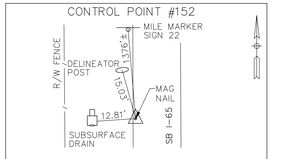
N: 278424.2342 / E: 736210.3268

CONTROL POINT #148



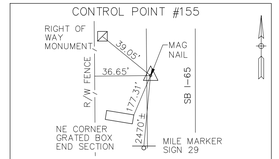
N: 276456.4096 / E: 736207.6022

CONTROL POINT #152



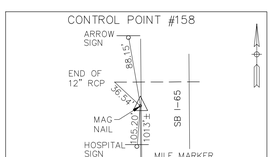
N: 274473.0841 / E: 736215.6328

CONTROL POINT #155



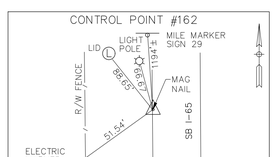
N: 315212.6145 / E: 733514.0976

CONTROL POINT #158



N: 313759.1298 / E: 733609.8731

CONTROL POINT #162



N: 311555.0883 / E: 733754.4156

CONTROL POINT #166



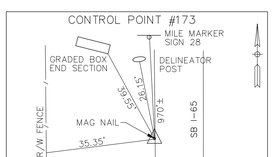
N: 309695.5234 / E: 734200.1698

CONTROL POINT #170



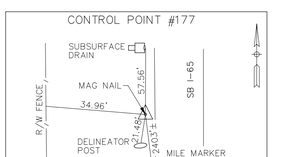
N: 307980.0492 / E: 734892.1508

CONTROL POINT #173



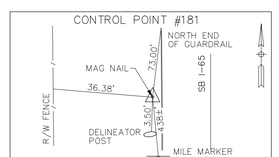
N: 306556.9204 / E: 735203.1059

CONTROL POINT #177



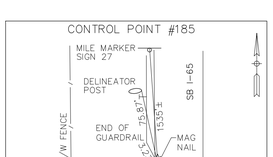
N: 304632.7826 / E: 735211.2574

CONTROL POINT #181



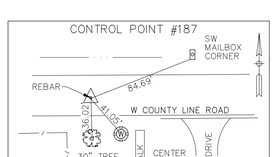
N: 302685.1037 / E: 734940.6833

CONTROL POINT #185



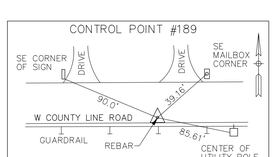
N: 300712.8094 / E: 734888.6120

CONTROL POINT #187



N: 283874.7566 / E: 734879.4071

CONTROL POINT #189



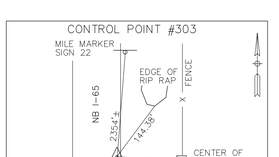
N: 283898.1979 / E: 736026.6114

CONTROL POINT #300



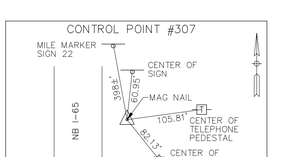
N: 281903.7544 / E: 735733.7090

CONTROL POINT #303



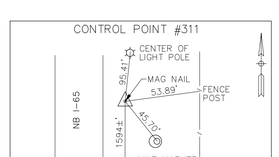
N: 273490.8030 / E: 736341.1383

CONTROL POINT #307



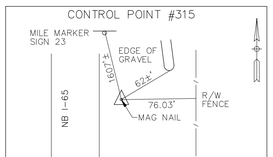
N: 275447.8290 / E: 736369.2208

CONTROL POINT #311



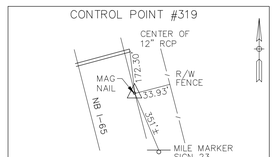
N: 277439.7075 / E: 736360.0711

CONTROL POINT #315



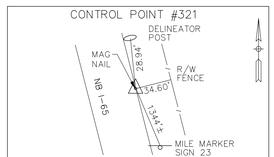
N: 279407.8493 / E: 736351.1159

CONTROL POINT #319



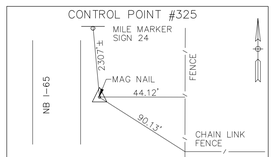
N: 281343.7050 / E: 736074.4328

CONTROL POINT #321



N: 282306.6941 / E: 735830.9636

CONTROL POINT #325



N: 284023.7670 / E: 735598.8287

CONTROL POINT #329



N: 285984.9174 / E: 735608.8662

CONTROL POINT #333



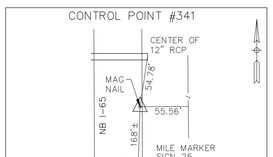
N: 287961.3762 / E: 735522.0348

CONTROL POINT #337



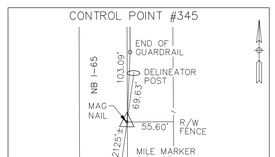
N: 289829.3693 / E: 735042.5870

CONTROL POINT #341



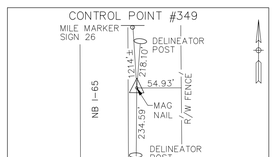
N: 291760.4168 / E: 734890.1772

CONTROL POINT #345



N: 293717.9663 / E: 734918.1037

CONTROL POINT #349



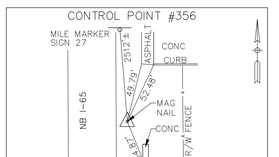
N: 295678.0952 / E: 734945.9045

CONTROL POINT #352



N: 297773.5566 / E: 734978.0519

CONTROL POINT #356



N: 299730.1101 / E: 735002.2859

CONTROL POINT #360

N: 301694.0027 / E: 735030.1730

CONTROL POINT #364

N: 303642.3685 / E: 735191.2842

CONTROL POINT #368

N: 305594.4032 / E: 735392.5062

CONTROL POINT #372

N: 307544.6813 / E: 735149.8369

CONTROL POINT #375

N: 308935.8876 / E: 734670.4658

CONTROL POINT #379

N: 310639.0132 / E: 734043.6253

CONTROL POINT #383

N: 312523.0700 / E: 733819.8641

CONTROL POINT #387

N: 314733.9988 / E: 733683.8425

CONTROL POINT #412

N: 321168.3697' / E: 731788.2575'

CONTROL POINT #413

N: 320499.9830' / E: 732097.3391'

CONTROL POINT #414

N: 320049.5325' / E: 732306.2202'

CONTROL POINT #416

N: 319143.0817' / E: 732707.3019'

CONTROL POINT #418

N: 318183.7347' / E: 733037.9353'

CONTROL POINT #420

N: 317194.6182' / E: 733283.6567'

CONTROL POINT #422

N: 316205.5118' / E: 733437.0974'

CONTROL POINT #557512

N: 321765.4560' / E: 731590.8470'

LEVEL NOTES

Attachment 4-1

BENCHMARK INFORMATION (NAVD 88 DATUM)

BENCHMARK ELEVATIONS WERE ESTABLISHED FROM GPS OBSERVATIONS ON THE IDENTIFIED BASE STATION DESCRIBED WITHIN. AN NGS OPUS SOLUTION (FILE #03910280) WAS OBTAINED AND USED TO CONTROL THE PROJECT'S VERTICAL DATUM. THE ELEVATIONS WERE THEN TRANSFERRED TO THE SITE USING DIFFERENTIAL LEVELING.

TBM #300

REBAR IN GRASS 15'± WEST OF CENTERLINE OF COUNTRY LAKE ROAD, 650'± SSE OF CENTERLINE OF GAS SUBSTATION GRAVEL DRIVE.

ELEV:650.59'

TBM #1

MAG SPIKE WSW SIDE POWER POLE #305-51-0003, 20'± EAST OF CENTERLINE OF COUNTRY LAKE ROAD, 570'± SSE OF CENTERLINE OF GAS SUBSTATION GRAVEL DRIVE.

ELEV:651.87'

TBM #2

CUT "X" SET ON SE BOLT OF EAST POST OF "EXIT 29A" SIGN, 75'± NORTH OF POINT 155.

ELEV:551.35'

TBM #3

CUT SQUARE SET IN EAST SIDE OF CONCRETE LP BASE, AT END OF OFF RAMP TO SR 56, AT POINT 157.

ELEV:553.63'

TBM #4

CUT "X" SET ON SE BOLT OF "EXIT 29" CANTILEVER SIGN, AT NORTH SIDE OF SR 56 OVERPASS BRIDGE.

ELEV:555.05'

TBM #5

CUT SQUARE SET IN EAST SIDE OF CONCRETE LP BASE, AT END OF ON RAMP FROM SR 56, BETWEEN POINTS 161 AND 162.

ELEV:557.73'

TBM #6

CUT "X" SET IN CONCRETE BASE OF R/W CORNER POST, BETWEEN POINTS 164 AND 165.

ELEV:566.28'

TBM #7

CUT "X" SET ON SE BOLT OF EAST POST OF SIGN, 250'± NORTH OF LAKE ROAD OVERPASS, BETWEEN POINTS 169 AND 170.

ELEV:583.48'

TBM #8

CUT "X" SET ON NE BOLT OF EAST POST OF "TRUCK" SIGN, BETWEEN POINTS 172 AND 173.

ELEV:583.65'

TBM #9

CUT "X" SET ON TOP OF SECOND FROM NORTH METAL GUARD RAIL POST, BETWEEN POINTS 352 AND 353.

ELEV:620.30'

TBM #10

CUT SQUARE SET ON SW CORNER OF CONCRETE GRATED BOX END SECTION, 100'± SOUTH OF LEOTA ROAD BRIDGE OVERPASS, AT POINT 356.

ELEV:601.55'

TBM #11

CUT "X" SET ON SW BOLT OF WEST POST OF "FOOD AND GAS" SIGN, AT POINT 363.

ELEV:583.10'

TBM #12

CUT "X" SET ON NW BOLT OF WEST POST OF "FOOD INFO" SIGN, AT POINT 367.

ELEV:576.63'

TBM #13

CUT "X" SET ON SW BOLT OF WEST POST OF "EXIT 29" SIGN, BETWEEN POINTS 379 AND 380.

ELEV:559.12'

TBM #14

CUT "X" SET ON TOP OF FIRST METAL GUARD RAIL POST FROM NORTH, BETWEEN POINTS 183 AND 184.

ELEV:597.94'

TBM #15

CUT SQUARE ON NE CORNER OF CONCRETE GRATED BOX END SECTION, BETWEEN POINTS 109 AND 110.

ELEV:588.75'

TBM #16

MAG SPIKE IN S FACE OF 6 INCH TREE, BETWEEN POINT 116 AND 117.

ELEV:600.91'

TBM #17

CUT SQUARE ON NE CORNER OF CONCRETE GRATED BOX END SECTION, BETWEEN POINTS 118 AND 119.

ELEV:592.37'

TBM #18

BRASS INDOT DISK MARKED "S-45", IN SW CORNER OF BRIDGE ABUTMENT OF THE SOUTH BOUND BRIDGE OVER PIGEON ROOST CREEK.

ELEV:590.08'

TBM #19

CUT "X" ON SE BOLT OF E POST OF "REST ARES 2 MILES" SIGN, BETWEEN POINTS 123 AND 124.

ELEV:587.81'

TBM #20

MAG SPIKE IN E FACE POWER POLE (NO #), BETWEEN POINTS 126 AND 127.

ELEV:612.50'

TBM #21

CUT SQUARE ON SE CORNER OF CONCRETE PAVED SIDE DITCH, BETWEEN POINTS 129 AND 130.

ELEV:625.38'

TBM #22

CUT "X" ON SE BOLT OF E POST OF "REST AREA 1 MILE" SIGN, BETWEEN POINTS 134 AND 135.

ELEV:638.52'

TBM #23

CUT SQUARE SET IN TOP OF HEADWALL, 70'± SOUTH OF COUNTY LINE ROAD OVERPASS, BETWEEN POINTS 324 AND 325.

ELEV:627.69'

TBM #24

MAG SPIKE IN W FACE OF 26 INCH TREE, BETWEEN POINTS 343 AND 344.

ELEV:610.41'

TBM #25

CUT "X" SET ON TOP OF THIRD METAL GUARD RAIL POST FROM SOUTH, NORTH OF POINT 345.

ELEV:597.71'

TBM #26

CUT "X" SET ON TOP OF FIRST METAL GUARD RAIL POST FROM SOUTH, NORTH OF POINT 350.

ELEV:614.47'

TBM #27

CUT SQUARE SET ON NE SIDE OF CONCRETE LP BASE (10-65-SR-23-2), AT POINT 144.

ELEV:609.74'

TBM #28

CUT "X" SET ON SW BOLT OF WEST POST OF "REST AREA" SIGN, AT POINT 305.

ELEV:612.82'

TBM #29

CUT SQUARE SET ON WEST SIDE OF EAST CONCRETE BASE OF "REST AREA" SIGN, AT THE OFF RAMP SPLIT , BETWEEN 307 AND 308.

ELEV:614.79'

TBM #30

CUT SQUARE SET ON SW SIDE OF CONCRETE LP BASE (10-65-NR-22-22), BETWEEN POINTS 311 AND 312.

ELEV:615.40'

TBM #31

CUT "X" SET SW BOLT OF WEST POST OF "TRUCK" SIGN, BETWEEN POINTS 316 AND 317.

ELEV:629.20'

TBM #51

CUT "X" SET ON FIRST METAL GUARD RAIL POST FROM SOUTH, AT POINT 303.

ELEV:612.55'

TBM #60

CUT "X" ON BOLT OF EAST LEG OF "EXIT 29B 1/2 MILE", LOCATED ±15' WEST OF THE SOUTHBOUND I-65 SHOULDER.

ELEV:546.46'

TBM #61

CUT "X" ON THE SOUTHEAST BOLT OF EAST POST OF "SERVICES 29A/29B" SIGN, LOCATED ±20' WEST OF THE SOUTHBOUND I-65 SHOULDER.

ELEV:549.04

TBM #62

CUT "X" ON SOUTHEAST BOLT OF EAST POST OF "FOOD EXIT 29B" SIGN, LOCATED ±20' WEST OF SOUTHBOUND I-65 SHOULDER.

ELEV:557.47'

TBM #63

CUT "X" ON SOUTHEAST BOLT OF EAST POST OF "SCOTTSBURG 1 MILE" SIGN, LOCATED ±15' WEST OF SOUTHBOUND I-65 SHOULDER.

ELEV:548.39'

TBM #64

CUT "SQUARE" ON ASPHALT WALK PATH, LOCATED ±25' WEST OF SOUTHBOUND I-65 SHOULDER AND ±110' SOUTHWEST OF MOONGLO ROAD BRIDGE.

ELEV:536.87'

STA	+	HI	-	ELEV	DESIGN	
BASE 300	5.807	656.397			650.590	RBS in grass +/- 15' West of CL of Country Lake Road, +/- 650' SSE of CL of Gas substation gravel drive 38.59960611N/85.78077291W
TBM 1	4.640	656.512	4.525	651.872		MSS WSW side PWP #305-51-0003, +/- 20' East of CL of Country Lake Road, +/- 570' SSE of CL of Gas substation gravel drive. 38.59985463N/85.78075037W
BASE 300			5.925	650.587	650.590	
					-0.003	

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STA	+	HI	-	ELEV	DESIGN	
TBM 1	4.488	656.360			651.872	MSS WSW side PWP #305-51-0003, +/- 20' East of CL of Country Lake Road, +/- 570' SSE of CL of Gas substation gravel drive. 38.59985463N/85.78075037W
0	4.742	654.409	6.693	649.667		
CPT 136	3.396	651.062	6.743	647.666		
CPT 135	3.379	647.145	7.296	643.766		
TBM 22	6.018	644.535	8.628	638.517		Cut "X" on SE bolt of E post of "Rest Area 1 Mile" sign, Between points 134 and 135 38.60234901N/85.78142875W
CPT 134	2.457	640.937	6.055	638.480		
CPT 133	3.705	637.312	7.330	633.607		
CPT 132	4.510	635.138	6.684	630.628		
CPT 131	4.391	633.575	5.954	629.184		
CPT 130	5.015	632.608	5.982	627.593		
TBM 21	6.477	631.857	7.228	625.380		Cut square on SE corner of concrete paved side ditch, Between points 129 and 130 38.60839445N/85.78171977W
CPT 129	4.203	630.183	5.877	625.980		
CPT 128	2.577	626.437	6.323	623.860		
CPT 127	1.078	619.408	8.107	618.330		
CPT 126	6.214	616.212	9.410	609.998		
TBM 20	3.699	616.200	3.711	612.501		MSS in E face PWP (no #), Between points 126 and 127 38.61330903N/85.78180611W
0	0.807	610.805	6.202	609.998		
CPT 125	1.715	603.279	9.241	601.564		
0	4.424	598.940	8.763	594.516		
CPT 124	3.438	596.583	5.795	593.145		
TBM 19	6.558	594.370	8.771	587.812		Cut "X" on SE bolt of E post of "Rest Ares 2 Miles" sign, Between points 123 and 124 38.61671607N/85.78214983W
CPT 123	5.058	593.558	5.870	588.500		
CPT 122	5.800	594.743	4.615	588.943		

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TBM 18	4.666	594.742	4.667	590.076	590.076	Brass INDOT disk marked "S-45", in SW corner of Bridge abutment of the south bound bridge over Pigeon Roost Creek. 38.61975055N/85.78312518W
CPT 335	4.595	594.465	4.872	589.870		
CPT 334	6.641	596.037	5.069	589.396		
CPT 333	9.028	603.079	1.986	594.051		
CPT 332	9.181	611.622	0.638	602.441		
CPT 331	8.561	619.486	0.697	610.925		
CPT 330	8.207	626.545	1.148	618.338		
CPT 329	6.689	630.433	2.801	623.744		
CPT 328	5.954	631.802	4.585	625.848		
CPT 327	5.819	633.410	4.211	627.591		
CPT 326	5.946	634.975	4.381	629.029		
CPT 325	5.168	635.594	4.549	630.426		
TBM 23	8.527	636.217	7.904	627.690		Cut square set in top of Headwall, +/- 70' south of County Line Road overpass, Between points 324 and 325 38.60489196N/85.78122028W
CPT 324	7.038	639.344	3.911	632.306		
CPT 323	8.342	645.446	2.240	637.104		
CPT 322	8.002	650.799	2.649	642.797		
CPT 321	7.987	655.571	3.215	647.584		
TBM 1			3.701	651.870	651.872 -0.002	

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STA	+	HI	-	ELEV	DESIGN	
TBM 18	6.576	596.652			590.076	Brass INDOT disk marked "S-45", in SW corner of Bridge abutment of the south bound bridge over Pigeon Roost Creek. 38.61975055N/85.78312518W
CPT 121	7.228	597.236	6.644	590.008		
CPT 120	6.059	598.998	4.297	592.939		
CPT 119	5.239	599.943	4.294	594.704		
TBM 17	8.929	601.302	7.570	592.373		Cut square on NE corner of concrete grated box end section, between points 118 and 119 38.62319759N/85.78417605W
CPT 118	7.013	605.057	3.258	598.044		
CPT 117	7.087	609.439	2.705	602.352		
CPT 116	2.100	608.808	2.731	606.708		
TBM 16	7.894	608.806	7.896	600.912		MSS in S face of 6 inch tree, between point 116 and 117 38.62601831N/85.78443073W
0	7.122	613.828	2.100	606.706		
CPT 115	5.181	615.267	3.742	610.086		
CPT 114	3.040	612.242	6.065	609.202		
CPT 113	1.407	605.696	7.953	604.289		
CPT 112	1.566	598.931	8.331	597.365		
CPT 111	4.517	595.399	8.049	590.882		
CPT 110	6.529	598.254	3.674	591.725		
TBM 15	11.569	600.320	9.503	588.751		Cut square on NE corner of concrete grated box end section, between points 109 and 110 38.63535322N/85.78416813W
CPT 109	8.267	606.567	2.020	598.300		
CPT 108	8.185	613.291	1.461	605.106		
CPT 107	6.979	617.901	2.369	610.922		
CPT 106	5.761	619.656	4.006	613.895		
CPT 105	4.442	619.877	4.221	615.435	615.435	
CPT 351	4.477	618.236	6.118	613.759		

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TBM 26	2.425	616.894	3.767	614.469	Cut "X" set on top of first metal guard rail post from South, North of point 350 38.63910583N/85.78359284W
CPT 350	2.315	613.500	5.709	611.185	
CPT 349	1.796	606.910	8.386	605.114	
CPT 348	1.322	599.611	8.621	598.289	
CPT 347	3.693	595.392	7.912	591.699	
CPT 346	7.809	598.481	4.720	590.672	
TBM 25	3.767	601.475	0.773	597.708	Cut "X" set on top of third metal guard rail post from South, North of point 345 38.63235811N/85.78369624W
CPT 345	8.371	605.704	4.142	597.333	
CPT 344	7.804	612.049	1.459	604.245	
CPT 343	4.703	613.788	2.964	609.085	
TBM 24	3.429	613.843	3.374	610.414	MSS in W face of 26 inch tree, between points 343 and 344 38.62967147N/85.78363914W
0	6.022	615.107	4.758	609.085	
CPT 342	4.386	614.330	5.163	609.944	
CPT 341	2.684	609.288	7.726	606.604	
CPT 340	2.231	603.794	7.725	601.563	
CPT 339	2.903	599.549	7.148	596.646	
CPT 338	4.217	597.638	6.128	593.421	
CPT 337	4.116	595.751	6.003	591.635	
CPT 336	5.840	595.951	5.640	590.111	
TBM 18			5.883	590.068	590.076 -0.008

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STA	+	HI	-	ELEV	DESIGN	
CPT 105	6.543	621.978			615.435	
CPT 104	5.465	622.903	4.540	617.438		
CPT 103	3.682	620.950	5.635	617.268	617.268	
CPT 102	2.803	616.159	7.594	613.356		
CPT 101	2.720	611.164	7.715	608.444		
CPT 100	3.248	606.771	7.641	603.523		
CPT 186	4.310	604.542	6.539	600.232		
CPT 185	4.355	603.073	5.824	598.718		
CPT 184	4.761	601.626	6.208	596.865		
TBM 14	2.481	600.421	3.686	597.940		Cut "X" set on top of first metal guard rail post from North, between points 183 and 184 38.65341786N/85.78383534W
CPT 183	3.311	597.579	6.153	594.268		
CPT 182	3.069	592.647	8.001	589.578		
CPT 181	3.761	588.765	7.643	585.004		
CPT 180	3.618	585.414	6.969	581.796		
CPT 179	3.935	582.122	7.227	578.187		
CPT 178	5.339	581.784	5.677	576.445		
CPT 177	6.739	584.391	4.132	577.652		
CPT 176	3.174	583.761	3.804	580.587	580.587	
CPT 367	5.013	586.169	2.605	581.156		
TBM 12	9.459	586.087	9.541	576.628		Cut "X" set on NW bolt of West post of "Food Info" sign, at point 367 38.66330801N/85.78211258W
0	3.710	584.867	4.930	581.157		
CPT 366	4.127	582.387	6.607	578.260		
CPT 365	5.611	582.012	5.986	576.401		

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CPT 364	6.562	584.784	3.790	578.222		
CPT 363	5.734	587.007	3.511	581.273		
TBM 11	4.977	588.074	3.910	583.097		Cut "X" set on SW bolt of West post of "Food and Gas" sign, at point 363 38.65788591N/85.78302309W
CPT 362	7.366	592.173	3.267	584.807		
CPT 361	7.931	597.309	2.795	589.378		
CPT 360	6.989	601.227	3.071	594.238		
CPT 359	5.887	603.082	4.032	597.195		
CPT 358	6.037	604.654	4.465	598.617		
CPT 357	6.592	607.013	4.233	600.421		
CPT 356	5.453	608.973	3.493	603.520		
TBM 10	9.414	610.964	7.423	601.550		Cut Square set on SW corner of concrete grated box end section, +/100' South of Leota Road bridge overpass, at point 356 38.64845889N/85.78341064W
CPT 355	7.558	616.040	2.482	608.482		
CPT 354	7.353	620.808	2.585	613.455		
CPT 353	5.467	622.699	3.576	617.232		
TBM 9	2.678	622.973	2.404	620.295		Cut "X" set on top of second from North metal guard rail post, between points 352 and 353 38.64389133N/85.78351889W
CPT 352	5.239	621.883	6.329	616.644		
CPT 105			6.422	615.461	615.435 0.026	

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STA	+	HI	-	ELEV	DESIGN	
CPT 103	7.375	624.643			617.268	
BASE 301	1.493	624.621	1.515	623.128		RBS in grass, +/- 70' East of CL of County Road 50 W, +/- 6' West of R/W Fence, +/- 550' South of CL Res drive #3177 38.64480957N/85.7841046W
CPT 103			7.353	617.268	617.268	
					0.000	

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STA	+	HI	-	ELEV	DESIGN	
CPT 176	6.357	586.944			580.587	
CPT 175	6.675	589.842	3.777	583.167		
CPT 174	5.556	591.603	3.795	586.047		
CPT 173	4.585	590.756	5.432	586.171		
TBM 8	5.941	589.59	7.107	583.649		Cut "X" set on NE bolt of East post of "Truck" sign, between points 172 and 173 38.66795895N/85.78299499W
CPT 172	4.003	587.915	5.678	583.912		
CPT 171	4.05	586.191	5.774	582.141		
CPT 170	5.096	586.203	5.084	581.107		
TBM 7	2.382	585.864	2.721	583.482		Cut "X" set on SE bolt of East post of sign, +/-250' North of Lake Road overpass, between points 169 and 170 38.67153793N/85.7841043W
0	4.713	585.394	5.183	580.681		
CPT 169	4.165	584.136	5.423	579.971		
CPT 168	4.38	582.637	5.879	578.257		
CPT 167	3.715	581.202	5.15	577.487		
CPT 166	2.805	577.44	6.567	574.635		
CPT 165	3.784	573.774	7.45	569.99		
TBM 6	5.253	571.534	7.493	566.281		Cut "X" set in concrete base of R/W corner post, between points 164 and 165 38.67768151N/85.7872125W
CPT 164	3.112	568.296	6.35	565.184		
CPT 163	4.119	565.801	6.614	561.682		
CPT 162	4.679	565.244	5.236	560.565		
TBM 5	6.187	563.921	7.51	557.734		Cut Square set in East side of concrete LP base, at end of on ramp from SR 56, between points 161 and 162 38.68206048N/85.7880528W
CPT 161	5.08	563.686	5.315	558.606		
CPT 160	4.145	562.015	5.816	557.87		
CPT 159	4.163	559.623	6.555	555.46		

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TBM 4	5.374	560.419	4.578	555.045	Cut "X" set on SE bolt of "Exit 29" cantilever sign, at north side of SR 56 overpass bridge 38.68565597N/85.78836381W
CPT 158	4.981	560.427	4.973	555.446	
TBM 3	6.538	560.165	6.8	553.627	Cut Square set in East side of concrete LP base, at end of off ramp to SR 56, at point 157 38.68826098N/85.78861892W
CPT 157	4.692	559.339	5.518	554.647	
CPT 156	4.657	558.683	5.313	554.026	
CPT 155	4.949	558.075	5.557	553.126	
TBM 2	6.864	558.215	6.724	551.351	Cut "X" set on SE bolt of East post of "Exit 29A" sign, +/-75' North of point 155 38.69125226N/85.78886632W
CPT 388	5.283	558.268	5.23	552.985	
CPT 387	5.515	559.468	4.315	553.953	
CPT 386	5.885	560.548	4.805	554.663	
CPT 385	4.903	560.283	5.168	555.38	
0	5.441	560.293	5.431	554.852	
CPT 384	6.646	561.965	4.974	555.319	
CPT 383	5.787	563.635	4.117	557.848	
CPT 382	5.229	563.968	4.896	558.739	
CPT 381	5.825	565.212	4.581	559.387	
CPT 380	5.551	566.638	4.125	561.087	
TBM 13	8.957	568.076	7.519	559.119	Cut "X" set on SW bolt of West post of "Exit 29" sign, between points 379 and 380 38.67893387N/85.78695043W
CPT 379	7.401	571.705	3.772	564.304	
CPT 378	7.224	576.211	2.718	568.987	
CPT 377	7.001	580.407	2.805	573.406	
CPT 376	6.229	582.917	3.719	576.688	
CPT 375	6.026	585.04	3.903	579.014	
CPT 374	5.527	586.308	4.259	580.781	

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CPT 373	5.514	587.316	4.506	581.802	
CPT 372	5.728	588.591	4.453	582.863	
CPT 371	6.296	590.889	3.998	584.593	
CPT 370	5.498	592.312	4.075	586.814	
CPT 369	3.644	590.355	5.601	586.711	
CPT 368	3.591	587.454	6.492	583.863	
CPT 176			6.83	580.624	580.587 0.037

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STA	+	HI	-	ELEV	DESIGN	
TBM 1	3.577	655.449			651.872	MSS WSW side PWP #305-51-0003, +/- 20' East of CL of Country Lake Road, +/- 570' SSE of CL of Gas substation gravel drive. 38.59985463N/85.78075037W
CPT 137	4.552	653.874	6.127	649.322		
CPT 320	2.965	652.265	4.574	649.300		
CPT 319	2.222	646.415	8.072	644.193		
CPT 318	1.717	640.860	7.272	639.143		
CPT 317	3.249	636.208	7.901	632.959		
0	4.528	633.785	6.951	629.257		
TBM 31	4.114	633.312	4.587	629.198		Cut "X" set SW bolt of West post of "Truck" sign, between points 316 and 317 38.59463679N/85.77868653W
CPT 316	1.639	628.149	6.802	626.510		
CPT 315	1.523	621.007	8.665	619.484		
CPT 314	3.482	616.605	7.884	613.123		
CPT 313	6.256	617.725	5.136	611.469		
CPT 312	5.942	619.942	3.725	614.000		
TBM 30	6.032	621.434	4.540	615.402		Cut Square set on SW side of concrete LP Base (10-65-NR-22-22), between points 311 and 312 38.58760832N/85.77853034W
CPT 311	6.454	623.028	4.860	616.574		
CPT 310	4.664	623.536	4.156	618.872		
CPT 309	3.934	622.810	4.660	618.876		
CPT 308	4.858	622.115	5.553	617.257		
TBM 29	6.807	621.599	7.323	614.792		Cut Square set on West side of East concrete base of "Rest Area" sign, at the off ramp split , between 307 and 308 38.58308128N/85.77855624W
CPT 307	4.665	619.357	6.907	614.692		
CPT 306	4.121	617.903	5.575	613.782		
CPT 305	5.770	617.742	5.931	611.972		
TBM 28	4.125	616.946	4.921	612.821		Cut "X" set onSW bolt of West post of "Rest Area" sign, at point 305 38.57927103N/85.77856679W

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CPT 304	5.687	615.592	7.041	609.905		
TBM 51	2.617	615.165	3.044	612.548		Cut "X" set on first metal guard rail post from South, at point 303 38.57656233N/85.77858W
CPT 303	5.148	615.173	5.140	610.025	610.025	
CPT 154	5.747	615.421	5.499	609.674		
CPT 153	5.466	616.651	4.236	611.185		
CPT 152	5.791	618.582	3.860	612.791		
CPT 151	5.780	620.113	4.249	614.333		
CPT 150	5.673	620.809	4.977	615.136		
CPT 149	5.519	622.389	3.939	616.870		
CPT 148	5.480	623.815	4.054	618.335		
CPT 147	5.001	623.442	5.374	618.441		
CPT 146	3.302	620.255	6.489	616.953		
CPT 145	3.876	616.948	7.183	613.072		
CPT 144	4.992	615.933	6.007	610.941		
TBM 27	6.385	616.123	6.195	609.738		Cut Square set on NE side of concrete LP base (10-65-SR-23-2), at point 144 38.5901459N/85.77910989W
CPT 143	7.839	620.770	3.192	612.931		
CPT 142	8.322	627.154	1.938	618.832		
CPT 141	8.304	633.390	2.068	625.086		
CPT 140	8.237	639.522	2.105	631.285		
CPT 139	8.509	646.048	1.983	637.539		
CPT 138	8.005	652.319	1.734	644.314		
0	6.210	655.526	3.003	649.316		
TBM 1			3.656	651.870	651.872 -0.002	

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STA	+	HI	-	ELEV	DESIGN	
TBM 43	3.522	572.296			568.774	Cut "X" set on SW bolt of LP (10-65-160), at the split of North bound off ramp to SR 160,
						Between points 534 and 535 38.53859619N/85.77694902W
0	6.967	573.703	5.560	566.736		
0	9.259	581.104	1.858	571.845		
CPT 563	6.699	586.470	1.333	579.771		
CPT 302	6.300	587.854	4.916	581.554		RBS in grass, +/- 35' North of CL SR 160, +/- 100 West of CL North bound I-65
						38.54038921N/85.77705176W
CPT 564	8.303	587.853	8.304	579.550		
0	5.016	586.578	6.291	581.562		
0	1.526	581.302	6.802	579.776		
0	2.048	575.251	8.099	573.203		
0	4.071	571.364	7.958	567.293		
TBM 43			2.583	568.781	568.774	
					0.007	

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STA	+	HI	-	ELEV	DESIGN	
TBM 1	3.789	655.661			651.872	MSS WSW side PWP #305-51-0003, +/- 20' East of CL of Country Lake Road, +/- 570' SSE of CL of Gas substation gravel drive. 38.59985463N/85.78075037W
0	1.870	650.456	7.075	648.586		
0	1.489	644.257	7.688	642.768		
0	3.698	639.452	8.503	635.754		
0	7.527	644.694	2.285	637.167		
0	6.194	649.224	1.664	643.030		
CPT 187	7.752	650.791	6.185	643.039		
CPT 188	3.924	654.284	0.431	650.360		
0	3.389	642.853	14.820	639.464		
CPT 189	10.709	646.774	6.788	636.065		
0	9.363	655.737	0.400	646.374		
0	1.021	645.666	11.092	644.645		
0	2.038	639.382	8.322	637.344		
0	7.953	643.166	4.169	635.213		
0	8.216	649.639	1.743	641.423		
0	7.792	655.749	1.682	647.957		
TBM 1			3.869	651.880	651.872 0.008	

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STA	+	HI	-	ELEV	DESIGN	
TBM 7	9.382	592.864			583.482	Cut "X" set on SE bolt of East post of sign, +/-250' North of Lake Road overpass, between points 169 and 170 38.67153793N/85.7841043W
0	9.961	601.480	1.345	591.519		
CPT 191	8.331	607.682	2.129	599.351		
CPT 190	4.661	607.705	4.638	603.044		
0	1.406	600.753	8.358	599.347		
0	2.028	593.009	9.772	590.981		
TBM 7			9.535	583.474	583.482 -0.008	

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STA	+	HI	-	ELEV	DESIGN	
CPT 303	4.271	614.296			610.025	
CPT 562	6.269	615.470	5.095	609.201		
CPT 561	8.191	622.220	1.441	614.029		
CPT 560	4.834	623.583	3.471	618.749		
TBM 50	5.682	622.552	6.713	616.870		Cut "X" set on SW bolt of West post of "Motor Service Info" sign, between points 559 and 560 38.57201501N/85.77854578W
CPT 559	0.664	615.365	7.851	614.701		
CPT 558	0.863	603.691	12.537	602.828		
0	2.223	597.552	8.362	595.329		
CPT 557	4.450	594.441	7.561	589.991		
TBM 49	4.752	591.299	7.894	586.547		Cut "X" set on SW bolt of West post of "Rest Area 1 Mile" sign, between points 556 and 557 38.56790803N/85.77855418W
CPT 556	5.781	590.827	6.253	585.046		
CPT 555	5.633	592.470	3.990	586.837		
CPT 554	5.406	593.446	4.430	588.040		
CPT 553	4.695	593.972	4.169	589.277		
TBM 48	4.573	596.020	2.525	591.447		Cut "X" set on top of metal guard rail post, at point 553 38.562902N/85.77858283W
CPT 552	5.457	597.153	4.324	591.696		
CPT 551	5.557	598.537	4.173	592.980		
CPT 550	5.404	599.362	4.579	593.958		
TBM 47	5.451	600.438	4.375	594.987		Cut "X" set on NW bolt of West post of "Truck" sign, +/-150' South of Hebron Chruch Road Overpass, Between points 549 and 550 38.55846468N/85.77857253W
CPT 549	2.354	597.052	5.740	594.698		
CPT 548	0.184	587.541	9.695	587.357		
0	2.976	580.659	9.858	577.683		
CPT 547	1.303	575.480	6.482	574.177		

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0	2.017	568.698	8.799	566.681		
TBM 46	7.396	568.050	8.044	560.654		Cut "X" set on NW bolt of West post of "Rest Area 2 Miles" sign, at point 546 38.55376104N/85.77856253W
CPT 546	1.602	562.080	7.572	560.478		
0	1.630	554.818	8.892	553.188		
CPT 545	1.232	547.933	8.117	546.701		
0	2.530	541.964	8.499	539.434		
CPT 544	2.526	537.416	7.074	534.890		
CPT 543	6.899	539.724	4.591	532.825		
CPT 542	5.832	542.882	2.674	537.050		
TBM 45	2.886	544.676	1.092	541.790		Cut Square set NW corner of unfinished traffic signal base, between points 541 and 542 38.54791267N/85.77843196W
CPT 541	7.120	548.311	3.485	541.191		
CPT 540	7.587	552.845	3.053	545.258		
CPT 539	7.799	556.219	4.425	548.420		
TBM 44	2.939	557.191	1.967	554.252		Cut "X" set on NW bolt of LP (10-65-160-6), at end of on ramp North Bound from SR 160, at point 538 38.54324021N/85.77784751W
CPT 538	8.540	561.326	4.405	552.786		
CPT 537	7.040	565.780	2.586	558.740		
CPT 536	6.244	568.611	3.413	562.367		
CPT 535	5.733	572.830	1.514	567.097		
TBM 43	3.885	572.659	4.056	568.774	568.774	Cut "X" set on SW bolt of LP (10-65-160), at the split of North bound off ramp to SR 160, Between points 534 and 535 38.53859619N/85.77694902W
CPT 534	3.076	569.452	6.283	566.376		
CPT 533	3.086	565.448	7.090	562.362		
CPT 532	2.744	560.939	7.253	558.195		
CPT 531	4.678	558.334	7.283	553.656		
TBM 42	4.160	555.981	6.513	551.821		Cut "X" set on SW bolt of West post of blue "Exit 19" sign, at point 531

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					38.53412092N/85.7755523W
CPT 530	3.202	551.163	8.020	547.961	
CPT 529	3.547	546.896	7.814	543.349	
CPT 528	4.202	542.669	8.429	538.467	
TBM 41	7.938	540.216	10.391	532.278	Cut "X" set on SW bolt of West post of "Henryville 1/2 Mile" sign, between points527 and 528
					38.52925278N/85.77411701W
CPT 527	2.272	536.991	5.497	534.719	
CPT 526	1.927	531.733	7.185	529.806	
CPT 525	2.783	526.977	7.539	524.194	
TBM 40	6.281	524.832	8.426	518.551	Cut Square set on NW corner of concrete grated box end secton, between points 524 and 525
					38.52516725N/85.77348577W
CPT 524	2.621	521.969	5.484	519.348	
CPT 523	2.699	517.437	7.231	514.738	
CPT 522	4.410	514.709	7.138	510.299	
TBM 39	2.833	512.665	4.877	509.832	Cut "X" set on NW bolt of West post of "Henryville 1 Mile" sign, between points 521 and 522
					38.52189075N/85.77302624W
CPT 521	2.763	508.694	6.734	505.931	
CPT 520	4.129	505.665	7.158	501.536	
TBM 38	8.144	505.663	8.146	497.519	Cut "X" set on SW bolt of East post of "Gas Exit 19" sign
					38.51934261N/85.77262805W
0	3.443	503.407	5.699	499.964	
CPT 519	2.804	500.207	6.004	497.403	
CPT 518	4.366	497.371	7.202	493.005	
CPT 517	8.544	502.619	3.296	494.075	
0	10.551	511.767	1.403	501.216	
TBM 37	8.389	512.335	7.821	503.946	Cut Square set on top of NE corner of bridge wall of the North bound bridge over Caney Fork
					38.51461896N/85.77209448W
CPT 516	8.930	514.193	7.072	505.263	
0	8.905	520.961	2.137	512.056	

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CPT 515	6.302	527.002	0.261	520.700	
TBM 36	8.437	530.782	4.657	522.345	Cut "X" set on SW bolt of West post of "Attractions Exit 19" sign, at point 515 38.51285078N/85.77179574W
0	5.468	535.549	0.701	530.081	
CPT 514	6.425	537.403	4.571	530.978	
CPT 513	1.199	532.755	5.847	531.556	
CPT 512	5.488	527.425	10.818	521.937	
TBM 35	7.341	527.371	7.395	520.030	Cut "X" set on NW bolt of West post of "Truck" sign, at point 512 38.50873229N/85.77129545W
0	2.011	523.947	5.435	521.936	
0	2.163	517.138	8.972	514.975	
CPT 511	2.061	510.118	9.081	508.057	
0	2.066	504.563	7.621	502.497	
CPT 510	0.695	495.149	10.109	494.454	
CPT 509	4.602	491.361	8.390	486.759	
CPT 508	5.984	493.469	3.876	487.485	
TBM 34	1.837	493.998	1.308	492.161	Cut Square set on top of NE corner of bridge wall of the North bound bridge over Blue Lick Creek 38.502042N/85.77058066W
CPT 507	3.935	494.020	3.913	490.085	
0	3.850	496.010	1.860	492.160	
0	5.109	497.398	3.721	492.289	
CPT 506	6.430	498.964	4.864	492.534	
CPT 505	5.986	500.327	4.623	494.341	
CPT 504	6.804	503.931	3.200	497.127	
0	7.692	509.510	2.113	501.818	
TBM 33	5.102	509.544	5.068	504.442	Cut "X" set on top of metal guard rail post, between points 503 and 504 38.49686084N/85.77087314W
CPT 503	7.825	514.599	2.770	506.774	

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0	8.152	521.388	1.363	513.236	
CPT 502	7.953	527.648	1.693	519.695	
0	8.468	534.716	1.400	526.248	
CPT 501	8.458	541.288	1.886	532.830	
0	8.272	547.906	1.654	539.634	
CPT 500	3.464	547.913	3.457	544.449	
TBM 32	8.410	549.097	7.226	540.687	Cut "X" set on SW bolt of LP (16-74-421-23), at end of North bound on ramp from Blue Lick Road,
X	2.802	547.250	4.649	544.448	Between points 500 and 501 38.49277022N/85.77111911W
X	2.336	543.026	6.56	540.690	
X	0.73	533.568	10.188	532.838	
X	0.526	522.631	11.463	522.105	
X	4.333	514.302	12.662	509.969	
X	0.102	506.876	7.528	506.774	
X	4.096	501.223	9.749	497.127	
X	5.402	499.747	6.878	494.345	
X	4.594	497.131	7.21	492.537	
X	4.3	494.389	7.042	490.089	
X	4.674	492.162	6.901	487.488	
X	8.517	495.279	5.4	486.762	
X	9.979	504.432	0.826	494.453	
X	8.672	511.082	2.022	502.410	
X	10.234	518.285	3.031	508.051	
X	8.532	525.141	1.676	516.609	

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X	11.713	533.634	3.22	521.921
X	6.882	538.424	2.092	531.542
X	3.155	534.122	7.457	530.967
X	1.618	525.594	10.146	523.976
X	1.294	516.269	10.619	514.975
X	4.634	509.897	11.006	505.263
X	3.91	501.219	12.588	497.309
X	4.167	498.260	7.126	494.093
X	7.843	500.860	5.243	493.017
X	7.799	505.218	3.441	497.419
X	7.751	509.303	3.666	501.552
X	8.055	514.006	3.352	505.951
X	7.881	518.201	3.686	510.320
X	7.942	522.689	3.454	514.747
X	8.13	527.492	3.327	519.362
X	8.624	532.834	3.282	524.210
X	8.205	538.026	3.013	529.821
X	8.138	542.877	3.287	534.739
X	9.228	547.721	4.384	538.493
X	8.806	552.178	4.349	543.372
X	9.121	557.108	4.191	547.987
X	8.288	561.971	3.425	553.683
X	7.712	565.941	3.742	558.229
X	8.152	570.544	3.549	562.392

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X	7.316	573.722	4.138	566.406
X	2.894	570.025	6.591	567.131
X	4.381	566.787	7.619	562.406
X	3.444	562.221	8.01	558.777
X	4.272	557.093	9.4	552.821
X	4.912	553.365	8.64	548.453
X	3.922	549.216	8.071	545.294
X	3.897	545.130	7.983	541.233
X	3.776	540.870	8.036	537.094
X	5.347	538.215	8.002	532.868
X	10.523	545.458	3.28	534.935
X	6.445	551.775	0.128	545.330
X	8.524	555.269	5.03	546.745
X	9.73	561.860	3.139	552.130
X	10.02	570.536	1.344	560.516
X	10.181	579.620	1.097	569.439
X	10.501	588.636	1.485	578.135
X	11.022	598.402	1.256	587.380
X	6.32	601.035	3.687	594.715
X	5.444	599.417	7.062	593.973
X	4.984	597.986	6.415	593.002
X	5.013	596.733	6.266	591.720
X	4.913	594.221	7.425	589.308

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X	5.232	593.304	6.149	588.072	
X	4.867	591.741	6.43	586.874	
X	7.236	592.325	6.652	585.089	
X	9.576	599.601	2.3	590.025	
X	7.602	606.802	0.401	599.200	
X	12.501	615.355	3.948	602.854	
X	8.803	623.516	0.642	614.713	
X	3.913	622.675	4.754	618.762	
X	2.847	616.898	8.624	614.051	
X	5.502	614.725	7.675	609.223	
CP 303			4.686	610.039	610.025 0.014

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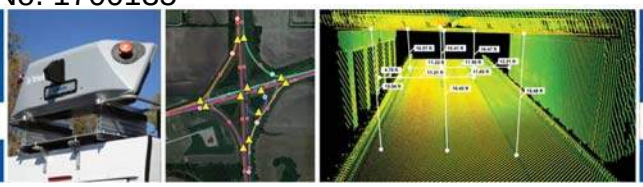

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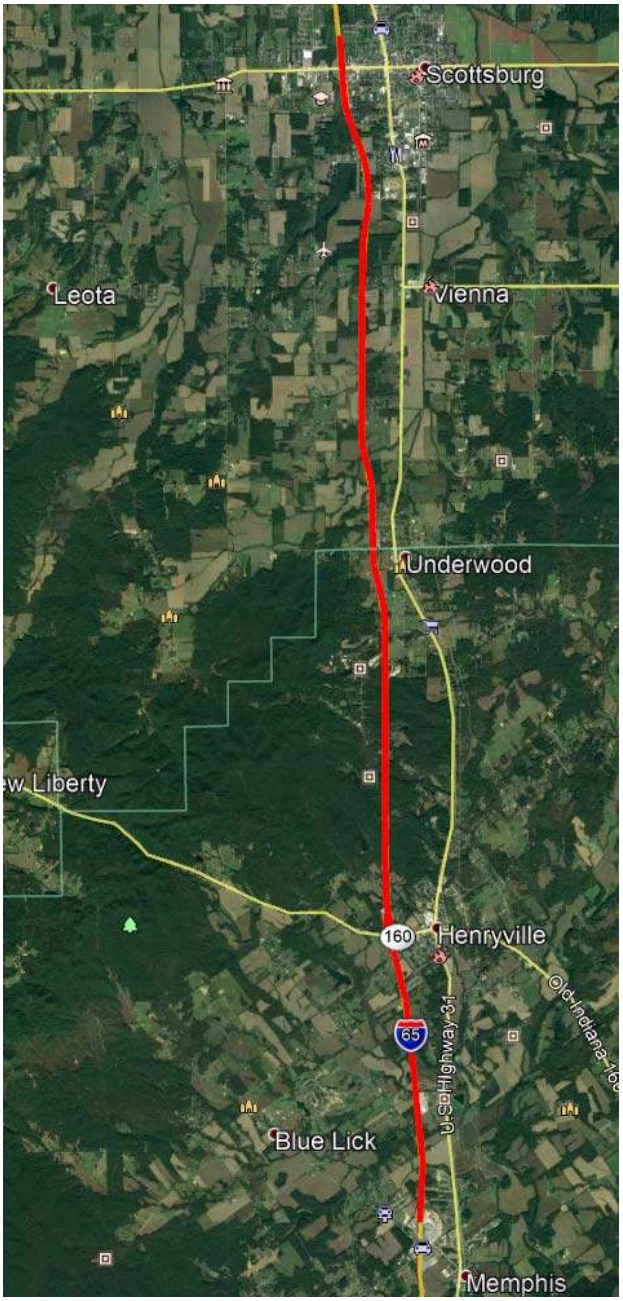
Mobile LiDAR Validation Report

ESP Associates JN. IO06.800.000 I-65 Added Travel Lanes-Clark/Scott

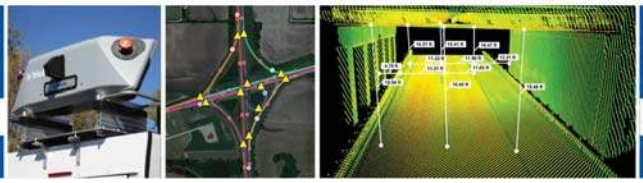
Client: American Structurepoint, Inc.
Date: 04/17/2020

Project Detail and Scope

In March of 2020, ESP Associates was asked to partner with American Structurepoint to collect and map mobile LiDAR data for 13.8 miles of I-65 in Scott and Clark counties in Indiana. ESP delivered a high resolution DTM on the pavement surface, perspective images and point cloud data. This project was for lane additions.



The project scope area (highlighted red)



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Coordinate System

The project coordinates system was:

Coordinate System:	Indiana Geospatial Coordinate System (InGCS)
Zone:	Scott County (InGCS Scott)
Datum:	NAD 1983 (2011)
Ellipsoid Name:	Geodetic Ref System 1980
Geoid Model:	GEOID12B

System Details

ESP Associates deployed its Riegl VMX-1HA based in Indianapolis for the project. This system is equipped with 2 Riegl VUX-1HA laser scanners, a POS LV 610 INS and four 5 mp Riegl cameras.

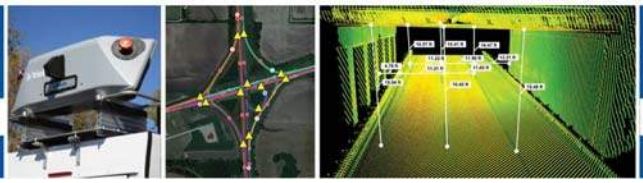
VMX-1HA Scanner Performance

Laser Class	Laser Class 1 (Class 1 Laser Product according to IEC60825-1:2014)					
Effective Measurement Rate [1) 3)]	600 kHz	1 MHz	1.5 MHz full power	1.5 MHz reduced power[2)]	2 MHz full power	2 MHz reduced power[2)]
Max. Range, Target Reflectivity ρ ≥ 80% [4)]	420 m	330 m	270 m	135 m	235 m	120 m
Max. Range, Target Reflectivity ρ ≥ 10% [4)]	150 m	120 m	100 m	50 m	85 m	40 m
Max. Number of Targets per Pulse	practically unlimited (details on request)					
Minimum Range	1.2 m					
Accuracy [5) 7)] / Precision [6) 7)]	5 mm / 3 mm					
Field of View	360° "full circle"					
Scan Speed (selectable)	up to 500 scans/sec					



IMU/GNSS Performance [8)]

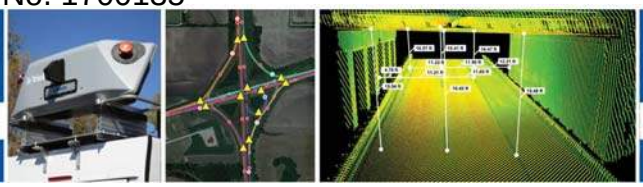
Position Accuracy (absolute)	typ. 20 - 50 mm
Roll & Pitch Accuracy	0.005°
Heading Accuracy	0.015°



Control Details

The control layout for this project was prepared, laid out by ESP and controlled by American Structurepoint, Inc.. Values supplied to ESP Associates as follows:

Point	Easting	Northing	Elevation	Description
1000	738371.1905	242741.1678	545.455	MNF/P1
1001	738423.5368	243355.0150	531.496	MNF/V1
1002	738456.2109	243924.7629	516.442	MNF/P2
1003	738493.7954	244600.8002	499.939	MNF/V2
1004	738525.7247	245105.9152	495.205	MNF/P3
1005	738565.4593	245791.0293	492.609	MNF/V3
1006	738571.0706	246415.8647	489.363	MNF/P4
1007	738525.8441	247272.0203	486.646	MNF/V4
1008	738496.3650	247563.8519	489.293	MNF/P5
1009	738441.5898	248093.5449	502.127	MNF/V5
1010	738375.0340	248734.8283	520.102	MNF/P6
1011	738321.7253	249273.1777	531.428	MNF/V6
1012	738257.7359	249882.8677	530.085	MNF/P7
1013	738197.1281	250480.4393	514.986	MNF/V7
1014	738143.6132	251005.7367	499.761	MNF/P8
1015	738072.3102	251699.2476	492.742	MNF/V8
1016	738018.8829	252210.3333	497.153	MNF/P9
1017	737959.0258	252809.2629	502.256	MNF/V9
1018	737902.8315	253341.4087	507.078	MNF/P10
1019	737838.8585	253977.8464	512.660	MNF/V10
1020	737777.5638	254560.6757	518.062	MNF/P11
1021	737714.5578	255177.8894	524.256	MNF/V11
1022	737647.9912	255758.0242	530.728	MNF/P12
1023	737544.2651	256408.6806	537.231	MNF/V12
1024	737432.6691	256928.6109	542.589	MNF/P13
1025	737295.8633	257481.4342	547.814	MNF/V13
1026	737157.4450	258039.1666	553.456	MNF/P14
1027	736983.7352	258738.7749	560.711	MNF/V14
1028	736799.9713	259536.7377	567.945	MNF/P15
1029	736712.1034	259973.1713	566.799	MNF/V126
1030	736636.7494	260393.8129	562.418	MNF/P131
1032	736566.8077	260833.1319	559.152	MNF/V127
1033	736500.8560	261309.3027	554.780	MNF/P17
1034	736425.4107	262060.6138	547.763	MNF/V16
1035	736373.3151	262564.4117	543.108	MNF/P18
1036	736338.4324	263112.1357	538.521	MNF/V17
1037	736317.8985	263702.9017	533.303	MNF/P19



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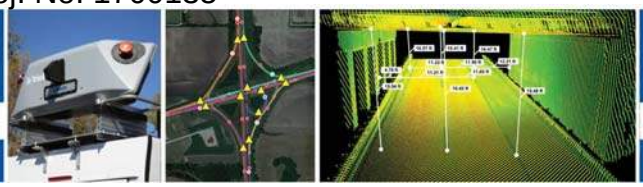
Point	Easting	Northing	Elevation	Description
1038	736314.4260	264256.5157	535.541	MNF/V18
1039	736316.0810	264879.3317	552.086	MNF/P20
1040	736317.1565	265407.2793	566.920	MNF/V19
1041	736319.7237	266085.9471	586.190	MNF/P21
1042	736321.0772	266711.5616	595.429	MNF/V20
1043	736322.5387	267164.6558	593.836	MNF/P22
1044	736324.0483	267844.8194	592.074	MNF/V21
1045	736325.9064	268392.7837	590.388	MNF/P23
1046	736328.0463	268990.2461	588.227	MNF/V22
1047	736329.5170	269586.7459	586.765	MNF/P24
1048	736330.3812	270255.2121	587.280	MNF/V23
1049	736331.5485	270794.0880	599.166	MNF/P25
1050	736332.8286	271216.2294	611.007	MNF/V24
1051	736334.7037	271992.1223	618.426	MNF/P26
1052	736336.6466	272628.0168	611.068	MNF/V25
1053	736337.2263	273192.2159	609.267	MNF/P27
1054	736337.3217	273763.3828	610.702	MNF/V26
1055	736338.6442	274247.1104	612.077	MNF/P28
1056	736353.1901	274912.5685	613.762	MNF/V27
1057	736344.2759	275736.0155	616.783	MNF/P29
1058	736343.4974	276356.0560	618.473	MNF/V28
1059	736356.8107	277451.4990	616.654	MNF/V129
1060	736354.6334	278027.9282	613.619	MNF/P31
1061	736347.5705	278717.0733	611.871	MNF/V30
1062	736348.1221	279204.5922	616.605	MNF/P32
1063	736334.3672	279860.0845	626.102	MNF/V31
1064	736271.9378	280428.5169	633.704	MNF/P33
1065	736150.0948	281029.8440	640.711	MNF/V32
1066	736013.7580	281569.8718	647.333	MNF/P34
1067	735865.2255	282155.5775	649.149	MNF/V33
1068	735745.6920	282630.3108	643.394	MNF/P35
1069	735625.6371	283304.7169	634.379	MNF/V34
1070	735595.5297	284023.6861	630.526	MNF/P36
1071	735597.8419	284494.5118	629.180	MNF/V35
1072	735600.1869	285011.6873	627.654	MNF/P37
1073	736357.7094	276891.4027	619.120	MNF/P30
1074	735603.4848	285681.1880	625.451	MNF/V36
1075	735606.5386	286266.1122	621.217	MNF/P38
1076	735609.1686	286860.8008	612.789	MNF/V37
1077	735586.9961	287367.5465	604.069	MNF/P39
1078	735503.6278	288052.9117	592.681	MNF/V38



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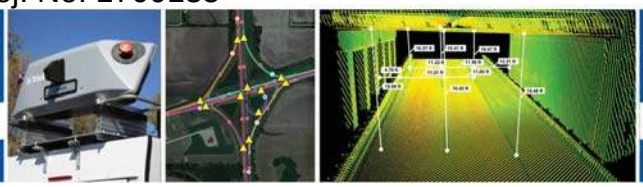
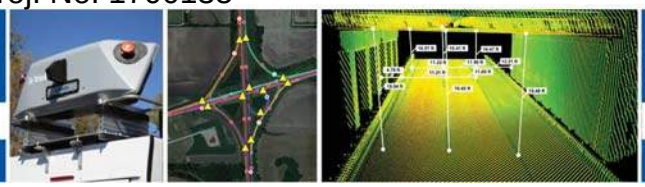
Point	Easting	Northing	Elevation	Description
1079	735398.1300	288569.8550	589.234	MNF/P40
1080	735213.7692	289221.5344	590.197	MNF/V39
1081	735065.7246	289722.6767	591.440	MNF/P41
1082	734947.5401	290290.1748	593.461	MNF/V40
1083	734886.6231	290868.9380	597.417	MNF/P42
1084	734882.8943	291486.0723	604.091	MNF/V41
1085	734889.0329	291946.1919	608.924	MNF/P43
1086	734899.8577	292647.6795	609.685	MNF/V42
1087	734907.1810	293170.2800	605.254	MNF/P44
1088	734915.4342	293784.5425	596.546	MNF/V43
1089	734923.1967	294360.4137	590.481	MNF/P45
1090	734932.0181	294948.5260	594.973	MNF/V44
1091	734939.5499	295506.3073	602.928	MNF/P46
1092	734948.2579	296105.5958	610.650	MNF/V45
1093	734953.4421	296614.8745	614.047	MNF/P47
1094	734962.4694	297227.7493	616.064	MNF/V46
1095	734972.2967	297898.6893	617.975	MNF/P48
1096	734980.4092	298410.1232	616.616	MNF/V47
1097	734988.0718	299025.4691	610.821	MNF/P49
1098	734998.2014	299672.0337	604.249	MNF/V48
1200	736884.1126	260257.4169	579.824	MNF/P16
1201	736853.1159	259946.0159	572.090	MNF/V122
1202	736700.1811	260818.2211	566.332	MNF/V123
1203	736216.4778	273193.2936	608.833	MNF/P102
1204	736214.8435	272628.1475	611.084	MNF/V97
1205	736214.2352	272001.4906	617.865	MNF/P103
1206	736212.2888	271058.3783	606.659	MNF/V98
1207	736213.5785	270860.5015	601.029	MNF/P104
1208	736210.6210	270155.9543	586.252	MNF/V99
1209	736208.6720	269631.3414	586.382	MNF/P105
1210	736206.3184	269037.3106	587.951	MNF/V100
1211	736205.7215	268410.6216	590.336	MNF/P109
1212	736203.1979	267903.9254	591.692	MNF/V101
1213	736202.8482	267034.7240	594.054	MNF/P107
1214	736199.2599	266673.5643	595.087	MNF/V102
1215	736199.4822	266080.2114	586.346	MNF/P108
1216	736196.4411	265496.2331	569.478	MNF/V103
1217	736195.9735	264922.0827	553.145	MNF/P109
1218	736193.2742	264314.6398	536.404	MNF/V104
1219	736198.9049	263755.4382	532.551	MNF/P110
1220	736217.1754	263166.1988	537.865	MNF/V105



Point	Easting	Northing	Elevation	Description
1221	736251.9815	262591.0875	542.736	MNF/P111
1222	736294.2401	262026.3165	547.887	MNF/V106
1223	736357.4132	261501.3728	552.871	MNF/P112
1224	736448.0987	260819.4547	558.724	MNF/V128
1225	736541.5768	260252.7695	563.572	MNF/P132
1226	736590.3155	259983.1930	566.305	MNF/V129
1227	734763.2397	291515.6655	604.374	MNF/V81
1228	734769.0774	290837.1082	598.575	MNF/P86
1229	734814.9860	290356.5552	595.071	MNF/V82
1230	735116.1708	289132.7682	589.890	MNF/V83
1231	734946.5070	289700.6905	592.589	MNF/P87
1232	735264.7433	288609.7478	588.451	MNF/P89
1233	735388.9080	288004.3626	592.276	MNF/V84
1234	735458.8677	287450.8014	601.739	MNF/P90
1235	735487.2292	286884.2942	611.519	MNF/V85
1236	735486.8410	286271.6137	621.172	MNF/P91
1237	735482.8604	285689.9504	625.606	MNF/V86
1238	735479.2237	284988.8872	627.841	MNF/P92
1239	735475.7170	284501.9602	629.336	MNF/V87
1240	735475.3231	283832.7470	632.006	MNF/P93
1241	735510.0358	283239.4115	636.253	MNF/V88
1242	735603.6741	282702.0145	643.091	MNF/P94
1243	735754.5682	282092.6917	649.326	MNF/V89
1244	735877.8611	281607.8803	648.126	MNF/P95
1245	736035.5536	280979.5243	639.564	MNF/V90
1246	733495.4773	315561.6247	553.325	MNF/P64
1247	733549.9050	314720.7025	554.238	MNF/V62
1248	733571.3662	314278.0548	554.759	MNF/P65
1249	733612.9461	313772.6042	555.565	MNF/V63
1250	733675.4107	312846.5008	556.618	MNF/P66
1251	733698.3186	312486.1208	558.108	MNF/V64
1252	733728.7391	311914.6592	559.306	MNF/P67
1253	733785.1575	311304.2466	560.865	MNF/V65
1254	733889.5328	310762.0073	564.017	MNF/P68
1255	734022.3105	310232.7695	569.145	MNF/V66
1256	734233.3328	309622.0003	575.397	MNF/P69
1257	734472.5207	309069.8231	577.947	MNF/V67
1258	734712.7979	308512.1847	579.910	MNF/P70
1259	734952.4834	307799.6445	581.673	MNF/V68
1260	735051.2109	307425.9929	582.607	MNF/P71
1261	735170.2856	306811.9283	585.313	MNF/V69



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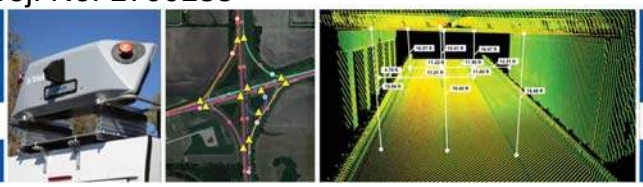
Point	Easting	Northing	Elevation	Description
1262	735242.4354	306208.6051	586.653	MNF/P72
1263	735267.1966	305630.9064	583.561	MNF/V70
1264	735248.5219	304992.7418	580.025	MNF/P73
1265	735184.0181	304403.6966	576.721	MNF/V71
1266	735090.4158	303801.2713	577.547	MNF/P74
1267	735011.6623	303287.6606	581.195	MNF/V72
1268	734942.2270	302617.7743	585.998	MNF/P75
1269	734910.0308	302018.1129	591.861	MNF/V73
1270	734902.4347	301417.6839	596.451	MNF/P76
1271	734892.3486	300789.3434	598.541	MNF/V74
1272	734885.3421	300226.1714	600.387	MNF/P77
1273	734875.8050	299653.1219	604.306	MNF/V75
1274	734859.1934	298479.7524	616.080	MNF/V76
1275	734869.2712	299103.7097	609.977	MNF/P78
1276	734851.7673	297867.4368	617.859	MNF/P79
1277	734843.6368	297253.6907	615.972	MNF/V77
1278	734835.4164	296651.1769	613.989	MNF/P80
1279	734825.4578	296105.1723	610.509	MNF/V78
1280	734818.5413	295497.3234	602.756	MNF/P81
1281	734809.7157	294922.8249	594.712	MNF/V79
1282	734802.7418	294347.3960	590.553	MNF/P82
1283	734794.7496	293846.0662	595.650	MNF/V130
1284	734786.6387	293208.2362	604.719	MNF/P83
1285	734777.6324	292645.4875	609.783	MNF/V80
1286	734769.2699	292025.0835	609.175	MNF/P84
1300	736311.7920	260853.6801	566.285	MNF/V124
1301	736295.5998	260390.0167	579.526	MNF/P113
1302	736462.0895	259810.5404	570.548	MNF/V125
1303	736681.3718	259522.3210	567.891	MNF/P114
1304	736856.3048	258713.7912	560.375	MNF/V108
1305	737027.7732	258066.4761	554.095	MNF/P115
1306	737168.1606	257501.5880	548.298	MNF/V109
1307	737307.5965	256945.4675	542.502	MNF/P116
1308	737424.5924	256399.8741	536.817	MNF/V110
1309	737524.7586	255785.9595	530.456	MNF/P117
1310	737590.0138	255208.7709	524.806	MNF/V111
1311	737645.9776	254660.8080	519.274	MNF/P118
1312	737715.8309	253983.5433	512.952	MNF/V121
1313	737773.0950	253441.3452	508.139	MNF/P119
1314	737838.1269	252803.4882	502.525	MNF/V112
1315	737898.2768	252227.4562	497.464	MNF/P120



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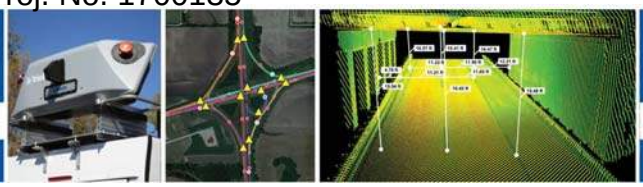
Point	Easting	Northing	Elevation	Description
1316	737957.2131	251653.7753	492.650	MNF/V113
1317	738049.4766	250750.4243	506.819	MNF/P121
1318	738082.0942	250444.5165	515.808	MNF/V114
1319	738137.7539	249898.3006	529.754	MNF/P122
1320	738200.1941	249276.5257	531.775	MNF/V115
1321	738255.0882	248764.2621	521.394	MNF/P123
1322	738319.0331	248141.1030	503.948	MNF/V116
1323	738380.5429	247544.4741	488.955	MNF/P124
1324	738426.4628	247038.6114	485.938	MNF/V117
1325	738455.4004	246119.2744	490.349	MNF/P125
1326	738448.2051	245797.2882	492.182	MNF/V118
1327	738414.6141	245205.2821	494.804	MNF/P126
1328	738373.3554	244586.5435	500.664	MNF/V119
1329	738333.0967	243968.3763	515.895	MNF/P127
1330	738278.4077	243400.0261	530.617	MNF/V120
1331	738251.8995	242743.4119	545.896	MNF/P128
1332	736149.6866	280432.8374	632.390	MNF/P96
1333	736214.0241	279836.3160	624.519	MNF/V91
1334	736227.3962	279310.3975	617.714	MNF/P97
1335	736214.3241	278682.7118	611.276	MNF/V92
1336	736226.5562	278012.2274	613.746	MNF/P98
1337	736224.3821	277435.0726	617.081	MNF/V93
1338	736224.9872	277036.2888	619.467	MNF/P99
1339	736210.9103	276343.1550	617.998	MNF/V94
1340	736209.3254	275751.2075	616.342	MNF/P100
1341	736220.1997	274966.5080	614.475	MNF/V95
1342	736219.2104	274309.9271	612.132	MNF/P101
1343	736216.8159	273845.8928	610.544	MNF/V96
1344	735004.5854	300248.5950	600.401	MNF/P50
1345	735014.2806	300854.3728	598.402	MNF/V49
1346	735021.0594	301400.7150	596.449	MNF/P51
1347	735031.1299	302016.8568	591.387	MNF/V50
1348	735057.9853	302566.9575	585.899	MNF/P52
1349	735123.5554	303207.9126	581.046	MNF/V51
1350	735206.7525	303772.9236	577.693	MNF/P53
1351	735305.5173	304394.9614	577.406	MNF/V52
1352	735362.3743	304916.3139	580.093	MNF/P54
1353	735388.5050	305602.2163	584.002	MNF/V53
1354	735369.8320	306116.3750	586.966	MNF/P55
1355	735295.7269	306794.6122	586.116	MNF/V54
1356	735195.9357	307329.5136	583.644	MNF/P56



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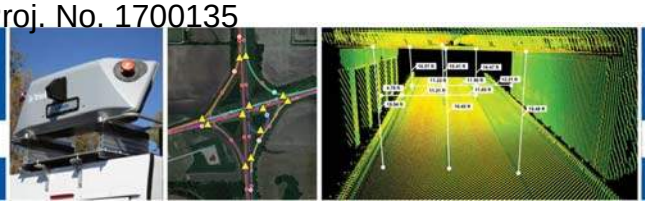
Point	Easting	Northing	Elevation	Description
1357	735022.7992	307987.3937	581.945	MNF/V55
1358	734852.8103	308479.5278	580.917	MNF/P57
1359	734622.2996	309034.2287	578.401	MNF/V56
1360	734367.5561	309608.3346	574.971	MNF/P58
1361	734155.9728	310206.2454	569.054	MNF/V57
1362	734018.1421	310729.5197	563.610	MNF/P59
1363	733912.7559	311327.8377	560.285	MNF/V58
1364	733863.3078	311952.6991	559.018	MNF/P60
1365	733813.3409	312566.5091	557.901	MNF/V59
1366	733764.4464	313307.1299	555.051	MNF/P61
1367	733735.2373	313738.8517	555.527	MNF/V60
1368	733705.5592	314324.4215	554.832	MNF/P62
1369	733676.5912	314787.7569	553.935	MNF/V61
1370	733642.7674	315183.5517	553.325	MNF/P63



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Trajectory Collection and Processing

The mobile LiDAR data for this project was collected on 03/08/2020, using standard practices like pre and post mission static observation, dynamic driving and real time analysis of POS LV metrics.

Mission Information

Project name	03102020_IO06
Processing date	2020-03-10 18:18:51
Mission date	2020-03-08 14:07:02
Mission duration	02:30:40.000
Processing mode	IN-Fusion Single Base
GPS Station	V033

Rover Hardware Information

Product	POS LV 610 VER5 HW2.5-12
Serial number	S/N7547
IMU type	57
Receiver type	BD982
Antenna type	AT1675-540TS

The base station used for mobile LiDAR collection was established by ESP. Said base is a virtual base station which was created and downloaded from Trimble VRS Now (www.vrsnow.us).

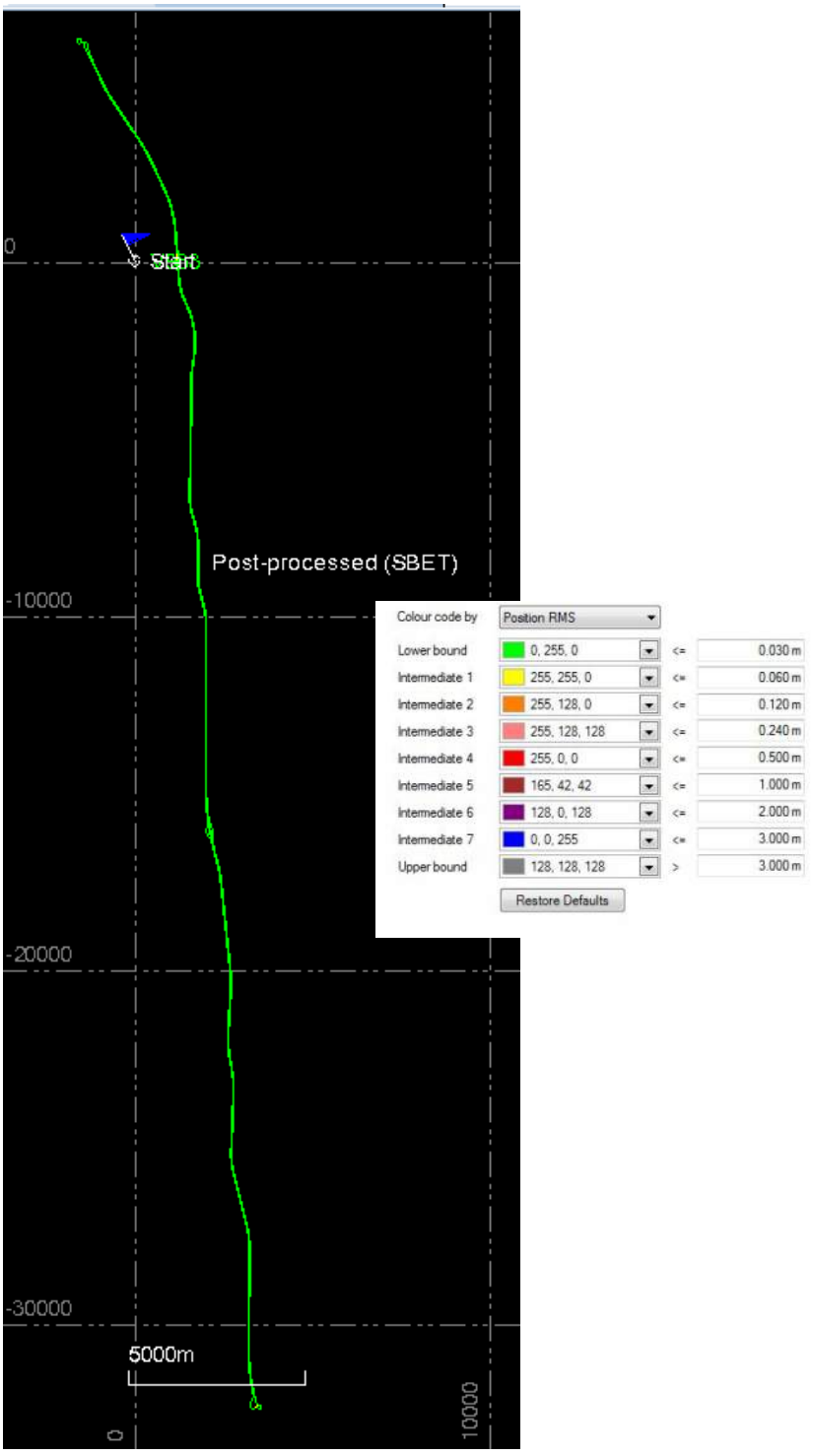
Base Station Information

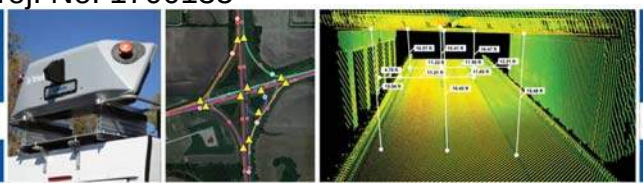
Station ID	V033		
Filename	V033068M.20o		
Start date	3/8/2020 12:00:00 PM		
End date	3/8/2020 5:29:59 PM		
Duration	05:29:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N38°41'06.53214"		
Longitude	W85°48'07.63997"		
Ellipsoidal height (m)	145.08480		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

NOTE: This point and the values as provided are not intended to be used as survey control for the duration of this project. Their use is limited to trajectory processing to closely align the LiDAR data to the survey control. This relationship to the survey control and the LiDAR data were further refined using other software. This refined relationship was not backwards computed back to the base station which leaves small inconsistencies between this base point and the project control.

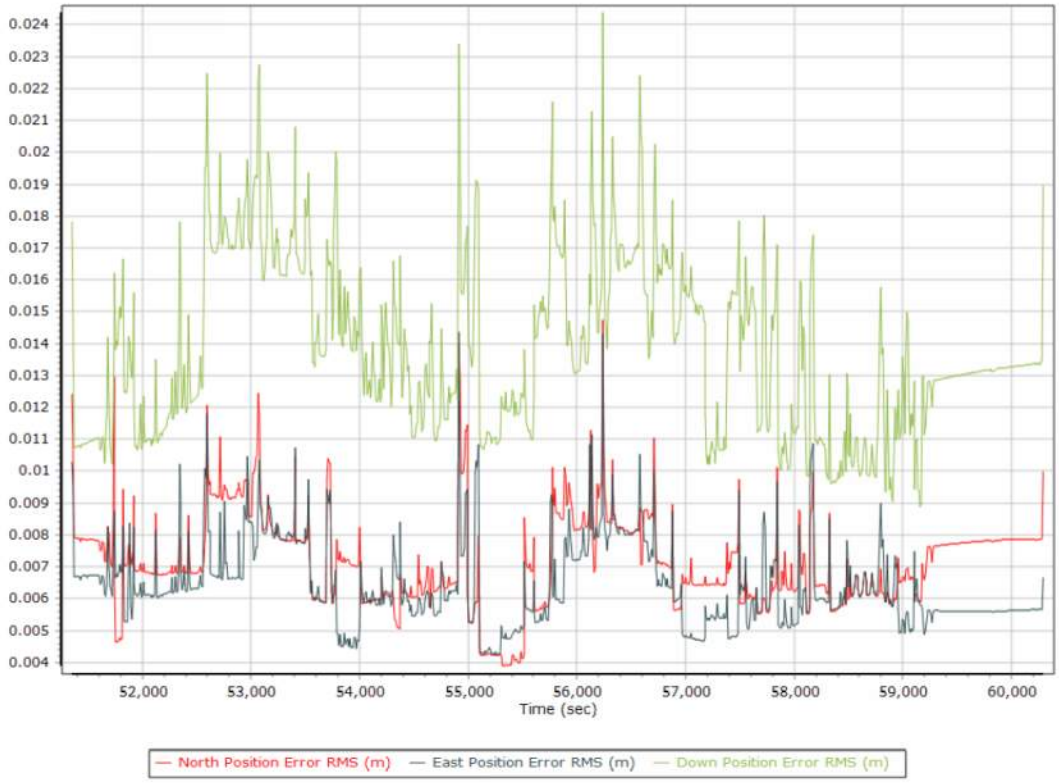


The base station and INS data was processed using Applanix PosPac MMS v8.4.7284.36831. The following tables were produced out of said software:

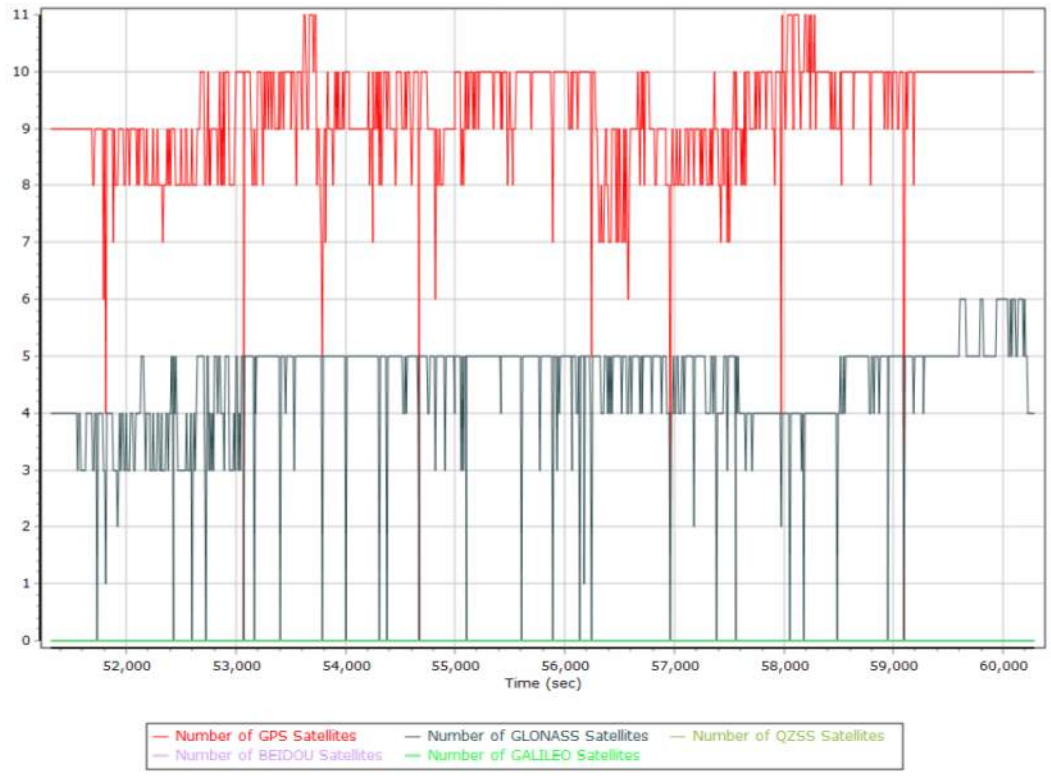


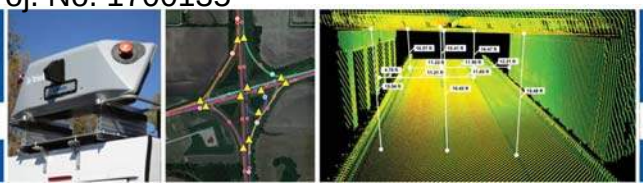


Position Error RMS (m)

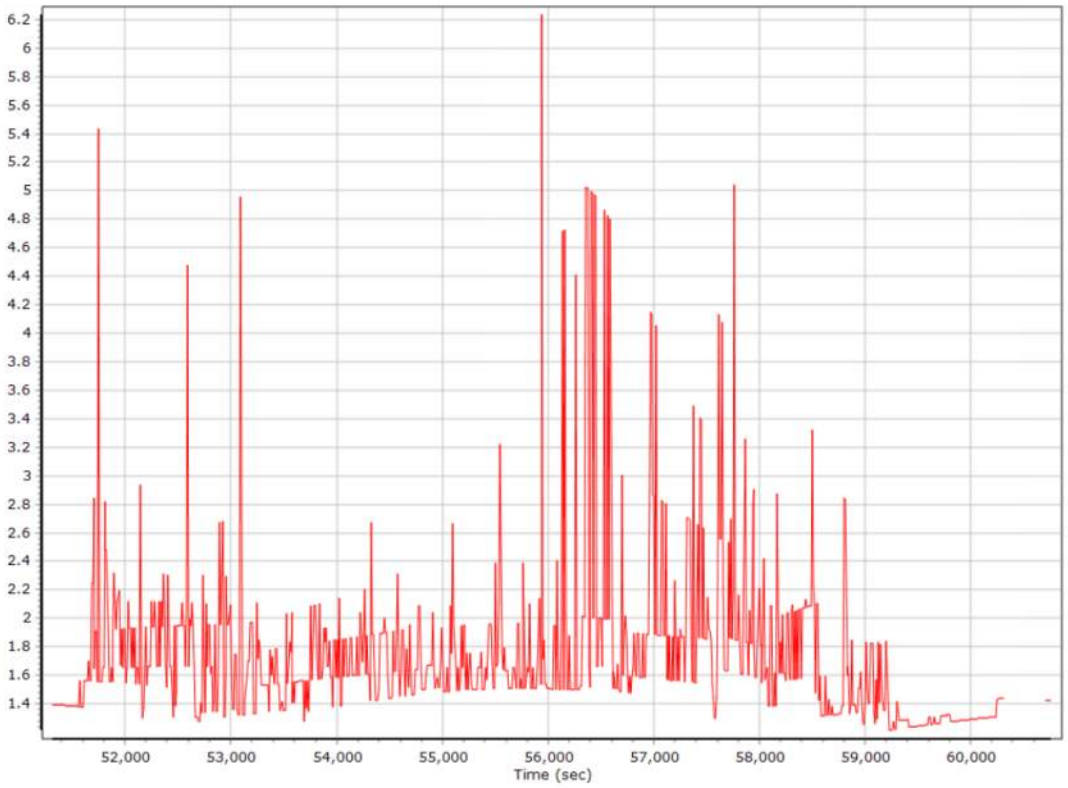


Number of Satellites





PDOP

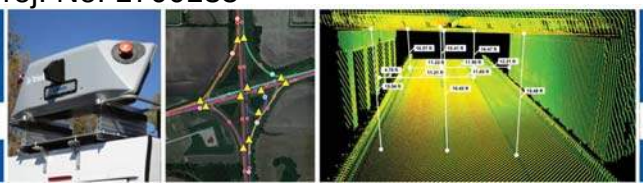


Data Registration

The data from the system was processed and registered using Riegl RiPROCESS v1.8.6 (2019-09-17) (64-bit version) software. The data was fully constrained in XYZ to the high visibility targets set. Inconsistencies between data collection passes were averaged and adjusted using said software.



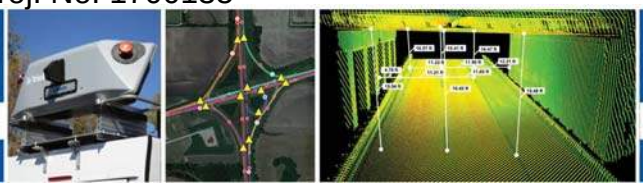
Example: High Visibility Target



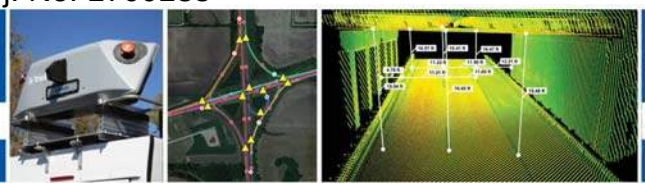
Data Validation

Data validation for this project was performed using TopoDOT software and its Control Point to Data Analyst tool, in which the LiDAR point cloud is compared to the control elevation. Results are as follows:

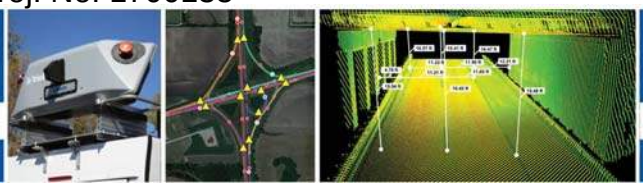
Point	Easting	Northing	Elevation	Deviation
1000	738371.1900	242741.1680	545.455	0.004
1001	738423.5370	243355.0150	531.496	-0.015
1002	738456.2110	243924.7630	516.442	0.010
1003	738493.7950	244600.8000	499.939	-0.004
1004	738525.7250	245105.9150	495.205	0.001
1005	738565.4590	245791.0290	492.609	-0.001
1006	738571.0710	246415.8650	489.363	0.012
1007	738525.8440	247272.0200	486.646	0.001
1008	738496.3650	247563.8520	489.293	0.002
1009	738441.5900	248093.5450	502.127	0.007
1010	738375.0340	248734.8280	520.102	0.003
1011	738321.7250	249273.1780	531.428	0.006
1012	738257.7360	249882.8680	530.085	0.004
1013	738197.1280	250480.4390	514.986	-0.009
1014	738143.6130	251005.7370	499.761	-0.001
1015	738072.3100	251699.2480	492.742	0.002
1016	738018.8830	252210.3330	497.153	-0.003
1017	737959.0260	252809.2630	502.256	0.019
1018	737902.8320	253341.4090	507.078	0.005
1019	737838.8580	253977.8460	512.660	0.002
1020	737777.5640	254560.6760	518.062	0.002
1021	737714.5580	255177.8890	524.256	0.015
1022	737647.9910	255758.0240	530.728	0.000
1023	737544.2650	256408.6810	537.231	0.006
1024	737432.6690	256928.6110	542.589	-0.001
1025	737295.8630	257481.4340	547.814	0.005
1026	737157.4450	258039.1670	553.456	-0.002
1027	736983.7350	258738.7750	560.711	-0.004
1028	736799.9710	259536.7380	567.945	0.002
1029	736712.1030	259973.1710	566.799	-0.006
1030	736636.7490	260393.8130	562.418	-0.007
1032	736566.8080	260833.1320	559.152	0.003
1033	736500.8560	261309.3030	554.780	-0.001
1034	736425.4110	262060.6140	547.763	-0.002
1035	736373.3150	262564.4120	543.108	0.001
1036	736338.4320	263112.1360	538.521	0.009
1037	736317.8980	263702.9020	533.303	0.000



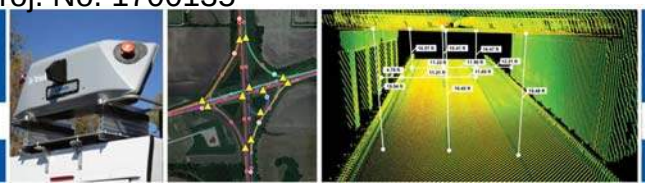
Point	Easting	Northing	Elevation	Deviation
1038	736314.4260	264256.5160	535.541	0.000
1039	736316.0810	264879.3320	552.086	0.005
1040	736317.1560	265407.2790	566.920	0.006
1041	736319.7240	266085.9470	586.190	0.003
1042	736321.0770	266711.5620	595.429	0.006
1043	736322.5390	267164.6560	593.836	-0.004
1044	736324.0480	267844.8190	592.074	0.003
1045	736325.9060	268392.7840	590.388	0.002
1046	736328.0460	268990.2460	588.227	0.004
1047	736329.5170	269586.7460	586.765	-0.004
1048	736330.3810	270255.2120	587.280	0.007
1049	736331.5480	270794.0880	599.166	0.003
1050	736332.8290	271216.2290	611.007	0.021
1051	736334.7040	271992.1220	618.426	0.001
1052	736336.6470	272628.0170	611.068	-0.001
1053	736337.2260	273192.2160	609.267	0.002
1054	736337.3220	273763.3830	610.702	0.013
1055	736338.6440	274247.1100	612.077	-0.001
1056	736353.1900	274912.5680	613.762	0.014
1057	736344.2760	275736.0160	616.783	-0.004
1058	736343.4970	276356.0560	618.473	-0.004
1059	736356.8110	277451.4990	616.654	0.016
1060	736354.6330	278027.9280	613.619	-0.002
1061	736347.5700	278717.0730	611.871	-0.014
1062	736348.1220	279204.5920	616.605	0.002
1063	736334.3670	279860.0840	626.102	0.005
1064	736271.9380	280428.5170	633.704	0.001
1065	736150.0950	281029.8440	640.711	-0.002
1066	736013.7580	281569.8720	647.333	-0.003
1067	735865.2260	282155.5780	649.149	-0.004
1068	735745.6920	282630.3110	643.394	0.000
1069	735625.6370	283304.7170	634.379	0.008
1070	735595.5300	284023.6860	630.526	-0.001
1071	735597.8420	284494.5120	629.180	0.013
1072	735600.1870	285011.6870	627.654	0.004
1073	736357.7090	276891.4030	619.120	0.008
1074	735603.4850	285681.1880	625.451	-0.004
1075	735606.5390	286266.1120	621.217	0.008
1076	735609.1690	286860.8010	612.789	0.003
1077	735586.9960	287367.5460	604.069	-0.002
1078	735503.6280	288052.9120	592.681	-0.001



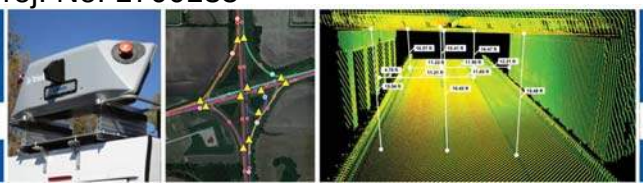
Point	Easting	Northing	Elevation	Deviation
1079	735398.1300	288569.8550	589.234	0.006
1080	735213.7690	289221.5340	590.197	0.018
1081	735065.7250	289722.6770	591.440	0.002
1082	734947.5400	290290.1750	593.461	0.006
1083	734886.6230	290868.9380	597.417	0.012
1084	734882.8940	291486.0720	604.091	-0.006
1085	734889.0330	291946.1920	608.924	0.002
1086	734899.8580	292647.6800	609.685	0.015
1087	734907.1810	293170.2800	605.254	0.005
1088	734915.4340	293784.5420	596.546	0.019
1089	734923.1970	294360.4140	590.481	0.000
1090	734932.0180	294948.5260	594.973	0.004
1091	734939.5500	295506.3070	602.928	0.001
1092	734948.2580	296105.5960	610.650	-0.007
1093	734953.4420	296614.8750	614.047	0.001
1094	734962.4690	297227.7490	616.064	-0.007
1095	734972.2970	297898.6890	617.975	0.003
1096	734980.4090	298410.1230	616.616	0.002
1097	734988.0720	299025.4690	610.821	-0.005
1098	734998.2010	299672.0340	604.249	0.017
1200	736884.1130	260257.4170	579.824	-0.001
1201	736853.1160	259946.0160	572.090	0.003
1202	736700.1810	260818.2210	566.332	-0.004
1203	736216.4780	273193.2940	608.833	0.004
1204	736214.8430	272628.1480	611.084	0.017
1205	736214.2350	272001.4910	617.865	0.006
1206	736212.2890	271058.3780	606.659	0.005
1207	736213.5780	270860.5020	601.029	0.001
1208	736210.6210	270155.9540	586.252	0.013
1209	736208.6720	269631.3410	586.382	0.008
1210	736206.3180	269037.3110	587.951	0.004
1211	736205.7220	268410.6220	590.336	0.004
1212	736203.1980	267903.9250	591.692	-0.012
1213	736202.8480	267034.7240	594.054	0.013
1214	736199.2600	266673.5640	595.087	0.002
1215	736199.4820	266080.2110	586.346	0.006
1216	736196.4410	265496.2330	569.478	-0.003
1217	736195.9740	264922.0830	553.145	0.009
1218	736193.2740	264314.6400	536.404	-0.008
1219	736198.9050	263755.4380	532.551	0.004
1220	736217.1750	263166.1990	537.865	-0.001



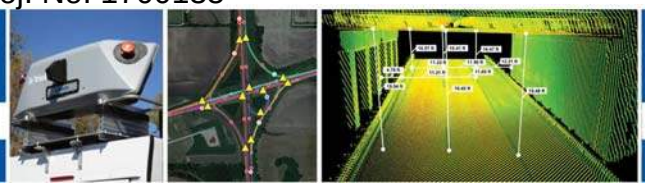
Point	Easting	Northing	Elevation	Deviation
1221	736251.9820	262591.0880	542.736	-0.003
1222	736294.2400	262026.3160	547.887	-0.009
1223	736357.4130	261501.3730	552.871	0.009
1224	736448.0990	260819.4550	558.724	0.012
1225	736541.5770	260252.7700	563.572	0.004
1226	736590.3160	259983.1930	566.305	-0.005
1227	734763.2400	291515.6660	604.374	0.000
1228	734769.0770	290837.1080	598.575	0.011
1229	734814.9860	290356.5550	595.071	0.012
1230	735116.1710	289132.7680	589.890	0.004
1231	734946.5070	289700.6900	592.589	0.004
1232	735264.7430	288609.7480	588.451	0.008
1233	735388.9080	288004.3630	592.276	0.005
1234	735458.8680	287450.8010	601.739	-0.001
1235	735487.2290	286884.2940	611.519	0.001
1236	735486.8410	286271.6140	621.172	0.003
1237	735482.8600	285689.9500	625.606	0.003
1238	735479.2240	284988.8870	627.841	0.001
1239	735475.7170	284501.9600	629.336	0.010
1240	735475.3230	283832.7470	632.006	0.005
1241	735510.0360	283239.4120	636.253	-0.003
1242	735603.6740	282702.0140	643.091	0.001
1243	735754.5680	282092.6920	649.326	0.005
1244	735877.8610	281607.8800	648.126	-0.003
1245	736035.5540	280979.5240	639.564	0.004
1246	733495.4770	315561.6250	553.325	-0.018
1247	733549.9050	314720.7020	554.238	0.016
1248	733571.3660	314278.0550	554.759	0.003
1249	733612.9460	313772.6040	555.565	0.001
1250	733675.4110	312846.5010	556.618	-0.002
1251	733698.3190	312486.1210	558.108	-0.015
1252	733728.7390	311914.6590	559.306	-0.001
1253	733785.1580	311304.2470	560.865	0.009
1254	733889.5330	310762.0070	564.017	0.002
1255	734022.3100	310232.7700	569.145	0.005
1256	734233.3330	309622.0000	575.397	0.008
1257	734472.5210	309069.8230	577.947	0.003
1258	734712.7980	308512.1850	579.910	0.009
1259	734952.4830	307799.6440	581.673	0.005
1260	735051.2110	307425.9930	582.607	0.008
1261	735170.2860	306811.9280	585.313	0.007



Point	Easting	Northing	Elevation	Deviation
1262	735242.4350	306208.6050	586.653	0.004
1263	735267.1970	305630.9060	583.561	0.003
1264	735248.5220	304992.7420	580.025	0.005
1265	735184.0180	304403.6970	576.721	0.004
1266	735090.4160	303801.2710	577.547	0.008
1267	735011.6620	303287.6610	581.195	-0.003
1268	734942.2270	302617.7740	585.998	0.008
1269	734910.0310	302018.1130	591.861	0.003
1270	734902.4350	301417.6840	596.451	-0.002
1271	734892.3490	300789.3430	598.541	0.008
1272	734885.3420	300226.1710	600.387	0.008
1273	734875.8050	299653.1220	604.306	0.003
1274	734859.1930	298479.7520	616.080	-0.011
1275	734869.2710	299103.7100	609.977	0.006
1276	734851.7670	297867.4370	617.859	0.013
1277	734843.6370	297253.6910	615.972	0.007
1278	734835.4160	296651.1770	613.989	0.010
1279	734825.4580	296105.1720	610.509	0.002
1280	734818.5410	295497.3230	602.756	0.004
1281	734809.7160	294922.8250	594.712	0.014
1282	734802.7420	294347.3960	590.553	0.016
1283	734794.7500	293846.0660	595.650	0.014
1284	734786.6390	293208.2360	604.719	0.016
1285	734777.6320	292645.4880	609.783	0.020
1286	734769.2700	292025.0840	609.175	0.004
1300	736311.7920	260853.6800	566.285	0.001
1301	736295.6000	260390.0170	579.526	0.005
1302	736462.0900	259810.5400	570.548	0.004
1303	736681.3720	259522.3210	567.891	-0.010
1304	736856.3050	258713.7910	560.375	0.000
1305	737027.7730	258066.4760	554.095	0.002
1306	737168.1610	257501.5880	548.298	-0.004
1307	737307.5960	256945.4670	542.502	0.000
1308	737424.5920	256399.8740	536.817	0.005
1309	737524.7590	255785.9590	530.456	-0.003
1310	737590.0140	255208.7710	524.806	0.002
1311	737645.9780	254660.8080	519.274	0.007
1312	737715.8310	253983.5430	512.952	0.002
1313	737773.0950	253441.3450	508.139	0.007
1314	737838.1270	252803.4880	502.525	0.009
1315	737898.2770	252227.4560	497.464	-0.001



Point	Easting	Northing	Elevation	Deviation
1316	737957.2130	251653.7750	492.650	-0.001
1317	738049.4770	250750.4240	506.819	-0.002
1318	738082.0940	250444.5160	515.808	0.009
1319	738137.7540	249898.3010	529.754	-0.008
1320	738200.1940	249276.5260	531.775	0.004
1321	738255.0880	248764.2620	521.394	0.009
1322	738319.0330	248141.1030	503.948	-0.002
1323	738380.5430	247544.4740	488.955	0.000
1324	738426.4630	247038.6110	485.938	0.009
1325	738455.4000	246119.2740	490.349	0.007
1326	738448.2050	245797.2880	492.182	-0.002
1327	738414.6140	245205.2820	494.804	0.004
1328	738373.3550	244586.5440	500.664	0.003
1329	738333.0970	243968.3760	515.895	0.003
1330	738278.4080	243400.0260	530.617	-0.034
1331	738251.9000	242743.4120	545.896	0.001
1332	736149.6870	280432.8370	632.390	-0.002
1333	736214.0240	279836.3160	624.519	0.009
1334	736227.3960	279310.3980	617.714	-0.004
1335	736214.3240	278682.7120	611.276	-0.013
1336	736226.5560	278012.2270	613.746	-0.005
1337	736224.3820	277435.0730	617.081	0.001
1338	736224.9870	277036.2890	619.467	0.002
1339	736210.9100	276343.1550	617.998	-0.006
1340	736209.3250	275751.2080	616.342	0.001
1341	736220.2000	274966.5080	614.475	0.015
1342	736219.2100	274309.9270	612.132	0.011
1343	736216.8160	273845.8930	610.544	0.005
1344	735004.5850	300248.5950	600.401	0.005
1345	735014.2810	300854.3730	598.402	0.009
1346	735021.0590	301400.7150	596.449	0.000
1347	735031.1300	302016.8570	591.387	0.000
1348	735057.9850	302566.9580	585.899	0.003
1349	735123.5550	303207.9130	581.046	0.017
1350	735206.7520	303772.9240	577.693	-0.010
1351	735305.5170	304394.9610	577.406	-0.026
1352	735362.3740	304916.3140	580.093	-0.006
1353	735388.5050	305602.2160	584.002	-0.001
1354	735369.8320	306116.3750	586.966	-0.005
1355	735295.7270	306794.6120	586.116	0.012
1356	735195.9360	307329.5140	583.644	0.002



ESP ASSOCIATES, INC.
ENGINEERING | SURVEYING | PLANNING

Point	Easting	Northing	Elevation	Deviation
1357	735022.7990	307987.3940	581.945	0.026
1358	734852.8100	308479.5280	580.917	-0.007
1359	734622.3000	309034.2290	578.401	0.010
1360	734367.5560	309608.3350	574.971	0.001
1361	734155.9730	310206.2450	569.054	0.015
1362	734018.1420	310729.5200	563.610	0.002
1363	733912.7560	311327.8380	560.285	-0.002
1364	733863.3080	311952.6990	559.018	-0.004
1365	733813.3410	312566.5090	557.901	0.004
1366	733764.4460	313307.1300	555.051	0.001
1367	733735.2370	313738.8520	555.527	-0.009
1368	733705.5590	314324.4220	554.832	-0.002
1369	733676.5910	314787.7570	553.935	0.014
1370	733642.7670	315183.5520	553.325	-0.005
			AVG	0.003
			RMSE	0.008

AMERICAN STRUCTUREPOINT INC.

9025 RIVER ROAD, SUITE 200
INDIANAPOLIS, INDIANA 46240
TEL 317.547.5580
FAX 317.543.0270

November 23, 2021

Brad Williamson
INDOT Project Manager
Indiana Department of Transportation
185 Agrico Lane
Seymour, Indiana 47274

Re: Level Two Design Exception Request for Use of 2:1 Embankment Slopes
INDOT Des. No. 1700135
Contract R-41529
I-65 Reconstruction with Added Travel Lanes in Scott and Clark Counties

Dear Mr. Williamson:

A Level Two Design Exception is needed for the above-referenced project for the use of a 2:1 embankment slope on a 4R project. In accordance with Section 40-8.02(02) of the Indiana Design Manual, this document is provided for the project file to document the criterion has not been satisfied, along with a brief rationale for not satisfying it. However, in-depth documentation is not necessary to justify the decision.

Project Description

The project consists of Complete Reconstruction (Freeway) of the existing two travel lanes in each direction along I-65, beginning approximately 2.8 miles south of the interchange at SR 160 (RP 16+27) and continuing 12.7 miles north to a point approximately 0.5 mile south of the interchange at SR 56 (RP 29+10). The project also entails the addition of a third travel lane in each direction within the existing median of the interstate between RP 16+27 and RP 27+00. I-65 has a functional classification of Principal Arterial and the project is located in a rural area.

Design Feature

The Level Two Design element that will be substandard is as follows:

Use of 2:1 Slopes on an Interstate 4R Project – The use of 2:1 slopes are proposed on the subject 4R project, consistent with the existing side slopes along the corridor. The project is anticipated to be completed without the need for additional right of way. Per

Attachment 5-1

45-3.03(01), the designer must prepare Design Exception Level Two documentation where a 2:1 sideslope is proposed on a 4R project.

A full listing of the station ranges within the project limits where 2:1 slopes are to be retained or used are provided at the end of this document. A total of 28,700 linear feet of slopes within the project limit have been identified to use 2:1 slopes, accounting for approximately 20 percent of the slopes along the corridor.

The primary purposes of this project are to address the safety concerns resulting from pavement deteriorations along the corridor and to address anticipated congestion associated with continued growth of the I-65 corridor. Consistent with other added travel lanes projects developed by INDOT along interstate corridors, the intent of this project is to accommodate the work while staying within the existing right of way.

The anticipated scope of work for this project can be completed within the available right-of-way, through adding the new travel lanes to the existing median area. In proceeding in this manner, the existing outside ditches can generally remain in their current locations, with only minor adjustments necessary to accommodate drainage improvements necessary with the pavement work.

Design Impacts of Using Exception

It is generally not feasible to upgrade existing sideslopes along the corridor, due to both environmental constraints and right-of-way limitations. The terrain along the corridor varies considerably, with some areas where the interstate is well below adjacent ground beyond the corridor, and other areas where the roadway is well above existing ground. In addition, approximately 30 percent of the corridor is bounded by adjacent local frontage roads, which often are providing sole-source access to adjacent residences.

Environmentally, the completed waters report for the project identified a total of 109 wetlands accounting for over 7.5 acres of environmentally sensitive land within the project limits; the overwhelming majority of these areas are located within the outside ditches along the corridor. The project limits also cross 43 named streams, totaling over 11,000 linear feet of additional jurisdictional waters of the State. A decision to modify existing sideslopes on the corridor would exponentially impact the amount of these areas disturbed by the project, which in turn would require significantly more efforts to mitigate the impacts.

A safety analysis was conducted by CMT Engineers and Consultants for the corridor in 2019, and that analysis showed the project corridor has an index crash frequency and index crash cost higher than those of similar corridors. However, there is some thought the existing pavement conditions, which entail a significant amount of stripping in the HMA layers, joint deteriorating and wet spots coming up through the pavement layers under traffic loading, may be contributing to this higher crash incidence.

Remedial Actions

The Final Engineering Report suggested the incorporation of additional guardrail between MM 17 and MM 20, as well as between MM 21 and 22, due to a concentrated number of run off the road crashes in these areas. A review of the current design has been undertaken to address this suggestion. In addition, wider inside and outside shoulders are proposed along the corridor to provide additional recovery space for errant vehicles.

A geotechnical report for roadway improvements has recently been approved for this project. The report advises there is no concern regarding global instability for 2:1 fill slopes on the corridor. In accordance with the geotechnical recommendations, all side slopes steeper than 4:1 will be benched per Indiana Standards and Specifications. Additionally, all proposed 2:1 embankment slopes will be armored with either riprap on geotextiles or permanent turf reinforcement mat, whichever is more economical. Finally, existing 2:1 embankment slopes not being disturbed by construction activities are to remain undisturbed unless otherwise directed by the Field Engineer.

Summary

The primary purposes of this project are to address pavement deteriorations and to incorporate an added travel lane along the I-65 corridor. Consistent with other added travel lanes projects developed by INDOT along interstate corridors, the intent of this project is to accommodate this work while staying within the existing available right of way. Therefore, it is recommended to retain the use of 2:1 sideslopes along the interstate corridor as proposed.

For this project, FHWA should be informed of the need for this Level Two design exception. If this exception meets with your approval, a copy of the approved exception will be forwarded to FHWA for information.

If you have any questions or comments concerning this design exception request, please contact me at (317) 547-5580 or by email at pwooden@structurepoint.com.

Very truly yours,
American Structurepoint, Inc.

Patrick Wooden, PE
Project Manager

Cc: Eryn Fletcher, FHWA Indiana

Enclosures

If this request for design exception meets your approval, please sign and return a copy to our office.

Approved: Brad Williamson Date: 11/29/2021

Brad Williamson
Project Manager
INDOT Seymour District – Capital Programs

Des. 1700135 Design Exception Slope Summary Lists

NB Slopes Steeper than 3:1	
Begin Station (Line "Q")	**End Station (Line "Q")**
405+00	413+00
414+50	418+00
421+00	423+00
440+50	442+50
451+00	453+00
459+00	463+00
464+50	465+85
467+00	471+00
477+00	479+00
489+00	489+65
491+00	492+00
492+50	494+00
502+00	504+00
508+00	511+00
517+95	518+70
535+25	535+80
557+15	559+50
561+00	567+50
567+50	569+00
585+00	587+00
592+00	595+00
603+00	606+00
608+00	609+65
612+65	613+15
627+75	631+25
636+50	643+00
643+15	655+50
659+00	660+00
662+50	663+50

End Segment 1 - Begin Segment 2

680+50	687+00
689+50	690+00
831+50	832+00
832+50	832+50
848+50	849+00
849+50	851+50
852+00	852+50
875+50	881+50
883+00	884+50
886+50	887+00
888+50	888+50
889+00	889+00
938+00	940+50
942+50	945+00
961+00	961+00
961+50	966+00
966+50	966+50
973+00	974+00
974+50	974+50
975+00	975+00
1003+50	1003+50
1004+00	1007+00
1008+00	1008+50
1016+00	1016+00
1016+50	1017+00
1049+00	1050+00

End Segment 2 - Begin Segment 3

1050+00	1062+00
1106+50	1110+52

SB Slopes Steeper than 3:1	
Begin Station (Line "Q")	**End Station (Line "Q")**
399+30	404+50
417+00	427+00
425+00	430+00
450+50	453+50
466+25	467+00
505+00	507+00
507+00	513+00
513+00	514+25
533+15	536+50
545+75	547+00
584+15	587+50
593+00	596+00
601+00	603+00
613+50	621+00
622+50	626+00
627+00	634+00
636+00	637+15
636+00	643+50
644+25	652+50
663+00	664+00
673+15	676+00

End Segment 1 - Begin Segment 2

680+50	680+50
681+00	681+50
685+50	687+00
733+50	733+50
734+00	735+50
747+50	751+00
824+00	824+50
825+00	828+00
828+50	829+50
830+00	832+00
845+50	853+00
884+00	885+00
885+50	887+00
888+50	888+50
889+00	891+00
931+50	933+00
933+50	935+50
960+00	966+50
967+00	967+00
997+50	997+50
998+00	1005+50
1006+00	1008+00
1017+00	1017+50
1018+00	1020+00

End Segment 2 - Begin Segment 3

1050+00	1063+25
1101+75	1109+77

Attachment 5-1

Partial Report

GEOTECHNICAL EVALUATION

I-65 ATL FROM RP 16+27 TO 29+10
DES NO. 1700135
CLARK AND SCOTT COUNTIES, INDIANA

Prepared for

AMERICAN STRUCTUREPOINT, INC.
9025 RIVER ROAD, SUITE 200
INDIANAPOLIS, INDIANA 46240

By

TERRACON CONSULTANTS, INC.
7770 WEST NEW YORK STREET
INDIANAPOLIS, INDIANA 46214-2988

November 19, 2021

Attachment 5-1

November 19, 2021

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Roadway Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des No.: 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

We have completed the roadway task for the referenced project. Refer to the General Site Map (Drawing No. CJ195480.B13) for the location and limits of the project as well as the layout of the attached Exploratory Location Plan (ELP; Drawing Nos. CJ195480.B14 - .B34). This report presents the results of our subsurface exploratory and laboratory testing programs and provides geotechnical recommendations for the proposed roadway improvements. A preliminary version of this report was submitted to the Indiana Department of Transportation (INDOT) Geotechnical Engineering Division (GED) for their review and comment, and those comments have been incorporated herein as appropriate.

Our Maintenance of Traffic Considerations letter (dated August 9, 2021) was previously reviewed and approved by INDOT GED. The bridges, large-diameter culverts, signs, and noise walls will be addressed in separate letters.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information revealed at the exploratory locations as shown on the attached ELP. Understandably, this report does not reflect variations in surface or subsurface conditions between or beyond these locations. Therefore, variations in these conditions should be expected, and fluctuation of groundwater levels will occur over time. Other important limitations of geotechnical evaluations are discussed in Appendix A.

PROJECT DESCRIPTION

We understand that INDOT is planning to make improvements to a 12.83-mi long section of I-65 from about 0.5 mi north of the I-65 and Blue Lick Road Interchange to 0.5 mi south of the I-65 and SR 56 Interchange (RP 16+27 to 29+10, Lines “Q” and “PR-Q”). From our conversations with and review of the PFC plans provided by American Structurepoint, Inc. (ASI), for the majority of the project length the improvements are planned to consist of widening I-65 toward the median to incorporate an added travel lane (ATL) and reconstruction of the existing pavement for each bound resulting in a new six-lane section. As a part of the project, the existing four lane roadway will remain as a four-lane section and the existing pavement will be reconstructed from the ATL drop to the north to the end of the project as well as within the limits of incidental construction. Additionally,

milling and resurfacing is planned for the entrance and exit ramps to the Henryville Rest Area. Refer to the table below for a summary of roadway improvements.

Table 1: Summary of Roadway Improvements

Roadway Improvements	Station No. (Line "Q")	Pavement Treatments; No. Lanes
Begin Project	391+10 (RP 16+27)	Reconstruction & ATL; 6
ATL Drop	1013+98	---; 6 to 4
End Project	1105+77 (RP 29+10)	Reconstruction; 4
Begin Incidental Construction	1105+77 (RP 29+10)	
End incidental Construction	1109+77 (SB) / Sta. 1110+52 (NB)	
Temp. Crossovers	Near 388+00, 686+00, and 1112+00	Temporary Pavement

We understand that maintenance of traffic (MOT) is planned to consist of phased construction with one to two lanes remaining open in each direction. In addition, the MOT scheme is planned to include strengthening of the shoulders, temporary pavement, and three temporary crossovers. Refer to our Maintenance of Traffic Considerations letter, dated August 9, 2021, for additional details regarding MOT.

Where reconstruction is planned, the profile grade is generally planned to remain near the existing grade. Based on the plans, where widening is taking place in the median and outside the existing roadway limits, earthwork will typically consist of about 1 to 4 ft of cut and fill and up to about 7 to 8 ft in isolated locations to establish proposed grades in cross-section. Sideslopes are planned to be no steeper than 2H:1V.

Drainage improvements are planned to consist of new ditches, underdrains, and numerous small-diameter drainage pipes (i.e., sewers and culverts). Based on the plans, the pipes will have inverts typically ranging from about 1 to 12 ft below the existing grade. We anticipate that the pipes will be installed using cut-and-cover techniques.

The projected year (2043) average annual daily traffic (AADT) is 49,452 vehicles/day (VPD). At this time, other information such as construction schedule is not known. If the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing by Terracon Consultants, Inc. (Terracon).

FIELD EXPLORATION

Surface and subsurface conditions for the roadway task were characterized by Terracon during the period of April 5 to August 12, 2021. The collective borings, soundings, and pavement cores were performed at the approximate locations shown on the attached ELP. The number, location, and depths were selected by Terracon and approved by INDOT based on our understanding of the planned construction. In general, exploratory activities were performed using hollow stem augers to advance the boreholes, and representative samples of the soil conditions were obtained at pre-determined intervals using Shelby tube and Standard Penetration Test (SPT) procedures. Detailed exploratory locations are provided on the attached Logs of Test Borings and Summary of Hand Auger Borings. "Undisturbed" Shelby tube samples were taken at an offset to numerous boring locations within the project limits. Additionally, representative bag samples were obtained at an offset to Borings RB-2, RB-26, RB-51, RB-75, RB-99, RB-219, RB-244, and RB-268. After

as subgrade treatment in these areas, and geotextile is not required below the undercut in our opinion.

We recommend the subgrade be graded at the end of each day to facilitate positive drainage and reduce the risk of ponding water. Additionally, we recommend that drainage elements be installed early in the project, if feasible, to facilitate drainage. We recommend that removal of the surficial elements only occur in areas where the subgrade is planned to be immediately prepared and construction to be performed (i.e., not leaving exposed subgrade for longer than is necessary). We recommend compaction of the soil at the roadway subgrade be completed after other site work, such as installation of drainage elements, has been completed. Any areas of compacted subgrade that become disturbed will require re-compaction. The success of preparation of the pavement subgrade and foundation soils will be directly dependent on the care and workmanship of the contractor to protect the soil from exposure to water.

Earthwork Considerations

Where reconstruction is planned, the profile grade is generally planned to remain near the existing grade. Based on the plans, to accommodate widening and re-grading of sideslopes/ditches, earthwork will typically consist of about 1 to 4 ft of cut and fill and up to about 7 to 8 ft in isolated locations to establish proposed grades in cross-section. Standard embankment practices outlined in Section 203.09 of the ISS and supported on a foundation prepared as discussed earlier should provide an adequate condition for embankment construction. We recommend that embankment fill used to raise grades be placed in loose lift thicknesses not exceeding 8 in. and be compacted to 95 percent of the maximum dry density obtained in accordance with AASHTO T 99 as specified in Sections 203.09 and 203.23 of the ISS.

With the exception of topsoil and soils with organic matter, in our opinion, the soils observed in the planned cut areas are suitable for re-use as embankment fill provided they are properly moisture-conditioned (by continuous discing and aerating or chemical drying) since a majority of these soils are anticipated to be above optimum moisture content. Based on review of the plans and our correspondence with ASI, imported borrow is anticipated to be necessary to satisfy earthwork quantities. To provide the necessary fill, we anticipate imported borrow will be of a similar cohesive-type to those observed at the exploratory locations. Under some climatic conditions, such as cold or rainy weather, or in confined areas, adequate moisture conditioning will be difficult to achieve. Therefore, we recommend that construction occur during traditionally drier weather months of July through September, if possible, or important granular borrow (i.e., B borrow) be utilized to expedite construction activities. The quality and source of imported borrow will be evaluated in the field by others.

We recommend that benches be cut into existing sideslopes steeper than 4H:1V in accordance with the ISS to key the new fill into the slopes. We recommend that benches have a minimum width of 10 ft. Where 10-ft wide benches are not feasible due to site constraints, granular soils, or shall embankment heights, we recommend a minimum bench width of 4 ft. Scarifying of the slope will also aid in keying the new fill into the slope.

Provided the subgrade is prepared and fill placed and compacted as discussed above, we do not take exception to slopes as steep as 2H:1V and do not have concerns regarding global instability. However, steep (2H:1V) slopes are prone to surficial sloughing and rilling if the slopes are left unprotected. To reduce these risks, we recommend that 2H:1V slopes be proactively protected

with riprap overlying Type 1A geotextiles in accordance with ISS 918.02(a) or permanent turf reinforcement mat. Where slopes are 3H:1V or flatter, we recommend that vegetation be established as soon as is feasible as specified in Section 621 of the ISS.

Pavement Design Considerations

Based on our observations at the exploratory locations and review of the proposed grades, we anticipate the pavement foundation soils will predominantly consist of the cohesive-type soils observed at the exploratory locations. Our recommended value for the resilient modulus of the "natural" subgrade is based on resilient modulus testing performed by INDOT (Appendix D) and our engineering judgment. As additional information, we considered the average resilient modulus value obtained using a correlation to the unconfined compressive strength at 1 percent strain (Appendix D). These average values were typically higher in comparison to the testing performed by INDOT. Provided the foundation soil is prepared as discussed above and in accordance with the ISS, the following table summarizes the recommended pavement analysis and design parameters.

Table 8: Soil Parameters for Pavement Design

Resilient Modulus (M_r) for Improved Subgrade	10,500 psi
Resilient Modulus (M_r) for Natural Subgrade	4,000 psi
Predominant Soil Type	Clay (A-6)
Percent Passing No. 200 Sieve	72 percent
Percent Silt	42 percent
Liquid Limit (LL)	37
Plastic Limit (PL)	19
Plasticity Index (PI)	18
Depth to Water	3 ft (winter & spring); 6 ft (summer & fall)
Natural Dry Density of Subgrade	105 to 110 pcf
Natural Moisture Content of Subgrade	16 to 20 percent
Organic Content, percent	4 to 36 – recommended to be removed and replaced where anticipated to be in subgrade treatment range
Marl Content, percent	N/A
Soluble Sulfate Content	Up to 910 ppm
Depth to Rock	2½ to >10 ft (see attached Summary of Bedrock Within 10 ft of the Existing Grade)
Geotextile for Underdrains	Type 1A (NW) per ISS 918.02(b)
Recommended Subgrade Treatment, Temporary Pavement & Shoulder Strengthening	Type II with a Geogrid in accordance with ISS 918.05 (refer to attached USPs)
Recommended Subgrade Treatment, Reconstruction & ATL – where bedrock is within depth of subgrade treatment (see Table 4)	*per ISS 207.04
Recommended Subgrade Treatment, Reconstruction & ATL – where bedrock is not within depth of subgrade treatment (see Table 4)	Cement Stabilized Subgrade (12 in. chemical modification & 14 in. foundation soil stabilization with cement; refer to attached USPs)

*The No. 53 or No. 73 stone (per ISS 207.04) will serve as the subgrade treatment in these areas.

We recommend using Cement Stabilized Subgrade as the subgrade treatment for the roadway reconstruction and added travel lane in each direction. Cement Stabilized Subgrade consists of 12 in. of soil being removed and 14 in. of foundation soils being chemically treated with cement and proof-rolled. Then the removed soil is replaced, treated with cement, and compacted. In addition to

provide construction observation services during the earthwork and foundation phases of the project. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. It will also allow design changes to be made in the event that subsurface conditions differ from those anticipated.

We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,
TERRACON CONSULTANTS, INC.

Travis J. Pickering, P.E.
Project Engineer

TRAVIS JOSEPH PICKERING
REGISTERED
PE11900368
STATE OF
INDIANA
PROFESSIONAL ENGINEER

Michael S. Wigger, P.E.
Principal Engineer

Appendices:

Appendix A - Important Information about This Geotechnical Engineering Report
Appendix B - Field Methods for Exploring and Sampling Soils and Rock
Appendix C - General Site Map (Drawing No. CJ195480.B13)
Exploratory Location Plan (Drawing Nos. CJ195480.B14 - .B34)
Areas of Potential Foundation Soil Improvements (Drawing Nos. CJ195480.B35 - .B70)
Log of Test Boring - General Notes
Log of Test Boring (364)
Summary of Hand Auger Borings (3 pages)
Rock Core Photograph
Wet Spot Correlations (2 pages)
Summary of Bedrock Within 10 ft of the Existing Grade
Appendix D - Grain Size Distribution Test Report (16 pages)
Unconfined Compression Test (127)
Moisture-Density Relationship (8)
Resilient Modulus Testing Results (in-situ; on tube samples; 8)
Estimate of In-Situ Resilient Modulus, Mr, Based on Su (4 pages)
Summary of Existing Topsoil Test Results
Appendix E - USP - Cement Stabilized Subgrade
USP - Foundation Soil Stabilization with Cement only
USP – 207-R-687 Subgrade Treatment
USP - Geosynthetics

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
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Indianapolis, Indiana 46204

PHONE: (317) 232-5227

Eric Holcomb, Governor
Michael Smith, Commissioner

May 24, 2024

TO: Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.

THRU: Mr. Kumar Dave, P.E. Kpd 05/28/2024
Manager, Division of Pavement Design

FROM: Mr. Pankaj G. Patel, P.E.
Pavement Design Engineer

PANKAJ G. PATEL REGISTERED No. 920286 STATE OF INDIANA PROFESSIONAL ENGINEER

Pankaj Patel 5/24/2024

SUBJECT: Pavement Analysis and Design
DES NO: **1700135**
RE: **I-65** from 2.78 miles S of SR 160 (RP 16+43) to SR 56 (RP 28+88) in Clark and Scott Counties.
WORK TYPE: Added Travel Lanes + HMA Overlay
COST:
RFC:
LETTING: 03/12/2025
CATEGORY: Seymour District Pavement Project

This pavement design in its entirety supersedes the previously issued pavement designs letter dated October 20, 2022 and May 8, 2024.

I-65 and SR 160 Ramps, pavement has been designed in accordance with the Mechanistic-Empirical Pavement Design Guide (MEPDG) and Part 6 of the Indiana Design Manual for the specific project conditions.

The design data for **I-65 and SR 160 Ramps** are as follows:

Design Data	I-65 S of SR 160	I-65 N of SR 160
Functional Classification	Rural Interstate	Rural Interstate
AADT 2025	46,050	46,050
Growth Factor (%)	0.5%	0.54%
% of Trucks, Trucks	32% -- 14,737	22.3% -- 10,270
Posted Speed (mph)	65	65
Soil Type	Clay (A-6)	Clay (A-6)
Resilient Modulus Improved Subgrade (psi)	14,000	14,000
Resilient Modulus Natural Subgrade (psi)	4,000	4,000
Subgrade Treatment Type	12 in. Cement Stabilized Subgrade	12 in. Cement Stabilized Subgrade
No. Lanes	6	4 -6
Existing Pavement	Asphalt over Concrete	Asphalt over Concrete

Design Data	SR 160 Ramps	SR 56 Ramps
Functional Classification	Interstate Ramps	Interstate Ramps
AADT 2024*	3,793	2,877
Growth Factor (%)	0.5% assumed for design	0.5% assumed for design
% of Trucks, Trucks	5.25% -- 200	7.5% -- 217
Posted Speed (mph)	45	30 - 45
Soil Type	Clay (A-7-6)	--
Resilient Modulus Improved Subgrade (psi)	10,500	--
Resilient Modulus Natural Subgrade (psi)	4,000	--
Subgrade Treatment Type	Type IC	Type IC
No. Lanes	1	1
Existing Pavement	Asphalt over Concrete	Asphalt over Concrete

* Traffic data is used from the INDOT Traffic Count Database System

Project Scope

1) I-65:

Project is divided into two segments of mainline I-65 and scope of project for each segment are as follow:

A) Added Travel Lane with Reconstruction of existing I-65 travel lanes and shoulders:

This segment of the project is planned to reconstruct the existing I-65 travel lanes, adding a third travel lane, and widen the inside shoulder. After adding additional lane, typical I-65 section will be three 12 ft travel lanes with paved inside and outside shoulders in each north and south bound directions and divided by barrier.

B) Pavement Rehabilitation:

This segment of the project is planned for the rehabilitation of the existing mainline I-65 travel lanes and shoulders pavement. Typical I-65 section will be two 12 ft travel lanes with paved inside and outside shoulders in each north and south bound direction and divided by grass median.

2) SR 160 Interchanges Ramps

The scope for this project also includes “HMA Overlay Preventive Maintenance” to existing pavement of SR 160 interchange ramps.

3) SR 56 Interchange Ramps

The scope for this project also includes “HMA Overlay Preventive Maintenance” to existing pavement of SR 56 interchange ramps.

There are several overpass or underpass bridges within the project limits that might need to have work done to them. The work types may include bridge deck reconstruction, bridge deck overlay, bridge superstructure replacement and bridge widening. There might also be small structure replacement within the project limits of I-65.

Roadway Geometry

1) **I-65:**

   This section of I-65 is a rural divided highway. It has 2-12 feet travel lanes with 4 feet paved inside and 10 feet paved outside shoulders in each of north and south bound direction.

2) **SR 56 and SR 160 Interchange Ramps:**

   SR 56 and SR 160 Interchange ramps have one travel lane with 4 feet wide paved inside and 8 feet wide paved outside shoulders.

Pavement History

1) **I-65:**

   I-65 mainline pavement was originally constructed in 1960 as 10 inches of JRCP (Jointed Reinforced Concrete Pavement). The shoulders were originally constructed as 3 inches of asphalt on compacted aggregate. In 1978 on average 3.5 inches of asphalt was overlaid to existing concrete pavement on mainline and shoulders. In 1988 and 1989, the mainline pavement and shoulders were milled at variable depths ranging from 1 to 2.5 inches and then overlaid with variable depth asphalt ranging from 3 to 6.8 inches. Asphalt resurfacing was done in 2002, 2011, and 2015. In 2017, an experimental pavement drain was installed on shoulder.

   Recent pavement cores was not taken in mainline travel lanes but as per history and previous pavement treatments done, it is assumed that existing pavement thickness of mainline travel lane at left edge of passing lane should be around 4.88 inches of asphalt over 10 inches of concrete, at center of two lanes 9.25 inches of asphalt over 10 inches of concrete, and at right edge of the driving lane 8.88 inches of asphalt over 10 inches of concrete.

   Shoulder thickness as per the pavement core report are as follow:

   a) NB inside shoulder: 7” to 14.2”, average 10.42”
   b) NB outside shoulder: 8” to 19”, average 12.63”
   c) SB inside shoulder: 6” to 14.5”, average 10.1”
   d) SB outside shoulder: 9” to 16”, average 12.1”

2) **SR 160 Interchange Ramps:**

   SR 160 interchange ramps travel lane pavement are composite (asphalt over JRCP), and shoulders are asphalt on compacted aggregates. Ramps travel lane and shoulder pavement were originally constructed at same time and same contracts with mainline I-65 in 1960. HMA was overlaid to both existing travel lanes and shoulder pavements multiple times, as per available record last preventive maintenance treatment was done in 2011.

Pavement cores were taken on August 2022, as per pavement core report ramp travel lane pavement thickness is average 2 inches of asphalt over 10 inches of concrete and shoulders thickness is average 7.6 inches of asphalt.

3) SR 56 Interchange Ramps:

SR 56 interchange ramps travel lane pavement are composite (asphalt over JRCP), and shoulders are asphalt on compacted aggregates. Ramps travel lane and shoulder pavement were originally constructed at same time and same contracts with mainline I-65 in 1960. HMA was overlaid to both existing travel lanes and shoulder pavements multiple times, as per available record last rehabilitation work done was in 2014.

Recent pavement cores were not taken in SR 56 Ramps pavement but as per history and previous pavement treatments done, it is assumed that existing pavement thickness of mainline ramp travel lane should be around 4 inches of asphalt over 10 inches of concrete and shoulder should be around 7 to 8 inches of asphalt over aggregate.

FWD test was done on I-65 outside shoulders in 2022. As per this test results, both north and south bound directions, pavement deflections at majority of test locations are above the threshold value of 8 mil (NB 102 out of 128 and SB 106 out of 127). The average elastic modulus of the existing asphalt is below the threshold value of 300,000 psi and existing pavement structure no. is 3.0. Subgrade deflections are at or below the threshold value of 3 mil.

Based on this FWD test results on I-65 outside shoulders, existing shoulder pavement is not strong enough to run traffic during the construction for maintenance of traffic even for short time frames. Existing entire width of the shoulder needs to be reconstructed including the subgrade before use for maintenance of traffic.

Pavement Design Recommendation

Based on the available information for the upcoming project and design data listed above, the following pavement design is recommended:

1) Added Tarvel Lane and Pavement Reconstruction Section - Mainline I-65:

For Added travel lanes and reconstruction section, pavement are designs for both HMA and PCCP. The Design Build Team can choose either HMA or PCCP Design.

Remove the existing mainline travel lanes and shoulder pavement of I-65. Removal also includes the existing subbase, excavate additional ground depth if needed for proposed subgrade treatment.

After removing the existing pavement and subbase, pavement designs are as follows:

A) HMA Design:

a) For constructing new I-65 mainline pavement including added travel lane, inside shoulder less than 4 feet wide and 2 ft into outside shoulder use:

165 lb/yd^2 QC/QA-HMA, 4, 58E, Surface 9.5 mm - SMA on
330 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate 19.0 mm, on
605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on

605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG19.0 mm (for drainage layer), on
Base Seal, on
330 lb/yd^2 QC/QA-HMA, 4, 58S, Base 19.0 mm (for separation layer), on
Subgrade Treatment - 12 in. Cement Stabilized Subgrade*

b) For constructing new I-65 wider than 4 feet inside shoulder and remaining width of the outside shoulder use:

165 lb/yd^2 QC/QA-HMA, 3, 58H, Surface 9.5 mm, on
330 lb/yd^2 QC/QA-HMA, 3, 58H, Intermediate 19.0 mm, on
605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG19.0 mm (for drainage layer), on
Base Seal, on
330 lb/yd^2 QC/QA-HMA, 2, 58S, Base 19.0 mm (for separation layer), on
Subgrade Treatment - 12 in. Cement Stabilized Subgrade*

*As per previously approved Geotechnical report including the addendum in 2022.

Notes:
1. Underdrains shall be designed as per Part 6 of IDM.
2. The HMA section of I-65 should be detailed in accordance with Figure 602-3B of IDM.
3. All new or replacement pavement designs except where a curb or barrier wall is present shall have a safety edge installed in accordance with IDM Figure 602-3AA. Safety edge detail shall be shown in the typical sections.
4. VRAM (Void Reducing Asphalt Membrane for SMA) shall be used at longitudinal joint between SMA mixture as per RSP 410-R-751.
5. The travel lanes shall be constructed using spray paving as per RSP 401-R-417 and 401-R-418.

c) Terminal Joint near RCBA (Reinforced Concrete Bridge Approach) Slab:

If it determined that new terminal joints will be required, then construct new pavement adjacent to terminal joints for 30 feet approaching the RCBA (12 inches of new RCBA) of I-65 using:

i) For mainline travel lanes and 2 ft into outside shoulder use:

165 lb/yd^2 QC/QA-HMA, 4, 58E, Surface 9.5 mm - SMA on
330 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate 19.0 mm, on
605 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
550 lb/yd^2 QC/QA-HMA, 4, 58S, Base 25.0 mm, on
6" Compacted Aggregate, No. 53, on
Subgrade Treatment, Type IC (12 in. coarse aggregate No. 53), on
Geotextile for Subgrade, Type 2B

ii) For inside shoulder and remaining width of outside shoulder use:

165 lb/yd^2 QC/QA-HMA, 3, 58H, Surface 9.5 mm, on
330 lb/yd^2 QC/QA-HMA, 3, 58H, Intermediate 19.0 mm, on
605 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
550 lb/yd^2 QC/QA-HMA, 2, 58S, Base 25.0 mm, on
6" Compacted Aggregate, No. 53, on
Subgrade Treatment, Type IC (12 in. coarse aggregate No. 53), on

Geotextile for Subgrade, Type 2B

Full depth HMA pavement adjacent to terminal joints shall be in accordance with INDOT Standard Drawing.

B) PCCP Design:

a) For constructing new mainline including added travel lane and shoulders pavements of I-65 use:

13.0 inches Plain Jointed QC/QA PCCP with 14 feet widened slab for outside lane tied QC/QA PCCP shoulders, and D-1 joints spaced at 15 feet with 1.5" diameter of Dowel Bar, on
300 lb/yd^2 QC/QA-HMA, 4, 58E, Intermediate OG19.0 mm (for drainage layer), on
Base Seal, on
330 lb/yd^2 QC/QA-HMA, 4, 58S, Base 19.0 mm (for separation layer)* mainline, on
Subgrade Treatment - 12 in. Cement Stabilized Subgrade**

*Wider than 4 ft inside shoulder and entire width of outside shoulder except 2 ft of the outside shoulder adjacent to mainline travel lane use:

330 lb/yd^2 QC/QA-HMA, 2, 58S, Base 19.0 mm, on (for separation layer)

** As per previously approved Geotechnical report including the addendum in 2022.

Notes:
1. Underdrains shall be designed as per Part 6 of IDM.
2. The PCCP section of I-65 should be detailed in accordance with Figure 602-3S of IDM.
3. All new or replacement pavement designs except where a curb or barrier wall is present shall have a safety edge installed in accordance with IDM Figure 602-3AA. Safety edge detail shall be shown in the typical sections.
4. Longitudinal Tining shall be constructed as per RSP 504-R-757.

b) Terminal Joint near RCBA (Reinforced Concrete Bridge Approach) Slab:

If it determined that new terminal joints will be required, then construct new pavement adjacent to terminal joints for 40 feet approaching the RCBA (12 inches of new RCBA) of I-65 using:

12.0 inches Jointed Reinforced Concrete Pavement with 14 feet widened slab for outside lane tied concrete shoulders, on
Subbase for PCCP Consisting of
3 in. of Coarse Aggregate, No. 8 on
6 in. of Coarse Aggregate, No. 53 on
Subgrade Treatment, Type IC (12 in. coarse aggregate No. 53), on
Geotextile for Subgrade, Type 2B

Full depth JRCP pavement adjacent to terminal joints shall be in accordance with INDOT Standard Drawing.

2) Rehabilitation Section – Mainline I-65:

A) I-65 Composite Pavement (Travel and Auxiliary Lanes)

Order Shown for Recommended Construction Sequence

a) Saw Cut Existing Asphalt Pavement at the distress locations and remove Asphalt Pavement to the Top of existing Concrete Pavement, then

Visibly examine condition of the existing concrete;
If existing concrete is not crumbling or showing signs of disintegration or cracking, replace asphalt with Partial-Depth HMA Patch as described below;

If existing concrete is crumbling or showing signs of disintegration or cracking, saw cut existing concrete pavement and remove, then replace with Full-Depth HMA Patch as described below;

i) Partial-Depth HMA Patch in Composite Pavement

HMA Patching, Partial Depth, Type D, consisting of
440 lbs/sys HMA Intermediate, Type D, on
Variable depth (min. 440 lbs/sys) HMA Base, Type D, on
Existing Concrete Pavement

iii) Full-Depth HMA Patch in Composite Pavement

HMA Patching, Full Depth, Type D (18" Min. or Match Adjacent Total Pavement Thickness, Whichever is Greater), consisting of
440 lbs/sys HMA Intermediate, Type D, on
Variable depth (min. 1540 lbs/sys) HMA Base, Type D, on
Subgrade Treatment Type II (6 in. Coarse Aggregate No. 53), on
Geotextile, Type 2B, on
Natural Subgrade (A-6).

Notes:
1. HMA partial depth and full depth Patching locations should be identified, and it should be approved by the Project Engineer. As per distress observed in the field it was estimated around 2 to 3 percentage of the existing pavement areas will be required to address with partial depth patching and 1 to 2 percentage of the existing pavement will be required to address with full depth patching.
2. The length of the partial or full depth patching should be at least 6 feet long and width of the patch should be lane width.
3. HMA full depth patching should be performed as per figure 603-3A of IDM.

b) The existing travel lanes, auxiliary lanes, up to 4 feet wide of inside shoulder, and 2 feet outside shoulder (adjacent to travel lane) including the patched areas shall use Milling, Asphalt, 2.0 inches.

c) After milling the pavement surface, any cracks that remain visible with 0.25-inch width or greater shall be sealed using "Cracks in Asphalt Pavement, Fill" before applying tack coat. The materials used to fill the cracks shall be PG 64-22 only, no emulsion materials should be used. The sealed cracks should not be overbanded.

d) Overlay on milled pavements of travel lanes, auxiliary lanes, up to 4 feet wide inside shoulder, and 2 feet into outside shoulder with:

220 lbs/yd^2 QC/QA-HMA, 4, 58E, Surface, 9.5mm – SMA, on
Milled surface

Notes:
1. The proposed profile grade for the top of the asphalt pavement should be the same as the existing.
2. VRAM (Void Reducing Asphalt Membrane for SMA) shall be used at longitudinal joint between SMA mixture as per RSP 410-R-751.
3. The travel lanes shall be constructed using spray paving as per RSP 401-R-417 and 401-R-418.

B) I-65 Asphalt Section (Shoulders)

a) Full-Depth HMA Patching (outside shoulder)
Saw-cut and Remove Existing Pavement at high severity distress location (fatigue crack), then

HMA Patching, Full Depth, Type C (match adjacent total existing shoulder pavement thickness; avg. 12.5”), consisting of

440 lbs/sys HMA Intermediate, Type C, on
Variable depth (min. 935 lbs/sys) HMA Base, Type C, on
Subgrade Treatment Type II (6” Coarse Aggregate No. 53), on
Geotextile, Type 2B, on
Natural Subgrade (A-6)

Note:
1. HMA full depth patching should be performed as per figure 603-3A of IDM.
2. HMA full depth Patching locations should be identified, and it should be approved by the Project Engineer.

b) Existing pavement of inside shoulder pavement wider than 4 feet and remaining width if the outside shoulder including the patched areas shall use Milling, Asphalt, 2.0 inches.

c) After milling the pavement surface, any cracks that remain visible with 0.25-inch width or greater shall be sealed using “Cracks in Asphalt Pavement, Fill” before applying tack coat. The materials used to fill the cracks shall be PG 64-22 only, no emulsion materials should be used. The sealed cracks should not be overbanded.

e) Overlay on milled shoulder pavements of wider than 4 feet inside shoulder, and remaining width of the outside shoulder with:

220 lbs/yd^2 QC/QA-HMA, 3, 58H, Surface, 9.5mm, on
Milled surface

3) SR 160 and SR 56 Ramps - Rehabilitation

a) Areas where existing ramp travel lane and/or shoulder pavement are distressed, saw cut and remove the full depth existing pavement including the subbase, locations shown on patching table as full depth; excavate the additional ground depth if needed for proposed Subgrade Treatment. Patch these locations with HMA Patching, Full Depth, Type C. HMA patch depth should be same as adjacent existing pavement depth or 12" minimum. See the attached drawing no. 1 for patching detail. Then use:

HMA Patching, Full Depth, Type C consisting of:
440 lbs/yd^2 HMA Intermediate, Type C, on
Variable depth (min. 880 lbs/yd^2) HMA Base, Type C, on
Subgrade Treatment, Type IC (12 in. coarse aggregate No. 53).

Note:
1. HMA full depth Patching locations should be identified for SR 56 Ramps, and it should be approved by the Project Engineer. As per distress observed in the field it was estimated around 1% of the existing pavement will be required to be addressed with full depth patching.

b) Outside shoulder of SR 160 Ramps (NE, SE, and NW), areas where pavement is missing or broken at high distress fatigue crack locations, remove the full depth existing shoulder including the aggregate base from outside edge to inside, locations shown on patching table as full depth; excavate the additional ground depth if needed for proposed Subgrade Treatment. HMA patch depth should be same as adjacent existing pavement depth or 12" minimum. See the attached drawing no. 2 for patching detail. Then use:

HMA Patching, Full Depth, Type C consisting of:
440 lbs/yd^2 HMA Intermediate, Type C, on
Variable depth (min. 880 lbs/yd^2) HMA Base, Type C, on
Subgrade Treatment, Type IC (12 in. coarse aggregate No. 53).

c) The existing ramp travel lane and shoulder pavements including the patched areas shall use Milling, Asphalt, 1.0"

d) After milling the pavement surface, any cracks that remain visible with 0.25-inch width or greater shall be sealed using "Cracks in Asphalt Pavement, Fill" before applying tack coat. The materials used to fill the cracks shall be PG 64-22 only, no emulsion materials should be used. The sealed cracks should not be overbanded.

e) Overlay on ramp travel lane and shoulder pavements with:

165 lbs/yd^2 QC/QA-HMA, 3, 58H, Surface, 9.5mm, on
Milled surface

f) Install new Compacted Aggregate, No. 53 wedge at outer edge of the shoulder at missing locations as per current standard and specification.

4) Temporary Pavement Design for Maintenance of Traffic

The existing asphalt pavement for **I-65** outside shoulders does not have enough structural strength to carry traffic during the MOT. The existing outside shoulder pavement shall not be used for MOT. Two alternatives are selected to address the structure strength of existing shoulder pavement. The Design Build Team can choose either of these two alternatives.

Alternative 1:

A) Temporary Pavement on I-65 outside shoulder use:

Prior to using the existing outside shoulder pavement of I-65 for maintenance of traffic (MOT) operations, reconstruct the shoulder. For reconstructing and widening of pavement, remove the existing HMA paved outside shoulder, unpaved shoulder, then use**:**

HMA for Temporary Pavement, Type D consisting of:
165 lb/yd^2 HMA, Surface, Type D, on
275 lb/yd^2 HMA, Intermediate, Type D, on
990 lb/yd^2 HMA, Base, Type D, on
Subgrade Treatment Type II (6 in. of coarse aggregate No. 53) over Type IB Geogrid*.

*See Geotechnical addendum report for foundation improvement at areas of cuts or dips or where wet soil condition encountered.

B) Median Crossover on I-65 use:

For new median crossovers pavement on I-65 for maintenance of traffic use:

HMA for Temporary Pavement, Type D consisting of:
165 lbs/yd^2 HMA, Surface, Type D, on
275 lbs/yd^2 HMA, Intermediate, Type D, on
990 lbs/yd^2 HMA, Base, Type D, on
Subgrade Treatment Type II (6 in. of coarse aggregate No. 53) over Type IB Geogrid**.

**See Geotechnical addendum report for foundation improvement areas.

Temporary asphalt pavement of outside shoulders and crossover on I-65 for maintenance of traffic is designed to last 2 years after it is constructed. If changes in construction result in the need for the temporary pavement to last longer, contact the District Pavement Engineer to assess the pavement design.

Alternative 2:

A) Temporary Pavement on I-65 shoulder use:

Shoulder strengthening is required before using the shoulder pavement for MOT operation. Based on the alternatives evaluated, single lift overlays will not be allowed as an acceptable shoulder strengthening strategy. Multiple lift overlays may be considered but will likely

require reductions in truck usage as compared to standard maintenance of traffic input values and shall be a minimum of 4 inches thick.

If Design Build Team chooses alternative 2 then MOT pavement Performance standards such as IRI, rutting, cracking, friction, shoving, pothole, delamination, raveling etc. will be developed and maintained during the times pavement will used for MOT operation.

Underdrain

1) Underdrains shall be designed as per Part 6 of IDM.

2) All existing underdrain pipes and outlets within the limits of existing pavement replacement shall be removed before any grading work begins for new pavement.

3) Underdrains outlets should be installed at least one at beginning of new pavement at RCBA, one at end of new pavement at RCBA, and one at beginning and end of new pavement.

Pavement Service Life

The new HMA pavement section for I-65 is designed with functional service life of 20 years and structural service life of 50 years. The new PCCP section for I-65 is designed with functional service life of 30 years and structural service life of 50 years. The HMA overlay on the existing pavements of I-65, SR 160 ramps, and SR 56 ramps are designed with a functional service life expectancy of 8 years.

I-65 new pavement sections have a life expectancy of 50 years. This life expectancy depends on the preventive maintenance treatments such as patching, overlay, and joint/crack sealing are done at regular intervals.

Cc: Mr. Benjamin Meadows, Seymour District Pavement Asset Engineer, INDOT
Mr. Bill Flora, Pavement Area Engineer, INDOT
Ms. Kyanna Wheeler, Project Manager, INDOT
Mr. Brad Williamson, Project Manager, INDOT
Mr. Tom Duncan, FHWA
File

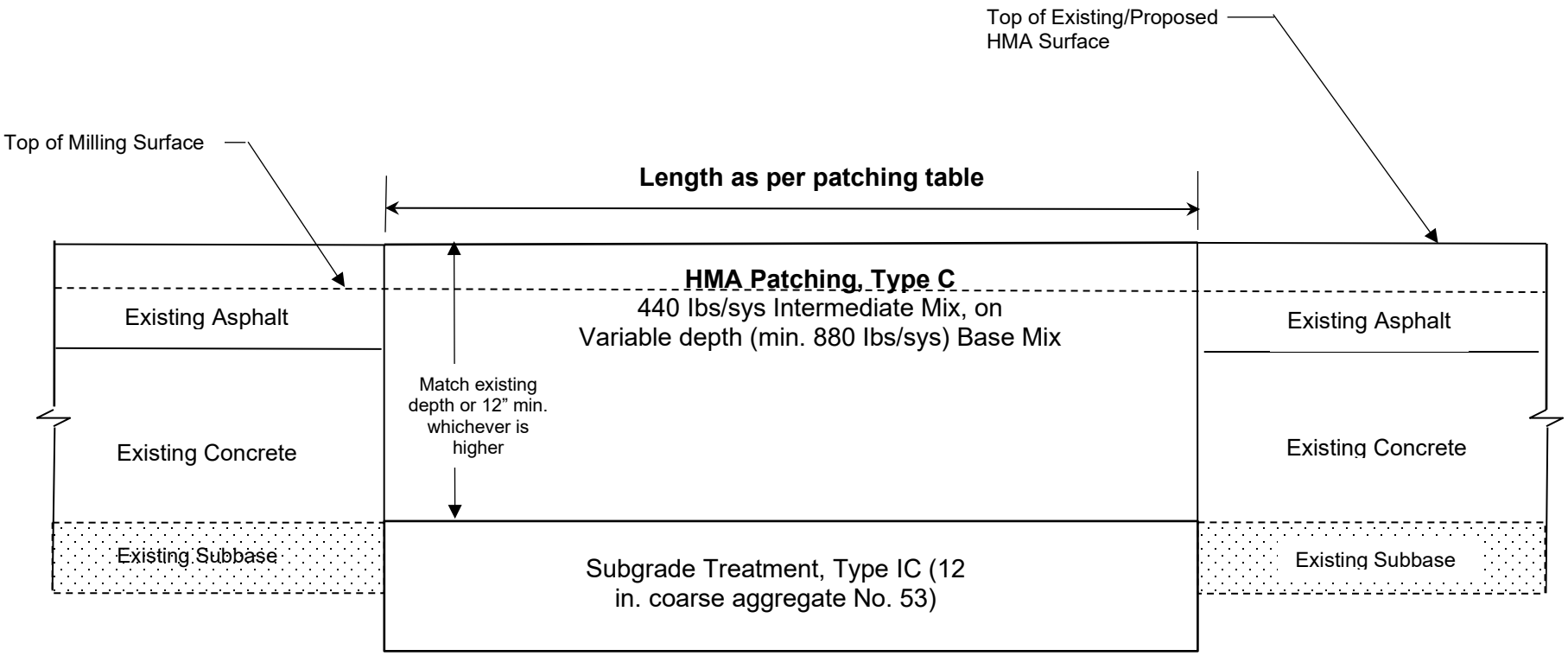
Patching Table SR 160 Interchange Ramps									
Start Sta.	End Sta.	Lane	Longitudinal Length (ft)	Transverse Width (ft)	Patching Type	Area (sys)	Partial Depth Ton	Full Depth Ton	Remark
1) SE Ramp, Begin Sta. 0+00 (Physical or Grass Gore of I-65 NB Exit)									
0+33	4+62	OS	429	4	FD	190.67	--	104.87	Broken shoulder at outside edge of outside shoulder to inside.
4+71	4+76	DL + OS	6	24	FD	16.00	--	8.80	Transverse Crack
									Sta. 6+55 at Center line of SR 160
2) NE Ramp, Begin Sta. 0+00 (Center Line of SR 160)									
1+10	8+28	OS	718	8	FD	638.22	--	351.02	Fatigue crack and broken shoulder, full depth patch entire width of outside shoulder.
2+21	2+27	DL + IS + OS	6	28	FD	18.67	--	10.27	Transverse Crack
3+02	3+08	DL + IS	6	20	FD	13.33	--	7.33	Transverse Crack
3+82	3+88	DL + IS	6	20	FD	13.33	--	7.33	Transverse Crack
									Sta. 10+61 at Physical or Grass Gore of I-65 NB entrance.
3) NW Ramp, Begin Sta. 0+00 (Physical or Grass Gore of I-65 SB Exit)									
3+06	4+06	OS	100	5	FD	55.56	--	30.56	Fatigue crack at outside edge of outside shoulder to inside.
6+77	7+29	OS	52	4	FD	23.11	--	12.71	Fatigue crack at outside edge of outside shoulder to inside.
									Sta. 9+95 at Center line of SR 160

Attachment 6-2

Start Sta.	End Sta.	Lane	Longitudinal Length (ft)	Transverse Width (ft)	Patching Type	Area (sys)	Partial Depth Ton	Full Depth Ton	Remark
4) SW Ramp, Begin Sta. 0+00 (Center Line of SR 160)									
1+70	1+85	DL + IS + OS	15	28	FD	46.67	--	25.67	Transverse Crack
3+17	3+23	DL + IS + OS	6	28	FD	18.67	--	10.27	Transverse Crack
3+57	3+63	DL + IS + OS	6	28	FD	18.67	--	10.27	Transverse Crack
3+96	4+02	DL + IS + OS	6	28	FD	18.67	--	10.27	Transverse Crack
4+77	4+83	DL + IS + OS	6	28	FD	18.67	--	10.27	Transverse Crack and pot holes
5+56	5+76	DL	20	16	FD	35.56	--	19.56	Transverse Crack and pot holes at center of lane
5+93	5+99	DL	6	16	FD	10.67	--	5.87	Pot holes at center of lane, patch center to Left edge of travel lane
									Sta. 9+56 at Physical or Grass Gore of I-65 SB entrance.
			Subtotals			1136.44	0.00	625.04	
			Add 10% Contingency			113.64	0.00	62.50	
			Total			1250.09	0.00	687.55	

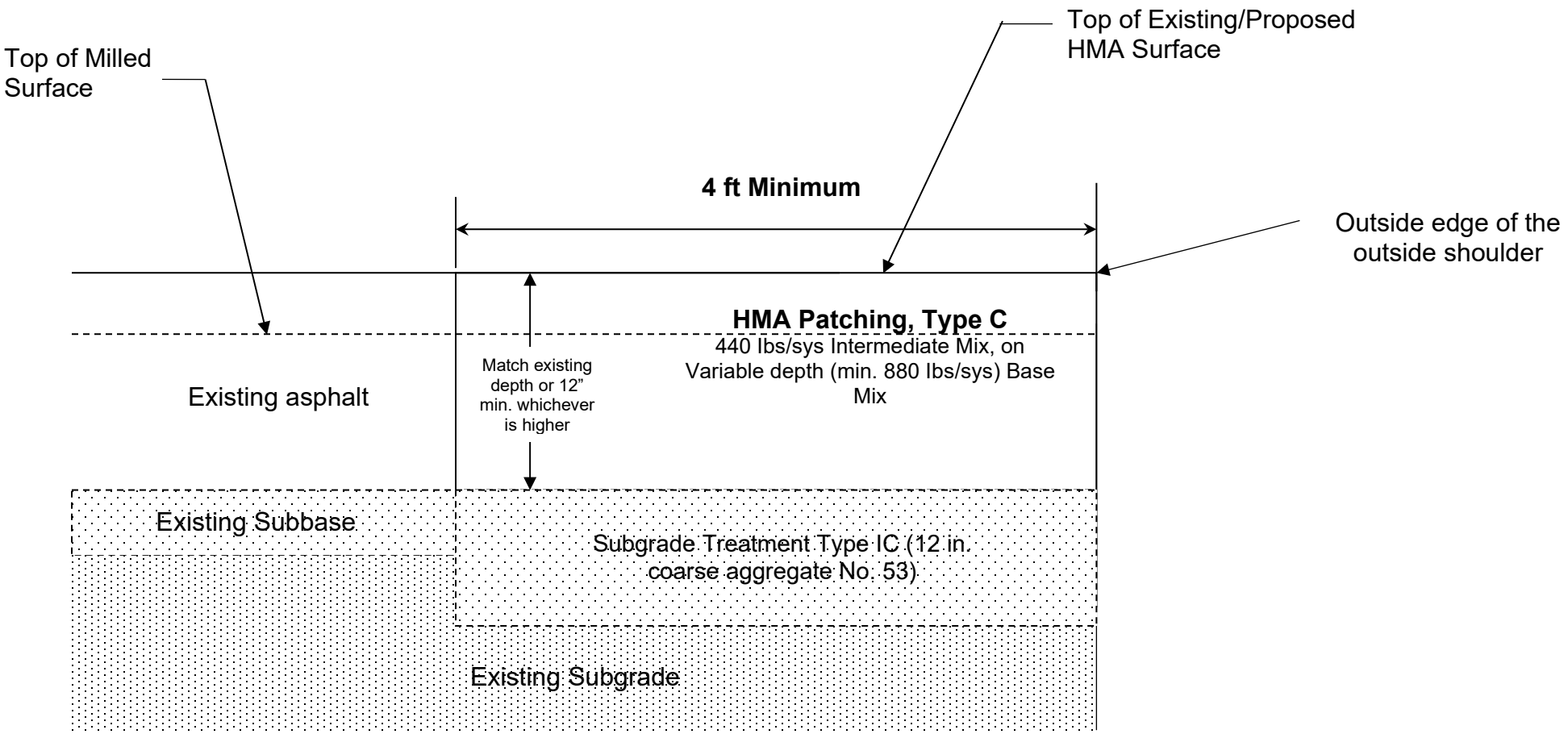
DL= Driving Lane
IS = Inside Shoulder
OS = Outside Shoulde

PD = Partial Depth HMA Patching
FD = Full Depth HMA Patching



Full Depth HMA Transverse Patch
SR 160 and SR 56 Ramps
(Drawing No. 1)

Attachment 6-2



Full Depth HMA Longitudinal Patch on Outside Shoulder
SR 160 and SR 56 Ramps
(Drawing No. 2)

Attachment 6-2

CEMENT STABILIZED SUBGRADE

Description

This work shall consist of stabilizing 12 in. soils by uniformly mixing Portland cement to achieve the desired unconfined compressive strengths in accordance with 105.03.

Materials

Materials shall be in accordance with 207.02.

Construction Requirements

Construction requirements shall be in accordance with 207.03 and as follows:

Testing and Mix Design

The Contractor shall be responsible for all tests required to determine the optimum cement content for producing stabilized subgrade with a minimum unconfined compressive strength of 300 psi at seven days. Cement content shall be targeted at 6% minimum to achieve a 300 psi design strength. The cement content may be adjusted if QC/QA testing results indicate issues with soils that would warrant such changes but shall not exceed 8%. Laboratory testing, and mix design shall be performed by an approved geotechnical consultant in accordance with the Department's Design Procedures for Soil Modification or Stabilization.

The test results and the geotechnical consultant recommendations shall be submitted to the Engineer and to the Geotechnical Services Section for approval at least five business days prior to use. Soils cement stabilization shall produce subgrade sections with a minimum unconfined compressive strength of 300 psi, at seven days curing. The unconfined compressive strength test shall be performed in accordance with AASHTO T 208. The Contractor's quality control plan shall address all of the testing requirements for the section as specified. The documents shall be submitted to the Engineer along with the mix design. Sulfate tests for water shall be performed in accordance with ASTM D 516. Testing and mix design shall be in accordance with 215.03.

Storage and Handling

Storage and handling shall be in accordance with 215.04.

Weather Limitations

Weather limitations shall be in accordance with 215.05.

Preparation of Soils

Soil preparation shall be in accordance with 215.06. Prior to subgrade stabilization, the 14 in. thick foundation stabilization shall be performed and proofrolled prior to the placement of the 12 in. soils.

Spreading of Cement

The surface shall be scarified to the specified depth prior to distribution of the cement. One pulverization pass shall be performed prior to cement spreading. Spreading of cement shall meet the requirements of 215.07.

Mixing

The soil, cement, and water shall be in accordance with 215.08. The mixing depth shall be 12 in. The standard Proctor for cement soils mixture shall be performed in accordance with AASHTO T 99. The Moisture content shall be determined during soils cement mixing in accordance with ITM 506. The moisture

content of the mixture, for 300 psi, shall be a minimum of 1% above the optimum moisture content at the time of mixing as determined by the mix design.

Compaction

Compaction of the mixture shall be in accordance with 215.09 and as follows:

(a) Initial compaction equipment shall consist of a vibratory tamping-foot roller.

(b) Final compaction shall be performed with a smooth drum roller.

Quality Control, QC Testing

(a) Quality Control testing for compaction of cement stabilized soils shall be performed on the finished grade with a LWD in accordance with 203.24(b). LWD tests will be 500 ft apart. Testing for the cement stabilized soils shall begin seven days after compaction. Construction traffic or equipment shall not be allowed on the treated soils until the area has passed LWD tests with the exception of equipment with a maximum weight of 5 t.

(b) Moisture tests soil cement mixtures shall be performed in accordance with ITM 506 at every 1000 ft during cement and soils mixing.

(c) One gradation test shall be performed at every 1000 ft of cement modified soil. Gradation tests shall be performed in accordance with ITM 516.

(d) The two test specimens shall be prepared at 95% of the Standard Proctor and cured for seven days. Specimens shall be taken every 1000 ft of length by lane width and shall be obtained by the Contractor. Unconfined compressive strength tests shall be performed in accordance with AASHTO T 208. Cement stabilized soils mixture shall be taken during pulverization and mixing.

(e) Cement spread rate shall be checked at every 1000 ft. Spread rate shall be in accordance with ITM 516.

(f) The soil cement mixing depth shall be checked in accordance with ITM 516 after mixing and prior to compaction.

(g) All the test performed by the Contractor shall be compiled and submitted to the Engineer on a weekly basis.

Quality Assurance, QA Testing

(a) Acceptance testing for compaction of cement stabilized soils will be performed on the finished grade with a LWD in accordance with 203.24(b). LWD tests will be 500 ft apart. Test sections for 300 psi stabilized subgrade will be developed so that maximum allowable deflection can be used in accordance with ITM 514. The acceptance test for the cement stabilized soils will begin seven days after compaction.

(b) Moisture tests based on ITM 506 for soil cement mixtures will be performed at every 1000 ft during cement and soils mixing.

Curing

Moisture content shall be maintained 1% above the optimum for the first seven days after mixing with cement. Curing compound shall be applied to the

surface and reapplied as applicable for the first seven days to aid in curing and prevent loss of moisture. Curing compound shall be in accordance with 504.04.

Trimming

Stabilized subgrade shall be prepped and adequate drainage shall be provided in accordance with 207.03.

Proofrolling

The entire stabilized subgrade shall be proofrolled in accordance with 203.26 and deflection or ruts great than 1/4 in. shall be corrected as directed.

Method of Measurement

The accepted cement stabilized subgrade will be measured in accordance with 215.11.

Basis of Payment

The accepted quantity of cement stabilized subgrade will be paid for in accordance with 215.12.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Cement Stabilized Subgrade ……	SYS

The cost of performing mix design by an approved geotechnical consultant, scarification of the subgrade, spreading and mixing of the cement and soil, compaction of the resultant mixture, shaping the subgrade, work required due to weather conditions, correction of deficient areas, water required for the stabilization process, subgrade trimming, and all operations needed to meet the requirements of this specification shall be included in the cost of the pay item.

504-R-757 LONGITUDINAL TINING

(Revised 02-15-24)

The Standard Specifications are revised as follows:

SECTION 504, BEGIN LINE 15, DELETE AND INSERT AS FOLLOWS:

504.03 Finishing *and Surface Texturing*

(a) Finishing

PCCP shall be finished with equipment in accordance with 508.04. The operations shall be controlled so that an excess of mortar and water is not worked to the top. Long-handled floats may be used to smooth and fill in open textured areas in the PCCP.

Hand methods of finishing may be used when finishing equipment breaks down or in tight working areas where field conditions limit the use of mechanical devices. Hand placed concrete shall be further finished by means of a longitudinal float or a transverse smoothing float in accordance with 508.08(a).

The edges of formed PCCP adjacent to HMA or compacted aggregate shall be tooled. A continuous radius with a uniform smooth dense mortar finish shall be produced.

~~The PCCP surface shall be textured with a double thickness burlap drag or a minimum 4 ft wide turf drag.~~

~~The textured surface of PCCP shall be tined, unless otherwise specified. Tining shall consist of transverse grooves that are between 3/32 and 1/8 in. in width, between 1/8 and 3/16 in. in depth, and be spaced as follows: 5/8 in., 1 in., 7/8 in., 5/8 in., 1 1/4 in., 3/4 in., 1 in., 1 in., 1 in., 1 in., 3/4 in., 7/8 in., 1 3/4 in., 7/8 in., 3/8 in., 1 in., 1 in., 1 1/4 in., 1 1/2 in., 7/8 in., 3/4 in., 7/8 in., 1 in., 7/8 in., 1 in. The grooving pattern shall be repeated across the pavement. The tining grooves shall be formed in the plastic concrete without tearing the surface and without bringing pieces of the coarse aggregate to the top of the surface.~~

~~Texturing and curing operations may be performed by a single machine subject to satisfactory performance.~~

~~Areas of PCCP which are not finished in accordance with these requirements shall be corrected by retexturing.~~

~~Retexturing shall consist of cutting longitudinal or transverse grooves in the PCCP surface by means of saw blades or other approved devices. The grooves shall be spaced 3/4 in. center to center and be 1/8 in. in width and depth. Alternative patterns may be used, subject to approval. The PCCP surface, after cutting, shall not be polished.~~

(b) Surface Texturing

The PCCP surface shall be textured with a double thickness burlap drag or a minimum 4 ft wide turf drag followed by tining oriented either longitudinal or transverse to the direction of travel as specified herein, all before the PCCP permanently sets. The

Attachment 6-4

PCCP surface of mailbox approaches and private and commercial driveways shall be broom finished before the PCCP permanently sets.

Tining the textured surface shall be completed using a mechanical device in accordance with 508.06. The Contractor shall oversee the tining operation to ensure the forming of straight, uniform grooves in the textured, plastic PCCP surface without tearing the concrete surface, without allowing the tine groove edges to slump at the edges, and without bringing pieces of the coarse aggregate to the top of the PCCP surface. Wander and overlap of the tining, and any wavy pattern in the tining shall be prevented. Presence of wander, overlap, or wavy pattern in the tining will be cause for retexturing.

For tight working areas, form work, and where field conditions such as small or irregularly shaped areas limit the use of mechanical devices, as determined by the Engineer, the Contractor may request to use a hand tool that is in accordance with 508.06 and has tines and spacing in accordance with 504.03(b)1 or 2 below, as applicable for the application.

Texturing and curing operations may be performed by a single machine subject to satisfactory performance.

1. Longitudinal Tining

Tining shall be in the longitudinal direction, parallel with the direction of travel, on all PCCP that is uniform in width, including mainline and shoulders. Tining shall be completed using a mechanical device in accordance with 508.06 that has 1/8 in. wide tines, spaced at 3/4 in. center-to-center, and produces a uniform, nominal depth tine groove 1/8 in. ± 1/16 in. deep in the plastic PCCP. The mechanical device shall be able to tine the full width of the PCCP in one operation. Tining shall be completed prior to the application of curing materials. String line or other controls for line and grade shall be used to ensure straight tining parallel with the direction of travel. Tining shall not be performed within 3 in. of pavement edges or longitudinal joints.

2. Transverse Tining

Tining shall be in the transverse direction, perpendicular to the direction of travel, on PCCP on all approaches, ramps, tapered areas, and gore areas. Tining shall be completed using a mechanical device in accordance with 508.06 that has 1/8 in. wide tines, spaced center-to-center as follows: 3/8 in., 9/16 in., 5/8 in., 7/16 in., 3/8 in., 1/2 in., 9/16 in., 5/8 in., 7/16 in., 3/8 in., 13/16 in., 1/2 in., and produces a uniform, nominal depth tine groove 1/8 in. ± 1/16 in. deep in the plastic PCCP. The tining pattern shall be repeated across the PCCP surface perpendicular to the direction of travel.

(c) Retexturing

Areas of PCCP which are not finished and textured in accordance with the requirements herein shall be corrected by retexturing. Retexturing shall be done in the same longitudinal or transverse direction as the orientation of the existing tining. It shall consist of cutting longitudinal or transverse grooves in the PCCP surface by means of saw blades or other approved devices. The grooves shall be spaced in accordance with 504.03(b)1 or 2 above as appropriate. The PCCP surface, after cutting, shall not be polished.

Attachment 6-4

504.04 Curing

Curing materials shall be applied to exposed surfaces and sides of newly placed PCCP within 30 minutes after the finishing operations have been completed, or as soon as marring of the concrete does not occur. Paving operations shall be immediately suspended if sufficient curing materials are not available on site.

SECTION 504, BEGIN LINE 127, INSERT AS FOLLOWS:

504.06 Basis of Payment

The cost of finishing the PCCP surface furnishing and placing curing materials shall be included in the cost of the PCCP. *Retexturing shall be at no additional cost to the Department.*

SECTION 508, BEGIN LINE 217, DELETE AND INSERT AS FOLLOWS:

508.06 ~~Texturing~~*Tining* Equipment

~~Mechanical texturing equipment~~*The mechanical device* shall ~~be capable of forming transverse~~*have automated elevation and steering controls to ensure the forming of straight* grooves of uniform depth and alignment in the plastic PCCP, without tearing the surface. The ~~texturing comb~~*mechanical device* shall have *a single row of* steel tines spaced as specified.

Hand tools consisting of fluted floats, rakes with spring steel tines, or finned floats with a single row of fins shall produce grooves which conform to the same requirements as those specified for the grooves formed by the mechanical ~~equipment~~*device*.

401-R-417 HMA SPRAY PAVER AND EMULSION

(Revised 05-20-23)

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 23, INSERT AS FOLLOWS:

401.03 Materials

Materials shall be in accordance with the following:

Asphalt Emulsion.....902.01(b)2

SECTION 401, BEGIN LINE 378, INSERT AS FOLLOWS:

Rubblized concrete pavements shall be primed in accordance with 405. PCCP, milled asphalt surfaces, and new and existing asphalt surfaces shall be tacked in accordance with 406*, except surfaces shall be tacked in accordance with 401.14 when mixture is placed with paving equipment in accordance with 409.03(c)4.* Contact surfaces of curbing, gutters, manholes, and other structures shall be tacked in accordance with 406.

SECTION 401, BEGIN LINE 399, INSERT AS FOLLOWS:

401.14 Spreading and Finishing

The mixture placed on a shoulder, approach, taper, or gore area shall be placed by means of laydown equipment in accordance with 409.03(c)1, 409.03(c)2, or 409.03(c)3 and tacked in accordance with 406 and 409.03(a). No additional payment will be made if the Contractor elects to use equipment and materials in accordance with 409.03(c)4 and 902.01(b)2.

The mixture *placed on all travel lanes, turn lanes, auxiliary lanes, and ramps which are 11 ft or more in width* shall be placed upon an approved surface by means of laydown equipment in accordance with 409.03(c)*4. This shall include a mixture placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp.*

The spray paver emulsion, in accordance with 902.01(b)2, shall be applied at a temperature recommended by the emulsion supplier and applied uniformly across the entire width of pavement to be overlaid. Equipment shall not operate on the applied emulsion before the asphalt mix is placed.

The asphalt emulsion spray bar affixed to the spray paver shall not be turned off while applying the HMA except when passing over the plate sampling area. The plate sampling area shall be defined as 3.0 ft or less from the first edge of the plate sample encountered going upstream and continuing to 3.0 ft or less from the last edge of the plate sample encountered going upstream. This shall include any Contractor plate samples. Tack coat will not be required in the plate sampling area.

The application rates of the spray paver emulsion are shown in the table below.

Spray Paver Emulsion Application Rate and Adjustment Factors for Surface Conditions			
Mixture Designation	*19.0 mm or 25.0 mm*	*12.5 mm*	*9.5 mm*

Attachment 6-5

Tack Emulsion Application Rate, gal./sq yd	*0.25*	*0.20*	*0.17*
Existing Surface Condition	*Adjustment to application rate, gal./sq yd*		
PCCP, smooth or polished	*-0.03*	*-0.03*	*-0.03*
PCCP, broomed or textured	*0*	*0*	*0*
Flushed asphalt concrete surface	*-0.02*	*-0.03*	*-0.03*
Dense, unaged asphalt concrete surface	*0*	*0*	*0*
Open textured, dry, aged or oxidized asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*
Milled asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*

A pre-paving meeting between the Engineer and the Contractor shall be held on-site prior to beginning work. The following shall be reviewed:

(a) work schedule
(b) traffic control plan
(c) equipment calibrations and adjustments
(d) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(e) design mix formula
(f) the Contractor's proposed emulsion and mix application rates
(g) QCP in accordance with ITM 803
(h) the Contractor's authorized representative.

SECTION 401, BEGIN LINE 425, INSERT AS FOLLOWS:

HMA mainline and HMA shoulders which are 8 ft or more in width shall be placed with paving equipment in accordance with 409.03(c)1 *or 409.03(c)4*.

SECTION 401, AFTER LINE 975, INSERT AS FOLLOWS:

Spray paver emulsion will be measured by the ton.

SECTION 401, AFTER LINE 995, INSERT AS FOLLOWS:

The accepted quantities of spray paver emulsion will be paid for at the contract unit price per ton, complete in place.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
HMA Spray Paver Emulsion	*TON*

SECTION 409, AFTER LINE 75, INSERT AS FOLLOWS:

4. Spray Paver

The paver shall be in accordance with 409.03(c)1 except as follows:

(a) The paver shall be self-priming, designed and built for applying the HMA and the asphalt emulsion simultaneously. The paver shall have a receiving hopper, feed system, asphalt

emulsion storage tank, a calibrated metering system for measuring the emulsion volume applied, spray bar and a heated, variable width, combination vibratory screed or a combination vibratory-tamping bar screed.

(b) The paver shall be capable of spraying the asphalt emulsion, applying the asphalt mix and leveling the surface of the mat in one pass.

410-R-418 SMA SPRAY PAVER AND EMULSION

(Revised 05-20-23)

The Standard Specifications are revised as follows:

SECTION 410, AFTER LINE 23, INSERT AS FOLLOWS:

Asphalt Emulsion .....902.01(b)2

SECTION 410, BEGIN LINE 240, DELETE AND INSERT AS FOLLOWS:

Milled asphalt surfaces and asphalt surfaces shall be tacked in accordance with 406*, except surfaces shall be tacked in accordance with 401.14 when mixture is placed with paving equipment in accordance with 409.03(c)4.* Contact surfaces of curbing, gutters, manholes, and other structures shall be tacked in accordance with 406.

SECTION 410, BEGIN LINE 257, INSERT AS FOLLOWS:

410.14 Spreading and Finishing

The mixture placed on a shoulder, approach, taper, or gore area shall be placed by means of laydown equipment in accordance with 409.03(c)1, 409.03(c)2, or 409.03(c)3 and tacked in accordance with 406 and 409.03(a). No additional payment will be made if the Contractor elects to use equipment and materials in accordance with 409.03(c)4 and 902.01(b)2.

The mixture *placed on all travel lanes, turn lanes, auxiliary lanes and ramps which are 11 ft or more in width* shall be placed upon an approved surface by means of a paver or other mechanical devices in accordance with 409.03*(c)4. This shall include a mixture placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp.*

The spray paver emulsion, in accordance with 902.01(b)2, shall be applied at a temperature recommended by the emulsion supplier and applied uniformly across the entire width of pavement to be overlaid. Equipment shall not operate on the applied emulsion before the asphalt mix is placed.

The asphalt emulsion spray bar affixed to the spray paver shall not be turned off while applying the HMA except when passing over the plate sampling area. The plate sampling area shall be defined as 3.0 ft or less from the first edge of the plate sample encountered going upstream and continuing to 3.0 ft or less from the last edge of the plate sample encountered going upstream. This shall include any contractor plate samples. Tack coat will not be required in the plate sampling area.

The application rates of the spray paver emulsion are shown in the table below.

Spray Paver Emulsion Application Rate and Adjustment Factors for Surface Conditions			
Mixture Designation	*19.0 mm*	*12.5 mm*	*9.5 mm*
Tack Emulsion Application Rate, gal./sq yd	*0.25*	*0.20*	*0.17*
Existing Surface Condition	*Adjustment to application rate, gal./sq yd*		
PCCP, smooth or polished	*-0.03*	*-0.03*	*-0.03*
PCCP, broomed or textured	*0*	*0*	*0*

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Flushed asphalt concrete surface	*-0.02*	*-0.03*	*-0.03*
Dense, unaged asphalt concrete surface	*0*	*0*	*0*
Open textured, dry, aged or oxidized asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*
Milled asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*

A pre-paving meeting between the Engineer and the Contractor shall be held on-site prior to beginning work. The following shall be reviewed:

(a) work schedule
(b) traffic control plan
(c) equipment calibrations and adjustments
(d) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(e) design mix formula
(f) the Contractor's proposed emulsion and mix application rates
(g) QCP in accordance with ITM 803
(h) the Contractor's authorized representative.

SECTION 410, AFTER LINE 494, INSERT AS FOLLOWS:

Spray paver emulsion will be measured by the ton.

SECTION 410, AFTER LINE 503, INSERT AS FOLLOWS:

The accepted quantities of spray paver emulsion will be paid for at the contract unit price per ton, complete in place.

SECTION 410, AFTER LINE 530, INSERT AS FOLLOWS:

SMA Spray Paver Emulsion .....TON

SECTION 409, AFTER LINE 75, INSERT AS FOLLOWS:

4. Spray Paver

The paver shall be in accordance with 409.03(c)1 except as follows:

(a) The paver shall be self-priming, designed and built for applying the HMA and the asphalt emulsion simultaneously. The paver shall have a receiving hopper, feed system, asphalt emulsion storage tank, a calibrated metering system for measuring the emulsion volume applied, spray bar and a heated, variable width, combination vibratory screed or a combination vibratory-tamping bar screed.

(b) The paver shall be capable of spraying the asphalt emulsion, applying the asphalt mix and leveling the surface of the mat in one pass.

410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA

(Revised 05-20-23)

The Standard Specifications are revised as follows:

SECTION 101, AFTER LINE 152, INSERT AS FOLLOWS:

VRAM *void reducing asphalt membrane*

SECTION 410, BEGIN LINE 303, DELETE AND INSERT AS FOLLOWS:

410.15 Joints

Longitudinal joints in the surface shall be at the lane lines of the pavement.

(a) Hot Poured Joint Adhesive for Applications

Hot poured joint adhesive in accordance with 906 shall be applied to longitudinal joints constructed between ~~two adjacent HMA courses in the top course of dense graded intermediate mixtures and~~ all ~~9.5 mm and 12.5 mm~~ SMA mixture *intermediate* courses *or longitudinal joints constructed between the SMA mixture intermediate courses and dense graded HMA intermediate courses*. This includes joints within the traveled way as well as between any of the following:

(a) traveled way and an auxiliary lane,
(b) traveled way and a paved shoulder, and
(c) auxiliary lane and a paved shoulder.

SECTION 410, AFTER LINE 333, INSERT AS FOLLOWS:

(b) VRAM for Applications

VRAM in accordance with 902 shall be applied under the area where a longitudinal joint will be formed in the top course of all SMA surface mixture courses. This shall include the area where a longitudinal joint will be formed within the traveled way, between the traveled way and an auxiliary lane, between the traveled way and a paved shoulder, and between an auxiliary lane and a paved shoulder.

Application of the VRAM material shall be with a distributor in accordance with 409.03(a) that is equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating. Material from a melting kettle may be dispensed through a pressure feed wand with an applicator shoe or through a pressure feed wand into a hand-operated thermal push-cart used for transport and application. All transport and storage assets for the VRAM material shall be equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating.

Prior to the application of the VRAM, the existing surface to be treated shall be free of foreign materials deemed detrimental by the Engineer and shall also be dry and cleaned of all dust, debris and any substances that will prevent adherence. The VRAM may be placed before or after the tack coat. If after, the tack coat shall be fully cured prior to placement of VRAM.

The width and minimum application rate shall be in accordance with the following table:

Attachment 6-6

VRAM Application Rate		
SMA Planned Lay Rate, lb/sq yd	*VRAM Width, in.*	*VRAM Application Rate*, lb/ft*
165	*18*	*1.26*
220	*18*	*1.51*
Tolerance		*± 10%*

* *The application rate has a surface demand for liquid included within it. The nominal thickness of the VRAM may taper from the center of the application to a lesser thickness on the edge of the application. The width and weight per foot shall be maintained. If the material is placed under a joint formed between a SMA mixture and a dense graded HMA mixture, the lower application rate shall be used.*

The application shall be within 2 in. of being centered under the joint of the course being constructed. When only half of the joint is exposed, the application shall be applied at half the prescribed width, shall be adjacent to the center of the joint, and the vertical face of the cold joint left in place shall also be coated.

The Contractor shall furnish a bill of lading, to the Engineer, for each tanker supplying material to the project. The flow, application rate, and tracking of material will be verified within the first 1,000 ft of the day's scheduled application length and every 12,000 ft the remainder of the day. For projects less than 3,000 ft, the rate will be verified once. A suitable paper or pan shall be placed at a random location in the path of placement. The paper or pan shall be picked up and weighed after application to determine the weight per foot yield. The Contractor shall replace the VRAM in the areas where the samples were taken.

The VRAM shall be applied in a single pass. A distributor or melting kettle shall apply the material to within 1 1/2 in. of the width specified. Placement shall stop and remedial action shall be taken if the material flows more than 2 in. from initial placement. Release paper shall be placed over the previous application to prevent doubling the thickness when starting another run.

The VRAM shall be suitable for construction traffic to drive on without pickup or tracking within 30 minutes of placement. Placement shall stop and damaged areas shall be repaired if pickup or tracking occurs. The paver end plate and grade control device shall be raised above the finished height of the material prior to start of paving.

Cores for density determination shall be in accordance with 401.16 and 401.20 and shall not be taken within 12 in. of either the confined edge or the non-confined edge of the course placed where VRAM has been applied.

SECTION 410, BEGIN LINE 505, INSERT AS FOLLOWS:

Joint adhesive will be measured by the linear foot in accordance with 109.01(a). *VRAM for SMA will be measured by the linear foot.*

SECTION 410, BEGIN LINE 517, INSERT AS FOLLOWS:

Joint adhesive will be paid for by the linear foot, complete in place. *VRAM for SMA will be paid for at the contract unit price per linear foot for full width applications. VRAM for SMA will be paid for at half the contract unit price per linear foot for half width applications.*

SECTION 410, AFTER LINE 533, INSERT AS FOLLOWS:

Void Reducing Asphalt Membrane for SMA .....LFT

SECTION 902, AFTER LINE 121, INSERT AS FOLLOWS:

(f) VRAM

The asphalt material comprising the VRAM shall be in accordance with the following:

Characteristics	*Requirements*	*Test Method*
Dynamic shear @ 88°C (unaged), G/sin δ, kPa*	*1.00 min.*	*AASHTO T 315*
Creep stiffness @ -18°C (unaged), Stiffness (S), MPa m-value	*300 max.* *0.300 min.*	*AASHTO T 313*
Ash, %	*1.0 - 4.0*	*AASHTO T 111*
Elastic Recovery, *100 mm elongation, cut immediately, 25°C, %*	*70 min.*	*AASHTO T 301*
Separation of Polymer, *Difference in °C of the softening point (Ring and Ball)*	*3 max.*	*ASTM D7173,* *AASHTO T 53*

Elastomers shall be added to a base asphalt and shall be either a styrene-butadiene diblock or triblock copolymer without oil extension, or a styrene-butadiene rubber. Air blown asphalt, acid modification, or other modifiers will not be allowed.

VRAM shall be furnished by a supplier on the QPL of Performance-Graded Asphalt Binder Suppliers. A type A certification for the VRAM material shall be furnished in accordance with 916.

Attachment 6-6

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758-Hydraulics
Indianapolis, Indiana 46204

PHONE: (317) 233-2096
FAX: (317) 233-4929

Eric Holcomb, Governor
Michael Smith, Commissioner

October 11, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff

THROUGH: Alex Schwinghamer PE
INDOT Engineer



SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77582
County: Clark
Location: I-65, 0.96 mile north of Blue Lick Rd.
Crossing: UNT to Blue Lick Creek
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	65	acres
Q_{100} Discharge	90	cfs
Q_{25} Discharge (for J.P. Analysis)	73	cfs
Q_{50} Discharge for velocity	82	cfs
Q_{100} Tailwater Depth (J.P. Analysis)	6.79	ft.
Q_{100} Tailwater Depth (irregular DS channel)	2.91	ft.
US Edge of Shoulder	487.75	ft.
Design Roadway Serviceability Elevation	487.04	ft.

Culvert Properties								
Parameter	**Original**		**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	43" x 27" CMPA (Square Edge w/Headwall)		24" HDPE Liner (Projecting)		54" ID Smooth Interior (Square Edge w/ Headwall)		54" ID Corr. Interior (Square Edge w/ Headwall)	
Q_{100} Headwater Elevation (JP Analysis)	486.78	ft.	486.80	ft.	483.99	ft.	484.65	ft.
Q_{100} Headwater Elevation	486.76	ft.	486.79	ft.	481.97	ft.	482.16	ft.
Meets Roadway Serviceability @ Q_{100}	No		No		Yes		Yes	
Backwater	6.27	ft.	6.30	ft.	1.48	ft.	1.67	ft.
Minimal Low Structure Elevation (DS)	478.34	ft.	478.23	ft.	480.23	ft.	480.23	ft.
Assumed Flowline Elevation (DS)	476.09	ft.	476.23	ft.	476.23	ft.	476.23	ft.
Sump Depth	N/A	in.	N/A	in.	6	in.	6	in.

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Original Condition

The original structure installed with the interstate was a 193 ft long 43" x 27" CMP arch with headwalls.

The original structure was obtained from the original I-65 plans from 1957 and modeled in HY-8. Manning's value for the structure was set to 0.028 based on the structure's material. The inlet configuration was set to "Square Edge with Headwall" based on photographs obtained from the site visit. The survey and existing plans were used to determine the structure inverts and existing roadway width. In addition, the topographic survey was used to define the irregular channel data within the model.

A Manning's n value of 0.05 was used for the irregular downstream channel analysis since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 0.7%. The tailwater depth is estimated at 2.91 ft and the tailwater velocity is approximately 7.5 ft/s.

The existing culvert is not located within a regulated drain. Also, the approved Waters Report indicates the culvert is located within a jurisdictional water.

A joint probability analysis was performed in accordance with IDM Figure 203-2G. The tailwater utilized for the 1% flood elevation downstream of I-65 is 482.96. The 4% flood elevation downstream of I-65 is estimated at 481.62.

Existing Condition

The original structure was lined with a 193 ft long 24" HDPE pipe. The pipe is projecting. The existing pipe was modeled in HY-8. Manning's value for the structure was set to 0.012 based on the structure's material. The inlet configuration was set to "Projecting" based on photographs obtained from the site visit. The survey was used to determine the structure inverts and existing roadway width. The downstream channel shape utilized in the original condition was utilized for the existing model.

A Manning's n value of 0.05 was used for the downstream channel analysis since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 0.7%. The tailwater depth is estimated at 2.91 ft and the tailwater velocity is approximately 7.5 ft/s.

A joint probability analysis was performed in accordance with IDM Figure 203-2G. The tailwater utilized for the 1% flood elevation downstream of I-65 is 482.96. The 4% flood elevation downstream of I-65 is estimated at 481.62.

Proposed Alternatives

The proposed structure is a 170 ft long 54" circular pipe consisting of smooth and corrugated alternatives. The proposed structure will have a headwall at the inlet integral to the proposed floodwall. The proposed structure included 54" I.D. smooth and corrugated alternative and were modeled in HY-8. Manning's value for the structure were set to 0.012 for the smooth interior and 0.024 for the corrugated interior. The inlet configuration was set to "Square Edge with Headwall" based on the proposed design. The survey was used to determine the structure inverts and existing roadway width. The downstream channel shape utilized in the original condition was utilized for the proposed models.

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The structure is not located in a regulated drain. The proposed pipe is being sumped 6 inches in accordance with IDM Figure 203-2E since it is located in a jurisdictional water.

A joint probability analysis was performed in accordance with IDM Figure 203-2G. The tailwater utilized for the 1% flood elevation downstream of I-65 is 482.96. The 4% flood elevation downstream of I-65 is estimated at 481.62.

The required freeboard elevation for this structure is the base flood elevation upstream of Biggs Road plus 2 feet, elevation 487.04. The proposed floodwall and I-65 profile has a minimum shoulder elevation of 487.75.

The highest headwater elevation obtained from the analysis is 484.65 for the corrugated interior pipe using the 1% EP event for the main stream and the 4% EP event for the tributary which is under the required freeboard elevation.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	7.1	ft/s	7.1	ft/s
Outlet Riprap Size	Class 1		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	3.2			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Outlet riprap sized based the table above shall be placed on geotextiles according to IDM Figure 203-2J. If the designer determines that inlet riprap is necessary, revetment should be use.

Alternative scour protection designs should be submitted to the INDOT Office of Hydraulics for review and approval.

If you have any questions or comments, please contact Alex Schwinghamer at Aschwinghamer@indot.in.gov.

cc: file

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
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PHONE: (317) 233-2096
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Eric Holcomb, Governor
Michael Smith, Commissioner

September 26, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77581
County:Clark
Location: 1.98 miles south of SR 160
Crossing: UNT Henry Brook
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	3.3	acres
Q_{100} Discharge	10	cfs
Q_{50} Discharge for velocity	9	cfs
Q_{100} Tailwater Depth	0.99	ft.
US Edge of Shoulder	525.95	ft.
Design Roadway Serviceability Elevation	523.95	ft.

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Michael Smith, Commissioner

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	24" ID CMP w/Grated Box End Section		36" ID Smooth Pipe w/Grated Box End Section		36" ID Corrugated Pipe w/Grated Box End Section	
Q_{100} Headwater Elevation	524.64	ft.	523.02	ft.	523.02	ft.
Meets Roadway Serviceability @ Q100	No		Yes		Yes	
Backwater	0.66	ft.	0	ft.	0	ft.
Minimal Low Structure Elevation (DS)	521.50	ft.	522.55	ft.	522.55	ft.
Assumed Flowline Elevation (DS)	519.50	ft.	519.55	ft.	519.55	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 3.3 acres. The time of concentration was estimated at 11 minutes. The computed runoff coefficient was 0.43. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.9%. The tailwater depth is estimated at 0.99 ft and the tailwater velocity is approximately 2.4 ft/s.

The existing structure is a 156 ft long 24" CMP at 2.24% slope with a grated box end sections at the upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 153 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being lowered at the upstream end to accommodate the increased pipe size while providing the required minimum cover. The downstream flowline is higher than the existing due to shortening of the pipe to install a headwall behind guardrail to ensure the culvert could be installed within the existing right-of-way. The proposed culvert slope is 1.37%. A grated box section will be installed at the inlet since it is located within the I-65 clear zone. The inlet condition is modeled as square edge with headwall.

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The controlling edge of pavement elevation to meet freeboard requirements for this structure is 525.95 at Sta. 442+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 523.95. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 523.02 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	7.9	ft/s	4.8	ft/s
Outlet Riprap Size	Class 1		Revetment	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	2.4			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have Class 1 and Revetment riprap, respectively, placed at the outlet according to IDM Figure 203-2J. Due to the presence of an existing uniform riprap ditch which is located within the I-65 clear zone, uniform riprap should be placed at the inlet in where existing riprap is disturbed during installation.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

cc: file

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
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PHONE: (317) 233-2096
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Eric Holcomb, Governor
Michael Smith, Commissioner

November 1, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-87621 (CLV I65-010-18.14)
County:Clark
Location: 1.17 miles south of SR 160
Crossing: UNT to Henry Brook
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	6.6	acres
Q_{100} Discharge	19	cfs
Q_{50} Discharge for velocity	17	cfs
Q_{100} Tailwater Depth	1.20	ft.
US Edge of Shoulder	514.90	ft.
Design Roadway Serviceability Elevation	512.90	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	24" ID CMP w/Grated Box End Section		36" ID Smooth Pipe w/Safety Metal End Section		36" ID Corrugated Pipe w/Safety Metal End Section	
Q_{100} Headwater Elevation	514.96	ft.	511.51	ft.	511.60	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes		Yes	
Backwater	4.28	ft.	0.83	ft.	0.92	ft.
Minimal Low Structure Elevation (DS)	510.66	ft.	511.66	ft.	511.66	ft.
Assumed Flowline Elevation (DS)	508.66	ft.	508.66	ft.	508.66	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 6.6 acres. The time of concentration was estimated at 14 minutes. The computed runoff coefficient was 0.44. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 0.9%. The tailwater depth is estimated at 1.20 ft and the tailwater velocity is approximately 1.7 ft/s.

The existing structure is a 153 ft long 24" CMP at 0.54% slope with a grated box end sections at the upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A scour hole has developed adjacent to the upstream grated box end section.

See table above for results of existing hydraulic analysis.

A Waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 153 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being lowered at the upstream end to accommodate the increased pipe size while providing the required minimum cover. The proposed culvert slope is 0.54%. Safety metal end sections will be installed at each end since it is located within the I-65 clear zone. The inlet condition is modeled as mitered to conform to slope.

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Eric Holcomb, Governor
Michael Smith, Commissioner

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 514.90 at Sta. 484+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 512.90. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 511.79 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	5.7	ft/s	5.7	ft/s
Outlet Riprap Size	Revetment		Revetment	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	1.7			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have Revetment riprap placed at the outlet according to IDM Figure 203-2J. Due to the presence of an existing scour hole at the upstream end of the structure which is located within the I-65 clear zone, uniform riprap should be placed around the proposed safety metal end section to remediate erosion.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair at cgill@indot.in.gov or (317) 232-2901.

cc: file

INDIANA DEPARTMENT OF TRANSPORTATION

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PHONE: (317) 233-2096
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Eric Holcomb, Governor
Michael Smith, Commissioner

November 1, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CV I65-010-18.12
County: Clark
Location: 1.08 mile south of SR 160
Crossing: UNT to Henry Brook
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	18.1	acres
Q_{100} Discharge	59	cfs
Q_{50} Discharge for velocity	54	cfs
Q_{100} Tailwater Depth	1.22	ft.
US Edge of Shoulder	519.27	ft.
Design Roadway Serviceability Elevation	517.27	ft.

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Michael Smith, Commissioner

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	36" ID CMP w/Grated Box End Section		53" x 34" HECP w/Headwall		57" x 38" CMPA w/Headwall	
Q_{100} Headwater Elevation	520.72	ft.	517.19	ft.	517.21	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes		Yes	
Backwater	5.54	ft.	2.01	ft.	2.03	ft.
Minimal Low Structure Elevation (DS)	515.80	ft.	515.63	ft.	515.97	ft.
Assumed Flowline Elevation (DS)	512.80	ft.	512.80	ft.	512.80	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 18.1 acres. The time of concentration was estimated at 11 minutes. The computed runoff coefficient was 0.46. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.0%. The tailwater depth is estimated at 1.22 ft and the tailwater velocity is approximately 2.7 ft/s.

The existing structure is a 169 ft long 36" CMP at 0.69% slope with a grated box end sections at the upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A Waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 172 ft long 53" x 34" HECP (min. Area = 10.15 sft) or 57" x 38" CMPA (Min. Area 11.6 sft) alternatives. The proposed flowline is being retained. The proposed culvert slope is 0.67%. Headwall and wingwalls will be installed at each end to ensure construction limits do not exceed the existing right-of-way. The inlet condition is modeled as Square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 519.27 at Sta. 488+50 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 517.27. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 517.21 which is under the maximum freeboard elevation.

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Eric Holcomb, Governor
Michael Smith, Commissioner

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	9.6	ft/s	7.4	ft/s
Outlet Riprap Size	Class 1		Class 1	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}	2.7			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Proposals 1 and 2 should have Class 1 riprap, placed at the outlet according to IDM Figure 203-2J.

Riprap is not required at the inlet, but should the designer determine the need for riprap, Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov (317) 232-2901.

cc: file

INDIANA DEPARTMENT OF TRANSPORTATION

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

October 4, 2021

TO: Brad Williamson
INDOT Project Manager

FROM: Joe Vangampler
Consultant Engineer
jvangampler@vsengineering.com
VS Engineering

THROUGH: Meagan Froman, P.E.
INDOT Hydraulics Engineer

THROUGH: Merril Dougherty, P.E.
INDOT Hydraulics Engineer

JOSEPH L. VANGAMPLER REGISTERED No. PE11600743 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 2001599
Asset Name: CV I65-010-18.35
County: Clark
Location: 9.21 miles N of SR 311
Crossing: Henry Brook
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

This is a revised memo which provides a single assumed flowline elevation of 522.75 feet (see the Culvert Properties table). It is to replace the previously approved hydraulic memo for this structure dated September 15, 2021.

Site Parameters		
Drainage Area	123.1	acres
Q_{100} Discharge	178	cfs
Q_{50} Discharge for velocity	147	cfs
Q_{100} Outlet Depth	3.73	ft.
US Edge of Travel Lane	533	ft.
Design Roadway Serviceability Elevation	531	ft.

INDIANA DEPARTMENT OF TRANSPORTATION

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

Culvert Properties												
Parameter	**Existing**		**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**	
Structure Size & Type	66" CMP with Thin Edge Projecting		58.8" Slip Lining (54" I.D.) and 30" Jack and Bore		5" Paved Invert with 21" Jack and Bore Pipe		66" Diameter Smooth Pipe Replacement		72" Diameter Corrugated Pipe Replacement		63" CIPP (1.5" Thick Liner)	
Q_{100} Headwater Elevation	530.74	ft.	530.40	ft.	530.54	ft.	530.24	ft.	530.05	ft.	530.53	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes		Yes		Yes		Yes	
Backwater	3.21	ft.	2.87	ft.	3.01	ft.	2.71	ft.	2.52	ft.	3.0	ft.
Minimal Low Structure Elevation (DS)	528.25	ft.	527.45	ft.	528.25	ft.	527.75	ft.	528.25	ft.	528.13	ft.
Assumed Flowline Elevation (DS)	522.75 ft.											
Sump Depth	0	in.	0	in.	0	in.	6	in.	6	in.	0	in.

The project is located on I-65 over Henry Brook in Clark County in INDOT's Seymour District. The site is located on the United States Geologic Survey (USGS) Quadrangle Map, Henryville, Clarks Military Grant. The latitude and longitude of the project is 38°31'42.14"N, 85°46'27.45"W.

The existing culvert has a drainage area of approximately 123.1 acres, producing a 100-year discharge of 178 cubic feet per second (cfs) and a 50-year discharge of 147 cfs. The existing culvert is a 66-inch diameter corrugated metal pipe (CMP). The existing backwater, calculated using the outlet depth, is 3.21 feet, so the liner proposals must have backwaters less than or equal to 3.21 feet and replacement proposals less than or equal to 3.00 feet to meet the requirements set forth in the Indiana Design Manual 2013 (IDM).

An Indiana Department of Natural Resources (IDNR) "Construction in a Floodway" (CIF) permit is not required for this project due to its drainage area being less than one (1) square mile.

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

Riprap Design Recommendations

Riprap Properties										
Parameter	**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**	
Outlet Velocity @ Q_{50}	10.8	ft/s	9.2	ft/s	9.7	ft/s	9.3	ft/s	11.6	ft/s
Outlet Riprap Size	Class 2		Class 1		Class 1		Class 1		Class 2	
Inlet Riprap Needed (Y/N)	Yes		Yes		Yes		Yes		Yes	
Natural Channel Velocity @ Q_{50}	4.78 ft/s									
Minimal Inlet Riprap Size if Warranted	Revetment									

Riprap on geotextiles should be placed according to IDM Figure 203-2J.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Meagan Froman at MFroman@indot.IN.gov.

INDIANA DEPARTMENT OF TRANSPORTATION

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Eric Holcomb, Governor
Michael Smith, Commissioner

November 1, 2022

TO: Brad Williamson
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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CV I65-010-18.67
County:Clark
Location: 0.53 mile south of SR 160
Crossing: UNT to Henry Brook
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	24.6	acres
Q_{100} Discharge	52	cfs
Q_{50} Discharge for velocity	48	cfs
Q_{100} Tailwater Depth	1.31	ft.
US Edge of Shoulder	547.99	ft.
Design Roadway Serviceability Elevation	545.99	ft.

Parameter	Existing		Proposal 1	
Structure Size & Type	30" ID CMP w/Grated Box End Section		4' x 3' RC Box w/Grated Box End Section	
Q_{100} Headwater Elevation	549.26	ft.	545.97	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes	
Backwater	4.92	ft.	1.63	ft.
Minimal Low Structure Elevation (DS)	544.60	ft.	544.60	ft.
Assumed Flowline Elevation (DS)	542.10	ft.	542.10	ft.
Sump Depth	N/A	in.	6	in.

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Existing Condition and Analysis

The delineated drainage area was estimated to be 24.6 acres. The time of concentration was estimated at 17 minutes. The computed runoff coefficient was 0.36. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.0%. The tailwater depth is estimated at 1.31 ft and the tailwater velocity is approximately 2.8 ft/s.

The existing structure is a 159 ft long 30" CMP at 0.58% slope with a grated box end section at the upstream end. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 152 ft long 4 ft x 3 ft RC box sumped 6 inches to provided sufficient cover. The proposed flowline is being lowered by 0.33 ft at the upstream end to accommodate the increased pipe size while providing the required minimum cover. The proposed culvert slope is 0.39%. A modified grated box end section will be installed at the inlet to meet clear zone requirements. The inlet condition is modeled as Square edge with headwall. Headwall and wingwalls will be installed at the outlet to ensure construction limits do not exceed the existing right-of-way.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 547.99 at Sta. 517+40 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 545.99. The proposed 1% EP headwater elevation is 545.97 which is under the maximum freeboard elevation. Smooth elliptical and corrugated pipe arch alternative were analyzed and found not to be able to provide proper cover, therefore those alternatives have been eliminated.

Backwater is decreased for the proposed alternative, and serviceability is provided; therefore, the proposed alternative is acceptable as a replacement structure.

The outlet velocity for the 2% EP event is 7.29 ft/s. Class 1 riprap will be placed at the outlet in accordance with IDM Fig. 203-2D. No riprap is proposed at the inlet as a modified grated box end section is being installed to meet clear zone requirements.

See table above for results of proposed hydraulic analysis.

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Riprap Design Recommendations

Parameter	Proposal 1	
Outlet Velocity @ Q_{50}	7.29	ft/s
Outlet Riprap Size	Class 1	
Inlet Riprap Needed (Y/N)	No	
Natural Channel Velocity @ Q_{50}	2.8	ft/s
Minimal Inlet Riprap Size if Warranted	Uniform	

Proposal 1 should have Class 1 riprap placed at the outlet according to IDM Figure 203-2J and INDOT Standard Drawing E714-BPCSP. Since the inlet end of the structure is within the I-65 clear zone, a modified grated box end section is being installed. While riprap is not necessary at this inlet, if riprap is placed during construction, uniform shall be designated.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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Eric Holcomb, Governor
Michael Smith, Commissioner

September 14, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
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Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77579
County:Clark
Location: 0.20 mile south of SR 160
Crossing: UNT to Caney Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	14.2	acres
Q_{100} Discharge	30	cfs
Q_{50} Discharge for velocity	28	cfs
Q_{100} Tailwater Depth	1.02	ft.
US Edge of Shoulder	564.38	ft.
Design Roadway Serviceability Elevation	562.38	ft.

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Michael Smith, Commissioner

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 3**	
Structure Size & Type	24" ID CMP w/Grated Box End Section		36" ID Smooth Pipe w/Headwall		36" ID Corrugated Pipe w/Headwall	
Q_{100} Headwater Elevation	565.60	ft.	559.80	ft.	559.97	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes		Yes	
Backwater	7.46	ft.	1.66	ft.	1.83	ft.
Minimal Low Structure Elevation (DS)	556.48	ft.	557.48	ft.	557.48	ft.
Assumed Flowline Elevation (DS)	554.48	ft.	554.48	ft.	554.48	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 14.2 acres. The time of concentration was estimated at 19 minutes. The computed runoff coefficient was 0.37. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 2.80%. The tailwater depth is estimated at 1.02 ft and the tailwater velocity is approximately 2.6 ft/s.

The existing structure is a 191 ft long 24" CMP at 1.38% slope with a grated box end section at the upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A Waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 189 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being retained. The proposed culvert slope is 1.40%. Headwall and wingwalls will be installed at the outlet to ensure construction limits do not exceed the existing right-of-way. The inlet condition is modeled as Square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 564.38 at Sta. 533+93 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 562.38. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 559.97 which is under the maximum freeboard elevation.

See table above for results of proposed hydraulic analysis.

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Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	10.8	ft/s	6.7	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	2.6			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Proposals 1 and 2 should have Class 2 and Class 1 riprap, respectively, placed at the outlet according to IDM Figure 203-2J. Since a headwall and wingwalls are being installed at the upstream end of the structure, revetment riprap should be placed at the inlet within the limits of the wings.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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Eric Holcomb, Governor
Michael Smith, Commissioner

November 1, 2022

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Beam, Longest & Neff

THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF
INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77578 (CLV I65-10-19.26L)
County:Clark
Location: 0.10 mile south of SR 160 (Ramp D – South West)
Crossing: UNT to Caney Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	7.3	acres
Q_{100} Discharge	40	cfs
Q_{50} Discharge for velocity	36	cfs
Q_{100} Tailwater Depth	1.74	ft.
US Edge of Shoulder	567.46	ft.
Design Roadway Serviceability Elevation	565.46	ft.

Culvert Properties				
Parameter	**Existing**		**Proposal 1**	
Structure Size & Type	18" ID RCP w/Grated Box End Section		42" ID Smooth Pipe w/Grated Box End Section	
Q_{100} Headwater Elevation	567.95	ft.	561.13	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes	
Backwater	8.21	ft.	1.39	ft.
Minimal Low Structure Elevation (DS)	559.27	ft.	561.27	ft.
Assumed Flowline Elevation (DS)	557.77	ft.	557.77	ft.
Sump Depth	N/A	in.	N/A	in.

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Existing Condition and Analysis

The delineated drainage area was estimated to be 7.3 acres. The time of concentration was estimated at 5 minutes. The computed runoff coefficient was 0.55. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 3.0%. The tailwater depth is estimated at 1.74 ft and the tailwater velocity is approximately 3.2 ft/s.

The existing structure is an 86 ft long 18" RCP at 0.27% slope with a grated box end section at the upstream end. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

While a 36" smooth or corrugated pipe will meet hydraulic requirements at this location, the upstream pipe under I-65 (CLV-89179) has a limited roadway serviceability elevation of 561.67. Smooth pipes smaller than a 42" and corrugated pipes smaller than 48" result in the upstream culvert not being able to meet the 2 ft roadway serviceability and therefore have been eliminated as an option. Since a 48" diameter pipe would require the asset to be reclassified as a large culvert, INDOT Hydraulics has requested the corrugated pipe be eliminated. The proposed structure will be a 76 ft long 42" circular smooth pipe. The proposed flowline is being retained. The proposed culvert slope is 0.30%. A grated box end section will be installed at the inlet and outlet ends of the structure since it is located within the I-65 Ramp clear zone. The inlet condition is modeled as square edge with headwall.

Since the inlet to this structure is located within the interchange infield, separate roadway serviceability elevations were checked.

1) The controlling ramp edge of pavement elevation to meet freeboard requirements for this structure is 567.46 at Sta. 89+00 "PR-SW Ramp". The maximum allowable headwater elevation to meet the 0 ft freeboard for a ramp is 567.46.

2) The controlling I-65 edge of pavement elevation to meet freeboard requirements for this structure is 563.74 at Sta. 545+25 "PR-Q". The maximum allowable headwater to meet the 2 ft freeboard for I-65 is 561.74.

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The I-65 edge of pavement is the controlling edge of pavement to be used for roadway serviceability. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 561.13 which is under the maximum freeboard elevations for I-65 and the SW ramp.
Backwater is decreased for all proposed alternative, and serviceability is provided; therefore, the proposed alternative is acceptable as replacement alternative.

Riprap Design Recommendations

Riprap Properties		
Parameter	**Proposal 1**	
Outlet Velocity @ Q_{50}	6.9	ft/s
Outlet Riprap Size	Class 1	
Inlet Riprap Needed (Y/N)	No	
Natural Channel Velocity @ Q_{50}	3.2	ft/s
Minimal Inlet Riprap Size if Warranted	Uniform	

Proposal 1 should have Class 1 riprap placed at the outlet according to IDM Figure 203-2J. Since the inlet end of the structure is within the I-65 clear zone, uniform riprap in the existing roadside ditch impacted by the proposed culvert will be replaced.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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November 01, 2022

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INDOT Project Manager

FROM: Dan Gibson, PE
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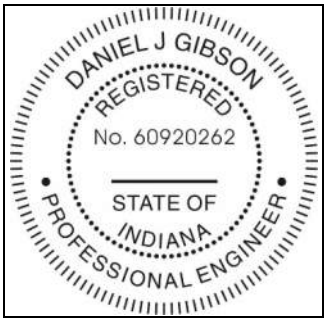

THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick. PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89179 (CLV I65-010-19.31)
County:Clark
Location: 0.06 mile south of SR 160
Crossing: UNT to Caney Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	2.1	acres
Q_{100} Discharge	9	cfs
Q_{50} Discharge for velocity	9	cfs
Q_{100} Tailwater Depth	0.44	ft.
US Edge of Travel Lane	563.67	ft.
Design Roadway Serviceability Elevation	561.67	ft.

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Culvert Properties				
Parameter	**Existing**		**Proposal 1**	
Structure Size & Type	18" ID RCP w/Drop Inlet		45" x 29" HECP w/ Grated Box End Section	
Q_{100} Headwater Elevation based on constant tailwater	567.95	ft.	561.25	ft.
Meets Roadway Serviceability @ Q_{100}	No		Yes	
Backwater based on natural channel	1.59	ft.	0	ft.
Minimal Low Structure Elevation (DS)	560.83	ft.	561.75	ft.
Assumed Flowline Elevation (DS)	559.33	ft.	559.33	ft.
Sump Depth	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 2.1 acres. The time of concentration was estimated at 5 minutes. The computed runoff coefficient was 0.45. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

Two models were analyzed for the downstream tailwater. A constant tailwater model utilized the headwater produced by the downstream structure 48-2 (CLV-77578). The irregular channel model utilized a Manning's n value of 0.035 was used for the well defined downstream grass lined roadside ditch. The approximate slope of the downstream channel is 0.96%. The tailwater depth is estimated at 0.44 ft and the tailwater velocity is approximately 2.2 ft/s. The constant tailwater model produced the highest tailwater. The irregular channel model was utilized to determine velocities.

The existing structure is a 185 ft long 18" RCP at 0.74% slope with a drop inlet at the upstream end. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 182 ft long 45" x 29" HECP (min. Area = 7.34 sft). Since a 49" x 33" corrugated pipe arch would require the asset to be reclassified as a large culvert, INDOT Hydraulics has requested the corrugated alternative be eliminated. It is necessary to lower the flowline at the inlet 1 ft in order to meet roadway serviceability and provide minimum cover. The proposed culvert slope is 0.20%. A grated box end section will be installed at the

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inlet and outlet ends of the structure since it is located within the I-65 Ramp clear zone. The inlet condition is modeled as Square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 563.67 at Sta. 545+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 561.67. The highest proposed 1% EP headwater elevation obtained is 561.25 which meets the maximum freeboard elevation.

Backwater is decreased for the proposed alternative, and serviceability is provided; therefore, the proposed alternative is acceptable as a replacement alternative.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties		
Parameter	**Proposal 1**	
Outlet Velocity @ Q_{50}	4.3	ft/s
Outlet Riprap Size	Uniform	
Inlet Riprap Needed (Y/N)	No	
Natural Channel Velocity @ Q_{50}	2.2	ft/s
Minimal Inlet Riprap Size if Warranted	Uniform	

Uniform riprap is necessary in lieu of revetment riprap when located within the clear zone. Proposals 1 and 2 should have Uniform riprap placed at the outlet according to IDM Figure 203-2J. Riprap is not required at the inlet, but should the designer determine the need, Uniform riprap may be placed.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901

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Eric Holcomb, Governor
Michael Smith, Commissioner

November 3, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
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Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89181 (CLV I65-010-19.66)
County:Clark
Location: 0.30 mile north of SR 160
Crossing: UNT to Ville Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	7.9	acres
Q_{100} Discharge	34	cfs
Q_{50} Discharge for velocity	32	cfs
Q_{100} Tailwater Depth	1.89	ft.
US Edge of Travel Lane	549.38	ft.
Design Roadway Serviceability Elevation	547.38	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	18" ID RCP w/Drop Inlet		36" ID Smooth Pipe w/Modified Grated Box End Section		36" ID Corrugated Pipe w/Modified Grated Box End Section	
Q_{100} Headwater Elevation (Pipe)	550.26	ft.	543.21	ft.	543.18	ft.
Q_{100} Headwater Elevation (Weir)	N/A	ft.	547.41	ft.	547.41	ft.
Meets Roadway Serviceability @ Q_{100}	No		No		No	
Backwater	5.39	ft.	0	ft.	0	ft.
Minimal Low Structure Elevation (DS)	537.97	ft.	539.47	ft.	539.47	ft.
Assumed Flowline Elevation (DS)	536.47	ft.	536.47	ft.	536.47	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 7.9 acres. The time of concentration was estimated at 11 minutes. The computed runoff coefficient was 0.61. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.2%. The tailwater depth is estimated at 1.89 ft and the tailwater velocity is approximately 3.0 ft/s.

The existing structure is a 185 ft long 18" RCP with a grated box end section at the downstream end. Upstream, the pipe connects to two upstream pipes via a drop inlet. See table above for modeling properties.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.2%. The tailwater depth is estimated at 1.89 ft and the tailwater velocity is approximately 3.0 ft/s.

See table above for results of hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 183 ft long 36" circular pipe consisting of smooth and corrugated alternatives. Due to right-of-way constraints, separation of the I-65 culvert from the upstream pipe of the limited access right-of-way is not possible with this project. A new modified grated box end section will be used to connect the pipe in lieu of the existing drop inlet. The proposed invert at the inlet will be lowered so the I-65 culvert soffit is not higher than the upstream pipe soffit, to provide the required cover under I-65 and help mitigate velocities in the smooth interior

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alternative. The proposed smooth velocity will not exceed the existing velocity and will allow the use of class 2 riprap. The proposed invert at the outlet will match existing.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 549.38. The maximum allowable headwater elevation to meet the 2 ft freeboard is 547.38. For the culvert, the highest proposed 1% EP headwater elevation obtained based upon the material alternative is 543.21 which is under the maximum freeboard elevation. The modified grated box end section at the upstream end has a weir elevation of 546.56 that matches the existing roadway ditch elevation. The resulting headwater elevation at the weir is 547.41. The freeboard for the weir is 1.97'.

Backwater is decreased for all proposed alternatives, however due to the weir elevation of the drop inlet, the maximum freeboard provided is 1.97'. The proposed culverts are acceptable as replacements as the weir controls the roadway serviceability provided.

See table above for modeling properties.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	12.7	ft/s	7.7	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}	3.0			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have Class 2 and Class 1 riprap, respectively, placed at the outlet on geotextiles according to IDM Figure 203-2J. While riprap is not necessary at this inlet, if riprap is placed during construction, uniform shall be designated.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

cc: file

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

October 4, 2021

TO: Brad Williamson
INDOT Project Manager

FROM: Joe Vangampler
Consultant Engineer
jvangampler@vsengineering.com
VS Engineering

THROUGH: Meagan Froman, P.E.
INDOT Engineer

JOSEPH L. VANGAMPLER REGISTERED No. PE11600743 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 2001598
Asset Name: CV I65-010-19.90
County: Clark
Location: 0.67 miles N of SR 160
Crossing: Wolf Run
DNR CIF Permit Required (Y/N): TBD
Legal Drain (Y/N): No

This is a revised memo which provides a single assumed flowline elevation of 514.02 feet (see the Culvert Properties table). It is to replace the previously approved hydraulic memo for this structure dated September 21, 2021.

Site Parameters		
Drainage Area	908.6	acres
Q_{100} Discharge	485	cfs
Q_{50} Discharge for velocity	386	cfs
Q_{100} Outlet Depth	5.52	ft.
US Edge of Travel Lane	533	ft.
Design Roadway Serviceability Elevation	531	ft.

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Culvert Properties												
Parameter	**Existing**		**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**	
Structure Size & Type	102" CMP with Thin Edge Projecting		90.6" Slip Lining (84" I.D.) Headwall with 1.5:1 Bevel Edge		5" Paved Invert with 24" Jack & Bore Pipe*		132" Diameter Smooth Pipe Replacement		132" Diameter Corrugated Pipe Replacement		9'x9' Concrete Box Culvert	
Q_{100} Headwater Elevation	525.25	ft.	525.25	ft.	525.18	ft.	523.18	ft.	523.54	ft.	523.14	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes		Yes		Yes		Yes	
Backwater	4.35	ft.	4.35	ft.	4.28	ft.	2.91	ft.	2.64	ft.	2.24	ft.
Minimal Low Structure Elevation (DS)	522.52	ft.	521.30	ft.	522.52	ft.	523.52	ft.	523.02	ft.	522.52	ft.
Assumed Flowline Elevation (DS)	514.02 ft.											
Sump Depth	0	in.	0	in.	0	in.	6	in.	6	in.	6	in.

*Note: End section required on upstream end of jack and bore pipe.

The project is located on I-65 over Wolf Run in Clark County in INDOT's Seymour District. The site is located on the United States Geologic Survey (USGS) Quadrangle Map, Scottsburg, Section 7, Township 2 North, and Range 7 East.

The existing culvert has a drainage area of approximately 908.6 acres, producing a 100-year discharge of 485 cubic feet per second (cfs) and a 50-year discharge of 386 cfs. The existing culvert is a 102-inch diameter corrugated metal pipe (CMP). The existing backwater, calculated using outlet depth, is 4.35 feet, so the proposed replacement structures must have a backwater less than or equal to 3 feet and the lining options must be less than or equal to 4.35 feet.

An Indiana Department of Natural Resources (IDNR) "Construction in a Floodway" (CIF) permit may be required for this project. It is unclear whether Henryville is considered a consolidated or incorporated town, or neither, but the culvert appears to be within Henryville's limits. The only classification found stated that Henryville is a "census designated place". DNR's environmental manager was unable to provide conclusive direction on this when asked on 12/21/2020. Furthermore, under the maintenance memorandum of understanding between INDOT and DNR, it is noted that pipe lining projects are exempted. It is VS' understanding that the slip lining and paved invert Proposals are both considered pipe lining and will only be subject to the INDOT backwater requirements for this study. If a replacement Proposal is selected, then the classification of Henryville should be revisited, and the new culvert may require a Floodway permit.

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Riprap Design Recommendations

Riprap Properties										
Parameter	**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**	
Outlet Velocity @ Q_{50}	14.1	ft/s	11.2	ft/s	10.8	ft/s	10.5	ft/s	11.1	ft/s
Outlet Riprap Size	Energy Dissipater		Class 2		Class 2		Class 2		Class 2	
Inlet Riprap Needed (Y/N)	No		No		No		No		No	
Natural Channel Velocity @ Q_{50}	3.2 ft/s									
Minimal Inlet Riprap Size if Warranted	Revetment									

Riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J.

The energy dissipater for Proposal 1 was modeled in HY-8. A summary is provided on the next page. The riprap stilling basin for Proposal 1 has a tailwater velocity that decreases to the natural channel velocity (Q_{50}) within four lengths of the stilling basin outlet. Class II would be required 47 feet downstream of the stilling basin outlet followed by revetment riprap armoring for an additional 94 feet as shown in the following tables. The feasibility of this proposal is dependent on land acquisition to build the energy dissipation system.

Proposal scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

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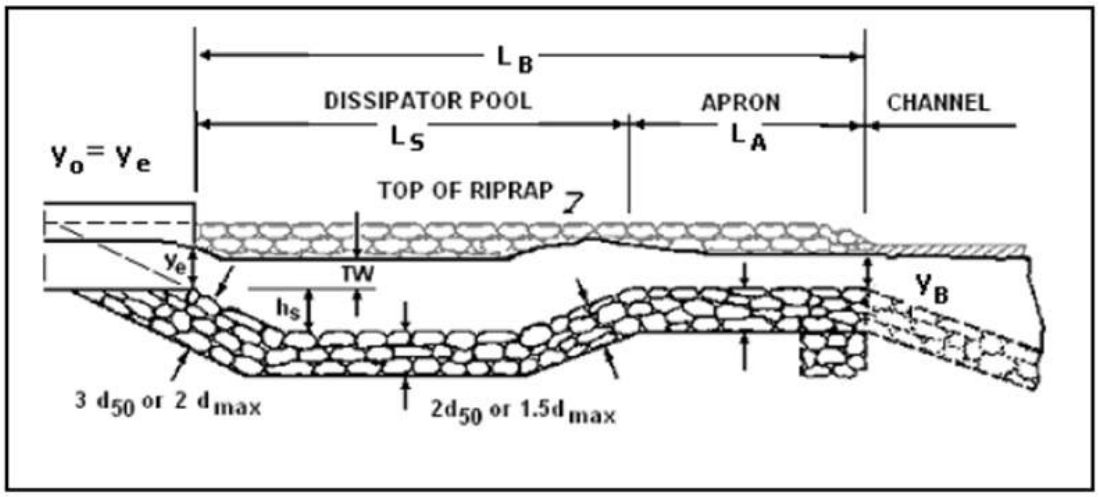
External Energy Dissipater Details – Riprap Basin



Riprap Basin Properties

	Proposal 1	
Basin Length (L_B)	47	ft.
Basin Width	38	ft.
Apron Length (L_A)	16	ft.
Pool Depth (h_s)	3.1	ft.
Stilling Basin Riprap Size	Revetment	

Downstream Riprap for High Tailwater

	Proposal 1	
Distance: 1 LB	10.1	ft/sec
Distance: 2 LB	5.4	ft/sec
Distance: 3 LB	3.6	ft/sec
Distance: 4 LB	2.7	ft/sec

If you have any questions or comments, please contact Meagan Froman at MFroman@indot.IN.gov.

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November 3, 2022

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Beam, Longest & Neff

THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77577 (CLV I65-010-20.31)
County:Clark
Location: 0.95 mile north of SR 160
Crossing: UNT1 to Wolf Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	1.3	acres
Q_{100} Discharge	4	cfs
Q_{50} Discharge for velocity	4	cfs
Q_{100} Tailwater Depth	0.34	ft.
US Edge of Travel Lane	565.90	ft.
Design Roadway Serviceability Elevation	563.90	ft.

Culvert Properties						
Parameter	**Original**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	18" ID CMP w/ flared metal end section		36" ID Smooth Pipe w/ S.M.E.S.		36" ID Corrugated Pipe w/ S.M.E.S.	
Q_{100} Headwater Elevation	561.71	ft.	561.52	ft.	561.52	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	0.74	ft.	0.55	ft.	0.55	ft.
Minimal Low Structure Elevation (DS)	551.89	ft.	553.39	ft.	553.39	ft.
Assumed Flowline Elevation (DS)	550.39	ft.	550.39	ft.	550.39	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

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Existing Condition and Analysis

The delineated drainage area was estimated to be 1.3 acres. The time of concentration was estimated at 10 minutes. The computed runoff coefficient was 0.43. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 2.7%. The tailwater depth is estimated at 0.34 ft and the tailwater velocity is approximately 1.9 ft/s.

The existing structure is a 240 ft long 18" CMP at 4.27% slope with a flared metal end sections at the upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 228 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being retained. The proposed culvert slope is 4.49%. Safety metal end sections will be installed at the culvert ends since they are located within the I-65 clear zone. The inlet condition is modeled as mitered to conform to slope.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 565.90 at Sta. 596+61 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 563.90. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 561.52 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

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Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	11.2	ft/s	5.8	ft/s
Outlet Riprap Size	Uniform		Uniform	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	1.9			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

While the smooth pipe model indicates the need for Class 2 riprap at the outlet, the discharge is very low at 4 cfs.

Proposals 1 and 2 should have uniform riprap on geotextiles placed at the outlet according to IDM Figure 203-2J. Due to the presence of an existing uniform riprap ditch which is located within the I-65 clear zone, uniform riprap should be placed at the inlet in where existing riprap is disturbed during installation.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901

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November 4, 2022

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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89185 (CLV I65-010-20.46)
County:Clark
Location: 1.11 miles north of SR 160
Crossing: UNT to Wolf Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	1.1	acres
Q_{100} Discharge	5	cfs
Q_{50} Discharge for velocity	5	cfs
Q_{100} Tailwater Depth	0.45	ft.
US Edge of Travel Lane	589.27	ft.
Design Roadway Serviceability Elevation	587.27	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	18" ID CMP w/ Drop Inlet		36" ID Smooth Pipe w/Mod. N-12 Inlet		36" ID Corrugated Pipe w/ Mod. N-12 Inlet	
Q_{100} Headwater Elevation (Pipe)	586.96	ft.	582.95	ft.	583.06	ft.
Q_{100} Headwater Elevation (Weir)	588.52	ft.	588.35	ft.	588.35	ft.
Meets Roadway Serviceability @ Q_{100}	No		No		No	
Backwater	0.81	ft.	0	ft.	0	ft.
Minimal Low Structure Elevation (DS)	580.92	ft.	582.42	ft.	582.42	ft.
Assumed Flowline Elevation (DS)	579.42	ft.	579.42	ft.	579.42	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 1.1 acres. The time of concentration was estimated at 5 minutes. The computed runoff coefficient was 0.53. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 6.2%. The tailwater depth is estimated at 0.45 ft and the tailwater velocity is approximately 2.7 ft/s.

The existing structure is a 210 ft long 18" CMP at 2.99% slope with a drop inlet at both upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 204 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being lowered at the inlet to ensure minimum cover under I-65. The proposed culvert slope is 1.26%. A modified N-12 Inlet will be installed at the inlet since it is located within the I-65 clear zone. The inlet condition is modeled as square edge with headwall. The downstream end of the culvert will be disconnected from the existing storm inlet which will be removed. A flared metal end section will be installed at the outlet.

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The controlling edge of pavement elevation to meet freeboard requirements for this structure is 589.27 at Sta. 605+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 587.27. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 583.06 which is under the maximum freeboard elevation.

The existing drop inlet at the upstream end has a weir elevation of 588.10 based on survey data. The head produced at the existing inlet is 0.42 ft. The existing HW elevation is 588.52. The proposed modified N-12 inlet has a weir elevation of 587.90. The head produced at the proposed inlet is 0.47 ft. The proposed headwater elevation headwater elevation is 588.37 which is lower than the existing headwater by 0.15'. The freeboard for the proposed weir is 0.92'.

Backwater is decreased for all proposed alternatives, however due to the weir elevation of the drop inlet, the maximum freeboard provided is 0.92'. The proposed culverts are acceptable as replacements as the weir controls the roadway serviceability provided.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	6.5	ft/s	4.0	ft/s
Outlet Riprap Size	Revetment		Revetment	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	2.7			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have revetment riprap on geotextiles placed at the outlet according to IDM Figure 203-2J. Due to the presence of an existing uniform riprap ditch which is located within the I-65 clear zone, uniform riprap should be placed at the inlet in where existing riprap is disturbed during installation.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901

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Eric Holcomb, Governor
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November 3, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff



THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89187 (CLV I65-010-20.56)
County:Clark
Location: 1.21 miles north of SR 160
Crossing: UNT to Wolf Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	7.3	acres
Q_{100} Discharge	17	cfs
Q_{50} Discharge for velocity	16	cfs
Q_{100} Tailwater Depth	0.96	ft.
US Edge of Travel Lane	593.34	ft.
Design Roadway Serviceability Elevation	591.34	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	24" ID CMP w/ G.B.E.S.		36" ID Smooth Pipe w/ G.B.E.S.		36" ID Corrugated Pipe w/ G.B.E.S.	
Q_{100} Headwater Elevation	590.82	ft.	590.20	ft.	590.17	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	1.50	ft.	0.88	ft.	0.85	ft.
Minimal Low Structure Elevation (DS)	580.63	ft.	581.63	ft.	581.63	ft.
Assumed Flowline Elevation (DS)	578.63	ft.	578.63	ft.	578.63	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 7.3 acres. The time of concentration was estimated at 22 minutes. The computed runoff coefficient was 0.43. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 3.8%. The tailwater depth is estimated at 0.96 ft and the tailwater velocity is approximately 3.5 ft/s.

The existing structure is a 267 ft long 24" CMP at 3.64% slope with a grated box end section at both upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 248 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The proposed flowline is being retained. The proposed culvert slope is 3.92%. A grated box end section will be installed at the culvert inlet since it is located within the I-65 clear zone. The inlet condition is modeled as square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 593.34 at Sta. 613+75 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 591.34. The highest proposed 1%

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EP headwater elevation obtained based upon the material alternative is 590.20 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	13.4	ft/s	8.2	ft/s
Outlet Riprap Size	Energy Dissipater		Class 1	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}	3.5			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

A riprap basin should be used at the outlet of proposal 1 and placed in accordance with the external energy dissipater detail shown below. If due to the slope of the downstream channel a riprap basin is not constructible, a riprap apron of Class 2 riprap placed on geotextiles can be substituted in place of the energy dissipator.

Class 1 riprap on geotextiles should be used at the outlet of proposal 2 and placed according to IDM Figure 203-2J.

Neither proposal requires riprap at the inlet, but should the designer determine the need, Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

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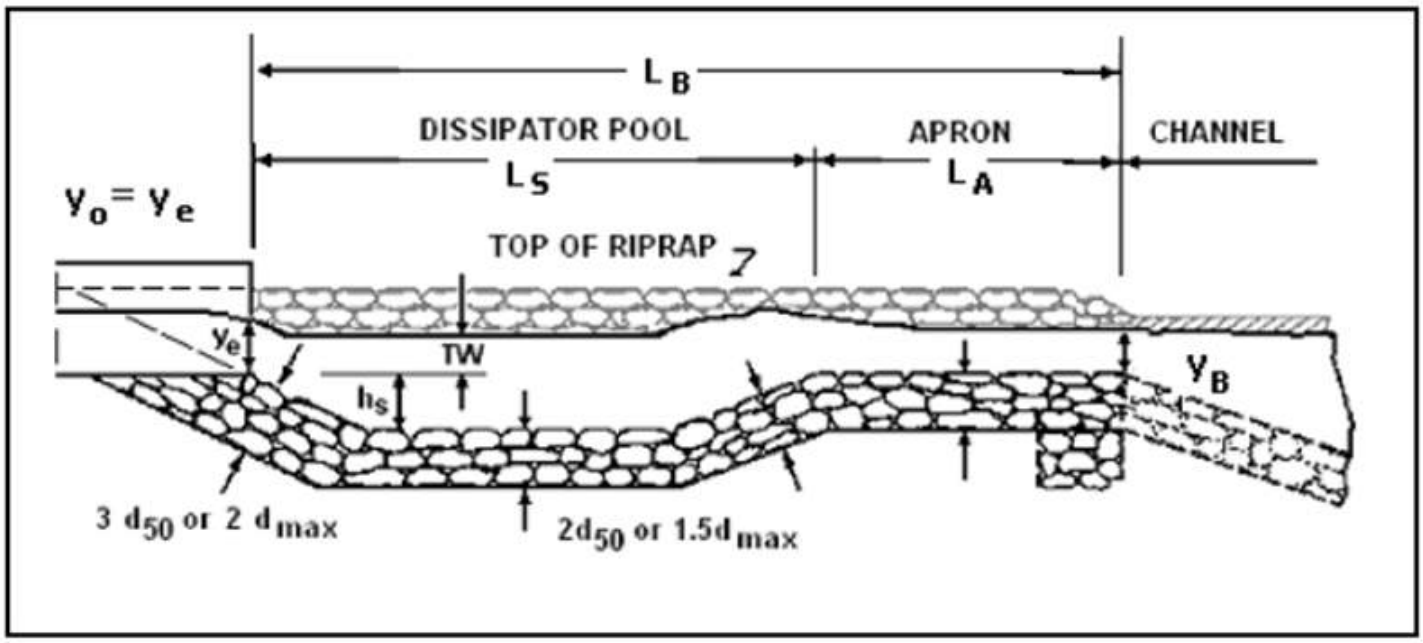
External Energy Dissipater Details – Riprap Basin



See IDM Figure 203-2K or HEC-14 for more information.

Riprap Basin Properties

	Option 1	
Basin Length (L_B)	12.5	ft.
Basin Width	11.5	ft.
Apron Length (L_A)	3.5	ft.
Pool Depth (h_s)	1.0	ft.
Riprap Size	Revetment	

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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Eric Holcomb, Governor
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November 2, 2022

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THROUGH: James Emerick, PE
INDOT Engineer

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No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89189 (CLV I65-010-20.75)
County:Clark
Location: 1.44 miles north of SR 160
Crossing: UNT to Miller Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	10	acres
Q_{100} Discharge	26	cfs
Q_{50} Discharge for velocity	24	cfs
Q_{100} Tailwater Depth	1.48	ft.
US Edge of Travel Lane	590.06	ft.
Design Roadway Serviceability Elevation	588.06	ft.

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Eric Holcomb, Governor
Michael Smith, Commissioner

Culvert Properties							
Parameter	**Existing**		**Proposal 1**		**Proposal 2**		
Structure Size & Type	30" ID CMP w/Flared Metal End Section		36" ID Smooth Pipe w/Flared Metal End Sections		36" ID Corrugated Pipe w/Flared Metal End Sections		
Q_{100} Headwater Elevation	584.91	ft.	584.59	ft.	584.54	ft.	
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes		
Backwater	1.27	ft.	0.95	ft.	0.90	ft.	
Minimal Low Structure Elevation (DS)	579.22	ft.	579.72	ft.	579.72	ft.	
Assumed Flowline Elevation (DS)	576.72	ft.	576.72	ft.	576.72	ft.	
Sump Depth	N/A	in.	N/A	in.	N/A	in.	

Existing Condition and Analysis

The delineated drainage area was estimated to be 10.0 acres. The time of concentration was estimated at 25 minutes. The computed runoff coefficient was 0.52. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 8.5%. The tailwater depth is estimated at 1.48 ft and the tailwater velocity is approximately 6.5 ft/s.

The existing structure is a 196 ft long 30" CMP at 2.78% slope with a flared metal end section at both upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

See table above for results of existing hydraulic analysis.

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

Proposed Condition and Analysis

The proposed structure is a 189 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing flowline is being retained in the proposed condition. The proposed culvert slope is 2.88%. Flared metal end sections will be installed at both culvert ends since both are located outside the I-65 clear zone. The inlet condition is modeled as square edge with headwall.

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The controlling edge of pavement elevation to meet freeboard requirements for this structure is 590.06 at Sta. 626+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 588.06. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 584.590 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	13.5	ft/s	8.1	ft/s
Outlet Riprap Size	Energy Dissipater		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	6.4			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

A riprap basin should be used at the outlet of proposal 1 and placed in accordance with the external energy dissipater detail shown below. If due to the slope of the downstream channel a riprap basin is not constructible, a riprap apron of Class 2 riprap placed on geotextiles can be substituted in place of an energy dissipator.

Class 1 riprap on geotextiles should be used at the outlet of proposal 2 and placed according to IDM Figure 203-2J.

Both proposals require inlet riprap to be placed due to the presence of existing riprap. Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

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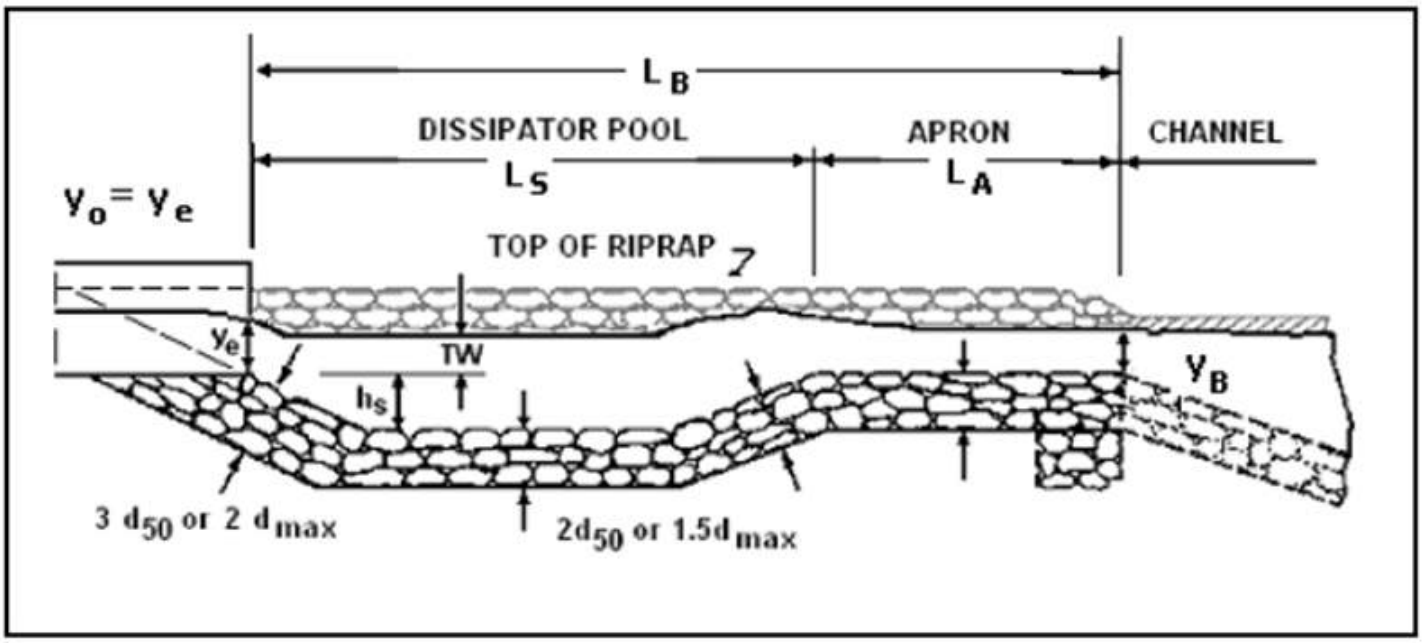
External Energy Dissipater Details – Riprap Basin



See IDM Figure 203-2K or HEC-14 for more information.

Riprap Basin Properties

	Option 1	
Basin Length (L_B)	12.5	ft.
Basin Width	11.5	ft.
Apron Length (L_A)	3.5	ft.
Pool Depth (h_s)	1.0	ft.
Riprap Size	Revetment	

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901

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November 4, 2022

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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
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DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-77576 (CLV I65-010-20.88)
County:Clark
Location: 1.57 miles north of SR 160
Crossing: UNT to Miller Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	4.7	acres
Q_{100} (AEP 1%) Discharge	14	cfs
Q_{50} (AEP 2%) Discharge for velocity	13	cfs
Q_{100} (AEP 1%) Tailwater Depth	0.36	ft.
US Edge of Travel Lane	588.58	ft.
Design Roadway Serviceability Elevation	586.58	ft.

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Culvert Properties							
Parameter	**Existing**		**Proposal 1**		**Proposal 2**		
Structure Size & Type	24" ID CMP w/ flared metal end section		36" ID Smooth Pipe w/flared metal end section		36" ID Corrugated Pipe w/ flared metal end section		
Q_{100} Headwater Elevation	574.32	ft.	573.86	ft.	573.84	ft.	
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes		
Backwater	1.71	ft.	1.25	ft.	1.23	ft.	
Minimal Low Structure Elevation (DS)	561.58	ft.	562.58	ft.	562.58	ft.	
Assumed Flowline Elevation (DS)	559.58	ft.	559.58	ft.	559.58	ft.	
Sump Depth	N/A	in.	N/A	in.	N/A	in.	

Existing Condition and Analysis

The delineated drainage area was estimated to be 4.7 acres. The time of concentration was estimated at 19 minutes. The computed runoff coefficient was 0.51. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.8%. The tailwater depth is estimated at 0.36 ft and the tailwater velocity is approximately 1.7 ft/s.

The existing structure is a 259 ft long 24" CMP at 4.89% slope with a flared metal end section at both upstream and downstream ends. The inlet condition was modeled as a square edge with headwall. The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 236 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing flowline is being retained in the proposed condition. The proposed culvert slope is 5.37%. Flared metal end sections will be installed at inlet since it is located outside the I-65 clear zone. The inlet condition is modeled as square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 588.58 at Sta. 629+12 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 586.58. The highest proposed 1%

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EP headwater elevation obtained based upon the material alternative is 573.86 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}(AEP 2%)	14.1	ft/s	8.7	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}(AEP 2%)	1.7			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Typically, proposal 1 would require an energy dissipator at the outlet because of the higher velocity. Due to the low flows and no evidence of downstream erosion, Class 2 riprap has been approved instead of the energy dissipator. The Class 2 riprap should be placed on geotextiles at the outlet and follow IDM Figure 203-2J.

Class 1 riprap on geotextiles should be used at the outlet of proposal 2 and placed according to IDM Figure 203-2J.

Both proposals require inlet riprap to be placed due to the presence of existing riprap. Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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November 4, 2022

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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
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DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89193 (CLV I65-010-21.46)
County:Clark
Location: 2.15 miles north of SR 160
Crossing: UNT to Miller Fork
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	3.1	acres
Q_{100} Discharge	8	cfs
Q_{50} Discharge for velocity	7	cfs
Q_{100} Outlet Depth	0.76	ft.
US Edge of Travel Lane	616.56	ft.
Design Roadway Serviceability Elevation	614.56	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	24" ID CMP w/Flared Metal End Section		36" ID Smooth Pipe w/Safety Metal End Section		36" ID Corrugated Pipe w/Safety Metal End Section	
Q_{100} Headwater Elevation	612.95	ft.	612.81	ft.	612.81	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	0.65	ft.	0.51	ft.	0.51	ft.
Minimal Low Structure Elevation (DS)	604.43	ft.	606.08	ft.	606.08	ft.
Assumed Flowline Elevation (DS)	602.43	ft.	603.08	ft.	603.08	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 3.1 acres. The time of concentration was estimated at 19 minutes. The computed runoff coefficient was 0.45. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

The existing structure is a 196 ft long 24" CMP at 4.65% with a pipe end section at the upstream end. The inlet condition was modeled as a square edge with headwall. At the outlet, the pipe connects to a downstream pipe via a drop inlet. The downstream pipe extends off the limited access right-of-way. A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 2.2%. The tailwater depth is estimated at 0.41 ft and the tailwater velocity is approximately 1.5 ft/s. The downstream pipe headwater elevation of 603.84 was utilized as a constant tailwater for the existing I-65 culvert.

The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 168 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing downstream inlet will be removed to separate the I-65 culvert from the downstream pipe that extends off the limited access right-of-way.

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While the existing flowline is being retained in the proposed condition, the disconnection of the structure from the downstream pipe requires shortening through a headwall and wingwalls which alters the outlet invert elevation. The proposed structure will have a safety metal end section installed at the inlet since it is located within the I-65 clear zone. The inlet is modeled as mitered to confirm to slope.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 616.56 at Sta. 658+23 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 614.56. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 612.81 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	11.5	ft/s	7.0	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}	8.1			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have Class 2 and Class 1 riprap, respectively, placed on geotextiles at the outlet according to IDM Figure 203-2J. Riprap is not required at the inlet, but should the designer determine the need, Uniform riprap can be placed.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901

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November 4, 2022

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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89191 (CLV I65-010-21.54)
County:Clark
Location: 2.23 miles north of SR 160
Crossing: UNT to Meal Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	4.6	acres
Q_{100} Discharge	11	cfs
Q_{50} Discharge for velocity	10	cfs
Q_{100} Outlet Depth	0.98	ft.
US Edge of Travel Lane	613.04	ft.
Design Roadway Serviceability Elevation	611.04	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	24" ID CMP w/ G.B.E.S.		36" ID Smooth Pipe w/Flared Metal End Section		36" ID Corrugated Pipe w/Flared Metal End Section	
Q_{100} Headwater Elevation	608.74	ft.	608.40	ft.	608.40	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	0.77	ft.	0.43	ft.	0.43	ft.
Minimal Low Structure Elevation (DS)	601.90	ft.	602.45	ft.	602.45	ft.
Assumed Flowline Elevation (DS)	599.45	ft.	599.45	ft.	599.45	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 4.6 acres. The time of concentration was estimated at 13 minutes. The computed runoff coefficient was 0.36. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

The existing structure is a 206 ft long 24" CMP at 3.44% with a grated box end section at the upstream end. The inlet condition was modeled as a square edge with headwall. At the outlet, the pipe connects to a downstream pipe via a drop inlet. The downstream pipe extends off the limited access right-of-way. A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 2.5%. The tailwater depth is estimated at 0.27 ft and the tailwater velocity is approximately 1.8 ft/s. The downstream pipe headwater elevation of 601.69 was utilized as a constant tailwater for the existing I-65 culvert. The tailwater depth for the existing I-65 structure is 2.24 ft.

The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 196 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing downstream inlet will be removed to separate the I-65 culvert from the downstream pipe that extends off the limited access right-of-way.

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While the existing flowline is being retained in the proposed condition, the disconnection of the structure from the downstream pipe requires shortening through a headwall and wingwalls which alters the outlet invert elevation. The proposed structure will have a flared metal end section installed at the inlet since it is located outside the I-65 clear zone. The inlet is modeled as square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 613.04 at Sta. 667+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 611.04. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 608.40 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	11.6	ft/s	7.2	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	3.8			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Proposals 1 and 2 should have Class 2 and Class 1 riprap, respectively, placed on geotextiles at the outlet according to IDM Figure 203-2J.

Both proposals require inlet riprap to be placed due to the presence of existing riprap. Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

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November 4, 2022

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THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89195 (CLV I65-010-21.67)
County:Clark
Location: 2.36 miles north of SR 160
Crossing: UNT to Meal Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	7.5	acres
Q_{100} Discharge	11	cfs
Q_{50} Discharge for velocity	10	cfs
Q_{100} Outlet Depth	0.93	ft.
US Edge of Travel Lane	608.82	ft.
Design Roadway Serviceability Elevation	606.82	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	30" ID CMP w/S.M.E.S.		36" ID Smooth Pipe w/S.M.E.S..		36" ID Corrugated Pipe w/S.M.E.S.	
Q_{100} Headwater Elevation	601.24	ft.	601.12	ft.	601.12	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	0.69	ft.	0.57	ft.	0.57	ft.
Minimal Low Structure Elevation (DS)	597.12	ft.	597.62	ft.	597.62	ft.
Assumed Flowline Elevation (DS)	594.62	ft.	594.62	ft.	594.62	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

Existing Condition and Analysis

The delineated drainage area was estimated to be 7.5 acres. The time of concentration was estimated at 34 minutes. The computed runoff coefficient was 0.33. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

The existing structure is a 182 ft long 30" CMP at 2.75% with a safety metal end section at the upstream end. The inlet condition was modeled as mitered to conform to slope. At the outlet, the pipe connects to a downstream pipe via a drop inlet. The downstream pipe extends off the limited access right-of-way. A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.7%. The tailwater depth is estimated at 0.56 ft and the tailwater velocity is approximately 1.6 ft/s. The downstream pipe headwater elevation of 596.21 was utilized as a constant tailwater for the existing I-65 culvert. The tailwater depth for the existing I-65 structure is 1.59 ft.

The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 179 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing downstream drop inlet will be replaced with a larger modified grated box end section. Connection of the I-65 culvert from the downstream pipe will remain. The existing flowline will be retained in the proposed condition. The proposed structure will have a safety metal end section installed at the inlet since it is located within the I-65 clear zone. The inlet is modeled as mitered to confirm to slope.

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Michael Smith, Commissioner

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 608.82 at Sta. 672+00 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 606.82. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 601.12 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	10.3	ft/s	6.3	ft/s
Outlet Riprap Size	Class 2		Revetment	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	3.0			ft/s
Minimal Inlet Riprap Size if Warranted	Uniform			

Proposals 1 and 2 should have Class 2 and Revetment 1 riprap, respectively, placed at the outlet on geotextiles according to IDM Figure 203-2J.

Both proposals require inlet riprap to be placed due to the presence of existing riprap. Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

cc: file

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
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Indianapolis, Indiana 46204

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FAX: (317) 233-4929

Eric Holcomb, Governor
Michael Smith, Commissioner

November 4, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Dan Gibson, PE
Consultant Engineer
DGibson@b-l-n.com
Beam, Longest & Neff

THROUGH: Clair Gill, EIT
INDOT Engineer

THROUGH: James Emerick, PE
INDOT Engineer

DANIEL J GIBSON
REGISTERED
No. 60920262
STATE OF INDIANA
PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89197 (CLV I65-010-21.73)
County:Clark
Location: 2.42 miles north of SR 160
Crossing: UNT to Meal Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	10.9	acres
Q_{100} Discharge	15	cfs
Q_{50} Discharge for velocity	13	cfs
Q_{100} Outlet Depth	1.20	ft.
US Edge of Travel Lane	608.48	ft.
Design Roadway Serviceability Elevation	606.48	ft.

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	30" ID CMP w/ GBES		36" ID Smooth Pipe w/Flared End Section		36" ID Corrugated Pipe w/Flared End Section	
Q_{100} Headwater Elevation	600.95	ft.	600.81	ft.	600.79	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes	
Backwater	0.67	ft.	0.53	ft.	0.51	ft.
Minimal Low Structure Elevation (DS)	597.09	ft.	597.59	ft.	597.59	ft.
Assumed Flowline Elevation (DS)	594.59	ft.	594.59	ft.	594.59	ft.
Sump Depth	N/A	in.	N/A	in.	N/A	in.

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Existing Condition and Analysis

The delineated drainage area was estimated to be 10.9 acres. The time of concentration was estimated at 35 minutes. The computed runoff coefficient was 0.32. Maximum and design discharge was calculated using the rational method and are presented in the site parameters table above.

The existing structure is a 214 ft long 30" CMP at 2.10% with a grated box end section at the upstream end. The inlet condition was modeled as square edge with headwall. At the outlet, the pipe connects to a downstream pipe via a drop inlet. The downstream pipe extends off the limited access right-of-way. A Manning's n value of 0.05 was used for the downstream channel since the channel is well defined with light brush on banks. The approximate slope of the downstream channel is 1.5%. The tailwater depth is estimated at 0.51 ft and the tailwater velocity is approximately 1.5 ft/s. The downstream pipe headwater elevation of 596.52 was utilized as a constant tailwater for the existing I-65 culvert. The tailwater depth for the existing I-65 structure is 1.93 ft.

The existing and proposed structures were modeled with HY-8 version 7.2 (Build Date: January 17, 2012).

A waters report was completed by Structurepoint in March of 2021. The existing culvert is not located within a jurisdictional water and therefore sumping is not required to meet regulatory requirements. No regulated drains are associated with culverts in Clark County.

See table above for results of existing hydraulic analysis.

Proposed Condition and Analysis

The proposed structure is a 209 ft long 36" circular pipe consisting of smooth and corrugated alternatives. The existing downstream drop inlet will be replaced with a larger drop inlet. Connection of the I-65 culvert from the downstream pipe will remain. The existing flowline will be retained in the proposed condition. The proposed structure will have a flared metal end section installed at the inlet since it is located outside the I-65 clear zone. The inlet is modeled as square edge with headwall.

The controlling edge of pavement elevation to meet freeboard requirements for this structure is 608.48 at Sta. 673+58 "PR-Q". The maximum allowable headwater elevation to meet the 2 ft freeboard is 606.48. The highest proposed 1% EP headwater elevation obtained based upon the material alternative is 600.81 which is under the maximum freeboard elevation.

Backwater is decreased for all proposed alternatives, and serviceability is provided; therefore, all proposed alternatives are acceptable as replacement alternatives.

See table above for results of proposed hydraulic analysis.

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Michael Smith, Commissioner

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}	10.3	ft/s	6.2	ft/s
Outlet Riprap Size	Class 2		Revetment	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}	3.2			ft/s
Minimal Inlet Riprap Size if Warranted	Revetment			

Proposals 1 and 2 should have Class 2 and Revetment riprap, respectively, placed at the outlet on geotextiles according to IDM Figure 203-2J.

Both proposals require inlet riprap to be placed due to the presence of existing riprap. Revetment is the minimum size required.

Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Clair Gill at cgill@indot.in.gov or (317) 232-2901.

cc: file

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Eric Holcomb, Governor
Michael Smith, Commissioner

August 10, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Patrick Wooden, PE
Consultant Engineer
pwooden@structurepoint.com
American Structurepoint

THROUGH: Bill P Schmidt, PE
INDOT Engineer

PATRICK A. WOODEN REGISTERED No. 10504741 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89199
County: Clark
Location: 2.78 Miles S of SR 160 to SR 56
Crossing: N/A
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Existing Site Parameters		
Drainage Area	21.48	acres
Q_{100} (AEP 1%)Discharge	57.3	cfs
Q_{50} (AEP 2%)Discharge for velocity	52.7	cfs
Q_{100} (AEP 1%) Tailwater Depth	1.28	ft.
US Edge of Travel Lane	611.68	ft.
Design Roadway Serviceability Elevation	609.68	ft.

Proposed Site Parameters		
Drainage Area	21.49	acres
Q_{100} (AEP 1%)Discharge	57.4	cfs
Q_{50} (AEP 2%)Discharge for velocity	52.7	cfs
Q_{100} (AEP 1%) Tailwater Depth	1.28	ft.
US Edge of Travel Lane	611.68	ft.
Design Roadway Serviceability Elevation	609.68	ft.

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Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	32" CMP Metal End Section		42" Smooth Metal End Section		42" Corrugated Metal End Section	
Q_{100} Headwater Elevation	603.95	ft.	594.32	ft.	594.52	ft.
Meets Roadway Serviceability @ Q_{100} (AEP 1%)	Yes		Yes		Yes	
Backwater	12.11	ft.	2.48	ft.	2.68	ft.
Minimal Low Structure Elevation (DS)	590.65	ft.	591.48	ft.	591.48	ft.
Assumed Flowline Elevation (DS)	587.98	ft.	587.98	ft.	587.98	ft.
Sump Depth	0	in.	0	in.	0	in.

The subject culvert is approximately 0.5 miles south of the Henryville Rest Area along I-65 in Clark County, Indiana. The existing structure is a 32" corrugated metal pipe that crosses under I-65 from west to east where the discharge leaves the L.A. R/W. There is a headwall on the downstream end in the existing condition. Due to the high cover, a headwall may be required for the proposed structures to meet grading requirements.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}(AEP 2%)	11.61	ft/s	7.98	ft/s
Outlet Riprap Size	Class 2		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}(AEP 2%)	7.41		ft/s	
Minimal Inlet Riprap Size if Warranted	Class 1			

Class I riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J. Class I riprap at the inlet should be placed due to the high natural channel tailwater velocity to protect against scour at the inlet.

Alternative scour protection designs should be submitted to the INDOT Office of Hydraulics for review and approval.

If you have any questions or comments, please contact Bill Schmidt at wpschmidt@indot.in.gov or (317)232-5148.

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Eric Holcomb, Governor
Michael Smith, Commissioner

August 10, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Patrick Wooden, PE
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pwooden@structurepoint.com
American Structurepoint

THROUGH: Bill P Schmidt PE
INDOT Engineer

PATRICK A. WOODEN REGISTERED No. 10504741 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89201
County: Clark
Location: 2.78 Miles S of SR 160 to SR 56
Crossing: N/A
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	2.37	acres
Q_{100} (AEP 1%)Discharge	8.6	cfs
Q_{50} (AEP 2%)Discharge for velocity	7.9	cfs
Q_{100} (AEP 1%) Tailwater Depth	0.97	ft.
US Edge of Travel Lane	613.60	ft.
Design Roadway Serviceability Elevation	611.60	ft.

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	18" RCP Grated Box End Section		36" Smooth Grated Box End Section		36" Corrugated Grated Box End Section	
Q_{100} Headwater Elevation	607.96	ft.	607.27	ft.	607.27	ft.
Meets Roadway Serviceability @ Q_{100} (AEP 1%)	Yes		Yes		Yes	
Backwater	0.96	ft.	0.27	ft.	0.27	ft.
Minimal Low Structure Elevation (DS)	601.03	ft.	602.53	ft.	602.53	ft.
Assumed Flowline Elevation (DS)	599.53	ft.	599.53	ft.	599.53	ft.
Sump Depth	0	in.	0	in.	0	in.

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Michael Smith, Commissioner

The subject culvert is located approximately 0.40 miles south of the Henryville Rest Area along I-65 in Clark County, Indiana. The existing structure is an 18" reinforced concrete pipe that crosses under I-65 from west to east where the discharge leaves the L.A. R/W. The existing structure has a grated box end section on the upstream end because the inlet is within the clear zone of I-65. The proposed structures will also required grated box end sections unless other clear zone protection is provided. The existing structure meets all backwater and serviceability requires, however, is below the minimum pipe size for interstate classification. The proposed alternatives maintain the existing conditions just upsized to meet the minimum diameter.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}(AEP 2%)	10.46	ft/s	6.33	ft/s
Outlet Riprap Size	Class 2		Revetment	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}(AEP 2%)	2.90		ft/s	
Minimal Inlet Riprap Size if Warranted	Revetment			

Revetment riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J. Revetment riprap at the inlet may be placed if necessary but is not required for natural tailwater velocity.

Alternative scour protection designs should be submitted to the INDOT Office of Hydraulics for review and approval.

If you have any questions or comments, please contact Bill Schmidt at wpschmidt@indot.in.gov or (317) 232-5148.

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Eric Holcomb, Governor
Michael Smith, Commissioner

August 10, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Patrick Wooden, PE
Consultant Engineer
pwooden@structurepoint.com
American Structurepoint

THROUGH: Bill P Schmidt, PE
INDOT Engineer

PATRICK A. WOODEN REGISTERED No. 10504741 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89203
County: Clark
Location: 2.78 Miles S of SR 160 to SR 56
Crossing: N/A
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Existing Site Parameters		
Drainage Area	2.20	acres
Q_{100} (AEP 1%)Discharge	8.7	cfs
Q_{50} (AEP 2%)Discharge for velocity	8.1	cfs
Q_{100} (AEP 1%) Tailwater Depth	0.77	ft.
US Edge of Travel Lane	616.25	ft.
Design Roadway Serviceability Elevation	614.25	ft.

Proposed Site Parameters		
Drainage Area	2.21	acres
Q_{100} (AEP 1%)Discharge	8.8	cfs
Q_{50} (AEP 2%)Discharge for velocity	8.1	cfs
Q_{100} (AEP 1%) Tailwater Depth	0.78	ft.
US Edge of Travel Lane	616.25	ft.
Design Roadway Serviceability Elevation	614.25	ft.

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Eric Holcomb, Governor
Michael Smith, Commissioner

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	18" RCP Metal End Section		36" Smooth Concrete End Section		36" Corrugated Metal End Section	
Q_{100} Headwater Elevation	612.59	ft.	611.91	ft.	611.91	ft.
Meets Roadway Serviceability @ Q_{100} (AEP 1%)	Yes		Yes		Yes	
Backwater	1.18	ft.	0.49	ft.	0.49	ft.
Minimal Low Structure Elevation (DS)	604.44	ft.	605.94	ft.	605.94	ft.
Assumed Flowline Elevation (DS)	602.94	ft.	602.94	ft.	602.94	ft.
Sump Depth	0	in.	0	in.	0	in.

The subject culvert is located at the Henryville Rest Area along I-65 in Clark County, Indiana. The existing structure is an 18" reinforced concrete pipe that crosses under I-65 from west to east where the discharge leaves the L.A. R/W. The existing structure meets all backwater and serviceability requires, however, is below the minimum pipe size for interstate classification. The proposed alternatives maintain the existing conditions just upsized to meet the minimum diameter.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}(AEP 2%)	9.77	ft/s	5.96	ft/s
Outlet Riprap Size	Class 1		Revetment	
Inlet Riprap Needed (Y/N)	No		No	
Natural Channel Velocity @ Q_{50}(AEP 2%)	2.23		ft/s	
Minimal Inlet Riprap Size if Warranted	Revetment			

Revetment riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J. Revetment riprap at the inlet may be placed if necessary but is not required for natural tailwater velocity.

Alternative scour protection designs should be submitted to the INDOT Office of Hydraulics for review and approval.

If you have any questions or comments, please contact Bill Schmidt at wpschmidt@indot.in.gov or (317) 232-5148.

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Eric Holcomb, Governor
Michael Smith, Commissioner

August 10, 2022

TO: Brad Williamson
INDOT Project Manager

FROM: Patrick Wooden, PE
Consultant Engineer
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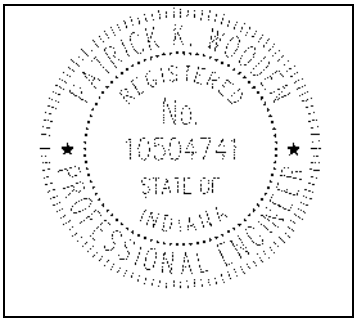
THROUGH: Bill P Schmidt, PE
INDOT Engineer



SUBJECT: Hydraulic Review
Des. #: 1700135
Asset Name: CLV-89207
County: Clark
Location: 2.78 Miles S of SR 160 to SR 56
Crossing: Wheel Run
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Existing Site Parameters		
Drainage Area	32.29	acres
Q_{100} (AEP 1%)Discharge	69.9	cfs
Q_{50} (AEP 2%)Discharge for velocity	64.3	cfs
Q_{100} (AEP 1%) Tailwater Depth	7.65	ft.
US Edge of Travel Lane	618.25	ft.
Design Roadway Serviceability Elevation	616.25	ft.

Proposed Site Parameters		
Drainage Area	32.32	acres
Q_{100} (AEP 1%)Discharge	70.1	cfs
Q_{50} (AEP 2%)Discharge for velocity	64.5	cfs
Q_{100} (AEP 1%) Tailwater Depth	7.95	ft.
US Edge of Travel Lane	617.50	ft.
Design Roadway Serviceability Elevation	615.50	ft.

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Eric Holcomb, Governor
Michael Smith, Commissioner

Culvert Properties						
Parameter	**Existing**		**Proposal 1**		**Proposal 2**	
Structure Size & Type	36" CMP Grated Box End Section		42" Smooth Concrete End Section		48" Corrugated Metal End Section	
Q_{100} Headwater Elevation	618.39	ft.	614.91	ft.	614.58	ft.
Meets Roadway Serviceability @ Q_{100} (AEP 1%)	No		Yes		Yes	
Backwater	4.15	ft.	0.37	ft.	0.04	ft.
Minimal Low Structure Elevation (DS)	606.55	ft.	606.80	ft.	607.30	ft.
Assumed Flowline Elevation (DS)	603.55	ft.	603.55	ft.	603.55	ft.
Sump Depth	0	in.	3	in.	3	in.

The subject culvert is located at the Henryville Rest Area along I-65 in Clark County, Indiana. The existing structure is a 36" corrugated metal pipe that crosses under I-65 from west to east where the discharge is carried through a downstream culvert under the I-65 northbound to Rest Area ramps and eventually into a tailwater channel that leaves L.A. R/W. The downstream culvert is a 36" corrugated metal pipe that is to remain in place. The proposed structure was designed in tandem with the downstream culvert whose headwater was applied as a tailwater constraint on the proposed structure. The free discharge scenario was also modeled to verify the proposed structure performance if the downstream culvert were to be removed.

Riprap Design Recommendations

Riprap Properties				
Parameter	**Proposal 1**		**Proposal 2**	
Outlet Velocity @ Q_{50}(AEP 2%)	9.01	ft/s	8.14	ft/s
Outlet Riprap Size	Class 1		Class 1	
Inlet Riprap Needed (Y/N)	Yes		Yes	
Natural Channel Velocity @ Q_{50}(AEP 2%)	6.91			ft/s
Minimal Inlet Riprap Size if Warranted	Class 1			

Class I riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J. Class I riprap at the inlet should be placed due to the high natural tailwater velocity to protect the inlet from scour.

Alternative scour protection designs should be submitted to the INDOT Office of Hydraulics for review and approval.

If you have any questions or comments, please contact Bill Schmidt at wpschmidt@indot.in.gov or (317) 232-5148.

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

September 30, 2021

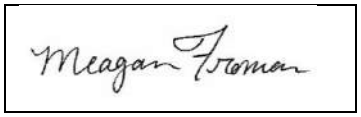
TO: Brad Williamson
INDOT Project Manager

FROM: Joe Vangampler
Consultant Engineer
jvangampler@vsengineering.com
VS Engineering





THROUGH: Meagan Froman, P.E.
INDOT Hydraulics Engineer



SUBJECT: Hydraulic Review
Des. #: 2001597
Asset Name: CV I65-010-22.65
County: Clark
Location: I-65; 3.42 N SR 160
Crossing: Unnamed Reach of Silver Creek
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

Site Parameters		
Drainage Area	176.7	acres
Q_{100} Discharge	135	cfs
Q_{50} Discharge for velocity	110	cfs
Q_{100} Outlet Depth	3.15	ft.
US Edge of Travel Lane	612	ft.
Design Roadway Serviceability Elevation	610	ft.

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

Culvert Properties																				
Parameter	**Existing**		**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**		**Proposal 6**	
Structure Size & Type	72" Diameter Corrugated Metal Pipe		59.28" Slip Lining (54" I.D.) and 30" Jack and Bore		5" Paved Invert		72" Diameter Smooth Pipe Replacement		72" Diameter Corrugated Pipe Replacement		69" CIPP		66" Slip Lining (60" I.D.) and 18" Jack and Bore	
End Treatment	Thin End Projecting		Mitered to Conform to Slope		Square Edge with Headwall		Thin Edge Projecting		Thin Edge Projecting		Mitered to Conform to Slope		Thin Edge Projecting	
Q_{100} Headwater Elevation	602.22	ft.	601.84	ft.	602.09	ft.	601.44	ft.	601.84	ft.	601.75	ft.	602.05	ft.
Meets Roadway Serviceability @ Q_{100}	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Backwater	2.25	ft.	1.87	ft.	2.12	ft.	1.47	ft.	1.87	ft.	1.78	ft.	2.08	ft.
Minimal Low Structure Elevation (DS)	600.31	ft.	599.03	ft.	600.31	ft.	599.81	ft.	599.81	ft.	600.19	ft.	599.57	ft.
Assumed Flowline Elevation (DS)	594.31 ft.													
Sump Depth	0	in.	0	in.	0	in.	6	in.	6	in.	0	in.	0	in.

Note: For the two slip lining proposals, the larger of the two should be used, if possible, and the inverts of the bored pipes should be placed 12" above the existing flowline elevations.

The project is located on I-65 over an unnamed tributary of Silver Creek in Clark County in INDOT's Seymour District. The site is located on the United States Geologic Survey (USGS) Quadrangle Map, Scottsburg, Section 30, Township 2 North, and Range 7 East.

The existing culvert has a drainage area of approximately 176.7 acres, producing a 100-year discharge of 135 cubic feet per second (cfs) and a 50-year discharge of 110 cfs. The existing culvert is a 72-inch diameter corrugated metal pipe (CMP). All elevations are based on NAVD88. The existing backwater, calculated using outlet depth, is 2.25 feet, so the proposed structures must all have a backwater less than or equal to 2.25 feet to meet the requirements set forth in the Indiana Design Manual 2013 (IDM).

An Indiana Department of Natural Resources (IDNR) "Construction in a Floodway" (CIF) permit is not required for this project due to its drainage area being less than one (1) square mile.

INDIANA DEPARTMENT OF TRANSPORTATION

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

Riprap Design Recommendations

Riprap Properties												
Parameter	**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**		**Proposal 6**	
Outlet Velocity @ Q_{50}	12.2	ft/s	8.4	ft/s	8.8	ft/s	8.4	ft/s	12.8	ft/s	13.0	ft/s
Outlet Riprap Size	Class II		Class I		Class I		Class I		Class II		Class II	
Inlet Riprap Needed (Y/N)	Yes		Yes		Yes		Yes		Yes		Yes	
Natural Channel Velocity @ Q_{50}	4.8 ft/s											
Minimal Inlet Riprap Size if Warranted	Revetment											

Riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J.

Inspection photos indicate there is some erosion at the inlet and some of the existing riprap has been displaced. The natural channel velocity is greater than 3 feet per second, but less than 6.5 feet per second. Per IDM Figure 203-6A and the inspection photos, revetment riprap is recommended at the inlet to fill in any gaps where riprap has been displaced.

Alternative scour protection designs should be submitted to INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Meagan Froman at 317-233-7755 or MFroman@indot.IN.gov.

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Eric Holcomb, Governor
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October 4, 2021

TO: Brad Williamson
INDOT Project Manager

FROM: Joe Vangampler
Consultant Engineer
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THROUGH: Meagan Froman, P.E.
INDOT Hydraulics Engineer

JOSEPH L. VANGAMPLER REGISTERED No. PE11600743 STATE OF INDIANA PROFESSIONAL ENGINEER

SUBJECT: Hydraulic Review
Des. #: 2001595
Asset Name: CV I65-010-22.77
County: Scott
Location: I-65; 3.54 miles N of SR 160
Crossing: Unnamed Tributary to Silver Creek
DNR CIF Permit Required (Y/N): No
Legal Drain (Y/N): No

This is a revised memo which provides a single assumed flowline elevation of 593.24 feet (see the Culvert Properties table). It is to replace the previously approved hydraulic memo for this structure dated September 24, 2021.

Site Parameters		
Drainage Area	215	acres
Q_{100} Discharge	183	cfs
Q_{50} Discharge for velocity	147	cfs
Q_{100} Outlet Depth	3.69	ft.
US Edge of Travel Lane	614	ft.
Design Roadway Serviceability Elevation	612	ft.

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Culvert Properties																								
Parameter	**Existing**			**Proposal 1**			**Proposal 2**			**Proposal 3**			**Proposal 4**			**Proposal 5**			**Proposal 6**		
Structure Size & Type	72 " Diameter Corrugated Metal Pipe			72" Diameter Smooth Pipe Replacement			72" Diameter Corrugated Pipe Replacement			5" Paved Invert			59.28" HDPE Slip Lining (54" I.D.) & 36" Jack and Bore**			69" CIPP (1.5" Thick Liner)			66.2" HDPE Slip Lining (60" I.D.) 30" Jack & Bore**		
End Treatment	Thin Edge Projecting			Thin Edge Projecting			Thin Edge Projecting			Square Edge with Headwall			Mitered to Conform to Slope			Mitered to Conform to Slope			Mitered to Conform to Slope		
Q_{100} Headwater Elevation	602.15	ft.		602.06*	ft.		601.98*	ft.		602.10	ft.		601.94	ft.		601.72	ft.		601.74	ft.	
Meets Roadway Serviceability @ Q_{100}	Yes			Yes			Yes			Yes			Yes			Yes			Yes		
Backwater	2.72	ft.		2.63	ft.		2.55	ft.		2.67	ft.		2.51	ft.		2.29	ft.		2.31	ft.	
Minimal Low Structure Elevation (DS)	599.24	ft.		598.74	ft.		598.74	ft.		599.24	ft.		597.96	ft.		599.12	ft.		598.50	ft.	
Assumed Flowline Elevation (DS)	593.24 ft.																				
Sump Depth	0	in.		6	in.		6	in.		0	in.		0	in.		0	in.		0	in.	

* Note: It is expected that the proposed headwater for the corrugated proposal would be higher than that of the smooth proposal; this is assumed to be an error in the HY-8 analysis.
**Note: The larger of the two slip lining liners should be used, if possible. Additionally, the inverts of the bored pipe should be placed 12" above the existing flowline elevations.

The project is located on I-65 over an unnamed tributary of Silver Creek in Clark County in INDOT's Seymour District. The site is located on the United States Geologic Survey (USGS) Quadrangle Map, Henryville, Section 7, Township 2 North, and Range 7 East.

The existing culvert has a drainage area of approximately 215 acres, producing a 100-year discharge of 183 cubic feet per second (cfs) and a 50-year discharge of 147 cfs. The existing culvert is a 72-inch diameter corrugated metal pipe (CMP). All elevations are based on NAVD88. The existing backwater, calculated using outlet depth, is 2.72 feet, so the proposed structures must all have a backwater less than or equal to 2.72 feet to meet the requirements set forth in the Indiana Design Manual 2013 (IDM). An Indiana Department of Natural Resources (IDNR) "Construction in a Floodway" (CIF) permit is not required for this project due to its drainage area being less than one (1) square mile.

The inspection report indicated there is a bend in the culvert such that daylight cannot be seen looking through the pipe. It should be noted that depending on the severity of the pipe angle, this may prohibit the use of pipe lining. INDOT suggested

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that if the bent section of the pipe could be cut and replaced, then the entire culvert could be lined, as indicated in a memo dated March 26, 2021. On April 14, 2021, INDOT recommended that the portion of the pipe under the county road be left in place and the culvert under the interstate be lined.

Riprap Design Recommendations

Riprap Properties												
Parameter	**Proposal 1**		**Proposal 2**		**Proposal 3**		**Proposal 4**		**Proposal 5**		**Proposal 6**	
Outlet Velocity @ Q_{50}	9.3	ft/s	9.3	ft/s	9.4	ft/s	12.3	ft/s	13	ft/s	12.4	ft/s
Outlet Riprap Size	Class 1		Class 1		Class 1		Class 2		Class 2		Class 2	
Inlet Riprap Needed (Y/N)	Yes		Yes		Yes		Yes		Yes		Yes	
Natural Channel Velocity @ Q_{50}	3.2 ft/s											
Minimal Inlet Riprap Size if Warranted	Revetment											

Revetment riprap is recommended at the inlet, on the west side of the county road, due to the known erosion issues at the existing pipe. Riprap on geotextiles should be used at the outlet and placed according to IDM Figure 203-2J. Alternative scour protection designs should be submitted to the INDOT Hydraulic Engineering for review and approval.

If you have any questions or comments, please contact Meagan Froman at MFroman@indot.IN.gov.

INDIANA DEPARTMENT OF TRANSPORTATION

Post-Construction Stormwater Management

Revisions as of January 8, 2024

Attachment 7-2

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POST-CONSTRUCTION STORMWATER MANAGEMENT

1.0 INTRODUCTION

This document serves as the implementation guidance for meeting the requirements of the Indiana Department of Environmental Management (IDEM) National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) General Permit and the Construction Stormwater General Permit (CSGP).

The United States Environmental Protection Agency (EPA) defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), that is owned by a state, city, town, village, or other public entity that discharges to waters of the United States (40 CFR 122.26). INDOT has an NPDES MS4 General Permit from IDEM and must comply with EPA and IDEM requirements.

As of December 18, 2021, Indiana no longer administers the construction stormwater program under Indiana Administrative Code (327 IAC 15-5 or Rule 5). Permitting coverage is now issued under the CSGP. The CSGP is a performance-based regulation designed to reduce pollutants that are associated with construction and/or land-disturbing activities.

The requirements of CSGP applies to all construction projects which include clearing, grading, excavation, and other land-disturbing activities that results in the disturbance of one (1) acre or more of total land area. If the land-disturbing activity results in the disturbance of less than one (1) acre of total land area but is part of a larger common plan of development or sale, the project must obtain permit coverage under the CSGP.

A minimum control measure (MCM) of the MS4 permit requires INDOT to develop post-construction stormwater management measures or best management practices (BMPs) for post-construction stormwater run-off control.

The term post-construction stormwater measures (PCSMs) will be used to differentiate these measures from temporary construction BMPs.

1.01 Applicability of the Construction Stormwater General Permit

IDEM's Construction Stormwater General Permit applies to all projects where the proposed land disturbance (in acres), including staging areas for construction, is one acre or more. To meet the requirements of the IDEM permits, post-construction stormwater management measures as defined in this document will be implemented on INDOT projects, as defined in Section 1.02.

Local Public Agency (LPA) projects shall follow the CSGP requirements. LPA projects are not exempt from designing and constructing post-construction stormwater measures.

1.02 Post-Construction Stormwater Measures Requirement

PCSMs are required when the total disturbed area is 1 acre or more and there is new net impervious surface area of 1 acre or more. If both conditions are not met, post-construction stormwater management measures for water quality are not required.

LPA projects must adhere to the requirements in the CSGP. If there are no local MS4 requirements in place, IDEM's requirements shall be followed.

Unless stormwater is being discharged into a county regulated drain, non-LPA INDOT projects will adhere to the requirements in this document and not the local or county MS4 requirements.

1.03 Target Pollutants

The U.S. EPA lists sediment as the most common pollutant in rivers, streams, lakes, and reservoirs. By targeting sediment removal in stormwater run-off, other types of pollutants will be removed as well. Sediment is the primary pollutant in stormwater run-off from the pavement on INDOT project sites once vegetation is properly established. Accordingly, the permanent stormwater quality control measures discussed in this document will target sediment removal. The required sediment removal rate as total suspended solids (TSS) for all qualifying INDOT projects is 80%.

If stormwater run-off discharges to an IDEM Total Maximum Daily Load (TMDL) Watershed or a stream on the 303(d) List of Impaired Waters, and there are pollutants of concern in INDOT's stormwater run-off, additional water quality treatment may be required if feasible. The Indiana Stormwater Quality Manual can be referenced for design guidance if additional treatment beyond TSS removal is required. The designer shall coordinate with INDOT prior to using the Indiana Stormwater Quality Manual for design guidance.

2.0 DEFINITIONS

A parenthetical number which follows a definition corresponds to the number of the cited reference shown in Section 11.0.

Best Management Practice (BMP). A method that has been determined to be the most effective and practical means of preventing or reducing non-point source pollution to help achieve water quality and quantity goals.

Biological Treatment. The removal of contaminants from stormwater using vegetation and/or microbiological activity by means of various physical and chemical processes.

Bypass System. A system of pipes or conduits that divert stormwater discharges from treatment facilities.

Design Storms. A theoretical storm used to analyze existing or new drainage systems often using a hyetograph or isohyetal map to show the time and spatial distribution of rainfall.

Detention. The interception of a volume of stormwater run-off to be temporarily stored in a constructed stormwater facility for gradual release to a receiving stream or system.

Dry Swale. A vegetated channel that conveys stormwater runoff and should completely drain between rainfall events.

Filtration. The process of removing contaminants from stormwater by allowing it to flow through vegetation or a bed of porous media such as sand, organic material, or soil.

Forebay. A pool of water upstream of another body of water or structural measure that acts as a settling basin for sediment in stormwater run-off.

Hydrograph Routing. A technique used to confirm that a detention facility provides adequate storage and will drain within the allotted timeframe.

Impervious Surface. Any land surface with a low or no capacity for soil infiltration, including but not limited to pavement (sidewalks, streets, parking areas, and driveways), packed gravel or soil, and rooftops. IDEM CSGP Appendix B.

Infeasible. Not technologically possible, or not economically practicable and achievable in light of best industry practices. IDEM CSGP Appendix B.

Infiltration. The process by which stormwater flows from the ground surface and percolates through the soil.

Level Spreader. A stormwater device that reduces the erosive energy of concentrated flows by distributing runoff as sheet flow to stabilized vegetative surfaces.

Non-structural BMP. Institutional and pollution-prevention practices designed to prevent or minimize pollutants from entering stormwater run-off and/or reduce the volume of stormwater requiring management.

Peak Flow Rate. The maximum flow rate for a given design storm at a specific location.

Retention. The interception of a volume of stormwater run-off to be permanently stored in a constructed stormwater facility.

Sedimentation. The process by which soil particles with a density greater than that of water settle to the bottom of a stormwater facility over time.

Soil Disturbance. The movement of soil that results from activities such as clearing, grading, excavation, and pavement removal.

Stormwater Management Measure. A practice or a combination of practices selected to improve the quality of run-off discharges, divert run-off, or mitigate the impacts related to quantity of run-off. IDEM CSGP Appendix B.

Stormwater Quality Measure. A practice, or a combination of practices, to control or minimize pollutants associated with stormwater run-off. IDEM CSGP Appendix B.

Structural Measures. Temporary or permanent facilities that are built to remove contaminants from stormwater run-off.

Total Maximum Daily Load. The calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant.

Treatment Train. Two or more structural measures placed in series (one downstream of another) to help achieve stormwater pollutant reduction goals.

Water Quality. The quality of water based on aquatic life criteria, biological criteria, human health criteria, and microbial/recreational criteria.

Water Quality Event. A rainfall event of one inch which produces the Water Quality Volume and Water Quality Treatment Rate used to design post-construction structural measures.

Water Quality Volume. The volume of run-off generated by the Water Quality Event for treatment in a post-construction structural measure.

The volume of run-off generated by one inch of rainfall on a site. IDEM CSGP Appendix B.

Water Quality Treatment Rate. The peak flow rate of stormwater run-off generated by the Water Quality Event for treatment in a flow-through post-construction structural measure.

Wet Swale. A vegetated channel that conveys stormwater runoff and that should maintain a permanent pool of water.

3.0 STRUCTURAL MEASURE SELECTION

3.01 Structural Measures

Although there are numerous structural post-construction measures available and in-use, INDOT has developed a list of preferred measures for selection, including the following:

- Dry Turf Grass Swale
- Dry Native Grass Swale
- Vegetated Turf Grass Filter Strip
- Vegetated Native Grass Filter Strip
- Dry Detention Pond
- Dry Detention Swale
- Wet Swale
- Wet Retention Pond
- Infiltration Swale
- Infiltration Basin
- Hydrodynamic Separator

Figure 3A includes INDOT's preferred structural measures along with their pollutant removal mechanism. Each measure is prioritized, with a value of "1" being most preferred and a value of "4" being least preferred. In some cases, measures in series will be required to achieve 80% TSS removal, often referred to as a treatment train.

3.02 Planning and Design-Related Minimum Measures

There are several design-related minimum measures that should be considered for INDOT projects. When possible, maximize vegetative conveyance of stormwater to reduce flow velocity, promote sedimentation, filtration, and uptake of pollutants; reduce run-off volumes through infiltration and evapotranspiration; and in some cases, provide wildlife habitat. This objective can be achieved by using swales for stormwater conveyance instead of storm sewers, for example. In some cases, it may be possible to avoid directly connected impervious areas (DCIAs) by allowing run-off to flow from the roadway through vegetation rather than directly into a storm sewer system. Preserving naturally vegetated areas and soil types helps to slow run-off, filter pollutants, and facilitate natural infiltration. It is also ideal to treat pollutants where they are generated or prevent their generation. However, site-specific constraints will affect which measures are appropriate for each project. Additionally, choosing the right measure(s) for each project requires sound engineering judgement and consideration of roadway layout, site specific conditions, environmental context, and hydrologic and hydraulic design. A flowchart can be seen in **Figure 3B** to help choose the most suitable measure for a given project.

3.02(01) Roadway Project Layout/Site-Specific Conditions

There are several site-specific factors that can limit post-construction measure selection.

- Available right-of-way can limit available space needed for some facilities such as dry detention and wet retention ponds. It is costly to acquire right-of-way in some locations, making the implementation of these measures infeasible.
- Steep slopes greater than 15% and other topographic constraints can also limit measure selection. Gentle slopes are preferred because they increase hydraulic retention time and sediment removal.
- Infiltration practices are discouraged in areas of karst topography, which are common in the southern part of the state.
- A high water-table can also impact the function of stormwater facilities designed to fully drain between rainfall events.
- In areas where the bedrock is close to the ground surface, excavation can be expensive.
- The contributing drainage area, both on-site and off-site, will affect measure selection. Large run-off volumes and high velocities can damage the stormwater facility and impact pollutant removal efficiency.
- Adjacent land-use can affect the off-site run-off draining to INDOT right-of way. Development can lead to increased flow rates and sediment loading.
- A measure should not encroach onto the roadway or an adjacent property.

- Underlying soils are important due to their ability to infiltrate run-off and support needed vegetation.
- A measure should not be placed in a jurisdictional stream.

3.02(02) Environmental Context

Measure selection and design is often influenced by pollutants that are reasonably expected to be present in stormwater run-off and the pollutants of concern in the receiving waterbody. Receiving streams on the current 303(d) List of Impaired Waters and TMDL Watersheds are to be considered by all Indiana MS4s. INDOT's temporary erosion and sediment control requirements remove TSS from INDOT's stormwater run-off during construction activities. For qualifying projects, this document provides design criteria to remove 80% of TSS from INDOT's stormwater run-off by installing permanent PCSMs.

3.02(03) Hydrologic and Hydraulic Design Context

The permanent stormwater quality controls in this document are designed using the Water Quality Volume or the Water Quality Treatment Rate, which are both based on the Water Quality Event (1 inch of rainfall). The Water Quality Volume is the treatment volume required to remove a significant percentage of stormwater pollutant load. The Water Quality Treatment Rate is the peak rate of discharge for the water quality design storm needed for the sizing of flow-through measures.

It is important to note the Water Quality Volume and the Water Quality Treatment Rate are based on the total onsite contributing drainage area within INDOT right-of-way to the respective stormwater pollution prevention measure. Individual measures are sized for the total portion of the drainage area directed towards the measure. If off-site run-off is not separated from run-off generated within the right-of-way, the required measure size may be significantly increased. All stormwater from newly added impervious surfaces for qualifying projects (or equivalent impervious area) must pass through a structural post-construction stormwater measure. The design process for each measure using either the Water Quality Volume or the Water Quality Treatment Rate is described in detail in sections 4.0 through 10.0. The Water Quality Volume and Water Quality Treatment Rate can be determined using the following equations:

Water Quality Volume

$$WQ_v = \frac{(P * R_v * A)}{12} \qquad \text{[Equation 3.1]}$$

Where:

WQ_v = water quality volume, acre-feet

P = rainfall, inches (use 1.0 inches)
R_v = volumetric run-off coefficient
A = total proposed onsite drainage area, acres

And:

$$R_v = 0.05 + (0.009 * I)$$ [Equation 3.2]

Where:

I = percent new impervious cover, %

And:

$$I = \frac{P_{ia} - E_{ia}}{A} * 100$$ [Equation 3.3]

Where:

P_{ia} = Proposed Onsite Impervious Area
E_{ia} = Existing Onsite Impervious Area

The Water Quality Volume in inches can be calculated with the equation below:

$$Q_{wv} = P * R_v$$ [Equation 3.4]

Where:

Q_{wv} = water quality volume, inches
P = rainfall, inches (use 1.0 inches)
R_v = volumetric run-off coefficient

Water Quality Treatment Rate

The following procedure will be used to estimate the Water Quality Treatment Rate (Q_{wq}, cfs) which is needed for flow-through measures.

1. Using Q_{wv}, a corresponding Water Quality Curve Number (CN_{wq}) is computed:

$$CN_{wq} = \frac{1000}{10 + (5 * P) + (10 * Q_{wv}) - (10 * [Q_{wv}^2 + 1.25 * Q_{wv} * P]^{1/2})}$$ [Equation 3.5]

Where:

Q_{wv} = water quality volume, inches
P = rainfall, inches (use 1.0 inches)

Alternatively, **Figure 3C** can be used to determine CN_{wq}. This graphical method is as acceptable as using Equation 3.5. Note, the CN_{wq} is not the same as a typical CN. The CN_{wq} is only used to determine the Water Quality Treatment Rate and should not be used in other applications.

2. Calculate the Time of Concentration (T_c) following the requirements in *Indiana Design Manual* (IDM) Chapter 202.

3. Using the CN_{wq}, T_c, and total onsite area draining to the measure, compute the Water Quality Treatment Rate (Q_{wq}) in cfs following hydrograph-oriented procedures approved in the IDM. Use NRCS Type II rainfall distribution and a rainfall depth of 1.0 inches. Software programs that use TR-55 and TR-20 methodologies are acceptable.

TSS Removal Rates for Structural Measures in Series

If 80% TSS removal cannot be achieved using one measure, multiple measures placed in series may be required. The following equation shall be used to calculate the TSS removal rate for measures in series.

$$R_t = R_1 + R_2 - \frac{R_1 * R_2}{100}$$ [Equation 3.6]

Where:

R_t = Total TSS Removal Rate, %
R_1 = TSS Removal Rate of the First or Upstream measure, %
R_2 = TSS Removal Rate of the Second or Downstream measure, %

TSS Removal Rates for Projects with Multiple Discharge Points

If there are multiple discharge points from the project site with corresponding sub-areas, a weighted average of the TSS removal rates may be used. However, the discharge points must ultimately flow to the same receiving stream.

$$R_{avg} = \frac{(A_1 * R_1) + (A_2 * R_2)}{A_1 + A_2}$$ [Equation 3.7]

Where:

R_{avg} = Average TSS Removal Rate, %
R_1 = TSS Removal Rate of the First Onsite Area, %
R_2 = TSS Removal Rate of the Second Onsite Area, %
A_1 = First Onsite Area, acres
A_2 = Second Onsite Area, acres

3.03 Construction, Inspection and Maintenance Considerations

Although proper design is critical for structural measures to function correctly, proper construction and maintenance are equally important. The measure designer should consider location-specific constraints and constructability, in addition to other design requirements provided in this document, because each measure will present unique construction and maintenance issues.

3.03(01) Construction

When designing a structural measure, the engineer should choose a layout that facilitates equipment access to ensure ease of constructability and reduce construction costs. The construction plans should be detailed and clearly address any constraints. Critical design criteria should be clearly documented in the construction plans and critical dimensions should be discussed at preconstruction meetings. The time of year the measure will be constructed should be considered due to vegetation establishment needs. Through adequate planning and coordination, many potential problems can be avoided.

3.03(02) Inspection and Maintenance

All post-construction structural measures will be put on an inspection schedule and maintenance activities will be performed as needed. It is important for the measure designer to understand the type of maintenance activities required for the measure and provide adequate permanent drainage easement or right-of-way around the measure for these activities. Safety should always be considered; the design should include safe access for inspection and maintenance activities. In some locations, a permanent access drive may need to be constructed to avoid lane closures, especially along interstates.

Each permanent structural measure will be given an asset identification number and will require an inspection and maintenance plan. Templates in editable format are provided on the INDOT Stormwater webpage. The Engineer of Record is required to fill out the appropriate template and provide it along with the other submittal documents.

3.04 Infeasibility Determination

In some circumstances, it may not be feasible to construct one or more PCSMs in the project area. It may be possible to install the PCSMs outside of the project area but within the same watershed to satisfy the requirement. Prior coordination with the INDOT Environmental Services Division will be necessary.

3.04(01) Infeasibility Documentation

If it is determined that it will be infeasible to treat INDOT's stormwater run-off to remove 80% TSS within the project limits, infeasibility documentation must be submitted. If it is only feasible to remove a smaller percentage of TSS from the run-off, infeasibility documentation will also be required. The documentation will include the following:

- Description of project purpose, with exhibits showing location, outlets, and existing and proposed features and topography
- Calculations of Water Quality Volume and/or Water Quality Treatment Rate
- Reason(s) constructing post-construction structural measures is not feasible
- Construction cost estimate for measures if cost is a factor
- Proposed plans
- If applicable, percentage of TSS that is feasible to remove from run-off
- Potential alternatives to treat existing impervious areas of equivalent size in another location instead of proposed added pavement

4.0 DRY TURF GRASS AND NATIVE GRASS SWALES

4.01 Dry Swale Overview

A dry swale used for water quality treatment can be natural or engineered and is designed to convey and treat run-off from the roadway. A dry swale will convey flow during wet weather events but should completely dry out between events. Dry swales are often most preferred because they generally take the least amount of right-of-way to implement compared to other green infrastructure post-construction stormwater measures. Dry swales can be planted with turf grass or native vegetation and are referred to as turf grass swales and native grass swales in this chapter. The only difference between the two dry swale types are the plantings. **Figures 4A** and **4B** depict a turf grass swale and a native grass swale, respectively. When possible, turf grass swales should be utilized instead of native grass swales when they are located within 30 feet of the edge of pavement; native grass swales should be utilized when they are located beyond that limit. Adjacent land use should be considered when choosing native grass. If there is a residential or commercial property adjacent to native grass planting, future mowing preferences should be considered.

Swales typically have either a trapezoidal or V-shaped cross section. There should not be an underdrain. The objective of a dry swale is to decrease the velocity of flow to promote sedimentation and physical filtration of solids and biological uptake from the grass. In steep terrain, a check dam is sometimes needed to slow the velocity of flow within a dry swale.

4.02 Dry Swale Applications

Dry turf grass and native grass swales can be ideal for linear highway, interchange, and facility applications and are best suited for small drainage areas. Water depth and velocity are important factors when implementing swales in larger drainage areas because as the flow deepens and the velocity increases, the swales effectiveness is thereby reduced. Erosion within the swale can also become an issue. However, grass swales can be integrated into treatment trains when needed.

4.03 Dry Swale Advantages and Limitations

The biggest advantage to choosing dry swales for water quality treatment is the relatively low cost. Right-of-way requirements are lower for swales compared to some other green infrastructure measures and construction costs are also typically less. Additionally, many INDOT roadways already have dry grass swales within the right-of-way.

A disadvantage is that before vegetation is established, significant erosion can occur, so a temporary erosion-resistant lining may be required during construction. It is extremely important that adequate vegetation is established in the swale otherwise TSS will not be removed. If the contributing drainage area has a high sediment loading, the extra sediment may have to be removed to maintain available flow area. Additionally, rills may form if the bottom width of the swale is greater than 10 feet.

4.04 Dry Swale Design

Flow rate is the critical hydraulic parameter for swale design. The swale should be designed to meet requirements in IDM Chapter 203 in addition to the requirements in this chapter. The CN_{wq} must be calculated using the percent impervious area going to the swale rather than the percent *added* impervious area going to the swale. After the Water Quality Treatment Rate (Q_{wq}) and other applicable flow rates are determined, water quality swale design is primarily composed of determining the swale geometry and swale length. Manning's Equation should be used to determine the velocity, and it is recommended to use a Manning's calculator or modeling program because this is often an iterative process.

4.04(01) Dry Swale Geometry

Side slopes must be 3:1 or flatter for maintenance purposes. The dry swale geometry should be determined using Manning's Equation and the Water Quality Treatment Rate (Q_{wq}) in addition to requirements in IDM Chapter 203 (that pertain to stormwater conveyance). When designing a dry turf grass or native grass swale to meet INDOT water quality requirements, the depth of flow must be at or below the height of the grass in the bottom of the swale during the Water Quality Event,

and a Manning's n value of 0.15 is used. The maximum allowable depth of flow in the swale during the water quality event is based on the type of grass planted in the swale, as listed in **Figure 4C**. When higher flow rates are analyzed to meet requirements in IDM Chapter 203, Manning's n values listed in Chapter 203 shall be used.

The velocity in the swale during the Water Quality Event (v_{wq}) should not be greater than 4 feet per second (fps). If the water depth in the swale during the water quality event is higher than the values listed in **Figure 4C,** the swale geometry shall be adjusted. Although the depth of flow in the swale cannot be higher than the height of the grass during the Water Quality Event, it can be deeper during higher flows.

4.04(02) Dry Swale Length

Removal of sediment by settling is dependent on the hydraulic residence time in the swale. The hydraulic residence time (T_{ahr}) is determined by the following equation:

Hydraulic Residence Time

$$T_{ahr} = \frac{(L_{swale}/v_{wq})}{60} \qquad \text{[Equation 4.1]}$$

Where:

T_{ahr} = hydraulic residence time, minutes
L_{swale} = length of swale, feet
v_{wq} = peak flow velocity at water quality event, ft/s

The swale length should be sized so that the hydraulic residence time in the swale is greater than or equal to 9 minutes to achieve 80% sediment removal. See **Figure 4D** for TSS removal rates achieved at various hydraulic residence times. These calculations can be performed on an existing swale to determine if it can be used to meet the requirements in this chapter.

4.04(03) Dry Swale with Check Dams

In areas with steep terrain, permanent modified check dams may need to be constructed to reduce velocity and increase hydraulic residence time. A minimum longitudinal slope of 1 percent is required if check dams are to be installed. If the longitudinal slope is less than 1 percent, prior approval from INDOT Post-Construction Stormwater Team is required. The foreslope and backslope of the check dams will be 2:1 or flatter with a 1.5-foot minimum top width. Revetment riprap will be used, keyed in 1.5 feet below the flowline. The check dam will be completely made up of stone. **Figure 4E** depicts a dry swale with a check dam.

The maximum allowable check dam height is 2 feet. Taller check dams require prior approval from the INDOT Post-Construction Stormwater Team. During larger rainfall events, flow can overtop the check dam.

The check dam is required to detain the WQ_v for the area draining to the swale. The Hydraulic Residence Time calculation does not apply. If the WQ_v cannot be detained with one check dam, multiple check dams may be needed. The volume of storage available upstream of the check dam is determined by the following equation:

Volume of Storage Behind Check Dam

$$V_1 = \left[\frac{W_1 S_p {L_1}^2}{2} + \frac{{S_p}^2}{6S_{xf}}{L_1}^3 + \frac{{S_p}^2}{6S_{xb}}{L_1}^3\right] \quad \text{[Equation 4.2]}$$

Where:

V_1 = storage volume above swale, cubic feet
W_1 = swale bottom width, feet
S_p = profile slope of swale, feet/feet
L_1 = distance water can be stored from the toe of dam, feet
S_{xf} = swale foreslope, feet/feet
S_{xb} = swale backslope, feet/feet
S_{cd} = check dam face slope, feet/feet
d = height of dam, feet, where $S_pL_1 \leq d$
a = horizontal distance of swale foreslope, feet
b = horizontal distance of swale backslope, feet

See **Figure 4F** for check dam design parameters diagram. It should be noted that $V_t = V_1 + V_2$; however, V_2 is negligible. If desired, V_2 can be calculated similarly to V_1. When the profile slope of the swale and corresponding length are calculated, the height of the check dam should be accounted for; water can only be stored up to the elevation of the top of the check dam.

If check dams are installed for peak flow mitigation, the procedures outlined in IDM Chapter 203 shall be followed and the design should be coordinated with INDOT Hydraulic Engineering. Regardless of the purpose for check dam installation, roadway serviceability requirements shall be met.

4.04(04) Offsite Flow Entering Swale

In some cases, there will be off-site flow coming into the water quality swale. If the off-site flow cannot be bypassed around the water quality swale, then the offsite flow must be accounted for to

ensure the depth of water in the swale during the Water Quality Event is not above the height of the vegetation. To account for off-site flow into the swale, assume the following:

- T_c will be derived following typical TR-55 and IDM Chapter 202 procedures.
- CN will be derived using the same process as the CN_{wq}, using percent impervious area instead of percent new impervious area.
- Calculate flow using NRCS Type II rainfall distribution and a rainfall depth of 1.0 inches
- Two basins are then required, one for the onsite area and another for the offsite area.
- The two basins should be analyzed together with the same outlet (the dry swale) to determine the peak flow to the swale during the Water Quality Event.

4.04(05) Dry Swale Seeding

Dry swales with a longitudinal slope of less than 1% can be planted with seed. Dry swales with longitudinal slopes greater than 1% or less than 3% will be sod-lined or check dams may need to be installed. Dry swales with longitudinal slopes greater than 3% may require check dams due to the need for plant establishment.

Turf grass swales should be planted with Seed Mixture R in rural areas and Seed Mixture U in urban areas, following INDOT's Seed Mixtures and Seed Requirements Standard Specifications. Native grass swales can be planted with the Native Grass Mix provided in the Appendix. Alternatively, a site-specific Native Grass Mix can be proposed. For both types of swales, a plant growth layer, following INDOT Standard Specifications, should be included in the design. If a Native Grass Mix is used within 30 feet of the edge of pavement, signs are required for maintenance purposes.

5.0 VEGETATED FILTER STRIP

5.01 Vegetated Filter Strip Overview

A filter strip is a vegetated, uniformly graded area that receives sheet flow and is typically located between a pollutant source and either another measure or a waterbody. These strips generally have mild slopes and can be planted with turf grass or native grasses or can use existing vegetation including trees and shrubs. When possible, turf grass should be utilized instead of native grass when the filter strip is located within 30 feet of the edge of pavement; native grass should be utilized when the filter strip is located beyond that limit. Adjacent land use should be considered when choosing native grass. If there is a residential or commercial property adjacent to native grass planting, future mowing preferences should be considered. A vegetated filter strip is depicted in **Figure 5A**.

The effectiveness of a vegetated filter strip for TSS removal is controlled by the underlying soil, the type of vegetation, and the cross-sectional slope of the strip. Stormwater run-off sheet-flows through the vegetation which promotes sedimentation, filtration, adsorption, infiltration, biological uptake, and microbial activity.

5.02 Vegetated Filter Strip Applications

Vegetated filter strips are ideal for linear projects such as roadways without curb and gutter. There is often adequate space for a filter strip between the edge of the roadway pavement and the roadside ditch. If flow is concentrated, a filter strip alone is not appropriate. However, a level spreader can be installed to redistribute flow in some cases.

5.03 Vegetated Filter Strip Advantages and Limitations

Vegetated filter strips have a relatively low cost compared to other measures if adequate space is available. They also require relatively low maintenance once vegetation is established.

A vegetated filter strip is only effective if the run-off entering and flowing through the strip is sheet flow. Because the flow through the filter strip must be sheet flow, the area draining to the strip must be uniformly graded, or in the case of existing areas, the surface must have features that pond or disperse the run-off before it enters the strip. Additionally, larger drainage areas cannot be treated with a vegetated filter strip. It is also extremely important that vegetation be well established for a filter strip to remove TSS from run-off.

5.04 Vegetated Filter Strip Design

Flow must enter the vegetated filter strip as sheet flow and remain as sheet flow until it leaves the strip. The length of the filter strip is measured between the edge of the pavement, or area sheet flow is received, to the receiving stream, as shown in **Figure 5A**. The length of the drainage area contributing to sheet flow to the filter strip cannot be more than 100 feet for impervious surfaces and 150 feet for pervious surfaces. The longitudinal slope is calculated along the length of the filter strip. The Hydrologic Soil Group (HSG) of the underlying soil beneath the filter strip should be obtained using information available through Natural Resources Conservation Service (NRCS), soil testing, or another resource if available.

To determine the percent TSS removal for a vegetated filter strip, **Figures 5B** to **5E** will be used. The filter strip longitudinal percent slope is shown on the X axis of the graphs and the filter strip length, in feet, is shown on the Y axis of the graphs. The percent TSS removal for strips planted with turf grass, native grasses, and existing woods can then be determined based on the HSG of

the existing underlying soil. Although existing trees can be used, the intent is not to plant trees on these filter strips due to proximity to the roadway.

5.05 Vegetated Filter Strip Seeding

Vegetated filter strips can be planted with Seed Mixture R in rural areas and Seed Mixture U in urban areas, following INDOT's Seed Mixtures and Seed Requirements Standard Specifications. If the vegetated filter strip is designed to include native grasses, the designer can use the Native Grass Seed Mix provided in the Appendix. Alternatively, a site-specific Native Grass Mix can be proposed. For both types of vegetation, a plant growth layer, following INDOT Standard Specifications, should be included in the design. If a Native Grass Mix is used within 30 feet of the edge of pavement, signs are required for maintenance purposes.

6.0 DRY DETENTION

6.01 Dry Detention Overview

A dry detention measure is a pond or swale that captures and temporarily detains stormwater run-off for a specific duration. Dry detention measures can serve as peak flow mitigation devices while also providing water quality benefits by promoting the settlement of suspended pollutants. Because traditional dry detention measures are not meant to have a permanent pool of water, the entire pond or swale must be designed to drain within 72 hours. A dry detention measure is depicted in **Figure 6A**. Additional information about dry detention measures is provided in IDM Chapter 203.

6.02 Dry Detention Applications

A dry detention measure may not be the ideal measure to choose to meet the requirements if there is not already a dry detention measure needed for peak flow mitigation. However, if an INDOT project requires peak flow mitigation based on design criteria in IDM Chapter 203, the dry detention measure should also be accounted for to help meet the requirements of this document.

6.03 Dry Detention Advantages and Limitations

Because stormwater is detained within a dry detention measure, erosive velocities downstream may be reduced, which also helps reduce TSS and other negative hydrologic impacts in the receiving waterbody. Dry detention measures can be implemented in series with other structural measures such as filter strips and swales.

In some cases, inline ditch detention is used, requiring less right-of-way. However, dry detention ponds often require a relatively large footprint to meet peak flow mitigation requirements. They also require more frequent inspections than some other structural measures because they require inspection after large rainfall events, primarily to ensure the outlet structures are not clogged with trash or debris.

6.04 Dry Detention Design

When using a dry detention measure for water quality treatment, the minimum flow length-to-width ratio is 3:1 to prevent short-circuiting and promote filtration and sedimentation. For dry detention ponds, if it is not possible to achieve a minimum length-to-width ratio of 3:1, baffles can be installed to lengthen the flow path through the pond, or a meandering pilot channel can be constructed. Detention ponds with a higher length-to-width rations will resemble a swale, and some designers may refer to these measures as ditch detention. A dry forebay is recommended but not required.

The dry detention measure should detain the Water Quality Volume and release it over a time of 24 hours or more to achieve 80% TSS removal. A multi-stage outlet structure may be needed. The smallest allowable outlet pipe diameter is 4 inches due to clogging concerns. If the outlet pipe has a diameter of less than 6 inches, a reducer is required. If the outlet pipe diameter is 6 inches or less, 50 feet of perforated pipe (one nominal size larger than the outlet pipe diameter) shall be installed in a stone trench and connected to the outlet structure. The stone trench width will include a minimum of one foot on each side of the perforated pipe and 1:1 side slopes. The depth should include a minimum of 6 inches (12 inches preferred) above the perforated pipe and 6 inches below it. Clean washed #2 stone will be used in the trench, with geotextiles lining the bottom and sides. Soil will not be placed on top of the stone trench. The stone trench and perforated pipe length minimum is 50 feet. An inspection cleanout port must be included at the upstream end of the perforated pipe. For some dry detention measures with larger contributing drainage areas, a longer stone trench and perforated pipe may be required.

If a stone trench and perforated pipe system is required, a perforated riser structure surrounded in clean washed #2 stone is also needed. The perforated riser structure should be located just upstream of the F7 inlet. The perforated riser structure diameter should be 6 inches lower than the casting elevation of the F7, but no taller than 3 feet. Therefore, the difference in elevation between the perforated riser structure and the casting elevation can be larger than 6 inches, if needed. The cap on the perforated riser structure should be grated. The gravel should be placed with 2:1 side slopes.

The detention measure will be modeled with the small outlet pipe used to detain the water quality volume, another opening for the design storm (if applicable), and the 100-year opening. The

perforated pipe underdrain system does not need to be modeled. A software program that allows for multiple pond outlets will be required. **Figure 6B** shows a dry detention pond outlet structure with a perforated pipe underdrain.

Alternatively, the dry detention measure could be analyzed as a swale using the Water Quality Treatment Rate. If this approach is chosen, a meandering pilot channel may be required, and the depth of flow during the Water Quality Event must be at or below the height of the vegetation in the pilot channel. This approach is preferred when possible. **See Section 4.04**.

6.05 Dry Detention Seeding

When possible, turf grass should be utilized instead of native grass when the detention pond is located within 30 feet of the edge of pavement; native grass should be utilized when the detention pond is located beyond that limit. The Native Grass Mix provided in the Appendix can be used or a site-specific Native Grass Mix can be proposed.

Dry detention measures will be planted with Seed Mixture R in rural areas and Seed Mixture U in urban areas, following INDOT's Seed Mixtures and Seed Requirements Standard Specifications. A plant growth layer, following INDOT Standard Specifications, should be included in the design.

7.0 WET SWALE

7.01 Wet Swale Overview

Like a dry swale, a wet swale used for water quality treatment can be natural or engineered and is designed to convey and treat run-off from the roadway. The objective of a wet swale is to detain the Water Quality Volume to allow sediment particles to settle out of the stormwater run-off. A check dam without an outlet structure is typically required. Larger flows can overtop the check dam and convey to an offsite outlet. **Figure 7A** depicts a wet swale.

Swales typically have either a trapezoidal or V-shaped cross section. There should be no underdrain. A wet swale needs to have a high water-table or poorly drained soils to properly retain water.

7.02 Wet Swale Applications

Wet swales can be used to treat stormwater run-off when the water table is high or when there are poorly drained existing underlying soils. It might be desirable to choose a wet swale over a dry swale if only a relatively short swale length is available or if it is not possible for the swale to fully drain between rainfall events.

7.03 Wet Swale Advantages and Limitations

One advantage of wet swales is they can provide aquatic wildlife habitat. Additionally, wet swales are known to treat other pollutants that can come from offsite such as nutrients, metals, and pathogens through biological removal.

Unfortunately, there are several common problems associated with wet swale application. Vegetation establishment can be difficult due to the need for emergent plant life, and emergent plant life requires proper pH levels in the swale to thrive. The wet swale water can become stagnated, causing unpleasant odors. Wet swales also tend to attract nuisance insects, resulting in mosquitoes breeding and ant mounds. For this reason, it is often not desirable to construct a wet swale in a residential or commercial area unless the swale will be properly maintained.

7.04 Wet Swale Design

Wet swale design must meet hydraulic capacity and serviceability requirements in IDM Chapter 203 in addition to the requirements in this document. Side slopes must be 3:1 or flatter unless an existing wet swale is being used. The wet swale must detain the Water Quality Volume and the permanent pool volume should be larger than the WQ_v. In some cases, such as if the wet swale measure drains to another waterbody and will remain wet due to the high-water table, a check dam may not be required.

If a check dam is required, typically it should not have an outlet pipe. In some cases, such as when the wet swale receives larger offsite flows, the integrity of the check dam could be compromised. If larger flows are entering the wet swale, the check dam should include a riser pipe connected to an outlet pipe, with the riser pipe set at the 100-year water surface elevation (or lower), and the top of the berm 1 foot above that (like a wet retention pond berm). Alternatively, the check dam can include an overflow weir with capacity for the 100-year event. In either situation, the structural integrity of the berm must be considered by the designer.

7.05 Wet Swale Seeding

In areas above the permanent pool elevation, wet swales should be planted with Seed Mixture R in rural areas and Seed Mixture U in urban areas, following INDOT's Seed Mixtures and Seed Requirements Standard Specification (if turf grass is desired). Alternatively, native grass can be planted with the Native Grass Seed Mix provided in the Appendix. Alternatively, a site-specific Native Grass Mix can be proposed. When possible, turf grass should be utilized instead of native grass when the wet swale is located within 30 feet of the edge of pavement; native grass should be utilized when the wet swale is located beyond that limit. If a Native Grass Mix is used within 30 feet of the edge of pavement, signs are required for maintenance purposes. Below the permanent

pool elevation, the Emergent Plant Seed Mixture provided in the Appendix should be used. A plant growth layer, following INDOT Standard Specifications, should be included in the design.

8.0 WET RETENTION POND

8.01 Wet Retention Pond Overview

A wet retention pond is a detention basin that maintains a permanent pool of water. Wet retention ponds can serve as peak flow mitigation devices while also providing water quality benefits by promoting the settlement of TSS and biological uptake of suspended pollutants. Additional storage is provided in the pond above the permanent pool of water. **Figure 8A** depicts a wet retention pond.

8.02 Wet Retention Pond Applications

Although wet retention ponds can be used for linear highway projects, they are more typically seen in residential and commercial areas where they can add to property value and provide recreational activities. A wet retention pond may be best suited to sites where there is adequate space in a low-lying area with a high water-table. Wet retention ponds will rarely be used for INDOT projects.

8.03 Wet Retention Pond Advantages and Limitations

In addition to removing TSS from stormwater run-off by allowing particles to settle out, wet retention ponds reduce velocities in the downstream receiving water body, which helps prevent erosion and other negative hydrologic impacts. The plants, algae, and bacteria in wet retention ponds help remove other pollutants that can come from offsite such as nutrients, metals, and pathogens. Wet retention ponds also provide aquatic wildlife habitat.

Wet retention ponds are not recommended for linear roadway projects due to the limited available space and maintenance requirements. Excess nutrients can result in eutrophication, so regular chemical treatment or aeration is required.

8.04 Wet Retention Pond Design

For 80% TSS removal, the permanent pool volume within the wet pond must be larger than the WQ_v. The pond can be designed to permanently detain a larger volume or temporarily store a larger volume for peak flow mitigation. Extended detention can be provided by slowly releasing the volume of water above the permanent pool elevation. An outlet structure and emergency overflow structure are required as described in IDM Chapter 203. Erosion protection must be installed downstream of the outlet structure.

8.05 Wet Retention Pond Seeding

Wet Retention Ponds will be planted with Seed Mixture R in rural areas and Seed Mixture U in urban areas above the permanent pool elevation, following INDOT's Seed Mixtures and Seed Requirements Standard Specifications. Alternatively, native grass can be planted above the permanent pool elevation with the Native Grass Seed Mix provided in the Appendix. However, a site-specific Native Grass Mix can be proposed. When possible, turf grass should be utilized instead of native grass when the retention pond is located within 30 feet of the edge of pavement; native grass should be utilized when the retention pond is located beyond that limit. If a Native Grass Mix is used within 30 feet of the edge of pavement, signs are required for maintenance purposes. A plant growth layer, following INDOT Standard Specifications, should be included in the design in planted areas. Plantings are not required below the permanent pool elevation.

9.0 INFILTRATION

9.01 Infiltration Overview

An infiltration feature is a structural measure that collects run-off and allows it to drain through the underlying soil. Infiltration practices can be used to meet both water quantity and water quality goals when proper site selection, design, construction, and maintenance processes are followed. When designing infiltration facilities, design criteria in IDM Chapter 203 shall also be adhered to.

Infiltration practices are used in various post-construction stormwater measures, including bioretention basins, infiltration trenches, sand filters, infiltration swales, and infiltration basins. For INDOT projects, the only acceptable infiltration features are infiltration basins or infiltration swales. In some cases, infiltration features will also be used to meet peak flow mitigation goals, or when a suitable site outlet does not exist. An infiltration basin is depicted in **Figure 9A** and an infiltration swale is depicted in **Figure 9B**.

9.02 Infiltration Applications

Infiltration practices may only be used when the existing underlying soils are composed of loam, sandy loam, loamy sand, and sand. Engineered soil media will not typically be used in infiltration basins and swales for INDOT projects. Instead, the existing underlying soil should be capable of achieving proper infiltration. Infiltration features cannot be installed in areas with a high water-table. It is preferred to have a 4-foot separation between the infiltration feature bottom and the seasonal high water-table; however, a 2-foot separation will be allowed.

9.03 Infiltration Advantages and Limitations

Because all the water quality volume is infiltrated into the soil, infiltration basins promote groundwater recharge and are considered to have a high pollutant removal capacity. Not only do infiltration features remove TSS, they also prevent dissolved pollutants from directly entering the receiving stream. As the stormwater percolates through the underlying soil, physical, chemical, and biological processes remove a majority of contaminants.

In Indiana, most areas do not have the proper underlying soil types to use infiltration. Infiltration practices have been historically known for high rates of failure due to clogging caused by high sediment loading, poor design, improper construction, and neglected maintenance. Infiltration basins and swales should not be used in areas of karst topography or well-head protection areas.

9.04 Infiltration Design

If the infiltration feature is also being used as a peak flow mitigation facility, all requirements in Chapter 203 must be adhered to. Although not required, pretreatment by means of a vegetated filter strip or dry sediment forebay is recommended. Otherwise, the infiltration feature will likely require more maintenance to address clogging.

Soil testing is required per the guidelines provided in IDM Chapter 203 for infiltration basins and swales. To demonstrate an infiltration basin or swale will reduce the TSS in run-off by 80%, all the Water Quality Volume must be infiltrated. The basin or swale must also provide enough above ground storage to allow water to pond while it is being infiltrated.

If the infiltration feature is also being used for peak flow mitigation or due to a lack of a suitable site outlet, it is likely a computer model will be used. If the infiltration basin was modeled using a computer model, the volume infiltrated can be obtained from the model.

If the infiltration feature is being solely used to treat the Water Quality Volume, the following procedure can be followed once the Water Quality Volume is calculated (assuming a computer model was not used). If there is offsite flow going into the infiltration feature, it must also be considered.

$$V_i = A_b * k * T_c \qquad \text{[Equation 9.1]}$$

Where:

V_i = volume of water infiltrated, ft^3
A_b = basin or swale bottom surface area, ft^2
k = infiltration rate of existing underlying soil, ft/hr

T_c = time of concentration to feature, hr

If the volume of water infiltrated is greater than or equal to the WQ_v, no further calculations for water quality are required. If the volume of water infiltrated is less than the WQ_v, additional calculations are required to determine how much above ground storage volume is required in the feature and if the feature will fully drain within 72 hours. If the infiltration feature is a swale requiring above ground storage, the swale will be modeled as a basin.

Based on NRCS hydrograph analyses performed by others, the effective filling time for most infiltration basins will generally be less than two hours. Using a max filling time of two hours results in the equation below:

$$V_b = WQ_v - (T_f * k * A_b) \quad \text{[Equation 9.2]}$$

Where:

V_b = basin volume, ft^3
T_f = 2 hr
k = infiltration rate of existing underlying soil, ft/hr
A_b = basin or swale bottom surface area, ft^2

Check to ensure the basin will fully drain within 72 hours:

$$T_d = \frac{WQ_v}{A_b} * k \quad \text{[Equation 9.3]}$$

Where:

T_d = time to drain, hr

9.05 Infiltration Seeding

Infiltration basins and swales will be planted with the Native Grass Seed Mix found in the Appendix. Alternatively, a site-specific Native Grass Mix can be proposed. If a Native Grass Mix is used within 30 feet of the edge of pavement, signs are required for maintenance purposes. A plant growth layer should not be included because the infiltration rate of the soil will be affected. The Native Grass Seed Mix was designed to include seeds that require less organic material.

10.0 HYDRODYNAMIC SEPARATORS

10.01 Hydrodynamic Separators Overview

There are many different types of proprietary post-construction structural stormwater measures in use, such as hydrodynamic separators, gravity oil-grit separators, and catch basin inserts. For INDOT projects, typically only hydrodynamic separators should be proposed.

Hydrodynamic separators, also referred to as swirl concentrators and other proprietary names, are modifications of traditional oil-grit separators and are a type of flow-through device. These devices use a swirl or vortex to remove solids and trash via gravity from stormwater run-off. Although swirl concentration is most common, some devices use circular screening or cylindrical sedimentation.

10.02 Hydrodynamic Separators Applications

The small size of hydrodynamic separators makes them ideal when right-of-way is very limited and are often used in urban areas. However, they generally are part of a storm sewer system, with inflow entering the unit through one pipe and exiting out of another pipe. If a hydrodynamic separator is used in combination with another structural measure, it is ideal to install it upstream rather than downstream.

10.03 Hydrodynamic Separators Advantages and Limitations

The biggest advantage of a hydrodynamic separator is the small footprint. They are often the only feasible solution for removing TSS from run-off for projects in urban settings with storm sewer systems and limited right-of-way. Hydrodynamic separators can also be retrofitted into existing drainage systems.

Although very effective at removing TSS from run-off, hydrodynamic separators will only function if properly maintained. Frequent inspection and cleanout are required. The initial cost of hydrodynamic separators can be relatively high.

10.04 Hydrodynamic Separators Design

The Water Quality Treatment Rate is required for hydrodynamic separator design. Larger flows should be bypassed using diversion structures. Offline units should be used unless prior approval from the INDOT Post-Construction Stormwater Team is obtained. Contact the INDOT Post-Construction Stormwater Team for unit selection guidance. Adequate space for safe inspections

and maintenance should be provided in the design. A permanent access road or bump out along the highway may be required for hydro excavation truck access.

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29. Taylor, Andre and Wong, Tony, *Non-Structural Stormwater Quality Best Management Practices – an Overview of their Use, Value, Cost, and Evaluation,* Cooperative Research Centre for Catchment Hydrology, 2002.
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37. Washington State Department of Transportation, *Highway Runoff Manual*, 2019.
38. Winston, R.J. for Ohio Department of Transportation Stormwater Workshop, *Grassed Swale Performance and Design: Field and Modeling Results*, 2014.
39. Wisconsin Department of Natural Resources, *Bioretention For Infiltration,* 2014.
40. Wisconsin Department of Transportation, *Facilities Development Manual*, Chapter 10, 2019.

APPENDIX – SEED MIXES

NATIVE GRASS SEED MIX

Common Name	Botanical Name	Pure Live Seeds Oz/Acre
Common Milkweed	*Asclepias syriaca*	2
Frank's Sedge	*Carex frankii*	6
Spreading Oval Sedge	*Carex normalis*	6
Bottlebrush Sedge	*Carex lurida*	6
Awl-fruited Sedge	*Carex stipata*	6
Fox Sedge	*Carex vulpinoidea*	8
Common Rush	*Juncus effusus*	2
Canada Wild Rye	*Elymus canadensis*	36
Virginia Wild Rye	*Elymus virginicus*	36
Stiff Goldenrod	*Oligoneuron rigidum*	1
Switch Grass	*Panicunm virgatum*	4
Little Bluestem	*Schizachyrium scoparium*	96
Woolgrass	*Scirpus cyperinus*	2
Reddish Bulrush	*Scirpus pendulus*	4
Prairie Cord Grass	*Spartina pectinata*	6
Common Spiderwort	*Tradescantia ohiensis*	2
	Total	**223**

Cover Crop		Pure Live Seeds Oz/Acre
Common Oats	*Avena Sativa*	560

EMERGENT PLANT SEED MIX

Common Name	Botanical Name	Pure Live Seeds Oz/Acre
Common Water Plantain	*Alisma subcordatum*	1
Swamp Milkweed	*Asclepias incarnata*	2
River Bulrush	*Bolboschoenus fluviatilis*	2
Bluejoint Grass	*Calamagrostis canadensis*	3
Common Fox Sedge	*Carex stipata*	3
Fox sedge	*Carex vulpinoidea*	6
Blunt Spike Rush	*Eleocharis obtusa*	1
Great Spike Rush	*Eleocharis palustris*	1
Virginia Wild Rye	*Elymus virginicus*	16
Spotted Joe Pye Weed	*Eutrochium maculatum*	1
Fowl Manna Grass	*Glyceria striata*	3
Canadian Rush	*Juncus canadensis*	1
Common Rush	*Juncus effusus*	2
Rice Cut Grass	*Leersia oryzoides*	2
Chairmakers Rush	*Schoenoplectus pungens*	1
Softstem Bulrush	*Schoenoplectus tabernaemontani*	2
Dark Green Rush	*Scirpus atrovirens*	1
Wool Grass	*Scirpus cyperinus*	1
Red Bulrush	*Scirpus pendulus*	1
Wild senna	*Senna hebecarpa*	2
Common Bur Reed	*Sparganium eurycarpum*	4
Prairie Cord Grass	*Spartina pectinata*	3
New England Aster	*Symphyotrichum novae-angliae*	0.5
Blue vervain	*Verbena hastata*	1
Total		60.5

Cover Crop		Pure Live Seeds Oz/Acre
Common Oats	*Avena Sativa*	540

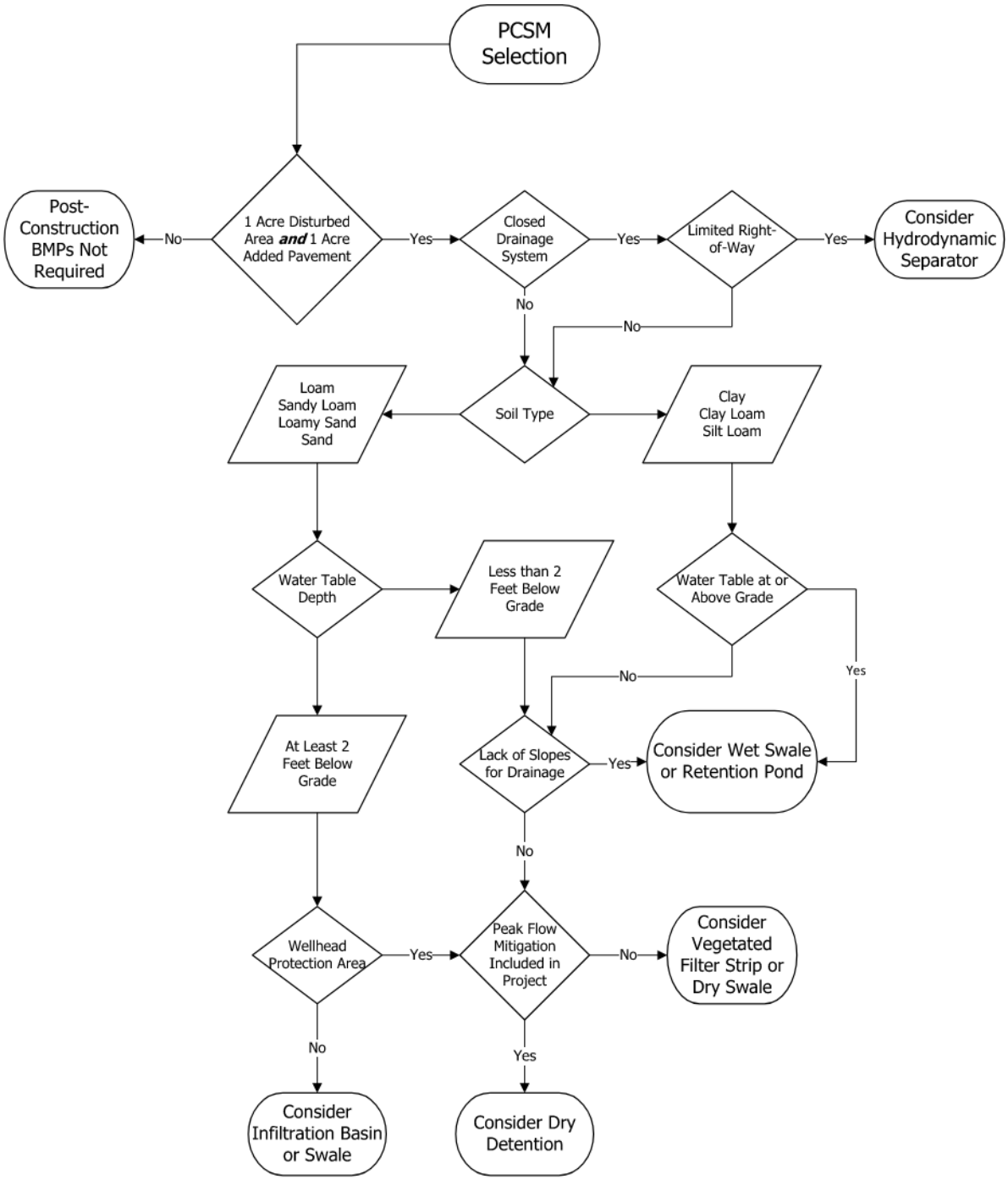
FIGURES

Structural Measures	Description	Pollutant Removal Mechanism	Priority
Dry Turf Grass Swale	A broad and shallow channel planted with grass. Fully drains between rainfall events.	Sedimentation, physical filtration, and biofiltration	1
Dry Native Grass Swale	A broad and shallow channel planted with dense specialized plants. Fully drains between rainfall events.	Sedimentation, physical filtration, and biofiltration	1
Filter Strip	A vegetated linear section of land. Also often referred to as a buffer strip.	Physical filtration, sorption, biofiltration	1
Dry Detention	An engineered pond or swale planted with grass. Fully drains between rainfall events. Includes an outlet structure to control flow.	Sedimentation, physical filtration, and biofiltration	1
Wet Swale	A broad and shallow channel planted with grass. Designed with a permanent pool and an elevated outlet structure.	Sedimentation, physical filtration, and biofiltration	2
Wet Retention Pond	Engineered basin designed to permanently store run-off. Designed with a permanent pool and an elevated outlet structure.	Sedimentation, physical filtration, and biofiltration	2
Infiltration Swale	A broad and shallow channel with permeable soil planted with grass. Designed to infiltrate run-off into the underlying soil.	Sedimentation, physical filtration, infiltration, sorption, and biofiltration	3
Infiltration Basin	An engineered basin with permeable soil planted with grass. Designed to infiltrate run-off into the underlying soil.	Sedimentation, physical filtration, infiltration, sorption, and biofiltration	3
Proprietary Device	Hydrodynamic separators.	Sedimentation and physical filtration	4*

*In urban areas where right-of-way is limited, hydrodynamic separators may be preferred.

INDOT PREFERRED POST-CONSTRUCTION STORMWATER MEASURES

FIGURE 3A



MEASURE SELECTION FLOWCHART

FIGURE 3B

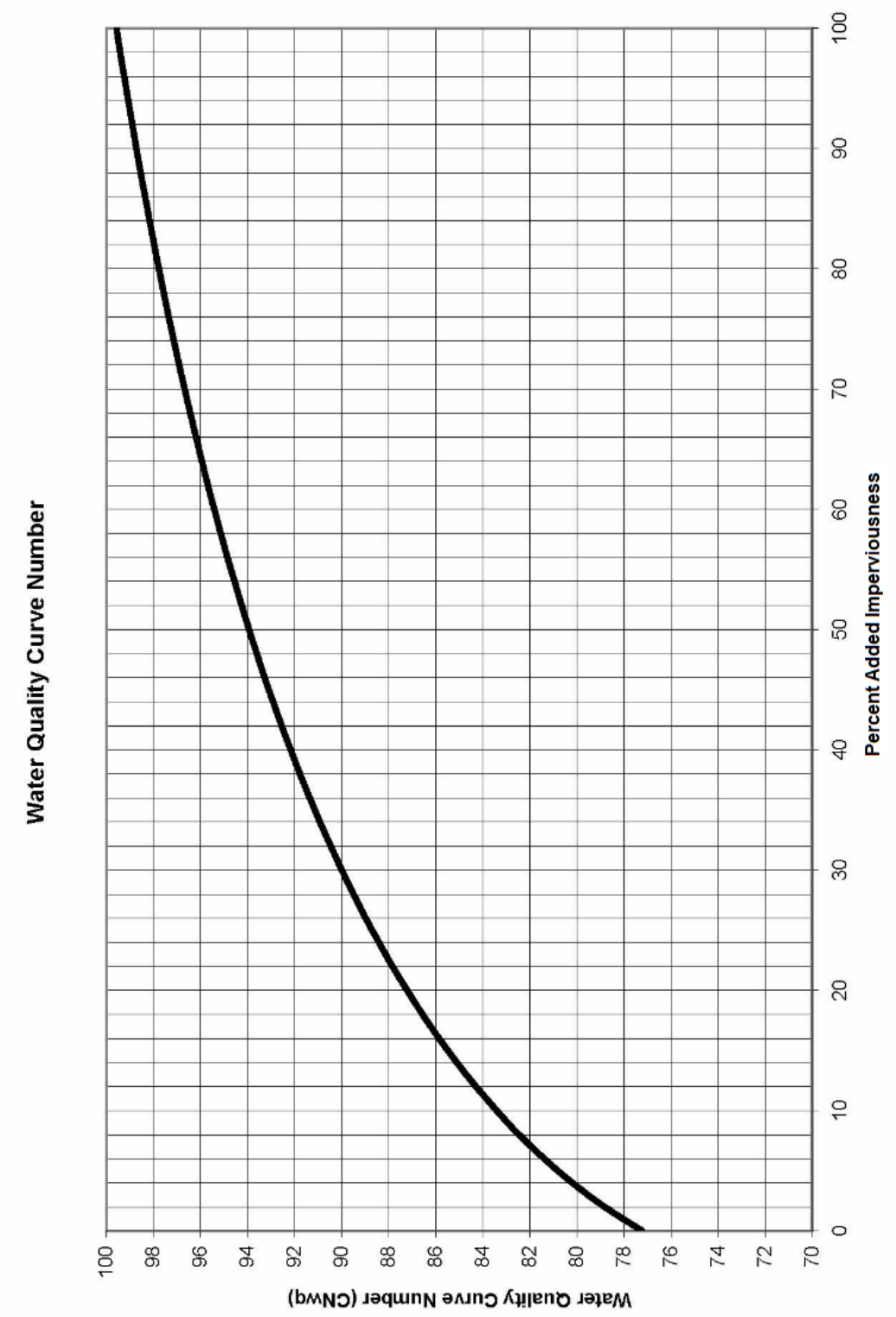
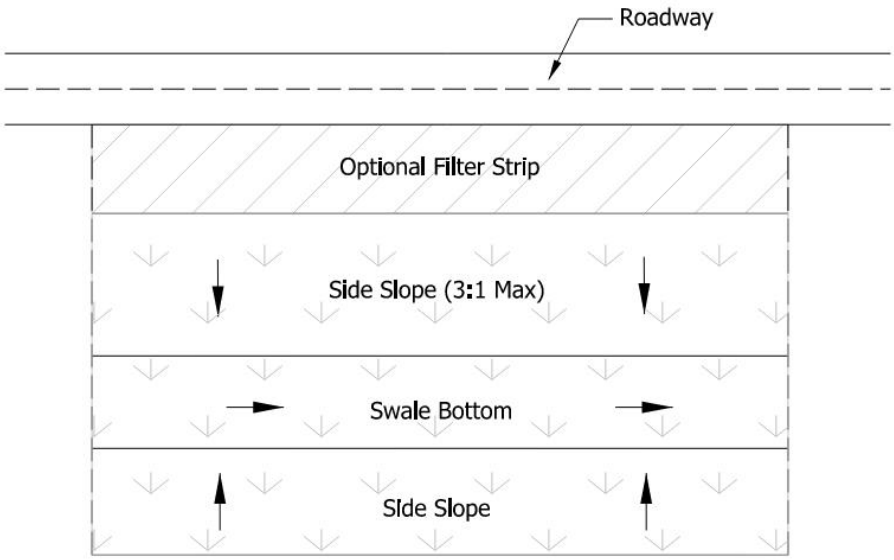
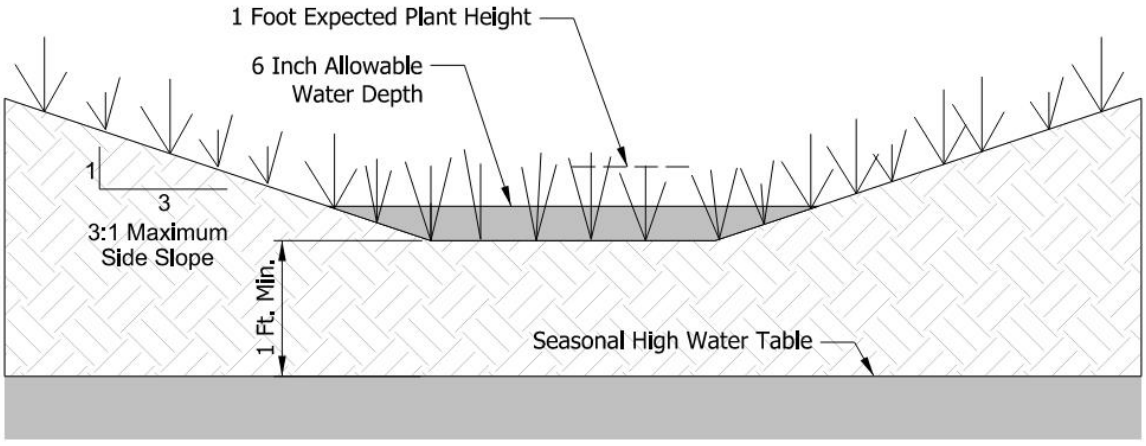

Water Quality Curve Number
Water Quality Curve Number (CNwq)
100
98
96
94
92
90
88
86
84
82
80
78
76
74
72
70
0
10
20
30
40
50
60
70
80
90
100
Percent Added Imperviousness

FIGURE 3C



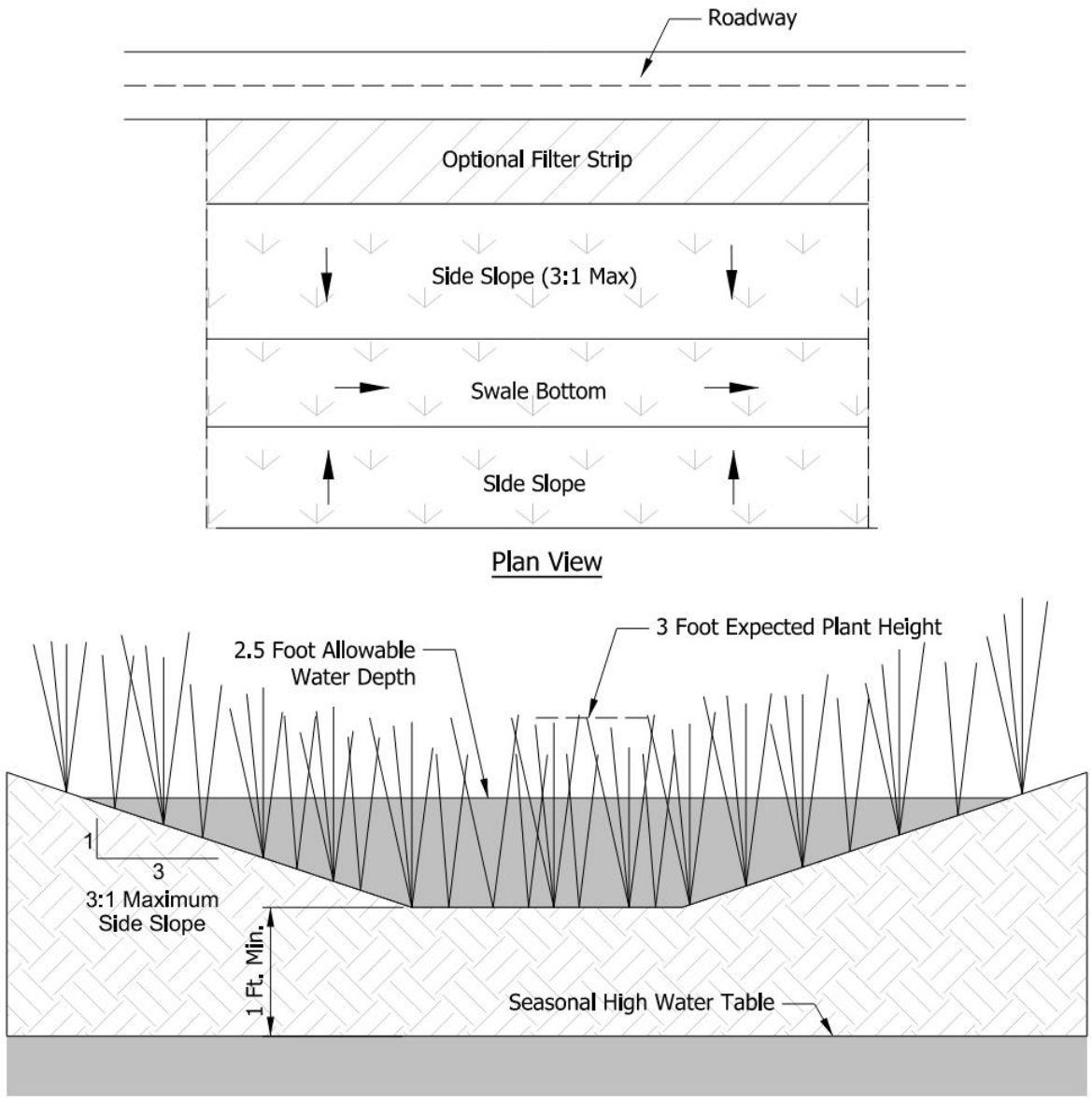
Plan View



Cross Section View

DRY TURF GRASS SWALE DETAILS

FIGURE 4A



DRY NATIVE GRASS SWALE DETAILS

FIGURE 4B

Swale Type	Planting	Expected Plant Height	Maximum Allowable Water Depth at Water Quality Treatment Rate
Dry Turf Grass Swale	Turf Grass	1 foot	6 inches
Dry Native Grass Swale	Native Grass	3 feet	2.5 feet

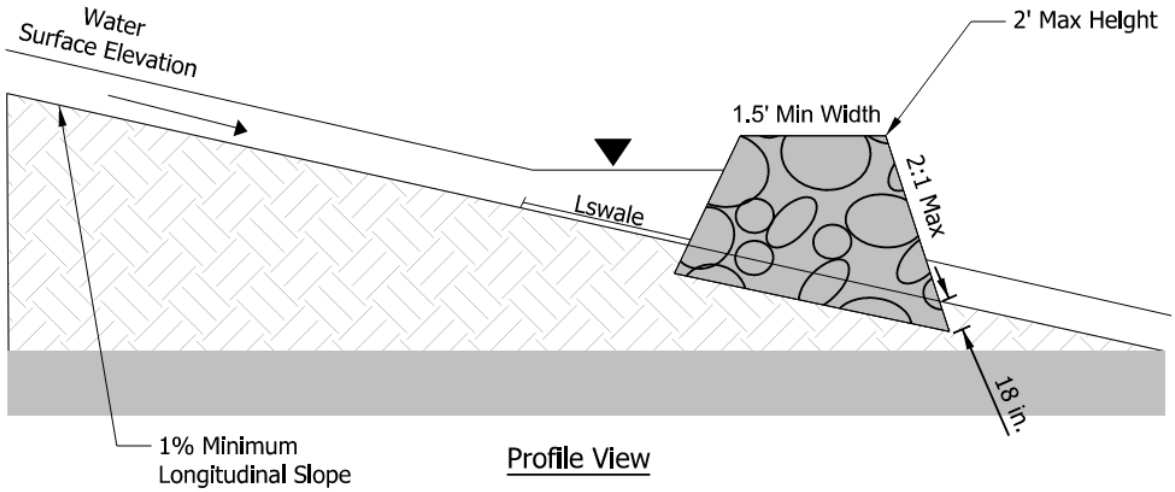
DRY SWALE ALLOWABLE WATER DEPTH

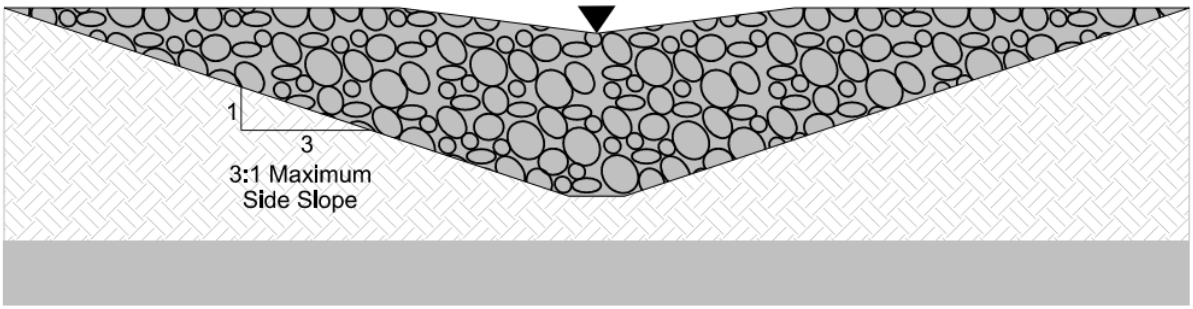
FIGURE 4C

Hydraulic Residence Time (minutes)	% Sediment Removal Achieved
9	80
8	75
7	70
6	65
5	60

PERCENT SEDIMENT REMOVAL FOR DRY SWALES

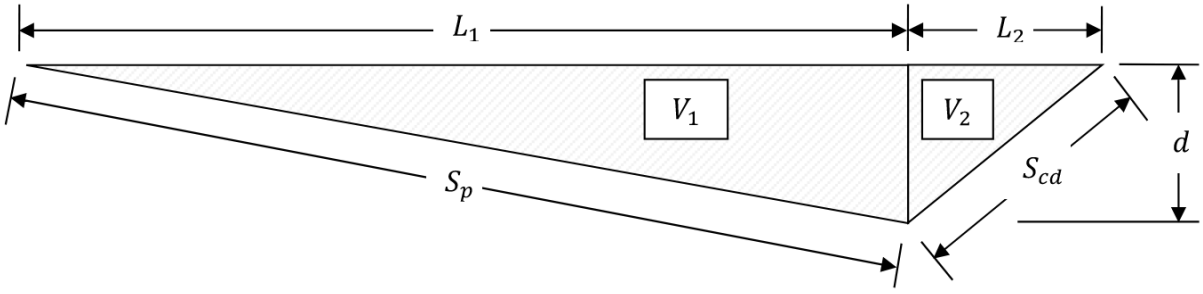
FIGURE 4D



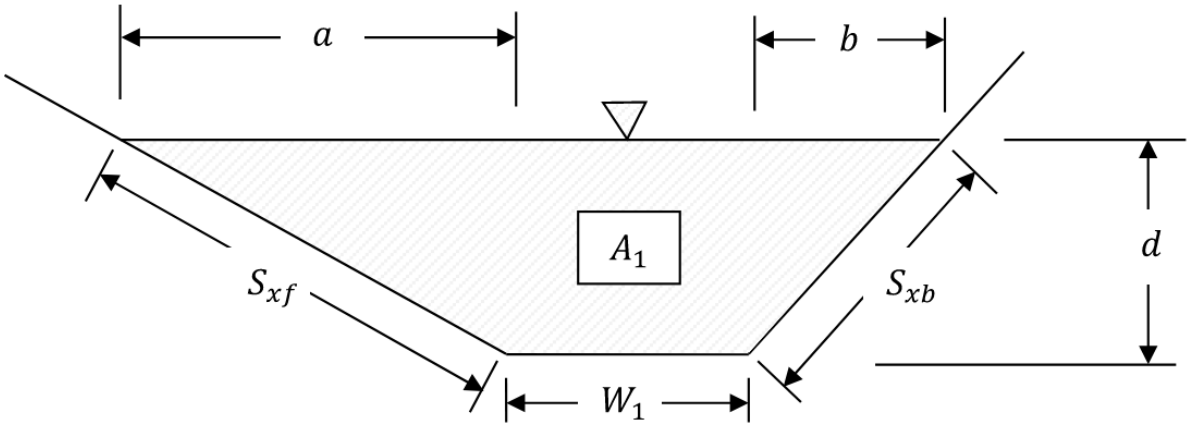


DRY SWALE CHECK DAM

FIGURE 4E



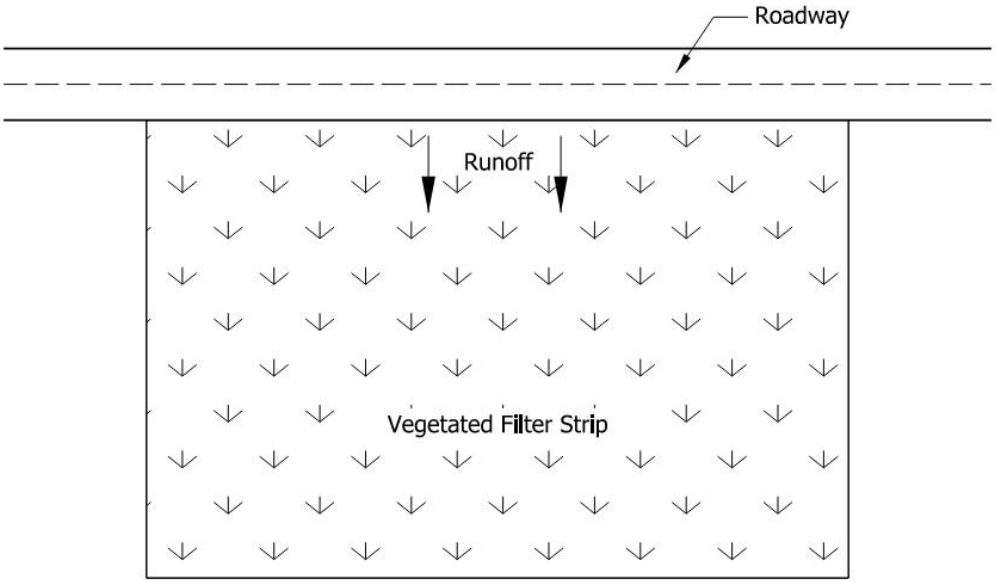
Profile View of Swale and Check Dam



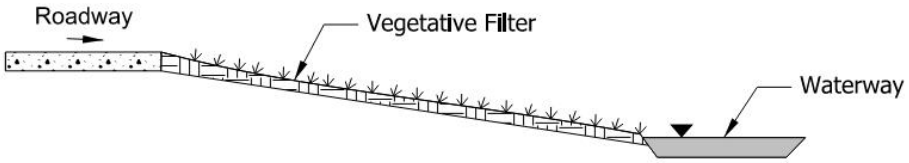
Cross Section View of Swale and Check Dam

CHECK DAM DESIGN PARAMETERS

FIGURE 4F



Plan View



Profile View

VEGETATED FILTER STRIP DETAILS

FIGURE 5A

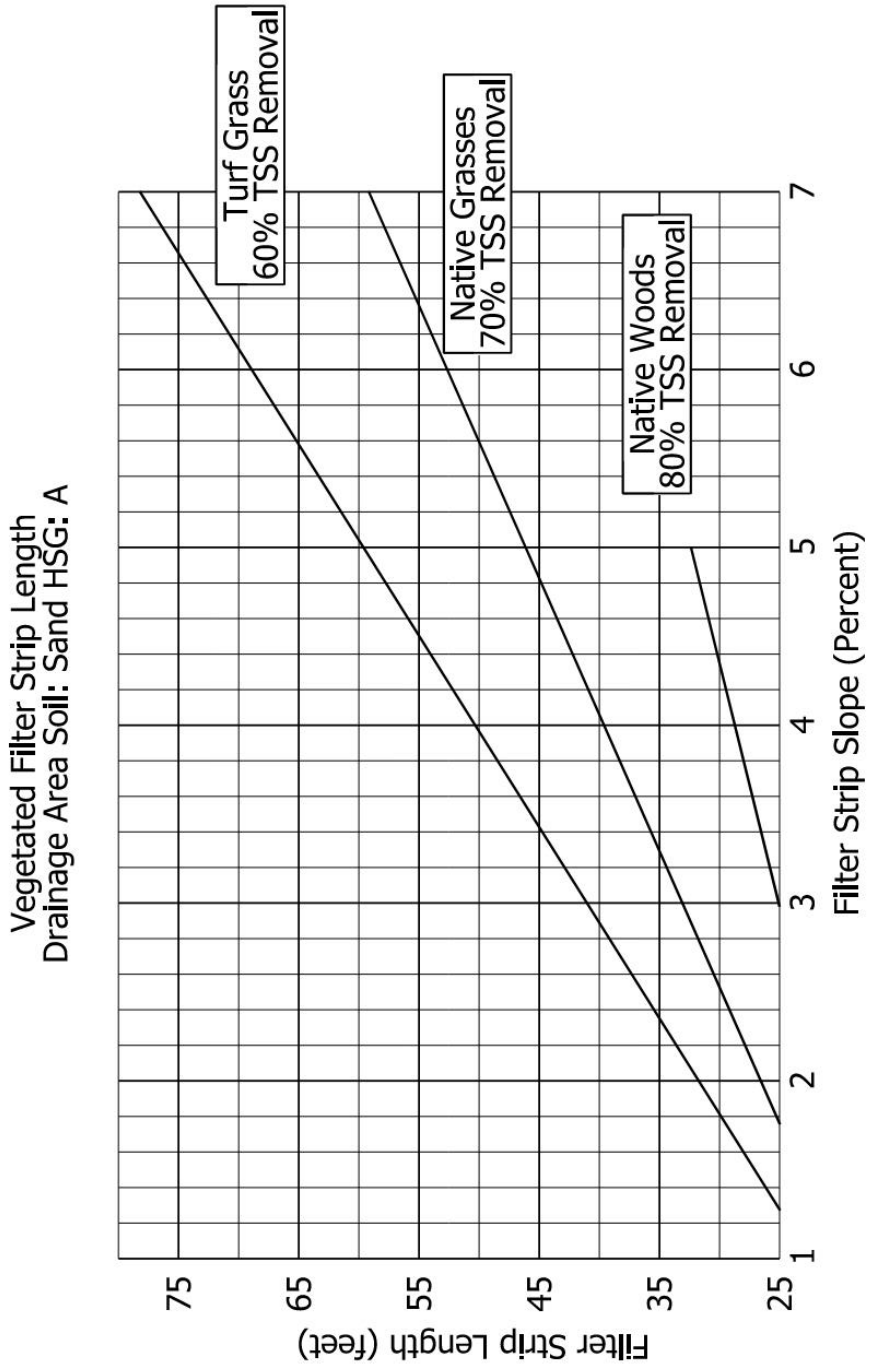

Vegetated Filter Strip Length
Drainage Area Soil: Sand HSG: A
Turf Grass
60% TSS Removal
Native Grasses
70% TSS Removal
Native Woods
80% TSS Removal
Filter Strip Length (feet)
75
65
55
45
35
25
1
2
3
4
5
6
7
Filter Strip Slope (Percent)

FIGURE 5B

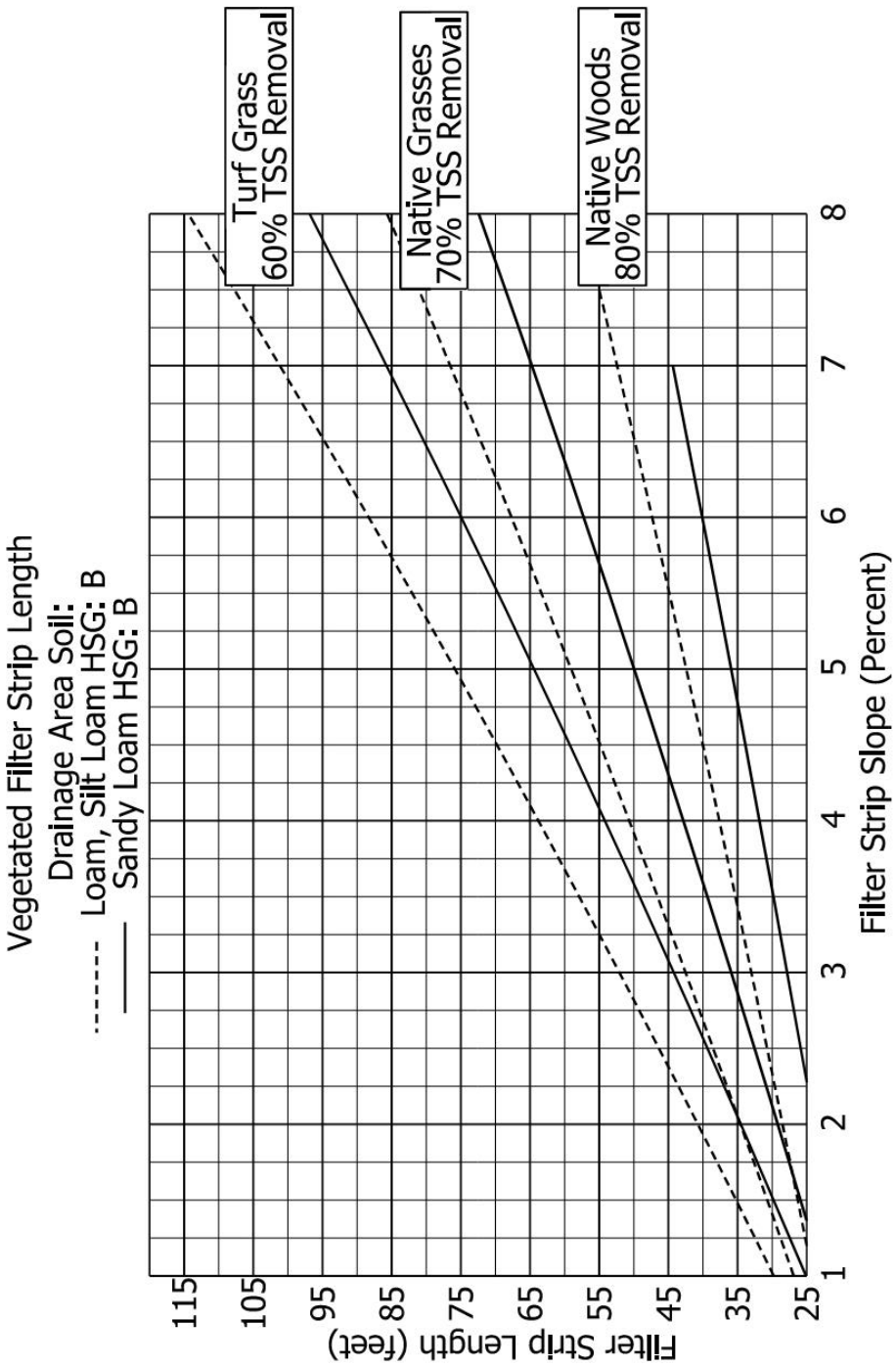

Vegetated Filter Strip Length
Drainage Area Soil:
Loam, Silt Loam HSG: B
Sandy Loam HSG: B
Turf Grass
60% TSS Removal
Native Grasses
70% TSS Removal
Native Woods
80% TSS Removal
Filter Strip Length (feet)
115
105
95
85
75
65
55
45
35
25
1
2
3
4
5
6
7
8
Filter Strip Slope (Percent)

FIGURE 5C

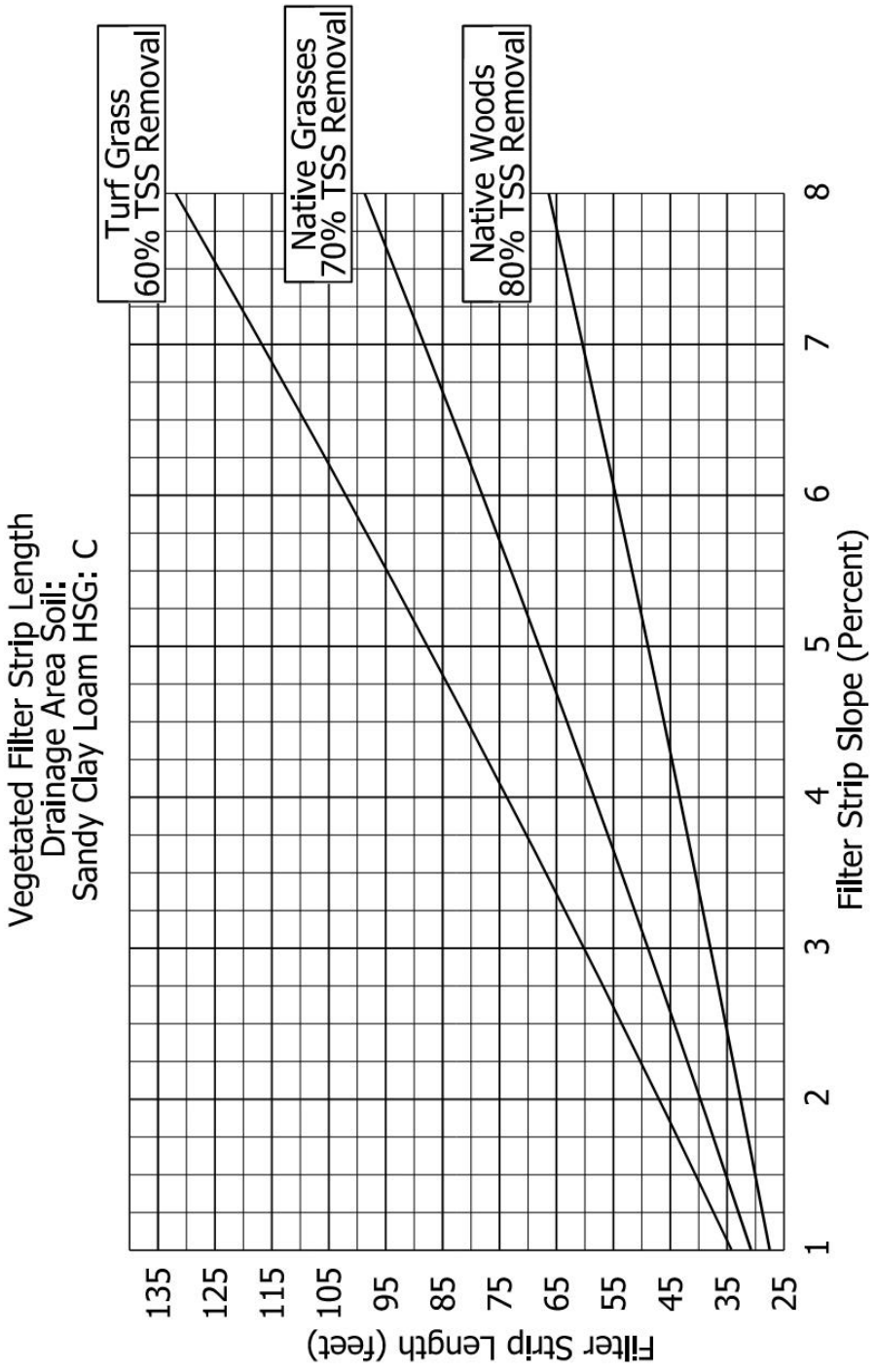

Vegetated Filter Strip Length
Drainage Area Soil:
Sandy Clay Loam HSG: C
Turf Grass
60% TSS Removal
Native Grasses
70% TSS Removal
Native Woods
80% TSS Removal
Filter Strip Length (feet)
135
125
115
105
95
85
75
65
55
45
35
25
Filter Strip Slope (Percent)
1
2
3
4
5
6
7
8

FIGURE 5D

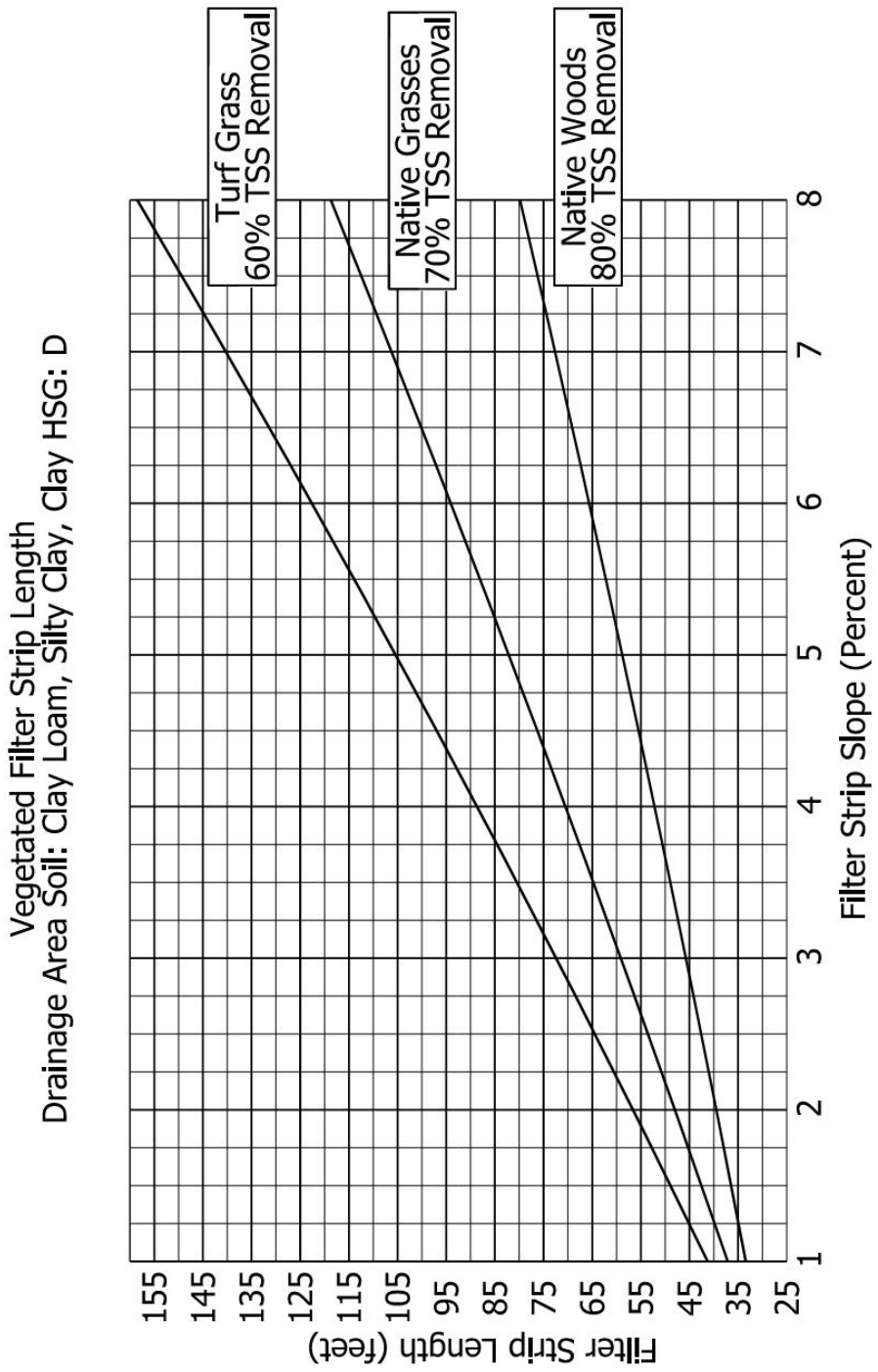
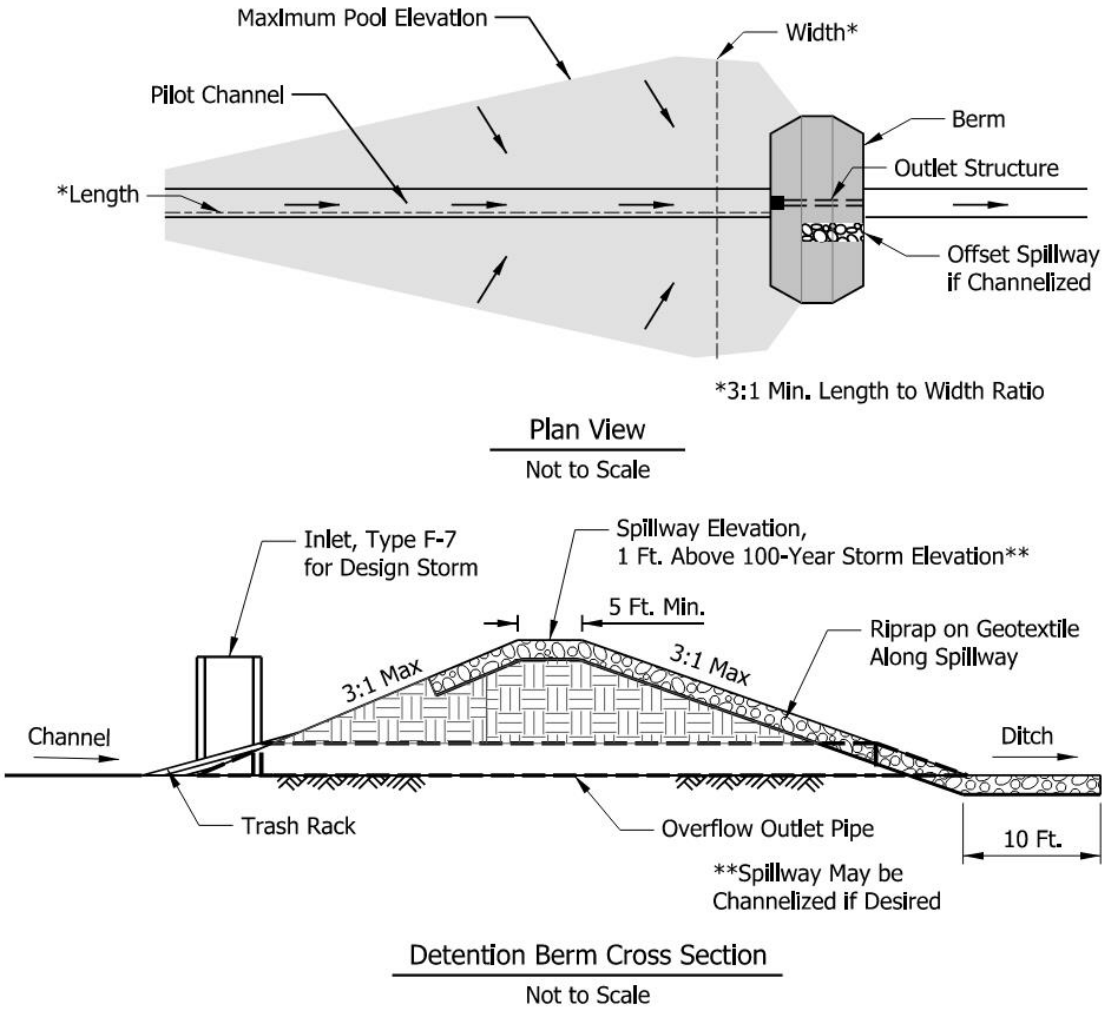
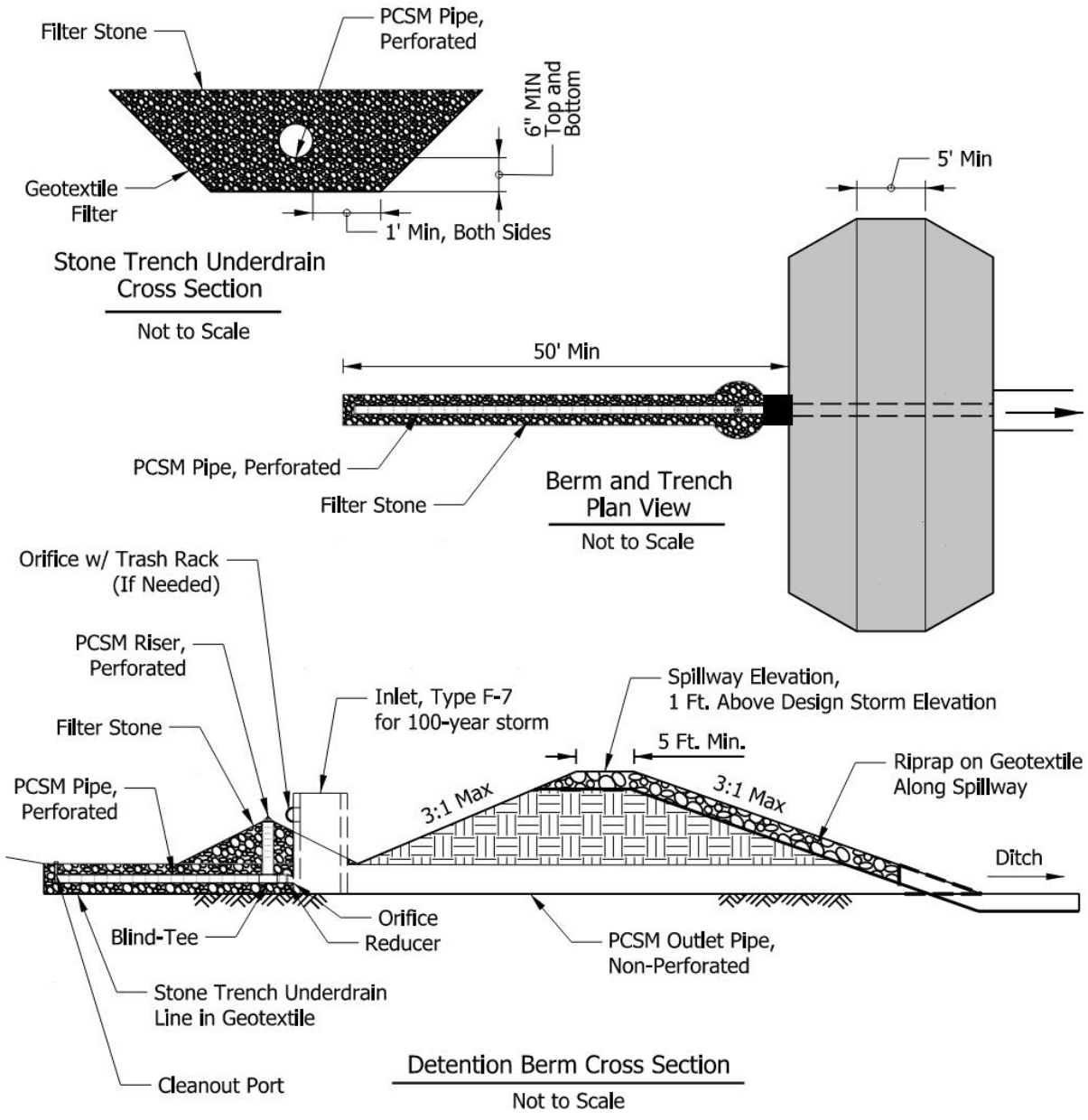

Vegetated Filter Strip Length
Drainage Area Soil: Clay Loam, Silty Clay, Clay HSG: D
Turf Grass
60% TSS Removal
Native Grasses
70% TSS Removal
Native Woods
80% TSS Removal
Filter Strip Length (feet)
155
145
135
125
115
105
95
85
75
65
55
45
35
25
Filter Strip Slope (Percent)
1
2
3
4
5
6
7
8

FIGURE 5E



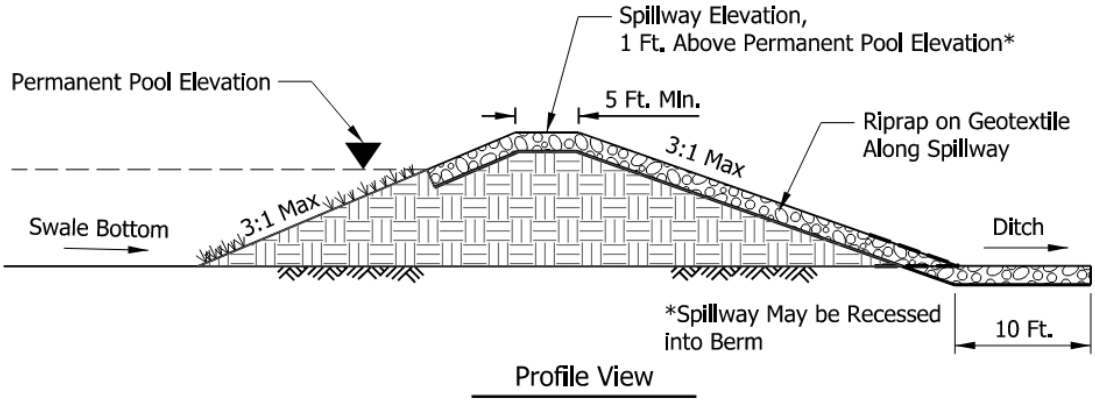
DRY DETENTION DETAILS

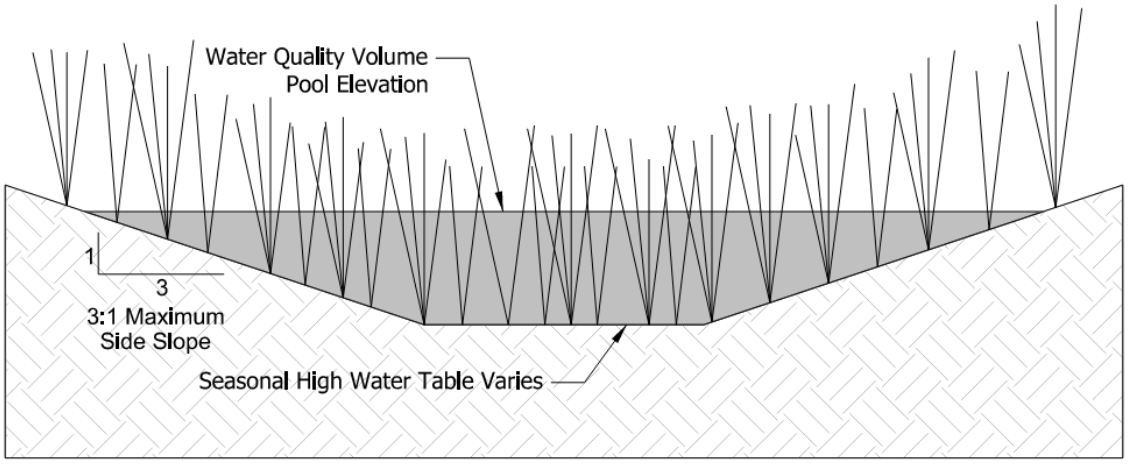
FIGURE 6A



DRY DETENTION WITH UNDERDRAIN DETAILS

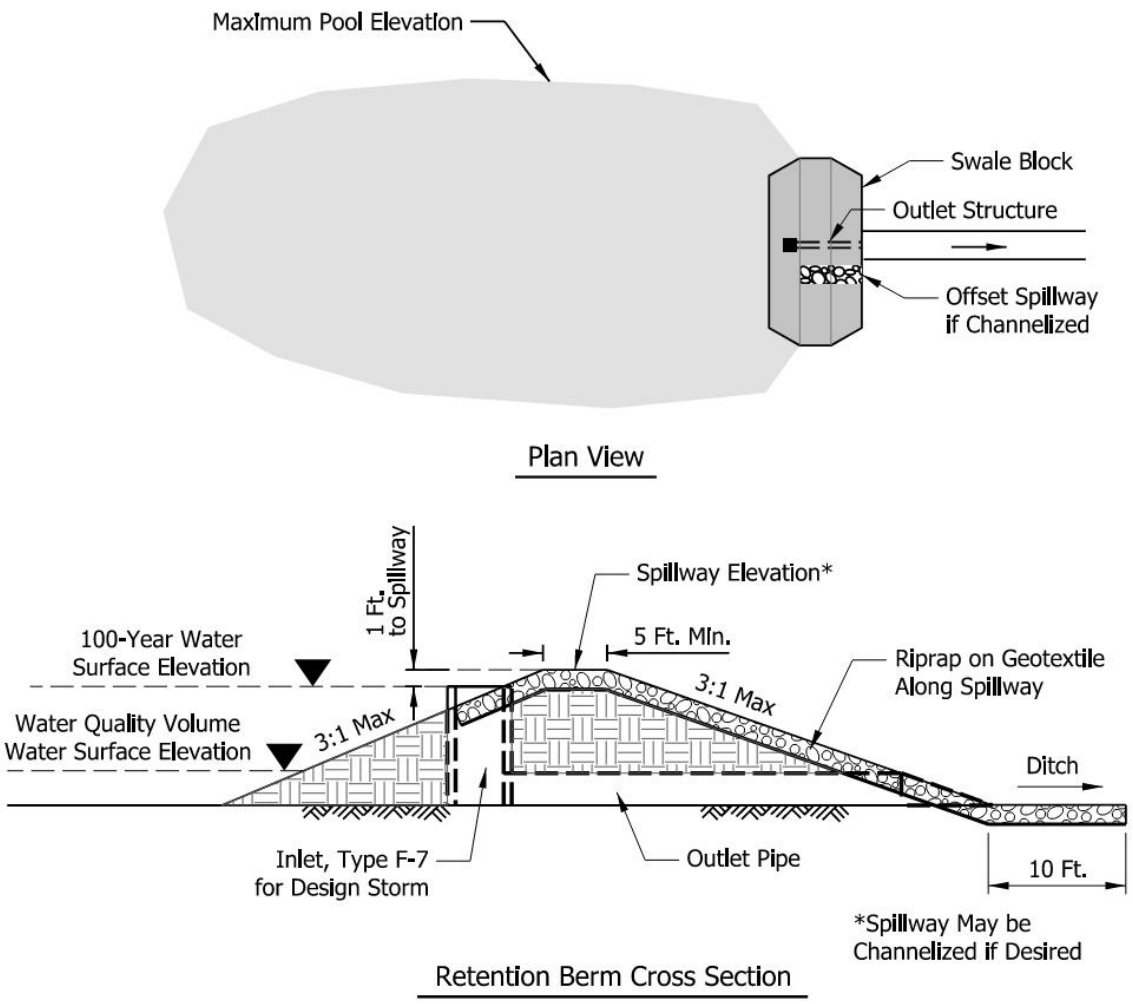
FIGURE 6B





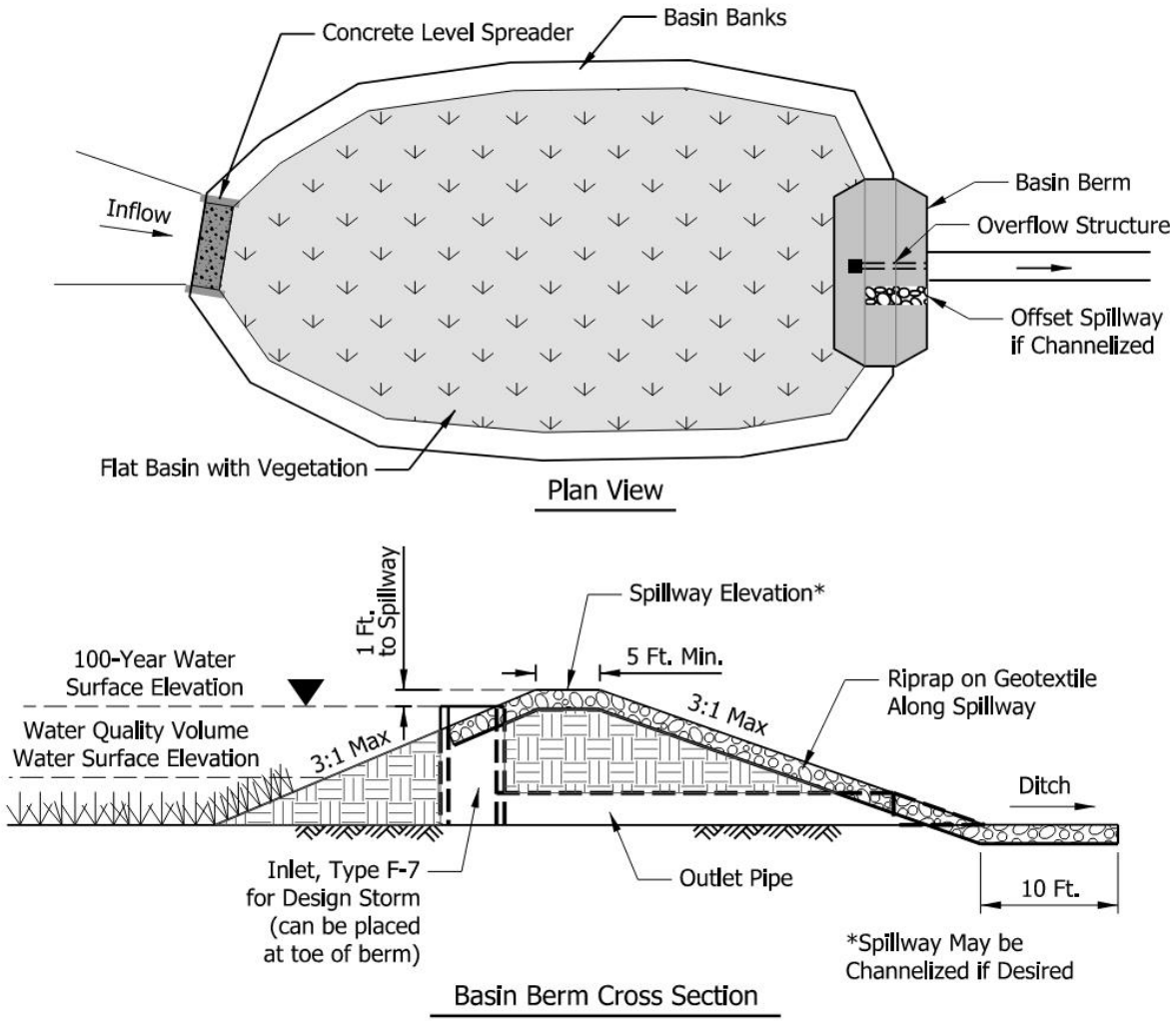
WET SWALE DETAILS

FIGURE 7A



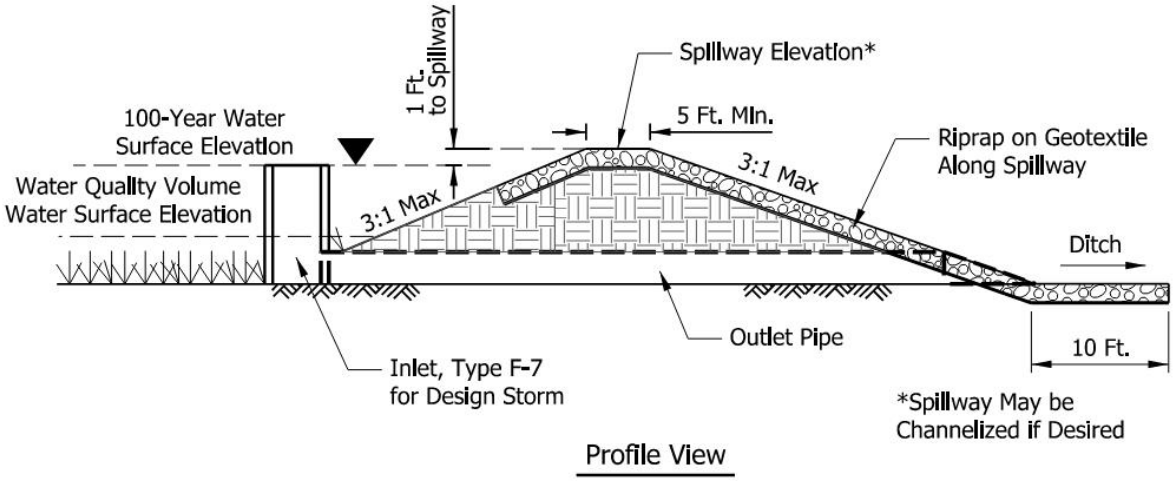
WET RETENTION POND DETAILS

FIGURE 8A

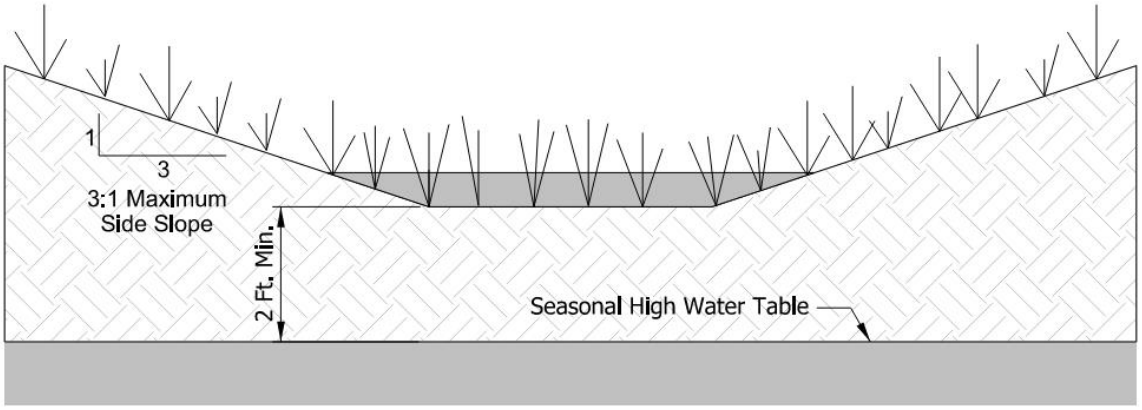


INFILTRATION BASIN DETAILS

FIGURE 9A



Profile View

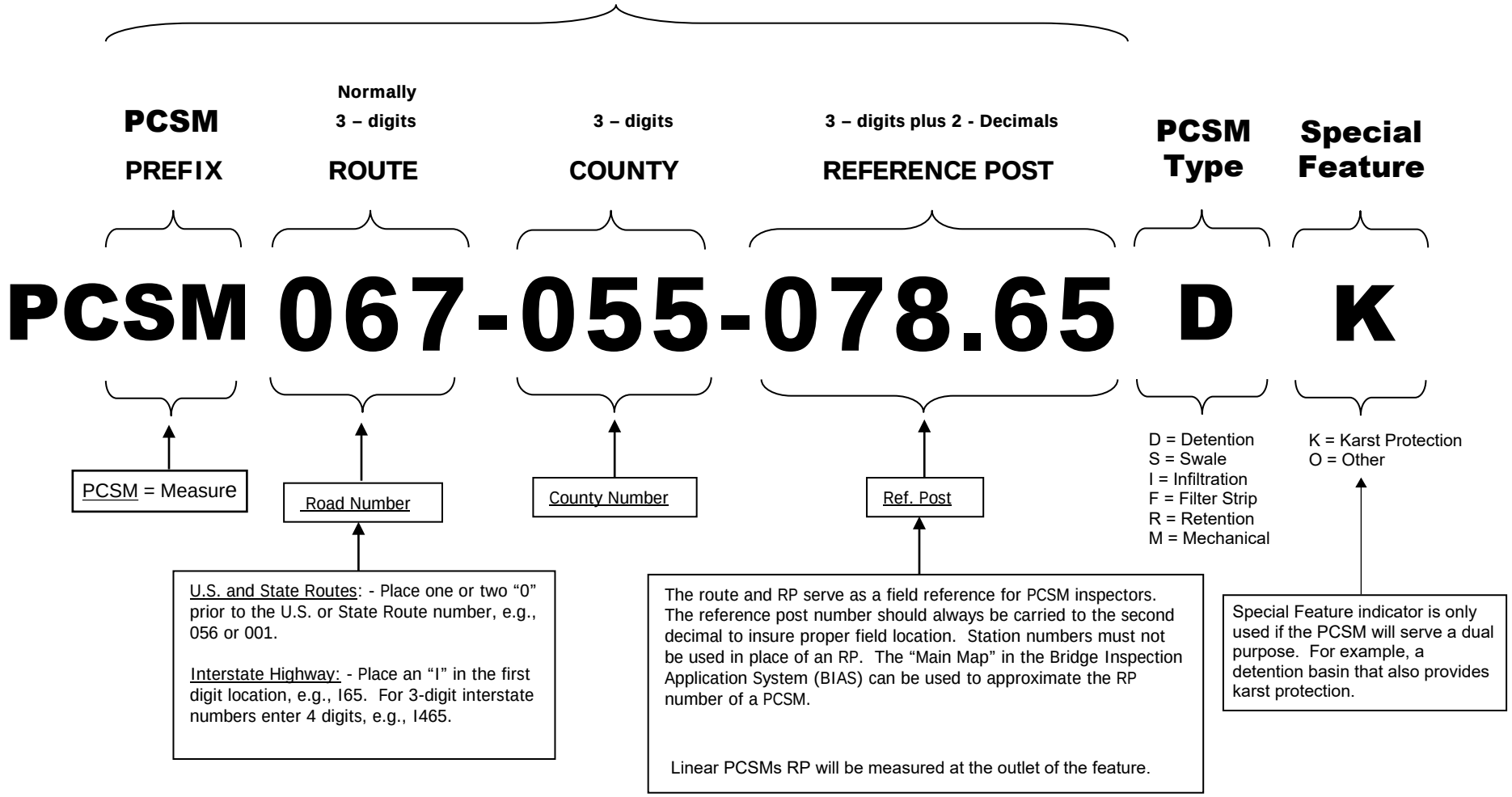


Cross Section View

INFILTRATION SWALE DETAILS

FIGURE 9B

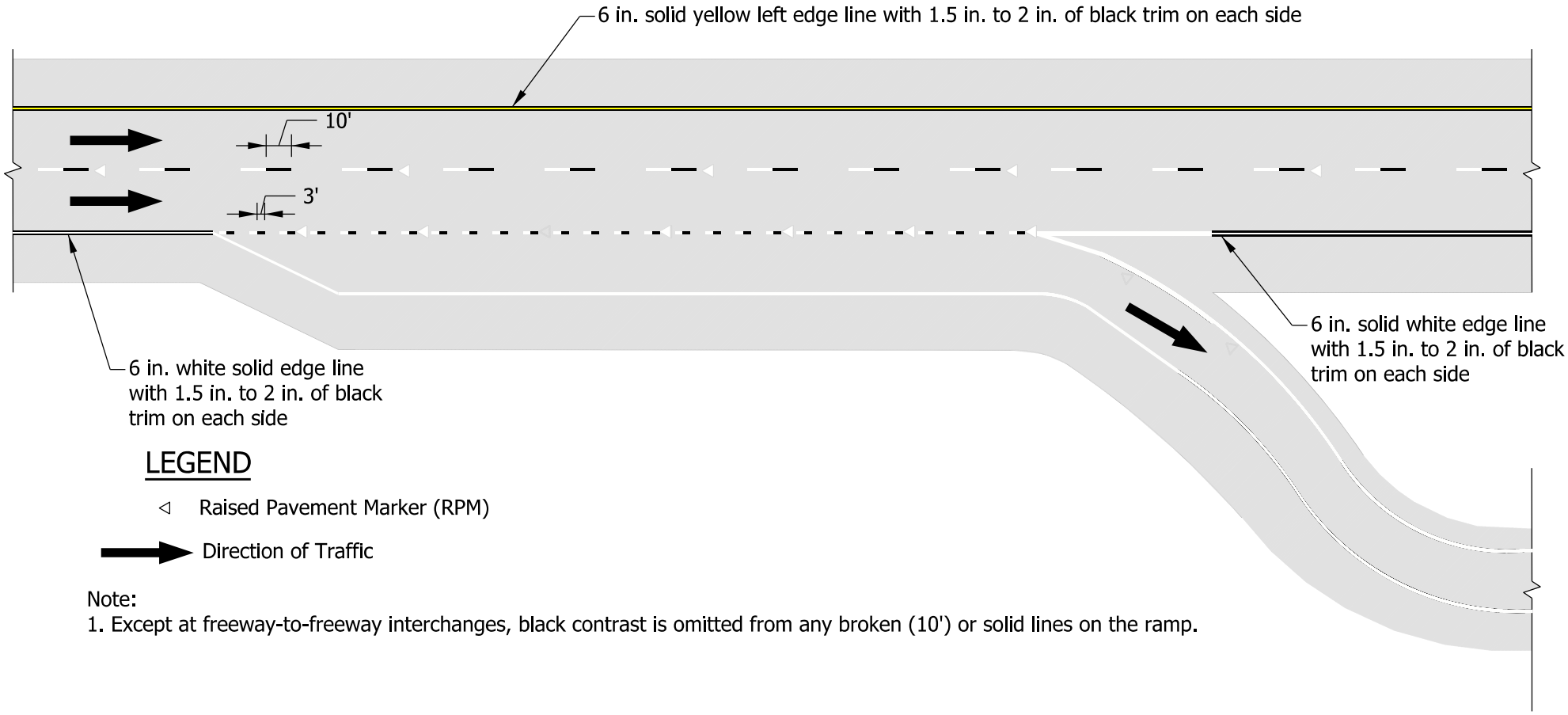
POST-CONSTRUCTION STORMWATER MEASURE ID NUMBER



Contact PCSM@indot.IN.gov for questions regarding PCSM asset ID numbers

APPENDIX 12-3 INDOT CONTRAST MARKING TYPICAL

CONTRAST MARKING DETAIL FOR CONCRETE PAVEMENT ON INTERSTATES AND FREEWAYS



Note:
1. Except at freeway-to-freeway interchanges, black contrast is omitted from any broken (10') or solid lines on the ramp.

Attachment 8-1

PENDING
INDOT
APPROVAL

INDOT WORK ZONE SAFETY SECTION GUIDANCE ON

PANEL SIGNS FOR SPLIT CROSSOVERS

The following guidance on panel signs for split crossovers is not required INDOT standard or policy but are recommendations of the Work Zone Safety Section based on evaluations on and feedback from work zones with split crossovers (also referred to as contra-flow, bifurcated or 3-and-1 crossovers). All signage shall be in accordance with the IMUTCD, INDOT standards and policy. It is recommended that the appropriate INDOT District Traffic Office be consulted when planning panel signs for split crossovers.

Advance panel signs are needed as supplementary signage to inform drivers of an upcoming split and crossover. When it operates as an express lane, they are especially crucial to providing drivers with route and exit information needed to navigate the crossover. This guidance needs to be far enough in advance of the crossover to provide drivers the time to process the information, make a decision, and make any needed lane changes *before* they get to the "STAY IN LANE" signs and the solid white line. The goal is to help drivers initiate timely lane changes well in advance of the solid white line so that the transition areas of split crossovers function more smoothly and safely.

The information that should be conveyed to drivers should:

- Identify a lane split and cross over is ahead.
- Identify which lanes leads to the crossed-over lanes.
- Identify which lanes have trucks prohibited, if applicable to the work zone.
- Show the crossed-over lanes will function as express lanes with no access to interchanges.
- Identify the next interchange available to the express lane.
- Show lane guidance for upcoming routes and interchanges.

Preferably, where overhead sign structures are available and their use for MOT signage is feasible (the existing sign truss systems can take the additional sign, weight and wind loads), they will be used to convey this information. See Figure 1 for an example of overhead panel signs.



Figure 1. An example set of overhead signs in advance of a split crossover. Note, the truck prohibition sign is not a mandatory requirement for the express lanes.

Attachment 9-2

Alternatively, where overhead signs cannot be utilized, ground-mounted signs will be needed. Figures 2a and 2b are a set of possible example signs to convey the same information via ground-mounted signs beyond the shoulder.

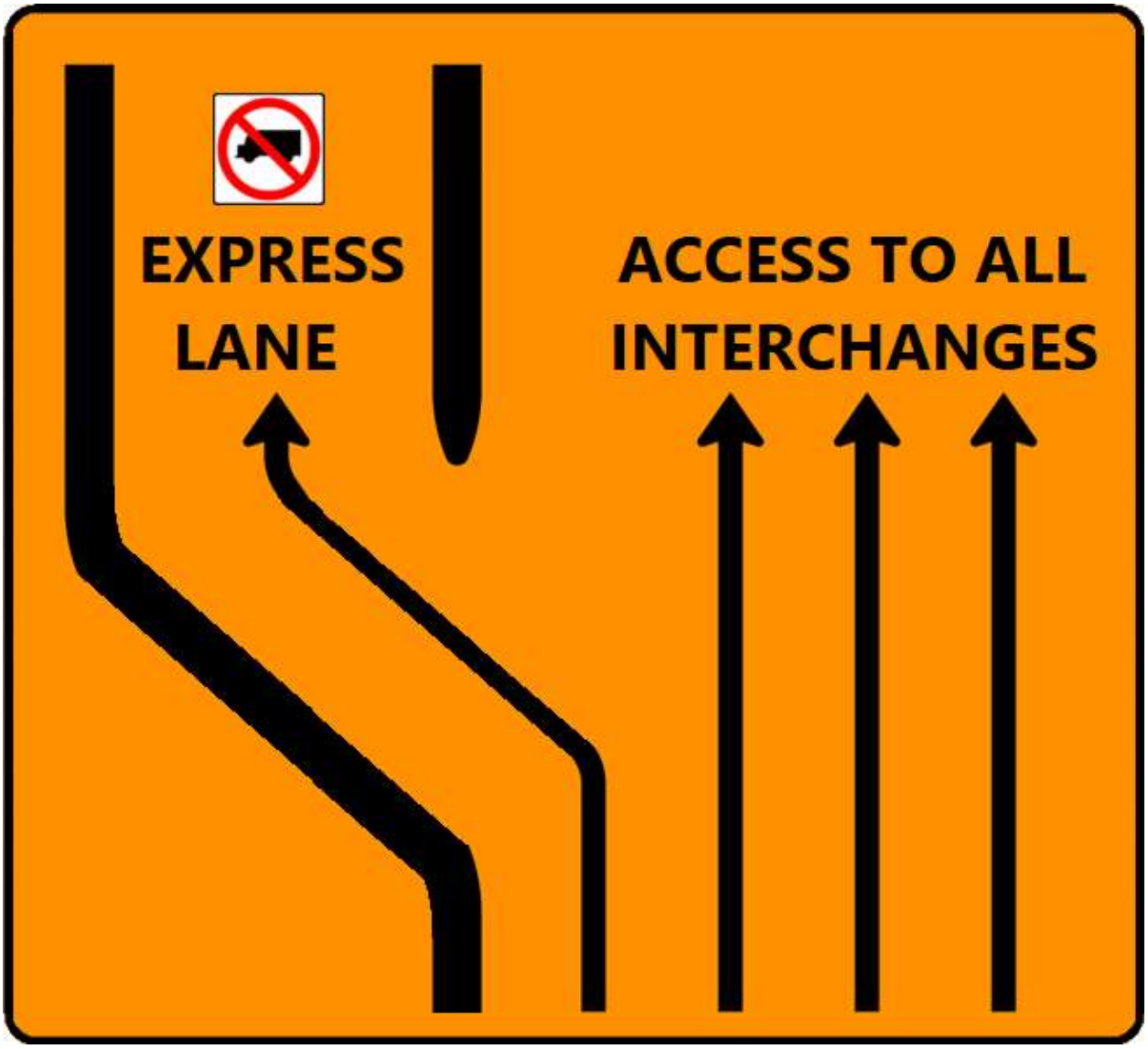


Figure 2a. Sign 1 of a 2-sign set of ground-mounted panel signs in advance of a split crossover. Note, the truck prohibition sign is not a mandatory requirement for the express lanes.

The signs in Figures 2a and 2b would ideally be placed at least 1500 ft apart.

INDOT WORK ZONE SAFETY SECTION GUIDANCE ON
PANEL SIGNS FOR SPLIT CROSSOVERS



Figure 2b. Sign 2 of a 2-sign set of ground-mounted panel signs in advance of a split crossover. Note, the truck prohibition sign is not a mandatory requirement for the express lanes.

NOTE: All images are shown for information only as possible ways to present information about a split crossover. Graphical elements depicting the barrier are not required but may help drivers understand the upcoming lane split and crossover transition.

AUTOMATED WORK ZONE INFORMATION SYSTEM

Description

This work shall consist of furnishing, installing, relocating, operating, servicing, and removing all components of a temporary automated, quickly deployable, and portable, real time work zone information system, AWIS, in accordance with 105.03 and 801 and as specified herein. The Contractor shall furnish all labor, materials, equipment for a system capable of providing advance traffic information to motorists when there is a slowing of traffic due to congestion resulting from lane reductions, lane closures or other conditions as directed by the Engineer. The condition- responsive notification to the motorist occurs with the use of Portable Changeable Message Signs, PCMS, in accordance with 801.15, activated through real-time traffic data collected downstream of the PCMS location.

Materials

Materials shall be in accordance with 801.02 and as follows. All materials used shall meet the manufacturer's specifications and recommendations. The Contractor shall maintain an adequate inventory of parts to support maintenance and repair of the AWIS.

The Contractor shall maintain this system and shall be readily available to service and maintain system components, move portable devices as necessary, and respond to emergency situations. The Contractor shall have oversight responsibility for directing placement of devices in the project area. The Contractor shall be accessible seven days a week and twenty-four hours a day while the system is deployed. The Contractor shall designate an on-site System Coordinator responsible for monitoring the AWIS throughout all periods of deployment.

The Contractor shall provide contact information to the Engineer for the System Coordinator and others responsible for operation and maintenance of the AWIS prior to installation of the system.

This system shall be utilized when I-65 traffic is restricted. This includes lane reductions and also other construction events that create queuing as determined necessary by the Engineer.

The AWIS equipment shall be a complete packaged system that operates as a stand-alone AWIS, meeting this specification. The AWIS equipment shall be approved by the Engineer prior to deployment. Each AWIS setup shall be static. Conditions might exist that require multiple deployments of this system at any given time. The Department reserves the right to terminate this item at any time if it determines the AWIS is not performing in accordance with this specification or the Contractor has not met the responsibilities identified in this specification.

If determined necessary by the Engineer, the 5,280 ft spacing between Non-Intrusive Detectors shall be adjusted to enhance the performance of the AWIS and the messages will be modified accordingly.

The Contractor shall provide an AWIS that consists of the following field equipment: portable vehicle detection devices and PCMS's. The Contractor shall provide a system capable of withstanding inclement weather conditions while continuing to provide adequate battery power. The system shall calculate and notify drivers via PCMS's of the traffic delay conditions ahead.

All message dialogs are to be approved by the Engineer prior to use. When all sensors detect travel speeds of 45 MPH or greater, the default message shall be ROAD/WORK/AHEAD. When travel speeds less than 45 MPH are detected, SLOW/TRAFFIC/(X-1) MILES shall be displayed when the closest sensors below the stated threshold travel speed are 2 miles or greater beyond the PCMS unless modified by the Engineer. When travel speeds less than 45 MPH are detected, SLOW/TRAFFIC/AHEAD shall be displayed when the closest sensors below the stated threshold travel speed are less than 2 miles beyond the PCMS unless modified by the Engineer. The number and location of detection, and message trailers are defined in the plans and as directed by the Engineer. The decision to deploy or relocate field equipment is made by the Engineer and instrumented through the System Coordinator. The decision for equipment removal is made by the Engineer after Work is complete.

The detector shall be capable of collecting traffic speed data. The processed data is used to remotely control PCMS's to display user definable, Engineer approved and locally stored messages. The message trigger state thresholds are user configurable. The PCMS shall be in accordance with 923.05, with the additional capability of supporting communications via modem/radio/CDMA/GPRS for remote message management.

Construction Requirements

This system shall be utilized where mainline traffic is restricted, when queues are present, and when directed by the Engineer.

Additional to these requirements, the Contractor shall assume all responsibility for any and all damaged or inoperative equipment due to crashes, vandalism, adverse weather or other condition that may occur during the contract period.

The AWIS shall operate continuously when deployed on the project. The system shall be in a constant "data collection" mode. The Contractor shall provide technical support for the AWIS during all periods of operation.

In the event that communication with any field equipment is lost; the Contractor shall provide a means and staff to manually program a PCMS message. If communication is lost for more than 10 consecutive minutes, the system shall revert to a fail-safe ROAD/WORK/AHEAD message displayed on the PCMSs until communications is restored.

System Operator local control functions and remote management operations shall be password protected.

The AWIS shall be capable of acquiring traffic information and displaying appropriate messages automatically, without operator intervention, after system initialization. The lag time between changes in threshold ranges and the posting of the appropriate PCMS messages shall be no greater than 60 seconds. The system operation and accuracy shall not be appreciably degraded by inclement weather or degraded visibility conditions including precipitation, fog, darkness, excessive dust, and road debris.

The system shall be capable of storing ad-hoc messages created by the System Coordinator and logging this action when overriding any default or automatic advisory message.

The AWIS communication system shall incorporate an error

detection/correction mechanism to insure the integrity of all traffic conditions data and motorist information messages. Any required configuration of the AWIS communication system shall be performed automatically during system initialization.

Pre-deployment system acceptance is based on the successful performance demonstration of AWIS for a 5 day continuous period in accordance to this specification and as set forth in the plans. The Contractor shall ensure compliance to all FCC and Department specifications.

The Contractor shall provide read only access to the Department to the system software. The Department will have access to the system status and to download recorded data. The Department will require a minimum of three individuals accessing the system.

The Contractor may be assessed damages for failure to maintain the required software access to the Department. For each day, or portion thereof, during which the Department does not have software system access, damages will be assessed at the rate of $2500 per day. Non-compliance caused by events beyond the control of the Contractor may not be assessed damages.

Equipment Maintenance

The Contractor shall maintain all system components in good working condition at all times. The Contractor shall repair or replace damaged or malfunctioning components, at no cost to the Department, as soon as possible and within 12 hours of notification by the Engineer. The Contractor shall periodically clean the PCMS.

The Contractor may be assessed damages for failure to maintain the AWIS in good working condition. For each day, or portion thereof, during which the AWIS is not functioning properly, damages will be assessed at the rate of $2500 per day.

Method of Measurement

Automated Work Zone Information System including detectors, data communications system and all supporting field equipment will be measured by the number of the AWIS units installed, maintained and removed.

Portable changeable message signs will be measured in accordance with 801.17.

Basis of Payment

The accepted quantities of Automated Work Zone Information System will be paid for at the contract unit price per each. Payment for Automated Work Zone Information System will be made for the maximum number of such assemblies in place at any one time during the life of the contract.

The accepted quantities of portable changeable message signs will be paid in accordance with 801.18.

Payment will be made under:

Pay item	**Pay Unit Symbol**
Automated Work Zone Information System	EACH

The cost of all materials including detectors, data communications

systems and all supporting field equipment shall be included in the cost of the Automated Work Zone Information System. The cost shall include furnishing all labor, equipment and materials for the installation, maintenance and removal of detectors and supporting field equipment.

Each AWIS will be paid for only once regardless of how many times it is moved or altered per direction of traffic.

ATMS HANDHOLE

The Standard Specifications are revised as follows:

SECTION 805, AFTER LINE 100, INSERT AS FOLLOWS:

ATMS Handholes shall be as shown on the plans. The handhole covers shall be bolted into place with stainless steel bolts and washers. The cover frame shall be installed in the handhole with a butyl rubber sealant in tape/coil form for a proper seal between the handhole and frame and to prevent it from moving out of place. The sealant shall comply with ASTM C990 for butyl rubber sealants.

The cover for the ATMS handhole shall be marked with logo imprints of "Traffic Management System," "Traffic Management Fiber," or "Traffic Management Power" horizontally across the cover. Covers labeled "Traffic Management Power" shall be provided whenever the handhole is used for power distribution cables. Covers labeled "Traffic Management Fiber" shall be provided whenever the handhole is used for backbone fiber. Covers labeled "Traffic Management System" shall be provided in all other handholes.

SECTION 805, BEGIN LINE 589, INSERT AS FOLLOWS:

Controller and cabinet; controller cabinet foundation; disconnect hanger; handhole, *handhole ATMS*, signal; loop detector delay amplifier; loop detector rack; pedestrian push button; pedestrian signal head; signal cantilever structure, combination arm; signal cantilever structure, drilled shaft foundation type; signal cantilever structure, dual arm; signal cantilever structure, single arm; signal cantilever structure, single arm, combination arm; signal cantilever structure, spread footing foundation type; signal detector housing; signal pole; signal pole foundation; signal service; span catenary and tether; traffic signal head; and traffic signal head, retrofit; will be measured by the number of units installed.

SECTION 805, BEGIN LINE 623, INSERT AS FOLLOWS:

If specified as pay items, controller and cabinet; controller cabinet foundation; disconnect hanger; handhole, *handhole ATMS*, signal; loop detector delay amplifier; loop detector rack; pedestrian push button; pedestrian signal head; signal cantilever structure, single arm; signal cantilever structure, combination arm; signal cantilever structure, single arm, combination arm; signal cantilever structure, dual arm; signal cantilever structure, drilled shaft foundation type; signal cantilever structure, spread footing foundation type; signal detector housing; signal pole; signal pole foundation; signal service; span 805.16 918 630 catenary and tether; traffic signal head; and traffic signal head, retrofit, will be paid for at the contract unit price per each.

SECTION 805, AFTER LINE 664, INSERT AS FOLLOWS:

Handhole, ATMS.....EACH

ATR STATION

Description

This work shall consist of providing two loop detectors, signal loop lead-in cable for each loop detector, and one piezo sensor in each travel lane, a 6-lane ATR recorder, and ATR detector cards, in accordance with 105.03.

Submittals

Prior to the purchase of any electronic equipment or sensors proposed for use in ATR reconstruction, the Contractor shall submit, for review by the Engineer and the ITS Field Engineer, catalog cut sheets and specifications for all standard off-the-shelf items. Working drawings shall be submitted for all non-catalog or custom items. An electronic copy of all submittals and working drawings shall be provided in .pdf format. The ITS Field Engineer can be reached at ITS_Locates@indot.in.gov.

Submittals and working drawings will be approved or rejected in writing, and a memorandum stating the disposition will be returned to the Contractor. All submittals will be returned to the Contractor within 30 days of submission. All submittals returned to the Contractor as rejected shall be resubmitted for approval within 14 calendar days from the notice of rejection.

Materials

Equipment and materials shall be subject to Department approval prior to installation.

Roadway Loop wire shall be in accordance with 922.13(b).

Loop detector lead-in cable shall be in accordance with 922.13(a).

Class-I piezoelectric sensors, or piezos, shall be used. Class I piezos shall be 11 ft in length for 10 and 11 ft lanes and 12 ft in length for 12 ft lanes. Piezos which require a saw slot for installation wider than 3/4 in. or deeper than 3/4 in. or both greater than 3/4 in. shall not be used. Piezos shall be warrantied for not less than one year after the date of final acceptance of the project. Only materials and grouts approved for use by the piezo manufacturer shall be used for installing piezos. Hot poured sealant shall not be used on piezo lead cables.

Joint sealant shall be in accordance with 906.02. The Contractor shall exercise caution when using hot applied joint sealants at locations with Piezo sensors as piezo coax insulation will melt at 176°F.

Detector housings shall be in accordance with 922.20.

ATR recorder shall be configured for 6 lanes and class 1 piezo sensors. The recorder shall be compatible with existing with the existing Department ATR equipment. ATR recorder shall store the data in a binary file compatible with the existing Department ITS traffic monitoring system schema. For questions about system compatibility, the Contractor shall contact ITS. The recorder shall be able to be completely powered off remotely by cycling power to its plug on the remote power switch. The recorder shall have an onboard ethernet port for communications.

ATR detector cards shall be compatible with the supplied ATR recorder.

Construction

At locations where the shoulder pavement grade changes, the Contractor shall replace or adjust detector housings to the new pavement grade.

The Contractor shall notify the ITS Field Engineer a minimum of five working days prior to the commencement of work at the stations. The ITS Field Engineer may be contacted at ITS_Locates@indot.in.gov.

Existing cabinet electronics shall be reused unless otherwise specified or directed by the Engineer. The Contractor shall be responsible for maintenance of the existing cabinet electronics until final project acceptance.

If the utility's electrical meter is removed, the Contractor shall be responsible for removing, securing, and maintaining the utility's electrical meter for reuse.

The Contractor shall notify the Engineer and the ITS Field Engineer when all work at a station has been completed. A thorough site inspection and operation test shall be scheduled and performed within 10 working days. Noted discrepancies, if any, shall be reported to the Engineer and the Contractor shall correct these discrepancies before the station will be accepted.

Loop Detector

The Contractor shall install two, 6 ft diameter round loop detectors with four wraps of wire in each travel lane at each ATR station. Octagonal, square, and rectangular loops shall not be used. Loop detector spacing shall be 16 ft from the leading edge of the first loop detector in the lane to the leading edge of the second loop detector in the lane. This spacing has zero tolerance.

Loops shall not be installed until all lane markings are completed or until the lane edges can otherwise be accurately defined. An outline shall be laid out and painted where the loops shall be sawed. The loop locations shall be subject to the review and approval of the Engineer. The Engineer shall be notified 48 hours prior to such field review. Loop detectors shall be as shown on the plans. The placement of the loop detector body shall be such that it is centered in the travel lane. The body of loop detectors shall not be placed across a pavement joint or a pavement patch joint.

Loop detector installation shall be in accordance with 805.09(b) and the following criteria. Loop detector lead saw slots shall be parallel to D1 contraction joints the entire distance from the loop detector to the shoulder at locations with PCCP and perpendicular to the roadway at locations with asphalt pavement. Angled saw slots to the detector housing will only be allowed in the shoulder and in medians. Saw slots shall not exceed 3/8 in. in width, except where loop detector leads cross a pavement joint and then the slots shall not exceed 5/8 in. in width.

Loop and lead-in cable splices shall be in accordance with 805.09(c). Loop splices shall be done in handholes unless the distance from the furthest loop to the handholes is greater than 30 ft. If the distance from the furthest loop to the handhole exceeds 30 ft, the splice shall be done in the detector housing. Loop splices in handholes shall be suspend above the bottom of the handhole on hangers attached to the handhole wall.

Detector housings shall be installed in accordance with 805.08.

Loop Detector Testing

The Contractor shall meter all new loop wire detectors by means of instruments capable of measuring electrical values for installed loop wires and lead-in cables. The instruments shall measure inductance in microhenries, resistance in ohms, induced AC voltage in volts, and leakage resistance in megohms. All measuring tests shall be performed at the handholes before the loop wire is spliced to the lead-in cable and at the cabinet after the loop wire is spliced to the lead-in cable.

When measured at the handhole prior to splicing, inductance shall be between 80 to 250 μH, resistance lead-to-lead shall be between 0.5 and 5.0 Ω, and earth to ground resistance shall be greater than 100 MΩ when measured at the Detector Housing prior to splicing. Both Detector loops in the same lane shall measure +/- 25 μH of each other or the Contractor shall replace one or both loop detectors as the Engineer determines is necessary. Inductance shall be determined by means of a digital readout meter which drives the field loop system.

Piezo

One piezo shall be installed in each travel lane at each ATR station and shall be as shown on the plans unless otherwise specified.

The Contractor shall arrange for a qualified and authorized representative of the piezo manufacturer to be present at the first piezo installation to train installers how to install the Piezo Sensors. Piezos shall not be installed prior to this training.

Piezo sensors shall not be installed until all lane markings are complete or until lane edges can otherwise be accurately defined.

Piezo elements shall not be installed across or in pavement joints.

Piezo slot width shall be 3/4 in. and shall be saw-cut with a single pass of the blade.

Piezo slots shall be saw-cut as shown on the plans. Slots shall be thoroughly cleaned and dried before the installation of piezos.

The Contractor shall position the piezo element as shown on the piezo details of the plans.

Station layout shall be such to ensure piezo leads shall not exceed 300 ft from the sensor to the terminal inside the cabinet. Splices will not be allowed on piezo cables. The Contractor shall ensure each piezo has sufficient coaxial lead to reach into the cabinet without splicing additional coax to the sensor. Piezo lead-in cable shall not be spliced anywhere along the length. It shall be the Contractor's responsibility to determine the lead length required for each piezo to reach the cabinet terminal block without splicing.

The Contractor shall not use hot applied joint sealants for sealing piezo leads as piezo coax insulation will melt at 176°F.

The Contractor shall only use grout approved by the piezo manufacturer for piezo sensor element encapsulation. Piezo lead-in cables may be sealed with Silicone Joint Sealant in accordance with 906.02(a)1.

Piezo failures have resulted in the past from piezo grout level being flush or below pavement grade. To prevent this from occurring, the Contractor shall surround and block up the piezo slot prior to installation of the piezo grout with multiple layers of duct tape or similar to ensure the cured grout level is approximately 1/4 in. above the surface of the surrounding road pavement.

Cured grout level shall be approximately 1/4 in. above the surface of the surrounding road pavement. Once the grout hardens, the grout shall be ground and shaped to a convex shape with a finished height 1/8 in. to 3/16 in.

The Contractor shall terminate the piezo lead-in cables to the input connector on the piezo input cards inside WIM Station cabinets using a BNC connector on the end of the piezo lead. Piezo lead-in cables shall terminate on a terminal block inside ATR and DCS cabinets. Connectors shall not be installed on the lead-in cables until piezo leads have been routed through conduits and are in the cabinet.

Each piezo lead shall be labeled with the piezo number shown on the details +/- 6 in. from the terminal connection inside the cabinet.

Piezo Testing

The Contractor shall meter all new piezos prior to and following installation. Equipment needed to perform piezo testing is an LCR, inductance, capacitance, and resistance, meter, which includes capability of measuring dissipation, and an oscilloscope/scope meter.

1. Pre-Installation Piezo Testing:
   The following testing shall be performed on Piezo-electric axle sensors prior to installation into the roadway to ensure the sensor is reliable:
   (a) Capacitance:
   The capacitance of the sensor shall be measured with the attached lead in cable. This shall be within 20% of the reading recorded on the sensor's data sheet included with the sensor. The meter shall be set on the 20nF range. The measurement shall be taken with the red lead on the center electrode of the cable and with the black lead connected to the outer braid.
   (b) Dissipation Factor:
   With the capacitance set on the scale indicated above, the meter shall be switched over to Dissipation Factor. The reading shall be less than 0.05 and within 20% ± of the reading recorded on the sensor's data sheet included with the sensor.
   (c) Resistance:
   The resistance shall be measured across the sensor. The meter shall be set on the 20M ohms setting. The meter shall read in excess of 900 K ohms.

2. Post-Installation Piezo Testing:
   The following testing shall be performed on piezoelectric axle sensors after installation into the roadway to ensure the sensor was not damaged during installation and is functional in accordance with the manufacturer's specifications:
   (a) Repeat Pre-Installation Piezo Testing:
   Once the sensor is installed and the grout has cured, retest the sensor according to the pre-installation instructions

above.

(b) Vehicle Activation waveform and Voltage Readings:
The Contractor shall hook up an oscilloscope to the sensor and view waveforms as vehicles pass over the sensor to ensure the signal is clear and without noise. The sensor output voltage shall consistently measure a minimum of 90 mV for 2 axle passenger vehicles to be accepted.

3. Piezo Testing and Material Record:
The Contractor shall record piezo test readings with sensor and material information. The record shall at minimum include the following information for each piezo sensor installed:

(a) Piezo Serial Number
(b) Piezo type
(c) Piezo element length
(d) Piezo lead-in length from the factory
(e) Readings from pre-installation testing
(f) Readings from post-installation testing
(g) Lane description or number
(h) Indicate if it is the leading or trailing piezo in that lane where applicable
(i) The piezo grout type and expiration date
(j) The lot number of the grout
(k) The outside temperature when the piezo was installed
(l) Installation Date
(m) Installer's Name and Company

If multiple cans of grout are used to encapsulate one piezo sensor, then the grout type, lot number, and the expiration date for each can of grout used shall be recorded.

The Contractor shall submit this record to the Engineer when completed. One copy of the record shall be left in the equipment cabinet at the station for the ITS Technology Deployment Section. A sample form for these recordings has been included and shall be provided as reference in the contract documents.

4. Acceptance Criteria:
For a piezo to be accepted, piezo test readings shall fall within the following ranges:

Piezo Capacitance –	4 to 15 nF
Piezo Resistance	Greater than 900
KΩ Dissipation	less than 0.05
Average Output Voltage for 2 axle passenger vehicles	90 mV

Sensors testing and producing other readings or failing to be in compliance with the above specifications shall be considered as failing and shall be replaced at no additional cost to the Department.

Method of Measurement

ATR Station – 6 Lane will be measured by the number of assembled systems installed, complete in place.

Basis of Payment

ATR Station – 6 Lane will be paid for at the contract unit price per each assembly installed, complete in place.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
ATR Station, 6 Lane	LS

The cost of all materials and installations shall be included in the cost of the pay item.

CABLE CLAMPS
Des. No. 1600729, 1600733, 1600744, 1600750

The Contractor shall provide and install cable clamps to the extended pre-stressing strands over the Pier in accordance with 105.03. The cable clamps shall be drop-forged, galvanized steel clips capable of achieving 95 ft lbs of torque. This item will not be paid for directly but shall be included in the cost of Structural Member, Concrete, Prestressed Box Beams, 17 in. x 48 in., in accordance with 707.12.

ITS CELLULAR MODEM ASSEMBLY

Description

This work shall consist of furnishing and installing cellular modem assemblies which shall provide communication between the ITS Controller and the TMC.

Materials

The ITS, Cellular Modem shall consist of the following components:

1. One cellular modem gateway
   - CRADLEPOINT COR Series Router Model # IBR900-1200
   - Direct wire GPIO cable
   - COR Extensibility Dock
   - Power Cables
   - 5 Year Warranty and Licensing
2. One, Five-in-one antenna
   - AG60 Series w/Cable, 2 X Cellular 3G/4G/LTE/GPS/2 X WiFi 2.4GHZ for CRADLEPOINT IBR900.

The ITS, Cellular Modem shall provide all the needed features and components to provide data communications between the ITS field cabinet and the Department Traffic Management Centers.

Construction Requirements

The ITS Cellular Modem shall be installed in accordance with the manufacturer's instructions. All materials shall be installed in a neat and professional manner. All installation services shall comply with all warranty provisions and warranty contract maintenance services in accordance with these specifications. All installation services shall comply with all local and state electrical codes, and Motorola R-56 requirements. All wiring entry and exits shall be made at the side or underneath components; no exposed top entry or exits will be allowed. This requirement extends to all enclosures, junction boxes, support arms, or any other externally exposed devices. Cable termination shall be in accordance with the manufacturer's recommendations. Connectors outside of cabinets shall be sealed in accordance with the manufacturer's recommendations. The Contractor shall de-burr all holes made in metal poles or cabinets and shall install grommets for cable protection.

Method of Measurement

The ITS Cellular Modem will be measured by the number of units furnished and installed, complete and in place, and after passing component and subsystem testing.

Basis of Payment

ITS Cellular Modem will be paid for at the contract unit price per each.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
ITS, Cellular Modem Assembly	EACH

The unit price shall include the cellular gateway modem, cellular gateway modem power supply, antenna, cables, environmental enclosure, housing, mount, all mounting hardware, support arms, connections, Ethernet cables, and incidentals necessary to complete the work.

ITS DOCUMENTATION AND SUBMITTALS

The Contractor shall provide four types of documentation and submittals for this contract: wiring diagrams and system schematics, submittal data, as-built documentation, and manuals and maintenance documentation. The Contractor shall submit working drawings in accordance with 105.02 and the following additional requirements.

All documentation, except as approved by the Engineer, shall be no smaller than 8½ in. by 11 in. or no larger than 24 in. by 36 in. Standard bound manuals shall be exempted from this requirement. The Department will maintain the right to reproduce unlimited copies of any documentation for exclusive use on this contract.

All documentation shall also be provided in electronic format and delivered on USB flash drive as practical. All electronic files shall be readable using standard Microsoft Office products. Drawings shall be provided as CAD files in data exchange, .dxf, file format compatible with MicroStation and in Acrobat Reader, .pdf, file format.

All 8½ in. by 11 in. documentation, except standard bound manuals, shall be bound in logical groupings in three ring loose-leaf binders. Binders may also include 11 in. by 17 in. documentation, if Z-folded. Three copies of each bound grouping of documentation shall be provided labeled in a legible and permanent manner.

Three copies of all 24 in. by 36 in. documentation and a single reduced set no smaller than 11 in. by 17 in. shall be provided.

All documentation submitted shall be of reproducible quality as determined by the Engineer. All unsatisfactory items will be returned to the Contractor who shall make the submittal again in satisfactory reproducible form as determined by the Engineer.

All literature from manufacturers shall be original documents provided by the manufacturers. Black and white copies of color originals are not acceptable. No facsimile reproductions of any type shall be accepted.

Wiring Diagrams

Wiring diagrams and system schematics shall be prepared and meet the following requirements:

1. Include wire designations by color or labels for every piece of field equipment in every cable segment between the equipment.
2. Include appropriate designations for every cable and conduit segment. All conduits carrying electrical cables shall be marked or labeled at all maintenance points and points of access. Designations shall include terminology such as, "Power Distribution – 480 VAC", "Video Coax". All designations shall be submitted to the Engineer for approval prior to submittal.
3. Show locations of all cable splices.
4. Show connections to all communications equipment at the remote sites, CDP sites, and at the Traffic Management Center.
5. All radio equipment documentation packages shall include system diagrams, interconnection drawings, parameter lists and optimization procedures.

Submittal Data

Submittal Data shall be prepared and meet the following requirements:

Prior to the purchase or fabrication of any equipment or material proposed for use on this project, the Contractor shall submit for review by the Engineer catalog cut sheets and specifications for all standard, off-the-shelf items; working drawings shall be submitted for all non-catalog or custom items. An electronic copy of all submittals and working drawings shall be provided in .pdf format. In lieu of electronic copies the Contractor may choose to submit 10 paper copies of submittals and working drawings.

Submittals and working drawings will be approved or rejected in writing, and a memorandum stating the disposition will be returned to the Contractor. Certain items will require verification of performance, which shall be provided with the catalog cut sheets, working drawings, and specifications. See individual equipment specifications for requirements.

The purpose of the submittal and working drawing data is to show specifically and in detail how the Contractor intends to satisfy the requirements of these specifications and the plans. If preprinted literature is utilized to satisfy some or all of these requirements, there shall be no statements on the literature which conflict with these specifications or the plans. Any such statements will be crossed off and initialed by the Contractor and an appropriate statement be attached indicating how the requirements of these specification or the plans will be fulfilled.

The Contractor shall label each item of submittal and working drawing data with the bid item number or other description of the items to which it applies. Each submittal of catalog cut sheets, specifications, or working drawings, shall contain sufficient information and details to allow the Engineer to evaluate the particular component.

Copies of the catalog cut sheets, specifications, and working drawings shall be submitted by the Contractor to the Engineer and the ITS Field Engineer, whom will be introduced at the preconstruction meeting. All catalog cut sheets and specification submittal data shall be submitted within 30 calendar days following issuance of the Notice to Proceed. All working drawings shall be submitted within 90 calendar days following issuance of the Notice to Proceed. Failure to submit catalog cut sheets, specifications and working drawings within this time frame shall result in liquidated damages of $1000 per day to be withheld from Contractor payment.

All submittals will be returned to the Contractor within 30 days of submission. All submittals returned to the Contractor as rejected shall be resubmitted for approval within 14 calendar days from the notice of rejection. Failure to resubmit documentation within the 14 calendar days from notice of rejection will result in liquidated damages of $1000 per day to be withheld from Contractor payment.

The Contractor may submit alternatives to the plans and special provisions to the Department for consideration. Any alternative submitted shall be identified with benefits stated and documented.

The Contractor shall submit the following items at a minimum. Any item included in this list that is not a deliverable of the contract may be removed from the requirements with approval by the Engineer. This list does not preclude the submittal of other items as required in the specifications. The submittal

requirement items are as follows:

1. Fiber optic cable
2. Fiber optic drop cable assemblies
3. Fiber optic patch panels
4. Fiber optic patch cables
5. Fiber optic break out kit and connectors
6. Fusion splice protection kit
7. Fusion splice enclosure
8. Small Form-Factor Pluggable Transceivers, SFPs
9. Vaults
10. Handholes
11. Handhole and vault rings & lids
12. Cable duct markers, concrete
13. Cable duct markers, flexible, including decal design
14. All conduits
15. All electrical and grounding cables
16. Cell Modems
17. Conduit splicing methods and materials
18. Dynamic Message Sign Structure
19. Dynamic Message Sign Structure Foundation
20. DMS Panels and Signs
21. ITS Cabinet
22. Wireless Vehicle Detection System
23. Monopole
24. Monopole Foundation
25. Camera Assemblies
26. Computers

As-Built Documentation

Documentation of the work, as-built, shall be provided by the Contractor prior to acceptance of the work. The Contractor will be provided with base files containing the proposed locations for conduit, cabinets, and devices. On a level containing no proposed information, the Contractor shall draw in the final as-built locations for the cabinets, poles, conduits including burial depth, and device locations. These drawings shall be returned in both electronic and paper format.

As part of the final as-built documentation the Contractor shall provide GPS coordinates accurate within 3 ft of a CCTV, DMS, Cabinet, or Service point location. The coordinates shall be noted on the plans and in a single spreadsheet form provided to the Department on a compact disk, CD.

As part of the final as-built documentation the Contractor shall provide GPS coordinates accurate within 3 ft of all handhole and vault locations. The coordinates shall be shown on the plans and in a single comma separated value, CSV, file provided to the Department. The CSV file shall be supplied on a CD to the Department including the Latitude and Longitude of all handhole and vault locations in decimal degree format. Each record shall include the type of object; handhole or vault, Latitude, Longitude, Road Name, direction of roadway travel, and Nearest Mile Marker to the nearest tenth of a mile. The following is an example of the record format;

Example record: Vault, 39.40247778, -86.44611111, I-69, NB, 136.7

This would be the location record for a vault placed along I-69, on the NB side of the road, at the 136.7 mile-marker near the interchange with SR 39.

In addition, the Contractor shall provide a Google Earth .kmz file showing the final locations of VSLs, DMS, Detectors, and ITS cabinets.

Component and wiring diagrams shall be provided for all custom manufactured equipment as well as a complete parts listing indicating the manufacturer and model of all electronic components.

In addition to the documentation specified elsewhere, prints of schematic diagrams applicable to the equipment contained in cabinets or the communication shelters shall be provided by the Contractor. An 11 in. by 17 in. laminated wiring diagram, and an 11 in. by 17 in. laminated site drawing shall also be supplied in a weatherproof holder and mounted at each new cabinet and communication shelter.

Manuals and Maintenance Documentation

Two manuals shall be supplied for each individual component of the system. A reproducible form of the manual shall also be provided. The manuals supplied for the off-the-shelf items shall be those supplied by the equipment manufacturer.

Manuals shall include, at a minimum, the following material:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, routine and normal operating instructions, regulation, control, stopping, shutdown, and emergency instructions.
3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
4. Servicing instructions and schedules.

The Contractor shall provide a maintenance history for each piece of electronic equipment provided on this contract. This history shall include the equipment type, model and serial numbers, date of manufacture, date and location of installation, date of all associated tests required by these specifications and the performance of the equipment during these tests.

Any maintenance activity performed on the unit because of a failure shall be documented, and shall include: an explanation of all failures, date that the equipment was removed from a cabinet, the repairs that were made, the date and nature of any tests made to check the correct operation of the unit, and the date and the location where the unit was reinstalled in the field.

After each repair conducted, prior to acceptance, the warranty period shall be renewed. No more than one repair shall be allowed prior to acceptance. If a second repair is required, the equipment shall be replaced in kind with a new warranty period.

System documentation shall be considered incidental to the cost of equipment being provided on this contract and will not be paid for separately.

ITS FIELD SWITCH

Description

The Contractor shall provide and install the ITS field switch in accordance with 105.03 and as described herein.

The ITS field switch is used to connect communications equipment and the Aries Field Processor at ATMS sites and other sites as shown on the plans. These switches shall be compatible with the existing ATMS system architecture. Each switch shall be rack mountable. If the unit requires a rack mount kit or adapter which is not paid for elsewhere in these specifications, the kit shall be included with the ITS field switch at no additional cost to the department.

Materials

The Contractor shall provide the ITS field switch and rack mount kit conforming to the following specifications:

1. Extreme Networks ERS 3626GTS-PWR+

Construction Requirements

The Contractor shall provide and install the ITS Field switch in accordance with the manufacturer's instructions. Installation shall include all cables, mounting hardware, rack mount kit, power supplies with north American power cords and associated equipment required to mount and interface the communications subsystem. Installation activities shall be documented, including the output from show sys-info quantity, brand, model/part numbers, test results of all materials and devices used. The Contractor shall provide an installer signed list of the materials installed with the required documentation. The Contractor shall follow the assigned engineer's direction for configuration information of IP addresses VLAN settings naming convention port security SNMP settings. All cabling shall be labeled and dressed using hook and loop style straps to secure cables in cable management.

Method of Measurement

The ITS Field switch and rack mount kits will be measured by the number of units furnished and installed, complete and in place and after passing component and subsystem testing. This will include the mounting hardware, rack mount kit, all cabling, power supplies, and incidentals necessary to complete the work.

Basis of Payment

The ITS Field switch will be paid for at the contract unit price per each, installed complete and in place.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
ITS, Field Switch, 3626GT-PWR+	EACH

The cost of materials, labor, equipment, transportation, placement, and all incidentals shall be included in the cost of the pay item.

ITS PADLOCKS

Description

This work shall consist of furnishing and installing padlocks for all cabinets, fence gates, and enclosures in accordance with 105.03.

Materials

Materials shall be in accordance with 809.02.

The padlock shall be classified as a high security padlock with hardened shackle, laminated body, 4 pin cylinder, minimum, and come complete with a weather cover to protect the lock body and cylinder from sand, dirt, water and ice. A wafer cylinder shall not be used.

Construction Requirements

No keys shall be provided to the Department with each padlock supplied. All padlocks shall be keyed alike and be identical to the keys currently in use by the Department. The main body width of the padlock shall not exceed 3 in. and have a shackle length of 2.25 in. to 3.75 in. and a shackle diameter of 5/16 in.

For padlock information, contact,
Brian Stoner, ITS Technology Deployment
Division Maintenance Supervisor
Indiana Department of Transportation
(317) 690-5534
bstoner1@indot.in.gov

Method of Measurement

The padlocks will not be measured for payment.

Basis of Payment

The padlocks shall be considered incidental to the cost of the item to which the padlock is installed.

ITS POWER SERVICE DROP

Description

This work shall consist of furnishing and installing all equipment necessary to provide a complete service point power entry for ATMS equipment in accordance with 105.03.

Materials

The service drops shall be sized and equipped as shown on the plans. Meter sockets shall be installed in accordance with the requirements of the utility. Grounding shall be in accordance with 807.12 and shall be part of the service installation.

The service drop or metered panel shall be a Service Entrance rated, NEMA 3R Load Center with integral meter base rated 120/240VAC similar to the GE TSM1610CSCU, Square D RC1624M100S, or Siemens MC2040B1150, or with a separate meter base when rated at 480VAC as indicated on the plans. The panel shall be equipped with a Main Circuit Breaker sized as indicated on the plans or sized for the service provided. Provide a minimum of sixteen, 1 in., 1-pole circuit breaker spaces in the panel for branch circuits. The enclosure shall be padlockable.

Circuit breakers shall be single or two-pole as required by the branch circuit. Circuit breakers shall have a minimum 10,000 AIC for 240V circuit breakers, and 65,000 AIC for 480V circuit breakers. Panels shall be fully rated; series rated shall not be allowed.

Construction Requirements

Electrical service, where required, shall be provided by power utility which services the location of the service point. The Contractor shall provide a 100 Amp, 120/240 VAC, 1-phase, 3-wire service or a 100 Amp and 480 VAC 1-phase, 2-wire service or as shown on the plans.

The service point shall be installed in accordance with 807.15 at the locations shown on the plans. Work under this item shall include overhead and underground service power drops. The Contractor shall be responsible for all costs required by the utility for service installation.

After coordination with the electric utility's representative, the Contractor shall submit a "Connection Request" form to the Department. The Department will forward this form to the electric utility and the Department will be responsible for paying bills after service is connected and the Contractor pays the utility bills for all construction costs. The Service drops shall be in accordance with these Special Provisions and with 807.15.

All electrical work associated with the service power drop installations shall be in accordance with 807.15 the manufacturer's written instructions and applicable requirements of NEC standards. As shown on the plans or per the Engineer's request, where the proposed service point is more than 500 ft from the ATMS remote site, a separate, lockable, subpanel shall be provided at the ATMS site.

All subpanels shall have their own ground rod which is also connected to the site's grounding system. The grounding conductors and ground rod shall be bonded to all non-current carrying metal on the subpanel.

Any location that incurs a new customer set-up charge from the power utility shall be considered as part of the installation. The installation is not complete until power is available at the service point site.

Method of Measurement

Service points will be measured in accordance with 807.18. Circuit breakers, when identified as the method for power service connection to an existing ITS service point, will be measured in accordance with 807.18.

Basis of Payment

Service Points will be paid for in accordance with 807.19.

Terminations, connections, service conductors, circuit breakers when not identified as the power source to an existing ITS Service Point, ground rods, ground wires, fittings, switches, service cabinets, utility current transformer cabinets, PT cabinets, CT cabinets, weatherheads, meter sockets, cables, conduits down to first below grade bend, poles, aluminum channels, braces, and mounting surfaces, and other miscellaneous items shall be incidental to this work and no separate payment will be made. All utility charges are incidental to this work.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Service Point, ATMS, Circuit Breaker	EACH
Service Point, ATMS, 120/240V, Overhead	EACH
Service Point, ATMS, 120/240V, Underground	EACH
Service Point, ATMS, Subpanel	EACH
Service Point, ATMS, Metered Panel	EACH

The cost of the ground rod for a subpanel location shall be considered incidental to the cost of the subpanel.

Padlocks shall be in accordance with the padlock specification and will be paid for separately.

ITS REMOTE POWER SWITCH

Description

This work shall consist of furnishing and installing a remote network power switch unit which shall provide continuous auto-fault detection in a cabinet, shelter, or DMS, in accordance with 105.03.

Materials

The Remote power switch shall be in accordance with the following:

- Operating temperature: 30°F to 170°F
- Power Outlets: Min. 8, NEMA 5-15R
- Protocols Supported, Minimum: HTTPS, TCP/IP, UDP, SNMP, Telnet, SSH, BOOTP, DHCP
- Connections: RJ-45 10/100 Mbps Ethernet
- Surface mount
- 19 in. Rack Brackets
- Power Control and Management: Remote individual or group outlet switching, plug naming, grouping and access control, Scheduled outlet On/Off/Reboot switching, Ping watchdog with auto reboot

Construction Requirements

A remote power switch shall be furnished and installed at each location in accordance with the manufacturer's specifications. The switch and AC-powered devices shall be connected to the device. When IP connectivity failure is detected, it shall automatically reboot some or all the connected devices. The remote power switch shall provide web-based troubleshoot and monitoring capabilities. This work shall include test and performance verification, and incidentals necessary to complete the work.

Method of measurement

The remote power switches will be measured by the number of units installed, complete in place.

Basis of payment

Remote power switches will be paid for at the contract unit price per each.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
ITS, Remote Power Switch	EACH

The cost of materials, labor, equipment, transportation, placement and all incidentals shall be included in the cost of the pay item.

SURGE PROTECTION DEVICES FOR ATMS COMMUNICATIONS, VIDEO, AND 24V

Description

This work shall consist of furnishing and installing Surge Protective Devices, SPDs, for data, communications, 24V power, and video equipment in accordance with 105.03.

SPD's shall be used for the protection of all data, communications, video circuits, and low voltage power at 24V or less including POE cables from the effects of lightning induced currents and other transients.

Materials

Data and Communications Cables:

Plug-in jack or terminal connected SPDs shall protect all low-voltage signal pairs. The SPDs shall meet or exceed the following minimum requirements:

1. The SPDs shall be UL Listed 497B.
2. The protectors shall suppress a peak surge current of up to 10K amps.
3. The protectors shall have a response time less than 5 nanoseconds.
4. The protector shall clamp the voltage between the two wires at 8 volts and clamp the voltage between each wire and ground at 50 volts.
5. The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
6. It shall be possible to replace the protector using standard tools.
7. The SPD housing shall be metallic and be grounded.

24V Power Cables:

Cables carrying 24V power shall be equipped with surge protectors that meet or exceed the following minimum characteristics:

1. The clamping voltage shall be 50V.
2. The response time shall be five nanoseconds or less.
3. Bipolar silicon avalanche diode technology shall be used in a single stage device.
4. The module shall dissipate a minimum of 50 Joules.
5. The module shall pass signals from DC to 80 MHz with less than 0.5 dB insertion loss.

Construction Requirements

The Contractor shall examine conditions for compliance with requirements for installation tolerances, characteristics, and other conditions affecting performance of transient voltage surge suppressors. The Contractor shall not proceed with installation until unsatisfactory conditions have been corrected.

Conductors between the SPD and the point of attachment shall be kept as straight and short as possible.

The SPDs ground shall be bonded to the cabinet's grounding bar. The Contractor shall ground each SPD's enclosure.

The Contractor shall tighten electrical connectors and terminals in accordance with the manufacturer's published torque tightening values. Where

manufacturer's torque values are not indicated, the Contractor shall use those specified in UL 486A.

The Contractor shall install an appropriate SPD at all data, communication, video, and low voltage connections or termination.

Method of Measurement

Transient voltage surge suppressors for data, communications, 24V and video will not be measured for payment.

Basis of Payment

Transient Voltage Surge Suppressors for data, communications, 24V and video will not be paid for separately, and shall be considered incidental to the cost of the equipment being provided on this contract.

SURGE PROTECTION DEVICES FOR ATMS COMMUNICATIONS, VIDEO, AND 24V

Description

This work shall consist of furnishing and installing Surge Protective Devices, SPDs, for data, communications, 24V power, and video equipment in accordance with 105.03.

SPD's shall be used for the protection of all data, communications, video circuits, and low voltage power at 24V or less including POE cables from the effects of lightning induced currents and other transients.

Materials

Data and Communications Cables:

Plug-in jack or terminal connected SPDs shall protect all low-voltage signal pairs. The SPDs shall meet or exceed the following minimum requirements:

1. The SPDs shall be UL Listed 497B.
2. The protectors shall suppress a peak surge current of up to 10K amps.
3. The protectors shall have a response time less than 5 nanoseconds.
4. The protector shall clamp the voltage between the two wires at 8 volts and clamp the voltage between each wire and ground at 50 volts.
5. The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
6. It shall be possible to replace the protector using standard tools.
7. The SPD housing shall be metallic and be grounded.

24V Power Cables:

Cables carrying 24V power shall be equipped with surge protectors that meet or exceed the following minimum characteristics:

1. The clamping voltage shall be 50V.
2. The response time shall be five nanoseconds or less.
3. Bipolar silicon avalanche diode technology shall be used in a single stage device.
4. The module shall dissipate a minimum of 50 Joules.
5. The module shall pass signals from DC to 80 MHz with less than 0.5 dB insertion loss.

Construction Requirements

The Contractor shall examine conditions for compliance with requirements for installation tolerances, characteristics, and other conditions affecting performance of transient voltage surge suppressors. The Contractor shall not proceed with installation until unsatisfactory conditions have been corrected.

Conductors between the SPD and the point of attachment shall be kept as straight and short as possible.

The SPDs ground shall be bonded to the cabinet's grounding bar. The Contractor shall ground each SPD's enclosure.

The Contractor shall tighten electrical connectors and terminals in accordance with the manufacturer's published torque tightening values. Where

manufacturer's torque values are not indicated, the Contractor shall use those specified in UL 486A.

The Contractor shall install an appropriate SPD at all data, communication, video, and low voltage connections or termination.

Method of Measurement

Transient voltage surge suppressors for data, communications, 24V and video will not be measured for payment.

Basis of Payment

Transient Voltage Surge Suppressors for data, communications, 24V and video will not be paid for separately, and shall be considered incidental to the cost of the equipment being provided on this contract.

SURGE PROTECTION DEVICES FOR POWER AT LINE VOLTAGE

Description

This work shall consist of furnishing and installing Surge Protective Devices, SPDs, for circuits and equipment rated 1,000V and less. SPD's are used for the protection of all electrical circuits from the effects of lightning induced currents, substation switching transients and internally generated transients resulting from inductive and capacitive load switching.

Materials

Materials shall be in accordance with 807.02, 922.07, and as follows:

The selection and installation of SPDs shall also be in accordance with Motorola R-56 and as shown on the plans.

Surge Protective Devices shall conform to these following requirements:

1. The device shall be UL 1449, 2nd Edition, or later revision listed or recognized. Devices may also conform to the international CE certification mark.
2. SPDs shall be selected based on the operating voltage and number of phases of the circuits to be protected.
3. The minimum pulse life or durability requirements and the voltage protection level shall be as specified in Table 9-2 of R-56 for the respective Maximum Continuous Operating Voltage, MCOV, and Type listed.
4. Each module shall have indicator lamps visible from the front of the device showing that the module has power applied and that the protection integrity has not been compromised.
5. The SPDs shall include a set of form "C" dry contacts for remote alarm reporting capability, except for Type 3 devices. This set of contacts shall operate when there is an input power failure or the integrity of any module has been compromised. This contact set shall be isolated from the AC power circuitry to safeguard the alarm circuit or reporting device in case of a catastrophic event.
6. Each module or subassembly shall be modular in design to allow for easy field replacement.
7. Module components shall not be encapsulated.
8. Maximum Continuous Operating Voltage: 110 percent of nominal system operating voltage.

The Contractor shall provide electrically operated equipment that is listed and labeled as defined in the NEC, Article 100. Listing and labeling shall comply with; NFPA 70, UL 1283, UL 1449, ANSI C62.41 and ANSI C62.45.

SPDs shall be manufactured in the U.S.A. by a manufacturer engaged in the design and manufacture of such devices for a period of at least 2 years.

Subject to compliance with requirements, the Contractor shall provide products by one of the following:

1. EFI Electronics, 65 AR for 120/240 volt, Omni-Phase OSW for 240/480 volt.
2. Advanced Protection Technologies, Inc.
3. Transvector
4. Polyphaser
5. Innovative Technology, Inc.
6. Current Technology

Common Mode AC power SPDs shall not be utilized. This may constitute a personnel safety hazard and could constitute an NFPA 70 violation by creating a neutral-ground bond at a location other than at the main service disconnect. Common Mode surge suppression devices may be used on telephone or data circuits.

Type 1 Panel Type Surge Protective Devices:

Specific requirements shall be as follows:

1. The device shall consist of primary modules using Silicon Avalanche Diode, SAD, technology and secondary modules using Metal Oxide Varistor, MOV, technology.
2. A SAD and MOV module shall be installed from each phase conductor to the neutral conductor, L-N, Normal Mode.
3. Module or devices of any type shall not be connected between any phase conductor and the equipment grounding conductor or ground, L-G, Common Mode.
4. The primary modules shall consist of a SAD module providing 250 Joules per phase, per polarity, minimum energy absorption.
5. The secondary module shall consist of a MOV module, with 5000 Joules per phase of energy absorption. This module shall be equal to, and have the same specifications and performance characteristics, as modules utilized in the Type 1A and 2 devices.
6. True sine wave tracking with let through voltage no greater than L-N 70V, L-L 80V, L-G 90, and N-G 90V.

Type 3 Individual Equipment Surge Protective Devices:

Specific requirements shall be as follows:

1. Install Type 3 SPDs on each critical load when the load requires greater than 10 ft of conductor length from the panel with Type 1 SPDs. Where the load requires between 10 ft and 50 ft of conductor length for a Type 1 device, a Type 3 device is optional. Where the load requires greater than 50 ft of conductor length or 25 ft of circuit length from the Type 1 device, a Type 3 device is required.
2. All individual equipment devices shall provide a minimum of 25 Joules using SAD technology.
3. Normal Mode, L-N, circuit protection.
4. Individual SPDs with the plug manufactured as a part of the device shall be plugged into a single simplex receptacle outlet and shall incorporate a single simplex receptacle outlet for the load connection. Individual plug-in units with a duplex receptacle outlet shall not be used.
5. Multi-receptacle outlet strips with SPDs may also incorporate data circuit secondary protection devices within the same housing.
6. Multi-receptacle outlet strips SPDs shall incorporate an independent grounding point on the exterior of the device. This point shall be rated for attachment of a #6 AWG equipment conductor.
7. Multi-receptacle device housings shall be metallic and shall be provided with mounting ears, tabs or brackets. Devices may be suitable for standard EIA 19-in. rack mounting.
8. Each device shall have an indicator lamp visible from the front of the device showing that the module has power applied and that the protection integrity has not been compromised. Alarm relay contacts

to remotely report device failure may be offered but are not required.

9. Each multiple receptacle outlet strip type device incorporating telephone or data circuit protection shall be UL 1459 and UL 497A listed or recognized. Devices may conform to the international CE certification mark.

Construction Requirements

The Contractor shall examine conditions for compliance with requirements for installation tolerances, power characteristics, and other conditions affecting performance of transient voltage surge suppressors. The Contractor shall not proceed with installation until unsatisfactory conditions have been corrected.

The Contractor shall install a circuit breaker sized in accordance with the manufacturer’s requirements for each line connection.

The Contractor shall follow the manufacturer's installation instructions for each SPD.

Conductors between the SPD and the point of attachment shall be kept as straight and short as possible. The conductor shall be 5 ft or less in length measured terminal to terminal. In no case shall the length be longer than indicated in the manufacturer’s installation instructions.

The Contractor shall connect SPD circuit in line-to-neutral configuration if a neutral conductor is available.

A Type 1 SPD ground shall be bonded to the service entrance ground where installed at a utility service point or to the panel’s equipment grounding conductor. Type 2 or Type 3 SPDs shall be connected to the nearest equipment grounding conductor.

The Contractor shall ground each transient voltage surge suppressor enclosure.

The Contractor shall tighten electrical connectors and terminals according to manufacturer's published torque tightening values. Where manufacturer's torque values are not indicated, the Contractor shall use those specified in UL 486A. All components shall be installed as shown on the plans.

The Contractor shall install a Type 1 SPD at each utility service point, each circuit breaker panel, and where otherwise indicated.

The Contractor shall install a Type 3 SPD such that all permanently installed electronic equipment is protected at the receptacle, hardwired connection or other point where the equipment is connect to electric power.

Method of Measurement

Transient voltage surge suppressors will not be measured for payment.

Basis of Payment

Transient Voltage Surge Suppressors will not be paid for separately, and shall be considered incidental to the cost of the equipment being provided on this contract.

August 9, 2021

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Maintenance of Traffic Considerations
I-65 Added Travel Lanes
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

We have completed our pavement coring task for the referenced project. This memo presents the results of our field activities.

Brief Project Description
Based on our correspondence, we understand that INDOT is planning to add travel lanes on I-65 from near RP 16+27 to near RP 29+10. Refer to the attached General Site Map. The total project length is about 12.83 mi. Based on PFC plans provided by American Structurepoint, Inc. (Structurepoint), maintenance of traffic (MOT) is expected to consist of temporary pavement along both inside and outside shoulders of the northbound lanes. Note that temporary cross-overs are also anticipated to be near Stas. 388+00, 686+00, and 1112+00.

In the event that the nature, design or location of the proposed construction changes, results contained in this report shall not be considered valid unless the changes are reviewed and the conclusions are modified or confirmed in writing by Terracon Consultants, Inc. (Terracon).

Field Exploration and Laboratory Testing
Pavement core locations were selected by Terracon in accordance with INDOT's guidance, and INDOT approved these locations. Pavement cores were performed at the locations as approximately shown on Drawing Nos. CJ195480.B2 through .B12. The pavement cores were performed during the periods of April 5 to 30 and May 23 to 26, 2021. It should be noted that some pavement core locations were placed near wet spot locations provided to us by INDOT. The pavement cores were performed utilizing a 6-in. diameter diamond impregnated core barrel. Detailed pavement core locations are included in the attached Pavement Core Logs. Photographs of the cores, the surface of the pavement, and the core hole at the respective core locations are provided on the logs and were uploaded to INDOT's Pavement Core Collector.

Pavement Conditions
The pavement on the shoulders consists of full-depth HMA and composite {i.e., Stone Matrix Asphalt (SMA) over HMA, HMA over Portland Cement Concrete Pavement (PCCP), or SMA over HMA over PCCP} sections. The following table summarizes our observations of the pavement core thicknesses.

Table 1: Summary of Pavement Thicknesses

Direction	Overall Type	SMA Thickness Range (in.)	HMA Thickness Range (in.)	PCCP Thickness Range (in.)	Subbase Type	Subbase Thickness (in.)
Northbound Inside Shoulder (NBIS)	HMA	--	9.3 to 14.2	--	Crushed Stone	3
	Composite	1.5 to 2.5	4.2 to 11.0	3.8 (at PC-NBIS-13)	Crushed Stone (Sand and Gravel at PC-NBIS-13)	3
Northbound Outside Shoulder (NBOS)	HMA *	--	8.0 to 19.0	--	Not observed (Crushed Stone at PC-NBOS-20)	6
Southbound Inside Shoulder (SBIS)	HMA	--	7.5 to 14.0	--	Crushed Stone	1.5 to 3
	Composite **	1.7 to 2.6	3.9 to 12.0	--	Crushed Stone	3
Southbound Outside Shoulder (SBOS)	HMA ***	--	9.0 to 22.5	--	Crushed Stone ****	3
	Composite	--	6.0	3.5	Not observed	---

* Thick tack coat observed at Pavement Core PC-NBOS-09
** Sand seal observed at Pavement Core PC-SBIS-08
*** Geotextile observed at Pavement Core PC-SBOS-03
**** Not observed at Pavement Cores PC-SBOS-20, -21, and -23 through -28

In general, the asphalt layers were in poor to fair condition. Moisture damage (i.e., delamination and stripping) was observed at almost all of the pavement cores except Pavement Cores PC-NBIS-07, PC-SBIS-03, and PC-SBIS-11. Approximately 12 percent of the pavement cores exhibited layers that were completely stripped and not recovered during the pavement coring activities. These layers were typically observed at depths of 6 to 10½ in. below the surface of the pavement. Notable exceptions include Pavement Cores PC-NBIS-03, PC-NBIS-04, PC-NBOS-09, and PC-SBIS-13 where completely stripped pavement was observed near the surface. Note that the pavement cores located near the wet spots are the following pavement cores:

- PC-NBIS-18,
- PC-NBIS-23,
- PC-NBIS-25,
- PC-NBIS-26,
- PC-NBOS-09,
- PC-NBOS-13,
- PC-NBOS-14,
- PC-NBOS-16,
- PC-NBOS-17,
- PC-NBOS-19,
- PC-NBOS-21,
- PC-NBOS-22,
- PC-NBOS-23,
- PC-NBOS-25,
- PC-NBOS-26,

- PC-SBIS-21,
- PC-SBOS-21,
- PC-SBOS-24, and
- PC-SBOS-28.

Typically, more severe stripped or delamination conditions were observed near these pavement cores.

Refer to the attached Pavement Core Logs for detailed information at each core location.

Concluding Remarks
Feel free to contact our office if you have any questions or need further assistance with the project.

Sincerely,
TERRACON CONSULTANTS, INC.

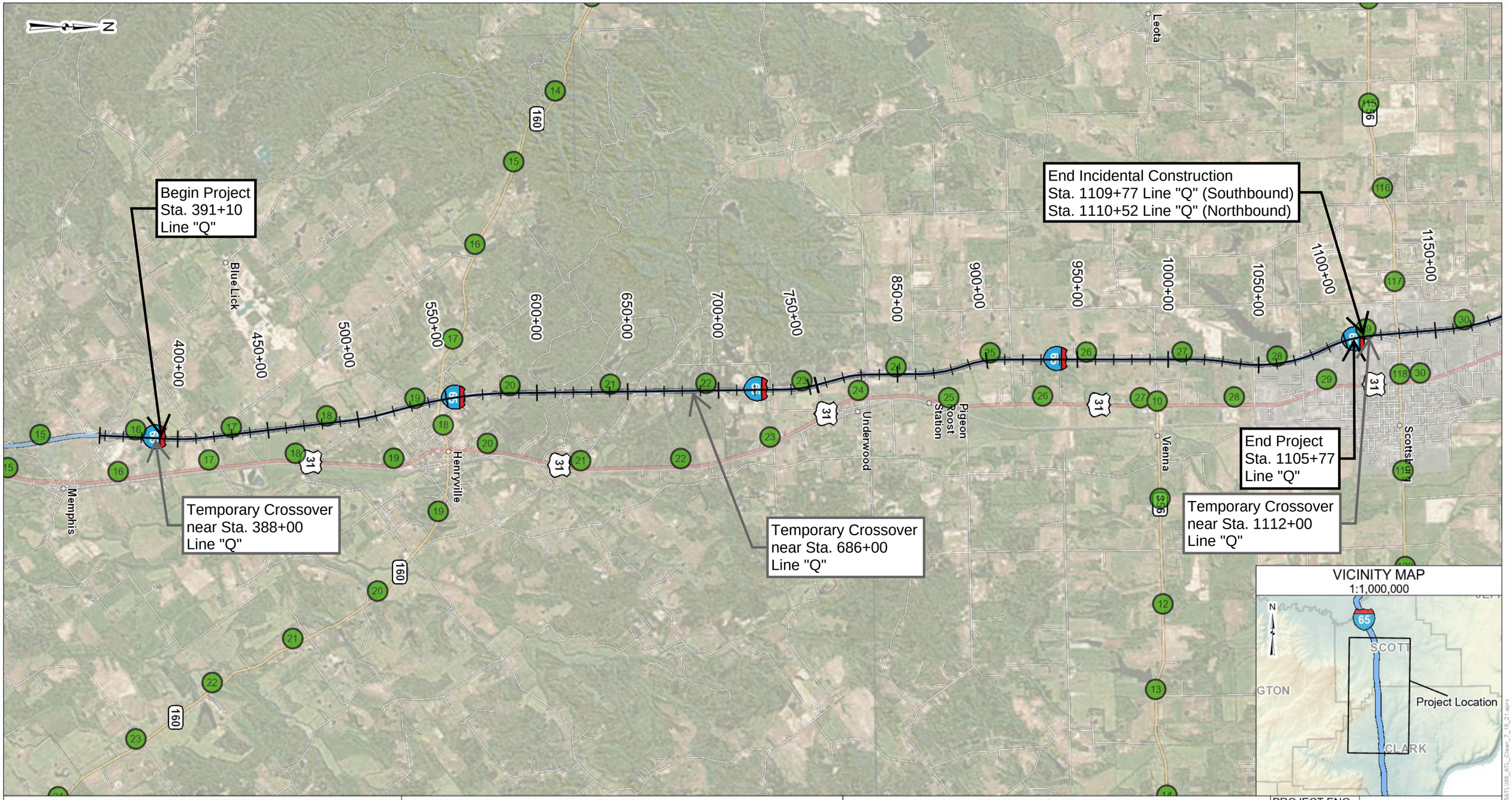
[redacted]

Travis J. Pickering, P.E.
Project Engineer

[redacted]

Michael S. Wigger, P.E.
Principal Engineer

Attachments –
General Site Map (Drawing No. CJ195480.B1)
Exploratory Location Plan (Drawing Nos. CJ195480.B2 through .B12)
Summary of Pavement Cores (3 pages)
Pavement Core Logs (113)



LEGEND

RP INDOT Reference Posts

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.

GENERAL SITE MAP

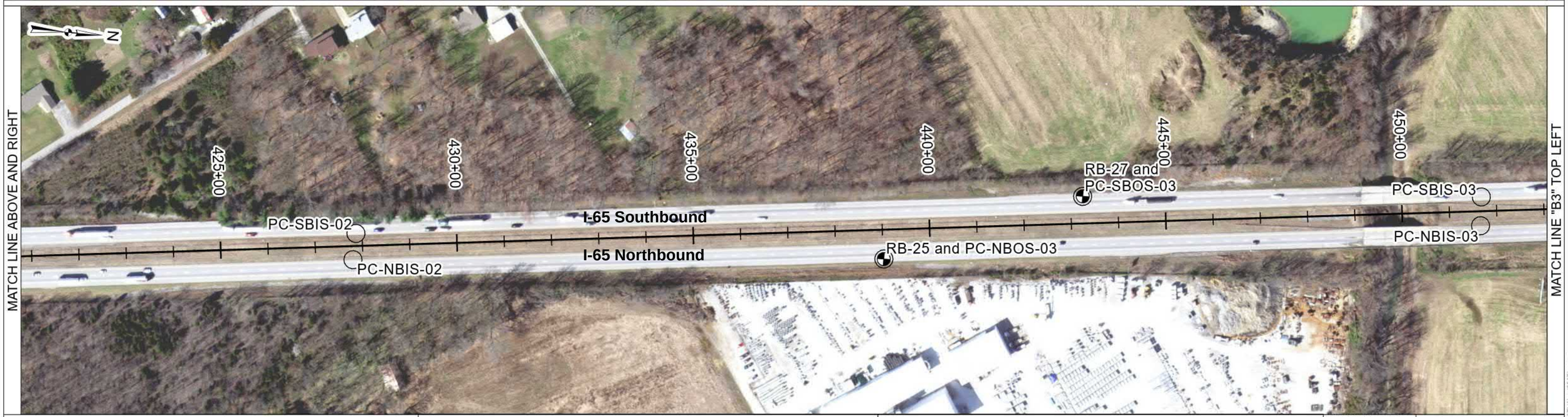
PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 5,000'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/02/2021
DRAWING NO.:	CJ195480.B1

Terracon





LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
3. Exploratory locations were marked in the field by Terracon Consultants, Inc.
4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B2

Terracon

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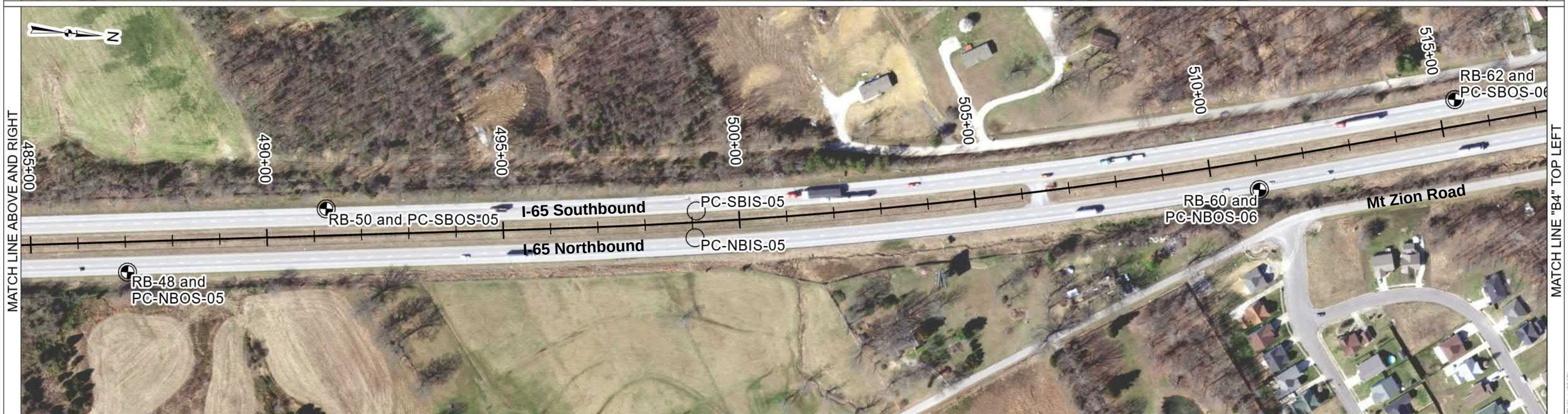

LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
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5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B3

Terracon

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LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
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5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B4

Terracon

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MATCH LINE "B4" BOTTOM RIGHT

MATCH LINE BELOW AND LEFT

N

585+00

590+00

595+00

600+00

605+00

610+00

RB-98 and PC-SBOS-09

PC-SBIS-09

PC-NBIS-09

RB-96 and PC-NBOS-09

RB-110 and PC-SBOS-10

I-65 Southbound

I-65 Northbound

RB-108 and PC-NBOS-10

Winding Road

MATCH LINE ABOVE AND RIGHT

MATCH LINE "B6" TOP LEFT

N

615+00

620+00

625+00

630+00

635+00

640+00

645+00

RB-122 and PC-SBOS-11

PC-SBIS-11

PC-NBIS-11

I-65 Southbound

I-65 Northbound

PC-SBIS-10

PC-NBIS-10

RB-120 and PC-NBOS-11

LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
3. Exploratory locations were marked in the field by Terracon Consultants, Inc.
4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B5

Terracon

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LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
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4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B6

Terracon





LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
3. Exploratory locations were marked in the field by Terracon Consultants, Inc.
4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B7

Terracon

MATCH LINE "B7" BOTTOM RIGHT

MATCH LINE BELOW AND LEFT

Collins Road

Country Lake Road

East County Line Road

830+00

835+00

840+00

845+00

850+00

855+00

RB-194 and PC-SBOS-17

RB-192 and PC-NBOS-17

PC-SBIS-17

PC-NBIS-17

I-65 Southbound

I-65 Northbound

RB-206 and PC-SBOS-18

RB-204 and PC-NBOS-18

MATCH LINE ABOVE AND RIGHT

MATCH LINE "B9" TOP LEFT

860+00

865+00

870+00

875+00

880+00

885+00

890+00

PC-SBIS-18

PC-NBIS-18

I-65 Southbound

I-65 Northbound

RB-218 and PC-SBOS-19

RB-216 and PC-NBOS-19

PC-SBIS-19

PC-NBIS-19

LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
2. Vicinity map generated using imagery from © Open Street Map contributors and Esri.
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4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B8

Terracon

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LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

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6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

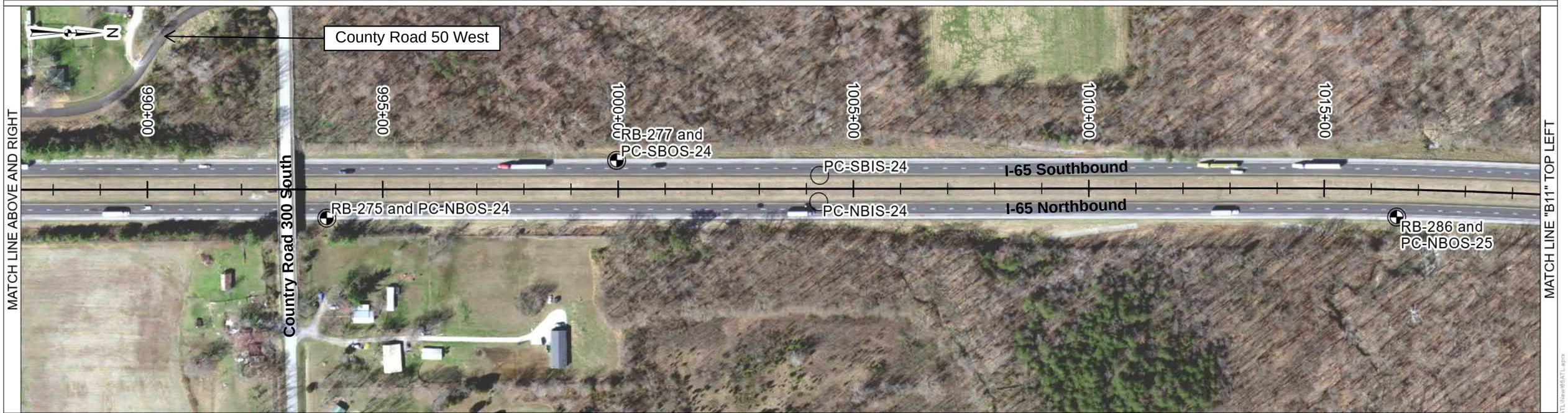
PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B9

Terracon





LEGEND

- Test Boring and Pavement Core Location and Designation
- Pavement Core Location and Designation
- XXIS Core taken on inside shoulder
- XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
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3. Exploratory locations were marked in the field by Terracon Consultants, Inc.
4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc.
5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B10

Terracon

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LEGEND

Test Boring and Pavement Core Location and Designation

XXIS Core taken on inside shoulder

XXOS Core taken on outside shoulder

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc.
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5. Exploratory locations are approximate.
6. Borings shown but are not provided in this memo.

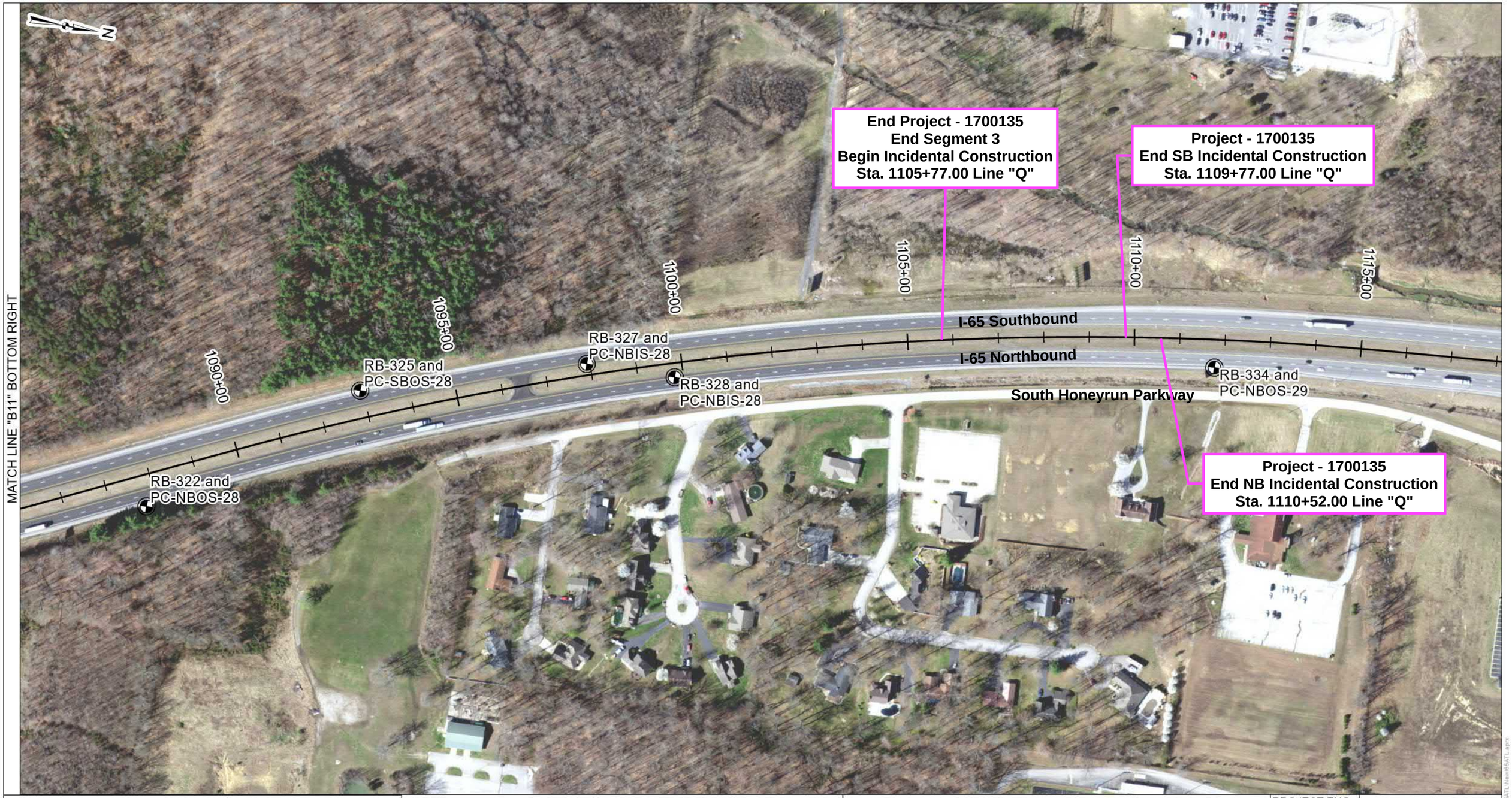
EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-1

PROJECT ENG.:	TJP
APPROVED BY:	MSW
DRAWN BY:	GTG
DATE:	08/03/2021
DRAWING NO.:	CJ195480.B11

Terracon



LEGEND	NOTES	EXPLORATORY LOCATION PLAN	
Test Boring and Pavement Core Location and Designation XXIS Core taken on inside shoulder XXOS Core taken on outside shoulder	1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Linework provided by American Structurepoint, Inc. 2. Vicinity map generated using imagery from © Open Street Map contributors and Esri. 3. Exploratory locations were marked in the field by Terracon Consultants, Inc. 4. Ground surface elevations at the exploratory locations were interpolated to the nearest 1 ft based on information in the plans provided by American Structurepoint, Inc. 5. Exploratory locations are approximate. 6. Borings shown but are not provided in this memo.	PROJECT: I-65 Added Travel Lanes LOCATION: Clark and Scott Counties, IN CLIENT: American Structurepoint, Inc. DES. NO.: 1700135 PROJECT NO.: CJ195480 SCALE: 1" : 200' Attachment 11-1	PROJECT ENG.: TJP APPROVED BY: MSW DRAWN BY: GTG DATE: 08/03/2021 DRAWING NO.: CJ195480.B12

Terracon

Summary of Pavement Cores
I-65 Added Travel Lanes
Des. No. 1700135
Clark and Scott Cos., Indiana

Core	Latitude	Longitude	Direction	Lane	Date	Overall Thickness (in)	Overall Type	Layer 1 Thickness (in.)	Layer 1 Type	Layer 2 Thickness (in.)	Layer 2 Type	Layer 3 Thickness (in.)	Layer 3 Type	Subbase Type	Subbase Thickness (in.)	Remarks
PC-NBIS-01	38.50197	-85.77073	Northbound	Inside Shoulder	5/25/21	14.5	COMPOSITE	1.5	HMA	10.0	PCCP			Crushed Stone	3.0	
PC-NBIS-02	38.50836	-85.77140	Northbound	Inside Shoulder	5/25/21	12.5	HMA	9.5	HMA					Crushed Stone	3.0	
PC-NBIS-03	38.51488	-85.77227	Northbound	Inside Shoulder	5/25/21	13.0	HMA	10.0	HMA					Crushed Stone	3.0	
PC-NBIS-04	38.52130	-85.77313	Northbound	Inside Shoulder	5/25/21	13.0	HMA	10.0	HMA					Crushed Stone	3.0	
PC-NBIS-05	38.52782	-85.77401	Northbound	Inside Shoulder	5/25/21	14.0	HMA	11.0	HMA					Crushed Stone	3.0	
PC-NBIS-06	38.53413	-85.77576	Northbound	Inside Shoulder	5/25/21	13.0	HMA	10.0	HMA					Crushed Stone	3.0	
PC-NBIS-07	38.54060	-85.77761	Northbound	Inside Shoulder	5/25/21	17.2	HMA	14.2	HMA					Crushed Stone	3.0	
PC-NBIS-08	38.54715	-85.77859	Northbound	Inside Shoulder	5/25/21	12.3	HMA	9.3	HMA					Crushed Stone	3.0	
PC-NBIS-09	38.55375	-85.77873	Northbound	Inside Shoulder	5/25/21	13.0	COMPOSITE	2.5	SMA	7.5	HMA			Crushed Stone	3.0	
PC-NBIS-10	38.56015	-85.77873	Northbound	Inside Shoulder	5/25/21	13.0	COMPOSITE	2.2	SMA	7.8	HMA			Crushed Stone	3.0	
PC-NBIS-11	38.56730	-85.77872	Northbound	Inside Shoulder	5/26/21	12.5	COMPOSITE	1.6	SMA	7.9	HMA			Crushed Stone	3.0	
PC-NBIS-12	38.57384	-85.77872	Northbound	Inside Shoulder	5/26/21	15.5	COMPOSITE	1.5	SMA	11.0	HMA			Crushed Stone	3.0	
PC-NBIS-13	38.58029	-85.77872	Northbound	Inside Shoulder	5/26/21	13.0	COMPOSITE	2.0	SMA	4.2	HMA	3.8	PCCP	Sand and Gravel	3.0	
PC-NBIS-14	38.58680	-85.77871	Northbound	Inside Shoulder	5/26/21	14.0	COMPOSITE	2.5	SMA	8.5	HMA			Crushed Stone	3.0	
PC-NBIS-15	38.59340	-85.77874	Northbound	Inside Shoulder	5/26/21	11.5	COMPOSITE	2.4	SMA	6.1	HMA			Crushed Stone	3.0	
PC-NBIS-16	38.59983	-85.78028	Northbound	Inside Shoulder	5/26/21	10.0	COMPOSITE	2.5	SMA	4.5	HMA			Crushed Stone	3.0	
PC-NBIS-17	38.60631	-85.78139	Northbound	Inside Shoulder	5/26/21	13.0	COMPOSITE	2.5	SMA	7.5	HMA			Crushed Stone	3.0	
PC-NBIS-18	38.61294	-85.78136	Northbound	Inside Shoulder	5/26/21	15.0	COMPOSITE	1.6	SMA	10.4	HMA			Crushed Stone	3.0	50 ft SW of Wet Spot 17
PC-NBIS-19	38.61933	-85.78262	Northbound	Inside Shoulder	5/26/21	13.5	COMPOSITE	1.7	SMA	8.8	HMA			Crushed Stone	3.0	
PC-NBIS-20	38.62575	-85.78393	Northbound	Inside Shoulder	5/26/21	15.5	COMPOSITE	2.0	SMA	10.5	HMA			Crushed Stone	3.0	
PC-NBIS-21	38.63228	-85.78384	Northbound	Inside Shoulder	5/26/21	14.0	COMPOSITE	2.0	SMA	9.0	HMA			Crushed Stone	3.0	
PC-NBIS-22	38.63878	-85.78373	Northbound	Inside Shoulder	5/26/21	11.0	COMPOSITE	2.4	SMA	5.6	HMA			Crushed Stone	3.0	
PC-NBIS-23	38.64532	-85.78363	Northbound	Inside Shoulder	5/26/21	12.0	COMPOSITE	1.9	SMA	7.1	HMA			Crushed Stone	3.0	115 ft SW of Wet Spot 47
PC-NBIS-24	38.65184	-85.78354	Northbound	Inside Shoulder	5/26/21	11.0	COMPOSITE	2.1	SMA	5.9	HMA			Crushed Stone	3.0	
PC-NBIS-25	38.65847	-85.78311	Northbound	Inside Shoulder	5/26/21	16.0	COMPOSITE	2.3	SMA	10.7	HMA			Crushed Stone	3.0	20 ft NW of Wet Spot 37
PC-NBIS-26	38.66481	-85.78226	Northbound	Inside Shoulder	5/26/21	13.0	COMPOSITE	2.2	SMA	7.8	HMA			Crushed Stone	3.0	100 ft NW of Wet Spot 28, 60 ft SW of Wet Spot 29
PC-NBIS-27	38.67139	-85.78362	Northbound	Inside Shoulder	5/26/21	15.5	COMPOSITE	2.5	SMA	10.0	HMA			Crushed Stone	3.0	
PC-NBIS-28	38.67747	-85.78667	Northbound	Inside Shoulder	5/26/21	15.5	COMPOSITE	2.0	SMA	10.5	HMA			Crushed Stone	3.0	
PC-NBOS-01	38.49830	-85.77078	Northbound	Outside Shoulder	4/5/21	16.0	HMA	16.0	HMA							
PC-NBOS-02	38.50488	-85.77083	Northbound	Outside Shoulder	4/6/21	15.0	HMA	15.0	HMA							
PC-NBOS-03	38.51143	-85.77170	Northbound	Outside Shoulder	4/6/21	8.0	HMA	8.0	HMA							
PC-NBOS-04	38.51799	-85.77257	Northbound	Outside Shoulder	4/6/21	11.0	HMA	11.0	HMA							
PC-NBOS-05	38.52455	-85.77345	Northbound	Outside Shoulder	4/7/21	9.7	HMA	9.7	HMA							
PC-NBOS-06	38.53107	-85.77467	Northbound	Outside Shoulder	4/7/21	9.5	HMA	9.5	HMA							
PC-NBOS-07	38.53746	-85.77665	Northbound	Outside Shoulder	4/8/21	10.0	HMA	10.0	HMA							
PC-NBOS-08	38.54396	-85.77806	Northbound	Outside Shoulder	4/8/21	11.0	HMA	11.0	HMA							
PC-NBOS-09	38.55103	-85.77863	Northbound	Outside Shoulder	4/8/21	13.0	HMA	13.0	HMA							20 ft E of Wet Spot 4, tack coat near 7.5 - 8 in.
PC-NBOS-10	38.55712	-85.77862	Northbound	Outside Shoulder	4/12/21	12.0	HMA	12.0	HMA							
PC-NBOS-11	38.56371	-85.77861	Northbound	Outside Shoulder	4/13/21	13.0	HMA	13.0	HMA							
PC-NBOS-12	38.57030	-85.77861	Northbound	Outside Shoulder	4/13/21	19.0	HMA	19.0	HMA							
PC-NBOS-13	38.57753	-85.77861	Northbound	Outside Shoulder	4/14/21	12.0	HMA	12.0	HMA							5 ft W of Wet Spot 1
PC-NBOS-14	38.58375	-85.77860	Northbound	Outside Shoulder	4/14/21	13.0	HMA	13.0	HMA							5 ft NE of Wet Spot 2
PC-NBOS-15	38.59007	-85.77861	Northbound	Outside Shoulder	4/14/21	11.0	HMA	11.0	HMA							
PC-NBOS-16	38.59663	-85.77913	Northbound	Outside Shoulder	4/15/21	14.0	HMA	14.0	HMA							5 ft W of Wet Spot 10
PC-NBOS-17	38.60329	-85.78114	Northbound	Outside Shoulder	4/15/21	13.0	HMA	13.0	HMA							5 ft W of Wet Spot 14
PC-NBOS-18	38.60962	-85.78126	Northbound	Outside Shoulder	4/15/21	13.0	HMA	13.0	HMA							
PC-NBOS-19	38.61677	-85.78168	Northbound	Outside Shoulder	4/15/21	14.0	HMA	14.0	HMA							5 ft E of Wet Spot 24
PC-NBOS-20	38.62259	-85.78357	Northbound	Outside Shoulder	4/16/21	19.0	HMA	13.0	HMA					Crushed Stone	6.0	
PC-NBOS-21	38.62951	-85.78376	Northbound	Outside Shoulder	4/19/21	12.7	HMA	12.7	HMA							25 ft NE of Wet Spot 21
PC-NBOS-22	38.63538	-85.78367	Northbound	Outside Shoulder	4/19/21	13.0	HMA	13.0	HMA							25 ft NW of Wet Spot 53
PC-NBOS-23	38.64259	-85.78356	Northbound	Outside Shoulder	4/20/21	13.0	HMA	13.0	HMA							5 ft E of Wet Spot 50
PC-NBOS-24	38.64897	-85.78346	Northbound	Outside Shoulder	4/20/21	12.0	HMA	12.0	HMA							

Summary of Pavement Cores
I-65 Added Travel Lanes
Des. No. 1700135
Clark and Scott Cos., Indiana

Core	Latitude	Longitude	Direction	Lane	Date	Overall Thickness (in)	Overall Type	Layer 1 Thickness (in.)	Layer 1 Type	Layer 2 Thickness (in.)	Layer 2 Type	Layer 3 Thickness (in.)	Layer 3 Type	Subbase Type	Subbase Thickness (in.)	Remarks
PC-NBOS-25	38.65521	-85.78336	Northbound	Outside Shoulder	4/22/21	8.9	HMA	8.9	HMA							25 ft SE of Wet Spot 41
PC-NBOS-26	38.66123	-85.78246	Northbound	Outside Shoulder	4/22/21	14.0	HMA	14.0	HMA							20 ft NE of Wet Spot 34
PC-NBOS-27	38.66817	-85.78252	Northbound	Outside Shoulder	4/26/21	16.0	HMA	16.0	HMA							
PC-NBOS-28	38.67444	-85.78503	Northbound	Outside Shoulder	4/26/21	13.0	HMA	13.0	HMA							
PC-NBOS-29	38.68068	-85.78741	Northbound	Outside Shoulder	4/26/21	13.5	HMA	13.5	HMA							
PC-SBIS-01	38.50192	-85.77092	Southbound	Inside Shoulder	5/24/21	15.5	COMPOSITE	2.0	HMA	10.5	PCCP			Crushed Stone	3.0	
PC-SBIS-02	38.50837	-85.77160	Southbound	Inside Shoulder	5/24/21	12.0	HMA	9.0	HMA					Crushed Stone	3.0	
PC-SBIS-03	38.51487	-85.77248	Southbound	Inside Shoulder	5/24/21	13.5	HMA	10.5	HMA					Crushed Stone	3.0	
PC-SBIS-04	38.52130	-85.77332	Southbound	Inside Shoulder	5/24/21	12.3	HMA	9.3	HMA					Crushed Stone	3.0	
PC-SBIS-05	38.52781	-85.77421	Southbound	Inside Shoulder	5/24/21	16.0	HMA	13.0	HMA					Crushed Stone	3.0	
PC-SBIS-06	38.53412	-85.77596	Southbound	Inside Shoulder	5/24/21	11.0	HMA	9.5	HMA					Crushed Stone	1.5	
PC-SBIS-07	38.54057	-85.77778	Southbound	Inside Shoulder	5/24/21	17.5	HMA	14.5	HMA					Crushed Stone	3.0	
PC-SBIS-08	38.54715	-85.77877	Southbound	Inside Shoulder	5/24/21	12.5	COMPOSITE	2.0	SMA	7.5	HMA			Crushed Stone	3.0	Sand seal near 5-6 and 9-9.5 in.
PC-SBIS-09	38.55375	-85.77893	Southbound	Inside Shoulder	5/24/21	12.0	COMPOSITE	2.0	SMA	7.0	HMA			Crushed Stone	3.0	
PC-SBIS-10	38.56015	-85.77892	Southbound	Inside Shoulder	5/24/21	12.5	COMPOSITE	1.9	SMA	7.6	HMA			Crushed Stone	3.0	
PC-SBIS-11	38.56730	-85.77891	Southbound	Inside Shoulder	5/24/21	12.5	COMPOSITE	2.1	SMA	7.4	HMA			Crushed Stone	3.0	
PC-SBIS-12	38.57384	-85.77892	Southbound	Inside Shoulder	5/23/21	13.5	COMPOSITE	2.2	SMA	8.3	HMA			Crushed Stone	3.0	
PC-SBIS-13	38.58029	-85.77891	Southbound	Inside Shoulder	5/23/21	13.0	COMPOSITE	2.0	SMA	8.0	HMA			Crushed Stone	3.0	
PC-SBIS-14	38.58680	-85.77891	Southbound	Inside Shoulder	5/23/21	12.0	COMPOSITE	2.0	SMA	7.0	HMA			Crushed Stone	3.0	
PC-SBIS-15	38.59340	-85.77894	Southbound	Inside Shoulder	5/23/21	17.0	COMPOSITE	2.0	SMA	12.0	HMA			Crushed Stone	3.0	
PC-SBIS-16	38.59982	-85.78048	Southbound	Inside Shoulder	5/23/21	11.5	COMPOSITE	2.0	SMA	6.5	HMA			Crushed Stone	3.0	
PC-SBIS-17	38.60632	-85.78158	Southbound	Inside Shoulder	5/23/21	9.0	COMPOSITE	1.7	SMA	4.3	HMA			Crushed Stone	3.0	
PC-SBIS-18	38.61294	-85.78156	Southbound	Inside Shoulder	5/23/21	12.0	COMPOSITE	1.8	SMA	7.2	HMA			Crushed Stone	3.0	
PC-SBIS-19	38.61931	-85.78281	Southbound	Inside Shoulder	5/23/21	9.0	COMPOSITE	2.1	SMA	3.9	HMA			Crushed Stone	3.0	
PC-SBIS-20	38.62576	-85.78413	Southbound	Inside Shoulder	5/23/21	13.0	COMPOSITE	2.6	SMA	7.4	HMA			Crushed Stone	3.0	
PC-SBIS-21	38.63228	-85.78404	Southbound	Inside Shoulder	5/23/21	13.0	COMPOSITE	2.0	SMA	8.0	HMA			Crushed Stone	3.0	50 ft NE of Wet Spot 69
PC-SBIS-22	38.63878	-85.78394	Southbound	Inside Shoulder	5/23/21	12.0	COMPOSITE	2.3	SMA	6.7	HMA			Crushed Stone	3.0	
PC-SBIS-23	38.64532	-85.78383	Southbound	Inside Shoulder	5/23/21	11.5	COMPOSITE	2.1	SMA	6.4	HMA			Crushed Stone	3.0	
PC-SBIS-24	38.65185	-85.78373	Southbound	Inside Shoulder	5/23/21	13.0	COMPOSITE	2.3	SMA	7.7	HMA			Crushed Stone	3.0	
PC-SBIS-25	38.65774	-85.78343	Southbound	Inside Shoulder	5/23/21	14.0	COMPOSITE	2.4	SMA	8.6	HMA			Crushed Stone	3.0	
PC-SBIS-26	38.66428	-85.78246	Southbound	Inside Shoulder	5/23/21	15.0	COMPOSITE	2.2	SMA	9.8	HMA			Crushed Stone	3.0	
PC-SBIS-27	38.67083	-85.78361	Southbound	Inside Shoulder	5/23/21	15.0	COMPOSITE	2.0	SMA	10.0	HMA			Crushed Stone	3.0	
PC-SBIS-28	38.67693	-85.78666	Southbound	Inside Shoulder	5/23/21	17.0	COMPOSITE	2.0	SMA	12.0	HMA			Crushed Stone	3.0	
PC-SBOS-01	38.49943	-85.77112	Southbound	Outside Shoulder	5/25/21	14.5	HMA	11.5	HMA					Crushed Stone	3.0	
PC-SBOS-02	38.50600	-85.77140	Southbound	Outside Shoulder	5/25/21	15.0	HMA	12.0	HMA					Crushed Stone	3.0	
PC-SBOS-03	38.51256	-85.77227	Southbound	Outside Shoulder	5/25/21	19.0	HMA	16.0	HMA					Crushed Stone	3.0	Geotextile near 16 in.
PC-SBOS-04	38.51911	-85.77314	Southbound	Outside Shoulder	5/25/21	14.5	HMA	11.5	HMA					Crushed Stone	3.0	
PC-SBOS-05	38.52567	-85.77402	Southbound	Outside Shoulder	5/25/21	16.0	HMA	13.0	HMA					Crushed Stone	3.0	
PC-SBOS-06	38.53216	-85.77544	Southbound	Outside Shoulder	5/25/21	15.5	HMA	12.5	HMA					Crushed Stone	3.0	
PC-SBOS-07	38.53856	-85.77742	Southbound	Outside Shoulder	5/25/21	14.5	HMA	11.5	HMA					Crushed Stone	3.0	
PC-SBOS-08	38.54508	-85.77868	Southbound	Outside Shoulder	5/25/21	25.5	HMA	22.5	HMA					Crushed Stone	3.0	
PC-SBOS-09	38.55166	-85.77905	Southbound	Outside Shoulder	5/25/21	17.5	HMA	14.5	HMA					Crushed Stone	3.0	
PC-SBOS-10	38.55825	-85.77904	Southbound	Outside Shoulder	5/24/21	15.3	HMA	12.3	HMA					Crushed Stone	3.0	
PC-SBOS-11	38.56484	-85.77904	Southbound	Outside Shoulder	5/24/21	18.0	HMA	15.0	HMA					Crushed Stone	3.0	
PC-SBOS-12	38.57143	-85.77902	Southbound	Outside Shoulder	5/24/21	15.0	HMA	12.0	HMA					Crushed Stone	3.0	
PC-SBOS-13	38.57802	-85.77903	Southbound	Outside Shoulder	5/24/21	14.5	HMA	11.5	HMA					Crushed Stone	3.0	
PC-SBOS-14	38.58461	-85.77906	Southbound	Outside Shoulder	5/24/21	13.0	HMA	10.0	HMA					Crushed Stone	3.0	
PC-SBOS-15	38.59120	-85.77905	Southbound	Outside Shoulder	5/24/21	16.0	HMA	13.0	HMA					Crushed Stone	3.0	
PC-SBOS-16	38.59772	-85.77991	Southbound	Outside Shoulder	5/24/21	14.0	HMA	11.0	HMA					Crushed Stone	3.0	
PC-SBOS-17	38.60416	-85.78167	Southbound	Outside Shoulder	5/24/21	14.0	HMA	11.0	HMA					Crushed Stone	3.0	
PC-SBOS-18	38.61075	-85.78167	Southbound	Outside Shoulder	5/24/21	15.5	HMA	12.5	HMA					Crushed Stone	3.0	
PC-SBOS-19	38.61731	-85.78225	Southbound	Outside Shoulder	5/24/21	14.0	HMA	11.0	HMA					Crushed Stone	3.0	
PC-SBOS-20	38.62370	-85.78417	Southbound	Outside Shoulder	4/30/21	12.0	HMA	12.0	HMA							
PC-SBOS-21	38.63059	-85.78417	Southbound	Outside Shoulder	4/30/21	10.0	HMA	10.0	HMA							30 ft E of Wet Spot 70

Summary of Pavement Cores
I-65 Added Travel Lanes
Des. No. 1700135
Clark and Scott Cos., Indiana

Core	Latitude	Longitude	Direction	Lane	Date	Overall Thickness (in)	Overall Type	Layer 1 Thickness (in.)	Layer 1 Type	Layer 2 Thickness (in.)	Layer 2 Type	Layer 3 Thickness (in.)	Layer 3 Type	Subbase Type	Subbase Thickness (in.)	Remarks
PC-SBOS-22	38.63689	-85.78408	Southbound	Outside Shoulder	4/30/21	14.5	HMA	11.5	HMA					Sand and Gravel	3.0	
PC-SBOS-23	38.64348	-85.78398	Southbound	Outside Shoulder	4/29/21	9.0	HMA	9.0	HMA							
PC-SBOS-24	38.65067	-85.78386	Southbound	Outside Shoulder	4/29/21	12.0	HMA	12.0	HMA							5 ft SW of Wet Spot 67
PC-SBOS-25	38.65666	-85.78371	Southbound	Outside Shoulder	4/22/21	14.0	HMA	14.0	HMA							
PC-SBOS-26	38.66321	-85.78263	Southbound	Outside Shoulder	4/29/21	14.5	HMA	14.5	HMA							
PC-SBOS-27	38.66979	-85.78338	Southbound	Outside Shoulder	4/27/21	10.0	HMA	10.0	HMA							
PC-SBOS-28	38.67561	-85.78617	Southbound	Outside Shoulder	4/27/21	9.5	COMPOSITE	6.0	HMA	3.5	PCCP					5 ft W of Wet Spot 71, PVC pipe in pavement near 6 in. below surface

Notes: (1) While the measurements of layer and overall core thicknesses are reported to the nearest tenth of an inch, an inherent variation in the pavement thickness will occur due to the size of the aggregate. Depending on the aggregate size, the variation in measurements could be 1/2 to 3/4 in.
(2) Distances in the remarks column are approximate.
(3) Wet spot locations provided by INDOT via coordinates. Spots were not "wet" at the time of our field work. Cores were placed in the areas of the wet spots using surface staining as guidance for the locations of the wet spots.

PAVEMENT CORE LOG NO. PC-NBIS-01

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.502° Longitude: -85.7707° Station: 404+45 Offset: 26 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	
	1.5		1
		PCCP, 1.5in max aggregate size	2
			3
			4
			5
			6
			7
			8
			9
			10
			11
	11.5		
		Granular Subbase, crushed stone	12
			13
	14.5		14
		Boring Terminated at 14.5 Inches	







Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 5/25/2021	Coring Completed: 5/25/2021
		Drill Rig: Coring Machine	Driller: JM
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-02

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5084° Longitude: -85.7714° Station: 427+79 Offset: 29 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	1
	2.0	**HMA**, 12.5mm intermediate, voided	2
	3.4	**HMA**, 25.0mm base, voided, partially stripped, delaminated	3 4 5 6 7
	7.0	**HMA**, 19.0mm base, partially stripped, completely stripped near 9.5in	8 9
	9.5	**Granular Subbase**, crushed stone	10 11 12
	12.5	***Boring Terminated at 12.5 Inches***	



Downhole photo not available



Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 5/25/2021	Coring Completed: 5/25/2021
		Drill Rig: Coring Machine	Driller: JM
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-03

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5149° Longitude: -85.7723° Station: 451+65 Offset: 31 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	1
	1.5	**HMA**, completely stripped, not recovered	2
			3
	4.0	**HMA**, 25.0mm base, partially stripped, delaminated at 6.0in, completely stripped below 9.0in	4
			5
			6
			7
			8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-04

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5213° Longitude: -85.7731° Station: 475+19 Offset: 31 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	1
	1.5	**HMA**, completely stripped, not recovered	2
			3
	3.8	**HMA**, 19.0mm base, delaminated, partially stripped	4
			5
			6
	7.4	**HMA**, 19.0mm base, partially stripped	7
			8
			9
	10.0	**Granular Subbase**, crushed stone	10
			11
			12
	13.0	***Boring Terminated at 13 Inches***	13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-05

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5278° Longitude: -85.774° Station: 499+04 Offset: 32 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	1
	1.7	**HMA**, 19.0mm intermediate, partially stripped	2
			3
	4.7	**HMA**, 9.5mm surface	4
	6.0	**HMA**, 19.0mm intermediate, partially stripped, delaminated	5
			6
	8.3	**HMA**, 19.0mm base	7
			8
	11.0	**Granular Subbase**, crushed stone	9
			10
	14.0	***Boring Terminated at 14 Inches***	11
			12
			13
			14







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-06

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5341° Longitude: -85.7758° Station: 522+56 Offset: 31 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		DEPTH	
	1.9	**HMA**, 9.5mm surface, slag aggregates, voided, partially stripped, delaminated	1
	4.1	**HMA**, 12.5mm intermediate, partially stripped, delaminated	2 3 4
	8.7	**HMA**, 19.0mm base, partially stripped, delaminated	5 6 7 8
	10.0	**HMA**, completely stripped, not recovered	9 10
	13.0	**Granular Subbase**, crushed stone	11 12
		Boring Terminated at 13 Inches	13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-07

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5406° Longitude: -85.7776° Station: 546+74 Offset: 23 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	0.8	**HMA**, 9.5mm surface, slag aggregates, voided	1
		HMA, 12.5mm intermediate, voided	2
	3.8		3
		HMA, 25.0mm base, voided	4
			5
			6
			7
	8.8		8
		HMA, 19.0mm base, voided	9
			10
			11
			12
			13
	14.2		14
		Granular Subbase, crushed stone	15
			16
	17.2		17
		Boring Terminated at 17.2 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-08

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5471° Longitude: -85.7786° Station: 570+77 Offset: 23 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, slag aggregates, voided	1
	2.0		2
		HMA, 19.0mm intermediate, partially stripped, delaminated	3
	4.8		4
		HMA, 19.0mm base, partially stripped, delaminated	5
	7.7		6
		HMA, 9.5mm surface, partially stripped, delaminated	7
	9.3		8
		Granular Subbase, crushed stone	9
	12.3		10
		Boring Terminated at 12.3 Inches	11
			12







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-09

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5537° Longitude: -85.7787° Station: 594+84 Offset: 28 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.5		2
		HMA, 19.0mm base, completely stripped, partially recovered	3
			4
			5
			6
			7
			8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-10

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5601° Longitude: -85.7787° Station: 618+15 Offset: 29 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	DEPTH		
		SMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.2		2
		HMA, 12.5mm intermediate, partially stripped, completely stripped below 5.0in, partially recovered	3
			4
			5
			6
			7
			8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-11

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5673° Longitude: -85.7787° Station: 644+21 Offset: 30 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped	1
	1.6	**HMA**, 12.5mm intermediate, voided, partially stripped	2
	3.5	**HMA**, 12.5mm intermediate, voided, partially stripped	3 4 5 6 7
	7.0	**HMA**, 12.5mm intermediate, voided, partially stripped	8 9
	9.5	**Granular Subbase**, crushed stone	10 11 12
	12.5	***Boring Terminated at 12.5 Inches***	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-12

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5738° Longitude: -85.7787° Station: 668+00 Offset: 30 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped	
	1.5		1
		HMA, 12.5mm surface, voided, partially stripped	2
	2.6		
		HMA, 12.5mm intermediate, voided, delaminated	3
	4.5		4
		HMA, 12.5mm intermediate, voided	5
	6.2		6
		HMA, 12.5mm intermediate, voided	7
	8.0		8
		HMA, 12.5mm intermediate, voided	9
	10.0		10
		HMA, 12.5mm intermediate, voided, partially stripped	11
	12.5		12
		Granular Subbase, crushed stone	13
	15.5		14
		Boring Terminated at 15.5 Inches	15







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-13

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5803° Longitude: -85.7787° Station: 691+49 Offset: 30 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.0		2
		HMA, 9.5mm surface, voided	3
	3.2		4
		HMA, 12.5mm intermediate, voided	5
	5.0		6
		HMA, 12.5mm intermediate, voided	7
	6.2		8
		PCCP, 1.0in max aggregate size, vertically fractured, partially recovered	9
	10.0		10
		Granular Subbase, sand and gravel	11
	13.0		12
		Boring Terminated at 13 Inches	13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-14

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

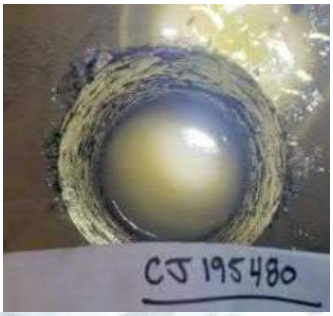
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5868° Longitude: -85.7787° Station: 715+20 Offset: 31 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.5		2
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	3
	5.6		4
			5
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	6
	8.0		7
		HMA, 19.0mm base, voided	8
			9
	11.0		10
		Granular Subbase, crushed stone	11
			12
	14.0		13
		Boring Terminated at 14 Inches	14







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-15

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5934° Longitude: -85.7787° Station: 739+25 Offset: 27 ft Rt. Line "Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	
	2.4		1, 2
		HMA, 12.5mm intermediate, voided, partially stripped	
	5.3		3, 4, 5
		HMA, 12.5mm intermediate, partially stripped, delaminated near 6.5in	
	8.5		6, 7, 8
		Granular Subbase, crushed stone	
	11.5		9, 10, 11
		Boring Terminated at 11.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-16

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5998° Longitude: -85.7803° Station: 813+60 Offset: 32 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.5		2
		HMA, 12.5mm intermediate, voided, partially stripped, fractured and delaminated near 4.5in	3 4 5 6
	7.0		7
		Granular Subbase, crushed stone	8 9
	10.0		10
		Boring Terminated at 10 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-17

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6063° Longitude: -85.7814° Station: 837+61 Offset: 28 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.5		2
		HMA, 12.5mm intermediate, voided	3
	4.0		4
		HMA, 12.5mm intermediate, voided, partially stripped, fractured near 6.0 to 8.0in, completely stripped below 8.0in, partially recovered	5 6 7 8 9 10
	10.0		
		Granular Subbase, crushed stone	11 12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-18

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6129° Longitude: -85.7814° Station: 861+74 Offset: 26 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	1.6	**HMA**, 9.5mm surface, voided, delaminated, partially stripped	2
	3.5	**HMA**, 12.5mm intermediate, voided, partially stripped	3
	5.0	**HMA**, 12.5mm intermediate, voided, partially stripped	4
	6.5	**HMA**, 12.5mm intermediate, voided, delaminated	5
	9.0	**HMA**, 9.5mm surface	6
	9.8	**HMA**, 19.0mm base, voided, partially stripped	7
	12.0	**Granular Subbase**, crushed stone	8
	15.0	***Boring Terminated at 15 Inches***	9







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-19

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6193° Longitude: -85.7826° Station: 885+31 Offset: 30 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	1.7	**HMA**, 9.5mm surface, slag aggregates, w/ steel reinforcement near 1.9in	2
	3.4	**HMA**, 12.5mm intermediate, voided, partially stripped	3 4 5
	5.5	**HMA**, 12.5mm intermediate, voided, delaminated near 7.0in	6 7
	7.4	**HMA**, 19.0mm intermediate, voided, partially stripped	8 9 10
	10.5	**Granular Subbase**, crushed stone	11 12 13
	13.5	***Boring Terminated at 13.5 Inches***	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-20

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6258° Longitude: -85.7839° Station: 909+24 Offset: 29 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	
	2.0		
		HMA, 19.0mm intermediate, voided, partially stripped	
	4.0		
		HMA, 19.0mm intermediate, voided, delaminated	
	6.5		
		HMA, 9.5mm surface, delaminated, partially stripped	
	8.7		
		HMA, 19.0mm intermediate, partially stripped, voided	
	12.5		
		Granular Subbase, crushed stone	
	15.5		
		Boring Terminated at 15.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-21

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6323° Longitude: -85.7838° Station: 933+00 Offset: 28 ft R. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.0		2
		HMA, 19.0mm intermediate, voided, partially stripped	3
	4.0		4
		HMA, 19.0mm intermediate, partially stripped	5
	6.0		6
		HMA, completely stripped, not recovered	7
			8
			9
			10
	11.0		11
		Granular Subbase, crushed stone	12
			13
	14.0		14
		Boring Terminated at 14 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-22

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6388° Longitude: -85.7837° Station: 956+67 Offset: 29 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.4		2
		HMA, 12.5mm intermediate, voided, partially stripped	3
	4.5		4
		HMA, 19.0mm base, voided, partially stripped, delaminated near 5.5in	5
			6
			7
	8.0		8
		Granular Subbase, crushed stone	9
			10
	11.0		11
		Boring Terminated at 11 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-23

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6453° Longitude: -85.7836° Station: 980+50 Offset: 28 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	1.9		2
		HMA, 12.5mm surface, voided, partially stripped	3
	4.0		4
		HMA, 9.5mm surface, voided, delaminated near 6.0in	5
	6.2		6
		HMA, 12.5mm intermediate, voided, partially stripped	7
	9.0		8
		Granular Subbase, crushed stone	9
	12.0		10
		Boring Terminated at 12 Inches	11
			12







Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 5/26/2021	Coring Completed: 5/26/2021
		Drill Rig: Coring Machine	Driller: JM
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-24

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6518° Longitude: -85.7835° Station: 1004+26 Offset: 28 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.1		2
		HMA, 19.0mm base, voided, partially stripped, delaminated near 5.0in	3
			4
			5
			6
			7
	8.0		8
		Granular Subbase, crushed stone	9
			10
	11.0		11
		Boring Terminated at 11 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-25

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6585° Longitude: -85.7831° Station: 1028+49 Offset: 30 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.3		2
		HMA, 19.0mm intermediate, voided, partially stripped, delaminated near 6.0in	3 4 5 6 7
	7.5		8
		HMA, 12.5mm intermediate, voided	9
	9.3		10
		HMA, 19.0mm intermediate, voided, partially stripped	11 12
	13.0		13
		Granular Subbase, crushed stone	14 15
	16.0		16
		Boring Terminated at 16 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-26

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6648° Longitude: -85.7823° Station: 1051+71 Offset: 29 ft R. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped	1
	2.2		2
		HMA, 12.5mm intermediate, completely stripped, delaminated	3
	4.0		4
		HMA, 12.5mm intermediate, partially stripped, delaminated	5
	7.0		6
		HMA, 12.5mm intermediate, partially stripped	7
	10.0		8
		Granular Subbase, crushed stone	9
	13.0		10
		Boring Terminated at 13 Inches	11
			12
			13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-27

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6714° Longitude: -85.7836° Station: 1075+97 Offset: 29 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped	1
	2.5		2
		HMA, 19.0mm intermediate, voided, partially stripped, delaminated near 4.5in	3
			4
			5
			6
	7.0		7
		HMA, 19.0mm intermediate, voided, delaminated	8
	9.2		9
		HMA, 19.0mm base, partially stripped, voided	10
			11
	12.5		12
		Granular Subbase, crushed stone	13
			14
	15.5		15
		Boring Terminated at 15.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/26/2021	Coring Completed: 5/26/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBIS-28

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6775° Longitude: -85.7867° Station: 1099+81 Offset: 32 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped, delaminated	
	2.0	**HMA**, 19.0mm intermediate, voided, partially stripped, delaminated	
	6.0	**HMA**, 12.5mm intermediate, partially stripped	
	7.2	**HMA**, 9.5mm surface, partially stripped	
	10.5	**HMA**, 12.5mm intermediate, voided	
	12.5	**Granular Subbase**, crushed stone	
	15.5	***Boring Terminated at 15.5 Inches***	







Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 5/26/2021	Coring Completed: 5/26/2021
		Drill Rig: Coring Machine	Driller: JM
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-01

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

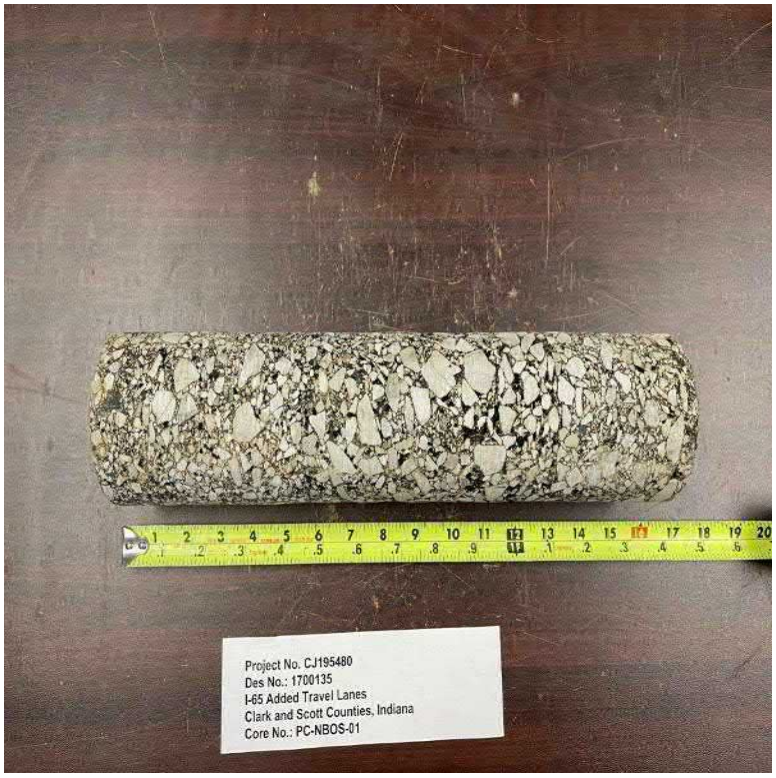
SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.4983° Longitude: -85.7708° Station: 391+10 Offset: 60 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	1.3	**HMA**, 9.5mm surface, voided	1
	3.5	**HMA**, 12.5mm intermediate, voided	2 3
	5.5	**HMA**, 12.5mm intermediate, voided	4 5
	9.7	**HMA**, 19.0mm intermediate, voided	6 7 8 9
	12.2	**HMA**, 19.0mm base, voided, partially stripped	10 11 12
	16.0	**HMA**, 12.5mm intermediate, voided	13 14 15 16
		Boring Terminated at 16 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/5/2021	Coring Completed: 4/5/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-02

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5049° Longitude: -85.7708° Station: 415+01 Offset: 61 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	1
	1.8		2
		HMA, 12.5mm intermediate, voided	3
	4.0		4
		HMA, 12.5mm intermediate, voided, partially stripped	5
	6.3		6
		HMA, 19.0mm intermediate, voided	7
	9.3		8
			9
		HMA, 19.0mm intermediate, voided	10
	12.5		11
			12
		HMA, 12.5mm intermediate, voided	13
	15.0		14
		Boring Terminated at 15 Inches	15







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/6/2021	Coring Completed: 4/6/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-03

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5114° Longitude: -85.7717° Station: 439+02 Offset: 62 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.3		1
		HMA, 25.0mm base, voided, partially stripped, delaminated	2
			3
			4
	5.0		5
		HMA, 19.0mm base, partially stripped, fractured	6
			7
	8.0		8
		Boring Terminated at 8 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/6/2021	Coring Completed: 4/6/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-04

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.518° Longitude: -85.7726° Station: 463+02 Offset: 63 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.5		1
		HMA, 12.5mm intermediate, voided	
	2.6		2
		HMA, 19.0mm intermediate, voided	3
			4
	5.2		5
		HMA, 9.5mm surface, voided	6
	7.0		7
		HMA, 19.0mm intermediate, voided, delaminated	8
	8.5		
		HMA, 12.5mm intermediate, voided, partially stripped, fractured	9
			10
	11.0		11
		Boring Terminated at 11 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/6/2021	Coring Completed: 4/6/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-05

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

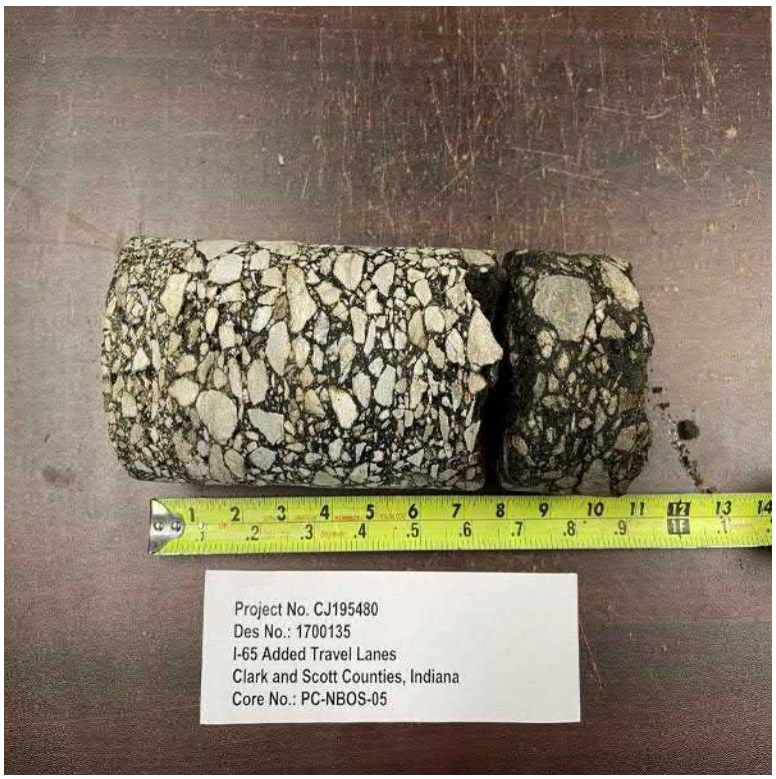
SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5245° Longitude: -85.7734° Station: 487+03 Offset: 64 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	1.2	**HMA**, 9.5mm surface, voided	1
	2.4	**HMA**, 12.5mm surface, voided	2
	5.1	**HMA**, 19.0mm intermediate	3 4 5
	6.5	**HMA**, 9.5mm surface, voided, partially stripped	6
	9.0	**HMA**, 25.0mm base, partially stripped, delaminated	7 8
	9.7	**HMA**, 12.5mm intermediate, partially stripped	9
		Boring Terminated at 9.7 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/7/2021	Coring Completed: 4/7/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-06

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5311° Longitude: -85.7747° Station: 510+97 Offset: 62 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	1
	2.0		2
		HMA, 9.5mm surface, voided, delaminated, partially stripped	3
	3.5		4
		HMA, 12.5mm intermediate, delaminated, partially stripped	5
	6.8		6
		HMA, 12.5mm intermediate, voided	7
	9.5		8
		Boring Terminated at 9.5 Inches	9







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/7/2021	Coring Completed: 4/7/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-07

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5375° Longitude: -85.7767° Station: 534+97 Offset: 71 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	DEPTH		
		HMA, 9.5mm surface, voided, delaminated, slag aggregates	1
	1.5		
		HMA, 19.0mm intermediate, partially stripped, voided	2
			3
	4.5		4
		HMA, 19.0mm intermediate, delaminated, partially stripped, voided	5
			6
	7.5		7
		HMA, 19.0mm intermediate, partially stripped	8
			9
	10.0		10
		Boring Terminated at 10 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/8/2021	Coring Completed: 4/8/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-08

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.544° Longitude: -85.7781° Station: 559+03 Offset: 69 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, 9.5mm surface, voided, delaminated, slag aggregates	1
1.7	**HMA**, 19.0mm intermediate, fractured	2
		3
4.5	**HMA**, completely stripped, partially recovered	4
		5
		6
		7
		8
9.5	**HMA**, 12.5mm intermediate, partially stripped, fractured	9
11.0		10
	Boring Terminated at 11 Inches	11







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/8/2021	Coring Completed: 4/8/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-09

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.551° Longitude: -85.7786° Station: 584+92 Offset: 58 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, completely stripped, not recovered	1
1.0	**HMA**, 12.5mm intermediate, partially stripped, voided, delaminated	2
		3
3.5	**HMA**, 12.5mm intermediate, partially stripped, voided	4
5.2	**HMA**, 12.5mm intermediate, partially stripped, voided, delaminated	5
		6
7.5		7
8.0	**Tack Coat**	8
	HMA, 12.5mm intermediate, partially stripped, voided, delaminated near 8.5in and 12.5in	9
		10
11.5		11
	HMA, 19.0mm base, partially stripped	12
13.0		13
	Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/8/2021	Coring Completed: 4/8/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-10

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

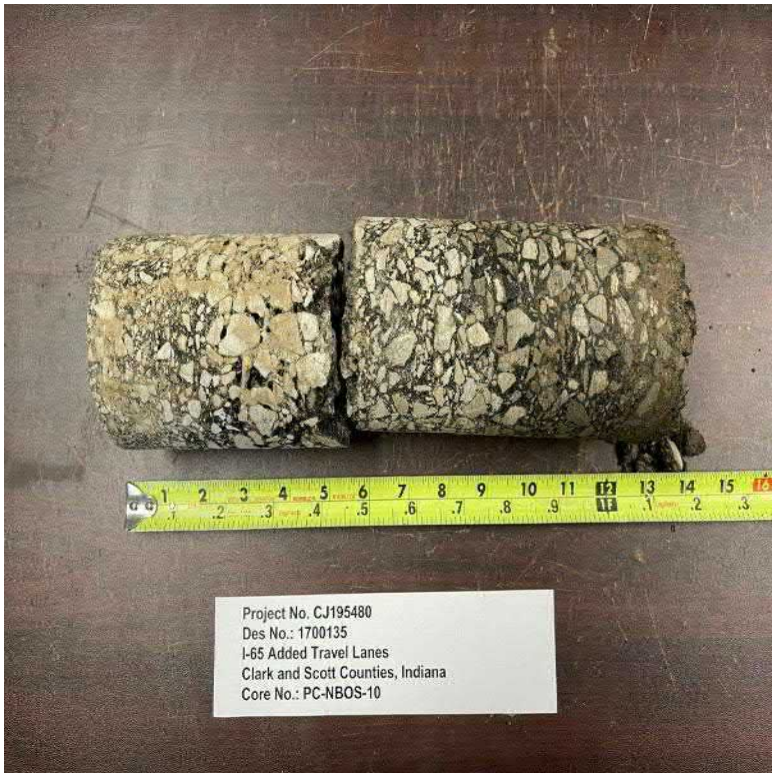
SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5571° Longitude: -85.7786° Station: 607+10 Offset: 60 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	2.5		2
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	3
	5.0		4
		HMA, 12.5mm intermediate, partially stripped	5
	8.5		6
		HMA, 12.5mm intermediate, partially stripped	7
	12.0		8
		Boring Terminated at 12 Inches	9
			10
			11
			12







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/12/2021	Coring Completed: 4/12/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-11

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.5637° Longitude: -85.7786° Station: 631+12 Offset: 62 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, 9.5mm surface, delaminated	1
1.7		2
	HMA, 12.5mm intermediate, voided	3
3.5		4
	HMA, 12.5mm intermediate, voided	5
5.2		6
	HMA, 12.5mm intermediate, voided, partially stripped, delaminated	7
7.7		8
	HMA, 12.5mm intermediate, voided, partially stripped, fractured	9
		10
		11
		12
13.0		13
	Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/13/2021	Coring Completed: 4/13/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-12

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.5703° Longitude: -85.7786° Station: 655+12 Offset: 64 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH	
	HMA, 12.5mm intermediate, voided, partially stripped, delaminated
3.0	
	HMA, 19.0mm intermediate, voided, delaminated
6.1	
	HMA, 19.0mm intermediate, voided
12.7	
	HMA, 19.0mm base, voided, partially stripped
16.0	
	HMA, 12.5mm intermediate, voided
19.0	
	Boring Terminated at 19 Inches

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/13/2021	Coring Completed: 4/13/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-13

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

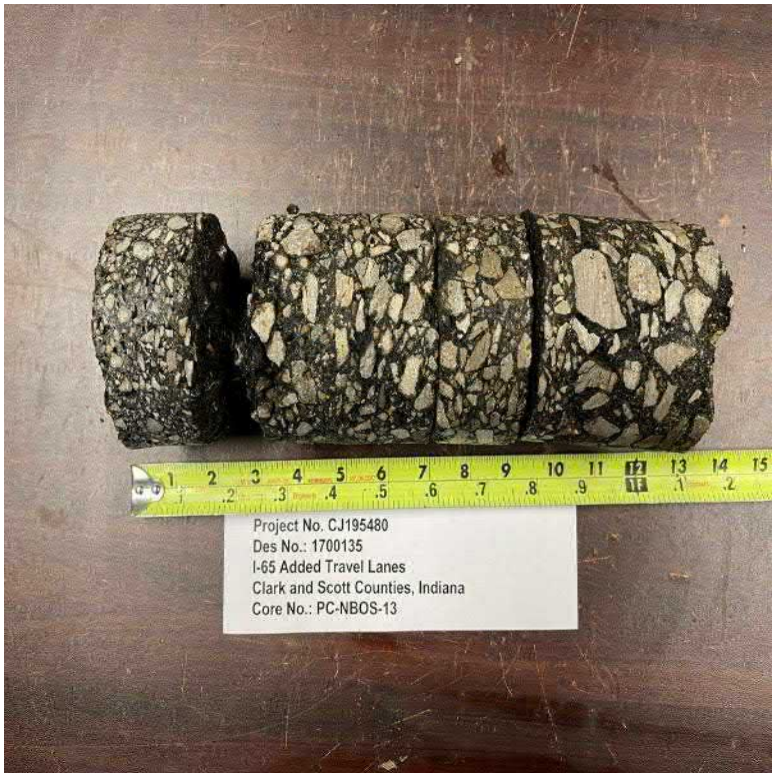
GRAPHIC LOG

Latitude: 38.5775° Longitude: -85.7786° Station: 681+45 Offset: 62 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, 9.5mm surface, voided, partially stripped, delaminated	1
2.5		2
	HMA, 12.5mm intermediate, partially stripped, voided	3
4.5		4
	HMA, 12.5mm intermediate, delaminated	5
6.3		6
	HMA, 12.5mm intermediate, delaminated at 8.3in	7
8.6		8
	HMA, 19.0mm base, partially stripped	9
		10
		11
12.0		12
	Boring Terminated at 12 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/14/2021	Coring Completed: 4/14/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-14

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.5837° Longitude: -85.7786° Station: 704+10 Offset: 63 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH

HMA, 9.5mm surface, partially stripped, delaminated

2.0

HMA, 19.0mm base, completely stripped below 5.0in, partially recovered

13.0

Boring Terminated at 13 Inches







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/14/2021	Coring Completed: 4/14/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-15

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5901° Longitude: -85.7786° Station: 727+13 Offset: 61 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, delaminated, partially stripped	1
	1.5	**HMA**, 12.5mm intermediate, delaminated, partially stripped	2
			3
	4.3	**HMA**, 12.5mm intermediate, voided	4
	6.4	**HMA**, 12.5mm intermediate, voided, delaminated	5
			6
	8.3	**HMA**, 19.0mm base, partially stripped	7
			8
			9
			10
	11.0		11
		Boring Terminated at 11 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/14/2021	Coring Completed: 4/14/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-16

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5966° Longitude: -85.7791° Station: 750+99 Offset: 64 ft Rt. Line "Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	1
	1.6		
		HMA, 19.0mm intermediate, voided, partially stripped	2
			3
	4.3		4
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	5
	6.5		6
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	7
			8
	9.5		9
		HMA, 19.0mm base, partially stripped	10
			11
			12
			13
	14.0		14
		Boring Terminated at 14 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/15/2021	Coring Completed: 4/15/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-17

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6033° Longitude: -85.7811° Station: 826+51 Offset: 62 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, partially stripped, delaminated	1
	2.5		2
		HMA, 12.5mm intermediate, partially stripped, delaminated	3
	4.5		4
		HMA, completely stripped, partially recovered	5
			6
			7
			8
			9
			10
	11.5		11
		HMA, 19.0mm base, partially stripped	12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/15/2021	Coring Completed: 4/15/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-18

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6096° Longitude: -85.7813° Station: 849+67 Offset: 59 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	DEPTH	**HMA**, 9.5mm surface, voided, delaminated, partially stripped	1
	1.8	**HMA**, 12.5mm intermediate, partially stripped	2
			3
			4
			5
	6.0	**HMA**, completely stripped, partially recovered	6
			7
			8
			9
			10
			11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/15/2021	Coring Completed: 4/15/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-19

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6168° Longitude: -85.7817° Station: 875+65 Offset: 63 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	1
	2.0		2
		HMA, 12.5mm intermediate, partially stripped, delaminated	3
	4.0		4
		HMA, 12.5mm intermediate, partially stripped, delaminated	5
	6.0		6
		HMA, completely stripped, partially recovered	7
			8
			9
			10
			11
			12
			13
	14.0		14
		Boring Terminated at 14 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/15/2021	Coring Completed: 4/15/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-20

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6226° Longitude: -85.7836° Station: 897+57 Offset: 64 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	
	1.8		1
		HMA, 12.5mm intermediate	2
	4.3		3
		HMA, 12.5mm intermediate, partially stripped, delaminated	4
	6.2		5
		HMA, 9.5mm surface, partially stripped, delaminated	6
	8.2		7
		HMA, completely stripped, partially recovered	8
			9
			10
			11
			12
	13.0		13
		Granular Subbase, crushed stone	14
			15
			16
			17
			18
	19.0		19
		Boring Terminated at 19 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/16/2021	Coring Completed: 4/16/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-21

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6295° Longitude: -85.7838° Station: 922+91 Offset: 61 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	
	1.4		1
		HMA, 12.5mm intermediate, partially stripped	2
	3.4		3
	4.3	**HMA**, 9.5mm surface, partially stripped, delaminated	4
		HMA, 9.5mm surface, partially stripped, delaminated	5
	6.7		6
		HMA, completely stripped, partially recovered	7
			8
			9
			10
			11
	12.7		12
		Boring Terminated at 12.7 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/19/2021	Coring Completed: 4/19/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-22

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.6354° Longitude: -85.7837° Station: 944+31 Offset: 60 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH	
	HMA, 9.5mm surface, voided, delaminated
1.5	
	HMA, 12.5mm intermediate, partially stripped, delaminated
4.0	
	HMA, 9.5mm surface, partially stripped, delaminated
6.3	
	HMA, completely stripped, partially recovered
13.0	
	Boring Terminated at 13 Inches







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/19/2021	Coring Completed: 4/19/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-23

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6426° Longitude: -85.7836° Station: 970+58 Offset: 61 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	1
	1.8	**HMA**, 12.5mm intermediate, partially stripped, delaminated	2 3 4
	4.6	**HMA**, completely stripped, partially recovered	5 6 7 8 9 10 11 12
	13.0	***Boring Terminated at 13 Inches***	13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/20/2021	Coring Completed: 4/20/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-24

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.649° Longitude: -85.7835° Station: 993+81 Offset: 61 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, 9.5mm surface, voided	1
1.2		
	HMA, 9.5mm surface, voided, partially stripped, delaminated	2
2.2		
	HMA, 12.5mm intermediate, partially stripped, delaminated	3
4.0		4
	HMA, 12.5mm intermediate, partially stripped	5
5.1		
	HMA, 19.0mm base, partially stripped, delaminated	6
		7
8.5		8
	HMA, completely stripped, not recovered	9
		10
		11
12.0		12
	Boring Terminated at 12 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/20/2021	Coring Completed: 4/20/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-25

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6552° Longitude: -85.7834° Station: 1016+55 Offset: 59 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.1		2
		HMA, 19.0mm base, voided, partially stripped, delaminated	3
			4
	5.4		5
		HMA, 12.5mm intermediate, partially stripped	6
	7.5		7
		HMA, 12.5mm intermediate, partially stripped	8
	8.9		
		Boring Terminated at 8.9 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/22/2021	Coring Completed: 4/22/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-26

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.6612° Longitude: -85.7825° Station: 1038+72 Offset: 57 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH	
	HMA, 9.5mm surface, voided, partially stripped, delaminated
2.0	**HMA**, 12.5mm intermediate, partially stripped, delaminated
3.0	**HMA**, completely stripped, partially recovered
14.0	***Boring Terminated at 14 Inches***







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/22/2021	Coring Completed: 4/22/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-27

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6682° Longitude: -85.7825° Station: 1063+90 Offset: 60 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	1.5	**HMA**, 12.5mm intermediate, partially stripped, delaminated	2
	3.0	**HMA**, 12.5mm intermediate, partially stripped, delaminated	3
			4
	6.0	**HMA**, 12.5mm intermediate, partially stripped, delaminated	5
			6
	8.5	**HMA**, completely stripped, not recovered	7
			8
			9
			10
			11
			12
			13
			14
			15
	16.0		16
		Boring Terminated at 16 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/26/2021	Coring Completed: 4/26/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-28

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6744° Longitude: -85.785° Station: 1087+75 Offset: 69 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	2.0		2
		HMA, 12.5mm intermediate, voided, partially stripped	3
			4
	5.7		5
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	6
			7
			8
	9.3		9
		HMA, 12.5mm intermediate, partially stripped, fractured, delaminated at 10.5 in	10
			11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/26/2021	Coring Completed: 4/26/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-NBOS-29

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6807° Longitude: -85.7874° Station: 1111+78 Offset: 62 ft Rt. Line "PR-Q"

Direction: Northbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	1.5	**HMA**, 12.5mm intermediate, delaminated	2
			3
	4.5	**HMA**, 12.5mm intermediate, voided, partially stripped	4
	7.0	**HMA**, 12.5mm intermediate, voided, partially stripped	5
			6
	10.5	**HMA**, 19.0mm base, voided, partially stripped, completely stripped below 13	7
			8
	13.5		9
			10
			11
			12
			13
		Boring Terminated at 13.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/26/2021	Coring Completed: 4/26/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-01

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5019° Longitude: -85.7709° Station: 404+29 Offset: 29 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, slag aggregates, partially stripped, delaminated	1
	2.0		2
		PCCP, 1.5in max aggregate size, with steel reinforcement near 5.0 in and 7.5 to 9.0in	3
			4
			5
			6
			7
			8
			9
			10
			11
			12
	12.5	**Granular Subbase**, crushed stone	13
			14
	15.5		15
		Boring Terminated at 15.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-02

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5084° Longitude: -85.7716° Station: 427+87 Offset: 26 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	DEPTH		
	1.7	**HMA**, 9.5mm surface, voided, partially stripped, delaminated	1
	5.7	**HMA**, 19.0mm intermediate, partially stripped	2 3 4 5
	9.0	**HMA**, 25.0mm base, voided, partially stripped	6 7 8
	12.0	**Granular Subbase**, crushed stone	9 10 11
		Boring Terminated at 12 Inches	12







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-03

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5149° Longitude: -85.7725° Station: 451+69 Offset: 30 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 12.5mm surface, voided	
	1.5		1
		HMA, 19.0mm intermediate, voided	2
			3
	4.1		4
		HMA, 12.5mm surface	5
	5.7		6
		HMA, 19.0mm intermediate	7
			8
			9
	10.5		10
		Granular Subbase, crushed stone	11
			12
	13.5		13
		Boring Terminated at 13.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-04

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5213° Longitude: -85.7733° Station: 475+24 Offset: 24 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	1
	1.7	**HMA**, 25.0mm base, voided, partially stripped, delaminated	2 3 4 5
	5.7	**HMA**, 25.0mm base, voided, partially stripped	6 7 8 9
	9.3	**Granular Subbase**, crushed stone	10 11 12
	12.3	***Boring Terminated at 12.3 Inches***	





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-05

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5278° Longitude: -85.7742° Station: 499+10 Offset: 24 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	1
	1.6	**HMA**, 25.0mm base, voided, partially stripped	2 3 4 5 6
	6.5		
	7.5	**HMA**, 9.5mm surface, partially stripped, delaminated	7
		HMA, 19.0mm base, fractured, partially recovered	8 9 10 11 12
	13.0		
		Granular Subbase, crushed stone	13 14 15
	16.0		16
		Boring Terminated at 16 Inches	





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-06

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135

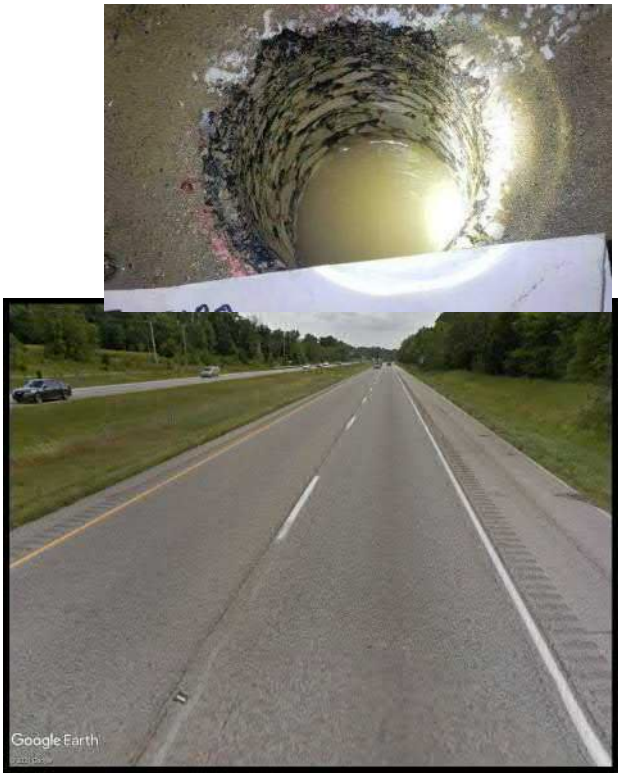
County: Clark and Scott

Latitude: 38.5341° Longitude: -85.776° Station: 522+66 Offset: 26 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, slag aggregates	1
	1.6	**HMA**, 25.0mm base, voided, partially stripped, fractured near 6.0in	2 3 4 5 6
	6.5	**HMA**, 19.0mm base, partially stripped, partially recovered	7 8 9
	9.5	**Granular Subbase**, crushed stone	10
	11.0	***Boring Terminated at 11 Inches***	11





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-07

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

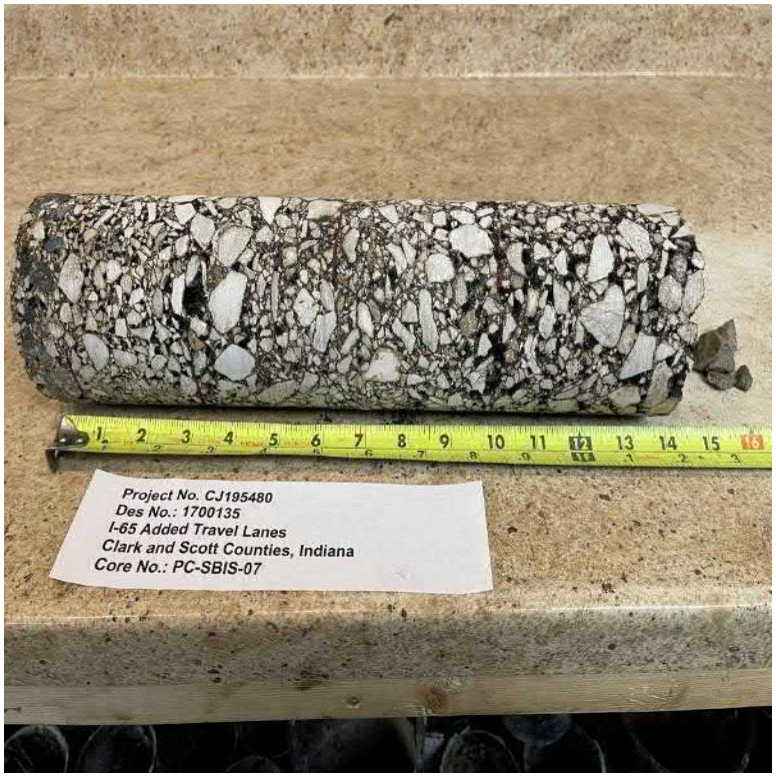
SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5406° Longitude: -85.7778° Station: 546+70 Offset: 26 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	1.1	**HMA**, 9.5mm surface, voided	1
	3.8	**HMA**, 12.5mm intermediate, voided, partially stripped	2 3
	7.0	**HMA**, 19.0mm intermediate, voided	4 5 6
	9.0	**HMA**, 19.0mm intermediate, voided, partially stripped	7 8
	14.5	**HMA**, 19.0mm base, voided, partially stripped	9 10 11 12 13 14
	17.5	**Granular Subbase**, crushed stone	15 16 17
		Boring Terminated at 17.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-08

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5471° Longitude: -85.7788° Station: 570+81 Offset: 28 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.0		2
		HMA, 12.5 intermediate, voided, partially stripped, delaminated	3
			4
	5.0		5
		Sand Seal	
	6.0		6
		HMA, 25.0mm base, voided, partially stripped	7
			8
	9.0		9
	9.5	**Sand Seal**	
		Granular Subbase, crushed stone	10
			11
	12.5		12
		Boring Terminated at 12.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-09

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5537° Longitude: -85.7789° Station: 594+84 Offset: 29 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.0		2
		HMA, 12.5mm intermediate, voided	3
	4.0		4
		HMA, 25.0mm base, partially stripped, delaminated near 6.0in	5
			6
			7
			8
	9.0		9
		Granular Subbase, crushed stone	10
			11
	12.0		12
		Boring Terminated at 12 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-10

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5601° Longitude: -85.7789° Station: 618+15 Offset: 27 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	1.9		2
		HMA, 19.0mm intermediate, voided, partially stripped	3
	4.5		4
		HMA, completely stripped, partially recovered	5
			6
			7
			8
	9.5		9
		Granular Subbase, crushed stone	10
			11
	12.5		12
		Boring Terminated at 12.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-11

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5673° Longitude: -85.7789° Station: 644+21 Offset: 24 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.1		2
		HMA, 19.0mm intermediate, voided	3
	4.1		4
		HMA, 12.5mm intermediate, voided	5
	6.0		6
		HMA, 19.0mm base, voided	7
			8
			9
	9.5		10
		Granular Subbase, crushed stone	11
			12
	12.5		
		Boring Terminated at 12.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-12

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5738° Longitude: -85.7789° Station: 668+03 Offset: 26 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.2		2
		HMA, 9.5mm surface, voided, delaminated near 4.0in	3
	4.8		4
		HMA, 12.5mm intermediate, voided	5
	6.5		6
		HMA, 19.0mm intermediate, voided	7
			8
			9
	10.5		10
		Granular Subbase, crushed stone	11
			12
	13.5		13
		Boring Terminated at 13.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-13

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5803° Longitude: -85.7789° Station: 691+52 Offset: 26 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, slag aggregates	1
	2.0		2
		HMA, 19.0mm intermediate, voided, partially stripped, delaminated	3
	4.0		4
		HMA, completely stripped, not recovered	5
	7.0		6
		HMA, 19.0mm base, voided, partially stripped	7
	10.0		8
		Granular Subbase, crushed stone	9
	13.0		10
		Boring Terminated at 13 Inches	11
			12
			13







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-14

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5868° Longitude: -85.7789° Station: 715+21 Offset: 27 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, delaminated	1
	2.0		2
		HMA, 12.5mm intermediate, delaminated, partially stripped	3
	4.0		4
		HMA, completely stripped, partially recovered	5
			6
			7
			8
	9.0		9
		Granular Subbase, crushed stone	10
			11
	12.0		12
		Boring Terminated at 12 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-15

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5934° Longitude: -85.7789° Station: 739+25 Offset: 30 ft Lt. Line "Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, delaminated	1
	2.0		2
	3.0	**HMA**, 12.5mm intermediate, voided	3
		HMA, 12.5mm intermediate, voided	4
	5.0		5
		HMA, 12.5mm intermediate, voided	6
	7.3		7
		HMA, 9.5mm surface, voided, delaminated	8
			9
	10.7		10
	11.2	**HMA**, 9.5mm surface	11
		HMA, 19.0mm base, voided	12
			13
	14.0		14
		Granular Subbase, crushed stone	15
			16
	17.0		17
		Boring Terminated at 17 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-16

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.5998° Longitude: -85.7805° Station: 813+70 Offset: 24 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.0		2
		HMA, 12.5mm intermediate, voided, partially stripped, completely stripped near 4.0 to 5.0in	3
			4
	5.0		5
		HMA, 19.0mm base, voided	6
			7
	8.5		8
		Granular Subbase, crushed stone	9
			10
	11.5		11
		Boring Terminated at 11.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-17

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6063° Longitude: -85.7816° Station: 837+64 Offset: 28 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	
	1.7		1
		HMA, 12.5mm intermediate, voided	2
			3
	4.5		4
		HMA, 12.5mm intermediate, voided, partially stripped to 6.0 in, completely stripped below 6.0in	5
	6.0		6
		Granular Subbase, crushed stone	7
			8
	9.0		9
		Boring Terminated at 9 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-18

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.6129° Longitude: -85.7816° Station: 861+77 Offset: 29 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	
	1.8		1
		HMA, 12.5mm intermediate, voided	2
	3.5		3
		HMA, 12.5mm intermediate, voided, delaminated	4
	5.0		5
		HMA, 12.5mm intermediate, voided, partially stripped	6
			7
			8
	9.0		9
		Granular Subbase, crushed stone	10
			11
	12.0		12
		Boring Terminated at 12 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-19

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 1700135

County: Clark and Scott

Latitude: 38.6193° Longitude: -85.7828° Station: 885+39 Offset: 25 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, delaminated	1
	2.1		2
		HMA, 12.5mm intermediate, voided, partially stripped	3
			4
			5
	6.0		6
		Granular Subbase, crushed stone	7
			8
	9.0		9
		Boring Terminated at 9 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-20

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6258° Longitude: -85.7841° Station: 909+25 Offset: 28 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.6		2
		HMA, 19.0mm intermediate, voided, delaminated	3
			4
			5
			6
			7
	7.5		
		HMA, 19.0mm intermediate, voided, partially stripped	8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

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PAVEMENT CORE LOG NO. PC-SBIS-21

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6323° Longitude: -85.784° Station: 933+01 Offset: 30 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.0		2
		HMA, 12.5mm intermediate, voided	3
	4.0		4
		HMA, 12.5mm intermediate, voided, delaminated	5
	6.5		6
		HMA, 19.0mm base, voided, partially stripped	7
			8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-22

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6388° Longitude: -85.7839° Station: 956+69 Offset: 30 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.3		2
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	3
	4.5		4
		HMA, 19.0mm base, voided, partially stripped	5
			6
			7
			8
	9.0		9
		Granular Subbase, crushed stone	10
			11
	12.0		12
		Boring Terminated at 12 Inches	





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-23

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6453° Longitude: -85.7838° Station: 980+51 Offset: 29 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.1		2
		HMA, 12.5mm intermediate, voided, delaminated	3
			4
	5.2		5
		HMA, 12.5mm intermediate, voided, partially stripped, fractured	6
			7
	8.5		8
		Granular Subbase, crushed stone	9
			10
	11.5		11
		Boring Terminated at 11.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-24

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6519° Longitude: -85.7837° Station: 1004+28 Offset: 28 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.3		2
		HMA, 12.5mm intermediate, voided, delaminated	3
			4
			5
	6.0		6
		HMA, 19.0mm base, voided, partially stripped, vertically fractured	7
			8
			9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-25

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6577° Longitude: -85.7834° Station: 1025+74 Offset: 28 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided	1
	2.4		2
		HMA, 12.5mm intermediate, voided, delaminated near 3.8in	3
	5.0		4
		HMA, 12.5mm intermediate, delaminated	5
	6.5		6
		HMA, 12.5mm intermediate, delaminated	7
	8.5		8
		HMA, 19.0mm base, voided, partially stripped	9
	11.0		10
		Granular Subbase, crushed stone	11
	14.0		12
		Boring Terminated at 14 Inches	13
			14







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-26

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6643° Longitude: -85.7825° Station: 1049+76 Offset: 29 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, delaminated	1
	2.2		2
		HMA, 12.5mm intermediate, partially stripped	3
	4.2		4
		HMA, 12.5mm intermediate, voided, delaminated, partially stripped	5
	6.0		6
		HMA, 19.0mm base, voided, partially stripped, delaminated near 11.0in	7
			8
			9
			10
			11
	12.0		12
		Granular Subbase, crushed stone	13
	15.0		14
		Boring Terminated at 15 Inches	15







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-27

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6708° Longitude: -85.7836° Station: 1074+03 Offset: 27 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.0		2
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	3
	5.0		4
		HMA, completely stripped, partially recovered	5
			6
			7
			8
			9
			10
			11
	12.0		12
		Granular Subbase, crushed stone	13
	15.0		14
		Boring Terminated at 15 Inches	15





Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBIS-28

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6769° Longitude: -85.7867° Station: 1097+93 Offset: 24 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Inside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		SMA, 9.5mm surface, voided, delaminated	1
	2.0		2
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	3
	5.3		4
			5
		HMA, 12.5mm intermediate, voided, partially stripped	6
	7.1		7
		HMA, 19.0mm base, voided, partially stripped	8
	10.0		9
			10
		HMA, completely stripped, not recovered	11
			12
			13
	14.0		14
		Granular Subbase, crushed stone	15
			16
	17.0		17
		Boring Terminated at 17 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/23/2021	Coring Completed: 5/23/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-01

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.4994° Longitude: -85.7711° Station: 395+15 Offset: 62 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	1
	2.3		2
		HMA, 19.0mm intermediate, voided	3 4 5
	6.1		6
		HMA, 12.5mm intermediate, partially stripped, delaminated	7 8
	9.5		9
		HMA, completely stripped, not recovered	10 11
	11.5		
		Granular Subbase, crushed stone	12 13
	14.5		14
		Boring Terminated at 14.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-02

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.506° Longitude: -85.7714° Station: 419+25 Offset: 59 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.5		1
		HMA, 19.0mm intermediate, voided	2
			3
			4
	5.3		5
	6.2	**HMA**, 9.5mm surface, voided	6
		HMA, 12.5mm intermediate, voided, delaminated	7
	8.6		8
	9.5	**HMA**, 9.5mm surface	9
		HMA, 19.0mm base, voided, partially stripped	10
			11
	12.0		12
		Granular Subbase, crushed stone	13
			14
	15.0		15
		Boring Terminated at 15 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-03

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5126° Longitude: -85.7723° Station: 443+26 Offset: 57 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped	1
	1.5	**HMA**, 12.5mm intermediate, voided	2 3 4
	5.0	**HMA**, 12.5mm intermediate, voided	5 6 7
	8.0	**HMA**, 25.0mm base, voided	8 9 10 11 12 13 14 15
	15.9		
	16.0	**Geotextile**	16
		Granular Subbase, crushed stone	17 18 19
	19.0	***Boring Terminated at 19 Inches***	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-04

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5191° Longitude: -85.7731° Station: 467+25 Offset: 55 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated near 1.7in	1
	2.2	**HMA**, 19.0mm base, voided, partially stripped	2
			3
			4
			5
	6.5	**HMA**, completely stripped, not recovered	6
	8.5	**HMA**, 12.5mm intermediate, voided, partially stripped	7
			8
			9
	11.5	**Granular Subbase**, crushed stone	10
			11
			12
	14.5		13
		Boring Terminated at 14.5 Inches	14



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-05

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5257° Longitude: -85.774° Station: 491+27 Offset: 56 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	1.3	**HMA**, 19.0mm base, voided, partially stripped, delaminated	2
			3
	4.5	**HMA**, 12.5mm surface, voided, partially stripped	4
	6.5	**HMA**, 19.0mm base	5
	8.5	**HMA**, 9.5mm surface, voided	6
	10.0	**HMA**, 12.5mm intermediate, voided	7
	13.0	**Granular Subbase**, crushed stone	8
	16.0	***Boring Terminated at 16 Inches***	9
			10
			11
			12
			13
			14
			15
			16







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-06

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5322° Longitude: -85.7754° Station: 515+36 Offset: 56 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.5		1
		HMA, 12.5mm intermediate, voided	2
	3.0		3
		HMA, 19.0mm intermediate, voided	4
	5.5		5
		HMA, 19.0mm intermediate, voided	6
	6.7		7
		HMA, 12.5mm intermediate, voided	8
	8.7		9
		HMA, 19.0mm base	10
			11
	12.5		12
		Granular Subbase, crushed stone	13
			14
	15.5		15
		Boring Terminated at 15.5 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-07

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5386° Longitude: -85.7774° Station: 539+33 Offset: 59 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	3.0		2
		HMA, 19.0mm intermediate, voided, partially stripped	3
	6.0		4
		HMA, 12.5mm intermediate, voided	5
	8.1		6
		HMA, 19.0mm base, voided	7
	11.5		8
		Granular Subbase, crushed stone	9
	14.5		10
		Boring Terminated at 14.5 Inches	11
			12
			13
			14







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-08

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5451° Longitude: -85.7787° Station: 563+28 Offset: 64 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

DEPTH	GRAPHIC LOG
1.6	**HMA**, 9.5mm surface, voided
3.7	**HMA**, 19.0mm intermediate, voided, partially stripped
5.8	**HMA**, 12.5mm intermediate, voided, partially stripped
8.8	**HMA**, 12.5mm intermediate, voided, partially stripped
11.7	**HMA**, 19.0mm base, voided, partially stripped, delaminated
14.1	**HMA**, 19.0mm intermediate, voided, partially stripped
17.7	**HMA**, 19.0mm intermediate, voided, partially stripped
22.5	**HMA**, 19.0mm base, voided, partially stripped
25.5	**Granular Subbase**, crushed stone
	Boring Terminated at 25.5 Inches

DEPTH (In.): 5, 10, 15, 20, 25







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-09

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5517° Longitude: -85.779° Station: 587+22 Offset: 62 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	2.0		1
		HMA, 12.5mm intermediate, voided	2
	4.0		3
		HMA, 12.5mm intermediate, voided, delaminated	4
	6.0		5
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	6
	8.0		7
		HMA, 12.5mm intermediate, voided	8
	11.0		9
	12.3	**HMA**, 9.5mm surface	10
		HMA, 19.0mm base	11
	14.5		12
		Granular Subbase, crushed stone	13
	17.5		14
		Boring Terminated at 17.5 Inches	15
			16
			17







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/25/2021	Coring Completed: 5/25/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-10

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.5583° Longitude: -85.779° Station: 611+24 Offset: 59 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH	
1.9	**HMA**, 9.5mm surface, voided
3.6	**HMA**, 12.5mm intermediate, voided
5.5	**HMA**, 12.5mm intermediate, voided, partially stripped, delaminated
7.0	**HMA**, 9.5mm surface, delaminated, voided, partially stripped
10.0	**HMA**, 12.5mm intermediate, partially stripped, vertically fractured
12.3	**HMA**, 12.5mm intermediate, partially stripped, vertically fractured
15.3	**Granular Subbase**, crushed stone
	Boring Terminated at 15.3 Inches







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-11

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5648° Longitude: -85.779° Station: 635+22 Offset: 60 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	
	1.5		1
		HMA, 12.5mm intermediate, voided, partially stripped	2
	4.2		3
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated near 6.0 and 9.4in	4
			5
			6
			7
			8
	9.4		9
		HMA, 12.5mm intermediate, voided, delaminated	10
	12.0		11
		HMA, 19.0mm base, voided, partially stripped, fractured	12
			13
			14
	15.0		15
		Granular Subbase, crushed stone	16
			17
	18.0		18
		Boring Terminated at 18 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-12

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5714° Longitude: -85.779° Station: 659+24 Offset: 56 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.7		1
		HMA, 12.5mm intermediate, voided	2
	3.7		3
		HMA, 12.5mm intermediate, voided	4
	5.5		5
		HMA, 12.5mm intermediate, voided	6
			7
	8.3		8
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	9
	10.4		10
		HMA, 12.5mm intermediate, partially stripped	11
	12.0		12
		Granular Subbase, crushed stone	13
			14
	15.0		15
		Boring Terminated at 15 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-13

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.578° Longitude: -85.779° Station: 683+25 Offset: 59 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	2.5		2
		HMA, 12.5mm intermediate, voided, partially stripped	3
	4.0		4
		HMA, 12.5mm intermediate	5
	6.3		6
		HMA, 12.5mm intermediate, voided, delaminated	7
	8.2		8
	9.2	**HMA**, 4.75mm surface	9
		HMA, 19.0mm base, voided	10
	11.5		11
		Granular Subbase, crushed stone	12
			13
	14.5		14
		Boring Terminated at 14.5 Inches	







Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 5/24/2021	Coring Completed: 5/24/2021
		Drill Rig: Coring Machine	Driller: JM
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-14

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5846° Longitude: -85.7791° Station: 707+25 Offset: 69 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.4		1
		HMA, 19.0mm intermediate	2
	3.0		3
		HMA, 19.0mm intermediate, partially stripped	4
			5
	6.0		6
		HMA, 19.0mm intermediate	7
	7.8		8
		HMA, 12.5mm intermediate	9
	10.0		10
		Granular Subbase, crushed stone	11
			12
	13.0		13
		Boring Terminated at 13 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-15

PROJECT: I-65 Added Travel Lanes

SITE: I-65
Clark and Scott Cos., IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN
Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5912° Longitude: -85.779° Station: 731+25 Offset: 65 ft Lt. Line "Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
	1.3	**HMA**, 9.5mm surface, voided	1
	3.5	**HMA**, 9.5mm surface, voided, slag aggregates	2 3
	7.2	**HMA**, 19.0mm intermediate, voided,	4 5 6 7
	8.3	**HMA**, 12.5mm intermediate, delaminated	8
	9.9	**HMA**, 19.0mm intermediate	9
	13.0	**HMA**, 19.0mm base, partially stripped	10 11 12
	16.0	**Granular Subbase**, crushed stone	13 14 15
		Boring Terminated at 16 Inches	16







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-16

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.5977° Longitude: -85.7799° Station: 805+90 Offset: 54 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	1
	1.8		2
		HMA, 12.5mm intermediate, voided, partially stripped	3
	4.3		4
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	5
	7.0		6
		HMA, 19.0mm intermediate, partially stripped, vertically fractured	7
			8
			9
			10
	11.0		11
		Granular Subbase, crushed stone	12
			13
	14.0		14
		Boring Terminated at 14 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-17

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6042° Longitude: -85.7817° Station: 829+80 Offset: 60 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	1
	2.5		2
		HMA, 12.5mm intermediate	3
	4.1		4
		HMA, 12.5mm intermediate, partially stripped	5
	6.6		6
	7.4	**HMA**, 9.5mm surface, partially stripped	7
		HMA, 19.0mm base, partially stripped, voided	8
			9
			10
	11.0		11
		Granular Subbase, crushed stone	12
			13
	14.0		14
		Boring Terminated at 14 Inches	







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-18

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6107° Longitude: -85.7817° Station: 853+77 Offset: 60 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	
	1.5		1
		HMA, 12.5mm intermediate, partially stripped	2
	3.6		3
		HMA, 12.5mm intermediate, partially stripped, delaminated	4
	6.2		5
		HMA, 12.5mm intermediate	6
	9.3		7
		HMA, 19.0mm base, voided, partially stripped	8
	12.5		9
		Granular Subbase, crushed stone	10
	15.5		11
		Boring Terminated at 15.5 Inches	12
			13
			14
			15







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-19

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6173° Longitude: -85.7822° Station: 877+90 Offset: 58 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, partially stripped, delaminated	1
	1.7	**HMA**, 12.5mm intermediate, voided, partially stripped, delaminated	2
	3.5	**HMA**, 12.5mm intermediate, voided, partially stripped, delaminated	3 4 5 6
	6.0	**HMA**, 12.5mm intermediate, voided, partially stripped, delaminated	7 8 9
	9.0	**HMA**, completely stripped, not recovered	10
	11.0	**Granular Subbase**, crushed stone	11 12 13
	14.0	***Boring Terminated at 14 Inches***	14







Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 5/24/2021	Coring Completed: 5/24/2021
Drill Rig: Coring Machine	Driller: JM
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-20

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6237° Longitude: -85.7842° Station: 901+82 Offset: 58 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided	
	1.5		1
		HMA, 12.5mm intermediate, voided, partially stripped	2
	3.5		3
		HMA, 12.5mm intermediate, partially stripped, fractured, delaminated	4
			5
	6.5		6
		HMA, 19.0mm base, fractured	7
	8.7		8
	9.5	**HMA**, 9.5mm surface	9
		HMA, 12.5mm intermediate, partially stripped	10
			11
	12.0		12
		Boring Terminated at 12 Inches	



Downhole photo not available



Attachment 11-1	Terracon 7770 W New York St Indianapolis, IN	Coring Started: 4/30/2021	Coring Completed: 4/30/2021
		Drill Rig: CME 55	Driller: DC
		Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-21

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6306° Longitude: -85.7842° Station: 926+84 Offset: 59 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, voided, delaminated	
	1.3		1
		HMA, 9.5mm surface, delaminated, partially stripped	2
			3
	4.0		4
		HMA, 12.5mm intermediate, partially stripped, delaminated, fractured	5
	6.0		6
		HMA, 19.0mm base, partially stripped	7
	7.5		
		HMA, 9.5mm surface, partially stripped, delaminated	8
	8.5		
		HMA, 25.0mm base, completely stripped	9
	10.0		
		Boring Terminated at 10 Inches	10



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/30/2021	Coring Completed: 4/30/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-22

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6369° Longitude: -85.7841° Station: 949+80 Offset: 62 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	
	1.6		1
		HMA, 12.5mm intermediate, partially stripped, delaminated at 3.5 in	2
			3
			4
	5.5		5
		HMA, 12.5mm intermediate, partially stripped, delaminated at 6.5 in	6
	7.8		7
		HMA, 19.0mm base, partially stripped	8
			9
			10
	11.5		11
		Granular Subbase, sand and gravel	12
			13
	14.5		14
		Boring Terminated at 14.5 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/30/2021	Coring Completed: 4/30/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-23

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

GRAPHIC LOG

Latitude: 38.6435° Longitude: -85.784° Station: 973+80 Offset: 62 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

DEPTH (In.)

DEPTH

HMA, 9.5mm surface, voided, delaminated, partially stripped

1.5

HMA, 12.5mm intermediate, voided, fractured near 3.0 in, partially stripped, delaminated

5.0

5.5 **HMA**, 9.5mm surface

HMA, 19.0mm base, partially stripped

9.0

Boring Terminated at 9 Inches

1 2 3 4 5 6 7 8 9



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/29/2021	Coring Completed: 4/29/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-24

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6507° Longitude: -85.7839° Station: 999+97 Offset: 61 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, delaminated	
	1.5		1
		HMA, 12.5mm intermediate, voided, partially stripped	2
			3
			4
	5.0		5
		HMA, 9.5mm surface, partially stripped	6
	7.0		7
		HMA, 12.5mm intermediate, voided, partially stripped, delaminated	8
	9.0		9
		HMA, 12.5mm intermediate, vertically fractured, completely stripped below 10.5 in	10
			11
	12.0		12
		Boring Terminated at 12 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/29/2021	Coring Completed: 4/29/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-25

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6567° Longitude: -85.7837° Station: 1021+76 Offset: 69 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, delaminated	1
	1.7		
		HMA, 12.5mm intermediate, partially stripped, delaminated	2
			3
	4.5		4
		HMA, 12.5mm intermediate, partially stripped	5
	6.1		6
	7.1	**HMA**, 9.5mm surface, voided	7
		HMA, 19.0mm base, voided, partially stripped, open graded pavement, delaminated	8
			9
	10.5		10
		HMA, completely stripped, not recovered	11
			12
			13
	14.0		14
		Boring Terminated at 14 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/22/2021	Coring Completed: 4/22/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-26

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6632° Longitude: -85.7826° Station: 1045+83 Offset: 63 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	1.5		
	2.5	**HMA**, 9.5mm surface, delaminated	2
		HMA, 19.0mm base, partially stripped	3 4 5
	5.6		
		HMA, 12.5mm intermediate, delaminated, partially stripped	6 7 8
	8.3		
	9.7	**HMA**, 12.5mm intermediate, partially stripped	9
	11.0	**HMA**, 12.5mm intermediate	10 11
	11.8	**HMA**, 9.5mm surface	
		HMA, 19.0mm base, voided, partially stripped, open graded pavement, completely stripped below 14.5in	12 13 14
	14.5		
		Boring Terminated at 14.5 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/29/2021	Coring Completed: 4/29/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-27

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6698° Longitude: -85.7834° Station: 1070+16 Offset: 62 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface, delaminated	
	1.5		1
		HMA, 9.5mm surface, partially stripped	2
	2.7		
		HMA, 12.5mm intermediate, partially stripped, delaminated near 4.5 in	3
			4
			5
	6.0		6
		HMA, 19.0mm base, partially stripped, voided, completely stripped below 9.5	7
			8
			9
	10.0		10
		Boring Terminated at 10 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/27/2021	Coring Completed: 4/27/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

PAVEMENT CORE LOG NO. PC-SBOS-28

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65
Clark and Scott Cos., IN

Des. No.: 1700135
County: Clark and Scott

Latitude: 38.6756° Longitude: -85.7862° Station: 1092+94 Offset: 60 ft Lt. Line "PR-Q"

Direction: Southbound Lane: Outside Shoulder

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	
	1.5		1
		HMA, 12.5mm intermediate, fractured, partially stripped, delaminated	2
			3
	4.0		4
		HMA, 12.5mm intermediate, fractured, partially stripped	5
	6.0		6
		PCCP, permeable concrete with PVC drainage pipe near 6.0in, max aggregate size 0.5in	7
			8
	9.5		9
		Boring Terminated at 9.5 Inches	



Downhole photo not available



Attachment 11-1

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 4/27/2021	Coring Completed: 4/27/2021
Drill Rig: CME 55	Driller: DC
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 7/30/21

GEOTECHNICAL EVALUATION

I-65 ATL FROM RP 16+27 TO 29+10
DES NO. 1700135
CLARK AND SCOTT COUNTIES, INDIANA

Prepared for

AMERICAN STRUCTUREPOINT, INC.
9025 RIVER ROAD, SUITE 200
INDIANAPOLIS, INDIANA 46240

By

TERRACON CONSULTANTS, INC.
7770 WEST NEW YORK STREET
INDIANAPOLIS, INDIANA 46214-2988

March 17, 2022

Attachment 11-2

March 17, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Roadway Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des No.: 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

We have completed the roadway task for the referenced project. Refer to the General Site Map (Drawing No. CJ195480.B13) for the location and limits of the project as well as the Exploratory Location Plan (ELP; Drawing Nos. CJ195480.B14 - .B34). This report presents the results of our subsurface exploratory and laboratory testing programs and provides geotechnical recommendations for the proposed roadway improvements. A preliminary version of this report was submitted to the Indiana Department of Transportation (INDOT) Geotechnical Engineering Division (GED) for their review and comment, and those comments have been incorporated herein as appropriate.

Our Maintenance of Traffic Considerations letter (dated August 9, 2021) was previously reviewed and approved by INDOT GED. We understand INDOT pavement has requested FWD testing for the northbound outside shoulder to better understand risks related to shoulder performance during MOT. We anticipate that an addendum may be necessary to address foundation soil risks for temporary pavement and shoulder strengthening. In addition, the bridges, large-diameter culverts, signs, and noise walls have been or are being addressed in separate letters.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information revealed at the exploratory locations as shown on the attached ELP. Understandably, this report does not reflect variations in surface or subsurface conditions between or beyond these locations. Therefore, variations in these conditions should be expected, and fluctuation of groundwater levels will occur over time. Other important limitations of geotechnical evaluations are discussed in Appendix A.

PROJECT DESCRIPTION

We understand that INDOT is planning to make improvements to a 12.83-mi long section of I-65 from about 0.5 mi north of the I-65 and Blue Lick Road Interchange to 0.5 mi south of the I-65 and SR 56 Interchange (RP 16+27 to 29+10, Lines “Q” and “PR-Q”). From our conversations with and review of the PFC plans provided by American Structurepoint, Inc. (ASI), for the majority of the project length the improvements are planned to consist of widening I-65 toward the median to incorporate an added travel lane (ATL) and reconstruction of the existing pavement for each bound

resulting in a new six-lane section. As a part of the project, the existing four lane roadway will remain as a four-lane section, and the existing pavement will be reconstructed from the ATL drop to the north to the end of the project as well as within the limits of incidental construction. Additionally, milling and resurfacing is planned for the entrance and exit ramps to the Henryville Rest Area. Refer to the table below for a summary of roadway improvements.

Table 1: Summary of Roadway Improvements

Roadway Improvements	Station No. (Line "Q")	Pavement Treatments; No. Lanes
Begin Project	391+10 (RP 16+27)	Reconstruction & ATL; 6
ATL Drop	1013+98	---; 6 to 4
End Project	1105+77 (RP 29+10)	Reconstruction; 4
Begin Incidental Construction	1105+77 (RP 29+10)	
End incidental Construction	1109+77 (SB) / Sta. 1110+52 (NB)	
Temp. Crossovers	Near 388+00, 686+00, and 1112+00	Temporary Pavement

We understand that maintenance of traffic (MOT) is planned to consist of phased construction with two lanes remaining open in each direction. In addition, the MOT scheme is planned to include strengthening of the shoulders, temporary pavement, and three temporary crossovers. Refer to our Maintenance of Traffic Considerations letter, dated August 9, 2021, for additional details regarding the existing pavement conditions.

Where reconstruction is planned, the profile grade is generally planned to remain near the existing grade. Based on the plans, where widening is taking place in the median and outside the existing roadway limits, earthwork will typically consist of about 1 to 4 ft of cut and fill and up to about 7 to 8 ft in isolated locations to establish proposed grades in cross-section. Sideslopes are planned to be no steeper than 2H:1V.

Drainage improvements are planned to consist of new ditches, underdrains, and numerous small-diameter drainage pipes (i.e., sewers and culverts). Based on the plans, the pipes will have inverts typically ranging from about 1 to 12 ft below the existing grade. We anticipate that the pipes will be installed using cut-and-cover techniques.

The projected year (2043) average annual daily traffic (AADT) is 49,452 vehicles/day (VPD). At this time, other information such as construction schedule is not known. If the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing by Terracon Consultants, Inc. (Terracon).

FIELD EXPLORATION

Surface and subsurface conditions for the roadway task were characterized by Terracon during the period of April 5 to August 12, 2021. The collective borings, soundings, and pavement cores were performed at the approximate locations shown on the attached ELP. The number, location, and depths were selected by Terracon and approved by INDOT based on our understanding of the planned construction. In general, exploratory activities were performed using hollow stem augers to advance the boreholes, and representative samples of the soil conditions were obtained at pre-determined intervals using Shelby tube and Standard Penetration Test (SPT) procedures. Detailed exploratory locations are provided on the attached Logs of Test Borings and Summary of Hand

Auger Borings. “Undisturbed” Shelby tube samples were taken at an offset to numerous boring locations within the project limits. Additionally, representative bag samples were obtained at an offset to Borings RB-2, RB-26, RB-51, RB-75, RB-99, RB-219, RB-244, and RB-268. After obtaining final groundwater observations, each borehole and sounding was backfilled with auger cuttings and a bentonite chip plug. In addition, the surface was restored with a concrete patch where exploratory locations were performed in the roadway.

Ground surface elevations at the boring locations were interpolated to the nearest 1-ft based on topographic information on the plans. The locations and elevations should be considered accurate only to the degree implied by the methods used. Details of the Terracon drilling and sampling procedures are provided in Appendix B.

LABORATORY TESTING

Following the field activities, the pavement cores were reviewed and photographed by a Terracon geologist. In addition, the soil and rock samples were visually classified by a Terracon geologist and later reviewed by a Terracon geotechnical engineer. After visually classifying the soils and rock, representative samples were selected and submitted for testing. In addition, a portion of eight Shelby tube samples were sent to INDOT for resilient modulus testing. Existing topsoil samples were taken at random locations within the project limits. These samples were combined into several composite samples and tested to evaluate the existing topsoil for re-use as a plant growth layer. The results of these tests are provided on the boring logs in Appendix C and/or laboratory reports in Appendix D. For your information, soil descriptions on the boring logs are in general accordance with the AASHTO system and the INDOT Standard Specifications (ISS[1]) (textural classification, e.g., silty clay A-6[16]). The boring logs represent our interpretation of the individual samples and field logs and results of the laboratory tests. The stratification lines on the boring logs represent the approximate boundary between soil types; although, the transition may actually be gradual.

SITE CONDITIONS

Surface Conditions

The roadway is predominantly bordered by grass, wooded areas, and agricultural fields. I-65 consists of two lanes along each bound with paved shoulders, a vegetated median, and occasional auxiliary lanes where an interchange or rest area is present. The ground surface along the project alignment is relatively flat to moderately sloping, and the grade ranges from about El. 484 to 648.

Where test borings were performed off the roadway and at the hand auger boring locations, topsoil was present and typically ranged from about 2 to 12 in. (ave. of 5 in.) in thickness. At the hand auger boring locations (i.e., typically in the existing ditches), “soft” soils (including topsoil) typically ranged from about 3 to 36 in. (ave. of 7½ in.) in thickness.

[1]References the Indiana Department of Transportation (INDOT) Standard Specifications.

Refer to the Summary of Pavement Cores and Pavement Core Logs in our Maintenance of Traffic Considerations letter, dated August 9, 2021, for details regarding the pavement and individual cores. As discussed in the referenced letter, some pavement cores were performed near wet spot locations identified by INDOT. Typically, more severely stripped or delamination conditions were observed near these wet spot locations. Refer to the attached Wet Spot Correlations for observations to possibly correlate to the presence of wet spots in these locations. Refer to the attached Areas of Potential Foundation Soil Improvements (FSI; Drawing Nos. CJ195480.B35 to .B70) for the locations of the wet spots.

General Geology

A review of Clark and Scott County soil maps hosted by the United States Geological Survey (USGS) shows that surficial soils in the project area are comprised of various complexes of loess (i.e., wind-blown sediment) and alluvium (i.e., sediment deposited by flowing water) over residuum (i.e., soil and subsoil as a result of weathered bedrock), though residuum can be seen at the ground surface where bedrock is especially shallow. According to the Indiana Geological and Water Survey (IGWS), bedrock composition in the project area is dominated by the Borden Group, which is comprised of siltstone with some shale, sandstone, and limestone. In the southern portion of the project area, the Borden Group gives way to the underlying New Albany Shale that has interbedded dolomite and sandstone. A review of publicly available water well data from the Indiana Department of Natural Resources (IDNR) indicated that bedrock is typically about 8 to 40 ft below the natural surface in the project area.

Subsurface Conditions

Subsurface conditions were relatively similar and generally consisted of cohesive-type soils within the depths explored for the roadway improvements. Additionally, occasional layers of granular soils were present, and shale bedrock was somewhat frequently observed underlying the cohesive soils within the maximum depth explored (10 ft). Near-surface bedrock was more prevalent in the southern portion of the project. A summary of the soil types and classifications is shown in the table below.

Table 2: Summary of Soil Types and Classifications

Classification	Soil Type(s)
A-1-b (granular)	Sand and Gravel
A-2-4 (cohesive)	Sandy Loam
A-2-7 (cohesive)	Sandy Loam and Gravel
A-4 (cohesive)	Clay Loam, Sandy Clay Loam, Silty Clay Loam, Loam, and Sandy Loam
A-6 (cohesive)	Clay, Clay Loam, Sandy Clay Loam, Silty Clay, and Silty Clay Loam
A-7-6 (cohesive)	Clay, Clay Loam, Silty Clay, and Silty Clay Loam

Based on our observations at the exploratory locations, the A-6 soils are anticipated to be the predominant soil type exposed as foundation soils. A summary of where granular soils is anticipated to be exposed as roadway foundation soils is shown in the table below.

Table 3: Summary of Granular Soil Locations

Boring No.	Station, Line
RB-001	391+10, “Q”
RB-036	463+02, “PR-Q”
RB-048	487+03, “PR-Q”
RB-080	551+02, “PR-Q”
RB-092	575+09, “PR-Q”
RB-120	631+13, “PR-Q”
RB-132	655+013, “PR-Q”
RB-136	663+13, “PR-Q”
RB-144	681+45, “Q”
RB-152	695+13, “Q”
RB-156	704+10, “Q”
RB-164	719+13, “Q”
RB-168	727+13, “Q”
RB-192	826+51, “Q”
RB-247	936+35, “Q”
RB-279	1001+72, “Q”
RB-286	1016+55, “Q”
RB-291	1025+74, “Q”
RB-295	1034+24, “Q”
RB-300	1043+75, “Q”
RB-334	1111+78, “Q”

The relative density of the granular soils was typically loose to medium dense based on SPT N-values.

Where observed, the shale bedrock was typically described as weathered. Occasionally, the bedrock was described as being overlain by residual soil. A summary of where bedrock was present within about 5 ft of the existing grade is shown in the table below and is also part of an attached summary. For your information, we chose 5 ft because that is the depth at which the presence of rock will impact construction of the pavement structure which includes the subgrade and foundation soil treatment (i.e., the total thickness of the pavement and the subgrade and foundation soil treatments will approach 5 ft).

Table 4: Summary of Locations of Bedrock Present Within 5 ft of Existing Grade

Boring No.	Approximate Station Range, Line
RB-019	426+25 to 428+25, “PR-Q”
RB-027	442+25 to 444+25, “PR-Q”
RB-029	446+00 to 449+00, “PR-Q”
RB-044	478+00 to 480+00, “PR-Q”
RB-058	506+25 to 508+25, “PR-Q”
RB-080 & RB-081	550+00 to 554+25, “PR-Q”
RB-091	572+25 to 574+25, “PR-Q”
RB-103, RB-104, & RB-105	596+25 to 602+25, “PR-Q”
RB-123, RB-124, & RB-125	636+25 to 642+25, “PR-Q”
RB-176	742+50 to 744+75, “Q”

The cohesive soils were occasionally described with organic matter ranging from about 4 to 12 percent by mass. These soils were typically observed from near the surface to a depth of about 6 ft below the existing grade. At Boring RB-205, located in the grass median, “peat” (i.e., organic content of about 36 percent) was observed from below the topsoil to a depth of about 2½ ft below the existing grade. In our opinion, this layer is likely isolated and a result of previously buried organic matter (i.e., man-made).

The consistency of the cohesive soils was typically described as medium stiff to hard based on SPT N-value criteria developed by INDOT. Hand penetrometer readings were typically 1 ton/sq ft (tsf) or better. It should be noted that, using the same SPT N-value criteria, occasional layers were described as “very soft” or “soft”. These soils were typically associated with the presence of groundwater, an adjacent granular layer, soils described as fill, soils with organic matter, higher moisture contents, and/or hand penetrometer readings below 1 tsf.

Moisture contents for the cohesive soils were typically in the range of about 9 to 30 percent. Moisture contents ranging from the mid-teens and below were generally associated with the A-4 soils. Moisture contents ranging from the mid-teens and above were generally associated with the A-6 and A-7-6 soils.

The undrained shear strength (using a $\Phi = 0$ concept) of the cohesive soils as estimated from numerous unconfined compression tests was observed to range from about 1 to 8 kips/sq ft (ksf). The in-situ dry density of the cohesive soils was observed to range from about 95 to 134 lbs/cu ft (pcf). Values below about 115 pcf were typically associated with A-6 and A-7-6 soils. Values above 115 pcf were typically associated with A-4 soils. Atterberg limit determinations were performed on representative split-spoon and Shelby tube samples as wells as the bag samples. Based on the results, the A-2-4 and A-4 soils exhibit slight to medium plasticity based on a Plasticity Index (PI) ranging from 3 to 12. The A-6 soils exhibit medium plasticity based on a PI ranging from 11 to 21, and the A-7-6 soils range from medium to high plasticity based on a PI ranging from 18 to 27. The A-2-7 soils exhibit high plasticity based on a PI of 24. Additionally, the pH of the representative samples tested was determined to be in the range of 5.4 to 9.2, the specific gravity ranged from 2.59 to 2.87, and the water-soluble sulfate content did not exceed 910 parts per million (ppm).

Standard Proctor tests were performed on eight representative bag samples that consisted of the predominant A-4, A-6, and A-7-6 soil types. A summary of the moisture-density tests is shown in the table below.

Table 5: Summary of Moisture-Density Relationship Testing

Soil Type	Max Dry Density, pcf	Optimum MC, %
A-4	110	14
A-6	109 to 115	13 to 18
A-7-6	95 to 107	19 to 26

Groundwater Conditions

Groundwater observations were made during and upon completion of each boring. Additionally, groundwater observations were made about 24 hours after completion of drilling at numerous boring locations as well as six sounding locations where they were performed in the grass median. At the majority of our exploratory locations, groundwater was not observed during the relatively

short time period of our field activities. Where groundwater was observed, it ranged from about 1 to 10 ft below the existing grade, and these groundwater observations were sporadically located throughout the project area. Based on the predominantly cohesive soils within the project area, in our opinion, the groundwater observations are indicative of perched groundwater within granular seams due to cohesive soils acting as confining layers. Groundwater level observations are noted on all of the boring logs.

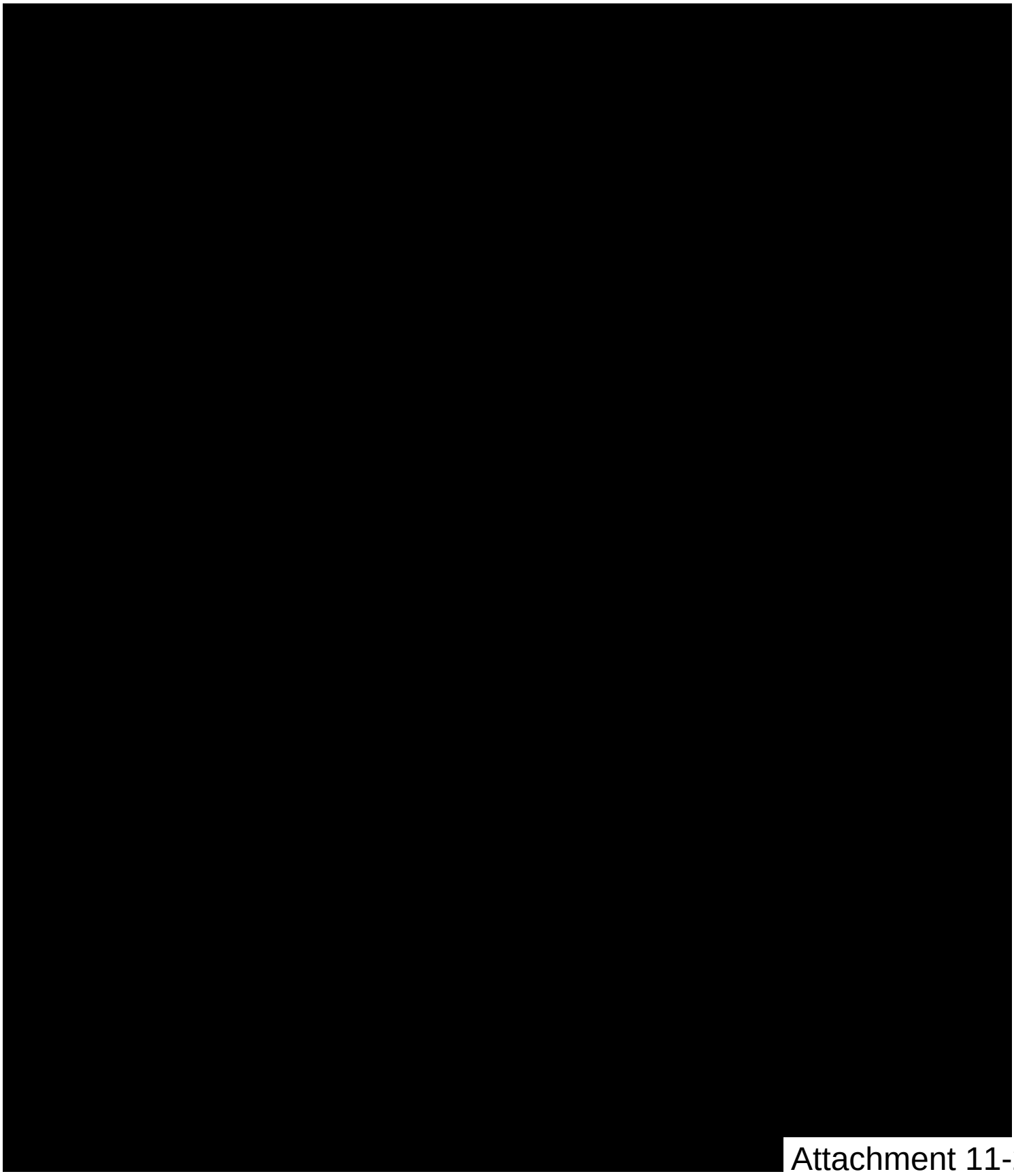
As additional information, a review of the *Soil Survey of Clark and Scott Counties* indicated the depth to seasonal groundwater is typically within 1 to 3 ft of the natural ground surface. There are also intermittent areas where it is more than 6½ ft below the natural ground surface. It should be recognized that groundwater levels of any kind will fluctuate due to changes in precipitation, infiltration, surface run-off, pumping of nearby wells, water level in nearby bodies of water, and other hydrogeological factors.

DISCUSSION AND RECOMMENDATIONS

[redacted]

[redacted]

Attachment 11-2



Attachment 11-2

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Attachment 11-2

[redacted]

Attachment 11-2

[redacted]

Attachment 11-2

[redacted]

Attachment 11-2

CONCLUDING REMARKS

[redacted]

We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,
TERRACON CONSULTANTS, INC.

[redacted]

[redacted]

Michael S. Wigger, P.E.
Principal Engineer

Appendices:

Appendix A - Important Information about This Geotechnical Engineering Report
Appendix B - Field Methods for Exploring and Sampling Soils and Rock
Appendix C - General Site Map (Drawing No. CJ195480.B13)
Exploratory Location Plan (Drawing Nos. CJ195480.B14 - .B34)
Areas of Potential Foundation Soil Improvements (Drawing Nos. CJ195480.B35 - .B70)
Log of Test Boring - General Notes
Log of Test Boring (364)
Summary of Hand Auger Borings (3 pages)
Rock Core Photograph
Wet Spot Correlations (2 pages)
Summary of Bedrock Within 10 ft of the Existing Grade
Appendix D - Grain Size Distribution Test Report (16 pages)
Unconfined Compression Test (127)
Moisture-Density Relationship (8)
Resilient Modulus Testing Results (in-situ; on tube samples; 8)
Estimate of In-Situ Resilient Modulus, Mr, Based on Su (4 pages)
Summary of Existing Topsoil Test Results

APPENDIX A

IMPORTANT INFORMATION ABOUT THIS
GEOTECHNICAL ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX B

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251), continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Standard Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206)

This method consists of driving a 2-in. outside diameter split-barrel sampler using a 140-lb weight falling freely through a distance of 30 in. The sampler is first seated 6 in. into the material to be sampled and then driven 12 in. The number of blows required to drive the sampler the final 12 in. is recorded on the Log of Test Boring and known as the Standard Penetration Resistance or N-value. Recovered samples are first classified as to texture by the field personnel. Later in the laboratory, the field classification is reviewed by a geotechnical engineer who observes each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207)

This method consists of hydraulically pushing a 2-in. or 3-in. outside diameter thin wall tube into the soil, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(AASHTO* Designation: T203)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-ft intervals or with each change in the substrata. Relatively disturbed samples are obtained and its use is therefore limited to situations where it is satisfactory to determine approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225)

This method consists of advancing a hole in rock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-in. outside diameter by 2-in. inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.

APPENDIX C

GENERAL SITE MAP (Drawing No. CJ195480.B13)

EXPLORATORY LOCATION PLAN (Drawing Nos. CJ195480.B14 - .B34)

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS
(Drawing Nos. CJ195480.B35 - .B70)

LOG OF TEST BORING - GENERAL NOTES

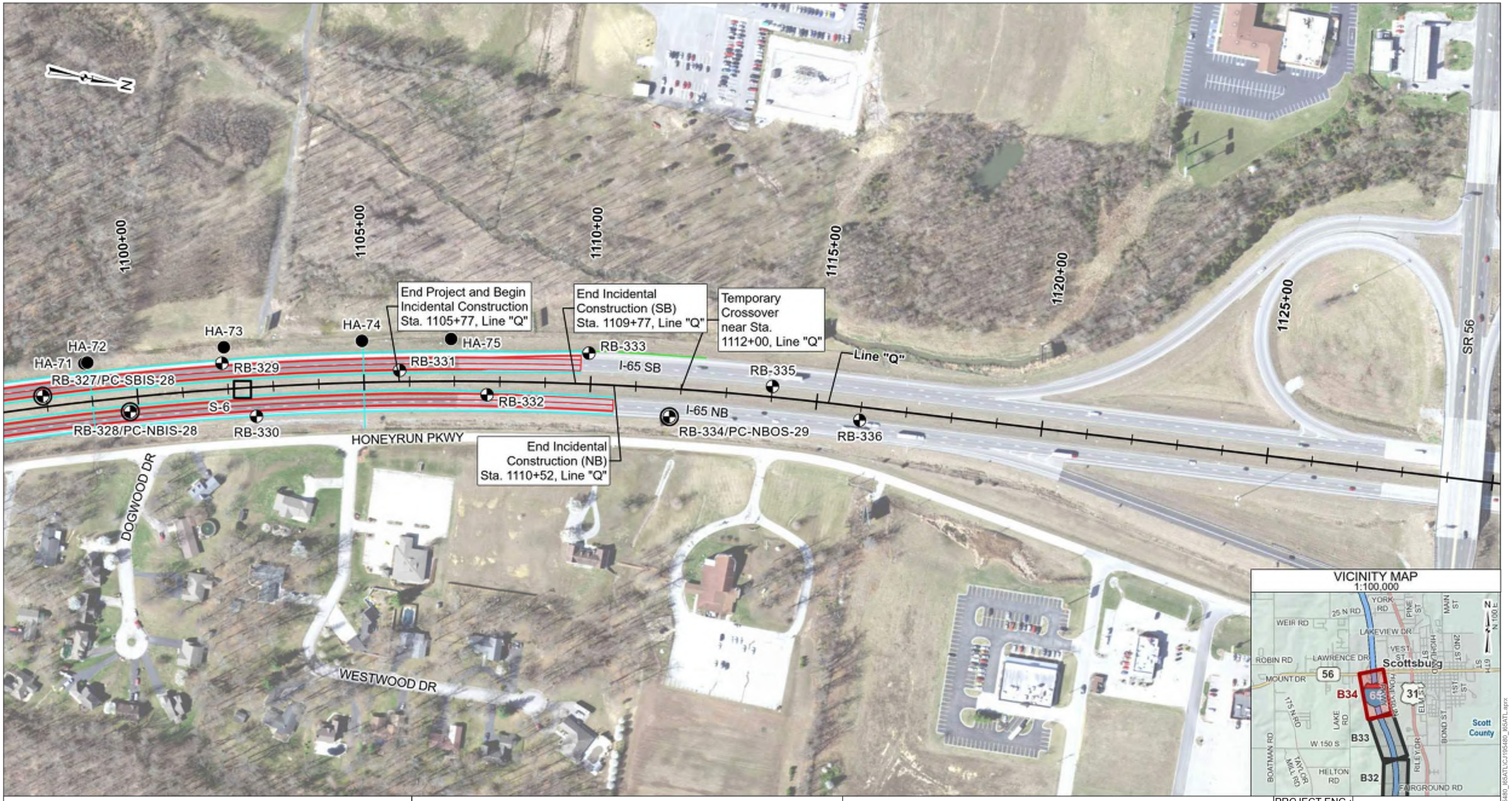
LOG OF TEST BORING (364)

SUMMARY OF HAND AUGER BORINGS (3 pages)

ROCK CORE PHOTOGRAPH

WET SPOT CORRELATIONS (2 pages)

SUMMARY OF BEDROCK WITHIN 10 FT OF THE EXISTING GRADE



VICINITY MAP
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LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Sounding Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Ground surface elevations at exploratory locations interpolated to the nearest 1 ft.
6. Exploratory locations are approximate.
7. Pavement cores shown but are not provided in this memo.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 200'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B34

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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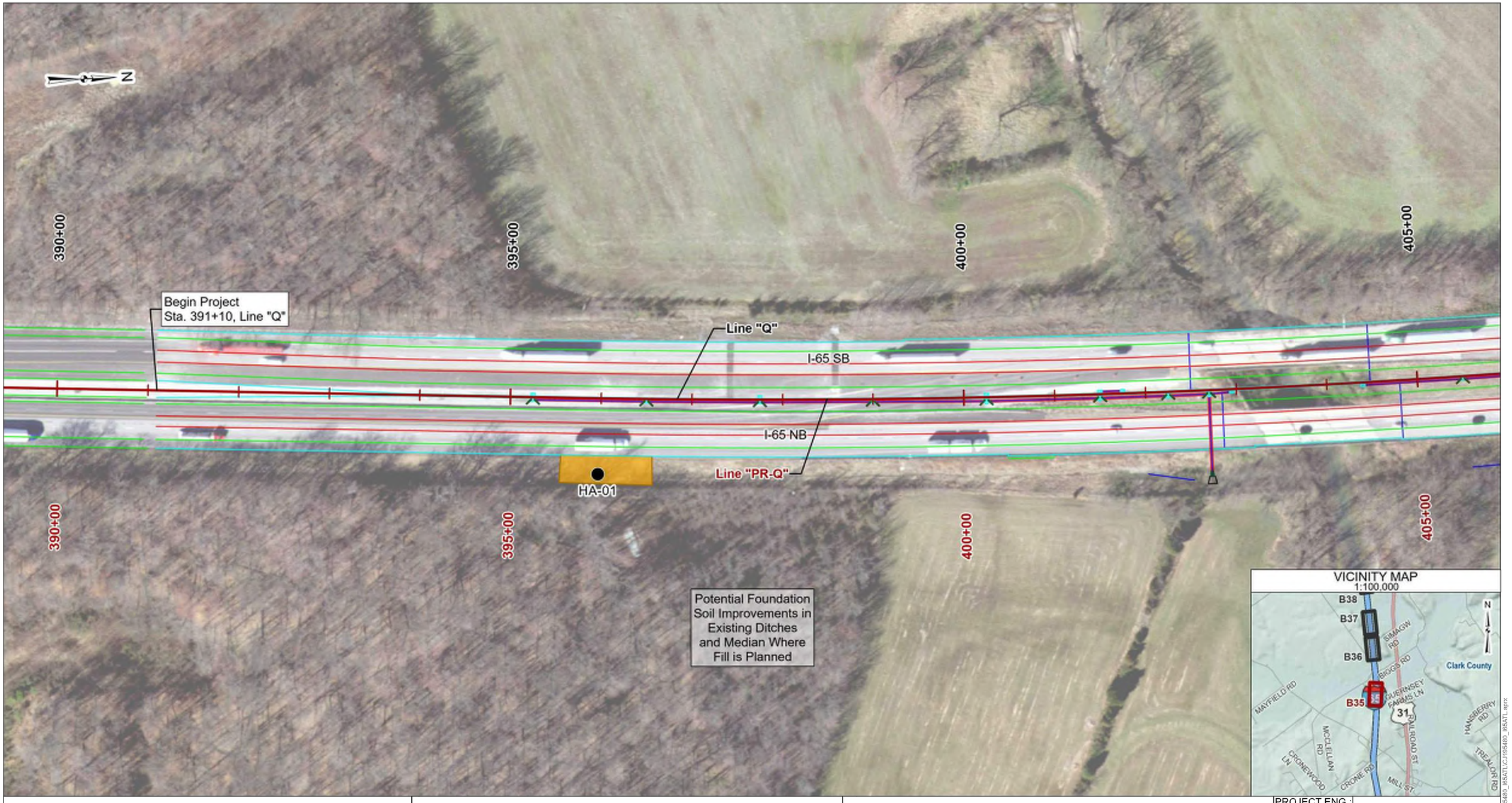

LEGEND

- Areas of Potential Foundation Soil Improvements
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B35

Terracon

Imagery credits: IGSC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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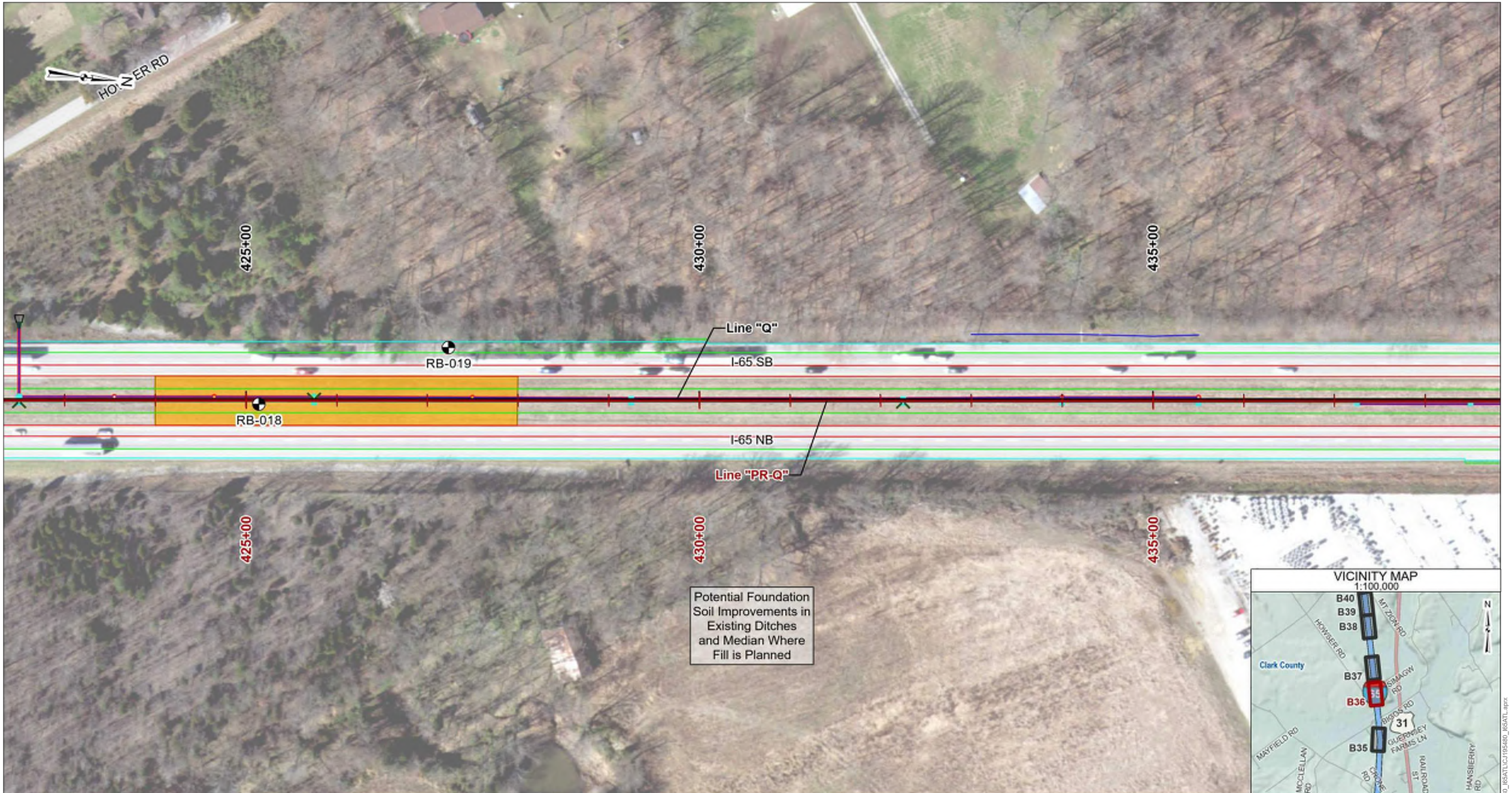

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B36

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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Line "Q"

RB-027/PC-SBOS-03

I-65 SB

I-65 NB

Line "PR-Q"

RB-032

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.:
CJ195480.B37

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

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Line "Q"

I-65 SB

RB-046

RB-047

I-65 NB

RB-044

Line "PR-Q"

475+00

480+00

485+00

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B38

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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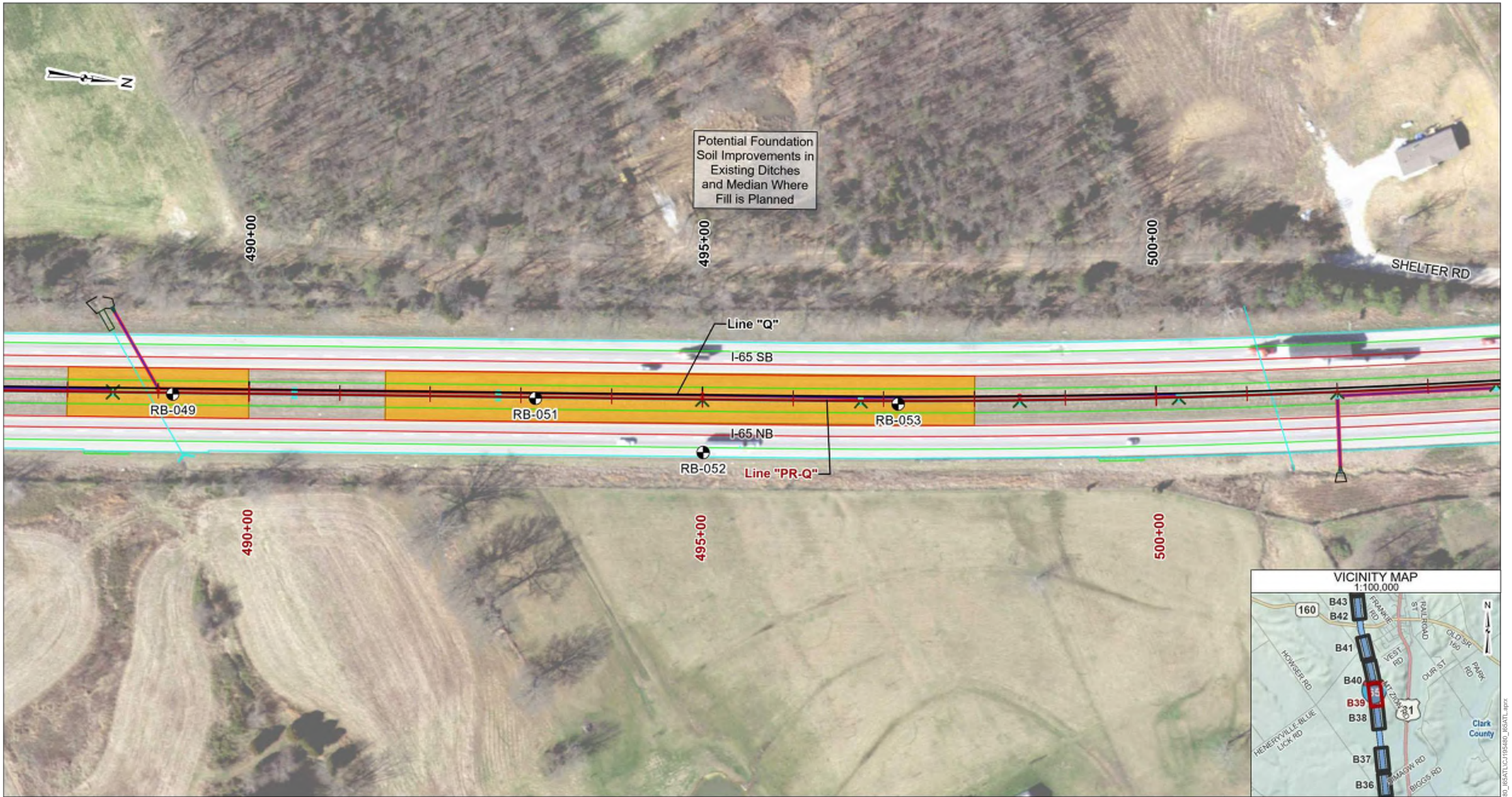

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

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LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B39

Imagery credits: IGIC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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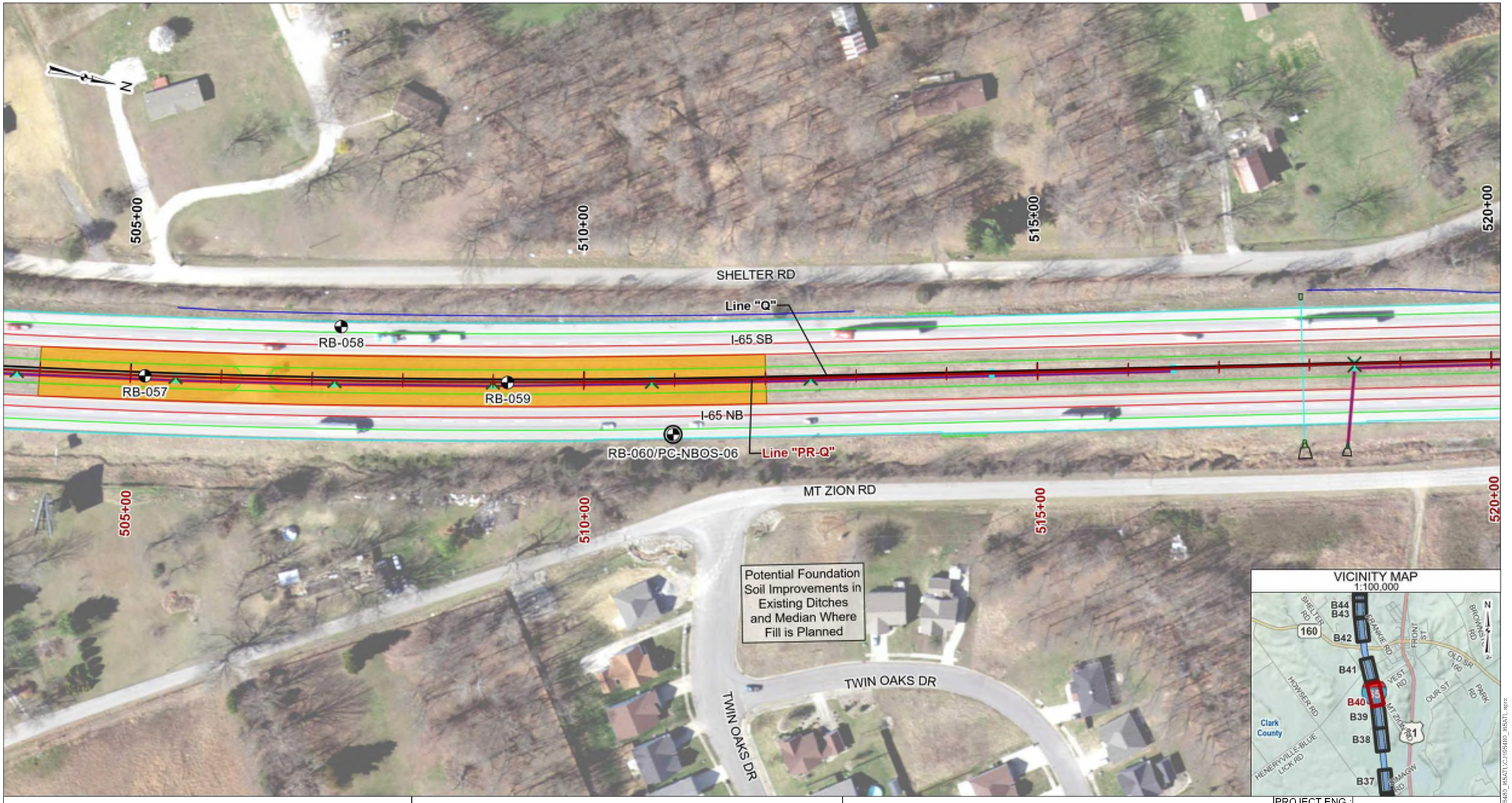

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

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PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B40

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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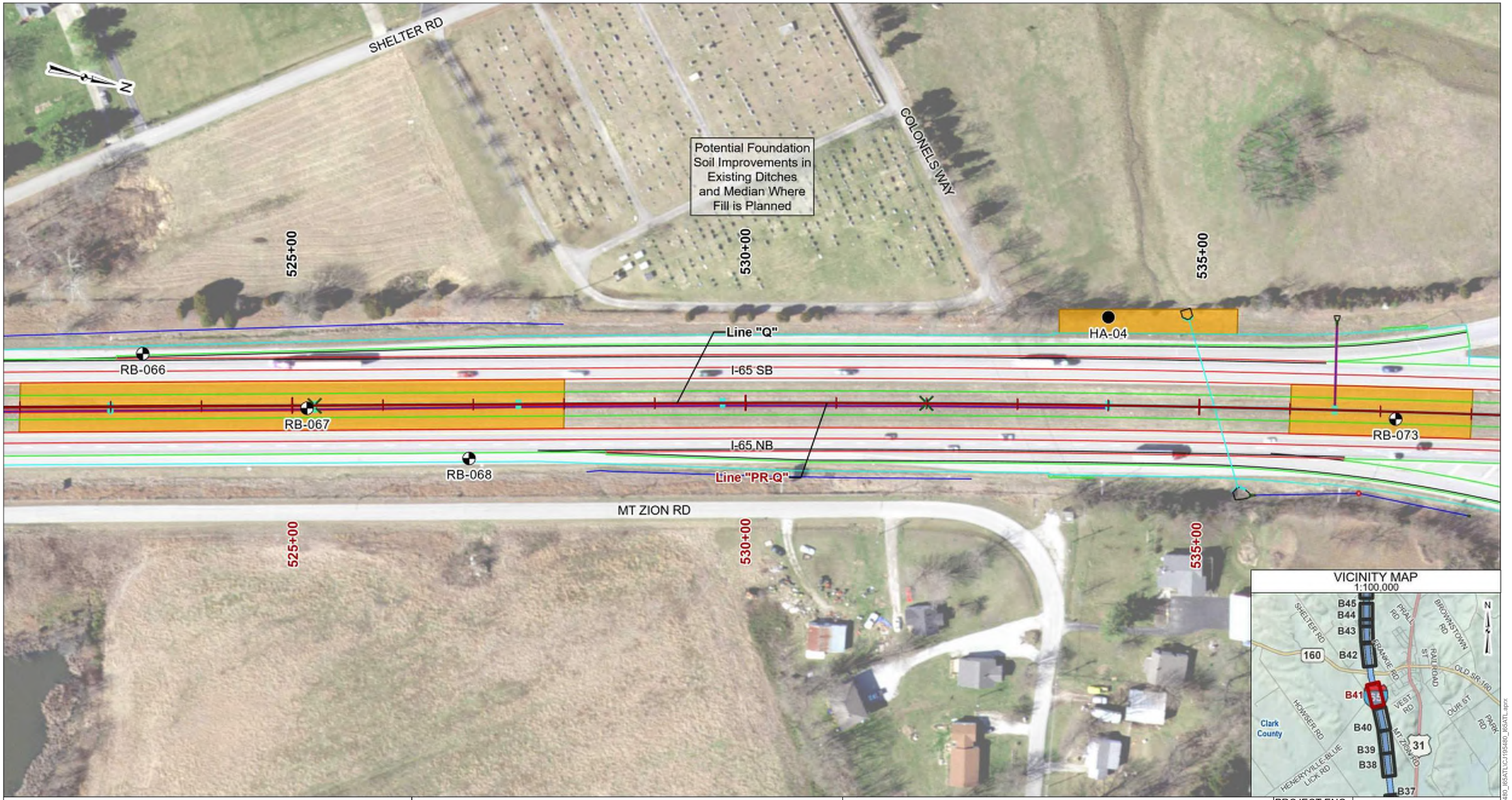

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B41

Terracon

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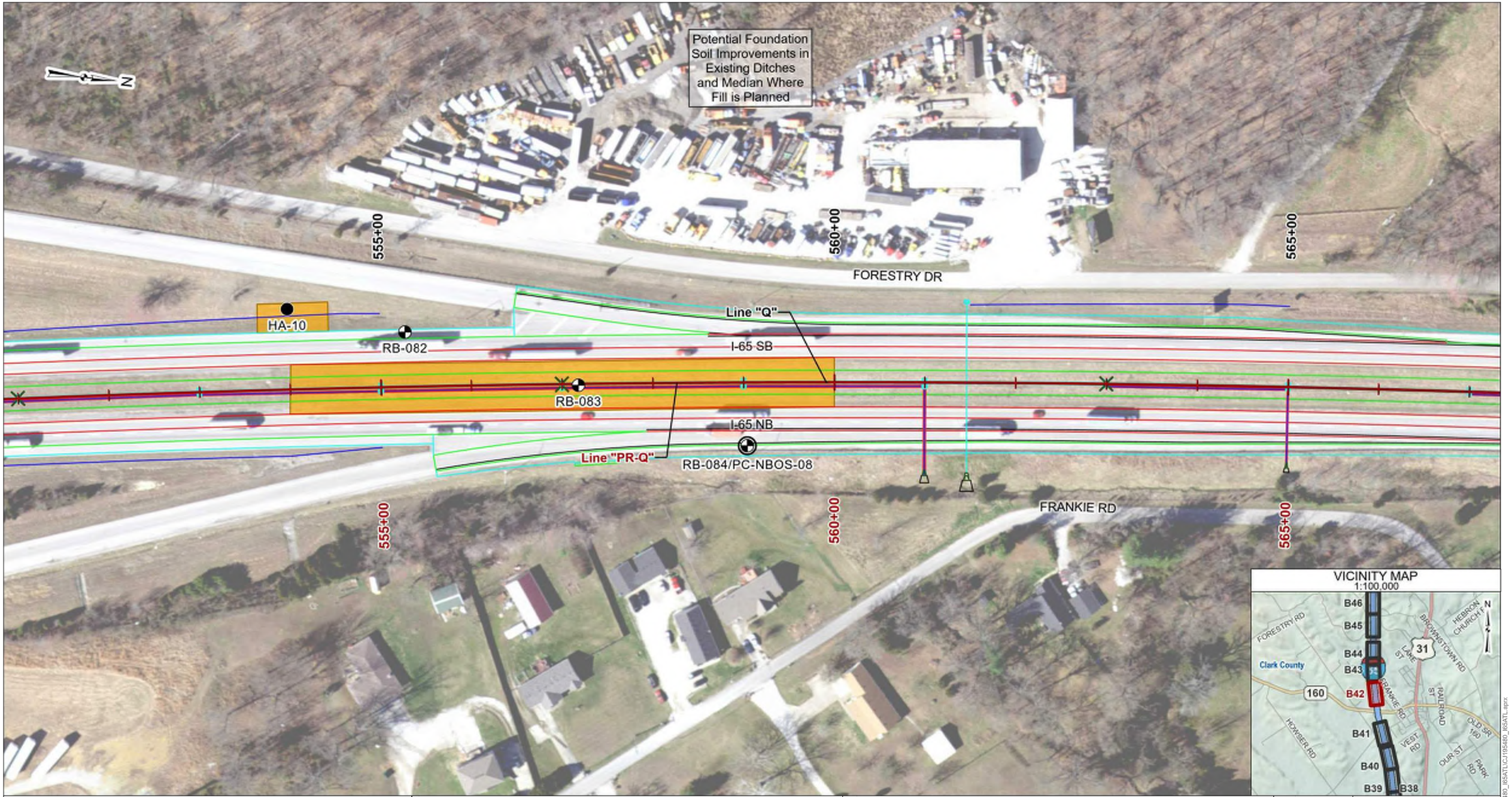
Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B42

Terracon

Imagery credits: Esri, IGT, USTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, USTS, Woolpert Inc.

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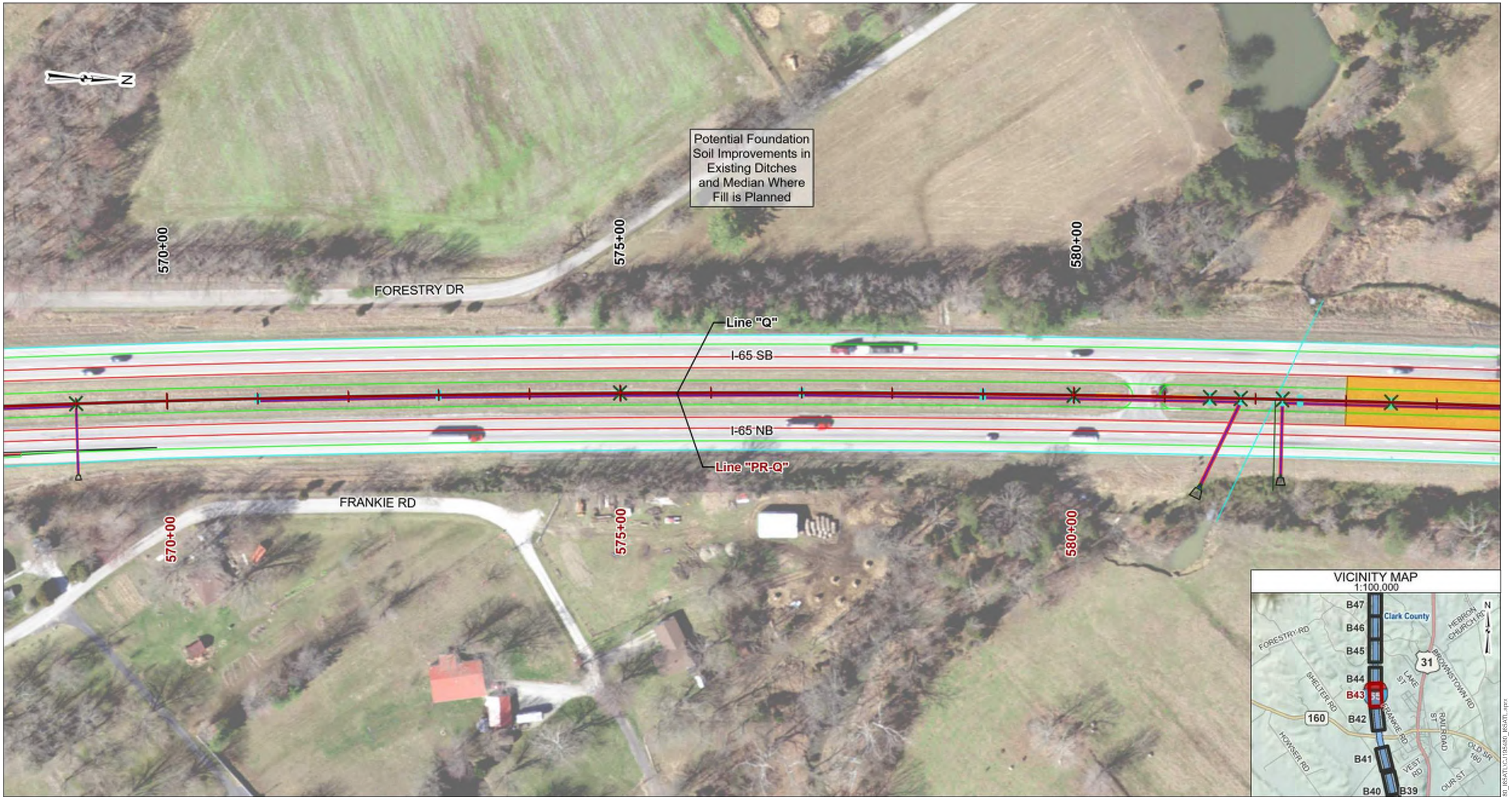

LEGEND

- Areas of Potential Foundation Soil Improvements
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B43

Terracon

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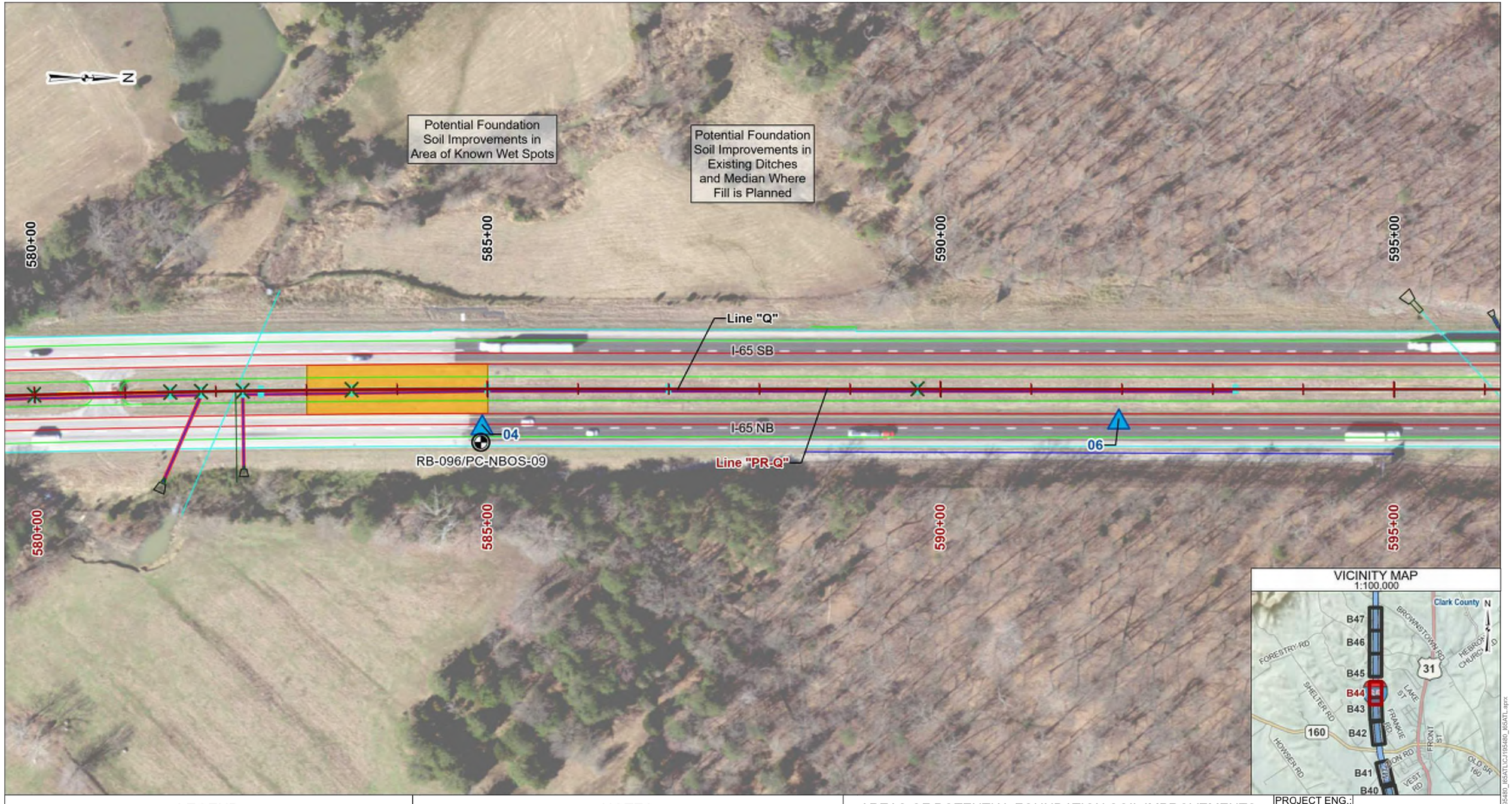
Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring and Pavement Core Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.:
CJ195480.B44

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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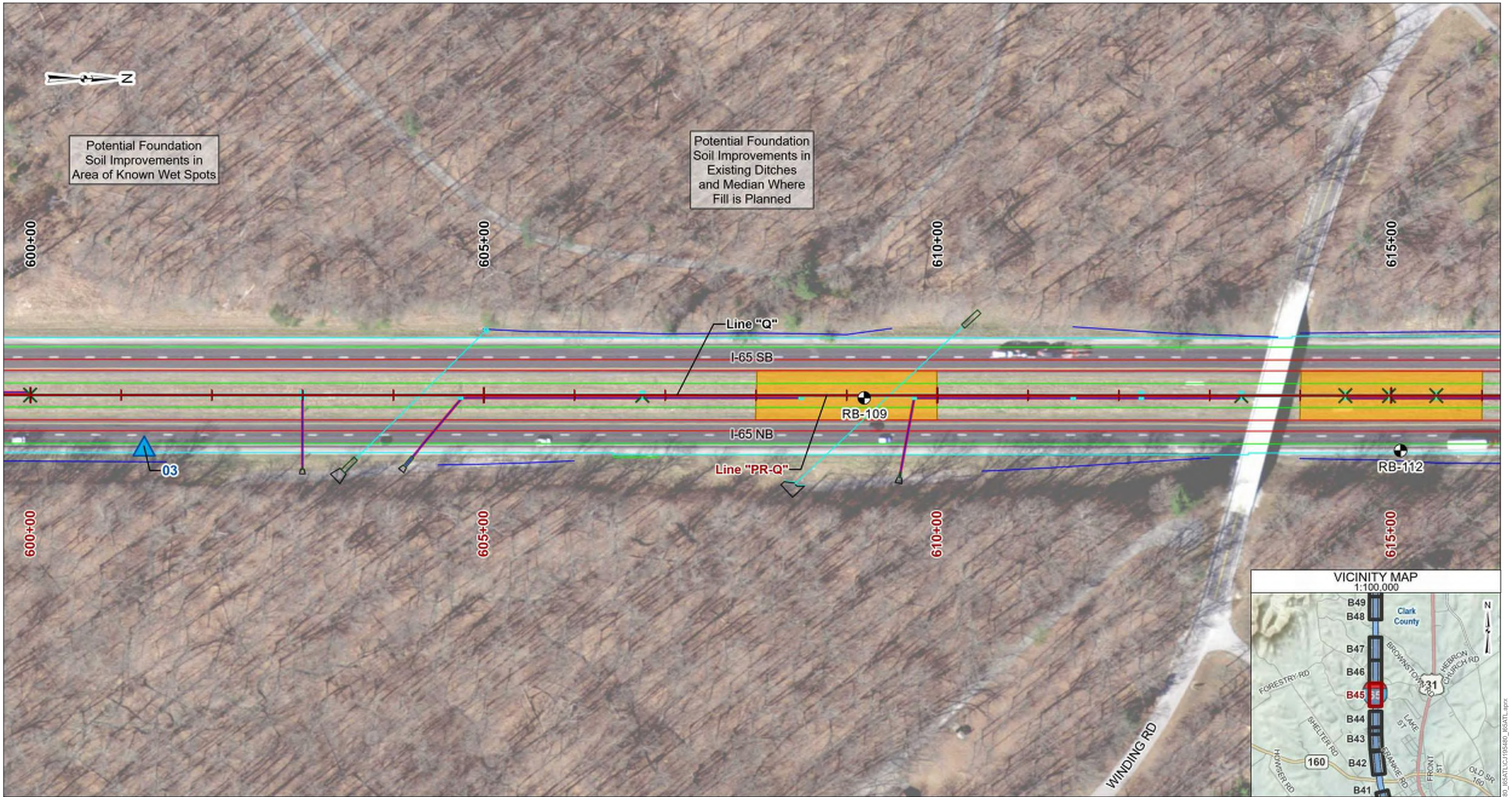

VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B45

Terracon

Imagery credits: IGIC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

620+00

625+00

630+00

HA-13

Line "Q"

I-65 SB

RB-115

I-65 NB

Line "PR-Q"



LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B46

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

635+00

640+00

645+00

Line "Q"

I-65 SB

RB-126

I-65 NB

Line "PR-Q"

635+00

640+00

645+00

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B47

Terracon

Imagery credits: IGIC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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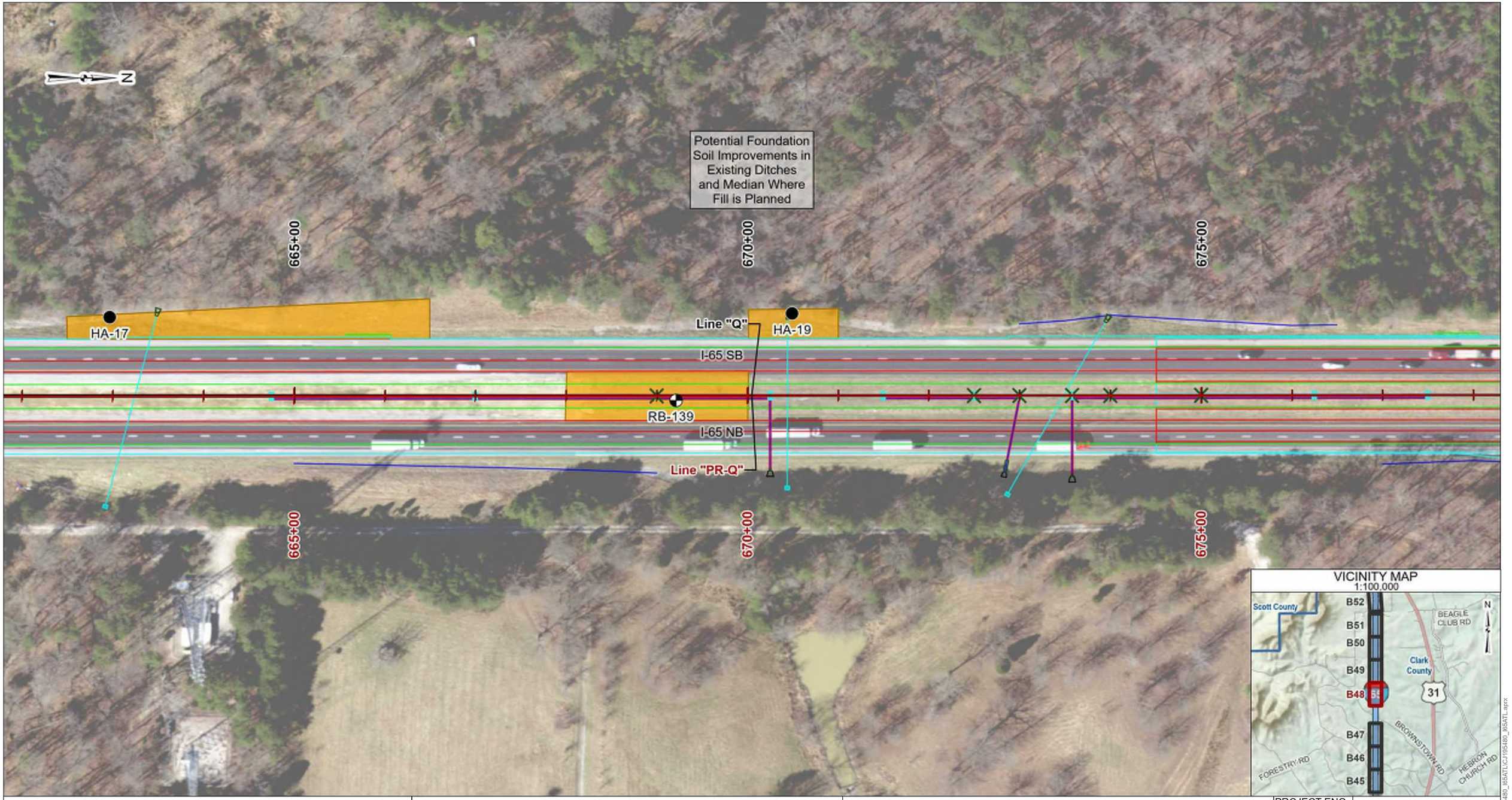

VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B48

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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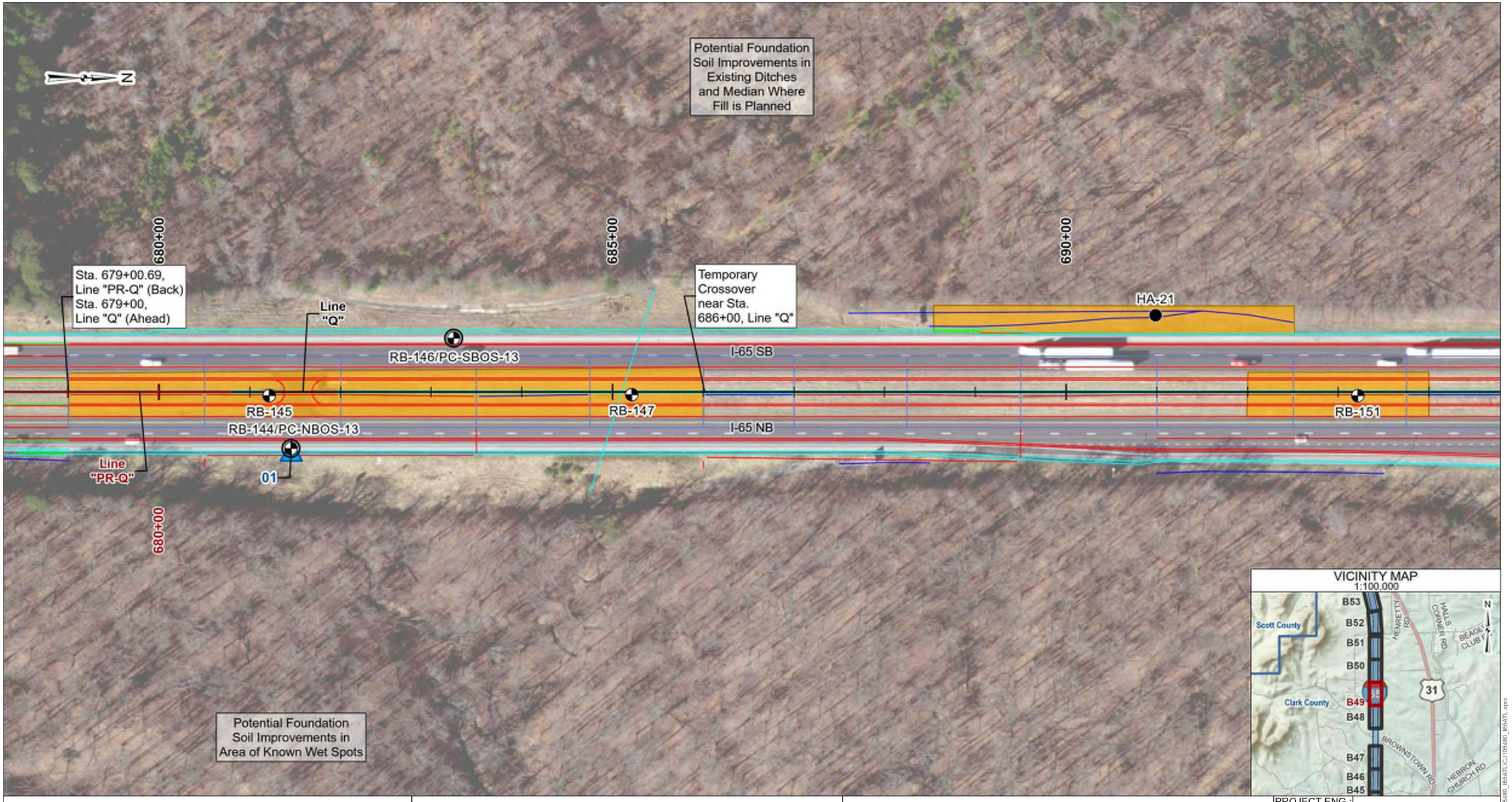

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B49

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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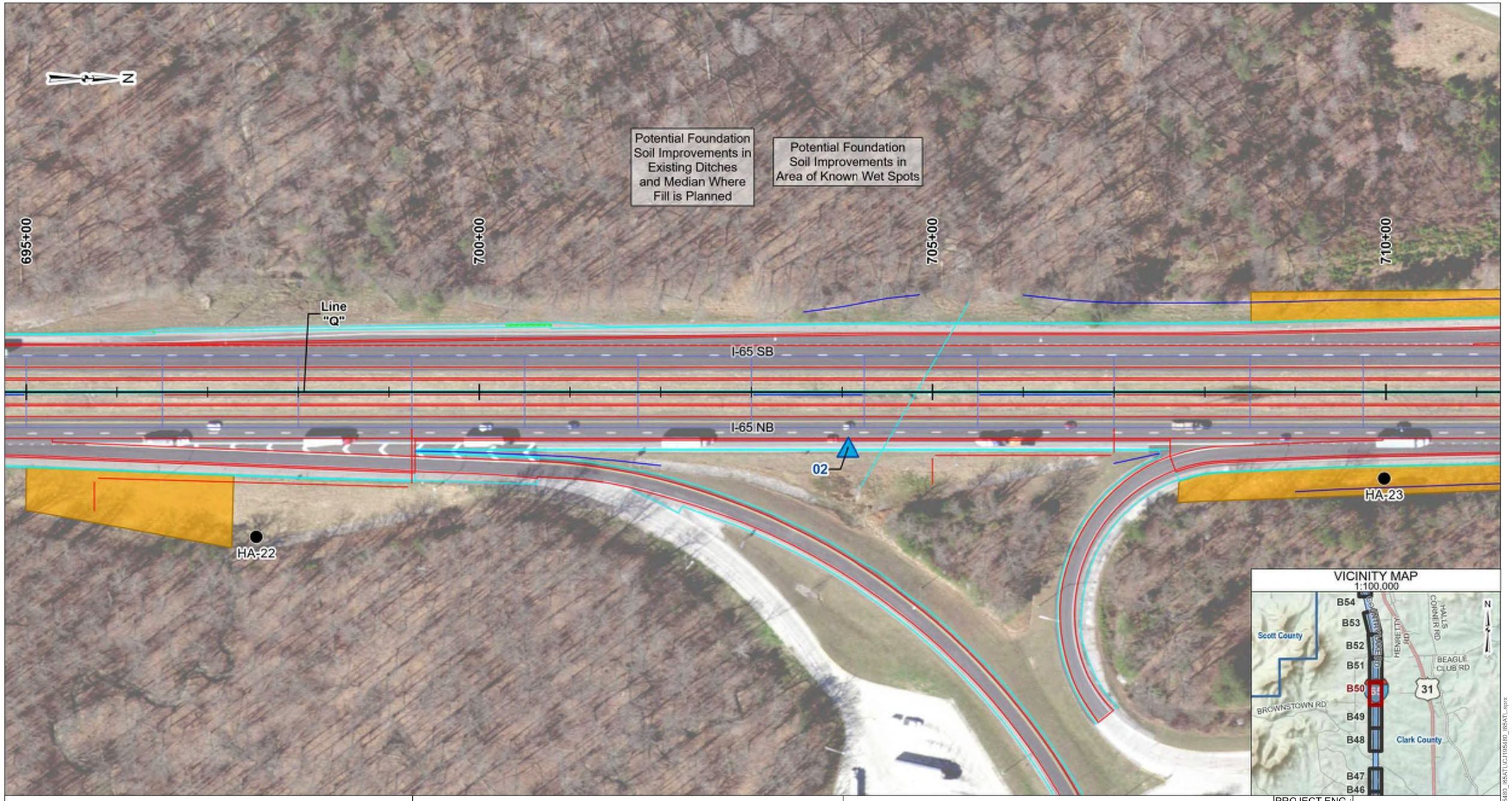

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B50

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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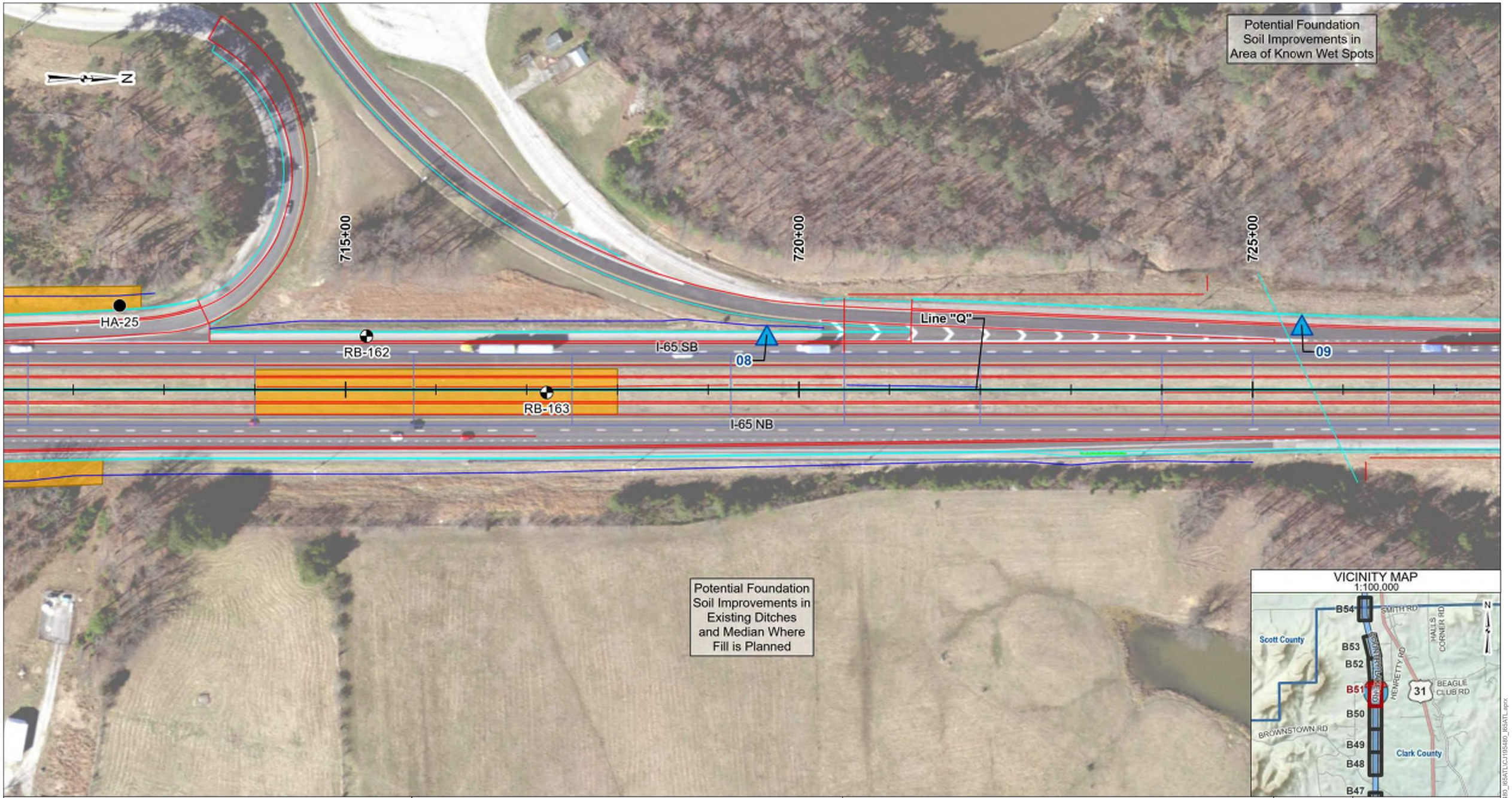

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B51

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

730+00

735+00

740+00

745+00

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

Potential Foundation Soil Improvements in Area of Known Wet Spots

COUNTRY LAKE RD

RB-170/PC-SBOS-15

I-65 SB

I-65 NB

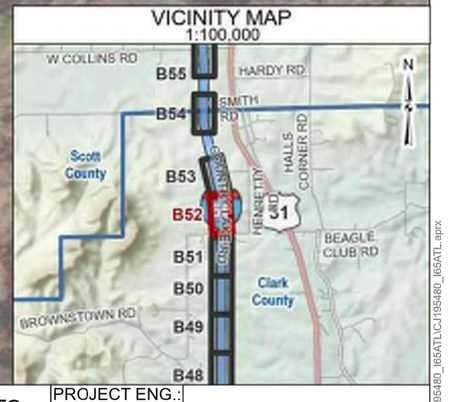
Line "Q"

11

12

05

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring and Pavement Core Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.:
CJ195480.B52

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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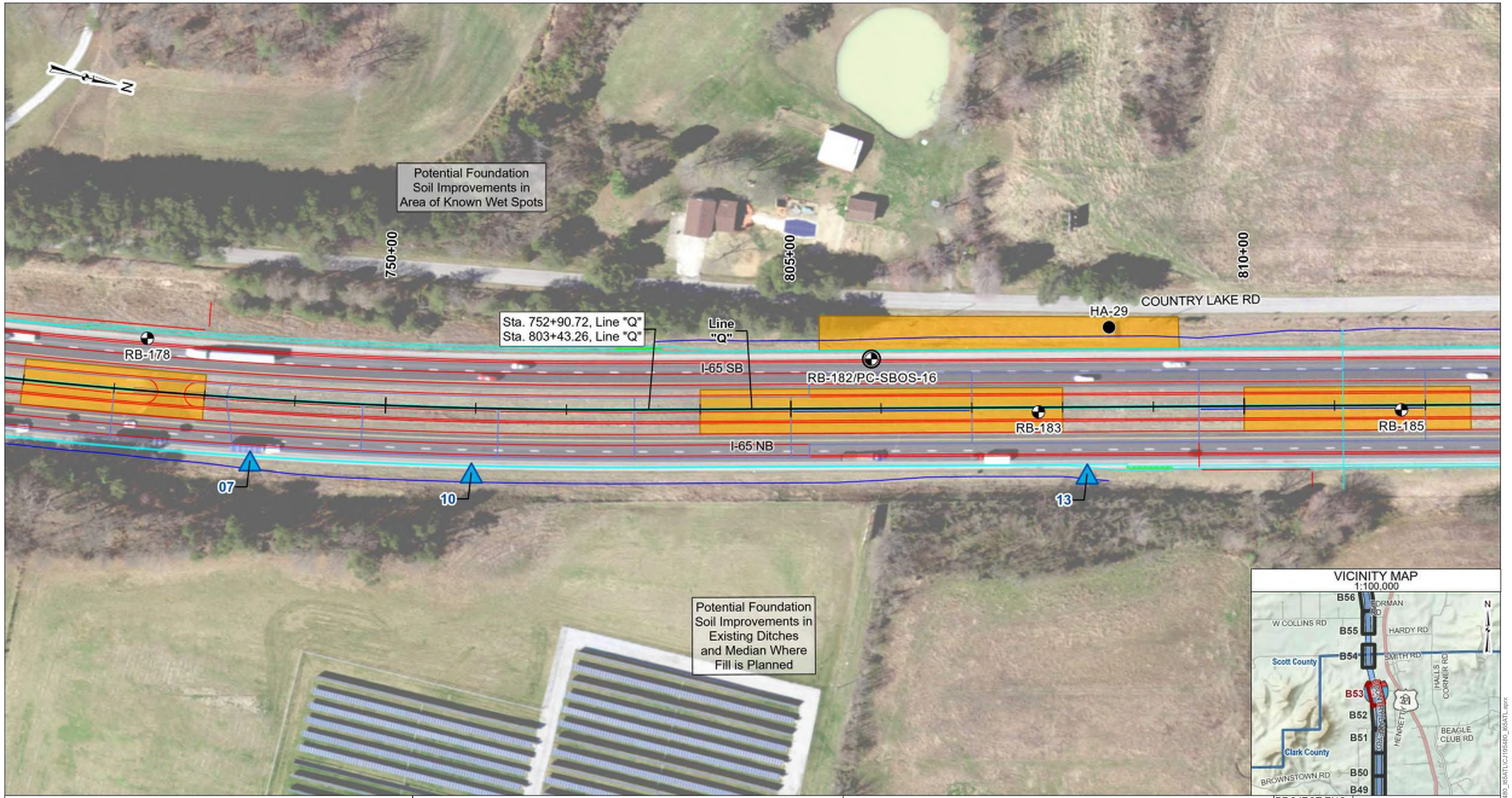

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B53

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LEGEND

- Known Wet Spot Location
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B54

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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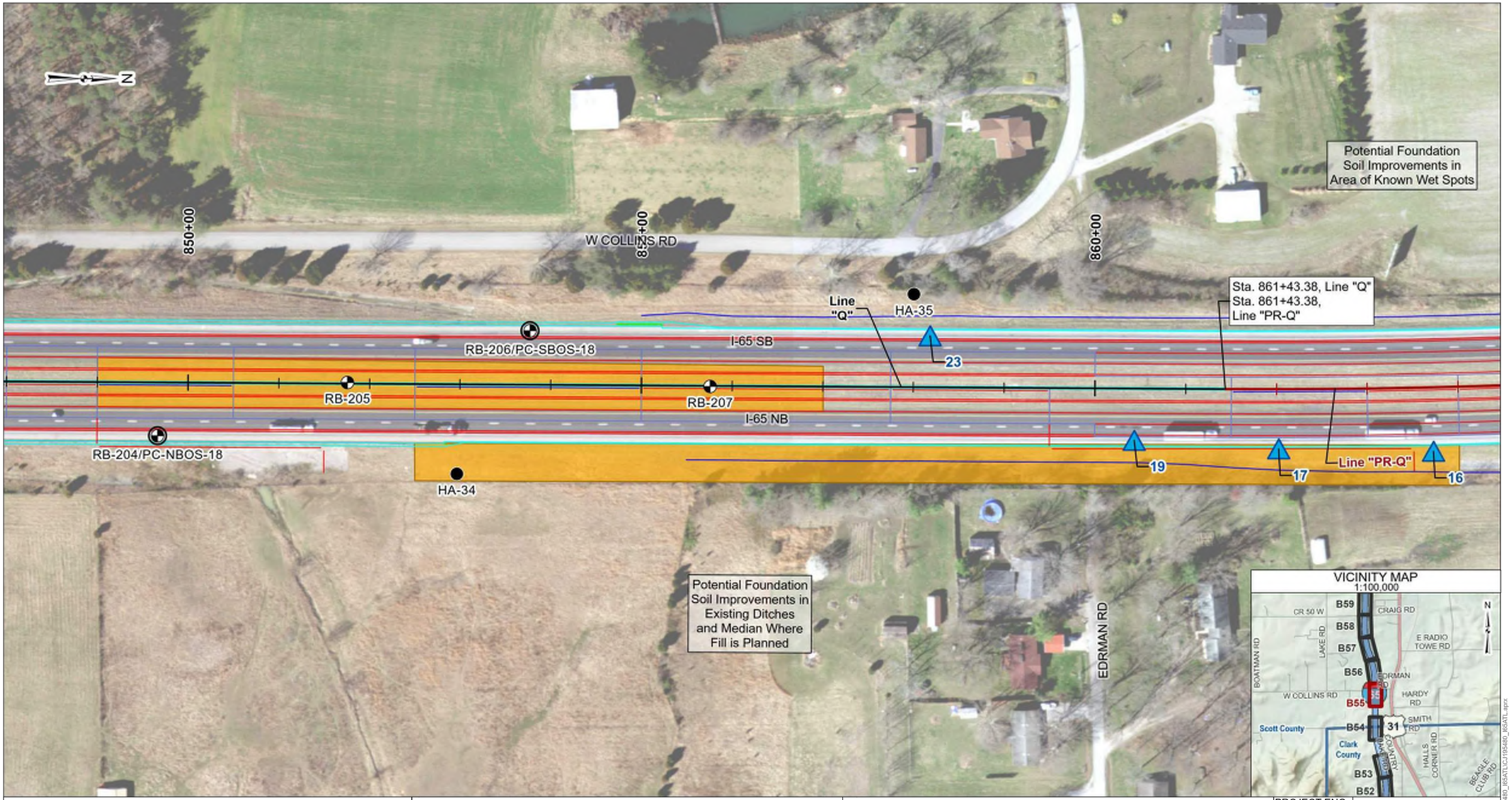

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B55

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

Potential Foundation Soil Improvements in Area of Known Wet Spots

865+00

870+00

875+00

880+00

HA-39

Line "Q"

I-65 SB

RB-213

I-65 NB

20

18

21

HA-37

Line "PR-Q"

22

24

25

26

27

865+00

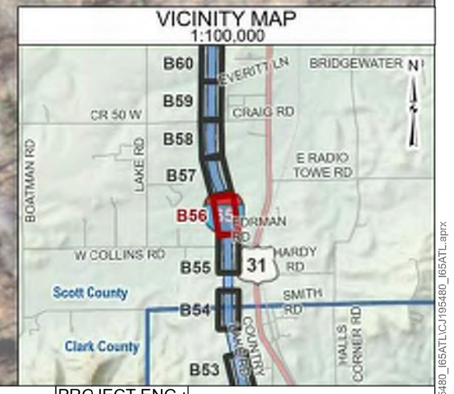
870+00

875+00

880+00

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B56

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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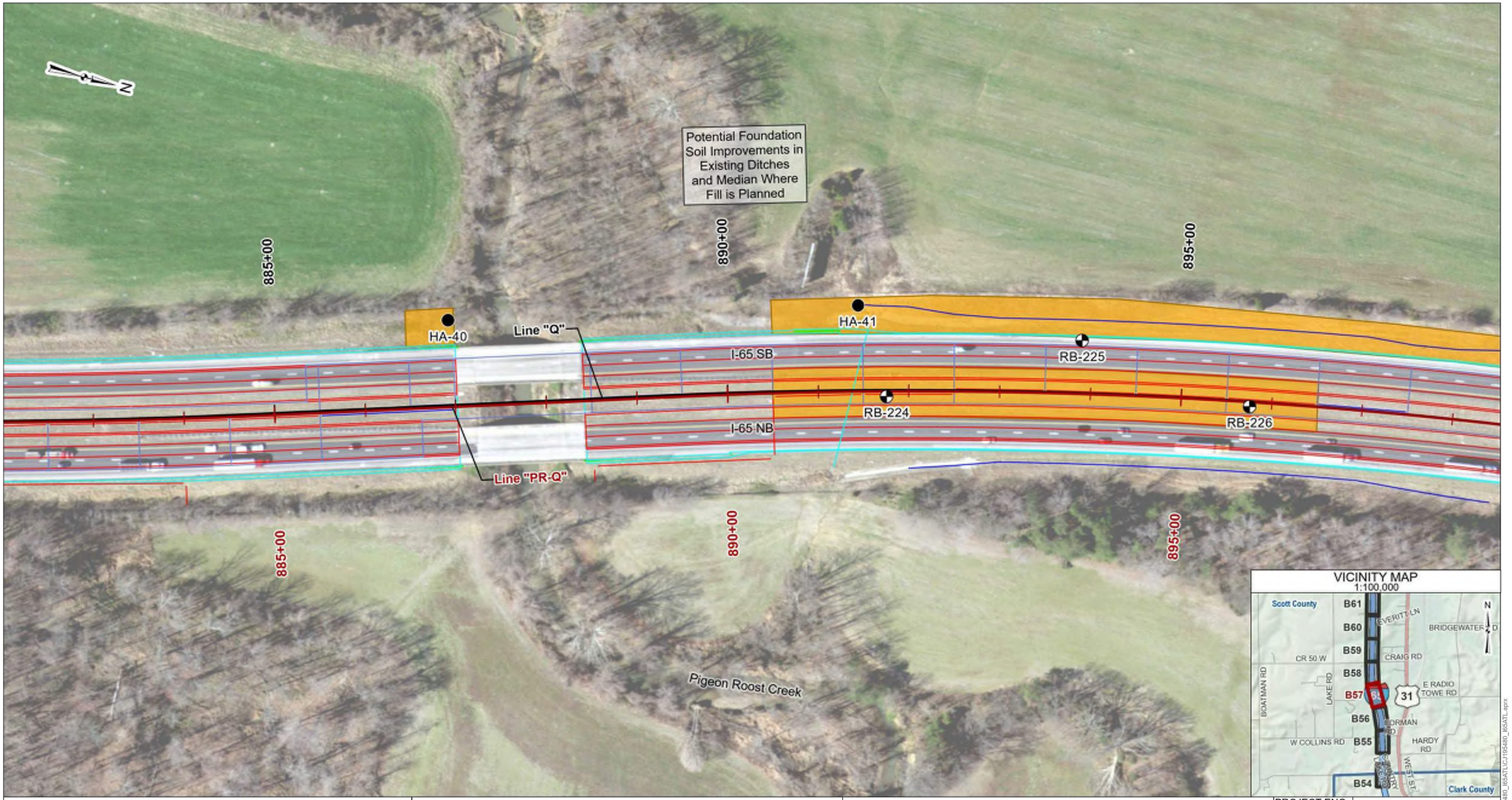

VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.:
CJ195480.B57

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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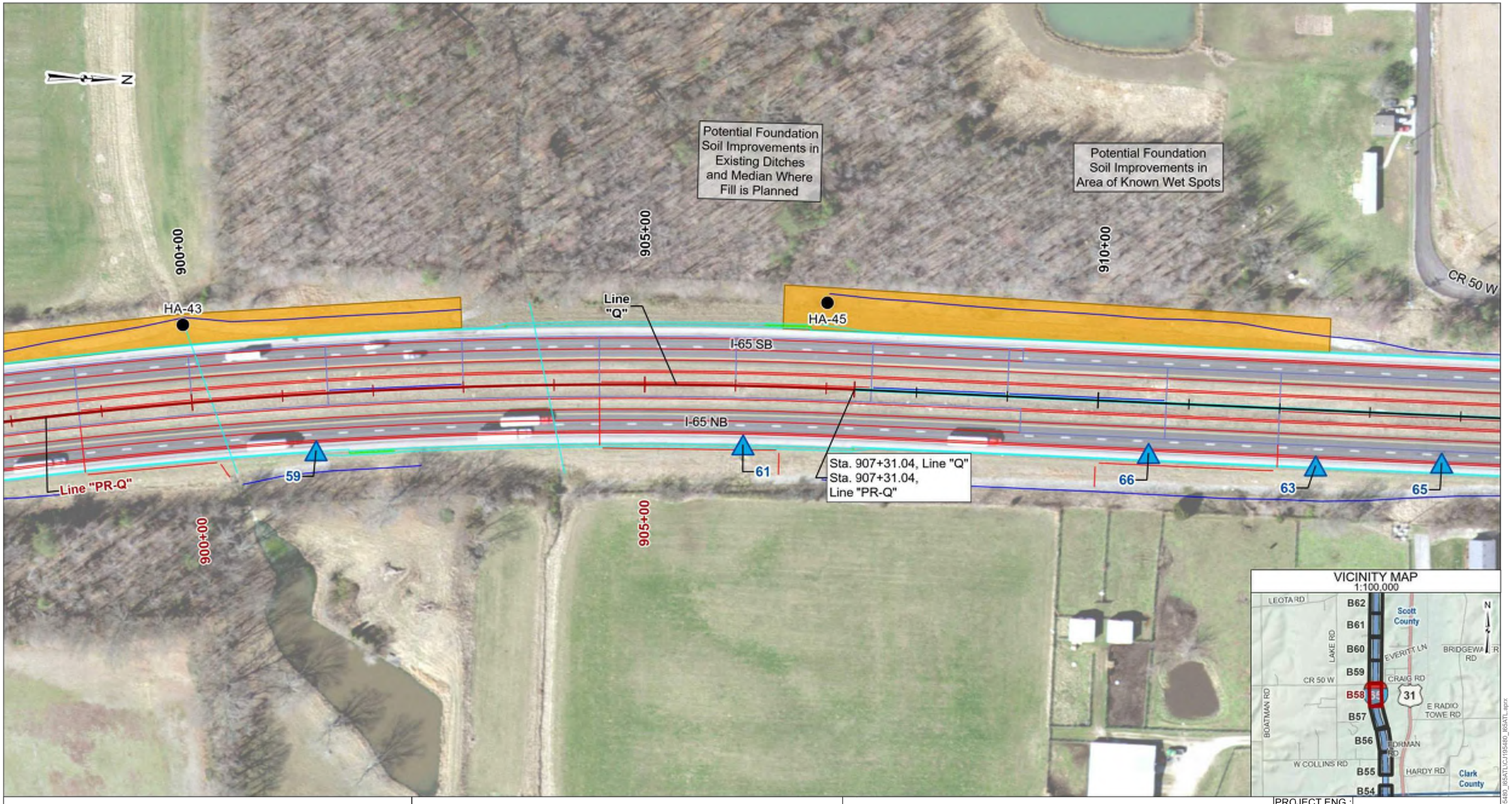

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B58

Terracon

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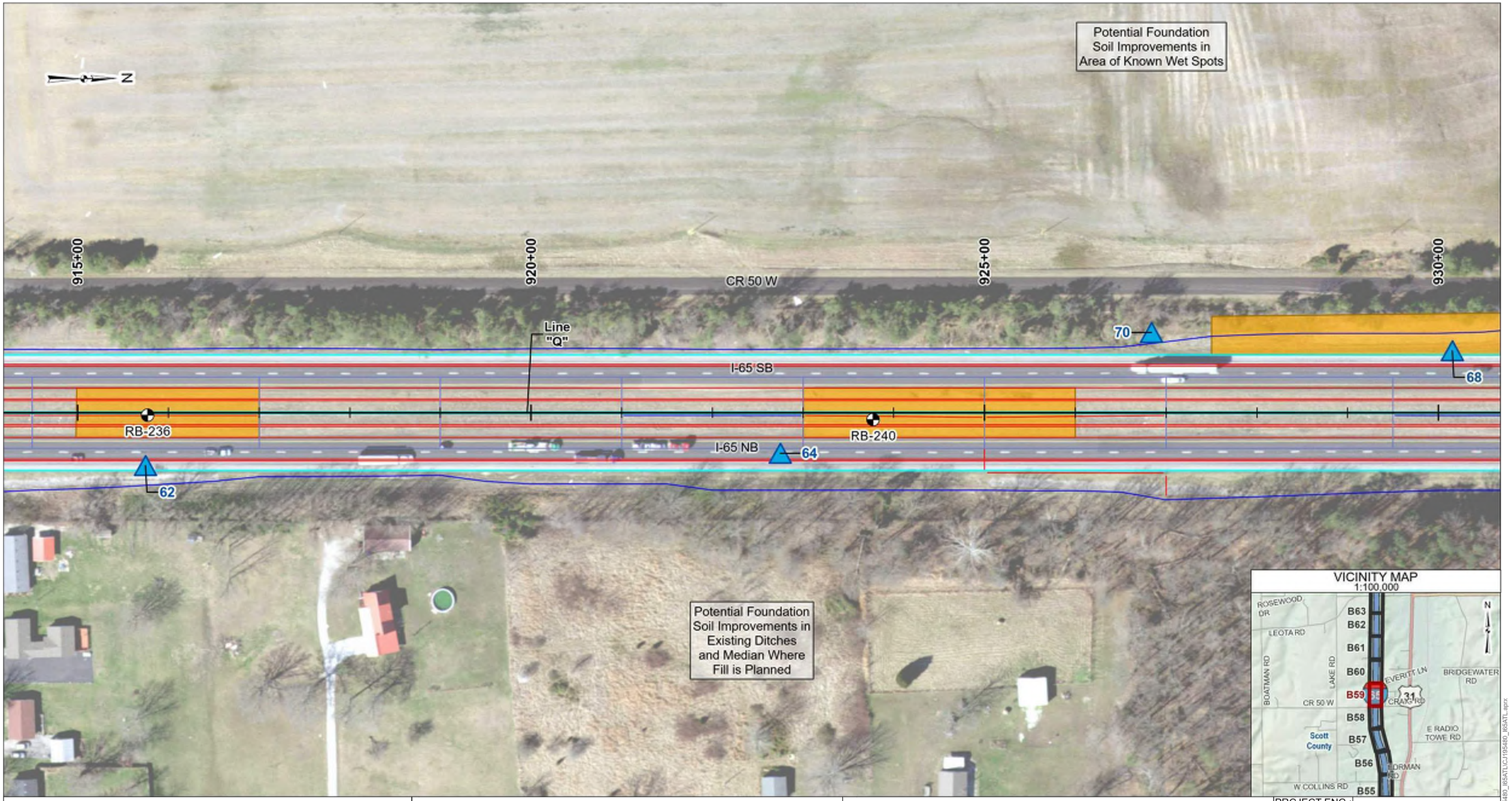
Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B59

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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Potential Foundation Soil Improvements in Area of Known Wet Spots

935+00

940+00

945+00

CR 50 W

HA-50

69

Line "Q"

I-65 SB

RB-246

RB-250

I-65 NB

57

56

58

54

55

53

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B60

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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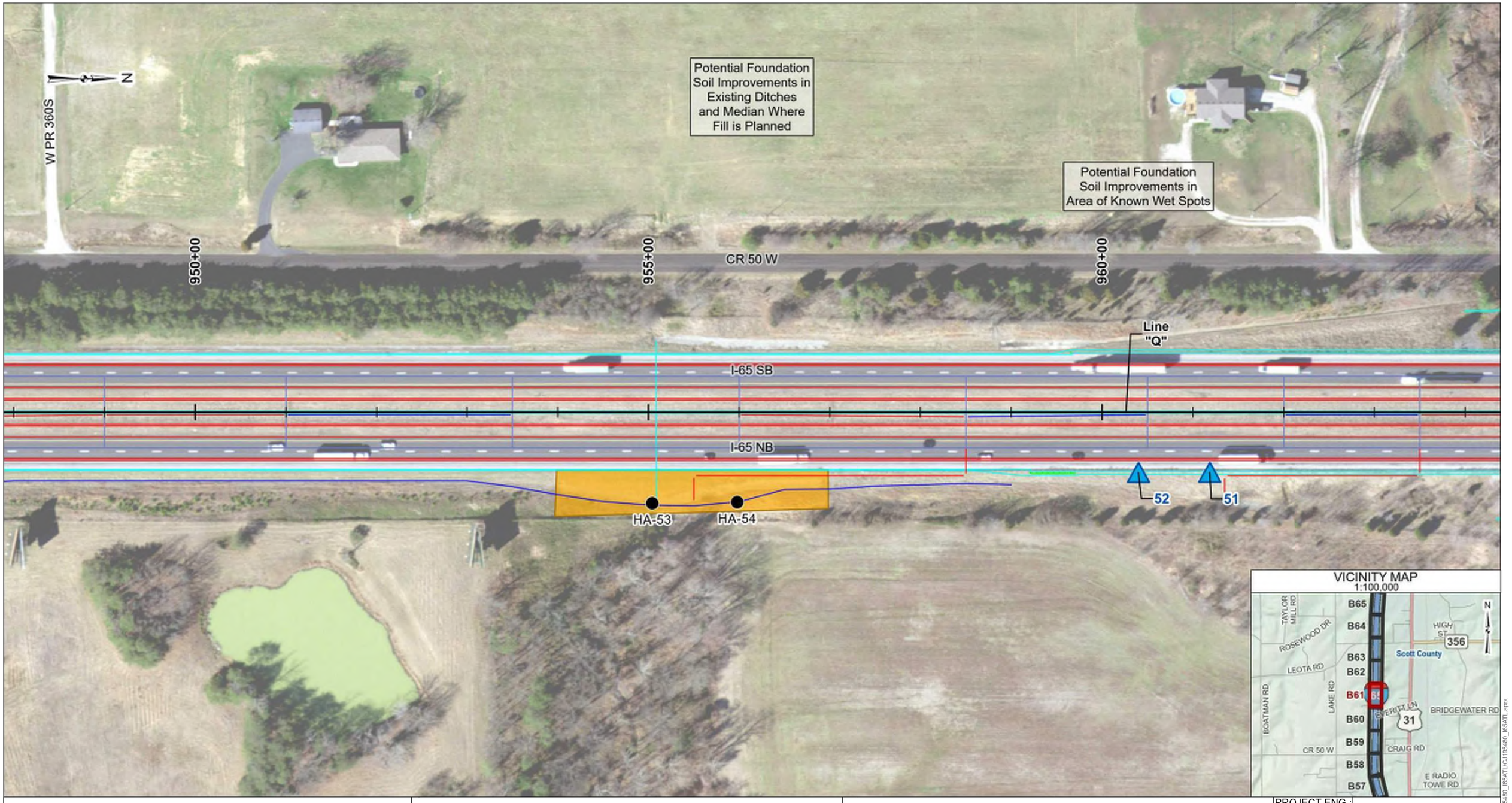

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B61

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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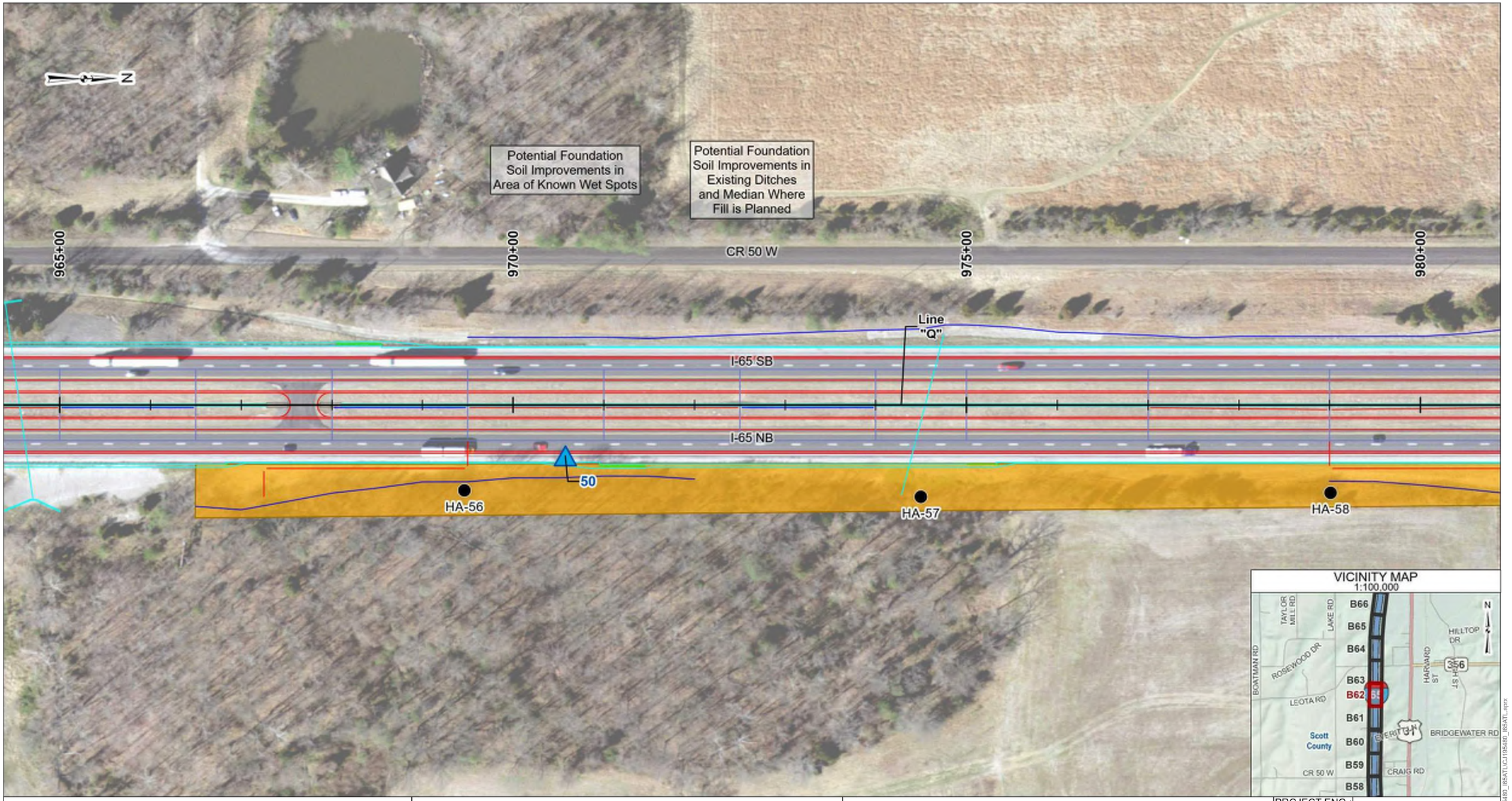

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B62

Terracon

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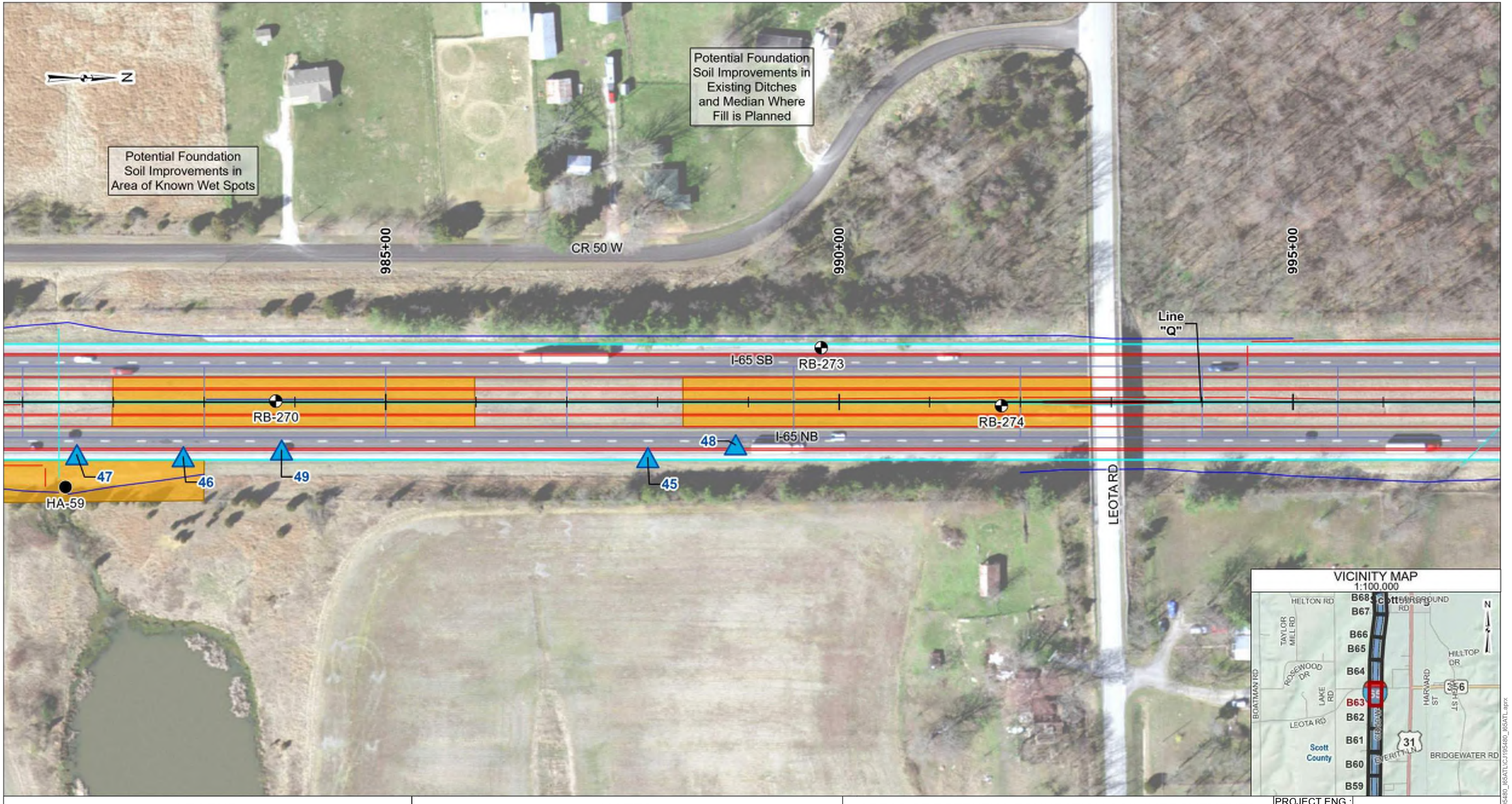
Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021

Terracon

DRAWING NO.: CJ195480.B63

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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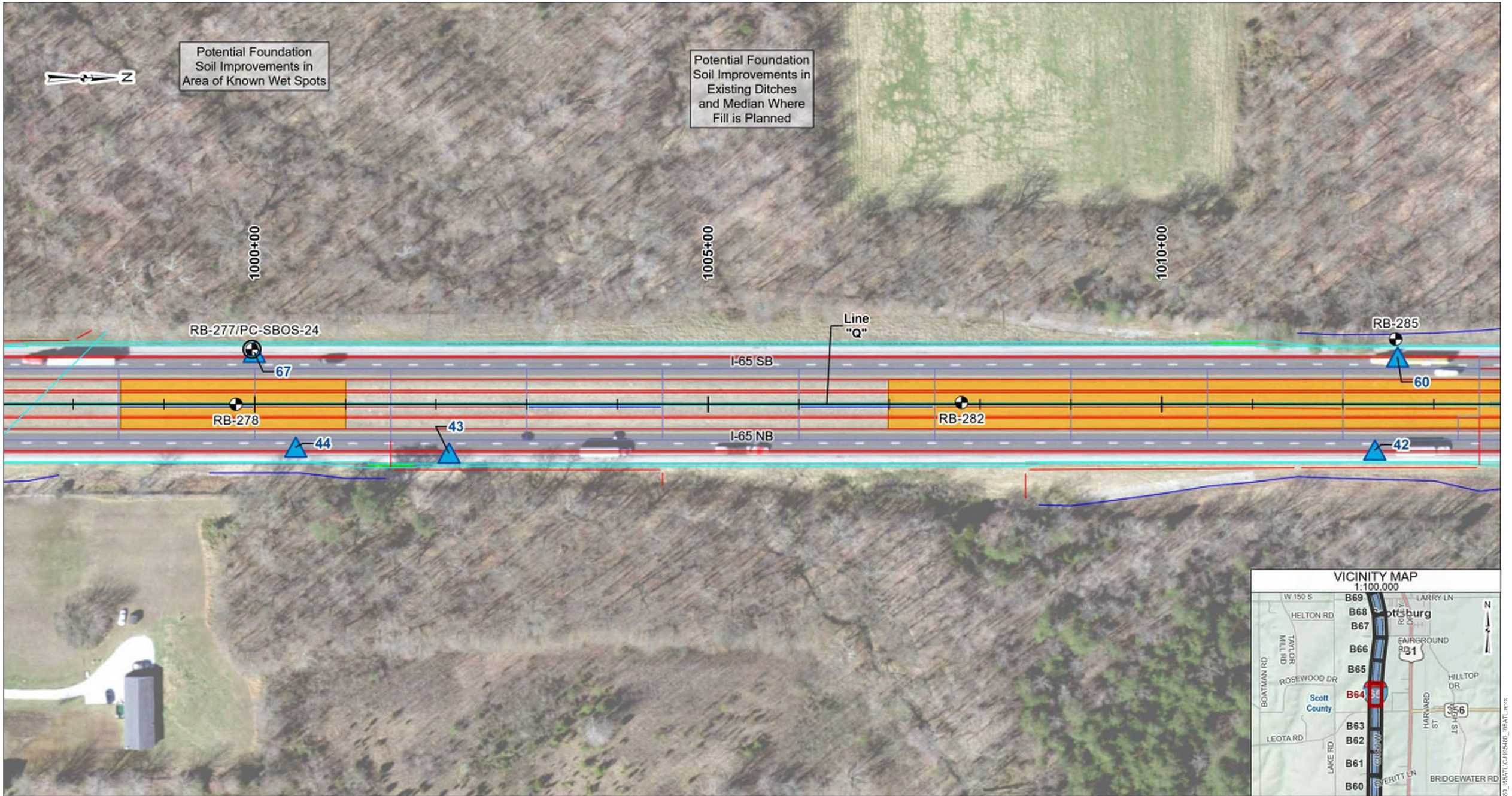

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.

AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B64

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

Potential Foundation Soil Improvements in Area of Known Wet Spots

1015+00

1020+00

1025+00

HA-62

Line "Q"

I-65 SB

I-65 NB

41

40

39

37

36

HA-61

ATL Drop Sta. 1013+98, Line "Q"

Potential Foundation Soil Improvements in Existing Ditches and Median Where Fill is Planned

VICINITY MAP
1:100,000



LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B65

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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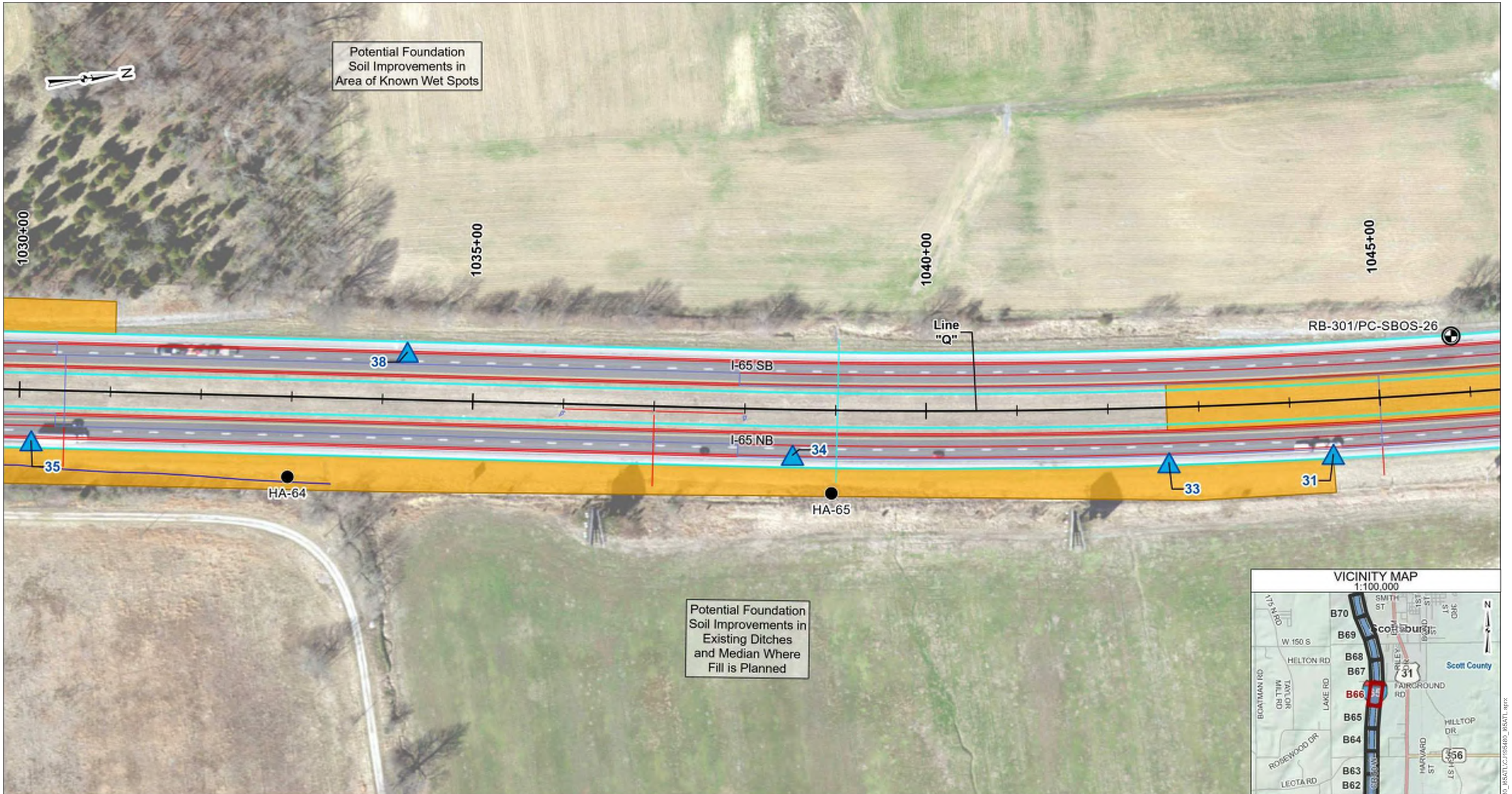

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B66

Terracon

Imagery credits: IGIC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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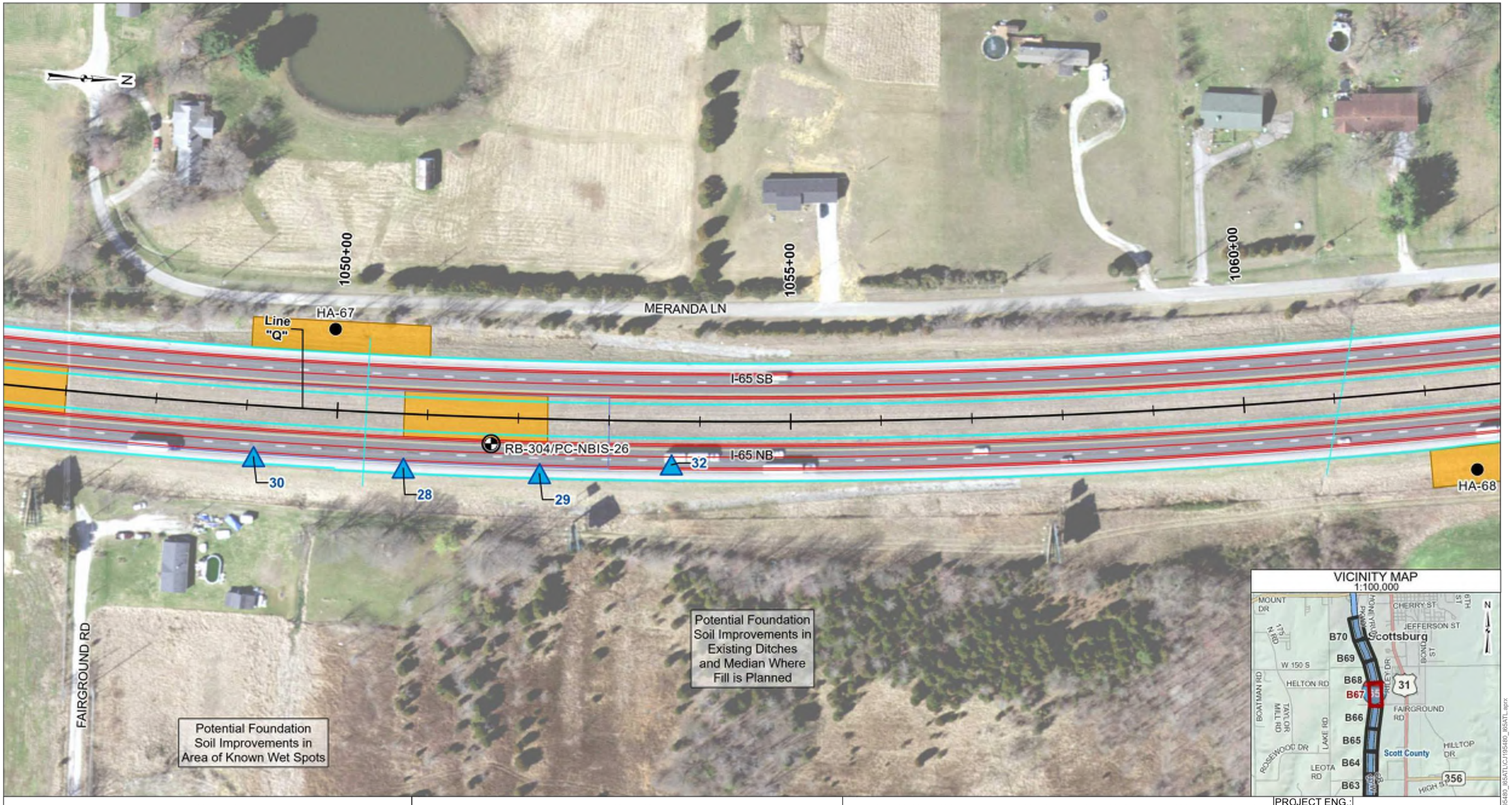

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring and Pavement Core Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B67

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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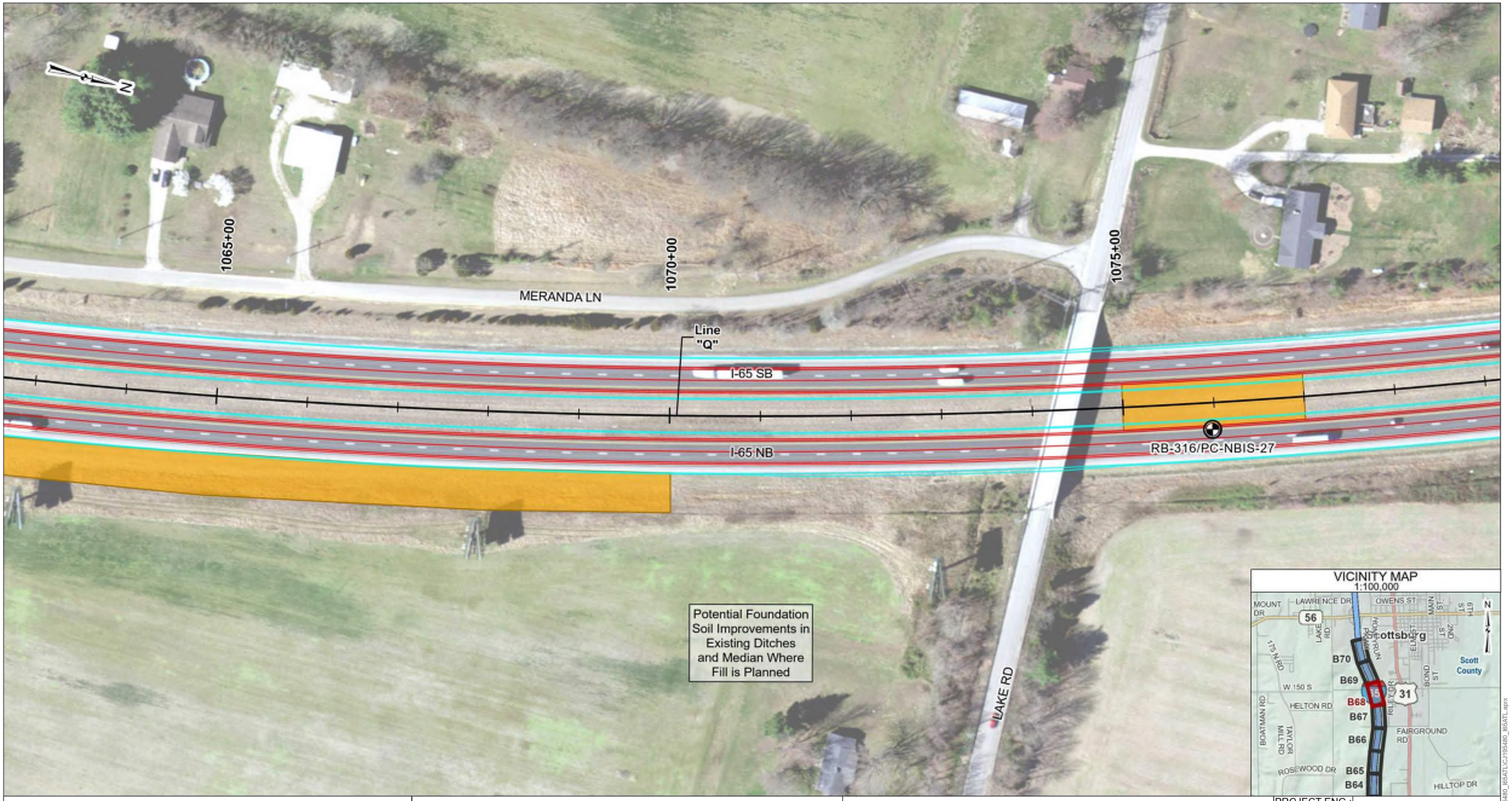

VICINITY MAP
1:100,000

LEGEND

- Areas of Potential Foundation Soil Improvements
- Test Boring and Pavement Core Location and Designation
- Line "Q"

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B68

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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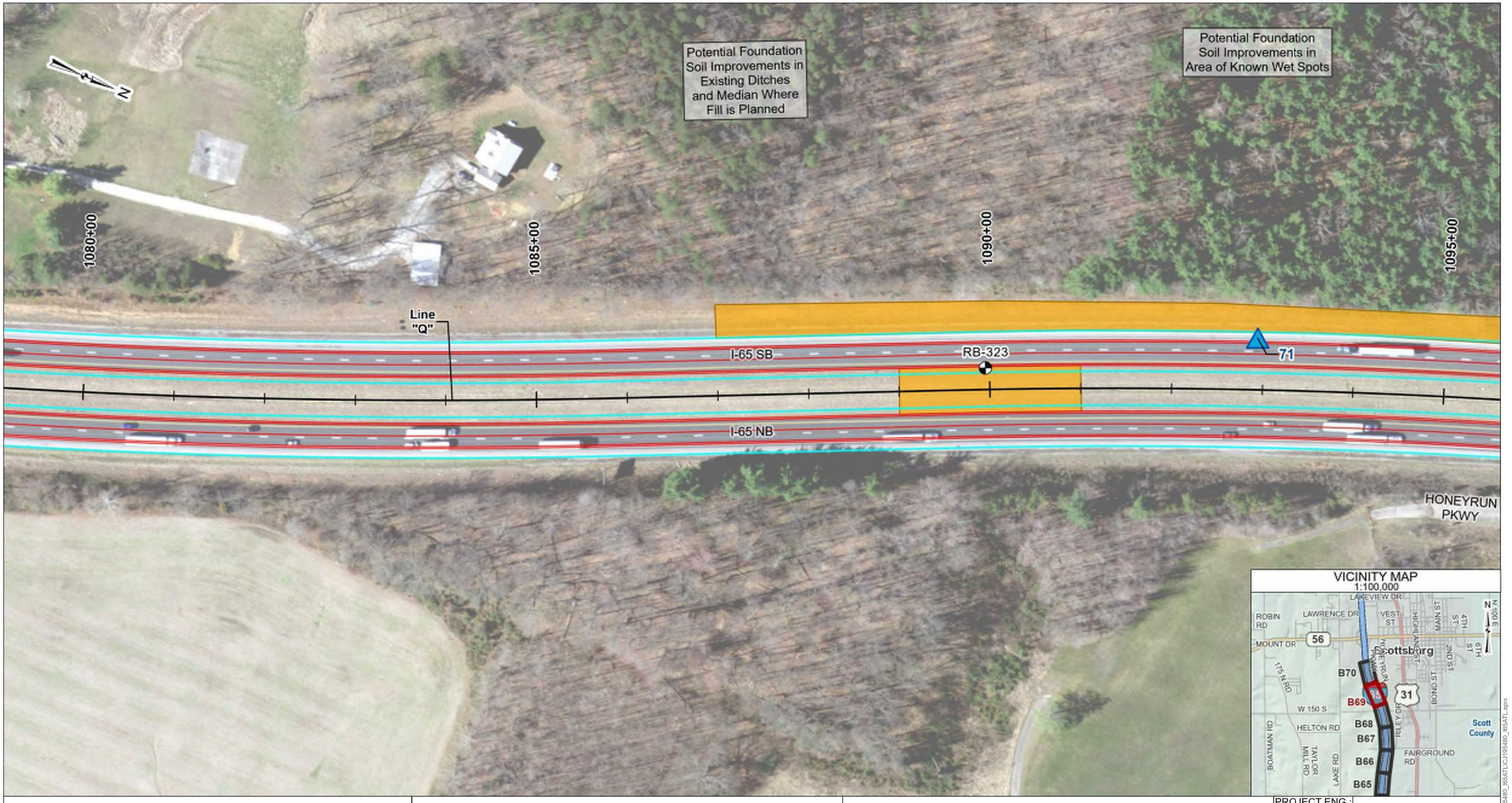

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Test Boring Location and Designation
- Line "Q"

NOTES

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B69

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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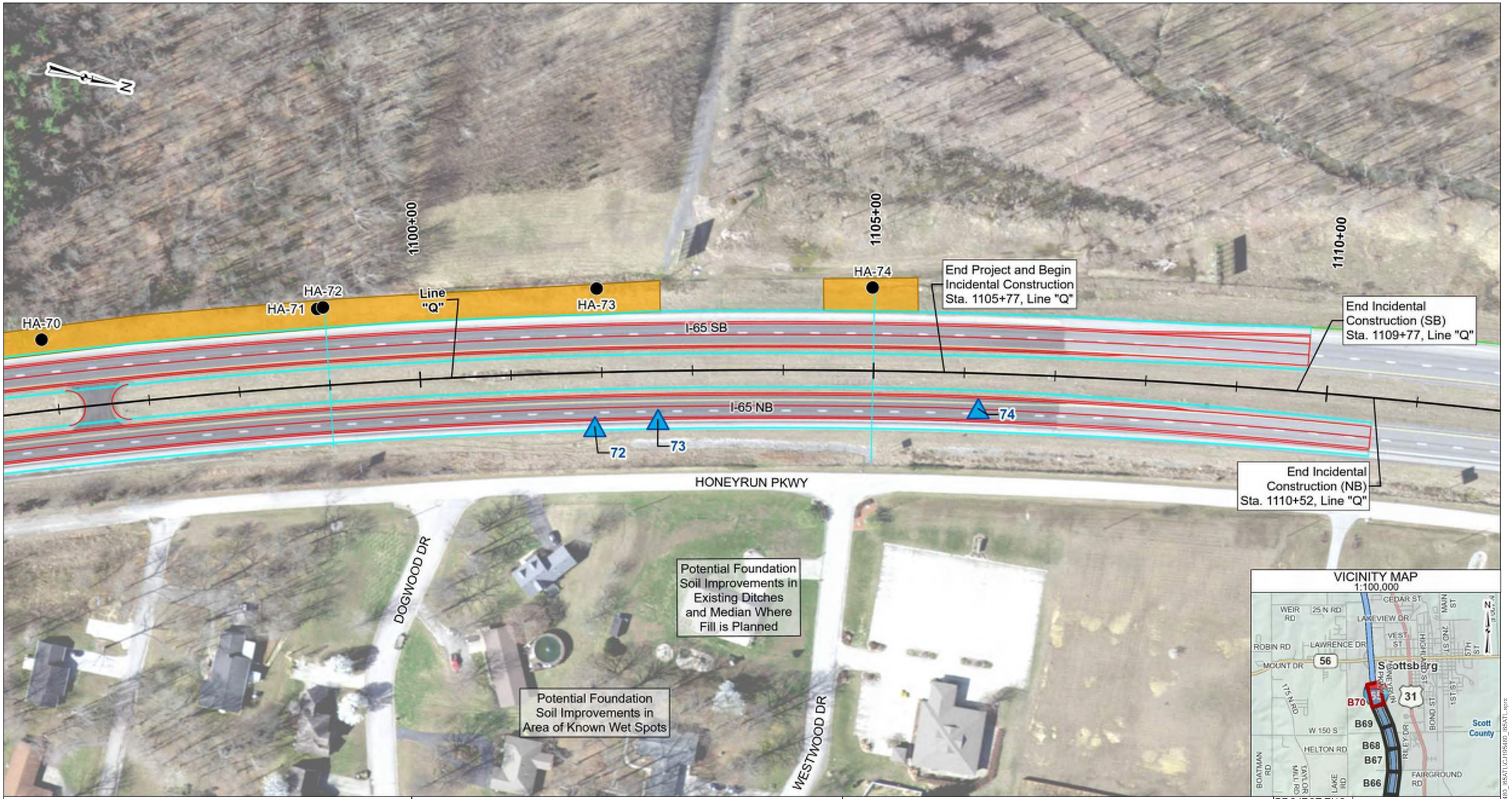

LEGEND

- Areas of Potential Foundation Soil Improvements
- Known Wet Spot Location
- Hand Auger Boring Location and Designation
- Line "Q"

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AREAS OF POTENTIAL FOUNDATION SOIL IMPROVEMENTS

PROJECT:	I-65 Added Travel Lanes from RP 16+27 to 29+10
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 100'

Attachment 11-2

PROJECT ENG.:	TJP
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	11/05/2021
DRAWING NO.:	CJ195480.B70

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Coarse	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

PERCENTAGE MODIFIERS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“N Value”
Very soft	0 - 3
Soft	4 - 5
Medium	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

LOG OF TEST BORING

BORING NO.: **RB-001**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.49830
LONGITUDE : -85.77078
DATUM : WGS 84
DATE STARTED : 04-05-21
DATE COMPLETED : 04-05-21

ELEVATION	: 496.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 391+10	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
495.0		**Asphaltic Concrete** 1.3											
	2.5	**Sandy Loam**, medium dense, moist, brown, with some gravel, (possible fill; visual)	SS 1	12-14-14	33								
			SS 2	22-12-12	67								
		Gravelly Sand, medium dense, moist, brown, (possible fill; visual) 3.9 / 4.4											
	5.0	**Clay**, stiff, moist, brown, A-6, Lab No. 31321	SS 3	7-6-7	56	19.3		>4.5					
490.0													
		Silty Clay, very stiff, moist, gray, with silty loam seam near 7 ft, A-6, Lab No. 30769	SS 4	8-8-8	78	17.9		2.0					
	7.5	7.4											
		Bottom of Boring at 7.4 ft											
	10.0												
485.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-002**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.49887
LONGITUDE : -85.77098
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION : 494.0
STATION : 393+16
OFFSET : 9.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 52 °F
WEATHER : Partly Cloudy

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay**, medium stiff, moist, brown, with wood fragments near 2 ft, A-6, Lab No. 30770	SS 1	4-4-4	33	22.8 59.3		1.0					2.5, LOI = 6 percent
		3.0											
490.0													
	5.0	**Silty Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 30772	SS 2	3-3-3	89	20.7 20.6		1.5 3.0					
		6.0											
	7.5	**Silty Clay**, medium stiff to stiff, moist, brown, with shale fragments near 9 ft, A-6(16), Lab No. 30769	SS 3	3-3-6	89	24.5		0.75		35	19	16	7.5, pH = 6.6, SG = 2.70
485.0			SS 4	6-6-7	100	21.0		1.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft Bag sample taken at offset (RB-02B) for moisture-density relations.											
	12.5												
480.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-003**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.49943
LONGITUDE : -85.77112
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 493.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 395+15	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5		SS 1	3-2-6	100	17.1 23.4	115.4	3.5 1.5	3.38				
490.0			SS 2	3-4-4	100	18.8 18.5		2.5 3.5					
		Silty Clay Loam, medium stiff, moist, brown to gray, A-6, Lab No. 30772											
	5.0		SS 3	5-5-5	100	19.4		0.25 3.5					
			SS 4	2-4-4	100	20.1		0.5 0.5					
		7.3											
	7.5	Bottom of Boring at 7.3 ft											
485.0													
	10.0												
	12.5												
480.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-004**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.49996
LONGITUDE : -85.77091
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 493.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 397+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 13.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 52 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Partly Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Gravel, (fill; field visual) 0.5											
	2.5	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 30771	SS 1	5-9-11	100	18.7 18.0	108.8	>4.5 >4.5	3.14				2.5, soluble sulfate = 260 ppm
490.0		3.0											
	5.0	**Silty Clay Loam**, medium stiff to very stiff, moist, brown, A-6, Lab No. 30772	SS 2	4-3-4	100	21.3 23.2		3.5 0.75					
		7.0	SS 3	4-6-11	100	18.6		>4.5					
485.0	7.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31321											
		10.0	SS 4	9-11-15	100	24.5		3.0					
	10.0	Bottom of Boring at 10.0 ft											
480.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-005**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50049
LONGITUDE : -85.77063
DATUM : WGS 84
DATE STARTED : 04-05-21
DATE COMPLETED : 04-05-21

ELEVATION	: 493.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 399+09	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.5											
	2.5	**Clay**, stiff, moist, brown and gray, A-6, Lab No. 31321 3.0	SS 1	5-6-8	56	21.2 18.3		>4.5 >4.5					
490.0		**Clay Loam**, medium stiff, moist, brown and gray, A-6, Lab No. 30771 4.0	SS 2	4-4-5	78	21.3 26.7	103.1	>4.5 0.75					
	5.0	**Silty Clay Loam**, medium stiff, moist, brown and gray, with clay loam seam near 6 ft, A-6, Lab No. 30772 6.0	SS 3	4-5-5	56	20.1		1.5					
		Silty Clay, medium stiff, moist, gray, A-6, Lab No. 30769 7.5	SS 4	3-4-4	67	25.2		0.5					
	7.5	Bottom of Boring at 7.5 ft											
485.0													
	10.0												
	12.5												
480.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-006**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50106
LONGITUDE : -85.77082
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 491.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 401+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 52 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Partly Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
490.0		**Topsoil** 0.5											
	2.5		SS 1	8-12-9	100	14.9 17.7		>4.5 >4.5					
		Clay Loam, stiff to very stiff, moist, brown, with residual soil near 7 ft, A-6, Lab No. 30771											
	5.0		SS 2	3-4-7	100	19.3 18.1		3.0 2.5					
485.0													
			SS 3	13-13-16	67	26.4		3.0					
	7.5												
		Weathered Shale, soft, brown	SS 4	50/2	83								
	10.0	10.0											
480.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-007**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50143
LONGITUDE : -85.77102
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 490.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 402+51	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.6											
	2.5	**Clay Loam**, medium stiff, moist, brown, with sand and gravel seam near 6 ft, A-6, Lab No. 30771	SS 1	2-3-5	78	21.1 21.6	105.9	2.0 2.5	1.72				
			SS 2	2-3-5	78	20.4 21.6		1.25 2.5					
485.0	5.0		SS 3	3-3-5	67	19.6		1.5					
		6.1											
		Sandy Loam, very stiff, moist, brown, with some gravel, (visual)	SS 4	12-9-18	56	10.5		1.0 1.5					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
480.0	10.0												
	12.5												
475.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-008**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50216
LONGITUDE : -85.77081
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 489.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 405+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 52 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Partly Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 30771	SS 1	4-6-8	89	17.1 17.2	112.2	1.5 >4.5	1.87				
485.0		4.0											
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, with clay and silt seams near 4 ft, A-6, Lab No. 30769	SS 2	5-7-8	100	19.1 17.1		3.5 >4.5					
		7.0	SS 3	4-4-4	100	20.5		3.0					
	7.5	**Silty Clay Loam**, medium stiff to very stiff, moist, brown, A-6, Lab No. 30772											
480.0			SS 4	6-7-11	100	21.8		4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
475.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-009**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50269
LONGITUDE : -85.77063
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION : 489.0
STATION : 407+04
OFFSET : 59.0 ft Right
LINE : 'PR-Q'
DEPTH : 7.5 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 40 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.5											
	2.5	**Clay Loam**, medium stiff, moist, brown and gray, A-6, Lab No. 30771 2.5	SS 1	4-5-5	44	16.3 19.0		3.0 >4.5					
485.0			SS 2	5-7-9	67	20.9 21.3		2.5 2.75					
	5.0	**Clay**, medium stiff to very stiff, moist, gray to brown and gray below 5 ft, with shale fragments near 6.5 ft and 7 ft, A-7-6, Lab No. 31368	SS 3	5-6-6	56	16.5		>4.5					
			SS 4	4-6-7	67	32.2		3.5					
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
480.0	10.0												
	12.5												
475.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-010**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50325
LONGITUDE : -85.77089
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 487.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 409+13	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 5.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 52 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Partly Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
485.0	2.5	**Silty Clay**, stiff, moist, brown to gray and brown below 4 ft, A-6(17), Lab No. 30770	SS 1	5-5-6	67	16.5 18.8	109.7	>4.5 3.25		40	19	21	2.5, pH = 6.8, SG = 2.72
	5.0		SS 2	3-4-8	100	24.9 16.6		2.0 4.5					
		6.0											
480.0	7.5	**Silty Clay Loam**, medium stiff to stiff, moist, gray and brown, A-6, Lab No. 30772	SS 3	4-5-4	100	20.9		>4.5					
			SS 4	3-5-8	100	22.1		3.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
475.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-011**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50381
LONGITUDE : -85.77112
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 485.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 411+22	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at 2.5 ft ▼ At completion NW ▩ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5 ▽	**Clay**, soft to medium stiff, stiff near 5 ft, moist, gray to brown below 2 ft, with silty clay seam near 7 ft, A-6(14), Lab No. 31321	SS 1	3-3-2	44	21.3 20.7	108.7	1.0 2.5	1.83	38	22	16	2.0, pH = 7.1, SG = 2.76
			SS 2	3-4-4	56	18.7 24.1		3.5 2.5					
480.0	5.0 ▩		SS 3	4-5-8	78	20.3		1.5					
			SS 4	4-4-6	56	32.2		1.25					
	7.5	7.2 Bottom of Boring at 7.2 ft											
475.0	10.0												
	12.5												
470.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-011A**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50381
LONGITUDE : -85.77112
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 485.0
STATION : 411+22
OFFSET : 58.0 ft Left
LINE : 'PR-Q'
DEPTH : 4.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-011											
	2.5	**Clay**, moist, gray and brown, A-7-6(17), Lab No. 31368 (2.0 – 4.0)	ST 1		100	20.4 16.8	110.8	4.5 >4.5	3.87	41	22	19	2.0, pH = 8.6, SG = 2.86, portion of sample sent to INDOT for M_r testing
480.0	5.0	Bottom of Boring at 4.0 ft											
	7.5												
475.0	10.0												
	12.5												
470.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-012**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50435
LONGITUDE : -85.77095
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 485.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 413+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 52 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31321	SS 1	4-4-10	100	18.0 16.6	115.3	>4.5 3.0					
480.0	5.0		SS 2	5-6-8	100	16.5 19.0		>4.5 3.0					
		6.5											
	7.5	**Silty Clay Loam**, soft to stiff, moist, gray, with silty clay seam near 7 ft, A-6, Lab No. 30772	SS 3	3-2-2	100	27.1 27.3		1.0					7.5, LOI = 2 percent
			SS 4	4-4-7	89	24.7		0.5 1.0					
475.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
470.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-013**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50488
LONGITUDE : -85.77083
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 487.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 415+01	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
485.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, with wood fragments near 5.5 ft, (fill), A-6, Lab No. 30771	SS 1	8-5-7	22	14.5		>4.5					
			SS 2	4-4-5	44	20.8 20.3		2.5 2.25					
	5.0		SS 3	6-5-6	44	19.7		>4.5					
		6.0											
480.0	7.5	**Clay**, medium stiff to stiff, moist, gray, A-7-6, Lab No. 31368 7.3	SS 4	5-7-7	67	16.3		3.5					
		Bottom of Boring at 7.3 ft											
475.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/19/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-014**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50544
LONGITUDE : -85.77110
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION : 489.0
STATION : 417+14
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 55 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ⊠ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	6-6-7	100	15.3		>4.5 >4.5		37	20	17	2.5, pH = 5.8, SG = 2.82
485.0		**Clay Loam**, stiff, medium stiff near 4 ft, moist, brown, with clay seam near 4 ft and 7 ft, with organic matter near 6 ft, A-6(12), Lab No. 30771	SS 2	5-4-5	100	16.3 21.3		2.0 >4.5					
	5.0												6.0, LOI = 5 percent
			SS 3	6-6-8	100	23.3 18.2		>4.5					
	7.5												
		8.0											
480.0		**Silty Clay Loam**, stiff, moist, brown and gray, with silty clay seam near 9.5 ft, A-6, Lab No. 30772	SS 4	5-7-7	100	21.8		2.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
475.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-015**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50600
LONGITUDE : -85.77140
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION : 494.0
STATION : 419+24
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay**, medium stiff to stiff, moist, brown, with clay loam seam near 2 ft and 3.5 ft, A-6, Lab No. 31321	SS 1	5-3-3	78	15.9 17.2	115.9	3.5 >4.5	3.67				
490.0			SS 2	2-4-6	56	13.2 20.2		>4.5 2.25					
	5.0	5.3	SS 3	4-6-6	78	16.5		1.75 >4.5					
		Clay Loam, stiff, moist, brown, A-6, Lab No. 30771											
		6.8	SS 4	5-6-7	89	17.0		>4.5					
		Silty Clay Loam, stiff, moist, gray, A-6, Lab No. 30772 7.3											
	7.5	Bottom of Boring at 7.3 ft											
485.0	10.0												
	12.5												
480.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-016**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50654
LONGITUDE : -85.77125
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 499.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 421+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 55 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff to very stiff, moist, brown, with organic matter (wood fragments) near 5 ft, (fill to 5 ft), A-6, Lab No. 30771	SS 1	7-6-7	100	14.0 14.1	121.7	>4.5 >4.5	4.04				
495.0			SS 2	7-7-10	100	16.1 20.1 29.0		>4.5 3.0					5.0, LOI = 7 percent
	5.0												
		7.0	SS 3	5-8-10	100	17.4		>4.5					
	7.5	**Silty Clay Loam**, very stiff, moist, brown and gray, A-6(8), Lab No. 30772											
490.0			SS 4	7-8-8	100	19.5		1.5		30	19	11	
	10.0	10.0											10.0, pH = 5.4, SG = 2.72
		Bottom of Boring at 10.0 ft											
485.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-017**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50706
LONGITUDE : -85.77111
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 505.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 423+01	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay Loam**, medium stiff to stiff, moist, brown and gray, A-6, Lab No. 31370	SS 1	4-4-6	44	20.1 18.4		>4.5 3.0					
			SS 2	6-5-5	33	16.2		>4.5					
500.0	5.0		SS 3	4-4-7	56	16.6		3.5					
		6.0											
		Clay, stiff, moist, gray and brown, A-6, Lab No. 31321 7.3	SS 4	5-5-8	33	21.9		2.0					
	7.5	Bottom of Boring at 7.3 ft											
495.0	10.0												
	12.5												
490.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-018**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50763
LONGITUDE : -85.77139
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 510.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 425+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 4.0 ft ▼ At completion 5.0 ft ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	7-6-6	100	36.2 37.7		3.0 2.75					
505.0	5.0	**Clay Loam**, medium stiff to stiff, moist, brown, with wet granular seams throughout, A-7-6, Lab No. 30773	SS 2	6-4-4	100	16.2 45.5		>4.5 1.75					
	7.5		SS 3	5-3-4	100	46.2		2.25					
		8.5											
		Weathered Shale, soft, black	SS 4	9-9-10	67								
500.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
495.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-019**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50818
LONGITUDE : -85.77168
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION : 517.0
STATION : 427+23
OFFSET : 59.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 1.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
515.0	2.5	**Clay**, moist, brown, with organic matter, with shale fragments, A-6, Lab No. 31321 2.3	SS 1	3-2-25	56	18.3 19.1	113.7	4.0					2.0, LOI = 4 percent, soluble sulfate = 220 ppm
		Weathered Shale, soft, black 2.8	SS 2	50/1	0								
	5.0	**Shale**, moderately hard, dark gray	SS 3	50/1	0								
510.0	7.5	7.3	SS 4	50/1	0								
		Bottom of Boring at 7.3 ft Refer to RB-019RC that was performed at an offset where rock core was obtained.											
505.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-019RC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50819
LONGITUDE : -85.77152
DATUM : WGS 84
DATE STARTED : 08-11-21
DATE COMPLETED : 08-11-21

ELEVATION : 516.0
STATION : 427+20
OFFSET : 12.0 ft Left
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 90 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
515.0	2.5	Refer to Boring log for RB-019											
	3.0		RC 1 RQD= 33%		100								3.0, rock coring performed at 40-ft offset to east of RB-019
510.0	5.0	**Shale**, moderately hard, gray, with limestone partings											
	7.5		RC 2 RQD= 50%		93				398				
	10.0	Bottom of Boring at 10.0 ft											
505.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-020**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50872
LONGITUDE : -85.77154
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 521.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 429+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
520.0	2.5	**Clay**, medium stiff, moist, brown, with organic matter near 4 ft, A-6, Lab No. 31321	SS 1	8-5-5	89	16.5 21.1	110.9	>4.5 4.0					
	5.0	4.5	SS 2	5-4-6	100	51.4 24.5		1.5 2.5					
515.0		**Silty Clay**, medium stiff to very stiff, moist, brown, (residual soil below 6 ft), with weathered shale fragments near 7.5 ft, A-6, Lab No. 30769	SS 3	6-7-9	89	29.9		>4.5					
	7.5	7.5											
		Weathered Shale, soft, black	SS 4	50/4	83								
	10.0	10.0											
510.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-021**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50925
LONGITUDE : -85.77141
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 527.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 431+01	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.4											1.4, soluble sulfate = 410 ppm
525.0	2.5	**Clay Loam**, stiff to very stiff, moist, brown, with clay seam near 4 ft, with loam seam near 5 ft, A-6, Lab No. 31370	SS 1	5-7-11	44	11.4 14.7	110.5	>4.5 >4.5					
			SS 2	6-6-10	56	15.8 20.7		>4.5 >4.5					
	5.0		SS 3	4-5-8	67	5.3		>4.5					
520.0	7.5	7.4	SS 4	7-11-11	67	14.6		>4.5					
		Bottom of Boring at 7.4 ft											
	10.0												
515.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-022**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50981
LONGITUDE : -85.77169
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 530.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 433+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 57 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31370	SS 1	6-6-6	100	16.8 14.8		2.0 >4.5					
		3.0											
525.0	5.0	**Clay Loam**, very stiff, moist, brown, with shale fragments, A-7-6(9), Lab No. 30773	SS 2	5-8-14	100	17.5		0.5 2.0		45	25	20	5.0, pH = 7.8, SG = 2.85
		6.0											
	7.5	**Silty Clay**, hard, moist, gray and brown, (possible residual soil), A-6, Lab No. 30769	SS 3	14-23-37	100	12.4		>4.5					
			SS 4	50/4	83								
		9.0											
		Weathered Shale, soft, gray											
520.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
515.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-022A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.50981
LONGITUDE : -85.77169
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 530.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 433+14	RIG TYPE	: CME 55	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-022											
		1.0											
	2.5	**Clay Loam**, moist, brown, A-6(5), Lab No. 31370	ST 1		100	15.6		1.75 >4.5		26	14	12	2.0, pH = 7.6, SG = 2.67, portion of sample sent to INDOT for M_r testing
		3.0											
		Bottom of Boring at 3.0 ft											
525.0	5.0												
	7.5												
520.0	10.0												
	12.5												
515.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-023**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51037
LONGITUDE : -85.77198
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION : 532.0
STATION : 435+23
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
530.0	2.5	**Clay**, medium stiff to stiff, moist, brown, with some gravel below 4 ft, A-6(11), Lab No. 31322	SS 1	3-4-4	72	17.3 15.6	113.7	>4.5 >4.5	4.19	40	21	19	2.0, pH = 7.4, SG = 2.86
			SS 2	6-6-7	100	16.3 11.1		4.0 >4.5					
	5.0		SS 3	6-7-7	94	16.1		3.5					
		5.8											
525.0	7.5	**Silty Clay Loam**, very stiff, moist, brown, (residual soil), A-6, Lab No. 30772 7.3	SS 4	6-10-14	100	13.5		>4.5					
		Bottom of Boring at 7.3 ft											
520.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-024**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51091
LONGITUDE : -85.77183
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 532.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 437+14	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
530.0	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31322 3.0	SS 1	5-5-7	100	18.0 21.7	109.7	>4.5 3.25	2.32				
	5.0	**Sandy Loam**, stiff, moist, brown, (visual) 6.0	SS 2	5-6-9	100	15.8 20.4		0.5 0.5					
525.0	7.5	**Silty Clay**, hard, moist, gray, (possible residual soil), A-6, Lab No. 30769 9.0	SS 3	14-17-23	100	14.1		>4.5					
	10.0	**Weathered Shale**, soft, gray 10.0	SS 4	17-29-34	100								
		Bottom of Boring at 10.0 ft											
520.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-025**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51143
LONGITUDE : -85.77170
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 531.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 439+01	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.7 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
530.0		**Clay**, stiff, moist, brown, A-6, Lab No. 31322 2.2	SS 1	5-5-7	56	19.6 18.1	112.7	>4.5 4.0					
	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31370 3.7	SS 2	4-5-8	67	18.4 18.0		3.0 >4.5					
	5.0	**Clay Loam**, stiff, moist, brown, A-7-6, Lab No. 30773 5.2	SS 3	6-6-5	44	24.0		>4.5					
525.0		**Silty Clay**, stiff, moist, brown, A-6, Lab No. 30769 6.7	SS 4	8-7-8	56	19.4		>4.5					
		Bottom of Boring at 6.7 ft											
	7.5												
	10.0												
520.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-026**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51200
LONGITUDE : -85.77198
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 527.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 441+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
525.0	2.5	**Clay Loam**, stiff, moist, brown, with shale fragments near 2 ft, A-6, Lab No. 30774	SS 1	5-7-7	100	13.5 16.8	116.6	>4.5 >4.5	3.37				
		3.0											
	5.0	**Silty Clay Loam**, stiff, moist, brown, with shale fragments, A-6, Lab No. 30772	SS 2	5-6-6	100	14.0 15.9		2.5 >4.5					
		6.0											
520.0	7.5	**Clay**, stiff, moist, brown to gray below 7 ft, A-6, Lab No. 31321	SS 3	6-7-5	100	23.3		3.0					
		8.5	SS 4	50/3	100								
	10.0	**Weathered Shale**, soft, black											
		10.0											
		Bottom of Boring at 10.0 ft											
515.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-027**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51256
LONGITUDE : -85.77227
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION	: 523.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 443+26	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete											
		1.3											
	2.5	**Clay**, soft, moist, brown, A-6, Lab No. 30850	SS 1	2-2-2	56	17.4 21.4 18.8	116.5	3.5 3.25					2.0, LOI = 3 percent
520.0			SS 2	2-2-3	67	16.1 17.5		2.5 1.5					
		4.3											
	5.0	**Weathered Shale**, soft, black	SS 3	12-50/4	94								
		6.1	SS 4	50/4	83								
		Bottom of Boring at 6.1 ft											
	7.5												
515.0													
	10.0												
	12.5												
510.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-028**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51309
LONGITUDE : -85.77213
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 517.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 445+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 56 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 8.8 ft				

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
515.0	2.5	**Clay Loam**, stiff, moist, brown, with clay seam near 5 ft, A-6, Lab No. 30774	SS 1	6-7-7	100	16.6 15.8		>4.5 >4.5					
	5.0		SS 2	5-5-8	100	18.8 19.9		>4.5 3.5					
		6.0											
510.0	7.5	**Weathered Shale**, soft, black	SS 3	5-7-12	89								
		8.8	SS 4	50/3	100								
		Bottom of Boring at 8.8 ft											
505.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-029**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51362
LONGITUDE : -85.77199
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 512.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 447+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
510.0	2.5	**Clay**, very stiff, moist, gray to brown below 1.5 ft, with weathered shale fragments, A-6, Lab No. 30850	SS 1	12-15-13	33								
		3.0	SS 2	13-13-16	56								
	5.0	**Weathered Shale**, soft, black	SS 3	24-28-32	44								
			SS 4	21-36-41	56								
505.0		7.0											
	7.5	Bottom of Boring at 7.0 ft											
	10.0												
500.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-029A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51362
LONGITUDE : -85.77199
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 512.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 447+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-29											
		1.0											
510.0	2.5	**Clay**, moist, gray to brown below 1.5 ft, A-6(11), Lab No. 30850	ST 1		100	18.7		3.5 3.0		37	19	18	
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
505.0	7.5												
	10.0												
500.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-030**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51474
LONGITUDE : -85.77256
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION	: 500.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 451+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, medium stiff to stiff, moist, brown, with shale fragments throughout, (fill to 4 ft), A-6, Lab No. 30850	SS 1	3-7-7	100	19.2	115.7	>4.5					
			SS 2	8-4-4	100	19.0		4.5					
495.0	5.0		SS 3	4-4-6	100	22.8		>4.5					
			SS 4	4-6-7	100			3.25					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
490.0	10.0												
	12.5												
485.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-031**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51528
LONGITUDE : -85.77241
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 495.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 453+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 46 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	7-9-9	100								
490.0	5.0	**Clay Loam**, medium stiff to very stiff, brown and dark brown, with shale fragments, (fill to 4 ft), A-6, Lab No. 31370	SS 2	4-5-4	100	23.9		0.75					
	7.5	7.5	SS 3	24-14-13	78								
		Silty Clay Loam, stiff, moist, gray, (possible residual soil), A-6, Lab No. 30772											
485.0	10.0	10.0	SS 4	5-5-7	78	27.6		1.0 0.75					
		Bottom of Boring at 10.0 ft											
	12.5												
480.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-032**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51580
LONGITUDE : -85.77228
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 493.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 455+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
490.0	2.5	**Clay Loam**, very stiff to medium stiff, moist, brown, with shale fragments below 2.5 ft, with organic matter near 2.5 ft, (fill), A-6, Lab No. 31370	SS 1	8-8-12	67	15.0 16.7	110.3	>4.5 2.0					2.5, LOI = 12 percent
			SS 2	4-4-6	17	12.0							
	4.2												
	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, gray, (possible residual soil), A-6, Lab No. 30772	SS 3	4-3-4	33	23.7		1.5					
			SS 4	5-5-7	56	23.3		3.5					
	7.2												
485.0	7.5	Bottom of Boring at 7.2 ft											
	10.0												
480.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-033**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51637
LONGITUDE : -85.77256
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 492.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 457+15	RIG TYPE	: CME 55	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 47 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 6.0 ft ▼ At completion 5.0 ft ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
490.0	2.5		SS 1	8-9-5	22								
	5.0	**Clay Loam**, medium stiff to hard, moist, brown and gray, with shale fragments, (fill to 3 ft), A-6, Lab No. 31370	SS 2	3-4-4	0								
485.0	7.5		SS 3	3-3-3	17	24.8		0.5					
	10.0	10.0	SS 4	15-32-45	100								
		Bottom of Boring at 10.0 ft											
480.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-034**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51692
LONGITUDE : -85.77285
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION	: 493.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 459+24	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
490.0	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 30774	SS 1	3-3-3	83	11.5 19.9		>4.5 3.0					
			SS 2	3-4-5	100	17.7 19.6		2.5 2.0					
		Clay, medium stiff, moist, brown, A-6, Lab No. 30850 4.7											
	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, gray, with wood fragments near 5.5 ft, with clay seam near 7 ft, A-6, Lab No. 30772	SS 3	3-3-5	100	22.0		2.0					5.0, LOI = 2 percent
			SS 4	5-5-6	39	19.6		1.5					
	7.5	7.2											
485.0		Bottom of Boring at 7.2 ft											
	10.0												
	12.5												
480.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-035**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51746
LONGITUDE : -85.77270
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 495.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 461+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 46 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 8.7 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff to very stiff, moist, brown, with clay seam near 4 ft, A-6, Lab No. 31370	SS 1	5-6-8	89	17.8 20.3	111.3	>4.5 >4.5					
		4.5	SS 2	4-6-10	100	17.8 17.4		3.0					
490.0	5.0	**Silty Clay Loam**, very stiff to hard, moist, brown, (residual soil), A-6, Lab No. 30772	SS 3	11-50/4	94	19.9							
	7.5	7.0 **Weathered Shale**, soft, black											
		8.7	SS 4	50/2	83								
		Bottom of Boring at 8.7 ft											
485.0	10.0												
	12.5												
480.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-036**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51799
LONGITUDE : -85.77257
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION : 497.0
STATION : 463+02
OFFSET : 59.0 ft Right
LINE : 'PR-Q'
DEPTH : 6.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.9											
495.0	2.5	**Gravel**, medium dense, moist, gray, (fill; visual) 2.4	SS 1	8-7-7	44								
		Clay Loam, stiff, moist, brown, with clay seam near 4 ft, A-6, Lab No. 31370 3.9	SS 2	6-6-7	56	14.9 17.3		>4.5 3.0					
	5.0	**Silty Clay Loam**, stiff, moist, brown and gray, A-6, Lab No. 30772 5.4	SS 3	6-7-7	67	20.1		2.0					
		Clay, stiff, moist, brown, A-6, Lab No. 30850 6.9	SS 4	5-6-6	78	24.1		1.0					
490.0	7.5	Bottom of Boring at 6.9 ft											
	10.0												
485.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-037**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51856
LONGITUDE : -85.77285
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 498.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 465+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 45 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 8.7 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
495.0	2.5	**Clay Loam**, stiff to hard, moist, brown and gray, with organic matter near 3.5 ft, with shale fragments, with silty clay seam near 6 ft, with sandy loam seam near 7 ft, A-6(6), Lab No. 30774	SS 1	7-11-11	100	17.7 15.0	118.8	1.5 >4.5	5.36				
	5.0		SS 2	4-6-6	100	17.1 15.2		>4.5 >4.5		32	21	11	3.5, LOI = 6 percent, pH = 6.8, SG = 2.63
	7.5	7.5	SS 3	3-5-50/1	76	23.6		0.25					
490.0		**Weathered Shale**, soft, black 8.7	SS 4	50/2	83								
		Bottom of Boring at 8.7 ft											
	10.0												
	12.5												
485.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-038**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51911
LONGITUDE : -85.77314
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION : 500.0
STATION : 467+25
OFFSET : 59.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay**, medium stiff to stiff, moist, brown, with some gravel near 4 ft, A-6, Lab No. 30850	SS 1	2-3-4	89	16.6 14.6	117.3	3.0 >4.5					
			SS 2	4-4-4	83	17.8 16.0		>4.5 >4.5					
495.0	5.0	5.3	SS 3	5-5-6	78	17.2		>4.5					
		Clay Loam, medium stiff to stiff, moist, gray to brown below 6 ft, A-6, Lab No. 30774	SS 4	4-4-6	100	11.2		>4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
490.0	10.0												
	12.5												
485.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-039**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51965
LONGITUDE : -85.77300
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 502.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 469+15	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 45 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
500.0	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 30774	SS 1	5-6-7	56	15.8 15.3		1.5 >4.5					
	5.0		SS 2	4-5-7	100	18.0 19.8		3.5 2.25					
		6.0											
495.0	7.5	**Clay**, very stiff to stiff, moist, brown, A-6, Lab No. 30850	SS 3	9-13-14	78	12.4		3.5					
	10.0	10.0	SS 4	8-7-7	67	15.1		>4.5					
		Bottom of Boring at 10.0 ft											
490.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-040**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52017
LONGITUDE : -85.77286
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 504.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 471+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, stiff, moist, brown, with clay seam near 1.5 ft, A-6, Lab No. 30774	SS 1	4-6-7	67	22.9 16.7	100.8	>4.5 >4.5	1.46				
			SS 2	5-6-5	67	13.4 16.6		>4.5 >4.5					
500.0		4.1											
	5.0	**Silty Clay Loam**, stiff, moist, brown, with silty clay seam near 5.5 ft, A-6, Lab No. 30772	SS 3	5-6-6	67	19.2		1.0					
			SS 4	6-7-7	78	22.4		1.0					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
495.0													
	10.0												
	12.5												
490.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-041**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52074
LONGITUDE : -85.77314
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION : 505.0
STATION : 473+15
OFFSET : 3.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 50 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
		Silty Clay Loam, stiff, moist, brown, A-6, Lab No. 30796 2.0	SS 1	4-6-7	100	17.0 19.2		4.5 3.75					
	2.5												
		Clay, stiff, moist, brown, A-6, Lab No. 30850	SS 2	4-5-7	100	16.8 18.2		3.5 >4.5					
500.0	5.0	6.0											
		Silty Clay, stiff, moist, brown and gray, with weathered shale fragments near 7 ft, A-6, Lab No. 30769	SS 3	5-6-7	100	23.5		1.0					
	7.5	8.0											
		Sandy Clay Loam, stiff, moist, brown, (visual)	SS 4	7-7-7	100	17.6		2.0					
495.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
490.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-042**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52130
LONGITUDE : -85.77343
DATUM : WGS 84
DATE STARTED : 06-14-21
DATE COMPLETED : 06-14-21

ELEVATION : 507.0
STATION : 475+26
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
505.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, A-6, Lab No. 30774	SS 1	3-5-3	94	16.2 11.3	115.4	>4.5 >4.5					
			SS 2	8-6-8	67	11.6 15.0		>4.5 >4.5					
	5.0		SS 3	6-7-7	89	12.5		2.75					
		5.8											
500.0		**Clay**, stiff, moist, brown, A-6, Lab No. 30850	SS 4	6-8-7	83	19.3		3.75					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
	10.0												
495.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-043**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52183
LONGITUDE : -85.77328
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 509.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 477+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: B.C.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 30850	SS 1	6-8-9	100	18.2 15.1	113.0	>4.5 >4.5	2.22				
		3.0											
505.0	5.0	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 30774	SS 2	6-9-12	100	19.9 23.5		3.0 3.25					
		7.0	SS 3	7-9-11	100	29.1		1.0					
	7.5	**Silty Clay**, stiff to very stiff, moist, brown, with shale fragments, A-6, Lab No. 30769											
500.0		9.5	SS 4	7-7-11	100			1.0					
	10.0	**Weathered Shale**, soft, gray 10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
495.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-044**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52236
LONGITUDE : -85.77316
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 511.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 479+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
510.0		**Asphaltic Concrete** 1.4											
	2.5	**Clay Loam**, very stiff, moist, brown, with shale fragments near 2.5 ft, with organic matter near 3 ft, A-4, Lab No. 30783	SS 1	6-8-10	78	12.7 13.2 11.4		3.0 3.0					3.0, LOI = 6 percent
	4.0		SS 2	10-12-15	67	11.8		1.0					
	5.0	**Weathered Shale**, soft, black	SS 3	14-16-21	44								
505.0			SS 4	16-19-24	67								
	7.4	Bottom of Boring at 7.4 ft											
	7.5												
	10.0												
500.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-045**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52293
LONGITUDE : -85.77343
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 512.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 481+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 8.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
510.0	2.5	**Clay Loam**, very stiff to hard, moist, brown, with sandstone fragments near 4 ft, with clay seam near 6 ft, (possible residual soil below 6.5 ft), A-6, Lab No. 31376	SS 1	6-9-10	100	17.8 20.7		3.5 3.5					
	5.0		SS 2	6-10-14	100	20.9 22.5		2.0 3.5					
505.0	7.5		SS 3	50/5	83			2.0					
		Weathered Shale, soft, black 8.6	SS 4	50/1	83								
		Bottom of Boring at 8.6 ft											
500.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-046**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52348
LONGITUDE : -85.77373
DATUM : WGS 84
DATE STARTED : 06-10-21
DATE COMPLETED : 06-10-21

ELEVATION	: 514.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 483+27	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, soft to medium stiff, moist, brown, A-6, Lab No. 30850	SS 1	2-2-2	94	20.2 19.4		3.5 1.75					
510.0			SS 2	2-2-3	67	25.5 22.6	105.2	1.0 1.0	0.92				
	5.0	5.3	SS 3	2-3-4	83	20.2		0.75					
		Silty Clay Loam, medium stiff, moist, gray, A-6, Lab No. 30772 5.8											
		Sandy Loam, medium stiff, moist, brown, with some gravel, (visual)	SS 4	3-4-4	72	11.4		2.0					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
505.0													
	10.0												
	12.5												
500.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-047**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52402
LONGITUDE : -85.77358
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 516.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 485+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 44 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 9.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
515.0		**Topsoil** 0.5											
	2.5	**Clay**, stiff, moist, brown, with wood fragments near 2 ft, (fill), A-6, Lab No. 30850	SS 1	4-4-7	56	26.1 18.3		2.0 3.5					
		3.0											
	5.0	**Clay Loam**, soft, moist, brown, with some gravel near 7 ft, A-4, Lab No. 30783	SS 2	2-2-2	78	18.3 19.4		0.25 <0.25					
510.0			SS 3	5-2-2	100	19.1		0.25 2.0					
	7.5												
		8.5											
		Clay, hard, moist, brown and gray, with weathered shale near 9.5 ft, A-7-6, Lab No. 30795	SS 4	4-11-50/3	96	22.1		3.0					
	10.0	9.8											
		Bottom of Boring at 9.8 ft											
505.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-048**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52455
LONGITUDE : -85.77345
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 518.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 487+03	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.8 ft				

GROUNDWATER: ▽ Encountered at 5.0 ft ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Sand and Gravel, medium dense, moist, brown, (fill), A-1-b, Lab No. 30930 2.0	SS 1	9-8-4	78	19.5		3.0					
515.0	2.5	**Clay Loam**, stiff to medium stiff, moist, brown and gray, with clay seam near 2 ft and 5.5 ft, with sandy loam seam near 5 ft, with some gravel near 6 ft, A-6, Lab No. 31376	SS 2	3-3-4	22	18.3							
	5.0 ▽		SS 3	3-3-3	56	20.9		2.0 <0.25					
			SS 4	4-4-4	89	19.6		1.0 0.75					
	6.8	Bottom of Boring at 6.8 ft											
510.0	7.5												
	10.0												
505.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-049**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52511
LONGITUDE : -85.77373
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 520.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 489+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 42 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, with organic matter (wood fragments) near 4.5 ft, with silty clay loam seam near 5 ft, A-6, Lab No. 31376	SS 1	6-4-4	89	16.2 21.0		>4.5 1.75					
515.0	5.0	6.0	SS 2	4-8-4	89	21.0 22.4 55.3		3.0 >4.5					4.5, LOI = 6 percent
	7.5	**Sandy Loam**, medium stiff, moist, brown to gray below 9 ft, with clay seam near 9 ft, with some gravel below 9 ft, (visual)	SS 3	4-4-5	100	15.9		3.0					
510.0	10.0	10.0	SS 4	3-5-5	78	18.0							
		Bottom of Boring at 10.0 ft											
	12.5												
505.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-050**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52567
LONGITUDE : -85.77402
DATUM : WGS 84
DATE STARTED : 06-10-21
DATE COMPLETED : 06-10-21

ELEVATION	: 522.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 491+27	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.3											
520.0	2.5	**Clay Loam**, medium stiff to very stiff, moist, brown to gray below 4 ft, with sandy loam seam near 2.5 ft, A-6, Lab No. 31376	SS 1	2-3-5	83	14.7 9.2		>4.5 >4.5					
			SS 2	3-9-9	89	14.9 16.9		>4.5 3.0					
		4.3											
	5.0	**Loam**, stiff, moist, brown and gray, (visual)	SS 3	6-6-8	78	14.5		>4.5					
		5.8											
515.0		**Sandy Loam**, very stiff, moist, brown, with clay loam seam near 6 ft, (visual)	SS 4	4-7-9	83	12.6		1.25					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
510.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-051**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52620
LONGITUDE : -85.77387
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 524.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 493+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Snow
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, medium stiff to soft, moist, brown, A-6, Lab No. 30850	SS 1	3-3-4	100	21.3 21.2		1.5 1.25					
520.0		4.0											
	5.0	**Clay Loam**, soft to medium stiff, moist, brown, with shale fragments and cobble fragments near 7 ft, A-4, Lab No. 30783	SS 2	4-2-2	100	18.6 20.2		>4.5 1.0					
	7.5		SS 3	2-3-5	78	19.9		0.5 0.5					
		8.0											
515.0		**Clay**, stiff, moist, gray and brown, with some gravel, A-6, Lab No. 30798	SS 4	4-5-7	100	23.8		0.75 1.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft Bag sample obtained at offset (RB-051B) for moisture-density relations.											
	12.5												
510.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-052**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52673
LONGITUDE : -85.77374
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 526.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 495+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at ---

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
525.0		**Asphaltic Concrete** 1.0											
	2.5	**Clay Loam**, medium stiff, moist, brown, with organic matter near 1 ft, A-6, Lab No. 31376	SS 1	3-4-4	56	12.3 14.1 11.0		>4.5 >4.5					1.1, LOI = 6 percent
		4.0	SS 2	4-4-5	56	18.2 15.0		3.0 2.25					
	5.0	**Clay**, medium stiff to stiff, moist, brown and gray, with silt seams below 6 ft, A-6, Lab No. 30850	SS 3	4-5-5	44	18.5		2.25					
520.0			SS 4	6-6-7	67	19.2		1.25					
		7.0											
	7.5	Bottom of Boring at 7.0 ft											
	10.0												
515.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-052A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52673
LONGITUDE : -85.77374
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION : 526.0
STATION : 495+02
OFFSET : 59.0 ft Right
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
525.0		Refer to log for RB-052											
	1.0												
	2.5	**Clay Loam**, moist, gray and brown, A-6(7), Lab No. 31376	ST 1		54	19.4		3.0 2.75		32	19	13	2.0, SG = 2.79, pH = 7.4
	3.0	Bottom of Boring at 3.0 ft											
520.0	5.0												
	7.5												
515.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-053**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52730
LONGITUDE : -85.77401
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION : 528.0
STATION : 497+16
OFFSET : 3.0 ft Right
LINE : 'PR-Q'
DEPTH : 8.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 40 °F
WEATHER : Partly Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, medium stiff, moist, brown, with cobbles near 2 ft, A-4(3), Lab No. 30783	SS 1	5-3-3	67	20.9 17.3		1.5 3.0		25	17	8	1.0, pH = 7.9, SG = 2.69
525.0		3.0											
	5.0	**Silty Clay**, soft, moist, brown, A-6, Lab No. 30770	SS 2	2-2-2	44	24.8 21.9		0.25 1.0					
		6.0											
	7.5	**Clay**, stiff to hard, moist, brown and gray, (possible residual soil below 8 ft), A-6, Lab No. 30850	SS 3	5-6-8	100	15.4		2.75					
520.0		8.5											
		Weathered Shale, soft, black 8.8	SS 4	50/4	83			2.0					
		Bottom of Boring at 8.8 ft				17.7							
	10.0												
	12.5												
515.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-054**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52785
LONGITUDE : -85.77433
DATUM : WGS 84
DATE STARTED : 06-10-21
DATE COMPLETED : 06-10-21

ELEVATION	: 529.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 499+29	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay Loam**, medium stiff to stiff, moist, gray to brown below 2.5 ft, A-6, Lab No. 30785	SS 1	2-4-4	83	20.7 17.4	113.1	>4.5 >4.5					
525.0		4.3	SS 2	4-5-7	83	16.0 15.9		>4.5 >4.5					
	5.0	**Clay**, stiff, moist, brown to brown and gray below 6 ft, A-6, Lab No. 30850	SS 3	7-6-8	94	16.0		>4.5					
		7.3	SS 4	4-4-8	33	17.1		1.5					
	7.5	Bottom of Boring at 7.3 ft											
520.0													
	10.0												
	12.5												
515.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-055**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52838
LONGITUDE : -85.77421
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION : 532.0
STATION : 501+16
OFFSET : 1.0 ft Right
LINE : 'PR-Q'
DEPTH : 8.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 40 °F
WEATHER : Partly Cloudy

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
530.0	2.5	**Clay**, stiff to medium stiff, moist, brown, A-6, Lab No. 30850	SS 1	4-5-8	100	18.1 21.1	100.9	4.0 >4.5	2.10				1.0, soluble sulfate = 80 ppm
	5.0		SS 2	3-4-5	78	20.0		3.5 3.0					
		6.5											
525.0	7.5	**Weathered Shale**, soft, black	SS 3	3-32-50/4	77								
		8.8	SS 4	50/3	100								
		Bottom of Boring at 8.8 ft											
520.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-056**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52891
LONGITUDE : -85.77411
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION : 535.0
STATION : 502+99
OFFSET : 58.0 ft Right
LINE : 'PR-Q'
DEPTH : 7.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown and gray, with silty clay seam near 1.5 ft, A-6, Lab No. 30796 2.6	SS 1	4-3-3	56	26.8 20.8		2.5 2.0					
		Clay Loam, medium stiff, moist, brown and gray, A-6, Lab No. 31376 5.2	SS 2	5-5-4	56	15.6 18.3		>4.5 >4.5					
530.0	5.0		SS 3	3-3-4	67	17.4		3.5					
		Clay, medium stiff, moist, brown, A-6, Lab No. 30850 7.1	SS 4	4-4-4	89	18.6		2.75					
	7.5	Bottom of Boring at 7.1 ft											
525.0	10.0												
	12.5												
520.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-057**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52947
LONGITUDE : -85.77444
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 536.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 505+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 42 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
535.0		**Topsoil** 0.5											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31376	SS 1	3-4-5	100	20.2 19.3	111.1	1.25 2.5					
	5.0		SS 2	2-3-4	100	18.8 20.4		>4.5 1.75					
530.0	7.5		SS 3	3-3-5	100	19.0		2.0					
		Sandy Loam, medium stiff, moist, brown, with sandstone fragments, (visual) 8.0											
	10.0	**Clay**, very stiff, moist, brown, with sandstone fragments near 9 ft, with weathered shale fragments below 9.5 ft, A-6, Lab No. 30850 10.0	SS 4	4-9-16	89	15.3		>4.5					
525.0	12.5	Bottom of Boring at 10.0 ft											
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-058**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53001
LONGITUDE : -85.77480
DATUM : WGS 84
DATE STARTED : 06-10-21
DATE COMPLETED : 06-10-21

ELEVATION : 537.0
STATION : 507+31
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
535.0	2.5	**Clay**, medium stiff, moist, brown, with some gravel below 2 ft, with organic matter near 2.5 ft, (fill), A-6, Lab No. 30850 2.8	SS 1	3-3-3	83	20.4 20.9		>4.5 1.5					2.5, LOI = 5 percent
		Silty Clay, very stiff, moist, gray, (residual soil), A-6, Lab No. 31323 4.3	SS 2	6-9-12	100	15.7 13.4	118.6	>4.5 >4.5					
	5.0		SS 3	12-19-23	94	12.2							
		Weathered Shale, soft, gray	SS 4	11-17-24	100	10.8							
530.0	7.5	7.3											
		Bottom of Boring at 7.3 ft											
	10.0												
525.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-059**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53054
LONGITUDE : -85.77473
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 540.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 509+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
		Clay Loam, very stiff, moist, brown, with sandstone fragments and some gravel, (visual) 2.0	SS 1	9-12-10	100	32.1 19.4		1.0 >4.5					
	2.5	**Clay Loam**, very stiff, moist, brown, with shale fragments, A-6, Lab No. 30785 4.0											
535.0	5.0		SS 2	10-11-13	100	13.0 14.9		>4.5 >4.5					
		Silty Clay, very stiff to hard, moist, brown, (residual soil), A-6, Lab No. 30769	SS 3	14-18-20	100	15.8		>4.5					
	7.5	8.5											
		Weathered Shale, soft, brown 10.0	SS 4	7-17-31	100								
530.0	10.0	Bottom of Boring at 10.0 ft											
	12.5												
525.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-060**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53107
LONGITUDE : -85.77467
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION : 543.0
STATION : 510+98
OFFSET : 59.0 ft Right
LINE : 'PR-Q'
DEPTH : 6.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											0.8, LOI = 5 percent
		Clay Loam, medium stiff, moist, brown, with organic matter near 1 ft, (fill), A-6, Lab No. 31376 2.4	SS 1	5-5-5	56	20.8 14.3	95.3	2.5 >4.5	2.47				
540.0	2.5		SS 2	6-6-7	89	15.3 19.5		>4.5 >4.5					
	5.0	**Clay**, stiff to very stiff, moist, brown and gray, with frequent silt seams, with silty clay loam seam near 4 ft, A-6, Lab No. 30850	SS 3	6-8-10	78	13.2		3.0					
		6.8	SS 4	7-7-9	67	16.4		2.5					
		Bottom of Boring at 6.8 ft											
535.0	7.5												
	10.0												
530.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-061**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53161
LONGITUDE : -85.77506
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 544.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 513+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 38 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff, moist, brown, A-4, Lab No. 30784 3.0	SS 1	5-7-8	78	15.4 16.9	115.9	>4.5 >4.5	5.83				
540.0	5.0	**Clay**, stiff, moist, brown, A-6, Lab No. 30850 6.0	SS 2	5-5-7	100	18.4 17.9		>4.5 4.0					
	7.5	**Silty Clay**, very stiff, moist, brown and gray, (residual soil), A-6, Lab No. 30769 9.0	SS 3	6-7-10	78	17.6		>4.5					
535.0	10.0	**Weathered Shale**, soft, gray 10.0	SS 4	8-14-18	100								
		Bottom of Boring at 10.0 ft											
	12.5												
530.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-062**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53216
LONGITUDE : -85.77544
DATUM : WGS 84
DATE STARTED : 06-10-21
DATE COMPLETED : 06-10-21

ELEVATION	: 546.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 515+37	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
545.0		**Asphaltic Concrete** 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5		SS 1	3-3-4	94	17.3 14.5	115.8	3.0 3.0	3.51				
		Clay, medium stiff to stiff, moist, brown, with clay loam seam near 4 ft and 5 ft, with weathered shale fragments near 7 ft, A-6, Lab No. 30850	SS 2	3-4-5	89	17.1 17.6		4.5 >4.5					
	5.0		SS 3	6-6-8	83	17.3		>4.5					
540.0			SS 4	5-5-7	83	14.8		2.25					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
	10.0												
535.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-063**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53268
LONGITUDE : -85.77539
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 548.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 517+16	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 38 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
545.0	2.5	**Clay**, medium stiff to stiff, moist, brown to gray below 4 ft, A-6, Lab No. 30850	SS 1	5-6-6	100	13.1 15.7	113.9	3.0 4.0	3.94				
	5.0		SS 2	3-3-3	100	22.9 18.9		1.5 2.0					
		6.0											
	7.5	**Clay Loam**, very stiff, moist, gray to brown below 7 ft, with sandy loam seam near 7 ft, A-4, Lab No. 30784	SS 3	4-6-15	100	14.4		2.0					
540.0		7.5											
	10.0	**Sandy Loam**, very stiff, moist, brown, with some gravel, (visual)	SS 4	8-12-12	100	19.6		2.0					
		10.0											
		Bottom of Boring at 10.0 ft											
535.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-064**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53319
LONGITUDE : -85.77535
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION : 550.0
STATION : 518+95
OFFSET : 59.0 ft Right
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Clay Loam**, stiff, moist, brown, A-4, Lab No. 30784 2.8	SS 1	8-6-7	67	13.6		>4.5 >4.5					
			SS 2	6-7-8	56	17.9 18.0	112.3	3.5 >4.5					
545.0	5.0	**Clay**, stiff, moist, brown and gray, with frequent silt seams below 4 ft, A-6, Lab No. 30850	SS 3	6-6-9	44	17.6		4.0					
			SS 4	7-7-8	67	17.2		3.0					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
540.0	10.0												
	12.5												
535.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-065**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53374
LONGITUDE : -85.77573
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 552.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 521+17	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 35 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 1.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
550.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown to brown and gray below 4.5 ft, with some gravel near 7 ft, A-4(3), Lab No. 30784	SS 1	4-6-5	78	18.0 15.7		1.75 2.0					
	5.0		SS 2	3-4-5	100	17.8 16.8	114.7	2.25 2.5	1.41	24	17	7	4.5, pH = 8.4, SG = 2.70
545.0	7.5	7.0	SS 3	6-6-6	56	24.5		>4.5					
		Silty Clay Loam, stiff to very stiff, moist, brown and gray, A-6, Lab No. 30796	SS 4	4-7-9	100	22.0		1.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
540.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-066**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53429
LONGITUDE : -85.77613
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 554.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 523+36	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay Loam**, soft to stiff, moist, brown, with sandy loam seam near 4 ft, A-6, Lab No. 30785	SS 1	2-2-3	83	16.4 16.3		3.0 2.5					
550.0			SS 2	5-4-4	94	19.0 11.1		>4.5 2.25					
	5.0		SS 3	5-6-6	100	13.3		>4.5					
		5.8											
		Clay, stiff, moist, brown, A-6, Lab No. 30850	SS 4	4-6-8	94	13.5		>4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
545.0	10.0												
	12.5												
540.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-067**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53481
LONGITUDE : -85.77607
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION : 556.0
STATION : 525+17
OFFSET : 3.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 35 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
555.0			SS 1	3-3-4	100	24.8 22.6 22.0		1.0 0.5		33	17	16	2.5, pH = 8.7, SG = 2.73
	2.5												
	5.0	**Clay Loam**, medium stiff to very stiff, moist, brown, A-6(8), Lab No. 30785	SS 2	4-4-6	100	24.9 17.2	113.9	2.0 >4.5	3.77				
550.0			SS 3	9-10-12	100	16.1		>4.5					
	7.5												
	10.0	10.0	SS 4	8-10-11	100	16.7		>4.5					
		Bottom of Boring at 10.0 ft											
545.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-068**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53532
LONGITUDE : -85.77604
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 558.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 526+95	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											1.2, LOI = 5 percent
555.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown and gray, with organic matter near 1.5 ft, with loam seam near 4 ft, A-6, Lab No. 30785	SS 1	4-3-4	67	17.0 15.3		2.5 >4.5					
			SS 2	5-5-4	56	21.3 11.7		1.5 3.5					
	5.0		SS 3	5-7-7	44	16.2		3.0					
			SS 4	4-3-6	33	16.9		>4.5					
	7.2	Bottom of Boring at 7.2 ft											
550.0	7.5												
	10.0												
545.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-069**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53587
LONGITUDE : -85.77641
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION	: 560.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 529+17	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 35 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, stiff to medium stiff, moist, brown, A-7-6, Lab No. 30795	SS 1	6-6-8	100	22.3 25.3	103.9	3.0 2.5	2.14				
555.0	5.0		SS 2	4-4-6	100	23.7 19.9		3.75 3.75					
	7.5	6.0 **Silty Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 30796	SS 3	9-5-5	100	26.0		1.5					
550.0	10.0	9.0 **Clay Loam**, stiff, moist, brown, A-6, Lab No. 30785 10.0	SS 4	6-7-7	100	17.9		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
545.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-070**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53641
LONGITUDE : -85.77684
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 562.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 531+35	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 69.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
560.0	2.5	**Clay Loam**, medium stiff, moist, brown, (fill), A-6, Lab No. 30785 2.3	SS 1	3-3-5	83	14.4 20.9	108.7	>4.5 3.25	4.45				
			SS 2	5-5-6	78	22.1 21.0		3.0 4.0					
	5.0	**Clay**, medium stiff to stiff, moist, brown, with shale fragments near 3 ft, with silty clay loam seam near 5 ft, with silty clay seam near 6 ft, A-7-6, Lab No. 30795	SS 3	5-7-6	100	17.8		4.0					
555.0			SS 4	6-5-6	100	20.7		3.75					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
550.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-071**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53700
LONGITUDE : -85.77676
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 564.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 533+38	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 9.5 ft ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	4-5-7	100	15.2		3.0					
560.0		**Clay Loam**, stiff, moist, brown, with clay seam near 4 ft, with some gravel near 7.5 ft, A-4, Lab No. 30784	SS 2	5-5-8	100	21.1 8.8	104.9	3.0 4.0	2.08				
	5.0												
	7.5		SS 3	5-6-8	100	16.1		1.5					
		8.0											
555.0		**Clay Loam**, stiff, moist, brown, with some gravel, A-6, Lab No. 30785	SS 4	4-5-6	100	25.0		0.5					
		9.5 **Gravelly Sand**, medium dense, wet, brown, (visual) 10.0											
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
550.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-072**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53746
LONGITUDE : -85.77665
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 566.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 534+97	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 71.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
565.0	0.0	**Asphaltic Concrete** 0.8											
	2.5	**Clay Loam**, stiff to very stiff, moist, brown, A-6, Lab No. 31377	SS 1	5-6-6	56	19.2 14.2		>4.5 3.5					
		4.0	SS 2	6-9-9	44	16.8 15.3		3.5 3.0					
	5.0	**Clay**, stiff to very stiff, moist, brown, with some gravel near 4 ft, A-7-6, Lab No. 30795	SS 3	7-6-8	33	25.2		2.0					
560.0			SS 4	6-7-9	67	17.6		>4.5					
		6.9											
	7.5	Bottom of Boring at 6.9 ft											
	10.0												
555.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-073**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53802
LONGITUDE : -85.77703
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 567.0
STATION : 537+17
OFFSET : 8.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
565.0	2.5	**Clay**, stiff, moist, brown, with organic matter near 1 ft, A-7-6, Lab No. 30795	SS 1	5-6-8	100	18.4 17.8	111.1	4.0 3.25	4.06				1.0, LOI = 10 percent
		3.0											
	5.0		SS 2	5-6-7	100	15.3 18.9		>4.5 3.5					
560.0	7.5	**Clay Loam**, stiff to hard, moist, brown, A-6, Lab No. 31371	SS 3	7-7-13	100	12.9		3.5					
	10.0	10.0	SS 4	11-14-17	100	10.1		>4.5					
		Bottom of Boring at 10.0 ft											
555.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-074**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53856
LONGITUDE : -85.77742
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION : 568.0
STATION : 539+34
OFFSET : 58.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
		Clay Loam, medium stiff, moist, brown, (fill), A-4, Lab No. 30784 2.3	SS 1	4-3-3	83	13.0 17.5		>4.5 >4.5					
565.0	2.5		SS 2	4-7-7	89	17.9 16.1		4.0 >4.5					
	5.0	**Silty Clay**, medium stiff to very stiff, moist, brown to gray, with shale fragments below 4 ft, with silty clay loam seam near 6 ft, A-6, Lab No. 31323	SS 3	12-12-13	83	14.8		>4.5					
			SS 4	12-13-15	67	15.2		1.5					
	7.5	7.3											
560.0		Bottom of Boring at 7.3 ft											
	10.0												
	12.5												
555.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-075**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53909
LONGITUDE : -85.77732
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 567.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 541+17	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
565.0	2.5	**Clay**, stiff to medium stiff, moist, brown, with cobbles near 4.5 ft, A-7-6, Lab No. 30795	SS 1	4-5-8	100	16.7 19.9 18.9	102.3	2.5 3.0					1.0, LOI = 3 percent
	5.0		SS 2	5-6-7	100	19.3 21.4		>4.5 4.0					
560.0	7.5		SS 3	3-4-5	100	26.4		4.0					
		8.0											
	10.0	**Clay Loam**, very stiff, moist, brown and gray, with shale fragments near 10 ft, A-6, Lab No. 30785 10.0	SS 4	3-6-10	100	15.5		>4.5					
555.0	12.5	Bottom of Boring at 10.0 ft Bag sample obtained at offset (RB-075B) for moisture-density relations.											
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-076**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53961
LONGITUDE : -85.77725
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION : 565.0
STATION : 542+99
OFFSET : 61.0 ft Right
LINE : 'PR-Q'
DEPTH : 7.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, with silt seam near 2.5 ft, A-4, Lab No. 30784	SS 1	7-5-5	67	15.9 12.5		2.5 3.0					
		3.5	SS 2	5-6-6	56	13.9 16.5 18.3		3.5 4.0					
560.0	5.0	**Clay**, stiff to very stiff, moist, brown, with organic matter near 4 ft, with some gravel below 6 ft, A-7-6, Lab No. 30795	SS 3	7-8-9	44	20.4		4.0					4.2, LOI = 4 percent
		7.1	SS 4	8-10-10	56	25.4		2.5					
	7.5	Bottom of Boring at 7.1 ft											
555.0	10.0												
	12.5												
550.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-077**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54009
LONGITUDE : -85.77758
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 563.0
STATION : 544+89
OFFSET : 2.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
560.0	2.5		SS 1	3-3-8	100	19.4 20.3 20.0		>4.5 >4.5		44	19	25	2.5, pH = 7.6, SG = 2.75
	5.0	**Clay**, stiff to very stiff, moist, brown, with shale fragments near 9 ft, A-7-6(23), Lab No. 30795	SS 2	6-10-13	100	18.6 16.8	111.4	>4.5 >4.5	5.20				
555.0	7.5		SS 3	7-10-14	100	17.2		3.5					
	10.0	10.0	SS 4	12-11-11	89	17.8		>4.5					
		Bottom of Boring at 10.0 ft											
550.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-078**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54072
LONGITUDE : -85.77793
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 562.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 547+32	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
560.0	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 30785 2.7	SS 1	3-4-4	83	18.2 16.3	113.4	>4.5 >4.5	4.67				
			SS 2	5-7-11	89	16.4 11.0		>4.5 4.0					
	5.0	**Silty Clay**, very stiff, moist, brown to gray, with weathered shale fragments below 4 ft, with loam seam near 4 ft, A-6, Lab No. 31323	SS 3	9-9-12	39	19.5		>4.5					
555.0		7.2	SS 4	12-11-9	72	15.5		>4.5					
	7.5	Bottom of Boring at 7.2 ft											
550.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-079**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54126
LONGITUDE : -85.77780
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 560.0
STATION : 549+18
OFFSET : 9.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 65 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 30798	SS 1	7-8-8	100	14.4 14.8		>4.5 >4.5					
		3.0											
555.0	5.0	**Silty Clay**, very stiff, moist, brown, A-7-6, Lab No. 30797	SS 2	6-7-11	100	21.3 23.6		4.0 >4.5					
		6.0											
	7.5	**Weathered Shale**, soft, gray	SS 3	12-27-41	100	12.4							
		9.8	SS 4	26-37-50/4	96	11.1							
550.0	10.0	Bottom of Boring at 9.8 ft											
	12.5												
545.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-080**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54177
LONGITUDE : -85.77772
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 559.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 551+02	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Sand and Gravel, medium dense, moist, gray, (subbase), A-1-b, Lab No. 30930 2.2	SS 1	9-6-8	100	17.0		>4.5					
	2.5												
555.0		**Clay Loam**, stiff to very stiff, moist, gray, with some gravel, A-4, Lab No. 30784 4.7	SS 2	13-12-10	56	8.8 12.1		>4.5 >4.5					
	5.0		SS 3	12-14-16	67	11.8							
		Weathered Shale, soft, gray	SS 4	14-18-31	78	12.6							
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
550.0													
	10.0												
	12.5												
545.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-081**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54234
LONGITUDE : -85.77803
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 556.0
STATION : 553+18
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 62 °F
WEATHER : Sunny

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
555.0		**Topsoil** 0.5											
	2.5	**Silty Clay**, very stiff to hard, moist, brown, (possible residual soil), A-6, Lab No. 31323	SS 1	11-12-16	100	13.8 15.4		>4.5 >4.5					
	5.0	5.0	SS 2	13-15-20	100	12.9 12.4		>4.5 >4.5					
550.0	7.5	**Weathered Shale**, soft, brown	SS 3	20-32-48	100	11.0							
	10.0	10.0	SS 4	21-34-50	100	11.8							
		Bottom of Boring at 10.0 ft											
545.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-082**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54289
LONGITUDE : -85.77835
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 555.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 555+28	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at 5.0 ft ▼ At completion 5.3 ft ▨ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Clay Loam**, medium stiff, moist, brown, (fill), A-6, Lab No. 31377 2.2	SS 1	2-3-3	94	18.1 20.8	112.6	>4.5 1.5	4.29				
		Silty Clay Loam, soft to medium stiff, moist, brown and gray, A-6, Lab No. 30796	SS 2	3-2-3	100	21.3 18.1		4.0 >4.5					
550.0	5.0	5.2	SS 3	3-4-4	100	21.3		1.0					
		Silty Clay, medium stiff, moist, brown and gray, A-6, Lab No. 31323	SS 4	3-4-6	83	14.3		3.5					
	7.5	7.2											
		Bottom of Boring at 7.2 ft											
545.0	10.0												
	12.5												
540.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-083**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54343
LONGITUDE : -85.77822
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 553.0
STATION : 557+18
OFFSET : 2.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
550.0	2.5	**Silty Clay Loam**, soft to stiff, moist, brown, with root fibers near 2 ft, A-6 (10), Lab No. 30796	SS 1	2-2-3	89	33.1 29.9 31.2		1.0 0.25		34	22	12	2.5, pH = 7.7, SG = 2.72, soluble sulfate = 80 ppm
	5.0		SS 2	3-4-7	78	22.7 22.1		2.5 3.5					
		6.0											
545.0	7.5	**Clay**, very stiff, moist, brown, with silt seams, (possible residual soil), A-6, Lab No. 30798	SS 3	8-10-13	100	17.4		>4.5					
		9.0											
	10.0	**Weathered Shale**, soft, gray	SS 4	15-27-48	100	11.4							
		10.0											
		Bottom of Boring at 10.0 ft											
540.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-084**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54396
LONGITUDE : -85.77806
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 551.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 559+04	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 70.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
550.0	0.0	**Asphaltic Concrete** 0.9											
	2.5	**Clay Loam**, medium stiff to soft, moist, brown, with some gravel, (fill), A-6, Lab No. 31377 3.0	SS 1	6-4-6	56	26.7							
			SS 2	3-2-3	33			0.5					
	5.0	**Clay**, soft to very stiff, moist, brown, with some gravel near 4 ft, A-7-6, Lab No. 30795	SS 3	6-5-7	33	21.4		3.5					
545.0			SS 4	7-7-9	44	22.5		4.0					
	6.9	Bottom of Boring at 6.9 ft											
	7.5												
	10.0												
540.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-085**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54452
LONGITUDE : -85.77836
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 549.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 561+18	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, stiff to medium stiff, moist, brown, A-6, Lab No. 31377	SS 1	4-5-9	100	16.9 18.0	113.6	>4.5 3.0	2.10				
545.0			SS 2	5-5-5	100	16.9 16.4		4.5 >4.5					
	5.0	6.0											
	7.5	**Silty Clay Loam**, very stiff, moist, brown, A-6, Lab No. 30796	SS 3	5-8-9	100	19.7		>4.5					
		8.0											
540.0		**Clay**, very stiff, moist, brown, with shale fragments, A-6, Lab No. 30798	SS 4	11-12-15	100	21.3		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
535.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-085A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54452
LONGITUDE : -85.77836
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 549.0
STATION : 561+18
OFFSET : 6.0 ft Right
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-085											
	1.0												
		Clay Loam, moist, brown, A-6(6), Lab No. 31377	ST 1		79	15.0 16.6	111.0	2.25 >4.5		31	20	11	2.0, pH = 7.8, SG = 2.82
	2.5												
	3.0												
		Bottom of Boring at 3.0 ft											
545.0													
	5.0												
	7.5												
540.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-086**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54508
LONGITUDE : -85.77868
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 548.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 563+28	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 63.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
545.0	2.5	**Clay**, soft to stiff, moist, brown, A-7-6, Lab No. 30795	SS 1	2-2-3	89	21.5 21.4 20.8	103.8	4.0 3.5	3.37				2.0, LOI = 2 percent
			SS 2	4-4-5	100	21.3 18.1		2.75 3.25					
	5.0		SS 3	4-5-8	94	21.3		2.25					
		Silty Clay, stiff, moist, brown, (residual soil), A-6, Lab No. 31323 7.3	SS 4	5-6-6	67	14.3		>4.5					
540.0	7.5	Bottom of Boring at 7.3 ft											
	10.0												
535.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-087**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54561
LONGITUDE : -85.77851
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 546.0
STATION : 565+19
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
545.0		**Clay**, stiff, moist, brown, A-7-6, Lab No. 30795 2.0	SS 1	5-5-6	100	20.3 20.3		3.75 2.5					
	2.5	**Silty Clay**, stiff to very stiff, moist, gray and brown , A-6, Lab No. 31323 4.0	SS 2	5-7-9	100	16.9 18.0		2.0 >4.5					
	5.0	**Silty Clay Loam**, very stiff, moist, brown, A-6, Lab No. 30796 6.0											
540.0			SS 3	7-8-10	100	14.4		>4.5					
	7.5	**Silty Clay**, very stiff, moist, gray and brown, (residual soil), A-6, Lab No. 31323											
	10.0	10.0	SS 4	7-9-15	100	13.4		>4.5					
		Bottom of Boring at 10.0 ft											
535.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-088**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54614
LONGITUDE : -85.77837
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 544.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 567+06	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Silty Clay**, medium stiff, moist, brown and gray, A-6, Lab No. 31323	SS 1	2-3-5	44	21.3 26.5		2.0 2.5					
540.0			SS 2	4-4-4	56	22.7 23.5		3.5 1.0					
	5.0	5.0	SS 3	3-5-3	33	16.2		>4.5					
		Clay, medium stiff to very stiff, moist, brown, with shale fragments, A-6, Lab No. 30798	SS 4	7-8-9	89	16.0		>4.5					
	7.5	7.2											
		Bottom of Boring at 7.2 ft											
535.0	10.0												
	12.5												
530.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-089**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54671
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 542.0
STATION : 569+19
OFFSET : 5.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 60 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
540.0	2.5	**Silty Clay Loam**, very stiff, moist, brown, A-6, Lab No. 30796 3.0	SS 1	7-7-9	100	20.5 21.0		>4.5 3.5					
	5.0	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31377 6.0	SS 2	6-9-11	100	19.3 19.6	108.3	>4.5 >4.5	3.40				6.0, LOI = 5 percent
535.0	7.5	**Clay**, very stiff, moist, brown, with some gravel, A-6, Lab No. 30798 7.0	SS 3	7-11-15	100	16.1 15.6		2.0					
		Weathered Shale, soft, gray	SS 4	17-35-50/4	64	10.6							
530.0	10.0	9.8 Bottom of Boring at 9.8 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-090**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54726
LONGITUDE : -85.77889
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 540.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 571+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, A-6(13), Lab No. 31323	SS 1	2-3-4	83	22.1		>4.5 2.5		35	20	15	2.0, pH = 8.2, SG = 2.81
			SS 2	3-4-4	94	22.3 20.3		2.25 2.75					
535.0	5.0		SS 3	4-4-5	100	20.6		4.0					
			SS 4	5-7-8	94	17.2		4.0					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
530.0	10.0												
	12.5												
525.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-091**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54780
LONGITUDE : -85.77870
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 538.0
STATION : 573+19
OFFSET : 6.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 58 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
		Clay Loam, very stiff, moist, brown, A-6, Lab No. 30785 2.0	SS 1	8-12-27	100	12.0 18.6	108.6	>4.5 >4.5	5.51				
535.0	2.5	**Silty Clay**, hard, moist, brown, (residual soil), A-7-6, Lab No. 30797 4.0	SS 2	18-24-43	100	13.7							
	5.0												
		Weathered Shale, soft, brown to gray below 7 ft	SS 3	17-42-50/4	90	10.7							
530.0	7.5												
		9.9	SS 4	21-37-50/5	95	9.8							
	10.0	Bottom of Boring at 9.9 ft											
	12.5												
525.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/19/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-092**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54833
LONGITUDE : -85.77855
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 537.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 575+09	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 58.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 5.5 ft ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
535.0	2.5	**Sand and Gravel**, medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 2.8	SS 1	6-8-8	56								
		Clay Loam, medium stiff, moist, brown, A-6, Lab No. 31377 4.0	SS 2	7-5-5	44	15.6 13.6		>4.5 >4.5					
	5.0	**Silty Clay**, medium stiff to hard, moist, gray, A-7-6, Lab No. 30797	SS 3	7-10-10	56	15.2		>4.5					
530.0		7.3	SS 4	17-18-21	44	15.8		>4.5					
	7.5	Bottom of Boring at 7.3 ft											
	10.0												
525.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-093**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54890
LONGITUDE : -85.77877
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 535.0
STATION : 577+19
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 58 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	27-50/4	83	9.3 8.5 10.6				47	26	21	1.0, pH = 8.1, SG = 2.86
			SS 2	27-50/4	94	9.3 9.5							3.5, I_i = 1 after 10 minutes
530.0	5.0	**Silty Clay**, hard, moist, gray, with weathered shale fragments, (residual soil), A-7-6(24), Lab No. 30797											
			SS 3	25-50/4	94	8.1							
	7.5												
			SS 4	33-50/3	94	8.1							
		9.3											
525.0	10.0	Bottom of Boring at 9.3 ft											
	12.5												
520.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-094**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54946
LONGITUDE : -85.77902
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 533.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 579+23	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
530.0	2.5	**Silty Clay**, medium stiff to stiff, moist, gray, (residual soil), A-6, Lab No. 31323	SS 1	3-3-5	67	16.3 14.4		>4.5 >4.5					
			SS 2	6-5-6	100	11.0 12.0		2.0 >4.5					
	5.0		SS 3	6-7-7	83	14.6		>4.5					
		5.8											
		Weathered Shale, soft, gray	SS 4	11-17-29	94	10.4							
	7.5	7.3											
525.0		Bottom of Boring at 7.3 ft											
	10.0												
	12.5												
520.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-095**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55000
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 532.0
STATION : 581+19
OFFSET : 7.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 58 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
530.0	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31377	SS 1	6-6-7	100	18.2	112.1	>4.5 3.0	2.54				
	4.5		SS 2	6-6-8	100	16.9 17.2		>4.5 3.0					
525.0	5.0												
	7.5	**Clay**, stiff, moist, brown, A-6, Lab No. 30798	SS 3	3-5-9	89	18.6		2.5					
	10.0		SS 4	5-5-7	89	20.3		3.0					
		Bottom of Boring at 10.0 ft											
520.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-096**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55103
LONGITUDE : -85.77863
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 534.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 584+93	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5		SS 1	9-9-7	44	18.3		3.5					
			SS 2	4-3-4	56	23.3 16.8		1.0 3.0		33	17	16	
530.0		**Clay**, medium stiff to very stiff, moist, gray and brown, A-6(11), Lab No. 30798				18.4							4.2, pH = 7.9, SG = 2.7
	5.0		SS 3	4-5-7	44	21.5		3.5					
			SS 4	5-5-6	67	21.9		2.75					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
525.0													
	10.0												
	12.5												
520.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-097**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55110
LONGITUDE : -85.77883
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 534.0
STATION : 585+19
OFFSET : 2.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 58 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	6-7-7	100	16.6 16.8	114.8	>4.5 >4.5	3.86				
530.0		**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31377											
	5.0		SS 2	5-6-8	100	18.1 16.6		>4.5 >4.5					
			SS 3	5-5-7	89	18.0 17.4		>4.5					6.0, LOI = 2 percent
	7.5	7.0											
525.0		**Clay**, stiff to very stiff, moist, brown to gray below 9.5 ft, with shale fragments near 10 ft, A-6, Lab No. 30798	SS 4	6-7-18	78	20.8		2.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
520.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-098**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55166
LONGITUDE : -85.77905
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 539.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 587+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 2.5 ft ▼ At completion 3.5 ft ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5 ▽	**Clay**, medium stiff, moist, brown, with shale fragments near 7 ft, (fill to 2 ft), A-7-6, Lab No. 30795	SS 1	2-3-3	72	20.4 23.7	109.2	2.5 2.75	2.67				
535.0			SS 2	3-3-4	67	28.9 28.7		1.25 2.0					
	5.0 ▩		SS 3	3-5-4	94	25.0		1.25					
			SS 4	3-4-4	89	22.2		3.5					
	7.3	Bottom of Boring at 7.3 ft											
530.0	7.5												
	10.0												
	12.5												
525.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-099**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55220
LONGITUDE : -85.77884
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 544.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 589+19	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 58 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay**, stiff to hard, moist, brown and gray, (residual soil below 3 ft), A-7-6, Lab No. 30797	SS 1	4-4-7	89	21.0 17.3		4.5 >4.5					
540.0	5.0		SS 2	11-27-48	100	13.0 13.1		>4.5 4.5					
	7.5	6.0 **Weathered Shale**, soft, gray	SS 3	17-29-42	100	10.9							
535.0	10.0	10.0 Bottom of Boring at 10.0 ft Bag sample taken at offset (RB-099B) for moisture-density relations.	SS 4	19-25-40	100	10.5							
530.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-100**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55295
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-08-21
DATE COMPLETED : 04-08-21

ELEVATION	: 553.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 591+94	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
550.0	2.5	**Clay**, stiff to hard, moist, gray, (residual soil below 4 ft), A-6, Lab No. 30798	SS 1	5-7-6	44	11.6 11.8		3.5 3.0					
			SS 2	6-8-8	33	15.8		>4.5					
	5.0		SS 3	10-18-21	67	13.0		>4.5					
		5.7											
		Weathered Shale, soft, gray	SS 4	15-21-33	78	13.1							
		7.2											
545.0	7.5	Bottom of Boring at 7.2 ft											
	10.0												
540.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-101**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55330
LONGITUDE : -85.77885
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION : 556.0
STATION : 593+20
OFFSET : 3.0 ft Left
LINE : 'PR-Q'
DEPTH : 9.4 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: Encountered at NW At completion NW 2.8 ft After 24 hr Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
555.0	2.5	**Clay**, medium stiff, moist, brown, with some gravel near 2 ft, (fill), A-6, Lab No. 30799 3.0	SS 1	3-4-4	67	21.1 21.6	101.9	3.0 4.0	1.78				
550.0	5.0	**Silty Clay**, very stiff to hard, moist, gray, (residual soil below 6 ft), A-7-6, Lab No. 30800	SS 2	5-6-11	100	20.4 19.6		>4.5 >4.5					
	7.5	8.0	SS 3	14-37-50/5	95	13.1		>4.5					
		Weathered Shale, soft, gray 9.4	SS 4	24-50/5	56	10.0							
545.0	10.0	Bottom of Boring at 9.4 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-102**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55385
LONGITUDE : -85.77905
DATUM : WGS 84
DATE STARTED : 06-09-21
DATE COMPLETED : 06-09-21

ELEVATION	: 562.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 595+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 2.0 ft ▼ At completion 3.0 ft ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
560.0	2.5	**Clay**, soft to stiff, moist, brown to gray below 4 ft, (fill to 3 ft), A-6, Lab No. 30799	SS 1	2-2-3	83	15.7 17.6		3.75 >4.5					
			SS 2	4-4-4	89	21.4 21.4	106.7	2.5 3.25	1.51				
	5.0		SS 3	3-4-4	94	25.0		1.25					
555.0			SS 4	4-6-7	89	20.1		1.75					
	7.5	7.3 Bottom of Boring at 7.3 ft											
	10.0												
550.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-103**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55439
LONGITUDE : -85.77883
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 567.0
STATION : 597+20
OFFSET : 1.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.4 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 50 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
565.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, A-6, Lab No. 30799	SS 1	6-5-5	78	20.6 20.6		>4.5 >4.5					
	5.0	5.0	SS 2	6-7-12	89	19.1 18.4	104.1	>4.5 >4.5	3.12				
560.0	7.5	**Weathered Shale**, soft, gray	SS 3	19-33-45	78	10.2							
		9.4	SS 4	17-50/5	83	10.4							
	10.0	Bottom of Boring at 9.4 ft											
555.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-104**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55551
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-09-21
DATE COMPLETED : 04-09-21

ELEVATION	: 579.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 601+25	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Clay**, stiff to very stiff, moist, brown and gray, A-6, Lab No. 30798	SS 1	5-6-8	33	11.9		>4.5					
575.0			SS 2	6-6-9	56	12.6 12.8		>4.5 >4.5					
	5.0	5.2	SS 3	7-9-21	67	12.2							
		Weathered Shale, soft, gray	SS 4	10-10-11	67	12.2							
	7.5	7.2											
		Bottom of Boring at 7.2 ft											
570.0	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-105**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55549
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION : 579.0
STATION : 601+20
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 9.4 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 2.5 ft After 24 hr ⊠ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, hard, moist, gray, (residual soil), A-6, Lab No. 30798	SS 1	13-35-50/5	95	11.4 11.9		>4.5 >4.5					
		3.0											
575.0	5.0		SS 2	22-42-50/3	90	10.6							
		Weathered Shale, soft, gray	SS 3	25-39-50/4	90	10.3							
570.0	7.5		SS 4	32-50/5	93	10.2							
		9.4											
	10.0	Bottom of Boring at 9.4 ft											
565.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-106**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55605
LONGITUDE : -85.77904
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 585.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 603+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, soft to very stiff, moist, brown, A-6, Lab No. 30798	SS 1	2-2-3	100	19.4 19.1	108.9	3.5 3.75	3.00				
			SS 2	4-5-6	94	17.8 19.8		4.0 >4.5					
580.0	5.0	5.3	SS 3	5-9-13	89	16.0		3.5					
		Silty Clay, very stiff, moist, brown and gray, (residual soil), A-6, Lab No. 31323	SS 4	10-12-15	100	13.6		4.0					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
575.0	10.0												
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-107**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55659
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 589.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 605+20	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Partly Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	5-6-9	100	19.8 19.0 18.7		>4.5 >4.5		38	20	18	2.5, pH = 7.5, SG = 2.76
585.0		**Clay**, stiff to very stiff, moist, brown, A-6(13), Lab No. 30799	SS 2	5-7-12	100	19.1 19.3	109.2	>4.5 >4.5					
	5.0												
	7.5		SS 3	6-9-12	100	17.7		>4.5					
		8.0											
580.0		**Weathered Shale**, soft, gray	SS 4	10-25-31	100	12.4							
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-108**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55712
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-12-21
DATE COMPLETED : 04-12-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 607+11	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Sandy Loam, medium stiff, moist, brown, with some gravel, (fill; visual) 2.1	SS 1	8-5-5	67	8.0 19.1		0.25 >4.5					
590.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, A-6, Lab No. 31377 3.6	SS 2	5-5-6	56	17.0 20.4	106.1	>4.5 3.0	3.67				
	5.0	**Clay**, medium stiff to stiff, moist, brown, with gray silty clay loam seam near 5 ft, A-6, Lab No. 30799	SS 3	5-5-8	56	18.8		3.0					
		7.1	SS 4	6-5-5	56	21.3		3.5					
585.0	7.5	Bottom of Boring at 7.1 ft											
	10.0												
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-109**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55769
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION : 594.0
STATION : 609+20
OFFSET : 3.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 65 °F
WEATHER : Partly Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30799	SS 1	4-4-4	56	24.3 19.2 16.5		2.5 4.0					1.0, soluble sulfate = 190 ppm
590.0	5.0		SS 2	4-5-6	100	22.1 21.4		>4.5 2.75					
		6.0											
	7.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31377	SS 3	4-5-5	78	16.7		4.0					
		8.0											
585.0	10.0	**Clay**, stiff, moist, brown, with some gravel near 9 ft, A-6, Lab No. 30799	SS 4	4-5-9	89	17.5		>4.5					
		10.0											
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-110**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55825
LONGITUDE : -85.77904
DATUM : WGS 84
DATE STARTED : 07-08-21
DATE COMPLETED : 07-08-21

ELEVATION	: 595.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 611+24	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 1.5 ft ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 30799 2.8	SS 1	3-3-8	78	19.3 20.6		2.75 3.5					
			SS 2	9-12-22	89	13.5 12.8		3.0					
590.0	5.0	**Silty Clay**, very stiff to hard, moist, gray, (residual soil), A-7-6, Lab No. 30800	SS 3	9-12-15	28	11.7							
			SS 4	9-13-21	39	11.6		4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
585.0	10.0												
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-111**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55876
LONGITUDE : -85.77878
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 594.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 613+11	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 15.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 9.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff, moist, brown, with shale fragments near 4 ft, with some gravel near 5 ft, A-6, Lab No. 30799	SS 1	9-8-9	100	18.7 18.3	110.0	>4.5 3.75	4.29				
590.0	5.0		SS 2	10-13-14	100	17.3 18.8		>4.5 >4.5					
	7.5	**Clay Loam**, hard, moist, brown, with some gravel, with sandy loam seams, A-6, Lab No. 31377 8.0	SS 3	12-21-29	100	12.3							
585.0		**Silty Clay**, hard, moist, gray, (residual soil), A-7-6, Lab No. 30800 9.4	SS 4	25-50/5	93	12.2		>4.5					
	10.0	Bottom of Boring at 9.4 ft											
	12.5												
580.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-112**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55931
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 615+11	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 1.5 ft ▼ At completion 2.0 ft ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
590.0	2.5	**Clay**, medium stiff to stiff, moist, brown and gray, with some gravel, with silty clay seam near 3.5 ft, with cobble fragments near 5 ft, A-6, Lab No. 30799	SS 1	4-3-3	33	21.4							
			SS 2	4-5-6	44	25.8 26.8		2.5 3.0					
	5.0		SS 3	5-6-6	6								
			SS 4	4-4-5	44	20.0		2.25					
	7.3												
585.0	7.5	Bottom of Boring at 7.3 ft											
	10.0												
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-113**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55989
LONGITUDE : -85.77883
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 617+20	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31377	SS 1	10-13-14	100	18.7 18.9		>4.5 >4.5					
590.0		3.0											
		Clay, hard, moist, brown and gray , A-6, Lab No. 30799	SS 2	8-13-22	100	18.4 14.5	112.2	>4.5 >4.5	4.49				
	5.0	**Silty Clay**, hard, moist, brown, (residual soil), A-7-6, Lab No. 30800											
		6.0											
	7.5		SS 3	26-50/4	100	10.1							
585.0		**Weathered Shale**, soft, gray											
			SS 4	21-27-39	100	10.6							
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
580.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-114**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56045
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 619+24	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 57.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 1.3 ft ▼ At completion 2.0 ft ▩ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay**, stiff to hard, moist, brown, (residual soil below 3 ft), A-7-6, Lab No. 30800	SS 1	2-3-10	50	17.8 17.3		>4.5 >4.5					
590.0			SS 2	9-15-23	72	12.1 12.8		2.5 >4.5					
	5.0	5.3	SS 3	15-26-32	6	16.9							
		Weathered Shale, soft, brown and gray 7.3	SS 4	9-12-15	50	12.7							
	7.5	Bottom of Boring at 7.3 ft											
585.0													
	10.0												
	12.5												
580.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-115**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56099
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 591.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 621+20	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 4.0 ft ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
590.0	2.5	**Clay**, stiff, moist, brown, with organic matter (root fibers) near 1 ft, A-6, Lab No. 30799	SS 1	5-7-7	89	36.4 23.3	101.4	1.5 1.75	1.10				1.0, LOI = 6 percent
		3.0											
	5.0	**Silty Clay**, medium stiff, moist, brown and gray, (residual soil), A-7-6, Lab No. 30800	SS 2	3-3-5	100	16.0 18.3		2.0 2.5					
585.0		6.0											
	7.5	**Weathered Shale**, soft, gray	SS 3	10-12-12	100	12.4							
	10.0	10.0	SS 4	22-21-25	89	12.3							
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-116**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56151
LONGITUDE : -85.77862
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 591.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 623+12	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
590.0		**Asphaltic Concrete** 1.2											
	2.5	**Clay**, medium stiff, moist, brown, with some gravel, A-6, Lab No. 30799	SS 1	4-4-5	22	16.1		>4.5					
			SS 2	4-5-5	33	18.8		4.0					
	5.0	**Silty Clay**, very stiff, moist, gray, (residual soil), A-7-6, Lab No. 30800 5.7	SS 3	7-10-15	67	12.6		>4.5					
585.0		**Weathered Shale**, soft, gray	SS 4	15-21-36	89	11.1							
	7.5	Bottom of Boring at 7.2 ft 7.2											
	10.0												
580.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-117**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56208
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 590.0
STATION : 625+20
OFFSET : 1.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	13-15-19	100	12.9 12.2 13.3				54	29	25	1.0, pH = 8.1, SG = 2.77, I_j = 1 after 10 minutes
			SS 2	16-20-26	100	11.3 12.7							
585.0	5.0	**Silty Clay**, hard, moist, gray, with weathered shale fragments, (residual soil), A-7-6(29), Lab No. 30800											
			SS 3	37-50/4	94	10.3							
	7.5												
			SS 4	10-18-26	100	10.5							
580.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-118**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56264
LONGITUDE : -85.77904
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION : 590.0
STATION : 627+24
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, soft to medium stiff, moist, brown, (fill to 4 ft), A-6, Lab No. 30799	SS 1	2-2-2	94	21.2 21.1	105.0	4.0 4.25	1.90				
			SS 2	2-2-4	50	20.9 16.8		3.0 3.25					
585.0	5.0		SS 3	3-4-4	83	13.1		2.75					
			SS 4	5-4-5	89	15.6		3.25					
	7.5	7.3 Bottom of Boring at 7.3 ft											
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-119**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56318
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 588.0
STATION : 629+21
OFFSET : 4.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, medium stiff, moist, brown, (fill), A-6, Lab No. 30799	SS 1	4-4-4	100	20.5 20.7		>4.5 3.0					
585.0		4.0											
	5.0		SS 2	3-4-5	100	14.5 17.1		>4.5 3.5					
		Silty Clay, medium stiff to very stiff, moist, brown to gray below 6 ft, A-7-6, Lab No. 30800	SS 3	4-5-5	93	20.1		2.75					
580.0	7.5												
	10.0	10.0	SS 4	7-7-9	100	16.2		>4.5					
		Bottom of Boring at 10.0 ft											
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-120**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56371
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 588.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 631+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Sandy Loam**, medium dense, moist, brown, with some gravel, (fill; visual) 2.6	SS 1	8-7-7	44								
585.0		**Clay**, medium stiff, moist, brown, A-6, Lab No. 30799	SS 2	3-4-4	22	19.2		2.0					
	5.0	5.6	SS 3	3-5-4	33	25.7		0.75					
		Silty Clay, medium stiff, moist, brown and gray , A-7-6, Lab No. 30800 7.1	SS 4	4-5-5	67	21.3		2.0 1.75					
	7.5	Bottom of Boring at 7.1 ft											
580.0													
	10.0												
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-121**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56428
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 633+21	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
585.0	2.5	**Silty Clay**, medium stiff, moist, gray, (fill to 2 ft), A-7-6, Lab No. 30801	SS 1	4-4-5	78	22.3 19.8 16.1		3.0 2.5					2.5, LOI = 1 percent
	5.0		SS 2	3-4-5	100	18.4 18.7		1.0 2.25					
580.0	7.5	6.0 **Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30799	SS 3	5-5-5	100	23.4		3.5					
	10.0	10.0	SS 4	6-7-7	100	18.0		>4.5					
		Bottom of Boring at 10.0 ft											
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-122**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56484
LONGITUDE : -85.77904
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 635+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
585.0	2.5	**Silty Clay**, medium stiff, moist, brown, A-7-6(25), Lab No. 31324	SS 1	2-3-3	50	14.9 19.4	118.8	>4.5 3.75	2.28	46	23	23	2.0, pH = 8.2, SG = 2.83
			SS 2	4-4-5	89	16.2 11.7		>4.5 >4.5					
	5.0		SS 3	3-4-6	94	18.9		2.75					
580.0		7.3	SS 4	4-4-6	72	13.4		>4.5					
	7.5	Bottom of Boring at 7.3 ft											
	10.0												
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-123**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56538
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 637+21	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 8.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
585.0	2.5	**Silty Clay**, stiff, moist, gray, (residual soil), A-7-6, Lab No. 30801	SS 1	4-4-10	67	15.6 13.5		>4.5 >4.5					
		3.0											
	5.0		SS 2	13-23-39	100	13.9							
		Weathered Shale, soft, gray											
580.0	7.5		SS 3	32-50/5	93	8.3							
		8.9	SS 4	50/5	83	7.4							
		Bottom of Boring at 8.9 ft											
	10.0												
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-124**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56591
LONGITUDE : -85.77860
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 586.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 639+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 64.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Asphaltic Concrete** 1.2											
	2.5	**Silty Clay**, medium stiff to very stiff, moist, gray, (residual soil), A-7-6(25), Lab No. 30801	SS 1	4-4-4	56	21.5 20.5 20.4		3.5 3.25		49	27	22	1.5, pH = 8.0, SG = 2.7
			SS 2	4-6-4	67	20.4 14.3		4.0 >4.5					
	4.8												
	5.0		SS 3	7-9-9	56	11.4							
580.0		**Weathered Shale**, soft, gray	SS 4	11-14-24	89	14.2							
	7.2												
	7.5	Bottom of Boring at 7.2 ft											
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-125**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56648
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 585.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 641+21	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 73 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 8.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay**, stiff, moist, gray, (residual soil), A-7-6, Lab No. 30801	SS 1	4-5-6	67	15.4 12.6							
		3.0											
580.0	5.0		SS 2	12-28-36	78	6.3 7.0							
		Weathered Shale, soft, gray	SS 3	42-50/4	94								
	7.5												
		8.9	SS 4	50/5	83								
		Bottom of Boring at 8.9 ft											
575.0	10.0												
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-126**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56704
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 585.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 643+24	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2				21.8							
						22.8							
			SS 1	2-2-2	83	9.2	126.3	2.5 4.0	3.14				2.0, LOI = 2 percent, soluble sulfate = 210 ppm
	2.5												
			SS 2	3-3-5	44	19.9 16.4		1.5 >4.5					
		Silty Clay, soft to stiff, moist, brown, with clay loam seam near 2.5 ft, (fill to 3 ft), A-7-6, Lab No. 31324											
580.0	5.0		SS 3	4-4-5	100	17.9		2.5					
			SS 4	5-6-7	72	24.4		3.25					
		7.2											
	7.5	Bottom of Boring at 7.2 ft											
575.0	10.0												
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-127**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56758
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 586.0
STATION : 645+21
OFFSET : 0.0 ft
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 74 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Topsoil** 0.5											
	2.5		SS 1	5-5-5	100	17.5 16.5	115.1	>4.5 >4.5	2.83				
			SS 2	7-9-8	100	14.7 16.3		>4.5 >4.5					
580.0	5.0	**Silty Clay**, medium stiff to very stiff, moist, brown and gray, with clay seam near 10 ft, A-7-6, Lab No. 30851											
	7.5		SS 3	7-8-8	89	17.6		3.0					
			SS 4	6-7-9	89	15.3		4.0					
	10.0	10.0											
575.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-127A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56758
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 586.0
STATION : 645+21
OFFSET : 0.0 ft
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 74 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-127											
585.0		1.0											
	2.5	**Silty Clay**, moist, brown and gray, A-7-6(20), Lab No. 30851	ST 1		88	19.1		1.75 4.0		44	26	18	2.0, pH = 8.4, SG = 2.81
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
580.0													
	7.5												
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-128**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56810
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-13-21
DATE COMPLETED : 04-13-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 647+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Silty Clay**, medium stiff to stiff, moist, gray, (residual soil), A-7-6, Lab No. 30851	SS 1	4-4-4	56	18.8 17.9		2.5 3.75					
			SS 2	5-4-5	56	17.3 13.2		2.5 3.5					
585.0	5.0		SS 3	5-6-6	67	17.2		3.0					
		5.6											
		Weathered Shale, soft, gray	SS 4	5-5-7	33	9.5							
	7.5	7.1											
		Bottom of Boring at 7.1 ft											
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-129**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56868
LONGITUDE : -85.77883
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 594.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 649+21	RIG TYPE	: CME 55 Track	DRILLER/INSP	: T.M.
OFFSET	: 2.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 74 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	5-7-7	100	15.8 15.7	118.6	>4.5 >4.5					
590.0	5.0	**Silty Clay**, stiff, very stiff near 7 ft, moist, gray, brown near 6 to 7 ft, (residual soil), A-7-6, Lab No. 30851	SS 2	5-7-8	78	15.9 11.5		3.5 >4.5					
	7.5		SS 3	5-8-8	100	16.6		>4.5					
585.0	10.0	10.0	SS 4	5-5-6	100	18.5		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-130**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56923
LONGITUDE : -85.77902
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 600.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 651+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Silty Clay**, soft to medium stiff, moist, gray, (fill to 3 ft), (residual soil), A-7-6, Lab No. 30851	SS 1	2-2-3	78	18.3 16.7		3.5 4.0					
			SS 2	3-4-4	78	16.2 16.7		3.0 1.5					
595.0	5.0		SS 3	4-5-5	67	17.7		2.75					
			SS 4	4-4-6	44	15.7		1.75					
	7.5	Bottom of Boring at 7.2 ft											
590.0	10.0												
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-131**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.56977
LONGITUDE : -85.77883
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 606.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 653+21	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
606.0	0.0	**Topsoil** 0.5											
605.0	2.5	**Silty Clay**, stiff, moist, gray, brown below 8 ft, (possible residual soil), A-7-6, Lab No. 30851	SS 1	5-6-7	22	11.6		3.0					
			SS 2	5-6-8	100	15.5 19.7	110.0	3.0 3.5	2.42				
600.0	5.0		SS 3	5-6-8	100	16.9		>4.5					
595.0	7.5		SS 4	5-5-7	89	16.5		>4.5					
	10.0	10.0 Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-132**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57030
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 611.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 655+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Asphaltic Concrete** 1.6											
	2.5	**Sand and Gravel**, loose to dense, moist, gray, with silty clay seam near 4.5 ft, with possible cobbles near 5 ft, (fill), A-1-b(0), Lab No. 30930	SS 1	10-14-21	56					17	15	2	3.4, pH = 8.3, SG = 2.76
			SS 2	6-4-4	56	24.3		0.75					
	5.0		SS 3	5-10-16	0								
605.0		6.4											
	7.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31378 7.9	SS 4	5-5-5	44	14.0		0.25 0.5					
		Bottom of Boring at 7.9 ft											
	10.0												
600.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-133**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57087
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 657+21	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 1.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 75 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31378	SS 1	6-6-7	100	14.5 17.0		3.0 3.0					
		3.0											
610.0	5.0	**Silty Clay**, very stiff to hard, moist, brown, (residual soil), A-7-6, Lab No. 30851	SS 2	9-10-10	100	11.7 13.9		>4.5 >4.5					
	7.5		SS 3	17-24-30	100	12.8		>4.5					
605.0	10.0	10.0	SS 4	12-18-27	89	16.9		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-134**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57143
LONGITUDE : -85.77902
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 659+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.2											
	2.5		SS 1	3-4-4	78	18.7	109.4	3.25 2.75	2.62				
615.0			SS 2	4-4-5	56	16.7 21.6		3.0 1.0					
		Clay, medium stiff, moist, brown, A-6, Lab No. 31378											
	5.0		SS 3	3-4-6	78	19.7		2.0					
			SS 4	5-4-5	67	21.7		1.75					
		7.2											
	7.5	Bottom of Boring at 7.2 ft											
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-134A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57143
LONGITUDE : -85.77902
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION : 618.0
STATION : 659+25
OFFSET : 58.0 ft Left
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-134											
		1.0											
	2.5	**Clay**, moist, gray and brown, A-6(8), Lab No. 31378	ST 1		86	16.2 16.4 18.1	112.3 110.8	>4.5 2.75	2.52	32	18	14	2.0, pH = 7.2, SG = 2.68
615.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-135**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57197
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 661+21	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31378	SS 1	6-8-9	100	17.6 16.5	116.4	>4.5 >4.5	6.44				
615.0		3.5											
	5.0		SS 2	8-8-16	100	17.7 16.9		>4.5 >4.5					
	7.5	**Silty Clay**, very stiff to hard, moist, brown, (residual soil below 6 ft), A-7-6, Lab No. 30931	SS 3	15-23-24	89	9.6		>4.5					
610.0													
	10.0	10.0	SS 4	17-21-26	78	12.3		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-136**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57250
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 663+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.5											
	2.5	**Sand and Gravel**, medium dense, moist, brown, (fill), A-1-b, Lab No. 30930 2.5	SS 1	4-5-6	56								
615.0			SS 2	4-4-5	67	14.7 21.6		1.0 2.0					
	5.0	**Clay**, medium stiff, moist, brown, with loam seam near 3 ft, A-6, Lab No. 31378	SS 3	4-4-4	33			1.5					
	7.5	7.5	SS 4	4-4-5	56	19.2		>4.5 3.0					
610.0		Bottom of Boring at 7.5 ft											
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-136A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57250
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 663+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 4.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-136											
		2.0											
615.0	2.5	**Clay**, moist, brown, A-6, Lab No. 31378	ST 1		80	18.4	111.1	2.0 3.0	1.37				
		4.0											
		Bottom of Boring at 4.0 ft											
	5.0												
	7.5												
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-137**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57307
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 665+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 79 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	6-6-9	100	19.4	107.1	>4.5 >4.5		52	25	27	2.5, pH = 7.6, SG = 2.78, soluble sulfate = 910 ppm
610.0	5.0	**Silty Clay**, stiff to hard, moist, gray, (residual soil), A-7-6(29), Lab No. 30931	SS 2	6-11-19	100	14.6 12.5		>4.5 >4.5					
	7.5		SS 3	17-22-24	100	12.0		>4.5					
		9.0											
605.0	10.0	**Weathered Shale**, soft, brown 10.0	SS 4	16-22-25	89	12.8							
		Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-138**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57363
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 613.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 667+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
610.0	2.5	**Silty Clay**, medium stiff to very stiff, moist, gray, A-7-6(22), Lab No. 31460	SS 1	3-5-5	56	16.3		3.5 4.5		45	24	21	2.3, pH = 9.1, SG = 2.76
	5.0		SS 2	5-7-8	56	11.8 12.9		>4.5 >4.5					
			SS 3	5-5-8	44	12.2		3.0					
			SS 4	7-7-9	44	10.7		>4.5					
	7.3												
605.0	7.5	Bottom of Boring at 7.3 ft											
600.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-139**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57417
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 610.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 669+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-7-6, Lab No. 30991	SS 1	4-4-5	100	22.6 25.0		2.0 1.0					
605.0	5.0		SS 2	4-4-4	100	23.0 25.1		>4.5 2.25					
		6.0											
	7.5	**Silty Clay**, stiff to very stiff, moist, brown, A-7-6, Lab No. 30931	SS 3	6-6-7	100	19.2		>4.5					
600.0	10.0	10.0	SS 4	7-9-10	100	18.5		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-140**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57470
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION : 609.0
STATION : 671+14
OFFSET : 61.0 ft Right
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, with some gravel, (fill), A-6, Lab No. 31377 2.8	SS 1	4-5-4	67	10.8 18.5		2.0 >4.5					
605.0		**Silty Clay Loam**, medium stiff, moist, gray, with some gravel, (fill), A-7-6, Lab No. 30991 4.3	SS 2	5-5-5	67	22.4 17.8		2.5 1.5					
	5.0	**Clay**, stiff, moist, brown, with some gravel, with sand and gravel seam near 6 ft, A-6, Lab No. 31378 7.3	SS 3	5-6-6	78	16.5		>4.5					
			SS 4	6-6-8	67	18.2		3.75					
	7.5	Bottom of Boring at 7.3 ft											
600.0	10.0												
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-141**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57527
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 673+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, medium stiff, moist, brown, with clay loam seam near 4 ft, (fill to 4 ft), A-7-6, Lab No. 31379	SS 1	3-4-6	100	17.5 21.0	106.1	4.0 3.5	2.34				
605.0	5.0		SS 2	4-4-5	100	12.6 20.8		2.25 2.5					
		6.0											
	7.5	**Silty Clay**, medium stiff, moist, brown to gray, A-7-6, Lab No. 30931	SS 3	4-4-4	100	21.8		3.25					
600.0			SS 4	4-5-4	100	24.2		3.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-141A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57527
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 673+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring for log for RB-141											
		1.0											
	2.5	**Clay**, moist, brown, (fill), A-7-6(22), Lab No. 31379	ST 1		92	15.6 19.3	122.9	4.25 4.0	3.35	45	18	27	
605.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
600.0													
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-142**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57582
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 609.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 675+24	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, medium stiff, moist, brown, (fill), A-7-6, Lab No. 31379 2.8	SS 1	2-3-5	89	22.1 22.6	105.6	>4.5 4.0	3.42				
605.0			SS 2	7-7-8	83	20.5 21.3		>4.5 4.0					
	5.0	**Silty Clay**, stiff to very stiff, moist, brown, A-7-6, Lab No. 30931	SS 3	7-8-8	83	22.0		3.5					
			SS 4	8-8-8	100	22.7		1.75					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
600.0													
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-143**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57637
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 609.0
STATION : 677+22
OFFSET : 5.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	3-4-5	100	25.7 24.8		3.25 2.5					
605.0		**Silty Clay Loam**, medium stiff, moist, brown, with shale fragments near 4 ft, (fill to 4 ft), A-7-6, Lab No. 30991	SS 2	4-5-5	100	20.7 24.6		2.0 1.0					
	5.0												
	7.5		SS 3	3-4-4	100	23.2		1.5					
600.0		9.0											
		Silty Clay, very stiff, moist, gray, (residual soil), A-7-6, Lab No. 30931 10.0	SS 4	5-5-11	100	18.0		4.5					
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-144**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57753
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 611.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 681+45	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 62.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Asphaltic Concrete** 1.0											
		Sand and Gravel, medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 2.1	SS 1	7-7-5	67	20.3		3.5					
	2.5		SS 2	4-4-5	56	24.4 24.7		2.5 2.0					
		Clay, medium stiff, moist, brown, with some gravel near 5 ft, (fill), A-7-6, Lab No. 31379											
	5.0		SS 3	5-5-5	33	26.9		2.5					
		5.6											
605.0		**Silty Clay**, stiff, moist, gray, (residual soil), A-7-6, Lab No. 30931 7.1	SS 4	5-6-6	89	21.4		1.25					
	7.5	Bottom of Boring at 7.1 ft											
	10.0												
600.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-145**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57746
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 681+21	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 6.0 ft ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	2-3-3	100	21.9 22.8	106.3	1.5 1.0	1.41				
605.0		**Clay**, medium stiff, moist, brown, with sand and gravel seam near 4 ft, (fill), A-7-6, Lab No. 31379											
	5.0		SS 2	3-3-3	89	23.7 26.7		1.0 0.75					
		6.0											
	7.5		SS 3	3-4-6	100	22.5		2.0 3.0					
600.0		**Silty Clay**, medium stiff to stiff, moist, brown to gray, A-7-6, Lab No. 31460											
			SS 4	4-4-7	100	22.9		2.5 >4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-146**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57802
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION	: 611.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 683+25	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at 2.6 ft ▼ At completion 2.0 ft ▩ Caved in at 4.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Asphaltic Concrete** 1.0											
		Granular Subbase, (crushed stone) 1.2											
		Silty Clay, medium stiff, moist, gray, (fill), A-7-6, Lab No. 31460 2.0	SS 1	3-4-7	78	24.6 23.5	103.5	3.5 4.0	2.74				
	2.5		SS 2	4-4-6	44	22.0 22.6		0.75 1.25					
		Clay, medium stiff to very stiff, moist, brown and gray, (fill to 4 ft), A-7-6, Lab No. 31379											
	5.0		SS 3	8-10-12	44	21.4		2.5					
605.0		6.2											
		Silty Clay, very stiff, moist, gray, with organic matter, A-7-6, Lab No. 31460 7.2	SS 4	8-8-14	44	26.4		1.5					7.0, LOI = 5 percent
	7.5	Bottom of Boring at 7.2 ft											
	10.0												
600.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-147**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57856
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 610.0
STATION : 685+21
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, medium stiff, moist, brown, A-7-6, Lab No. 31379	SS 1	4-4-5	67	24.5 17.5		1.5 >4.5					
		3.0											
605.0	5.0		SS 2	5-6-7	100	23.0 21.2		3.0 >4.5					
		Silty Clay, medium stiff to stiff, moist, brown, A-7-6, Lab No. 31460	SS 3	4-4-6	100	18.8		>4.5					
	7.5												
			SS 4	4-5-8	100	20.9		>4.5					
600.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-148**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57909
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 613.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 687+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
610.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, with some gravel near 2.5 ft, A-7-6, Lab No. 31379	SS 1	4-3-3	56	21.3 20.6	110.2	1.5 2.0					
			SS 2	4-6-7	67	19.9 22.3		>4.5 >4.5					
	5.0		SS 3	6-7-10	78	20.8		>4.5					
		5.7											
		Silty Clay, very stiff, moist, brown, A-7-6, Lab No. 31460	SS 4	7-9-12	33	20.0		>4.5					
		7.2											
	7.5	Bottom of Boring at 7.2 ft											
605.0													
	10.0												
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-149**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.57966
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 611.0
STATION : 689+21
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Topsoil** 0.5											
	2.5		SS 1	10-10-10	100	19.3 18.2	106.6	>4.5 >4.5	5.53				
	5.0	**Silty Clay**, medium stiff to very stiff, moist, brown, A-7-6, Lab No. 31460	SS 2	5-6-12	100	21.4 21.9		>4.5 >4.5					
605.0	7.5		SS 3	4-4-6	100	27.2		1.5					
	10.0	10.0	SS 4	5-6-7	100	20.9		>4.5					
600.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-150**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58022
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 614.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 691+24	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Clay**, medium stiff, moist, brown, with cobble fragments near 2.5 ft, (fill), A-7-6, Lab No. 31379 2.8	SS 1	4-3-5	33	16.0 15.7		2.0 >4.5					
610.0		**Silty Clay Loam**, stiff, moist, brown, A-6, Lab No. 30852 3.8	SS 2	5-6-6	56	16.6 19.9		1.5 >4.5					
	5.0	**Clay**, very stiff, moist, brown, A-7-6, Lab No. 31379	SS 3	8-8-8	56	19.9		>4.5					
			SS 4	6-8-10	67	23.9		2.0					
	7.5	Bottom of Boring at 7.3 ft											
605.0													
	10.0												
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-151**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58076
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 613.0
STATION : 693+22
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
610.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, (fill to 3 ft), A-7-6, Lab No. 30991	SS 1	4-3-5	100	28.6 25.8		1.75 2.75					
	5.0		SS 2	5-6-8	100	24.0 24.5	102.8	>4.5 >4.5	4.05				
	7.5	7.0	SS 3	5-6-6	100	20.6		>4.5					
605.0		**Silty Clay**, stiff to very stiff, moist, brown, A-7-6, Lab No. 31460											
	10.0	10.0	SS 4	5-7-9	100	22.6		>4.5					
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-152**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58129
LONGITUDE : -85.77855
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 695+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 79.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Sand and Gravel, loose, moist, gray, (fill), A-1-b, Lab No. 30930 2.2	SS 1	5-4-4	44	22.0		2.75					
	2.5	**Clay**, medium stiff, moist, brown, A-7-6, Lab No. 31379 4.2	SS 2	4-5-5	56	16.6 10.2		2.5 >4.5					
610.0	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31461 7.2	SS 3	4-5-4	33	19.5		4.0					
			SS 4	5-5-7	67	20.5		>4.5					
	7.5	Bottom of Boring at 7.2 ft											
605.0	10.0												
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-153**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58186
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 613.0
STATION : 697+22
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	5-7-9	89	18.8 18.2		>4.5 >4.5					
610.0													
	5.0	**Silty Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 31461	SS 2	5-7-9	100	18.8 20.7		>4.5 >4.5					
	7.5		SS 3	5-7-9	100	19.6		>4.5					
605.0													
	10.0	10.0	SS 4	5-6-8	100	17.8		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-154**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58241
LONGITUDE : -85.77907
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION : 616.0
STATION : 699+24
OFFSET : 72.0 ft Left
LINE : 'Q'
DEPTH : 7.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 80 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
615.0		**Asphaltic Concrete** 1.1											
	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, (fill to 2 ft), A-6(16), Lab No. 31461	SS 1	2-3-4	100	19.1		2.5 3.25		37	17	20	2.0, pH = 8.4, SG = 2.67, soluble sulfate = 510 ppm
			SS 2	4-4-5	100	20.4 19.1		1.5 3.75					
	5.0		SS 3	5-5-6	100	20.7		4.5					
610.0			SS 4	5-6-6	100	18.2		>4.5					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
	10.0												
605.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-155**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58296
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 615.0
STATION : 701+22
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff to stiff, moist, brown, A-7-6, Lab No. 31379	SS 1	5-7-9	100	24.6 26.0	100.1	>4.5 1.5	3.55				
		4.0											
610.0	5.0	**Silty Clay**, stiff, moist, brown, A-6, Lab No. 31461	SS 2	5-6-8	100	23.1 21.9		>4.5 3.0					
		6.0											
	7.5	**Silty Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 30852	SS 3	4-4-5	100	23.0		2.0					
		8.0											
		Silty Clay, stiff, moist, brown, A-6, Lab No. 31461	SS 4	5-7-8	100	22.5		>4.5					
605.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-156**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58375
LONGITUDE : -85.77860
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 704+10	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 63.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
615.0	2.5	**Sand and Gravel**, loose, moist, gray and brown, with granular sandy loam seam near 2 ft and 4 ft, (fill), A-1-b, Lab No. 30930 4.1	SS 1	3-4-4	44								
			SS 2	4-4-3	33								
	5.0	**Silty Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 31461 7.1	SS 3	4-5-6	67	19.6		>4.5					
			SS 4	5-9-10	89	23.5		3.25					
610.0	7.5	Bottom of Boring at 7.1 ft											
	10.0												
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-157**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58406
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 616.0
STATION : 705+22
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
615.0		**Topsoil** 0.5											
	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31369	SS 1	4-3-4	89	22.1 23.5		1.75 2.5					
	5.0		SS 2	4-5-6	100	21.8 23.1		3.25 2.5					
610.0		6.0											
	7.5	**Silty Clay Loam**, stiff, moist, brown, A-7-6, Lab No. 30991	SS 3	3-5-8	100	19.4		>4.5					
	10.0	10.0	SS 4	4-5-6	100	21.4		>4.5					
		Bottom of Boring at 10.0 ft											
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-158**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58461
LONGITUDE : -85.77906
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 707+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 69.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.2											
	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30932	SS 1	4-5-6	72	25.7 23.5		3.0 2.5					
615.0			SS 2	3-4-4	83	26.6 24.4		4.0 3.75					
	4.2												
	5.0	**Silty Clay Loam**, stiff, moist, brown, A-7-6, Lab No. 30991	SS 3	4-6-7	72	26.1		3.5					
			SS 4	5-7-7	100	22.8		3.25					
	7.2												
	7.5	Bottom of Boring at 7.2 ft											
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-159**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58515
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 617.0
STATION : 709+22
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
615.0	2.5	**Silty Clay**, stiff, moist, brown, A-6, Lab No. 31369 3.0	SS 1	5-5-6	100	23.7 25.4	100.1	>4.5 >4.5	2.48				
	5.0		SS 2	4-4-4	100	24.2 25.5		3.0 2.75					
610.0	7.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown to gray below 9.5 ft, A-6, Lab No. 30852	SS 3	5-5-5	89	28.1		0.5 0.25					
	10.0	10.0	SS 4	5-6-5	100	25.9		1.0 2.25					
		Bottom of Boring at 10.0 ft											
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-160**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58568
LONGITUDE : -85.77855
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 619.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 711+12	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 77.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5		SS 1	7-7-8	78	15.5 15.0	118.3	>4.5 >4.5	8.28				
615.0		**Silty Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 30932	SS 2	8-8-8	78	12.4 15.8		3.5 >4.5					
	5.0		SS 3	3-8-8	67	17.1		>4.5					
			SS 4	8-7-9	89	22.2		>4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
610.0	10.0												
	12.5												
605.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-161**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58625
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 617.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 713+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 69 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
615.0	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, A-6(18), Lab No. 30932	SS 1	4-5-5	100	24.1	102.3	3.5 >4.5		39	23	16	1.0, pH = 8.2, SG = 2.87, soluble sulfate = 870 ppm
	5.0		SS 2	5-6-5	100	24.1 25.7		2.0 2.25					
		6.0											
610.0	7.5	**Silty Clay Loam**, stiff, moist, brown, A-6, Lab No. 30852	SS 3	6-6-6	100	26.8		1.5 1.75					
	10.0	10.0	SS 4	6-6-5	100	27.6		1.5 0.75					
		Bottom of Boring at 10.0 ft											
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-162**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58680
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 715+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay**, soft, moist, brown, (fill to 2 ft), A-6, Lab No. 30932 2.8	SS 1	2-2-3	56	26.9 21.8		3.0 2.5					
615.0			SS 2	4-3-5	72	19.3 19.5		1.0 1.5					
	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, brown, A-6, Lab No. 30852	SS 3	4-5-5	0								
		7.3	SS 4	5-7-7	67	23.9		1.5					
	7.5	Bottom of Boring at 7.3 ft											
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-162A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58680
LONGITUDE : -85.77903
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 618.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 715+23	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-162											
		1.0											
	2.5	**Silty Clay**, moist, gray, (fill to 2 ft), A-6(12), Lab No. 31369	ST 1		100	23.3 23.9	100.5	2.25 3.0	2.20	36	25	11	2.0, pH = 7.8, SG = 2.77
615.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-163**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58735
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 717+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
		Silty Clay, medium stiff, moist, brown, (fill), A-6, Lab No. 31369 2.0	SS 1	2-3-4	89	28.0 26.8		2.25 3.0					
	2.5												
			SS 2	2-3-4	100	28.5 26.0		1.0 2.75					
610.0	5.0	**Silty Clay**, medium stiff to very stiff, moist, brown to brown and gray below 6 ft, A-6, Lab No. 30932											
			SS 3	5-6-8	100	26.0		2.0					
	7.5												
			SS 4	7-8-8	100	25.4		2.5					
605.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-164**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58787
LONGITUDE : -85.77856
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 616.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 719+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 75.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
615.0	0.0	**Asphaltic Concrete** 1.3											
	2.5	**Sand and Gravel**, loose, moist, gray, (fill), A-1-b, Lab No. 30930 2.8	SS 1	5-5-4	44								
			SS 2	4-3-3	44	11.5 22.2		1.5 3.0					
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, with sandy loam seam near 3.5 ft, with some gravel near 5 ft, (fill to 4 ft), A-6, Lab No. 30932	SS 3	4-4-4	56	23.6		4.0					
610.0			SS 4	5-4-7	78	23.1		2.25					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
	10.0												
605.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-165**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58845
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 613.0
STATION : 721+22
OFFSET : 1.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 72 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
610.0	2.5	**Silty Clay**, medium stiff to hard, moist, brown, (residual soil below 4 ft), A-6, Lab No. 30932	SS 1	3-4-5	100	21.7 19.0	106.7	3.75 >4.5	2.60				
	5.0		SS 2	5-9-14	100	18.1 16.8		>4.5 >4.5					
605.0	7.5		SS 3	10-10-17	100	17.2		>4.5					
	10.0	10.0	SS 4	19-22-29	67	16.7		>4.5					
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-166**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58964
LONGITUDE : -85.77910
DATUM : WGS 84
DATE STARTED : 06-08-21
DATE COMPLETED : 06-08-21

ELEVATION : 612.0
STATION : 725+54
OFFSET : 79.0 ft Left
LINE : 'Q'
DEPTH : 7.5 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 80 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
		Granular Subbase, (crushed stone) 1.5											
610.0	2.5		SS 1	5-5-5	33	14.0 20.1		>4.5 4.0					
			SS 2	5-4-5	44	19.4 21.0		2.5 3.75					
		Silty Clay, medium stiff to stiff, moist, brown, A-6, Lab No. 30932											
	5.0		SS 3	5-5-6	44	21.7		4.0					
605.0			SS 4	5-7-7	33	20.4		3.25					
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
600.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-167**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58955
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 610.0
STATION : 725+22
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 72 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	3-4-5	89	21.7 24.8		>4.5 3.5					
605.0	5.0	**Silty Clay**, medium stiff, moist, brown, with silty clay loam seam near 4 ft and 7 ft, A-6, Lab No. 30932	SS 2	3-4-5	100	21.6 22.1		3.0 3.25					
	7.5		SS 3	4-5-5	100	19.1		3.0					
		9.5	SS 4	4-5-5	100	20.3		4.0					
600.0	10.0	**Weathered Shale**, soft, gray 10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-168**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59007
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 727+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.9											
610.0	2.5	**Sandy Loam**, medium dense, moist, gray, with some gravel, (fill; visual) 2.4	SS 1	6-6-5	56								
		Silty Clay, stiff, medium stiff near 5 ft, moist, brown, A-6, Lab No. 30932	SS 2	5-5-5	67	20.9 21.9		2.5 2.0					
	5.0		SS 3	4-4-5	56	21.0		1.0					
		6.4	SS 4	5-6-6	100	13.6		1.75					
605.0		**Weathered Shale**, soft, gray 6.9											
	7.5	Bottom of Boring at 6.9 ft											
	10.0												
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-169**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59065
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 609.0
STATION : 729+23
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 72 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay Loam**, stiff, moist, brown, A-6, Lab No. 30852	SS 1	5-6-7	100	16.2 14.6		2.0 2.0					
		3.0											
605.0	5.0		SS 2	4-5-5	100	17.3 14.5		>4.5 >4.5					
	7.5	**Silty Clay**, medium stiff to stiff, moist, brown to gray below 6 ft, A-6, Lab No. 30932	SS 3	6-6-7	100	19.8		2.5					
600.0			SS 4	6-6-7	89	19.2		3.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-169A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59065
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 609.0
STATION : 729+23
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 72 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-169											
		1.0											
	2.5	**Silty Clay Loam**, moist, gray, A-6(10), Lab No. 30852	ST 1		75	17.2		1.25 >4.5		33	20	13	2.0, pH = 6.5, SG = 2.78, portion of sample sent to INDOT for M_r testing
		3.0											
		Bottom of Boring at 3.0 ft											
605.0	5.0												
	7.5												
600.0	10.0												
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-170**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59120
LONGITUDE : -85.77905
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 731+25	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 65.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 2.0 ft ▼ At completion 3.0 ft ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.3											
610.0	2.5	**Silty Clay Loam**, soft to medium stiff, moist, gray and brown, with silty clay seam near 2.5 ft, (fill to 3 ft), A-6, Lab No. 30852	SS 1	2-2-3	94	16.9 23.4		>4.5 2.5					
	3.5		SS 2	3-4-4	100	12.2 20.5		1.5 3.0					
	5.0	**Silty Clay**, medium stiff to stiff, moist, gray and brown, A-6, Lab No. 31369	SS 3	4-4-7	44	20.1		2.25					
605.0			SS 4	6-4-6	100	19.2		4.0					
	7.3	Bottom of Boring at 7.3 ft											
	7.5												
	10.0												
600.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-171**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59175
LONGITUDE : -85.77882
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 733+23	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
610.0	2.5		SS 1	4-5-6	89	15.8 19.2		>4.5 >4.5					
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, with silty clay loam seam near 1 ft, A-6, Lab No. 30932	SS 2	4-4-5	100	21.8 27.2		2.5 2.0					
605.0	7.5		SS 3	4-5-4	100	20.3		>4.5					
	10.0	10.0	SS 4	5-6-6	100	20.3		3.5					
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-172**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59227
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 617.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 735+13	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
615.0	2.5	**Silty Clay**, medium stiff to stiff, brown to gray and brown below 6 ft, with silty clay loam seam near 2 ft and 5 ft, A-6, Lab No. 31369	SS 1	4-4-5	33	15.9		>4.5					
			SS 2	4-5-5	67	19.0 17.3		3.0 >4.5					
	5.0		SS 3	4-4-5	56	14.2		>4.5					
610.0		7.1	SS 4	5-7-8	78	20.2		>4.5					
	7.5	Bottom of Boring at 7.1 ft											
	10.0												
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-173**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59284
LONGITUDE : -85.77881
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 617.0
STATION : 737+23
OFFSET : 2.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 73 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
615.0	2.5		SS 1	5-6-7	100	19.9 18.5	110.3	>4.5 >4.5	3.92				
	5.0	**Silty Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 31369	SS 2	5-6-7	100	22.0 18.7		>4.5 >4.5					
610.0	7.5		SS 3	6-7-9	100	20.3		>4.5					
	10.0	10.0	SS 4	9-10-13	100	20.0		>4.5					
		Bottom of Boring at 10.0 ft											
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-174**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59339
LONGITUDE : -85.77905
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 622.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 739+25	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 2.8 ft ▼ At completion 2.5 ft ▩ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
620.0	2.5	**Silty Clay**, medium stiff to hard, moist, gray, with some gravel near 3 ft, (fill to 3 ft), A-6, Lab No. 31369	SS 1	3-3-4	67	21.5 18.5	107.0	3.5 3.75	3.20				
			SS 2	5-7-9	78	21.0 19.8		1.0 >4.5					
	5.0		SS 3	9-9-14	56	14.1		>4.5					
615.0			SS 4	11-15-21	33	15.8		>4.5					
	7.5	7.3 Bottom of Boring at 7.3 ft											
	10.0												
610.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-175**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59394
LONGITUDE : -85.77884
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 623.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 741+22	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 10.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 73 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 8.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	16-19-27	100	13.1 14.7		>4.5 >4.5					
620.0		**Silty Clay**, hard, moist, brown, (residual soil), A-6, Lab No. 31369											
	5.0		SS 2	16-22-27	100	13.8 11.9		>4.5 >4.5					
		6.4	SS 3	50/5	100			>4.5					
	7.5	**Weathered Shale**, soft, gray											
615.0		8.8	SS 4	50/4	100								
		Bottom of Boring at 8.8 ft											
	10.0												
	12.5												
610.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-176**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59470
LONGITUDE : -85.77873
DATUM : WGS 84
DATE STARTED : 04-14-21
DATE COMPLETED : 04-14-21

ELEVATION	: 629.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 743+93	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 63.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Silty Clay**, medium stiff, moist, brown, A-6, Lab No. 31369	SS 1	2-3-5	44	18.2		>4.5 3.0					
625.0			SS 2	3-3-4	56	15.7 19.0		4.0 >4.5					
		4.2											
	5.0	**Weathered Shale**, soft, gray	SS 3	10-12-17	33	10.1							
			SS 4	11-12-25	67	9.0							
	7.5	7.2											
		Bottom of Boring at 7.2 ft											
620.0													
	10.0												
	12.5												
615.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-177**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59504
LONGITUDE : -85.77897
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 628.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 745+22	RIG TYPE	: CME 750 ATV	DRILLER/INSP	: T.M.
OFFSET	: 11.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 8.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	10-13-21	89	13.6 11.7		>4.5 >4.5					
625.0		**Silty Clay**, hard, moist, brown, A-6, Lab No. 31369											
	5.0		SS 2	13-15-20	100	11.2 11.4		>4.5 >4.5					
		6.0	SS 3	50/5	100								
	7.5	**Weathered Shale**, soft, gray											
620.0		8.8	SS 4	50/4	100								
		Bottom of Boring at 8.8 ft											
	10.0												
	12.5												
615.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-178**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59558
LONGITUDE : -85.77931
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 632.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 747+32	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at 2.5 ft ▼ At completion 2.0 ft ▩ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
630.0	2.5	**Sandy Clay Loam**, medium stiff, moist, brown, (fill), A-4, Lab No. 31462 2.0	SS 1	4-2-4	78	6.2 17.5		1.0 >4.5					
			SS 2	8-9-14	56	16.1 15.8		>4.5 >4.5					
	5.0	**Silty Clay**, medium stiff to hard, moist, gray and brown, A-6, Lab No. 31369	SS 3	11-13-15	56	14.6		>4.5					
			SS 4	9-14-19	44	17.9		>4.5					
625.0		7.0											
	7.5	Bottom of Boring at 7.0 ft											
	10.0												
620.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-179**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59612
LONGITUDE : -85.77920
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 633.0
STATION : 749+21
OFFSET : 9.0 ft Right
LINE : 'Q'
DEPTH : 9.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750 ATV
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 72 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
630.0	2.5	**Silty Clay**, very stiff to hard, moist, gray, A-6, Lab No. 31369	SS 1	10-13-14	89	17.9 14.5	115.0	>4.5 >4.5					
	5.0		SS 2	14-19-26	100	13.5 12.2		>4.5 >4.5					
625.0	7.5	6.0 **Weathered Shale**, soft, gray	SS 3	16-30-39	89	10.5							
		9.3	SS 4	32-50/4	94								
620.0	10.0 12.5 15.0	Bottom of Boring at 9.3 ft				7.1							

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-180**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59663
LONGITUDE : -85.77913
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 639.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 750+99	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 65.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Sandy Clay Loam**, stiff to very stiff, moist, brown, with clay seam near 2 ft, (fill to 4 ft), A-4, Lab No. 31462	SS 1	5-6-7	44	20.0 14.9	114.9	4.0 3.0					
635.0			SS 2	6-7-9	89	15.6 7.4		3.5 >4.5					
	5.0		SS 3	6-8-10	67	13.2		2.5					
		5.7											
		Weathered Shale, soft, gray	SS 4	7-9-15	67	14.3							
	7.5	7.2											
		Bottom of Boring at 7.2 ft											
630.0													
	10.0												
	12.5												
625.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-181**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59719
LONGITUDE : -85.77953
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 638.0
STATION : 803+73
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 75 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay**, very stiff, moist, brown, with shale fragments, (fill to 2 ft), A-6, Lab No. 31378	SS 1	8-8-8	100	11.2		>4.5 >4.5					1.0, soluble sulfate = 630 ppm
635.0		3.0											
	5.0	**Silty Clay**, stiff, moist, brown, A-6, Lab No. 31369	SS 2	4-7-7	100	18.2 15.0		>4.5 >4.5					
		6.0											
	7.5		SS 3	6-9-10	78	12.8							
630.0		**Weathered Shale**, soft, brown											
	10.0	10.0	SS 4	11-13-14	67	12.9							
		Bottom of Boring at 10.0 ft											
	12.5												
625.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-182**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59772
LONGITUDE : -85.77991
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION : 643.0
STATION : 805+90
OFFSET : 54.0 ft Left
LINE : 'Q'
DEPTH : 7.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.9											
		Granular Subbase, (crushed stone) 1.1											
	2.5		SS 1	4-4-4	100	13.1		4.0 2.75		22	13	9	2.0, pH = 9.2, SG = 2.74
640.0			SS 2	3-3-4	89	19.0 20.6		<0.25 <0.25					
		Sandy Clay Loam, medium stiff, moist, brown, with sandy loam seam near 3 ft, A-4(1), Lab No. 31462											
	5.0		SS 3	1-2-4	78	19.6		0.25					
			SS 4	3-4-4	61	26.9		1.25					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
635.0													
	10.0												
	12.5												
630.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-183**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59825
LONGITUDE : -85.77987
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 643.0
STATION : 807+73
OFFSET : 5.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 76 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion 3.5 ft ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Sandy Clay Loam**, medium stiff, moist, brown, with wet gravel seam near 4 ft, with sandy loam seam near 2 ft and 5 ft, with silty clay loam seam near 6 ft, (fill to 4 ft), A-6(2), Lab No. 30990	SS 1	3-3-3	100	16.4 10.6		1.75 0.5		34	23	11	1.0, pH = 8.3, SG = 2.81, soluble sulfate = 250 ppm
640.0													
	5.0		SS 2	3-3-3	89	49.1 14.5		0.75 0.25					
		6.0											
	7.5	**Loam**, stiff, moist, brown, (visual)	SS 3	3-4-7	100	10.6		>4.5 >4.5					
635.0		8.0											
	10.0	**Silty Clay Loam**, hard, moist, brown, A-7-6, Lab No. 30991	SS 4	8-13-20	100	13.2		>4.5 >4.5					
		10.0											
		Bottom of Boring at 10.0 ft											
630.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-183A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59825
LONGITUDE : -85.77987
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 643.0
STATION : 807+73
OFFSET : 5.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 76 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-183											
		1.0											
	2.5	**Sandy Loam**, moist, brown, with sandy clay loam seam near 1 ft, (fill), A-2-4(0), Lab No. 30944	ST 1		88	20.3	104.3	2.0 1.25		25	18	7	2.0, pH = 8.1, SG = 2.72
640.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
635.0													
	10.0												
	12.5												
630.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-184**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59843
LONGITUDE : -85.77971
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 646.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 808+25	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 64.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
645.0		**Asphalt** 1.2											
	2.5	**Sandy Clay Loam**, medium stiff to very stiff, moist, brown, with granular seam near 5 ft, A-4, Lab No. 31462	SS 1	4-4-4	44	5.4		>4.5 >4.5					
			SS 2	4-5-6	56	14.7	118.0	>4.5 >4.5	6.65				
	5.0		SS 3	6-7-7	33	10.9		0.5					
640.0			SS 4	6-8-9	67	9.7		2.0 2.0					
	7.5	7.2 Bottom of Boring at 7.2 ft											
	10.0												
635.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-185**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59932
LONGITUDE : -85.78021
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION : 647.0
STATION : 811+74
OFFSET : 5.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 75 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
645.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, with organic matter; root fibers near 2 ft, (fill to 2 ft), A-7-6(22), Lab No. 30991	SS 1	3-3-4	100	17.8 26.0		1.0 3.75		42	19	23	1.0, soluble sulfate = 630 ppm, pH = 7.3, SG = 2.77
	5.0		SS 2	4-5-6	100	19.4 16.3		2.25 >4.5					
640.0	7.5	**Silty Clay Loam**, stiff, moist, brown, A-6, Lab No. 31461 6.0	SS 3	6-6-7	67	15.7		1.25					
	10.0	**Silty Loam**, stiff, moist, brown, (visual) 10.0	SS 4	5-7-7	100	11.5		3.0					
635.0	12.5	Bottom of Boring at 10.0 ft											
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-186**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59985
LONGITUDE : -85.78060
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 650.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 813+90	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 54.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
	2.5	**Sandy Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31462 2.5	SS 1	4-4-4	94	13.0 14.1		>4.5 >4.5					
			SS 2	4-5-5	89	20.9 17.5		>4.5 >4.5					
645.0	5.0	**Sandy Clay Loam**, medium stiff to stiff, moist, brown, A-6, Lab No. 30990 5.5	SS 3	4-6-8	100	16.2		>4.5					
		Clay, stiff, moist, brown and gray, with sand seam near 6 ft, A-6, Lab No. 31382 7.0	SS 4	5-6-6	100	18.4		4.0					
	7.5	Bottom of Boring at 7.0 ft											
640.0	10.0												
	12.5												
635.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-187**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60038
LONGITUDE : -85.78055
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 647.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 815+74	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 7.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
645.0	2.5		SS 1	5-6-6	100	9.7 9.6		0.75 0.5					
	5.0	**Sandy Loam**, medium stiff to stiff, moist, brown, with sandy clay loam seam near 10 ft, A-2-4, Lab No. 30944	SS 2	4-4-7	100	15.9 16.1		0.5 0.25					
640.0	7.5		SS 3	4-4-4	100	16.2		0.5					
	10.0	10.0	SS 4	5-4-5	100	12.8		1.75					
		Bottom of Boring at 10.0 ft											
635.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-188**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60089
LONGITUDE : -85.78050
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 647.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 817+50	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 67.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
645.0	2.5	**Sandy Clay Loam**, stiff, moist, brown, A-6, Lab No. 30990 2.5	SS 1	4-5-7	56	20.3 13.4	111.9	>4.5 >4.5					
		Clay, stiff, moist, brown, A-6, Lab No. 31382 3.5	SS 2	5-5-6	67	16.9 12.6		4.0 1.5					
	5.0	**Sandy Clay Loam**, stiff to very stiff, moist, brown, A-4, Lab No. 31462	SS 3	5-6-6	56	13.8		2.5					
640.0	7.5	7.3	SS 4	8-8-9	89	15.8		2.75					
		Bottom of Boring at 7.3 ft											
635.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-189**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60145
LONGITUDE : -85.78089
DATUM : WGS 84
DATE STARTED : 04-28-21
DATE COMPLETED : 04-28-21

ELEVATION	: 643.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 819+74	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 8.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	4-4-5	100	17.5 13.9		>4.5 >4.5					
640.0		**Clay**, medium stiff to very stiff, moist, brown, A-6, Lab No. 31382											
	5.0		SS 2	7-10-11	89	14.3 14.4		>4.5 >4.5					
		6.0											
	7.5		SS 3	7-8-11	78	12.0		>4.5					
635.0		**Silty Clay**, very stiff to hard, moist, brown, (residual soil), A-7-6, Lab No. 30992											
	10.0	10.0	SS 4	10-13-20	89	11.1		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
630.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-190**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60198
LONGITUDE : -85.78129
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION	: 642.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 821+89	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
640.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, A-4, Lab No. 31380	SS 1	3-5-5	56	11.2 13.3		>4.5 >4.5					
		4.0	SS 2	3-5-6	67	18.7 20.6		3.0 1.5					
	5.0	**Clay**, medium stiff to stiff, moist, brown to gray below 6 ft, with sand seam near 6.5 ft, A-6, Lab No. 31382	SS 3	3-4-6	89	17.7		3.75					
			SS 4	5-6-9	72	18.0		1.0					
635.0	7.5	7.0 Bottom of Boring at 7.0 ft											
	10.0												
630.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-190A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60198
LONGITUDE : -85.78129
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION : 642.0
STATION : 821+89
OFFSET : 58.0 ft Left
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-190											
		1.0											
640.0	2.5	**Silty Clay Loam**, moist, brown, A-4(6), Lab No. 31380	ST 1		92	15.9		>4.5 >4.5		28	20	8	2.0, pH = 7.1, SG = 2.71
		3.0											
		Bottom of Boring at 3.0 ft											
635.0	5.0												
	7.5												
630.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-191**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60252
LONGITUDE : -85.78120
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 637.0
STATION : 823+74
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
635.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, with sandy clay loam seam near 2 ft, with clay seam near 7 ft, A-4, Lab No. 31380	SS 1	4-5-5	100	15.0 19.7		>4.5 2.0					
	5.0		SS 2	6-6-6	100	16.8 13.6	116.2	3.0 3.0	2.07				
630.0	7.5		SS 3	6-7-7	100	19.6		4.0					
	10.0	10.0	SS 4	8-7-7	100	16.2		2.25					
		Bottom of Boring at 10.0 ft											
625.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-192**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60329
LONGITUDE : -85.78114
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 635.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 826+51	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 62.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Sandy Loam, medium dense, moist, brown, (fill; visual) 2.1	SS 1	7-7-7	56	18.0		2.0					
	2.5		SS 2	5-5-7	22								
630.0	5.0	**Clay**, stiff, moist, brown, with some gravel near 4 ft, A-6, Lab No. 31382	SS 3	6-5-6	78	21.1		2.25					
		7.1	SS 4	6-6-8	78	20.0		2.75					
	7.5	Bottom of Boring at 7.1 ft											
625.0	10.0												
	12.5												
620.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-193**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60361
LONGITUDE : -85.78138
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 632.0
STATION : 827+75
OFFSET : 6.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
630.0	2.5	**Silty Clay Loam**, very stiff, moist, brown, A-4, Lab No. 31380	SS 1	6-7-9	100	16.8 16.3	113.6	>4.5 >4.5	4.08				
	3.0												
	5.0		SS 2	5-7-9	100	21.8 23.3		2.0 2.25					
625.0	7.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31382	SS 3	6-8-8	100	19.3		>4.5					
	10.0	10.0	SS 4	7-8-9	100	20.1		3.0					
		Bottom of Boring at 10.0 ft											
620.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-194**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60416
LONGITUDE : -85.78167
DATUM : WGS 84
DATE STARTED : 06-07-21
DATE COMPLETED : 06-07-21

ELEVATION : 634.0
STATION : 829+80
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 6.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 0.9	SS 1	3-4-5	89	12.7 16.6		>4.5 3.75					
	2.5		SS 2	4-5-5	100	17.1 17.4	110.6	>4.5 3.0	4.35				
630.0		**Silty Clay Loam**, medium stiff to stiff, moist, brown, A-4, Lab No. 31380	SS 3	5-5-6	94	17.6		>4.5					
	5.0 ▩		SS 4	5-6-6	100	18.7		3.75					
		6.8											
		Bottom of Boring at 6.8 ft											
	7.5												
625.0													
	10.0												
	12.5												
620.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-195**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60470
LONGITUDE : -85.78146
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 630.0
STATION : 831+75
OFFSET : 8.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, A-4, Lab No. 31380	SS 1	4-5-5	100	17.2 16.5	110.7	>4.5 >4.5	4.02				
625.0	5.0		SS 2	6-5-6	100	18.4 20.9		3.5 3.75					
		6.0											
	7.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31382	SS 3	5-6-6	100	17.8		3.0					
620.0	10.0	10.0	SS 4	4-5-6	100	20.4		3.5					
		Bottom of Boring at 10.0 ft											
	12.5												
615.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-196**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60523
LONGITUDE : -85.78128
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 631.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 833+66	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at 5.5 ft ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
630.0		**Asphaltic Concrete** 1.2											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, with some gravel near 7 ft, A-4, Lab No. 31380	SS 1	3-4-4	56	12.1 14.8		>4.5 >4.5					
			SS 2	4-4-4	67	16.8 19.4		>4.5 2.5					
	5.0		SS 3	4-4-6	33	25.9		0.5					
625.0			SS 4	4-4-5	78	17.3		3.0					
	7.5	7.2 Bottom of Boring at 7.2 ft											
	10.0												
620.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-197**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60580
LONGITUDE : -85.78147
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 628.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 835+75	RIG TYPE	: CME 750	DRILLER/INSP	: T.M.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	6-8-9	100	18.2 13.7 13.2	108.2	>4.5 >4.5		46	27	19	1.0, pH = 8.3, SG = 2.77
625.0		**Silty Clay**, very stiff to hard, moist, brown, A-7-6(22), Lab No. 30992											
	5.0		SS 2	9-13-21	89	10.6 11.5		>4.5 >4.5					
		6.0											
	7.5		SS 3	19-24-28	89	9.0							
620.0		**Weathered Shale**, soft, brown and gray											
	10.0	10.0	SS 4	17-24-31	78	10.5							
		Bottom of Boring at 10.0 ft											
	12.5												
615.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-198**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60635
LONGITUDE : -85.78170
DATUM : WGS 84
DATE STARTED : 04-07-21
DATE COMPLETED : 04-07-21

ELEVATION	: 630.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 837+76	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Silty Clay Loam**, stiff to medium stiff, moist, brown, A-4, Lab No. 31380	SS 1	4-5-7	44	13.3 14.6		>4.5 >4.5					
		4.2	SS 2	3-4-5	33	16.0		3.0					
625.0	5.0	**Silty Clay**, very stiff to hard, moist, brown, (residual soil below 5 ft), A-7-6, Lab No. 30992	SS 3	4-7-16	44	14.4		>4.5					
			SS 4	21-50/4		11.5		>4.5					
	7.5	7.2											
		Bottom of Boring at 7.2 ft Auger refusal on rock											
620.0	10.0												
	12.5												
615.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-199**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60690
LONGITUDE : -85.78149
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 626.0
STATION : 839+75
OFFSET : 1.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Humid

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
625.0		**Topsoil** 0.5											
	2.5		SS 1	7-7-9	56	9.5 13.3		>4.5 >4.5					
	5.0	**Silty Clay**, very stiff, moist, brown, with shale fragments near 2 ft, (fill to 2 ft), A-7-6, Lab No. 30992	SS 2	8-11-12	78	10.1 12.1		>4.5 >4.5					
620.0			SS 3	11-11-13	78	11.7		>4.5					
	7.5												
	10.0	10.0	SS 4	10-13-16	89	11.9		>4.5					
		Bottom of Boring at 10.0 ft											
615.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-200**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60742
LONGITUDE : -85.78127
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 628.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 841+67	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
625.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, with clay loam seam near 3 ft, A-4, Lab No. 31380	SS 1	3-4-4	67	15.3 7.7	116.8	>4.5 >4.5					
		3.6	SS 2	3-4-7	67	14.5 15.2		>4.5 >4.5					
	5.0	**Silty Clay**, stiff to hard, moist, brown, A-7-6, Lab No. 30992	SS 3	10-10-13	44	13.3		>4.5					
		7.1	SS 4	11-14-21	89	10.7		>4.5					
620.0	7.5	Bottom of Boring at 7.1 ft											
	10.0												
615.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-201**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60800
LONGITUDE : -85.78148
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 625.0
STATION : 843+75
OFFSET : 1.0 ft Left
LINE : 'Q'
DEPTH : 9.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Humid

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	9-10-10	78	12.6 13.4		>4.5 >4.5					
			SS 2	13-18-22	78	8.4 9.9		>4.5 >4.5					
620.0	5.0	**Silty Clay**, very stiff to hard, moist, brown, (residual soil), A-7-6, Lab No. 30992											
			SS 3	18-21-27	89	11.5		2.5					
	7.5												
			SS 4	23-39-50/5	95	8.7		>4.5					
615.0	10.0	9.9											
		Bottom of Boring at 9.9 ft											
	12.5												
610.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-202**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60855
LONGITUDE : -85.78168
DATUM : WGS 84
DATE STARTED : 06-06-21
DATE COMPLETED : 06-06-21

ELEVATION	: 627.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 845+76	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.5											
625.0	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31381 2.5	SS 1	3-4-5	100	16.6 17.6	113.2	>4.5 >4.5	3.74				
			SS 2	5-5-6	56	18.1 23.3		3.0 1.25					
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31382	SS 3	4-4-4	72	15.0		2.25					
620.0	7.5	7.5	SS 4	4-5-7	94	21.9		2.75					
		Bottom of Boring at 7.5 ft											
	10.0												
615.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-203**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60910
LONGITUDE : -85.78148
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 623.0
STATION : 847+76
OFFSET : 1.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : T.M.
TEMPERATURE : 70 °F
WEATHER : Humid

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 2.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 31381	SS 1	5-5-6	100	16.1 16.5	113.3	>4.5 4.0	3.91				
620.0		4.0											
	5.0		SS 2	6-7-8	100	16.1 20.8		3.0 3.75					
	7.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31382	SS 3	5-5-5	100	19.1		2.25					
615.0													
	10.0	10.0	SS 4	6-6-7	100	10.7		2.5					
		Bottom of Boring at 10.0 ft											
	12.5												
610.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-204**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60962
LONGITUDE : -85.78126
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 626.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 849+67	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
625.0		**Asphaltic Concrete** 1.1											
	2.5	**Sandy Loam**, medium stiff, moist, gray, with some gravel, (fill), A-2-4, Lab No. 30944	SS 1	4-3-3	44	4.8 5.3		0.75 1.25					
		3.6	SS 2	5-4-4	78	12.5 11.2		>4.5 >4.5					
	5.0	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31381	SS 3	3-3-3	67	15.6		1.0					
620.0			SS 4	3-3-5	67	15.6		>4.5					
	7.5	7.1 Bottom of Boring at 7.1 ft											
	10.0												
615.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-205**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61020
LONGITUDE : -85.78147
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION : 622.0
STATION : 861+43
OFFSET : 967.0 ft Left
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 50 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at 2.0 ft ▼ At completion 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
620.0	2.5	**Peat**, very soft, moist, brown, with straw fibers near 1 ft, with granular seam near 2 ft, (fill), A-8 2.5	SS 1	3-1-2	67	36.1 16.8		0.25 2.25					1.0, LOI = 36 percent
	5.0		SS 2	4-4-6	100	18.6 17.4	112.5	>4.5 3.0	2.19				
615.0	7.5	**Clay**, medium stiff to very stiff, moist, brown to brown and gray below 7 ft, with silt seams near 7 ft and 10 ft, A-6, Lab No. 31382	SS 3	6-8-10	100	19.3		2.75					
	10.0	10.0	SS 4	4-5-6	100	21.9		1.75					
		Bottom of Boring at 10.0 ft											
610.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-206**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61075
LONGITUDE : -85.78167
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 624.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 861+43	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 768.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 2.7 ft ▼ At completion 3.0 ft ▩ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Silty Clay Loam**, very soft to medium stiff, moist, brown, A-4, Lab No. 31381	SS 1	4-3-4	67	18.0 19.1		>4.5 3.0					
620.0		4.3	SS 2	0-0-0	56	23.3 22.5		0.5 0.5					
	5.0	**Clay**, soft to medium stiff, moist, brown, A-6, Lab No. 31382	SS 3	2-2-2	89	26.7		1.25					
		7.3	SS 4	3-3-6	89	21.5		2.5					
	7.5	Bottom of Boring at 7.3 ft											
615.0													
	10.0												
	12.5												
610.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-207**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61129
LONGITUDE : -85.78146
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 620.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 861+43	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 567.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 1.0 ft ▼ At completion 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Silty Clay**, stiff, moist, brown, with silty clay loam seam near 5 ft, A-7-6, Lab No. 30992	SS 1	3-5-6	100	29.3 28.2		1.0 1.25					
615.0	5.0		SS 2	4-5-6	100	33.0 23.8		0.75 1.0					
	7.5		SS 3	5-6-5	100	23.0		2.0					
		8.0											
		Silty Clay, stiff, moist, brown, with sandy loam seam near 9 ft, A-4, Lab No. 31381	SS 4	3-5-7	100	12.9		>4.5					
610.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
605.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-208**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61257
LONGITUDE : -85.78124
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 616.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 861+43	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 121.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
615.0		**Asphaltic Concrete** 1.2											
	2.5	**Sandy Clay Loam**, medium stiff to stiff, moist, brown, with clay seam near 2 ft, with possible cobbles near 3 ft, with some gravel near 5 ft, A-4, Lab No. 31462	SS 1	4-5-5	33	13.7		2.75					
			SS 2	5-6-6	0								
	5.0		SS 3	5-5-5	33	9.3		1.0					
610.0			SS 4	5-6-5	44	13.3		1.0					
	7.5	7.2 Bottom of Boring at 7.2 ft											
	10.0												
605.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-209**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61239
LONGITUDE : -85.78145
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 614.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 861+43	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 167.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 3.5 ft ▼ At completion 4.0 ft ▼ 3.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31382	SS 1	4-6-7	100	22.9 20.8		2.25 2.75					1.0, soluble sulfate = 170 ppm
		3.0											
610.0	5.0	**Sandy Clay Loam**, medium stiff, moist, brown, with wet granular seam near 4 ft, with clay seam near 7 ft, A-4, Lab No. 31462	SS 2	4-5-4	100	24.7 22.2		<0.25 0.5					
		7.0	SS 3	4-4-4	100	21.0		1.25 0.25					
605.0	7.5	**Sandy Loam**, medium stiff to hard, moist, brown, A-2-4, Lab No. 30944											
	10.0	10.0	SS 4	18-17-25	100	13.8		0.25 0.75					
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-210**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61295
LONGITUDE : -85.78166
DATUM : WGS 84
DATE STARTED : 06-06-21
DATE COMPLETED : 06-06-21

ELEVATION	: 614.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 861+77	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.5											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31381 2.5	SS 1	4-4-4	100	16.0 17.4		3.0 2.5					
610.0			SS 2	4-5-5	100	15.7 14.3		2.75 3.25					
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31382	SS 3	6-6-7	100	17.0		3.25					
			SS 4	4-6-8	67	15.3		>4.5					
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
605.0													
	10.0												
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-211**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61349
LONGITUDE : -85.78144
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 863+76	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 62 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 6.0 ft ▼ At completion 5.5 ft ▼ 4.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Silty Clay Loam**, stiff to very stiff, moist, brown, with silty clay seam near 4 ft, A-4, Lab No. 31381	SS 1	4-5-8	100	20.8 16.2	107.3	3.5 2.0					
605.0													
		4.5	SS 2	7-9-9	100	23.6 22.7		1.5 0.75					
	5.0												
	7.5	**Clay**, very stiff, moist, brown, with weathered shale fragments near 10 ft, A-6, Lab No. 31382	SS 3	7-10-10	100	19.8		1.25					
600.0													
		10.0	SS 4	5-8-10	100	21.3		3.5					
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-211A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61349
LONGITUDE : -85.78144
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION : 608.0
STATION : 863+76
OFFSET : 6.0 ft Right
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 62 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-211											
		1.0											
	2.5	**Silty Clay Loam**, moist, brown, A-4(4), Lab No. 31381	ST 1		92	19.5 21.9	107.9	1.25 2.0	1.41	27	21	6	2.0, pH = 8.2, SG = 2.80
605.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
600.0													
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-212**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61402
LONGITUDE : -85.78129
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 865+64	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 57.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 3.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
605.0	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, with clay seam near 2 ft, A-4, Lab No. 31381	SS 1	4-5-5	56	12.1 17.1	111.5	>4.5 >4.5	2.51				
	5.0		SS 2	5-5-6	67	11.9 10.0		3.5 >4.5					
			SS 3	6-6-6	33	16.1		4.0					
		7.1	SS 4	7-7-7	89	19.4		1.5					
600.0	7.5	Bottom of Boring at 7.1 ft											
	10.0												
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-213**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61459
LONGITUDE : -85.78153
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 601.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 867+76	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 9.5 ft ▼ At completion 9.4 ft ▼ 2.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
600.0		**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 31381 2.0	SS 1	4-6-8	100	19.6 23.5		0.5 3.5					
	2.5												
		Clay, stiff to very stiff, moist, brown, A-6, Lab No. 31382	SS 2	6-7-9	100	22.5 19.8		2.0 3.5					
	5.0	6.0											
595.0		**Silty Clay Loam**, very stiff, moist, brown, A-4, Lab No. 30993	SS 3	4-7-10	100	19.8		3.0					
	7.5	8.0											
		Clay, very stiff, moist, brown, with weathered shale fragments below 9 ft, A-6, Lab No. 31382	SS 4	9-9-13	100	20.4		2.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
590.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-214**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61514
LONGITUDE : -85.78182
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 600.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 869+83	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31381 2.8	SS 1	4-4-5	78	16.7 19.9	115.8	>4.5 4.5	3.73				
			SS 2	4-5-7	33	17.4 19.4		1.0 2.75					
595.0	5.0	**Clay**, stiff, moist, brown, with silt seam near 3.5 ft, A-6, Lab No. 31371	SS 3	5-5-7	22	17.3		2.0					
			SS 4	5-7-7	33	20.7		>4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
590.0	10.0												
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-215**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61568
LONGITUDE : -85.78167
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 594.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 871+76	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31382	SS 1	4-5-6	100	17.5 19.0		4.5 3.0					
		3.0											
590.0	5.0	**Silty Clay Loam**, very stiff, moist, brown and gray, A-4, Lab No. 30993	SS 2	6-8-19	100	15.7 16.4		2.0 4.0					
		6.0											
	7.5	**Weathered Shale**, soft, brown to gray below 7 ft	SS 3	18-33-36	100								
585.0			SS 4	22-40-42	100								
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-216**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61677
LONGITUDE : -85.78168
DATUM : WGS 84
DATE STARTED : 04-15-21
DATE COMPLETED : 04-15-21

ELEVATION	: 591.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 875+65	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 62.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
590.0	0.0	**Asphaltic Concrete** 1.2											
	2.5	**Silty Clay Loam**, medium stiff to stiff, moist, brown, A-4(8), Lab No. 30993	SS 1	4-5-5	56	16.6 15.2	113.4	>4.5 >4.5	4.26	29	19	10	2.7, pH = 8.6, SG = 2.72
			SS 2	6-6-8	56	12.4 15.3		>4.5 >4.5					
585.0	5.0		SS 3	6-7-7	33	13.7		>4.5					
			SS 4	7-7-7	56	9.1		>4.5					
	7.5	7.2 Bottom of Boring at 7.2 ft											
580.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-217**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61681
LONGITUDE : -85.78187
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 589.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 875+91	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 11.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 9.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, very stiff to stiff, moist, brown and gray, A-6, Lab No. 31382	SS 1	5-7-9	100	15.8 13.4		2.25 >4.5					
585.0	5.0		SS 2	5-7-7	100	15.3 18.0		>4.5 3.0					
		6.0											
	7.5	**Silty Clay Loam**, medium stiff, moist, gray, A-4, Lab No. 30993	SS 3	4-4-4	100	29.1		0.75					
		8.0											
580.0 ▼		**Silty Clay**, hard, moist, gray, (residual soil), A-7-6, Lab No. 30992	SS 4	6-11-50	100	15.3		>4.5					
		9.5											
	10.0	**Weathered Shale**, soft, gray 10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-218**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61731
LONGITUDE : -85.78225
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION : 589.0
STATION : 877+90
OFFSET : 59.0 ft Left
LINE : 'PR-Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 60 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.9											
		Granular Subbase, (crushed stone) 1.3											
	2.5		SS 1	3-3-4	94	17.0 17.2		2.75 3.5					
585.0			SS 2	4-5-7	100	16.4 18.0		2.75 2.5					
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31382	SS 3	4-6-7	72	14.8		3.5					
			SS 4	4-5-4	56	21.3		1.75					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
580.0	10.0												
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-218A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61731
LONGITUDE : -85.78225
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION : 589.0
STATION : 877+90
OFFSET : 59.0 ft Left
LINE : 'PR-Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 60 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-218											
	1.0												
	2.5	**Clay**, moist, brown, A-6(12), Lab No. 31382	ST 1		58	18.2 16.1	114.9	4.0 4.25	2.89	36	19	17	2.0, pH = 7.8, SG = 2.78
	3.0	Bottom of Boring at 3.0 ft											
585.0	5.0												
	7.5												
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-219**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61784
LONGITUDE : -85.78218
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION : 585.0
STATION : 879+75
OFFSET : 3.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at 6.0 ft ▼ At completion 7.4 ft ▼ 7.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31382	SS 1	6-6-9	100	18.3 24.7	112.3	3.5 3.75	3.29				2.5, LOI = 3 percent
		3.0											
580.0	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, brown and gray, A-4, Lab No. 30993	SS 2	4-4-5	100	24.3 23.5		0.75 1.25					
	7.5		SS 3	4-5-7	100	21.9		1.0					
575.0	10.0	10.0	SS 4	5-5-7	100	22.0		2.0					
		Bottom of Boring at 10.0 ft Bag sample taken at offset (RB-219B) for moisture-density relations.											
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-220**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61835
LONGITUDE : -85.78214
DATUM : WGS 84
DATE STARTED : 04-16-21
DATE COMPLETED : 04-16-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 881+52	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 30993	SS 1	4-4-4	67	11.7 9.1		>4.5 >4.5					
		3.8	SS 2	4-4-5	67	14.7		>4.5 3.0					
585.0	5.0	**Clay**, medium stiff to stiff, moist, brown, with some gravel near 5 ft, A-6, Lab No. 31382	SS 3	5-6-6	33	13.5		3.5					
		7.3	SS 4	6-6-7	89	10.8		4.0					
	7.5	Bottom of Boring at 7.3 ft											
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-221**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61890
LONGITUDE : -85.78255
DATUM : WGS 84
DATE STARTED : 05-12-21
DATE COMPLETED : 05-12-21

ELEVATION	: 586.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 883+75	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Topsoil** 0.3											
	2.5	**Clay Loam**, very stiff, moist, brown, A-4, Lab No. 31008	SS 1	8-8-17	100	14.9 15.1	120.4	>4.5 4.0	4.71				
		4.0											
	5.0	**Clay**, very stiff, moist, brown, A-6, Lab No. 31382	SS 2	5-7-9	100	19.6 18.5		2.5 2.0					
580.0		6.0											
	7.5	**Silty Clay Loam**, stiff, moist, gray to brown and gray below 9 ft, with silty clay seam near 10 ft, A-4, Lab No. 30993	SS 3	5-5-6	100	26.3		0.5 0.25					
			SS 4	5-5-8	100	21.5		2.5 3.0					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-222**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61943
LONGITUDE : -85.78298
DATUM : WGS 84
DATE STARTED : 04-06-21
DATE COMPLETED : 04-06-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 885+95	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at 3.0 ft ▼ At completion 1.5 ft ▩ Caved in at 4.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 30993 2.8	SS 1	3-4-4	78	17.6 21.1	111.1	>4.5 1.5	4.51				
			SS 2	3-4-5	56	21.7 16.8		1.5 3.0					
585.0	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31382	SS 3	4-4-6	67	19.5		3.5					
			SS 4	4-5-6	67	17.5		3.75					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-223**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62045
LONGITUDE : -85.78294
DATUM : WGS 84
DATE STARTED : 04-16-21
DATE COMPLETED : 04-16-21

ELEVATION	: 591.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 889+50	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
590.0		**Asphaltic Concrete** 1.2											
	2.5	**Clay**, medium stiff, moist, brown, with silt seams near 2 ft and 4 ft, A-6, Lab No. 31382	SS 1	4-4-5	67	20.7 13.2	110.8	4.0 >4.5					
			SS 2	5-5-5	56	13.3 12.0		3.0 4.0					
		4.2											
	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, brown and gray, with silt and silty loam seams, A-4, Lab No. 31463	SS 3	4-5-5	44	15.5		4.5					
585.0			SS 4	7-6-7	89	18.2		2.75					
		7.2											
	7.5	Bottom of Boring at 7.2 ft											
	10.0												
580.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-224**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62101
LONGITUDE : -85.78335
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 891+76	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 83 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 8.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Silty Clay Loam**, very soft to medium stiff, moist, gray to brown below 4 ft, A-4(4), Lab No. 31463	SS 1	2-3-3	100	20.1		2.0 2.25		27	22	5	1.0, pH = 7.6, SG = 2.72
585.0	5.0		SS 2	2-1-2	100	25.1 25.4		0.5 1.25					
	7.5		SS 3	1-2-2	100	21.7		1.75					
		8.5											
		Clay, stiff, moist, brown, A-6, Lab No. 31371	SS 4	6-6-8	100	18.8		>4.5					
580.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-225**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62153
LONGITUDE : -85.78375
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 893+89	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.4											
	2.5		SS 1	3-3-4	89	15.8 20.4		1.5 1.0					
590.0		**Silty Clay Loam**, medium stiff, moist, brown, with sandy clay loam seams below 5 ft, A-4, Lab No. 31463	SS 2	3-3-5	100	18.7 19.6		2.5 1.0					
	5.0		SS 3	4-5-5	100	20.5		0.75 2.0					
		5.9											
		Bottom of Boring at 5.9 ft											
	7.5												
585.0													
	10.0												
	12.5												
580.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-226**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62207
LONGITUDE : -85.78366
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION : 591.0
STATION : 895+76
OFFSET : 5.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 80 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion 9.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
590.0		**Topsoil** 0.3											
	2.5	**Silty Clay Loam**, soft to medium stiff, moist, brown to gray near 4 ft, with organic matter and root fibers near 4 ft, with silty clay seam near 7 ft, (fill to 4 ft), A-4, Lab No. 31463	SS 1	3-3-3	100	18.4 18.7		1.0 1.5					
	5.0		SS 2	2-2-2	100	37.7 22.0		0.75 1.0					4.0, LOI = 4 percent
585.0			SS 3	2-2-5	100	26.2		>4.5					
	7.5	▼											
	10.0	10.0	SS 4	4-4-3	100	21.8		2.0					
		Bottom of Boring at 10.0 ft											
580.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-227**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62259
LONGITUDE : -85.78357
DATUM : WGS 84
DATE STARTED : 04-16-21
DATE COMPLETED : 04-16-21

ELEVATION	: 593.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 897+57	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 63.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, stiff, moist, brown, A-4, Lab No. 31008	SS 1	6-6-7	56	16.4 11.5	116.1	>4.5 >4.5					
590.0		3.0	SS 2	7-7-7	33	20.9		0.75					
	5.0	**Silty Clay Loam**, stiff to very stiff, moist, brown, A-4, Lab No. 30994	SS 3	7-6-7	67	18.0		1.5					
			SS 4	7-8-8	33	18.0		1.0					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
585.0													
	10.0												
	12.5												
580.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-228**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62316
LONGITUDE : -85.78388
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 592.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 899+76	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
590.0	2.5	**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 31463	SS 1	6-7-7	100	17.1 18.8		2.5 3.25					
		3.5											
		Clay, stiff, moist, gray to brown, with organic matter and root fibers, A-6, Lab No. 31371 4.5	SS 2	4-5-7	100	32.9 19.4		3.0 4.5					4.0, LOI = 7 percent
	5.0	**Silty Clay**, stiff, moist, brown, A-7-6, Lab No. 30992											
		6.0											
585.0	7.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31371	SS 3	4-4-9	100	24.8		2.25					
		8.5											
		Silty Clay, medium stiff, moist, brown, A-7-6, Lab No. 30992	SS 4	4-4-5	100	22.1		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-229**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62370
LONGITUDE : -85.78417
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 597.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 901+82	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 58.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
595.0	2.5	**Clay Loam**, medium stiff, moist, brown, with silt and clay seams, A-4, Lab No. 31008	SS 1	4-5-5	78	10.7 11.7		>4.5 >4.5					
		3.3	SS 2	4-5-7	89	15.2 18.6		1.75 >4.5					
	5.0	**Clay**, stiff to very stiff, moist, brown, with silt seam near 4 ft, A-6, Lab No. 31371	SS 3	5-7-9	78	16.8		>4.5					
		5.8											
		Bottom of Boring at 5.8 ft											
590.0	7.5												
	10.0												
585.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-230**
SHEET 1 OF 1

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62425
LONGITUDE : -85.78399
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION : 596.0
STATION : 903+76
OFFSET : 7.0 ft Right
LINE : 'PR-Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 88 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
595.0		**Topsoil** 0.3											
	2.5	**Clay Loam**, stiff, moist, brown, A-4, Lab No. 31008	SS 1	3-4-7	100	15.2		>4.5 3.25					
	3.5		SS 2	4-7-8	100	22.5 19.7		1.0 3.75					4.0, LOI = 2 percent
	5.0												
590.0		**Clay**, stiff, moist, brown, A-6, Lab No. 31371	SS 3	4-5-7	100	23.2		3.0					
	7.5												
	8.5		SS 4	4-4-6	100	24.7		3.0					
	10.0	**Silty Clay**, medium stiff, moist, brown, A-7-6, Lab No. 30992 10.0											
585.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-231**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62490
LONGITUDE : -85.78383
DATUM : WGS 84
DATE STARTED : 04-16-21
DATE COMPLETED : 04-16-21

ELEVATION	: 600.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 906+11	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											1.2, soluble sulfate = 70 ppm
	2.5	**Clay Loam**, stiff to very stiff, medium stiff near 3 ft, moist, brown, with some gravel near 2 ft and 4 ft, with clay seam near 7 ft, A-4, Lab No. 31008	SS 1	6-6-7	67	12.8		1.5 >4.5					
			SS 2	6-4-4	33	19.8		1.0					
595.0	5.0		SS 3	6-10-10	0								
			SS 4	5-6-8	33	16.1		>4.5					
	7.5	7.2 Bottom of Boring at 7.2 ft											
590.0	10.0												
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-232**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62535
LONGITUDE : -85.78401
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 600.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 907+77	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 7.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 86 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008	SS 1	3-3-3	100	12.5 16.5	114.8	3.5 >4.5					
		3.5											
595.0	5.0	**Clay**, soft to medium stiff, moist, brown, with silty clay loam seam near 5 ft, A-6, Lab No. 31371	SS 2	3-3-4	100	19.9 21.3		2.25 0.5					
	7.5		SS 3	3-2-2	100	24.8		1.5					
		8.5											
590.0	10.0	**Silty Clay**, stiff, moist, brown, A-7-6, Lab No. 30992	SS 4	4-4-7	100	24.3		>4.5					
		10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-233**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62590
LONGITUDE : -85.78425
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 604.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 909+76	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008	SS 1	3-4-4	89	17.4 13.1	113.1	>4.5 >4.5					
600.0		4.3	SS 2	4-5-5	100	14.8 14.9		>4.5 >4.5					
	5.0	**Clay**, very stiff, moist, brown, A-6, Lab No. 31371	SS 3	7-8-8	50	15.1		3.75					
		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
595.0													
	10.0												
	12.5												
590.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-234**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62645
LONGITUDE : -85.78400
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 604.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 911+77	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31371	SS 1	2-3-3	100	16.8 15.2		3.75 3.25					
600.0	5.0		SS 2	2-4-6	100	20.3 18.2		2.75 3.5					4.0, LOI = 3 percent
	7.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008 8.5	SS 3	4-4-6	100	17.0		1.5					
595.0	10.0	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31371 10.0	SS 4	3-4-6	100	17.2		3.0					
		Bottom of Boring at 10.0 ft											
590.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-234A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62645
LONGITUDE : -85.78400
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 604.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 911+77	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-234											
		1.0											
	2.5	**Clay**, moist, brown, A-6(14), Lab No. 31371	ST 1		100	18.5		2.25 4.0		38	21	17	2.0, pH = 8.5, SG = 2.70
		3.0											
		Bottom of Boring at 3.0 ft											
600.0	5.0												
	7.5												
595.0	10.0												
	12.5												
590.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-235**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62700
LONGITUDE : -85.78380
DATUM : WGS 84
DATE STARTED : 04-16-21
DATE COMPLETED : 04-16-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 913+80	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
605.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, with some gravel near 2 ft and 4 ft, with loam seam near 4 ft, A-4, Lab No. 31008 4.2	SS 1	4-4-5	56	11.6 17.9	114.2	1.0 >4.5					
			SS 2	5-5-6	33	11.8		>4.5					
	5.0	**Clay**, medium stiff to stiff, moist, brown and gray, A-6, Lab No. 31371 7.2	SS 3	6-5-5	33	20.2		3.0					
			SS 4	5-6-6	56	16.1		3.0					
600.0	7.5	Bottom of Boring at 7.2 ft											
	10.0												
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-236**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62755
LONGITUDE : -85.78400
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 607.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 915+77	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
605.0	2.5	**Clay**, medium stiff, moist, brown, (fill to 2 ft), A-6, Lab No. 31371	SS 1	4-4-6	100	26.2 30.9		0.25 0.25					
		3.0											
	5.0	**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 30994	SS 2	4-6-7	100	17.8 17.6		1.25 2.25					
600.0		7.0	SS 3	6-7-8	100	17.3		2.25 >4.5					
	7.5	**Silty Clay**, stiff to hard, moist, brown, (residual soil), A-7-6, Lab No. 30992											
	10.0	10.0	SS 4	8-17-30	100	14.7		>4.5					
		Bottom of Boring at 10.0 ft											
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-237**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62811
LONGITUDE : -85.78421
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 610.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 917+81	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.4											
	2.5		SS 1	4-5-8	89	13.9 11.3	126.0	3.5 >4.5					
		Clay Loam, stiff to hard, moist, brown, A-4, Lab No. 31008	SS 2	10-11-13	89	11.0 13.7		>4.5 2.0					
605.0	5.0		SS 3	11-13-18	22	14.7		>4.5					
		5.9											
		Bottom of Boring at 5.9 ft											
	7.5												
600.0	10.0												
	12.5												
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-238**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62865
LONGITUDE : -85.78397
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 608.0
STATION : 919+77
OFFSET : 5.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 70 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Silty Clay Loam**, stiff to very stiff, moist, brown, A-4, Lab No. 30994	SS 1	5-7-8	78	17.3 16.1		2.0 1.5					
605.0			SS 2	4-8-11	100	14.8 15.1		3.5 >4.5					
	5.0												
	7.5	**Silty Clay**, very stiff to hard, moist, brown and gray, (residual soil), A-7-6, Lab No. 30992	SS 3	5-8-12	100	15.8		>4.5					
600.0			SS 4	10-23-40	100								
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-239**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62951
LONGITUDE : -85.78376
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 609.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 922+91	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, stiff to medium stiff, moist, brown, A-4, Lab No. 31008	SS 1	6-6-6	33	14.9	123.1	>4.5					
			SS 2	4-4-5	33	16.9		4.0					
605.0		4.1											
	5.0	**Clay**, stiff, moist, brown, A-6, Lab No. 31371	SS 3	4-5-6	44	17.5		2.75					
			SS 4	5-6-6	67	18.5		2.25					
		7.1											
	7.5	Bottom of Boring at 7.1 ft											
600.0													
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-240**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62975
LONGITUDE : -85.78394
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 606.0
STATION : 923+77
OFFSET : 8.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 70 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 5.5 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
606.0	0.0	**Topsoil** 0.3											
605.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, A-6, Lab No. 31384	SS 1	4-4-4	100	17.7 21.6		1.0 1.25					
	5.0		SS 2	6-5-8	100	27.8 24.1		0.75 0.75					
600.0	7.5		SS 3	6-6-7	100	16.7		1.25 2.0					
	10.0	10.0	SS 4	5-7-12	100	19.4		0.25 2.5					
595.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-241**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63059
LONGITUDE : -85.78417
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION : 605.0
STATION : 926+84
OFFSET : 59.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, with some gravel near 2.5 ft, (fill), A-4, Lab No. 31008 2.8	SS 1	3-3-4	56	13.1 12.7		>4.5 2.5					
		Clay, very stiff, moist, brown, A-6, Lab No. 31371	SS 2	7-7-10	100	18.5 19.7	113.2	3.25 3.75	1.95				
600.0	5.0	5.8	SS 3	6-8-10	83	15.8		>4.5					
		Bottom of Boring at 5.8 ft											
	7.5												
595.0	10.0												
	12.5												
590.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-241A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63059
LONGITUDE : -85.78417
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 605.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 926+84	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-241											
		1.0											
		Clay Loam, moist, brown, (fill), A-4, Lab No. 31008	ST 1		92	19.0	108.7	>4.5 2.5					
	2.5	2.5											
		Clay, moist, brown, A-6, Lab No. 31371											
		3.0											
		Bottom of Boring at 3.0 ft											
600.0	5.0												
	7.5												
595.0	10.0												
	12.5												
590.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-242**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63084
LONGITUDE : -85.78393
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 601.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 927+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 6.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
600.0		**Topsoil** 0.3											
	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31007	SS 1	3-4-6	100	21.1 20.8	106.4	1.0 1.5	1.37				
		3.0											
	5.0	**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 30994	SS 2	7-8-7	100	17.1 19.8		2.5 1.5					
595.0		6.0											
	7.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31384	SS 3	7-7-7	100	19.0		2.0					
		8.0											
	10.0	**Silty Clay**, hard, moist, brown, (residual soil), A-7-6, Lab No. 30992	SS 4	10-13-20	100								
		10.0											
		Bottom of Boring at 10.0 ft											
590.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-243**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63178
LONGITUDE : -85.78373
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 599.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 931+19	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, stiff, moist, brown, A-4, Lab No. 31008 2.6	SS 1	5-7-7	56	12.2 13.5		>4.5 >4.5					
595.0		**Clay**, stiff, moist, brown, A-6, Lab No. 31007 4.1	SS 2	5-5-6	67	15.2 20.5		1.0 1.5					
	5.0	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 30994 5.6	SS 3	5-5-5	33	16.1		3.5					
		Clay, stiff, moist, brown and gray, with some gravel near 7 ft, A-6, Lab No. 31371 7.1	SS 4	5-6-7	56	20.0		4.0					
	7.5	Bottom of Boring at 7.1 ft											
590.0	10.0												
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-244**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63194
LONGITUDE : -85.78392
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 595.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 931+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at 9.0 ft ▼ At completion 5.0 ft ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5		SS 1	4-5-6	100	16.4 13.9		>4.5 >4.5					1.0, LOI = 2 percent
590.0	5.0	**Clay**, stiff to very stiff, moist, brown, with organic content, root fibers near 3 ft, with wood fragments near 7 ft, A-6, Lab No. 31007	SS 2	6-8-7	100	21.3 14.4	105.5	2.0 2.5					
	7.5		SS 3	4-6-6	100	23.3		1.0					
		9.5	SS 4	6-10-13	100	19.0		>4.5					
585.0	10.0	**Silty Clay**, very stiff, moist, brown and gray, with weathered shale near 10 ft, (residual soil), A-7-6, Lab No. 30992 10.0											
		Bottom of Boring at 10.0 ft Bag sample taken at offset (RB-244B) for moisture-density relations.											
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-245**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63222
LONGITUDE : -85.78416
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 597.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 932+78	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 64.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at 4.5 ft ▼ At completion NW ▨ Caved in at 3.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
595.0	2.5		SS 1	2-4-5	56	13.9 15.9	118.9	4.0 >4.5	3.92	28	18	10	2.5, pH = 7.8, SG = 2.68
		Silty Clay Loam, medium stiff to stiff, moist, brown, (fill to 2 ft), A-4(7), Lab No. 30994	SS 2	4-6-7	67	15.9 17.2		>4.5 >4.5					
	5.0		SS 3	4-6-8	67	19.8		3.0					
		5.8											
		Bottom of Boring at 5.8 ft											
590.0	7.5												
	10.0												
585.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-246**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63304
LONGITUDE : -85.78391
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 590.0
STATION : 935+78
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at 7.0 ft ▼ At completion 6.9 ft ▼ NW After 24 hr ▨ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, stiff, moist, brown, with clay loam seam near 1 ft, A-6, Lab No. 31007	SS 1	6-6-7	100	18.6 22.7		1.0 1.5					
585.0	5.0		SS 2	7-7-6	100	20.7 17.2		2.0 2.75					
		6.0											
	7.5	**Silty Clay Loam**, stiff, moist, gray, with wet granular seam near 7 ft, A-4, Lab No. 30994	SS 3	3-5-6	100	24.7		1.5 0.5					
		8.0											
		Silty Clay, very stiff, moist, brown and gray, (residual soil), A-7-6, Lab No. 30992	SS 4	7-7-12	100	21.9		>4.5 >4.5					
580.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-247**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63320
LONGITUDE : -85.78371
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 592.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 936+35	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
590.0	2.5	**Sand and Gravel**, medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 2.7	SS 1	6-6-8	28								
			SS 2	6-7-9	67	13.3 19.1	114.1	>4.5 3.5					
	5.0	**Clay Loam**, stiff to very stiff, moist, brown, with sandy loam seam near 5 ft, with silty clay seam near 7 ft, A-6, Lab No. 31372	SS 3	6-7-7	67	8.3		1.0					
585.0	7.5	7.2	SS 4	6-8-9	78	18.4 20.7	114.4	3.0					
		Bottom of Boring at 7.2 ft											
580.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-248**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63414
LONGITUDE : -85.78390
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 588.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 939+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Sandy Loam**, stiff, moist, brown and gray, and gravel, with clay seam near 1.5 ft, (fill to 2 ft), A-2-7, Lab No. 31383	SS 1	4-7-7	100	23.0 19.2	104.1	2.25 3.5					
585.0		3.0											
	5.0		SS 2	6-8-12	100	18.6 17.5		>4.5 >4.5					
		Silty Clay, very stiff to hard, moist, brown and gray to gray below 9 ft, with weathered shale near 10 ft, A-7-6, Lab No. 30992	SS 3	9-13-18	100	15.4		>4.5					
580.0	7.5												
			SS 4	14-20-40	100	13.6		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-248A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63414
LONGITUDE : -85.78390
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 588.0
STATION : 939+78
OFFSET : 2.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-248											
		1.0											
	2.5	**Sandy Loam**, moist, brown, and gravel, (fill to 2 ft), A-2-7(2), Lab No. 31382	ST 1		33			4.5 4.0		44	20	24	2.0, pH = 8.0, SG = 2.59
585.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
580.0													
	10.0												
	12.5												
575.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-249**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63469
LONGITUDE : -85.78410
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION : 592.0
STATION : 941+79
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
590.0	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008 2.8	SS 1	3-4-6	83	14.0 14.9	120.0	>4.5 >4.5					
	5.0	**Clay**, medium stiff to stiff, moist, brown, with silt seams below 4 ft, A-6, Lab No. 31384 5.8	SS 2	4-4-6	94	17.4 15.9	109.8	>4.5 >4.5	2.40				
			SS 3	7-7-8	83	11.9		3.0					
		Bottom of Boring at 5.8 ft											
585.0	7.5												
	10.0												
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-250**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63524
LONGITUDE : -85.78388
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 592.0
STATION : 943+78
OFFSET : 2.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at 9.0 ft ▼ At completion 8.5 ft ▼ NW After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
590.0	2.5	**Clay**, stiff, moist, brown to gray below 7 ft, A-6, Lab No. 31007	SS 1	4-6-6	100	27.0 20.4		1.25 2.5					1.0, LOI = 3 percent
	5.0		SS 2	4-5-6	100	18.4 17.6		2.75 1.5					
585.0	7.5		SS 3	4-6-9	100	17.6		1.0 1.5					
		8.0											
	10.0	**Sandy Loam**, stiff, moist, brown, with wet granular seam near 9 ft, A-2-4, Lab No. 30944	SS 4	5-6-8	100	14.7		1.0 0.5					
		10.0											
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-251**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63538
LONGITUDE : -85.78367
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 595.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 944+31	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, stiff, moist, brown, (fill), A-4, Lab No. 31008 2.6	SS 1	6-5-6	44	4.2 12.9		>4.5 >4.5					
			SS 2	4-4-5	33	20.0	117.9	2.0					
590.0	5.0	**Clay**, medium stiff to stiff, very stiff near 5 ft, moist, brown to gray below 6 ft, with possible cobbles, A-6, Lab No. 31007	SS 3	7-8-12	0								
		7.1	SS 4	5-5-7	44	19.4		2.5					
	7.5	Bottom of Boring at 7.1 ft											
585.0	10.0												
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-252**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63634
LONGITUDE : -85.78386
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 597.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 947+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 65 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 9.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
595.0	2.5		SS 1	6-8-11	100	22.0 19.3		3.0 3.5					
	5.0	**Clay**, very stiff to hard, moist, brown, A-6, Lab No. 31007	SS 2	7-8-7	100	19.7 19.2		1.0 3.25					
590.0	7.5		SS 3	4-6-7	100	25.6		2.5					
		9.0	SS 4	50/6	0								
		Bottom of Boring at 9.0 ft											
585.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-253**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63689
LONGITUDE : -85.78408
DATUM : WGS 84
DATE STARTED : 04-30-21
DATE COMPLETED : 04-30-21

ELEVATION	: 603.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 949+80	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 62.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (sand and gravel) 1.3											
	2.5		SS 1	2-2-3	56	17.9 17.8	120.6	3.0 1.75					
600.0		**Clay**, soft to very stiff, moist, brown, A-6(12), Lab No. 31007	SS 2	4-7-4	89	18.8 19.2	113.5	>4.5 >4.5	2.54	35	18	17	2.8, pH = 9.0, SG = 2.77
	5.0		SS 3	5-7-9	100	17.9		4.0					
		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
595.0													
	10.0												
	12.5												
590.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-254**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63743
LONGITUDE : -85.78385
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 603.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 951+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31007	SS 1	6-8-10	100	17.3 18.0	115.8	>4.5 >4.5					
600.0		3.0											
	5.0	**Silty Clay Loam**, very stiff, moist, brown, with silt seams near 4.5 ft, A-4, Lab No. 30994	SS 2	7-11-14	100	16.0 17.7		>4.5 >4.5					
		6.0											
	7.5	**Clay**, very stiff, moist, brown, with shale fragments near 9.5 ft, A-6, Lab No. 31007	SS 3	7-8-11	100	17.0		3.0					
595.0			SS 4	6-8-10	100	22.5		1.75					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
590.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-255**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63796
LONGITUDE : -85.78363
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION	: 608.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 953+71	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 62.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
605.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, with some gravel near 2.5 ft and 5 ft, with silty clay seam near 3.5 ft, (fill to 3 ft), A-6, Lab No. 31384	SS 1	5-4-5	22	5.0		1.5					2.7, soluble sulfate = 220 ppm
			SS 2	6-6-8	67	24.4	103.1	>4.25 2.5					
	5.0		SS 3	6-7-7	33	16.0		1.0					
			SS 4	6-7-9	78	16.5		>4.5					
	7.5	7.2											
600.0		Bottom of Boring at 7.2 ft											
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-255A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63796
LONGITUDE : -85.78363
DATUM : WGS 84
DATE STARTED : 04-19-21
DATE COMPLETED : 04-19-21

ELEVATION : 608.0
STATION : 953+71
OFFSET : 62.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-255											
		1.0											
	2.5	**Clay**, moist, brown, A-6(10), Lab No. 31384	ST 1		71	14.7 14.7	116.7	3.5 4.5	4.36	33	15	18	2.0, pH = 8.0, SG = 2.72
605.0		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
	7.5												
600.0													
	10.0												
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-256**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63853
LONGITUDE : -85.78384
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 607.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 955+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
605.0	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31384	SS 1	4-5-6	100	19.7 20.0		1.75 1.5					
		3.0											
	5.0	**Silty Clay**, very stiff, moist, brown, A-6, Lab No. 31038	SS 2	7-6-8	100	16.1 23.2		3.5 2.0					
600.0	7.5		SS 3	9-9-12	100	19.2		>4.5					
		8.0											
	10.0	**Silty Clay Loam**, hard, moist, brown, A-6, Lab No. 31373	SS 4	11-14-17	100	20.5		>4.5					
		10.0											
		Bottom of Boring at 10.0 ft											
595.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-257**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63909
LONGITUDE : -85.78404
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 612.0
STATION : 957+82
OFFSET : 59.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
610.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, A-4(4), Lab No. 31008	SS 1	3-4-6	100	13.0 14.3	120.3	>4.5 2.5		27	18	9	2.0, pH = 7.2, SG = 2.71
		3.8	SS 2	6-6-8	72	16.4 18.6	117.2	>4.5 1.5					
	5.0	**Sandy Loam**, stiff, moist, brown and gray, A-2-4, Lab No. 30944	SS 3	7-7-8	83	14.9		2.0					
		5.8											
		Bottom of Boring at 5.8 ft											
605.0	7.5												
	10.0												
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-258**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63963
LONGITUDE : -85.78383
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION : 611.0
STATION : 959+78
OFFSET : 2.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : DR-621
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.C.
TEMPERATURE : 60 °F
WEATHER : Sunny

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Topsoil** 0.3											
	2.5	**Clay**, stiff, moist, brown, A-6, Lab No. 31384	SS 1	5-6-8	100	18.7 19.2	112.4	>4.5 2.5	2.23				
		3.0											
	5.0	**Sandy Clay Loam**, very stiff, moist, brown, A-4, Lab No. 31462	SS 2	6-7-10	100	17.6 20.4		1.5 0.5					
605.0		6.0											
	7.5	**Clay Loam**, very stiff, moist, brown, A-4, Lab No. 31008	SS 3	6-8-12	100	18.8		>4.5					
		8.0											
	10.0	**Silty Clay Loam**, very stiff, moist, brown, A-4, Lab No. 30994	SS 4	7-11-18	100	15.6		>4.5					
		10.0											
600.0		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-259**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64002
LONGITUDE : -85.78361
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 614.0
STATION : 961+21
OFFSET : 57.0 ft Right
LINE : 'Q'
DEPTH : 7.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Sandy Loam**, stiff, moist, gray, with some gravel and cobble fragments, (fill), A-2-7, Lab No. 31383 2.7	SS 1	7-6-6	22	5.0		>4.5					
610.0			SS 2	4-4-7	78	13.0 13.9	117.9 128.0	>4.5 3.5					
	5.0	**Clay Loam**, stiff to very stiff, moist, brown, with cobble fragments near 7 ft, A-4, Lab No. 31008	SS 3	5-6-5	22	14.4		>4.5					
			SS 4	7-8-8	67	15.1		>4.5					
	7.5	7.2 Bottom of Boring at 7.2 ft											
605.0													
	10.0												
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-260**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64073
LONGITUDE : -85.78380
DATUM : WGS 84
DATE STARTED : 05-13-21
DATE COMPLETED : 05-13-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 963+78	RIG TYPE	: DR-621	DRILLER/INSP	: B.C.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 55 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
610.0	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008 3.0	SS 1	4-4-4	100	16.7 15.1		2.75 3.75					1.0, soluble sulfate = 230 ppm
	5.0	**Clay**, very stiff to stiff, moist, brown, A-6, Lab No. 31384	SS 2	6-8-12	100	14.6 15.9	121.7	3.5 >4.5	4.28				
605.0	7.5	8.0	SS 3	6-7-8	100	16.3		2.25					
	10.0	**Clay**, very stiff, moist, brown, A-6, Lab No. 30853 10.0	SS 4	5-8-11	100	19.2		>4.5					
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-261**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64129
LONGITUDE : -85.78401
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 615.0
STATION : 965+80
OFFSET : 61.0 ft Left
LINE : 'Q'
DEPTH : 5.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.4											
		Sandy Loam, medium stiff, moist, brown and gray, with some gravel, (fill), A-2-7, Lab No. 31383 2.4	SS 1	3-3-4	33	3.7 9.0		1.0 >4.5					
	2.5												
		Clay, medium stiff, moist, brown, A-6, Lab No. 31384 4.4	SS 2	3-3-5	67	15.1 15.2	114.9	3.0 2.5	3.35				
610.0	5.0	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31372 5.9	SS 3	3-5-7	78	15.6	114.4	>4.5					
		Bottom of Boring at 5.9 ft											
	7.5												
605.0	10.0												
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-262**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64183
LONGITUDE : -85.78377
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION : 616.0
STATION : 967+79
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 74 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion 10.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
616.0	0.0	**Topsoil** 0.3											
615.0	2.5	**Clay Loam**, medium stiff to soft, moist, brown, with clay loam seam near 5 ft, with organic matter near 6 ft, A-6, Lab No. 31372	SS 1	2-5-3	100	16.2 16.0		2.25 3.5					1.0, soluble sulfate = 540 ppm
	5.0		SS 2	3-3-4	100	20.3 17.0		1.5 >4.5					4.0, LOI = 3 percent
610.0	7.5		SS 3	2-2-2	100	23.3 22.2		1.25					6.0, LOI = 5 percent
	10.0	10.0	SS 4	4-6-4	100	20.2		0.75					
		Bottom of Boring at 10.0 ft											
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-262A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64183
LONGITUDE : -85.78377
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION : 616.0
STATION : 967+79
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 74 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
615.0		Refer to Boring log for RB-262											
		1.0											
	2.5	**Clay Loam**, moist, brown, with some gravel, A-6(8), Lab No. 31372	ST 1		75	15.6		2.0 4.0		28	13	15	2.0, pH = 8.4, SG = 2.81
		3.0											
		Bottom of Boring at 3.0 ft											
610.0	5.0												
	7.5												
605.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-263**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64259
LONGITUDE : -85.78356
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 617.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 970+58	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
615.0	2.5	**Clay**, medium stiff to stiff, moist, brown, with sand seam near 6 ft, A-7-6(12), Lab No. 31009	SS 1	4-4-4	33	17.1		>4.5					
			SS 2	4-4-5	33	25.1	102.3	2.75					4.1, pH = 7.4, SG = 2.70
	5.0 ▩		SS 3	5-7-7	56	19.1		3.5		42	19	23	
			SS 4	6-6-7	78	17.3		2.0					
610.0	7.5	7.1 Bottom of Boring at 7.1 ft											
	10.0												
605.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-264**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64293
LONGITUDE : -85.78375
DATUM : WGS 84
DATE STARTED : 06-04-21
DATE COMPLETED : 06-04-21

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 971+79	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 5.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 74 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31384	SS 1	2-2-4	100	19.7 22.7		1.75 2.0					
610.0	5.0		SS 2	3-3-3	100	20.0 14.5		0.5 1.75					
		6.0											
	7.5	**Clay Loam**, stiff to very stiff, moist, brown, A-6, Lab No. 31372	SS 3	3-6-9	100	11.5		1.75					
605.0	10.0	10.0	SS 4	9-16-8	100	11.6		>4.5					
		Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-265**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64348
LONGITUDE : -85.78398
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 618.0
STATION : 973+80
OFFSET : 62.0 ft Left
LINE : 'Q'
DEPTH : 5.7 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.2											
	2.5		SS 1	3-3-5	83	25.5 21.5	103.2	2.5 3.75					
615.0		**Clay**, medium stiff to very stiff, moist, brown, with some gravel below 5 ft, A-7-6, Lab No. 31009	SS 2	5-6-6	89	20.8 21.9	103.1	3.0 2.0	1.19				
	5.0		SS 3	5-7-9	83	15.2		>4.5					
		5.7											
		Bottom of Boring at 5.7 ft											
	7.5												
610.0													
	10.0												
	12.5												
605.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-266**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64403
LONGITUDE : -85.78374
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION : 615.0
STATION : 975+79
OFFSET : 4.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 70 °F
WEATHER : Overcast

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
		Clay, medium stiff, moist, brown, A-6, Lab No. 31010 2.0	SS 1	3-4-6	100	17.8 12.2	109.4	3.5 >4.5	2.37				
	2.5												
		Clay Loam, medium stiff to stiff, moist, brown, A-6, Lab No. 31372 5.5	SS 2	4-6-6	100	13.5 16.5		>4.5 1.25					
610.0	5.0												
		Clay, soft to stiff, moist, brown, with some gravel near 7 ft, A-6, Lab No. 31010 8.0	SS 3	2-2-2	56	20.0		0.25					
	7.5												
		Clay, medium stiff, moist, brown, A-7-6, Lab No. 31009 10.0	SS 4	3-4-5	100	18.3		>4.5					
605.0	10.0	Bottom of Boring at 10.0 ft											
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-267**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64455
LONGITUDE : -85.78353
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 617.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 977+72	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
615.0	2.5	**Clay Loam**, medium stiff, moist, brown, (fill), A-4, Lab No. 31008 3.2	SS 1	4-5-5	78	18.4 17.6	113.5	>4.5 >4.5					
	5.0		SS 2	6-6-8	44	17.3 15.5	115.0	>4.5 >4.5					
		Clay, stiff to very stiff, moist, brown, A-6, Lab No. 30853	SS 3	5-6-7	33	17.2		>4.5					
610.0	7.5	7.2	SS 4	6-8-8	89	21.6		1.75					
		Bottom of Boring at 7.2 ft											
605.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-268**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64512
LONGITUDE : -85.78373
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 613.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 979+79	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
610.0	2.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31010	SS 1	2-2-4	100	20.8 15.6	104.8	2.5 3.25	1.47				
	5.0		SS 2	3-4-8	100	15.2 15.1		2.25 2.75					
		6.0											
605.0	7.5	**Clay Loam**, stiff to very stiff, moist, brown, A-6, Lab No. 31372	SS 3	4-8-12	100	12.7		>4.5					
	10.0	10.0	SS 4	5-5-8	100	14.1		>4.5					
		Bottom of Boring at 10.0 ft Bag sample taken at offset (RB-268B) for moisture-density relations.											
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-269**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64568
LONGITUDE : -85.78394
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 614.0
STATION : 981+81
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5		SS 1	2-3-3	67	14.0 16.1	119.5	3.75 3.5	5.48				2.8, pH = 7.4, SG = 2.71
610.0		**Clay**, medium stiff to very stiff, moist, brown, A-6(12), Lab No. 31010	SS 2	6-8-10	78	17.2 17.1	113.5	1.5 3.25		37	15	22	
	5.0		SS 3	5-6-6	78	17.8		1.0					
		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
605.0													
	10.0												
	12.5												
600.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-269A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64568
LONGITUDE : -85.78394
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 614.0
STATION : 981+81
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-269											
		1.0											
	2.5	**Clay**, moist, brown, A-6(7), Lab No. 30853	ST 1		100	15.7		3.5 3.0		32	20	12	2.0, pH = 7, SG = 2.72
		3.0											
		Bottom of Boring at 3.0 ft											
610.0	5.0												
	7.5												
605.0	10.0												
	12.5												
600.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-270**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64622
LONGITUDE : -85.78372
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION : 609.0
STATION : 983+79
OFFSET : 1.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 70 °F
WEATHER : Rain

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 4.3 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, soft, moist, brown, A-6, Lab No. 31010	SS 1	2-2-2	100	18.7 20.5		2.0 0.5					
		3.5											
605.0	5.0	**Loam**, very stiff, moist, brown, A-4, Lab No. 31037	SS 2	4-12-17	100	9.8 9.0	123.5	>4.5 3.75	5.18				
		6.0											
	7.5	**Clay Loam**, very stiff, moist, brown, with shale fragments near 10 ft, A-6, Lab No. 31011	SS 3	7-8-9	100	11.9		>4.5					
600.0			SS 4	6-8-14	100	15.7		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
595.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-271**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64624
LONGITUDE : -85.78351
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION : 612.0
STATION : 983+86
OFFSET : 59.0 ft Right
LINE : 'Q'
DEPTH : 7.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 40 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
610.0	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 30853 2.7	SS 1	4-5-5	89	20.4 19.2	108.2 112.7	>4.5 >4.5					
			SS 2	6-7-8	33	15.6		>4.5					
	5.0	**Clay Loam**, stiff to very stiff, moist, brown, with clay seam near 5 ft, A-6, Lab No. 31011	SS 3	7-7-7	78	19.1		>4.5					
605.0		7.2	SS 4	8-10-12	89	14.4		>4.5					
	7.5	Bottom of Boring at 7.2 ft											
	10.0												
600.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-272**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64732
LONGITUDE : -85.78369
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION : 606.0
STATION : 987+79
OFFSET : 3.0 ft Right
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 75 °F
WEATHER : Overcast

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 2.0 ft After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
605.0		**Topsoil** 0.3											
		Clay Loam, very stiff, moist, brown, A-6, Lab No. 31011	SS 1	4-6-10	100	14.2 8.0		3.0 2.0					
	2.5	2.0											
		Loam, very stiff to hard, moist, brown, A-4, Lab No. 31037	SS 2	9-32-40	100	6.3 7.5		>4.5 >4.5					
	5.0												
600.0			SS 3	6-12-17	100	12.1		3.0					
	7.5	7.0											
		Silty Clay, very stiff, moist, brown, A-6, Lab No. 31038	SS 4	7-7-9	100	18.5		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
595.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-273**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64788
LONGITUDE : -85.78390
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 606.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 989+80	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
605.0		**Asphaltic Concrete** 1.0 **Granular Subbase**, (crushed stone) 1.3											
	2.5	**Clay**, medium stiff, moist, brown, with silt seam near 2 ft, with sand seam near 5 ft, with sandy clay loam seam below 5 ft, A-6, Lab No. 30853	SS 1	4-4-4	89	21.2 22.9	110.3	4.0 1.75					
			SS 2	3-3-4	89	22.1 21.3	113.7	1.25 1.0					
	5.0		SS 3	3-4-5	94	15.7		1.0					
600.0		5.8 Bottom of Boring at 5.8 ft											
	7.5												
	10.0												
595.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-274**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64842
LONGITUDE : -85.78367
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 603.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 991+79	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 4.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 76 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Overcast
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
600.0	2.5	**Clay Loam**, soft to medium stiff, moist, brown, A-6, Lab No. 31011	SS 1	2-2-2	100	17.9 16.8	111.2	1.5 3.75	1.96				
	5.0		SS 2	3-3-4	100	16.9 17.1		3.25 1.25					
		6.0											
595.0	7.5	**Clay**, very stiff, moist, brown, with some gravel near 6.5 ft, A-6, Lab No. 30853	SS 3	5-9-12	100	16.3		4.0					
		8.5											
	10.0	**Silty Clay**, stiff, moist, brown, A-6, Lab No. 31038	SS 4	4-5-7	100	23.6		>4.5					
		10.0											
		Bottom of Boring at 10.0 ft											
590.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-275**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64897
LONGITUDE : -85.78346
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 602.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 993+81	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
600.0	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, with clay seam near 2 ft, 4 ft and 7 ft, with sandy loam seam near 6 ft, A-6, Lab No. 31011	SS 1	5-5-5	89	14.4 22.8	102.4	>4.5 >4.5					
			SS 2	4-5-6	56	13.9 20.5	107.8	0.75 3.0	2.15				
	5.0		SS 3	4-4-5	44	16.1		3.0					
595.0		7.0	SS 4	5-5-6	67	24.4		1.0					
	7.5	Bottom of Boring at 7.0 ft											
	10.0												
590.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-276**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64952
LONGITUDE : -85.78366
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 599.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 995+79	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 2.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Overcast
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay Loam**, soft to medium stiff, moist, brown, A-6, Lab No. 31011	SS 1	3-3-2	100	16.5 13.2	121.1	>4.5 >4.5	4.41				
595.0			SS 2	4-4-7	100	19.6 21.6		3.25 3.0					
	5.0	4.5											
	7.5	**Clay**, stiff to very stiff, moist, brown, with gray silt seam near 6.5 ft, A-7-6, Lab No. 31512	SS 3	4-5-8	100	18.2		>4.5					
590.0			SS 4	6-6-10	100	22.7		>4.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
585.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-277**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65067
LONGITUDE : -85.78386
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 599.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 999+97	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.4											
	2.5	**Clay**, medium stiff, moist, brown, with silt seam near 2.5 ft, A-6, Lab No. 30853 2.9	SS 1	4-5-5	56	16.0 18.1	118.3	>4.5 1.25					
595.0		▨	SS 2	2-3-5	56	22.5 24.4	101.0	2.75 2.0	1.36				
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-7-6, Lab No. 31512	SS 3	5-6-8	89	20.5		3.0					
		5.9											
		Bottom of Boring at 5.9 ft											
	7.5												
590.0													
	10.0												
	12.5												
585.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-278**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65062
LONGITUDE : -85.78365
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION : 597.0
STATION : 999+79
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : L.S.
TEMPERATURE : 80 °F
WEATHER : Overcast

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
595.0	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31373 3.0	SS 1	2-3-4	100	22.6 22.1	98.3	1.5 3.75	1.51				
	5.0	**Clay**, stiff, moist, brown, A-7-6, Lab No. 31512 6.0	SS 2	4-7-8	100	17.8 20.5		>4.5 >4.5					
590.0	7.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 30853 8.5	SS 3	4-6-12	100	16.5		>4.5					
	10.0	**Silty Clay**, very stiff, moist, brown, A-6, Lab No. 31038 10.0	SS 4	5-8-10	100	21.0		>4.5					
		Bottom of Boring at 10.0 ft											
585.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-278A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65062
LONGITUDE : -85.78365
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 597.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 999+79	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Overcast
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-278											
		1.0											
595.0	2.5	**Silty Clay Loam**, moist, brown, A-6(11), Lab No. 31373	ST 1		83	13.9		4.5 >4.5		32	16	16	2.0, pH = 6.2, SG = 2.84
		3.0											
		Bottom of Boring at 3.0 ft											
590.0	5.0												
	7.5												
	10.0												
585.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-279**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65114
LONGITUDE : -85.78343
DATUM : WGS 84
DATE STARTED : 04-20-21
DATE COMPLETED : 04-20-21

ELEVATION	: 599.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1001+72	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Sand and Gravel**, loose to medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 3.2	SS 1	5-4-4	33								
595.0			SS 2	5-5-7	33	21.8	110.1	>4.5					
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30853	SS 3	5-5-5	44	20.6		4.25					
		7.2	SS 4	7-7-8	33	16.3		4.0					
	7.5	Bottom of Boring at 7.2 ft											
590.0	10.0												
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-280**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65172
LONGITUDE : -85.78364
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 595.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1003+80	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 3.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Overcast
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 30853	SS 1	3-4-4	100	20.5 21.9	108.9	3.5 2.0	1.69				
590.0	5.0		SS 2	3-4-5	100	16.2 13.9		>4.5 >4.5					
		6.0											
	7.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31011	SS 3	4-4-6	100	18.0		4.0					
585.0	10.0	10.0	SS 4	5-5-5	100	18.6		4.0					
		Bottom of Boring at 10.0 ft											
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-281**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65227
LONGITUDE : -85.78384
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 598.0
STATION : 1005+81
OFFSET : 61.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at 1.5 ft ▼ At completion 2.0 ft ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
			SS 1	2-3-4	83	16.1 15.2	114.6	>4.25 2.25	3.79				
595.0	2.5	**Clay**, medium stiff to stiff, moist, brown, with silty clay seam near 3.5 ft, A-6, Lab No. 30853	SS 2	4-5-6	89	19.8 19.2	112.8	1.5 3.75					
	5.0		SS 3	5-5-6	56	20.3		>4.5					
		5.8											
		Bottom of Boring at 5.8 ft											
590.0	7.5												
	10.0												
585.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-282**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65281
LONGITUDE : -85.78362
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 594.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1007+80	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 2.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 76 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 1.0											
	2.5		SS 1	0-1-2	44	25.0 24.2 22.8		0.5 2.5					2.0, LOI = 4 percent, soluble sulfate = 210 ppm
590.0						18.6							
	5.0	**Clay**, very soft to stiff, moist, brown, with organic matter near 1 ft, (fill to 3 ft), A-6, Lab No. 30853	SS 2	2-2-4	50	16.6	115.0	2.0 >4.5	3.37				
	7.5		SS 3	4-4-5	100	20.3		2.75					
585.0													
	10.0	10.0	SS 4	5-5-8	100	18.9		3.25					
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-283**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65409
LONGITUDE : -85.78339
DATUM : WGS 84
DATE STARTED : 04-21-21
DATE COMPLETED : 04-21-21

ELEVATION : 594.0
STATION : 1012+47
OFFSET : 60.0 ft Right
LINE : 'Q'
DEPTH : 7.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 30 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Clay Loam, medium stiff, moist, brown, with clay seam near 1.5 ft, A-6, Lab No. 31011 2.2	SS 1	4-4-5	44	20.4 15.0	122.5	>4.5 4.5					
590.0	2.5	**Clay**, medium stiff to hard, moist, brown, with possible cobbles near 5 ft, A-6, Lab No. 30853	SS 2	5-6-6	67	15.2 14.6		>4.5 >4.5					
	5.0		SS 3	12-16-21	0								
		6.2											
		Clay Loam, very stiff, moist, brown, A-6, Lab No. 31011 7.2	SS 4	10-10-16	89	17.2		>4.5					
	7.5	Bottom of Boring at 7.2 ft											
585.0	10.0												
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-284**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65391
LONGITUDE : -85.78360
DATUM : WGS 84
DATE STARTED : 06-03-21
DATE COMPLETED : 06-03-21

ELEVATION	: 591.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1011+80	RIG TYPE	: CME 55 Track	DRILLER/INSP	: L.S.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
590.0		**Topsoil** 1.0											
	2.5		SS 1	2-4-4	100	16.1 13.1		2.25 3.25					
	5.0		SS 2	5-5-7	100	29.8 16.2		1.25 2.5					4.0, LOI = 6 percent
585.0		**Clay Loam**, medium stiff to hard, moist, brown, with organic matter near 4 ft, with clay loam and gravel seam below 9.5 ft, A-6, Lab No. 31011											
	7.5		SS 3	7-10-15	100	15.1		>4.5					
	10.0	10.0	SS 4	13-17-15	100	16.9		1.0					
		Bottom of Boring at 10.0 ft											
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-285**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65413
LONGITUDE : -85.78385
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 592.0
STATION : 1012+58
OFFSET : 72.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at 4.0 ft ▼ At completion NW ▩ Caved in at 3.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
590.0	2.5	**Clay**, medium stiff, moist, brown, with some gravel below 2 ft, A-7-6, Lab No. 31512 2.8	SS 1	3-3-4	67	20.8 23.3	104.0 101.0	3.5 3.5	3.05				2.8, pH = 8.3, SG = 2.73
			SS 2	4-4-5	78	21.9		0.5 0.25		30	16	14	
	5.0	**Clay Loam**, medium stiff, moist, brown, A-6(5), Lab No. 31011 5.8	SS 3	3-4-4	78	15.7		<0.25 1.5					
585.0	7.5	Bottom of Boring at 5.8 ft											
	10.0												
580.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-286**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65521
LONGITUDE : -85.78336
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1016+55	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
	2.5	**Sand and Gravel**, loose, moist, gray, (fill), A-1-b, Lab No. 30930 2.7	SS 1	5-4-5	44								
		Clay, medium stiff, moist, brown, A-6, Lab No. 30853 4.2	SS 2	4-4-4	33	17.3	111.6	3.5					
585.0	5.0	**Clay Loam**, medium stiff, moist, brown, with cobbles near 5 ft, A-6, Lab No. 31011	SS 3	4-4-5	0								
			SS 4	5-5-5	33	19.7		>4.5					
	7.5	Bottom of Boring at 7.2 ft											
580.0	10.0												
	12.5												
575.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-287**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65555
LONGITUDE : -85.78366
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 589.0
STATION : 1017+74
OFFSET : 29.0 ft Left
LINE : 'Q'
DEPTH : 7.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at 5.0 ft ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
585.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, A-7-6(17), Lab No. 31512	SS 1	4-4-5	67	19.4 16.5	112.5	3.25 3.75	2.01	43	18	25	2.0, pH = 7.8, SG = 2.73
	5.0 ▽ ▨		SS 2	4-5-5	78	19.6 18.5		2.5 3.5					
			SS 3	5-8-8	56	19.2		2.5					
			SS 4	6-8-10	56	18.8		2.0					
	7.2												
580.0	7.5	Bottom of Boring at 7.2 ft Delayed groundwater level reading taken from offset sounding (S-1)											
575.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-288**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65607
LONGITUDE : -85.78342
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1019+66	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 29.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
585.0	2.5	**Clay Loam**, soft to medium stiff, moist, brown, with clay seam near 5.5 ft, (fill), A-6, Lab No. 31011	SS 1	2-2-3	83	17.2 12.2		2.5 >4.5					
			SS 2	3-4-5	89	14.1 11.8		>4.5 >4.5					
	5.0		SS 3	4-4-5	94	17.3		0.25					
		5.8											
		Weathered Shale, soft, gray 6.6	SS 4	12-50/4	63								
580.0	7.5	Bottom of Boring at 6.6 ft											
	10.0												
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-289**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65666
LONGITUDE : -85.78371
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 584.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1021+76	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: C.B.
OFFSET	: 69.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Granular Subbase, (crushed stone) 1.4											
		Clay, stiff, moist, brown, A-6, Lab No. 31374 2.4	SS 1	2-4-7	100	12.9		>4.5					
	2.5					15.7	119.6	>4.5					
580.0		**Silty Clay Loam**, stiff to medium stiff, moist, brown and gray, A-6, Lab No. 31373	SS 2	6-6-7	89	16.7	116.9	2.0					
						22.6		1.5					
	5.0		SS 3	5-4-5	94	18.6		3.0					
		5.9											
		Bottom of Boring at 5.9 ft											
	7.5												
575.0													
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-290**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65715
LONGITUDE : -85.78318
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION : 583.0
STATION : 1023+67
OFFSET : 66.0 ft Right
LINE : 'Q'
DEPTH : 7.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 30 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
580.0	2.5	**Loam**, stiff to very stiff, moist, brown, A-4(0), Lab No. 31037	SS 1	6-6-7	78	12.0 9.4		>4.5 >4.5					
			SS 2	7-9-9	78	9.6 7.7 8.7 8.2	133.8	>4.5 >4.5		21	15	6	4.3, pH = 8.8, SG = 2.74
	5.0		SS 3	12-12-14	56	13.0		>4.5					
			SS 4	10-13-16	67	7.4		>4.5					
	7.5	7.2											
575.0		Bottom of Boring at 7.2 ft											
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-291**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65774
LONGITUDE : -85.78343
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION	: 582.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1025+74	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 28.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 8.9 ft				

GROUNDWATER: ▽ Encountered at 5.9 ft ▼ At completion NW ▨ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.9											
		Granular Subbase, (crushed stone) 1.9											
580.0	2.5	**Sand and Gravel**, medium dense, moist, gray, (fill), A-1-b, Lab No. 30973 3.4	SS 1	5-5-6	56								
	5.0		SS 2	5-6-7	67	17.7 16.2	113.3	3.0 3.0	2.61				
575.0	7.5	**Clay**, stiff to very stiff, moist, brown, with gravel seam near 8 ft, A-6, Lab No. 30853	SS 3	6-8-8	78	18.5		3.0					
		8.9	SS 4	8-8-10	67	20.7		2.5					
		Bottom of Boring at 8.9 ft											
570.0	10.0 12.5 15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-292**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65847
LONGITUDE : -85.78311
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 581.0
STATION : 1028+49
OFFSET : 30.0 ft Right
LINE : 'Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 2.0 ft After 24 hr ▨ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
580.0		**Asphaltic Concrete** 1.1											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31011	SS 1	3-3-3	100	14.9 17.2	114.7	3.5 4.5	3.24				
		3.8	SS 2	4-5-5	100	16.8 19.2		3.5 2.0					
	5.0	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31374	SS 3	5-6-6	100	18.3		3.75					
575.0		5.8											
		Clay Loam, stiff, moist, brown, A-6, Lab No. 31011	SS 4	6-6-6	67	17.6		>4.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
		Delayed groundwater level reading taken from offset sounding (S-2)											
	10.0												
570.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-293**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65884
LONGITUDE : -85.78336
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 580.0
STATION : 1029+70
OFFSET : 62.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
		Loam, soft, moist, brown, (fill), A-4, Lab No. 31037 2.3	SS 1	2-1-3	78	11.4 20.9		3.0 2.0					
	2.5	**Clay**, soft to very stiff, moist, brown, A-6, Lab No. 31374 3.8	SS 2	7-8-8	78	16.0 9.2 9.4	132.1	2.5 >4.5					
		Loam, very stiff, moist, brown to gray, A-4, Lab No. 31037 4.3											
575.0	5.0	**Silty Clay Loam**, very stiff, moist, gray and brown, (residual soil), A-6, Lab No. 31373 5.8	SS 3	6-7-13	67	15.7		>4.5 >4.5					
		Bottom of Boring at 5.8 ft											
	7.5												
570.0	10.0												
	12.5												
565.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-294**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65892
LONGITUDE : -85.78291
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 579.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1030+19	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.7 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5	**Clay Loam**, medium stiff to very stiff, moist, brown, with sand and gravel seams near 2.7 ft and 5.7 ft, A-6, Lab No. 31011	SS 1	6-5-5	44	18.9 18.4	116.0	3.5 >4.5					
575.0			SS 2	5-5-7	78			3.5					
	5.0		SS 3	7-7-7	33								
			SS 4	7-8-10	67	15.9		>4.5					
	7.5	7.2											
		Bottom of Boring at 7.7 ft											
570.0													
	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-295**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66006
LONGITUDE : -85.78302
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 577.0
STATION : 1034+24
OFFSET : 32.0 ft Left
LINE : 'Q'
DEPTH : 7.5 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Granular Subbase, (crushed stone) 1.5											
575.0	2.5	**Sand and Gravel**, loose, moist, gray, (fill), A-1-b, Lab No. 30930 2.5	SS 1	3-3-4	44								
		Clay, medium stiff, moist, brown, A-7-6, Lab No. 31049 4.5	SS 2	4-4-5	78	15.8 20.8	108.6	3.0 >4.5					
	5.0		SS 3	6-6-9	56	15.4		3.0					
570.0	7.5	**Clay Loam**, stiff to hard, moist, gray and brown, with possible cobbles near 6 ft, A-6, Lab No. 31011 7.5	SS 4	9-14-21	0								
		Bottom of Boring at 7.5 ft											
565.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-296**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66042
LONGITUDE : -85.78273
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 577.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1035+69	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 27.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
575.0	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31011 2.3	SS 1	4-3-3	89	17.0 16.2	114.8	>4.5 3.5	3.10				
		Loam, medium stiff to stiff, moist, brown, A-4, Lab No. 31037 4.3	SS 2	4-5-6	56	10.5 14.6		2.25 3.25					
	5.0	**Silty Clay Loam**, stiff, moist, gray to brown below 6.5 ft, A-6, Lab No. 31373 7.3	SS 3	5-6-5	33	17.8		0.5					
570.0	7.5		SS 4	5-6-6	67	15.1		2.5					
		Bottom of Boring at 7.3 ft											
565.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-297**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66103
LONGITUDE : -85.78292
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION : 577.0
STATION : 1037+79
OFFSET : 61.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at 2.0 ft ▼ At completion 2.0 ft ▩ Caved in at 2.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
575.0 ▽	2.5 ▩	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31011 2.8	SS 1	3-4-7	89	14.8 16.0	117.4	3.5 3.75	3.82				
		Silty Clay, medium stiff, moist, gray and brown, A-6, Lab No. 31038 4.3	SS 2	4-5-5	94	19.1 17.5		1.0 >4.5					
	5.0	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31011 5.8	SS 3	4-5-6	100	17.5		3.0					
		Bottom of Boring at 5.8 ft											
570.0	7.5												
	10.0												
565.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-297A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66103
LONGITUDE : -85.78292
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 577.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1037+79	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 3.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-297											
		1.0											
575.0	2.5	**Clay Loam**, moist, brown, A-6, Lab No. 31011	ST 1		100	14.7	114.6	1.25 4.0	4.16				
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
570.0	7.5												
	10.0												
565.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-298**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66123
LONGITUDE : -85.78246
DATUM : WGS 84
DATE STARTED : 04-22-21
DATE COMPLETED : 04-22-21

ELEVATION	: 577.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1038+72	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 57.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
575.0	2.5	**Clay Loam**, medium stiff to very stiff, moist, brown, A-6, Lab No. 31011	SS 1	4-4-5	67	13.1 14.3		3.0 >4.5					
			SS 2	5-5-4	33	15.8		>4.5					
	5.0 ▩		SS 3	6-6-8	89	19.4 18.3	117.1	3.75					
570.0	7.5	7.2	SS 4	10-10-11	56	15.6		4.0					
		Bottom of Boring at 7.2 ft											
	10.0												
565.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-299**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66210
LONGITUDE : -85.78262
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION	: 578.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1041+80	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 27.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
575.0	2.5	**Clay**, medium stiff to stiff, moist, brown, with clay loam seam near 5 ft, A-6, Lab No. 30853	SS 1	3-3-3	56	17.2 14.5	117.6	4.5 4.5	7.19				
			SS 2	5-7-7	78	18.8 18.7		3.75 2.75					
	5.0 ▩		SS 3	6-7-8	67	15.3		4.0					
			SS 4	7-7-9	44	20.2		3.5					
	7.5	7.3											
570.0		Bottom of Boring at 7.3 ft											
	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-300**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66262
LONGITUDE : -85.78236
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 579.0
STATION : 1043+75
OFFSET : 28.0 ft Right
LINE : 'Q'
DEPTH : 7.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at 4.2 ft ▼ At completion NW ▼ 6.0 ft After 24 hr ▨ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.8											
	2.5	**Sand and Gravel**, medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 2.8	SS 1	5-5-6	56			2.0					
		Loam, stiff, moist, gray and brown, with some gravel, (fill), A-4, Lab No. 31037 3.3											
575.0			SS 2	2-2-1	44	20.9 15.1		1.0 1.75					4.0, LOI = 2 percent
	5.0	**Clay Loam**, very soft to medium stiff, moist, brown, with clay seam near 6 ft, A-6, Lab No. 31011	SS 3	4-4-5	44	17.1		4.25					
		7.3	SS 4	4-6-6	33	17.4		1.0					
	7.5	**Silty Clay Loam**, stiff, moist, gray, A-4, Lab No. 30854 7.8											
		Bottom of Boring at 7.8 ft											
570.0		Delayed groundwater level reading taken from offset sounding (S-3)											
	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-301**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66321
LONGITUDE : -85.78263
DATUM : WGS 84
DATE STARTED : 04-29-21
DATE COMPLETED : 04-29-21

ELEVATION	: 580.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1045+83	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 63.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Granular Subbase, (crushed stone) 1.5											
	2.5	**Clay Loam**, very soft to medium stiff, moist, brown, with some gravel near 2 ft, with loam seam near 3.5 ft, (fill to 3 ft), A-6, Lab No. 31011	SS 1	2-2-1	44	9.0 16.0		1.0 3.0					
			SS 2	3-3-3	44	15.9 13.0	125.3	3.0 2.25					
		4.5											
575.0	5.0	**Silty Clay Loam**, stiff, moist, brown, A-4, Lab No. 30854	SS 3	6-5-8	50	19.0		2.0					
		6.0											
		Bottom of Boring at 6.0 ft											
	7.5												
570.0	10.0												
	12.5												
565.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-302**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66371
LONGITUDE : -85.78217
DATUM : WGS 84
DATE STARTED : 04-23-21
DATE COMPLETED : 04-23-21

ELEVATION : 582.0
STATION : 1047+73
OFFSET : 59.0 ft Right
LINE : 'Q'
DEPTH : 7.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 30 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
580.0	2.5	**Clay Loam**, medium stiff, moist, brown, (fill), A-6, Lab No. 31011 2.1	SS 1	5-5-6	67	15.2 16.8	117.3	>4.5 3.0	3.30				
			SS 2	6-6-8	33	19.6	132.1	3.75					
	5.0	**Clay**, stiff to very stiff, moist, brown, with loam seam near 3.5 ft, with sand seam near 5.5 ft, A-6, Lab No. 31374	SS 3	7-7-9	33	16.7		2.0					
575.0		7.1	SS 4	5-6-6	33	23.9		2.75					
	7.5	Bottom of Boring at 7.1 ft											
	10.0												
570.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-303**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66428
LONGITUDE : -85.78246
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 583.0
STATION : 1049+76
OFFSET : 29.0 ft Left
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	2-2-3	89	15.4 15.8	107.4	2.5 3.0					
580.0			SS 2	3-4-5	100	18.2 16.7		3.5 3.25					
	5.0	**Clay Loam**, soft to very stiff, moist, brown, with clay seam near 7 ft, A-6, Lab No. 31011	SS 3	5-4-5	100	15.5		>4.5					
	7.5	7.6	SS 4	7-8-12	100	18.2		>4.5					
575.0		Bottom of Boring at 7.6 ft											
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-304**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66481
LONGITUDE : -85.78226
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 584.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1051+71	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 29.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.7 ft				

GROUNDWATER: ▽ Encountered at 3.2 ft ▼ At completion 4.0 ft ▼ 9.5 ft After 24 hr ▨ Caved in at 6.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.7											
	2.5		SS 1	2-2-1	44	22.2 16.8		1.0 2.25					3.0, LOI = 2 percent
580.0		**Silty Clay**, very soft to soft, moist, brown, (fill to 3 ft), A-6, Lab No. 31083	SS 2	2-2-3	83	21.1 21.4	108.0	2.25 2.0	1.20				
	5.0		SS 3	3-2-3	94	20.7		3.25					
		Clay Loam, stiff, moist, brown, A-6, Lab No. 31011	SS 4	5-5-6	100	17.6		3.0					
	7.5	7.7											
		Bottom of Boring at 7.7 ft											
575.0		Delayed groundwater level reading taken from offset sounding (S-4)											
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-305**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66540
LONGITUDE : -85.78259
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 585.0
STATION : 1053+88
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5		SS 1	3-3-4	94	18.2 20.1	115.7	2.75 3.5					2.8, pH = 6.0, SG = 2.69
		Silty Clay, medium stiff to stiff, moist, brown, with clay loam seam near 4 ft, A-6(18), Lab No. 31038	SS 2	5-5-6	100	22.8 24.2 13.7		2.25 3.75		37	17	20	
580.0	5.0		SS 3	3-6-6	67	17.6		3.5					
		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
575.0	10.0												
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-306**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66538
LONGITUDE : -85.78217
DATUM : WGS 84
DATE STARTED : 04-23-21
DATE COMPLETED : 04-23-21

ELEVATION	: 586.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1053+77	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 30 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Asphaltic Concrete** 1.2											
		Clay Loam, stiff, moist, brown, A-6, Lab No. 31011 2.2	SS 1	5-6-6	89	14.0 13.3	122.5	>4.5 2.5					
	2.5		SS 2	7-6-6	33	17.1		3.0					
	5.0	**Silty Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 31083	SS 3	6-6-6	33	17.3		>4.5					
580.0			SS 4	7-9-9	56	16.4		4.0					
	7.5	7.2 Bottom of Boring at 7.2 ft											
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-307**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66648
LONGITUDE : -85.78256
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1057+81	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 27.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
585.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, (fill to 2 ft), A-6, Lab No. 31374	SS 1	1-3-4	100	17.4 17.1	113.4	>4.5 >4.5					
			SS 2	5-5-7	100	15.5 18.6		1.5 2.5					
	5.0		SS 3	5-7-7	100	15.8		>4.5					
580.0	7.5	7.6	SS 4	10-10-12	100	16.9		>4.5					
		Bottom of Boring at 7.6 ft											
575.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-308**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66701
LONGITUDE : -85.78243
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 587.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1059+69	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 30.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.7 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Granular Subbase, (crushed stone) 1.7											
585.0	2.5	**Clay**, soft, moist, brown, A-7-6, Lab No. 31049 2.5	SS 1	2-2-3	94	23.4 17.1	104.3	3.75 4.0					
	5.0	**Clay**, soft to medium stiff, moist, brown, with clay loam seam near 3.5 ft, with some gravel near 4 ft, A-6, Lab No. 31374	SS 2	3-4-5	100	15.5 18.6		1.0 2.5					
			SS 3	4-4-5	100	15.8		2.5					
		6.2											
580.0	7.5	**Silty Clay**, stiff, moist, gray, A-6, Lab No. 31083 7.7	SS 4	7-7-8	100	16.9		>4.5					
		Bottom of Boring at 7.7 ft											
	10.0												
575.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-308A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66701
LONGITUDE : -85.78243
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 587.0
STATION : 1059+69
OFFSET : 30.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-308											
		1.0											
585.0	2.5	**Clay**, moist, brown, A-7-6, Lab No. 31049	ST 1		63	20.8		1.0 2.5		30	17	13	2.0, pH = 7.7, SG = 2.70
		2.5											
		Clay, moist, brown, A-6(8), Lab No. 31374											
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
580.0													
	7.5												
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-309**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66756
LONGITUDE : -85.78283
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 586.0
STATION : 1061+83
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Asphaltic Concrete** 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31011	SS 1	3-3-3	56	17.3 16.8 19.2	113.2	>4.5 3.5					2.8, soluble sulfate = 230 ppm
		3.8	SS 2	4-4-6	67	17.1 18.7		>4.5 4.0					
	5.0	**Clay**, medium stiff to stiff, moist, brown to gray below 5.5 ft, A-7-6, Lab No. 31049	SS 3	4-5-7	78	20.8		>4.5					
580.0		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-310**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66817
LONGITUDE : -85.78252
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 586.0
STATION : 1063+90
OFFSET : 60.0 ft Right
LINE : 'Q'
DEPTH : 6.1 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
585.0		**Asphaltic Concrete** 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	4-5-5	78	14.4 14.6	117.6	3.75 >4.5	6.39				
		Clay, medium stiff to stiff, moist, brown, with clay loam seam near 2 ft, A-6, Lab No. 31374	SS 2	5-5-6	67	18.3 20.8		3.5 2.5					
	5.0		SS 3	6-6-9	67	17.5		1.75					
580.0		6.1											
		Bottom of Boring at 6.1 ft											
	7.5												
	10.0												
575.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-311**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66868
LONGITUDE : -85.78295
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 585.0
STATION : 1065+94
OFFSET : 28.0 ft Left
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	3-4-5	100	20.9 22.3	104.4	>4.5 >4.5	2.86				
			SS 2	4-4-5	100	20.3 16.1		>4.5 >4.5					
580.0	5.0	**Clay**, medium stiff to very stiff, moist, brown, with clay loam seam near 7 ft, A-7-6, Lab No. 31049	SS 3	5-6-6	100	18.1		>4.5					
			SS 4	8-8-10	100	13.8		>4.5					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
575.0	10.0												
	12.5												
570.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-312**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66925
LONGITUDE : -85.78289
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 584.0
STATION : 1067+94
OFFSET : 30.0 ft Right
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5	**Clay**, medium stiff to very stiff, moist, brown, A-7-6, Lab No. 31049	SS 1	3-3-3	67	17.5		>4.5 >4.5					
580.0			SS 2	6-8-8	100	17.5 16.4	114.9	>4.5 >4.5	4.96				
		4.6											
	5.0	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31011	SS 3	6-7-8	100	14.9		3.0					
		6.1											
		Clay, very stiff, moist, brown, A-7-6, Lab No. 31049	SS 4	10-10-11	100	19.5		4.0					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
575.0													
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-313**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.66979
LONGITUDE : -85.78338
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 582.0
STATION : 1070+16
OFFSET : 62.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.3											
580.0	2.5	**Clay**, medium stiff to very stiff, moist, brown, A-7-6, Lab No. 31049	SS 1	3-3-4	83	23.8 21.6	105.7	3.75 2.75					
			SS 2	7-10-12	100	20.2 18.6		>4.5 3.0					
	5.0 ▩		SS 3	10-12-14	100	18.4		3.5					
		5.8											
		Bottom of Boring at 5.8 ft											
575.0	7.5												
	10.0												
570.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-314**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67033
LONGITUDE : -85.78312
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 583.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1071+90	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 6.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.4											
		Granular Subbase, (crushed stone) 1.7											
	2.5		SS 1	3-4-6	89	17.1 17.3	114.4	>4.5 >4.5					
580.0		**Clay**, medium stiff to hard, moist, brown, A-7-6(19), Lab No. 31049	SS 2	7-8-13	89	18.8 15.4 17.3		>4.5 >4.5		41	20	21	3.2, pH = 7.7, SG = 2.84
	5.0		SS 3	13-15-18	78	12.0		>4.5					
		6.2											
		Bottom of Boring at 6.2 ft											
	7.5												
575.0													
	10.0												
	12.5												
570.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-315**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67083
LONGITUDE : -85.78364
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 582.0
STATION : 1074+04
OFFSET : 34.0 ft Left
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.6											
580.0	2.5	**Clay**, medium stiff to stiff, moist, brown, with clay seam near 4 ft, (fill to 2 ft), A-6, Lab No. 31374	SS 1	1-2-4	100	20.6 19.4	108.7	1.5 1.75	2.33				
			SS 2	4-3-4	94	16.9 19.5		>4.5 4.0					
	5.0		SS 3	5-6-6	100	18.3		1.0					
		6.1											
575.0		**Silty Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31051 7.1	SS 4	7-7-9	100	21.4		>4.5					
	7.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31514 7.6											
		Bottom of Boring at 7.6 ft											
570.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-316**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67139
LONGITUDE : -85.78362
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION : 582.0
STATION : 1075+97
OFFSET : 29.0 ft Right
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 7.6 ft After 24 hr ▨ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.6											
580.0	2.5	**Clay**, very soft, moist, brown, with brick fragments and gravel near 2 ft, (fill to 2.5 ft), A-7-6, Lab No. 31049 3.1	SS 1	5-1-2	39	20.4 17.6 16.9		3.0 3.0					2.0, LOI = 3 percent, soluble sulfate = 50 ppm
	5.0	**Sandy Clay Loam**, stiff, moist, brown, A-4, Lab No. 31462 6.1	SS 2 SS 3	6-6-7 6-7-6	100 100	20.7 18.2 19.3		0.5 0.5 0.5					
575.0	7.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31514 7.6	SS 4	4-4-5	100	21.0		2.5					
		Bottom of Boring at 7.6 ft Delayed groundwater level reading taken from offset sounding (S-5)											
	10.0												
570.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-317**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67186
LONGITUDE : -85.78415
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 581.0
STATION : 1078+09
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
580.0		**Asphaltic Concrete** 1.0											
		Granular Subbase, (crushed stone) 1.4											
	2.5	**Clay**, medium stiff to stiff, moist, brown, with silty clay loam seam near 2.5 ft, A-7-6, Lab No. 31044	SS 1	3-2-4	78	20.6 16.3	105.1	>4.5 3.5	3.21				
		3.9	SS 2	3-7-8	89	20.6 17.0	108.8	>4.5 1.5					
		Silty Clay Loam, stiff, moist, brown, A-4, Lab No. 30854 4.9											
	5.0	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31011 5.9	SS 3	8-9-12	78	17.6		>4.5					
575.0		Bottom of Boring at 5.9 ft											
	7.5												
	10.0												
570.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-318**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67244
LONGITUDE : -85.78397
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 581.0
STATION : 1079+90
OFFSET : 61.0 ft Right
LINE : 'Q'
DEPTH : 5.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
580.0		**Asphaltic Concrete** 1.0											
		Granular Subbase, (crushed stone) 1.4											
	2.5	**Clay Loam**, medium stiff to stiff, moist, brown, A-6, Lab No. 31011	SS 1	3-4-5	89	18.0 17.1	109.2	>4.5 >4.5					
			SS 2	6-6-8	89	17.2 17.0	111.4	3.75 3.5	2.79				
		4.4											
	5.0 ▨	**Clay**, stiff, moist, brown, A-6, Lab No. 31374	SS 3	6-6-9	100	17.8		2.75					
575.0		5.9											
		Bottom of Boring at 5.9 ft											
	7.5												
	10.0												
570.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-318A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67244
LONGITUDE : -85.78397
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 581.0
STATION : 1079+90
OFFSET : 61.0 ft Right
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-318											
580.0		1.0											
	2.5	**Clay Loam**, moist, brown, A-6, Lab No. 31011	ST 1		50	20.3		2.25 3.5					2.0, soluble sulfate = 210 ppm
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
575.0													
	7.5												
	10.0												
570.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-319**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67290
LONGITUDE : -85.78454
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 580.0
STATION : 1082+05
OFFSET : 32.0 ft Left
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	2-2-2	100	17.7 15.7 15.9	114.3	>4.5 1.0	3.28				
			SS 2	2-3-4	100	18.0		>4.5 >4.5					
575.0	5.0	**Clay**, soft to very stiff, moist, brown, with sandy loam seam near 3 ft, A-6, Lab No. 31514	SS 3	7-7-9	83	17.5		>4.5					
			SS 4	9-9-10	100	18.5		2.0					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
570.0	10.0												
	12.5												
565.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-320**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67350
LONGITUDE : -85.78463
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 580.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1084+14	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 31.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.6 ft				

GROUNDWATER: ▽ Encountered at 2.5 ft ▼ At completion 5.0 ft ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5	**Sandy Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31462 3.1	SS 1	4-4-5	72	15.6 18.4		2.0 1.5					3.1, pH = 9.2, SG = 2.67
			SS 2	4-4-4	67	15.3		1.0 1.0		18	15	3	
575.0	5.0	**Sandy Loam**, medium stiff to stiff, moist, brown, A-4(0), Lab No. 31513	SS 3	5-5-6	67	16.1		1.25					
		7.1	SS 4	5-5-6	100	18.5		2.25					
	7.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31011 7.6											
		Bottom of Boring at 7.6 ft											
570.0	10.0												
	12.5												
565.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-321**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67388
LONGITUDE : -85.78519
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 578.0
STATION : 1086+07
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Clay Loam**, stiff, moist, brown, A-6, Lab No. 31011 2.8	SS 1	2-4-7	100	16.4 13.4	118.2	2.0 3.0					
575.0		**Sandy Loam**, very stiff, moist, brown, A-4, Lab No. 31513 3.8	SS 2	9-9-10	100	11.1		1.5					
	5.0	**Sandy Loam**, medium dense, moist, brown, A-2-4, Lab No. 30944 5.8	SS 3	8-8-8	83								
		Bottom of Boring at 5.8 ft											
	7.5												
570.0													
	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-322**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67444
LONGITUDE : -85.78505
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 578.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1087+75	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 62.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.4											1.4, pH = 8.4, SG = 2.76
	2.5	**Silty Clay**, medium stiff to stiff, moist, brown, A-6(17), Lab No. 31050	SS 1	3-4-6	89	21.1 18.8 19.5	101.2	>4.5 2.5		38	18	20	
575.0			SS 2	6-6-9	83	16.4 17.8		>4.5 3.0					
	5.0	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31011 5.9	SS 3	7-9-9	72	17.6		1.5					
		Bottom of Boring at 5.9 ft											
	7.5												
570.0													
	10.0												
	12.5												
565.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-323**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67489
LONGITUDE : -85.78564
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 577.0
STATION : 1089+96
OFFSET : 24.0 ft Left
LINE : 'Q'
DEPTH : 7.5 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
		Granular Subbase, (crushed stone) 1.5											
575.0	2.5	**Sandy Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31462	SS 1	1-3-3	94	17.3 12.1		1.0 1.0					
			SS 2	3-3-4	100	14.2 16.5		0.5 0.75					
	5.0	**Sandy Loam**, medium stiff, moist, brown, A-4, Lab No. 31513 6.0	SS 3	3-3-3	100	11.3							
570.0	7.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31514 7.5	SS 4	3-4-4	100	27.2		1.25					
		Bottom of Boring at 7.5 ft											
565.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-324**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67544
LONGITUDE : -85.78574
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 576.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1091+92	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 32.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
575.0		**Asphaltic Concrete** 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	3-3-3	72	17.3 14.5	114.8	3.5 3.75					
			SS 2	3-4-7	56	14.3 18.3		4.0 4.25					
	5.0	**Clay**, medium stiff to stiff, moist, brown, with silty clay loam seam near 5.5 ft, A-6, Lab No. 31514	SS 3	5-5-6	72	21.1		1.75					
570.0													
			SS 4	5-7-7	100	21.2		3.5					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
565.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-325**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67561
LONGITUDE : -85.78617
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION	: 576.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1092+94	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 60.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 2.0 ft ▨ Caved in at 2.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
575.0	0.0	**Asphaltic Concrete** 0.8											
		Granular Subbase, (crushed stone) 1.3											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 30854	SS 1	3-3-4	67	16.5 19.2	113.3	2.5 3.5					
		3.8	SS 2	3-4-7	67	18.7 20.7		2.0 1.5					
	5.0	**Silty Clay Loam**, stiff, moist, brown, with clay seam near 5 ft, A-6, Lab No. 31051	SS 3	6-7-7	78	17.6		3.0					
570.0		5.8 Bottom of Boring at 5.8 ft											
	7.5												
	10.0												
565.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-325A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67561
LONGITUDE : -85.78617
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 576.0
STATION : 1092+94
OFFSET : 60.0 ft Left
LINE : 'Q'
DEPTH : 3.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-325											
575.0		1.0											
	2.5	**Silty Clay Loam**, moist, gray, A-4(0), Lab No. 30854	ST 1		88	20.4		0.75 2.25		31	21	10	2.0, pH = 8.6, SG = 2.74
		3.0											
		Bottom of Boring at 3.0 ft											
	5.0												
570.0													
	7.5												
	10.0												
565.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

LOG OF TEST BORING

BORING NO.: **RB-326**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67647
LONGITUDE : -85.78613
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 572.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1095+85	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 64.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 60 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 4.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
570.0	2.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31514	SS 1	3-3-5	67	19.0 24.9	102.5	3.75 2.5					2.8, soluble sulfate = 390 ppm
	3.5		SS 2	5-5-6	89	24.4 24.2 26.9	102.5	1.75 1.0	1.53				
	5.0	**Silty Clay**, stiff to medium stiff, moist, brown, A-6, Lab No. 31050	SS 3	3-4-4	89	24.6		1.0					
	5.8	Bottom of Boring at 5.8 ft											
565.0	7.5												
	10.0												
560.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-327**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67693
LONGITUDE : -85.78666
DATUM : WGS 84
DATE STARTED : 08-12-21
DATE COMPLETED : 08-12-21

ELEVATION	: 571.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1097+93	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 24.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 6.8 ft After 24 hr ⊠ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.1											
570.0	2.5	**Clay**, soft to medium stiff, moist, brown, A-6, Lab No. 31514	SS 1	2-3-3	89	19.3 21.1	111.3	>4.5 2.0	2.08				
	5.0		SS 2	2-2-2	56	23.1 23.6	104.3	2.0 1.75					
565.0		6.0											
	7.5	**Sandy Loam**, medium stiff to stiff, moist, brown to gray below 9 ft, with clay seam near 10 ft, A-4, Lab No. 31513	SS 3	5-6-8	100	16.6 18.2	110.3	1.75					
	10.0	10.0	SS 4	2-5-5	33	22.7		2.0					
		Bottom of Boring at 10.0 ft											
560.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-328**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67747
LONGITUDE : -85.78667
DATUM : WGS 84
DATE STARTED : 06-15-21
DATE COMPLETED : 06-15-21

ELEVATION	: 569.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1099+81	RIG TYPE	: B-29	DRILLER/INSP	: J.M.
OFFSET	: 32.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Night
DEPTH	: 7.6 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	4-4-5	100	17.1 13.9	120.2	3.75 >4.5		38	22	16	2.4, pH = 9.0, SG = 2.76
565.0			SS 2	4-5-4	100	15.7 18.3		>4.5 2.0					
	5.0	**Clay**, medium stiff, moist, brown, A-6(8), Lab No. 31514	SS 3	5-5-6	83	16.2		3.75					
	7.5	7.6	SS 4	5-5-6	94	15.5		3.25					
		Bottom of Boring at 7.6 ft											
560.0	10.0												
	12.5												
555.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-329**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67796
LONGITUDE : -85.78717
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 567.0
STATION : 1101+90
OFFSET : 58.0 ft Left
LINE : 'Q'
DEPTH : 7.3 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : C.B.
TEMPERATURE : 50 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											
565.0	2.5	**Silty Clay Loam**, soft to medium stiff, moist, brown, A-4, Lab No. 30854	SS 1	4-4-4	94	17.4 15.5	111.6	3.25 >4.5					
			SS 2	5-4-4	100	20.7 16.0		1.5 3.25					
	5.0		SS 3	3-2-2	78	16.0		1.0 1.5					
560.0			SS 4	3-3-4	72	23.0		0.5 0.5					
	7.5	7.3											
		Bottom of Boring at 7.3 ft											
	10.0												
555.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-330**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67823
LONGITUDE : -85.78681
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION	: 565.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1102+59	RIG TYPE	: B-29	DRILLER/INSP	: C.B.
OFFSET	: 64.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 5.8 ft				

GROUNDWATER: ▽ Encountered at 3.8 ft ▼ At completion 4.0 ft ▼ 1.0 ft After 24 hr ▨ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase 1.3											
	2.5	**Silty Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31051	SS 1	3-3-4	83	14.5 21.4	104.0	>4.5 3.0					
			SS 2	3-3-5	94	21.4 19.1		1.0 3.5					
560.0	5.0	**Sandy Loam**, stiff, moist, brown, A-4, Lab No. 31513 5.8	SS 3	5-6-6	89	12.3		>4.5					
		Bottom of Boring at 5.8 ft											
		Delayed groundwater level reading taken from offset sounding (S-6)											
	7.5												
555.0	10.0												
	12.5												
550.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-331**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67903
LONGITUDE : -85.78737
DATUM : WGS 84
DATE STARTED : 08-12-21
DATE COMPLETED : 08-12-21

ELEVATION : 563.0
STATION : 1105+79
OFFSET : 25.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-57 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 90 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.1											
	2.5		SS 1	3-3-6	67	20.2 19.2	110.9	>4.5 >4.5	4.02				
560.0		**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31514											
	5.0		SS 2	2-5-6	56	18.1 18.2		4.5 2.5					
	7.5		SS 3	4-5-7	89	23.8 21.6		2.5					
555.0		8.0											
		Silty Clay Loam, medium stiff, moist, gray, A-6, Lab No. 31051	SS 4	3-4-6	100	17.6 18.4		2.5					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
550.0													
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-332**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67958
LONGITUDE : -85.78731
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 562.0
STATION : 1107+72
OFFSET : 29.0 ft Right
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
560.0	2.5		SS 1	2-3-6	67	16.9 15.4		4.5 >4.5					
			SS 2	3-4-4	78	16.4 19.8		3.75 3.0					
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown gray from 3 ft to 5 ft, with silty clay loam seam near 4 ft, A-6, Lab No. 31375	SS 3	4-4-5	78	18.5		3.25					
555.0			SS 4	4-5-6	89	22.6		2.75					
	7.5	7.6											
		Bottom of Boring at 7.6 ft											
550.0	10.0												
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-332A**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.67958
LONGITUDE : -85.78731
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 562.0
STATION : 1107+72
OFFSET : 29.0 ft Right
LINE : 'Q'
DEPTH : 4.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Refer to Boring log for RB-332											
560.0	2.5	**Silty Clay**, moist, brown, A-6(10), Lab No. 31375 (2.0 – 4.0)	ST 1		54	15.7		>4.5		31	17	14	3.0, pH = 8.0, SG = 2.69
		Bottom of Boring at 4.0 ft											
	5.0												
555.0	7.5												
	10.0												
550.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-333**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.68013
LONGITUDE : -85.78777
DATUM : WGS 84
DATE STARTED : 04-27-21
DATE COMPLETED : 04-27-21

ELEVATION : 561.0
STATION : 1109+94
OFFSET : 69.0 ft Left
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 4.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
560.0		**Asphaltic Concrete** 1.0											
		Granular Subbase 1.3											
	2.5	**Clay**, medium stiff, moist, brown, A-6, Lab No. 31514	SS 1	2-3-3	56	16.3 19.1		3.0 2.0					
		2.8											2.8, pH = 8.6, SG = 2.68
		Silty Clay Loam, stiff, moist, brown, A-6(9), Lab No. 31051	SS 2	4-5-5	89	19.3 15.4 18.5	110.4	3.0 2.25	1.85	28	17	11	
	5.0		SS 3	5-6-6	89	16.2		3.5					
555.0		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
	10.0												
550.0													
	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-334**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.68068
LONGITUDE : -85.78741
DATUM : WGS 84
DATE STARTED : 04-26-21
DATE COMPLETED : 04-26-21

ELEVATION : 560.0
STATION : 1111+78
OFFSET : 62.0 ft Right
LINE : 'Q'
DEPTH : 5.8 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 60 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.3											
		Sand and Gravel, medium dense, moist, gray, (fill), A-1-b, Lab No. 30930 2.3	SS 1	7-7-4	33	14.4		3.0					
	2.5												
		Silty Clay Loam, stiff to medium stiff, moist, brown, with clay seam near 3 ft and 5.5 ft, A-6, Lab No. 31051	SS 2	3-3-4	56	18.0 14.1	113.0	2.0 >4.5					
555.0	5.0		SS 3	4-4-6	78	19.7		2.5					
		5.8											
		Bottom of Boring at 5.8 ft											
	7.5												
550.0	10.0												
	12.5												
545.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-335**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.68126
LONGITUDE : -85.78779
DATUM : WGS 84
DATE STARTED : 08-12-21
DATE COMPLETED : 08-12-21

ELEVATION : 560.0
STATION : 1114+00
OFFSET : 24.0 ft Left
LINE : 'Q'
DEPTH : 10.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 90 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 8.0 ft After 24 hr ▨ Caved in at 9.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.1											
	2.5	**Clay**, very stiff, moist, brown, A-6, Lab No. 31514	SS 1	7-9-10	67	15.4 17.3	116.6	>4.5 >4.5					
555.0	5.0		SS 2	7-10-9	33	16.2 14.5	111.1	>4.5 >4.5					
		6.0											
	7.5	**Silty Clay Loam**, stiff, moist, brown, A-6, Lab No. 31051	SS 3	6-6-8	89	21.7 16.9		>4.5					
550.0	10.0	10.0	SS 4	6-7-7	100	18.4 18.8		2.75					
		Bottom of Boring at 10.0 ft											
	12.5												
545.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

LOG OF TEST BORING

BORING NO.: **RB-336**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.68182
LONGITUDE : -85.78766
DATUM : WGS 84
DATE STARTED : 06-16-21
DATE COMPLETED : 06-16-21

ELEVATION : 560.0
STATION : 1115+99
OFFSET : 29.0 ft Right
LINE : 'Q'
DEPTH : 7.6 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-29
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.M.
TEMPERATURE : 70 °F
WEATHER : Night

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.3											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	3-3-5	67	17.7 19.9	114.3	>4.5 3.5	3.28				
			SS 2	4-7-8	56	14.2 15.8		4.5 >4.5					
555.0	5.0	**Clay**, medium stiff to very stiff, moist, brown to gray near 7.5 ft, A-6, Lab No. 31514	SS 3	4-6-8	67	15.3		>4.5					
	7.5	7.6	SS 4	7-9-14	78	17.2		>4.5					
		Bottom of Boring at 7.6 ft											
550.0	10.0												
	12.5												
545.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2

Summary of Hand Auger Borings
I-65 Added Travel Lanes from RP 16+27 to 29+10
Clark and Scott Counties, IN
Des. No. 1700135
Terracon Project No. CJ195480

Boring No.	Station	Offset (ft) Line	Elevation (ft)	Depth Interval (ft)	Description*	MC** (%)
HA-01	395+98	84 ft Rt "Q"	489	0 - ½ ½ - 3	Topsoil Silty Clay, soft to stiff below ¾ ft, moist, brown	26 - 27
HA-02	402+48	92 ft Rt "Q"	485	0 - ½ ½ - 2	Topsoil Clay, stiff, moist, brown	21 - 39
HA-03	406+98	90 ft Rt "Q"	477	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	24 - 25
HA-04	533+99	97 ft Lt "PR-Q"	558	0 - ¼ ¼ - 3	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	28 - 42
HA-05	535+96	93 ft Rt "PR-Q"	564	0 - ¼ ¼ - 2	Topsoil Clay, stiff, moist, brown	15 - 17
HA-06	543+50	89 ft Lt "PR-Q"	559	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	21 - 24
HA-07	543+56	126 ft Lt "PR-Q"	570	0 - ¼ ¼ - 3	Topsoil Silty Clay, soft to stiff below ½ ft, moist, brown	21 - 26
HA-08	545+00	78 ft Lt "PR-Q"	560	0 - 3	Clay, soft to stiff below 1 ft, moist, gray	30 - 37
HA-09	545+01	118 ft Lt "PR-Q"	570	0 - ¼ ¼ - 2	Topsoil Silty Clay, soft to stiff below ½ ft, moist, brown	18 - 24
HA-10	553+99	89 ft Lt "PR-Q"	553	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below ½ ft, moist, brown	23
HA-11	561+03	100 ft Rt "PR-Q"	543	0 - ¼ ¼ - 2½	Topsoil Clay, stiff, moist, brown	23 - 24
HA-12	565+52	109 ft Rt "PR-Q"	529	0 - ¼ ¼ - 2½	Topsoil Silty Clay, stiff, moist, brown	18
HA-13	622+57	94 ft Lt "PR-Q"	594	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	19 - 20
HA-14	636+50	104 ft Rt "PR-Q"	595	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	19 - 26
HA-15	640+02	81 ft Rt "PR-Q"	587	0 - 2	Silty Clay, stiff, moist, brown	22 - 24
HA-16	640+00	129 ft Rt "PR-Q"	611	0 - 1½	Silty Clay, soft to stiff below ¼ ft, moist, brown	16 - 17
HA-17	662+97	87 ft Lt "PR-Q"	611	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	18 - 21
HA-18	668+49	98 ft Rt "PR-Q"	613	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	20 - 21
HA-19	670+49	91 ft Lt "PR-Q"	601	0 - 3	Clay, soft to stiff below ½ ft, moist, brown	34 - 63
HA-20	684+97	115 ft Rt "Q"	589	0 - ¼ ¼ - 1	Topsoil Silty Clay, stiff, moist, brown	22 - 27
HA-21	690+98	84 ft Lt "Q"	608	0 - 2½	Clay, soft to stiff below ½ ft, moist, brown	27 - 28
HA-22	697+54	160 ft Rt "Q"	594	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below 1 ft, moist, brown to gray	22
HA-23	709+98	95 ft Rt "Q"	615	0 - ¼ ¼ - 2½	Topsoil Silty Clay, soft to stiff below ¾ ft, moist, brown	28 - 30

*Consistency description based on ability to advance ½-in diameter steel rod probe
**MC = moisture content

Boring No.	Station	Offset (ft) Line	Elevation (ft)	Depth Interval (ft)	Description*	MC** (%)
HA-24	709+97	128 ft Rt "Q"	623	0 - ¼ ¼ - 2	Topsoil Silty Clay, stiff, moist, brown	10 - 13
HA-25	712+51	93 ft Lt "Q"	616	0 - 2	Silty Loam, soft to stiff below ¾ ft, moist, dark brown	71 - 104
HA-26	736+99	93 ft Rt "Q"	613	0 - ¼ ¼ - 2	Topsoil Silty Clay, stiff, moist, brown	12 - 13
HA-27	738+98	97 ft Rt "Q"	619	0 - ¼ ¼ - 1½	Topsoil Clay, stiff, moist, brown	15 - 16
HA-28	740+53	81 ft Lt "Q"	626	0 - ¼ ¼ - 2	Topsoil Clay, stiff, moist, gray	17 - 19
HA-29	808+52	88 ft Lt "Q"	648	0 - ¼ ¼ - 1½	Topsoil Clay Loam, soft to stiff below ½ ft, moist, brown	15 - 17
HA-30	826+99	89 ft Lt "Q"	626	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	18 - 23
HA-31	827+49	98 ft Rt "Q"	624	0 - ¼ ¼ - 2	Topsoil Clay, stiff, moist, brown	15 - 19
HA-32	837+47	79 ft Rt "Q"	630	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	21 - 23
HA-33	837+46	102 ft Rt "Q"	638	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	12 - 15
HA-34	852+97	99 ft Rt "Q"	615	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below ½ ft, moist, brown	20 - 26
HA-35	858+00	102 ft Lt "Q"	625	0 - ¼ ¼ - 2	Topsoil Silty Clay, soft to stiff below ½ ft, moist, brown	14 - 30
HA-36	864+49	85 ft Rt "Q"	603	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	21 - 30
HA-37	868+53	85 ft Rt "Q"	596	0 - ¼ ¼ - 3	Topsoil Silty Clay, soft, moist, brown	28 - 32
HA-38	874+96	94 ft Rt "Q"	583	0 - ¼ ¼ - 2	Topsoil Clay, stiff, moist, brown	23
HA-39	879+48	86 ft Lt "Q"	581	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below ½ ft, moist, brown	22 - 31
HA-40	886+96	93 ft Lt "Q"	577	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ¾, moist, brown	25 - 29
HA-41	891+45	93 ft Lt "Q"	588	0 - ¼ ¼ - 1½	Topsoil Silty Clay, soft to stiff below ¾ ft, moist, gray	43 - 49
HA-42	891+42	89 ft Rt "Q"	584	0 - ¼ ¼ - 3	Topsoil Clay, stiff, moist, brown	19 - 20
HA-43	899+97	86 ft Lt "Q"	590	0 - 3	Silty Clay, soft, moist, brown	38 - 40
HA-44	899+97	87 ft Rt "Q"	589	0 - ¼ ¼ - 2	Topsoil Silty Clay, stiff, moist, brown	21 - 29
HA-45	906+98	94 ft Lt "Q"	593	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below ½ ft, moist, brown	24
HA-46	912+48	92 ft Rt "Q"	598	0 - ¼ ¼ - 2	Topsoil Silty Clay, stiff, moist, brown	22 - 26
HA-47	919+97	81 ft Rt "Q"	611	0 - 3	Clay Loam, soft to stiff below 1 ft, moist, brown	22 - 23
HA-48	919+98	119 ft Rt "Q"	605	0 - 3	Clay Loam, soft to stiff below ¾ ft, moist, brown	25
HA-49	924+00	86 ft Rt "Q"	608	0 - ¼ ¼ - 2½	Topsoil Clay Loam, soft to stiff below ½ ft, moist, brown	17 - 23

*Consistency description based on ability to advance ½-in diameter steel rod probe
**MC = moisture content

Boring No.	Station	Offset (ft) Line	Elevation (ft)	Depth Interval (ft)	Description*	MC** (%)
HA-50	931+01	98 ft Lt "Q"	593	0 - ¼ ¼ - 1½	Topsoil Clay Loam, soft, moist, brown	17 - 20
HA-51	936+99	97 ft Rt "Q"	582	0 - ¼ ¼ - 2	Topsoil Sandy Loam, stiff, moist, brown	15 - 17
HA-52	953+01	101 ft Rt "Q"	614	0 - ¼ ¼ - 3	Topsoil Clay Loam, soft to stiff below ½ ft, moist, brown	20 - 32
HA-53	955+04	100 ft Rt "Q"	597	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	18 - 23
HA-54	955+98	99 ft Rt "Q"	606	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	17 - 20
HA-55	966+98	98 ft Rt "Q"	604	0 - ¼ ¼ - 3	Topsoil Clay, stiff, moist, brown	20
HA-56	969+46	94 ft Rt "Q"	619	0 - ¼ ¼ - 3	Topsoil Clay, soft to stiff below ½ ft, moist, brown	20 - 26
HA-57	974+50	101 ft Rt "Q"	601	0 - ¼ ¼ - 1½	Topsoil Clay, soft to stiff below ½ ft, moist, brown	17 - 19
HA-58	979+01	97 ft Rt "Q"	619	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	21 - 23
HA-59	981+47	94 ft Rt "Q"	605	0 - ¼ ¼ - 3	Topsoil Clay Loam, soft to stiff below ¾ ft, moist, brown	19 - 22
HA-60	1009+00	103 ft Rt "Q"	584	0 - ¼ ¼ - 3	Topsoil Clay, stiff, moist, brown	19 - 20
HA-61	1017+50	124 ft Rt "Q"	571	0 - ¼ ¼ - 3	Topsoil Clay, soft to stiff below ½ ft, moist, brown	24
HA-62	1020+50	92 ft Lt "Q"	578	0 - ¼ ¼ - 3	Topsoil Clay, soft to stiff below 1½ ft, moist, brown	22
HA-63	1023+97	110 ft Rt "Q"	593	0 - ¼ ¼ - 3	Topsoil Clay, stiff, moist, brown	17 - 23
HA-64	1032+97	89 ft Rt "Q"	571	0 - ¼ ¼ - 1½	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	17 - 27
HA-65	1038+96	92 ft Rt "Q"	570	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	18 - 25
HA-66	1044+49	92 ft Lt "Q"	581	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ¾ ft, moist, brown	23
HA-67	1049+93	89 ft Lt "Q"	575	0 - ¼ ¼ - 3	Topsoil Silty Clay, soft, moist, brown	29 - 32
HA-68	1062+49	92 ft Rt "Q"	580	0 - ¼ ¼ - 2	Topsoil Clay Loam, soft to stiff below ½ ft, moist, brown	18 - 20
HA-69	1075+01	76 ft Lt "Q"	584	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below 1 ft, moist, brown	20 - 43
HA-70	1095+89	78 ft Lt "Q"	569	0 - ¼ ¼ - ½	Topsoil Silty Loam, soft, moist, gray	67
HA-71	1098+91	85 ft Lt "Q"	565	0 - ¼ ¼ - 2½	Topsoil Silty Clay, soft to stiff below 1 ft, moist, gray	27 - 36
HA-72	1098+98	86 ft Lt "Q"	563	0 - ¼ ¼ - 3	Topsoil Silty Clay, soft to stiff below 1 ft, moist, gray	37 - 46
HA-73	1101+97	92 ft Lt "Q"	560	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, moist, brown	20
HA-74	1104+98	92 ft Lt "Q"	555	0 - ¼ ¼ - 2½	Topsoil Clay, soft to stiff below 1 ft, moist, brown	20 - 30
HA-75	1106+93	93 ft Lt "Q"	551	0 - ¼ ¼ - 3	Topsoil Silty Clay, stiff, moist, brown	26 - 36

*Consistency description based on ability to advance ½-in diameter steel rod probe
**MC = moisture content

I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des. No. 1700135

ROCK CORE PHOTOGRAPH

BORING:

RB-019RC



Project No. CJ195480, Boring No. RB-019RC, Rock Core No. RC-1 & 2, Depth: 3' – 10'

Wet Spot Correlations

Core No. Near Wet Spot(s)	Station	Offset (ft) Line	Wet Spot No.	Possible Correlations for the Presence of the Wet Spots
PC-NBIS-09	594+85	29 ft Rt. "Q"	3 & 6	NB lanes in cut with shallow ditch and bedrock near Wet Spot 6. Entire road in cut with shallow ditches and bedrock near Wet Spot 3.
PC-NBIS-18	861+74	26 ft Rt. "PR-Q"	16-21 & 23	Except near north end, the roadway within the range of these wet spots is in a shallow cut with shallow ditches. Existing drain pipe from median to NB ditch could be plugged. Water could be getting trapped in granular subbase observed at Core PC-NBIS-18.
PC-NBOS-21	922+91	62 ft Rt. "Q"		
PC-NBIS-20	909+24	29 ft Rt. "Q"	59, 61-63, 65 & 66	Near Wet Spot 59, very flat in cross-section with shallow NB ditch and ground surface slopes from SB to NB lanes. Existing drain pipes (near Wet Spots 61 & 63) from median to NB ditch could be plugged. Pretty flat with shallow ditch near Wet Spots 62 & 65. Soft near-surface soils in median near Wet Spot 62.
PC-NBIS-21	933+00	28 ft Rt. "Q"	54, 56 & 58	Water could be getting trapped in granular soils observed below pavement materials at Boring RB-247. Wet spots are in low point in roadway profile grade (i.e., slopes up to south and north). Soft near-surface soils in median in this area. Existing drain pipe from median to NB ditch could be plugged.
PC-NBIS-22	956+67	29 ft Rt. "Q"	51 & 52	Water could be getting trapped in sandy loam with some gravel & cobble fragments observed below pavement materials at Boring RB-259. Existing drain pipe from median to NB ditch could be plugged.
PC-NBIS-23	980+50	28 ft Rt. "Q"	46, 47 & 49	Water could be getting trapped in granular subbase observed at Core PC-NBIS-23 and Boring RB-269. Except near south end, the roadway within the range of these wet spots is in slight cut to very flat with shallow ditches. Existing drain pipe from median to NB ditch could be plugged (soft near-surface soils in median).
PC-NBIS-25	1028+49	30 ft Rt. "Q"	35, 37 & 39	Water could be getting trapped in granular subbase observed at Core PC-NBIS-25 and Borings RB-291 to RB-293. Additionally, granular soils were present under the pavement materials at Boring RB-291. The roadway within the range of these wet spots is in cut to very flat with shallow ditches. Existing drain pipe from median to NB ditch near north end could be plugged.
PC-NBIS-26	1051+71	29 ft Rt. "Q"	28-30 & 32	Water could be getting trapped in granular subbase observed at Core PC-NBIS-26 and Boring RB-304. Mapped wetland in NB ditch in northern portion of these wet spots. Existing culvert (near Wet Spot 28) and drain pipe from median to NB ditch (near north end of wet spots) could be plugged.
PC-NBIS-28	1099+81	32 ft Rt. "Q"	72-74	Water could be getting trapped in granular subbase observed at Borings RB-328/PC-NBIS-28, RB-330 & RB-332. Existing culvert (near Wet Spot 74). In cut with shallow ditch near Wet Spots 72 & 73. Pretty flat with shallow ditch & road slopes from SB to NB near Wet Spot 74.
PC-NBOS-09	584+93	59 ft Rt. "PR-Q"	4	Wet spot is near low point in roadway profile grade (i.e., slopes up to south and north) and soft near-surface soils in median in this area.
PC-NBOS-13	681+45	62 ft Rt. "Q"	1	Water could be getting trapped in granular soils observed below pavement materials at Boring RB-144/PC-NBOS-13. Existing wetland is mapped in median where soft near-surface soils were observed.
PC-NBOS-14	704+10	63 ft Rt. "Q"	2	Water could be getting trapped in granular soils observed below pavement materials at Boring RB-156. Existing wetland is mapped in median.
PC-NBOS-16	750+99	65 ft Rt. "Q"	5, 7 & 10-13	Shallow bedrock. In a cut with shallow ditch along NB lanes. Possible residual soil near the surface by Wet Spots 5, 11 & 12. Soft near-surface soils in median near Wet Spot 13.
PC-NBOS-17	826+51	62 ft Rt. "Q"	14 & 15	Water could be getting trapped in granular soils observed below pavement materials at Boring RB-192/PC-NBOS-17. Near existing culvert.
PC-NBOS-19	875+65	62 ft Rt. "PR-Q"	22 & 24-27	Wet spots are in low point in roadway profile grade (i.e., slopes up to south and north). Existing drain pipe from median to NB ditch (near middle of wet spots) could be plugged.
PC-NBOS-21	922+91	61 ft Rt. "Q"	64	Very flat with shallow ditch along NB lanes.

Core No. Near Wet Spot(s)	Station	Offset (ft) Line	Wet Spot No.	Possible Correlations for the Presence of the Wet Spots
PC-NBOS-22	944+31	60 ft Rt. "Q"	53 & 55	Very flat with shallow ditch along NB lanes near south end of wet spots. Existing drain pipe from median to NB ditch (near north end of wet spots) could be plugged.
PC-NBOS-23	970+58	61 ft Rt. "Q"	50	In slight cut to very flat with shallow ditch along NB lanes. Soft near-surface soils in median near wet spot.
PC-NBOS-24	993+81	61 ft Rt. "Q"	45 & 48	In cut with shallow ditch along NB lanes. Soft near-surface soils in median near wet spots.
PC-NBOS-25	1016+55	59 ft Rt. "Q"	40-42 & 60	Water could be getting trapped in granular soils observed below pavement materials at Boring RB-286/PC-NBOS-25 or granular subbase at Boring 285. Existing culvert (near Wet Spot 40) and drain pipe from median to NB ditch (near Wet Spot 41) could be plugged. Roadway in cut with shallow ditches near Wet Spots 42 & 60. Soft near-surface soils near Wet Spot 60.
PC-NBOS-26	1038+72	57 ft Rt. "Q"	31, 33 & 34	Wet Spot 34 is in low point in roadway profile grade (i.e., slopes up to south and north). Existing drain pipes from median to NB ditch (just to south of Wet Spot 34 & just north of Wet Spot 31) could be plugged. Wetland mapped in NB ditch adjacent to Wet Spot 34 and just south of Wet Spot 33. Water could be getting trapped in granular subbase or granular soils observed below pavement materials at Boring RB-300. Soft near-surface soils in median near Wet Spots 31 & 33.
PC-SBIS-14	715+21	27 ft Lt. "Q"	8 & 9	Water could be getting trapped in granular subbase observed at Core PC-SBIS-14 and Boring RB-166 or granular soils below pavement materials observed at Boring RB-164. Mapped wetland in median near Wet Spot 8. Shallow ditch and adjacent elevated ramp near Wet Spot 8 create cut-like geometry for SB lanes. Shallow bedrock near Wet Spot 9.
PC-SBIS-21	933+01	30 ft Lt. "Q"	57 & 68-70	Water could be getting trapped in granular subbase observed at Borings RB-245 & RB-241/PC-SBOS-21. Road ranges from being in cut to pretty flat with shallow ditches. Soft near-surface soils in ditch along SB lanes. Existing drain pipe from median to NB ditch could be plugged.
PC-SBOS-21	926+84	59 ft Lt. "Q"		
PC-SBOS-24	999+97	61 ft Lt. "Q"	43, 44 & 67	Water could be getting trapped in granular subbase observed at Boring RB-277/PC-SBOS-2 and granular soils below pavement materials observed at Boring RB-279. Soft near-surface soils in median by wet spots. Generally pretty flat along SB lanes. In slight cut to pretty flat with shallow ditch along NB lanes. Existing drain pipe from median to NB ditch (near north end of wet spots) could be plugged.
PC-SBOS-26	1045+83	63 ft Lt. "Q"	38	Water could be getting trapped in granular subbase or granular soils observed below pavement materials at Boring RB-295. Existing culvert just south of wet spot. Wet spot is in low point in roadway profile grade (i.e., slopes up to south and north). Very flat with shallow ditch along SB lanes.
PC-SBOS-28	1092+94	60 ft Lt. "Q"	71	PVC pipe present in pavement about 6 in. below surface. Water could be getting trapped in granular subbase observed at Boring RB-325/PC-SBOS-28. In cut with shallow ditch. Soft near-surface soils in median just south of wet spot and in SB ditch adjacent to wet spot. Existing drain pipe parallel to and under SB ditch may be plugged.

Summary of Bedrock Within 10 ft of Existing Grade

Boring No.	Station	Line	Approx. Surface El. (ft)	Depth to Bedrock (ft)	Boring No.	Station	Line	Approx. Surface El. (ft)	Depth to Bedrock (ft)
RB-006	401+16	"Q"	491	7 (El. 484)	RB-123	637+21	"PR-Q"	587	3 (El. 584)
RB-018	425+14	"PR-Q"	510	8½ (El. 501½)	RB-124	639+13	"PR-Q"	586	5 (El. 581)
RB-019	427+23	"PR-Q"	517	2½ (El. 514½)	RB-125	641+21	"PR-Q"	585	3 (El. 582)
RB-020	429+14	"PR-Q"	521	2½ (El. 514½)	RB-128	647+13	"PR-Q"	590	5½ (El. 584½)
RB-022	433+14	"PR-Q"	530	9 (El. 521)	RB-137	665+22	"PR-Q"	615	9 (El. 606)
RB-024	437+14	"PR-Q"	532	9 (El. 523)	RB-167	725+22	"Q"	610	9½ (El. 600½)
RB-026	441+15	"PR-Q"	527	8½ (El. 518½)	RB-168	727+13	"Q"	612	6½ (El. 605½)
RB-027	443+26	"PR-Q"	523	4½ (El. 518½)	RB-175	741+22	"Q"	623	6½ (El. 616½)
RB-028	445+15	"PR-Q"	517	6 (El. 511)	RB-176	743+93	"Q"	629	4 (El. 625)
RB-029	447+02	"PR-Q"	512	3 (El. 509)	RB-177	745+22	"Q"	628	6 (El. 622)
RB-035	461+15	"PR-Q"	495	7 (El. 488)	RB-179	749+21	"Q"	633	6 (El. 627)
RB-037	465+15	"PR-Q"	498	7½ (El. 490½)	RB-180	750+99	"Q"	639	5½ (El. 633½)
RB-043	477+16	"PR-Q"	509	9½ (El. 499½)	RB-181	803+73	"Q"	638	6 (El. 632)
RB-044	479+02	"PR-Q"	511	4 (El. 507)	RB-197	835+75	"Q"	628	6 (El. 622)
RB-045	481+16	"PR-Q"	512	7½ (El. 504½)	RB-215	871+76	"PR-Q"	594	6 (El. 588)
RB-053	497+16	"PR-Q"	528	8½ (El. 519½)	RB-217	875+91	"PR-Q"	589	9½ (El. 579½)
RB-055	501+16	"PR-Q"	532	6½ (El. 525½)	RB-288	1019+66	"Q"	587	6 (El. 581)
RB-058	507+31	"PR-Q"	537	4½ (El. 532½)					
RB-059	509+16	"PR-Q"	540	8½ (El. 531½)					
RB-061	513+16	"PR-Q"	544	9 (El. 535)					
RB-079	549+18	"PR-Q"	560	6 (El. 554)					
RB-080	551+02	"PR-Q"	559	4½ (El. 554½)					
RB-081	553+18	"PR-Q"	556	5 (El. 551)					
RB-083	557+18	"PR-Q"	553	9 (El. 544)					
RB-089	569+19	"PR-Q"	542	7 (El. 535)					
RB-091	573+19	"PR-Q"	538	4 (El. 534)					
RB-094	579+23	"PR-Q"	533	6 (El. 527)					
RB-099	589+19	"PR-Q"	544	6 (El. 538)					
RB-100	591+94	"PR-Q"	553	6 (El. 547)					
RB-101	593+20	"PR-Q"	556	8 (El. 548)					
RB-103	597+20	"PR-Q"	567	5 (El. 562)					
RB-104	601+25	"PR-Q"	579	5 (El. 574)					
RB-105	601+20	"PR-Q"	579	3 (El. 576)					
RB-107	605+20	"PR-Q"	589	8 (El. 581)					
RB-113	617+20	"PR-Q"	593	6 (El. 587)					
RB-114	619+24	"PR-Q"	593	5½ (El. 587½)					
RB-115	621+20	"PR-Q"	591	6 (El. 585)					
RB-116	623+12	"PR-Q"	591	5½ (El. 585½)					

APPENDIX D

GRAIN SIZE DISTRIBUTION TEST REPORT (16 pages)

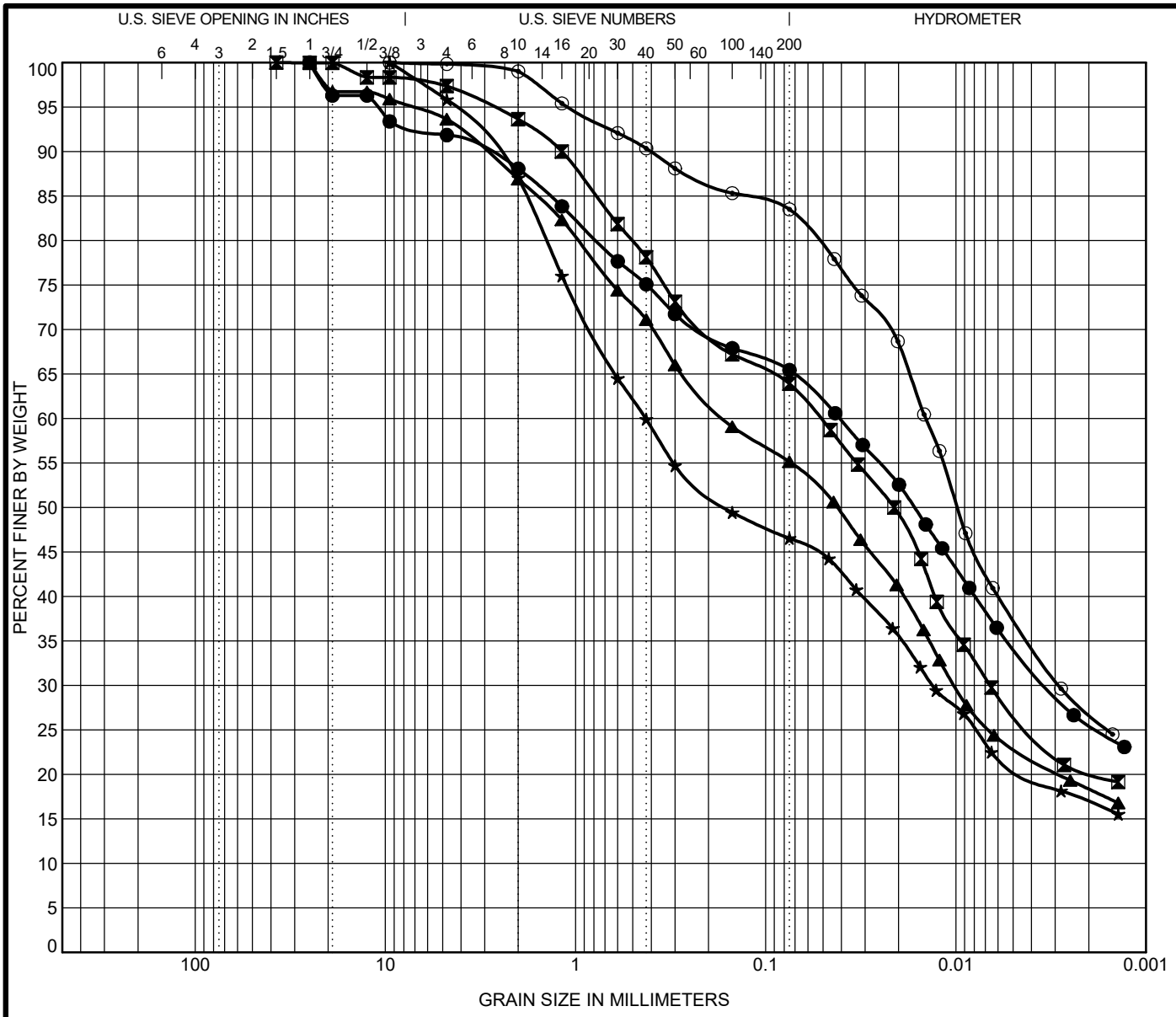
UNCONFINED COMPRESSION TEST (127)

MOISTURE-DENSITY RELATIONSHIP (8)

RESILIENT MODULUS TESTING RESULTS (in-situ; on tube samples; 8)

ESTIMATE OF IN-SITU RESILIENT MODULUS, Mr, BASED ON Su (4 pages)

SUMMARY OF EXISTING TOPSOIL TEST RESULTS



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification		Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	Composite-01TS-1	0.2	30916	A-7-5 (13) CLAY LOAM	54.0	34.0	20.0		
⊠	Composite-02TS-1	0.2	30917	A-7-5 (9) CLAY LOAM	51.0	38.0	13.0		
▲	Composite-04TS-1	0.2	30918	A-6 (6) LOAM	38.0	23.0	15.0		
★	Composite-06TS-1	0.2	30919	A-7-5 (4) SANDY LOAM	51.0	37.0	14.0		
⊙	Composite-08TS-1	0.2	30920	A-7-5 (23) SILTY CLAY LOAM	62.0	41.0	21.0		

	Specimen Identification		D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	Composite-01TS-1	0.2	0.041	0.003		22.9	8.2	11.9	22.6	39.8	25.6	2.66
⊠	Composite-02TS-1	0.2	0.052	0.007		10.1	8.3	6.4	29.7	43.7	20.2	2.72
▲	Composite-04TS-1	0.2	0.165	0.01		10.6	8.4	13.1	31.7	36.8	18.3	2.69
★	Composite-06TS-1	0.2	0.428	0.013		8	8.2	13.0	40.5	29.7	16.9	2.61
⊙	Composite-08TS-1	0.2	0.014	0.003		12.8	8	1.0	15.5	56.6	26.9	2.52

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7770 West New York Street
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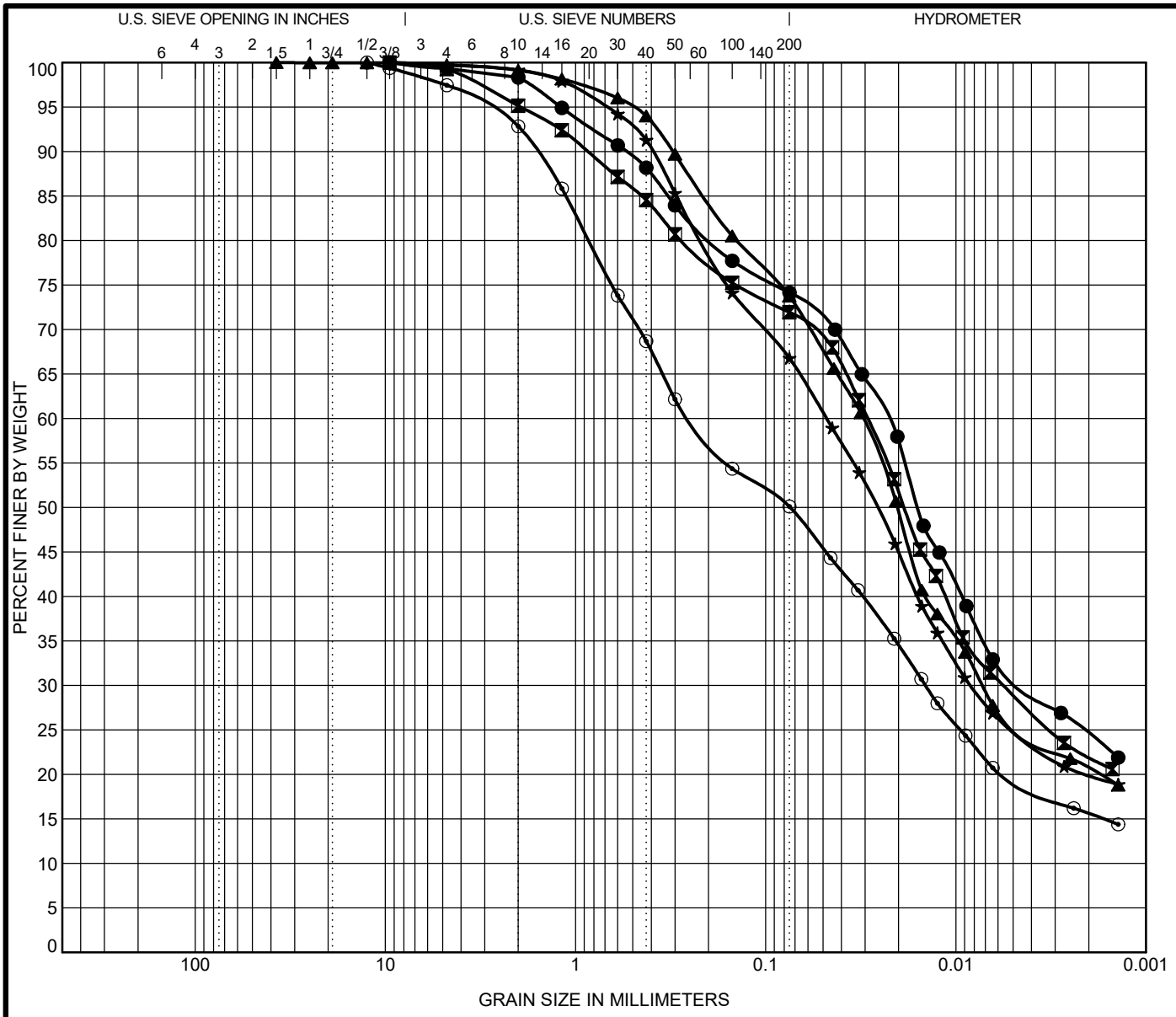
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 10/21/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification		Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	Composite-10TS-1	0.2	30921	A-7-5 (17) CLAY LOAM	52.0	30.0	22.0		
⊠	Composite-11TS-1	0.2	30922	A-7-5 (13) CLAY LOAM	48.0	31.0	17.0		
▲	Composite-12TS-1	0.2	30923	A-7-6 (12) SILTY CLAY LOAM	43.0	27.0	16.0		
★	Composite-14TS-1	0.2	30924	A-6 (7) LOAM	37.0	24.0	13.0		
⊙	Composite-16TS-1	0.2	30925	A-7-6 (5) LOAM	44.0	29.0	15.0		

	Specimen Identification		D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	Composite-10TS-1	0.2	0.023	0.004		10.3	7.8	1.7	24.2	49.7	24.5	2.62
⊠	Composite-11TS-1	0.2	0.029	0.006		8.5	8.2	4.9	23.2	49.9	22.0	2.53
▲	Composite-12TS-1	0.2	0.031	0.007		9	8.1	0.9	25.4	53.1	20.6	2.63
★	Composite-14TS-1	0.2	0.048	0.008		7	8.1	0.8	32.4	46.8	20.0	2.65
⊙	Composite-16TS-1	0.2	0.248	0.014		8.7	8.4	7.2	42.7	34.5	15.6	2.7

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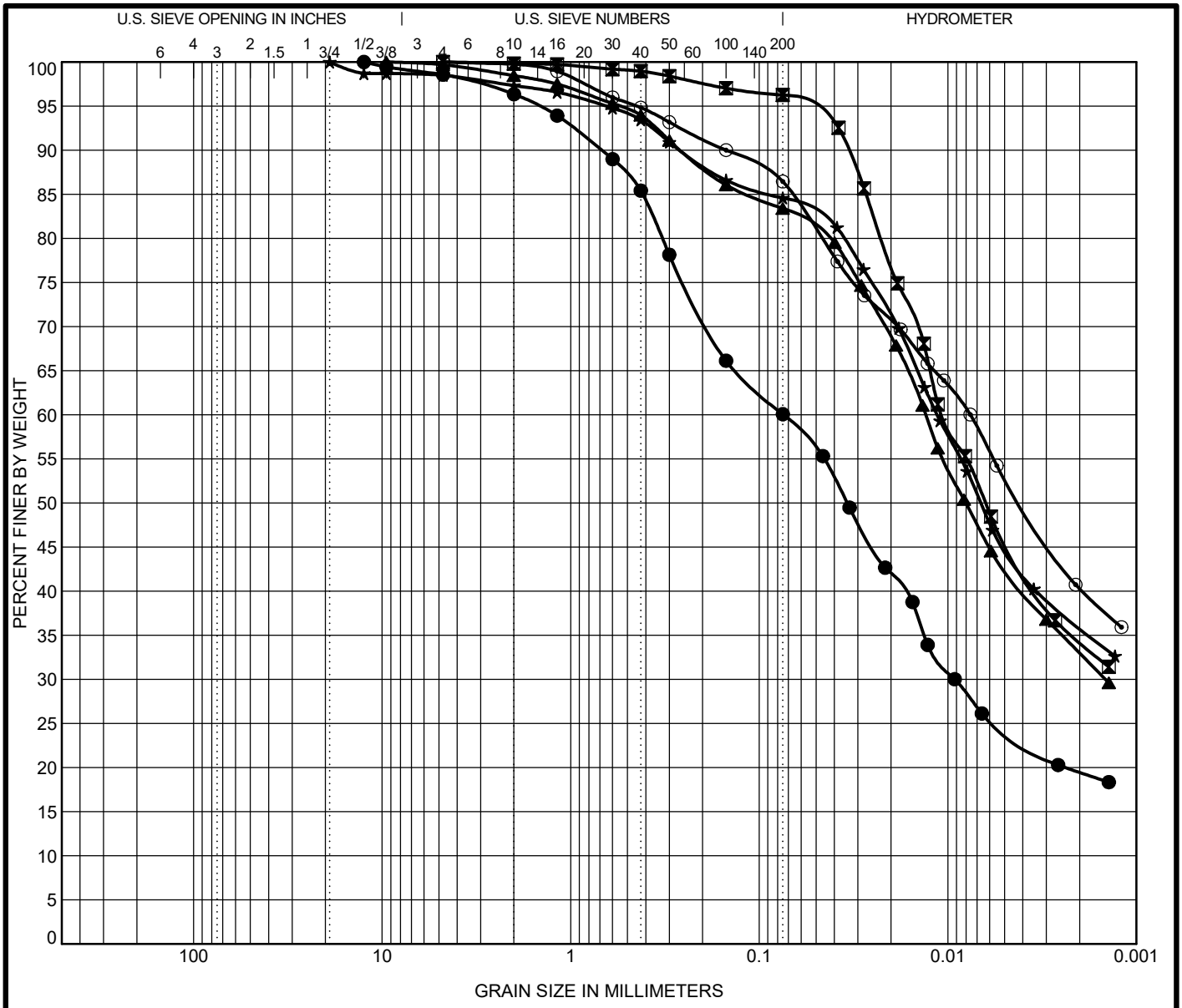

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	Composite-17TS-1		0.2	30926	A-7-6 (7) LOAM	42.0	28.0	14.0		
⊠	RB-002	SS-3	6.0	30769	A-6 (16) SILTY CLAY	35.0	19.0	16.0		
▲	RB-010	SS-1	1.0	30770	A-6 (17) SILTY CLAY	40.0	19.0	21.0		
★	RB-011	SS-1T	1.2	31321	A-6 (14) CLAY	38.0	22.0	16.0		
⊙	RB-011A	ST-1	2.0	31368	A-7-6 (17) CLAY	41.0	22.0	19.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	Composite-17TS-1		0.2	0.075	0.009		13.1	8.3	3.6	36.3	40.6	19.5	2.58
⊠	RB-002	SS-3	6.0	0.011				6.6	0.2	3.6	62.0	34.3	2.7
▲	RB-010	SS-1	1.0	0.013	0.001			6.8	1.5	15.1	50.4	33.0	2.72
★	RB-011	SS-1T	1.2	0.011				7.1	2.7	12.7	48.6	36.0	2.76
⊙	RB-011A	ST-1	2.0	0.008				8.6	0.2	13.3	46.1	40.3	2.86

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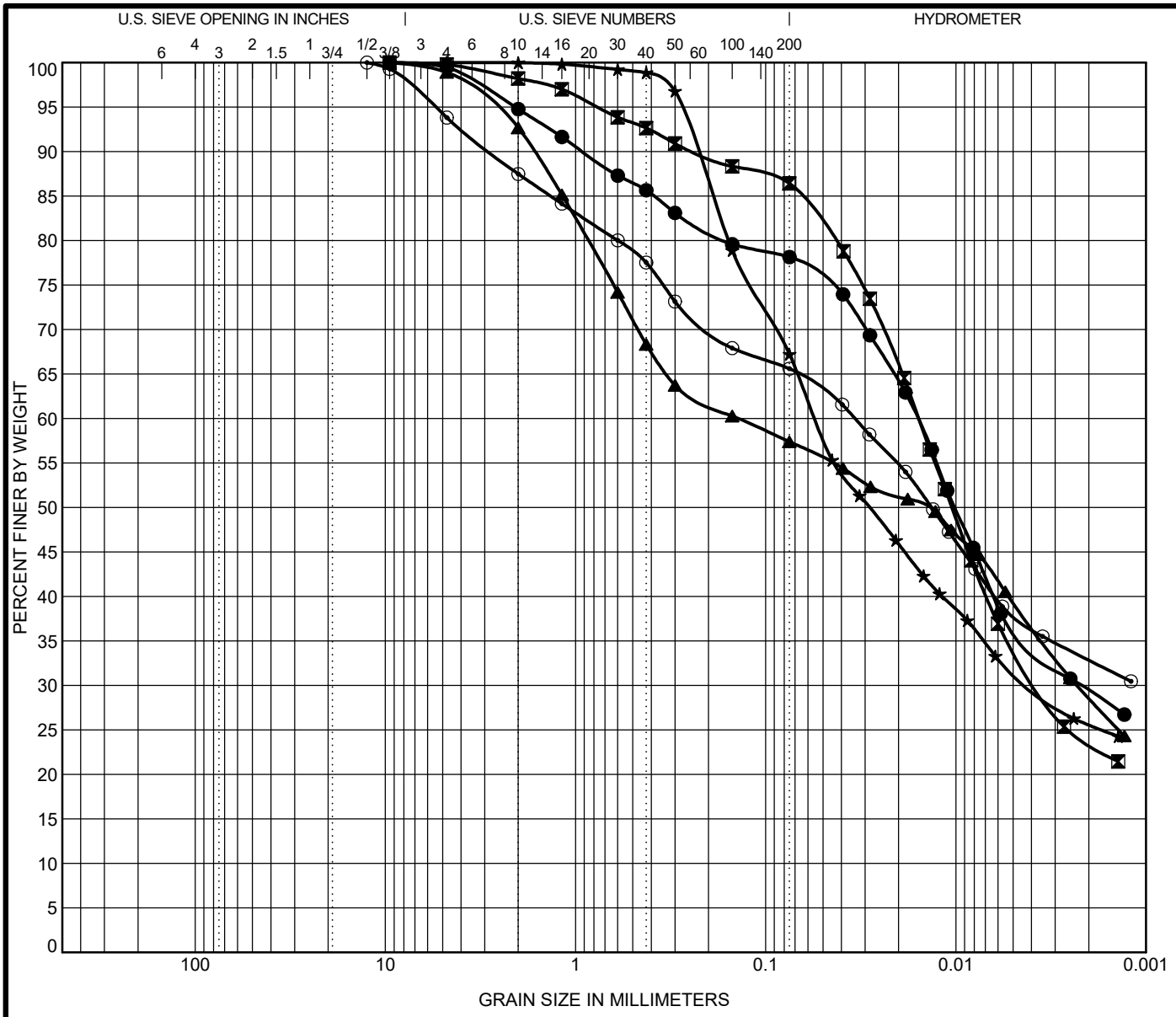
Location: I-65 from RP 16+27 to 29+10

INDOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 10/21/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-014	SS-1	1.0	30771	A-6 (12) CLAY LOAM	37.0	20.0	17.0		
⊠	RB-016	SS-4	8.5	30772	A-6 (8) SILTY CLAY LOAM	30.0	19.0	11.0		
▲	RB-022	SS-2	3.5	30773	A-7-6 (9) CLAY LOAM	45.0	25.0	20.0		
★	RB-022A	ST-1	1.0	31370	A-6 (5) CLAY LOAM	26.0	14.0	12.0		
⊙	RB-023	SS-1	1.3	31322	A-6 (11) CLAY	40.0	21.0	19.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-014	SS-1	1.0	0.016	0.002			5.8	5.2	16.6	48.8	29.4	2.82
⊠	RB-016	SS-4	8.5	0.016	0.004			5.4	1.8	11.8	62.8	23.6	2.72
▲	RB-022	SS-2	3.5	0.141	0.002			7.8	7.3	35.3	28.8	28.6	2.85
★	RB-022A	ST-1	1.0	0.055	0.004			7.8	0.0	32.7	41.6	25.6	2.67
⊙	RB-023	SS-1	1.3	0.034				7.4	12.5	21.9	32.7	32.9	2.86

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GRAIN SIZE DISTRIBUTION TEST REPORT

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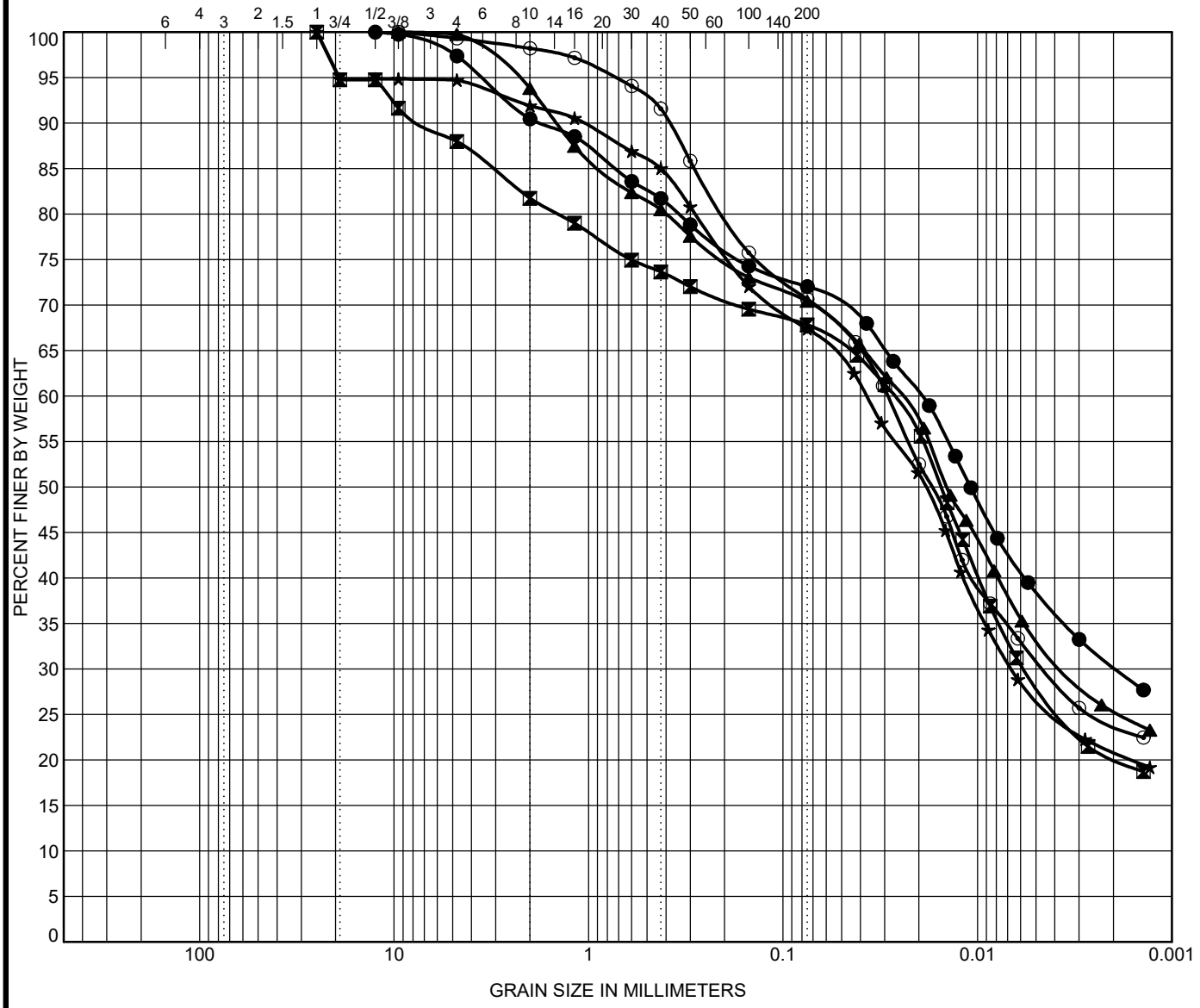
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 10/21/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-029A	ST-1	1.0	30850	A-6 (11) CLAY	37.0	19.0	18.0		
⊠	RB-037	SS-2	3.5	30774	A-6 (6) CLAY LOAM	32.0	21.0	11.0		
▲	RB-052A	ST-1	1.0	31376	A-6 (7) CLAY LOAM	32.0	19.0	13.0		
★	RB-053	SS-1	1.0	30783	A-4 (3) CLAY LOAM	25.0	17.0	8.0		
⊙	RB-065	SS-2	3.5	30784	A-4 (3) CLAY LOAM	24.0	17.0	7.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-029A	ST-1	1.0	0.019	0.002			7.2	9.5	18.4	41.7	30.3	2.7
⊠	RB-037	SS-2	3.5	0.027	0.006			6.8	18.3	13.9	47.6	20.2	2.63
▲	RB-052A	ST-1	1.0	0.025	0.003			7.4	6.2	23.4	45.1	25.4	2.79
★	RB-053	SS-1	1.0	0.037	0.007			7.9	8.1	24.5	46.5	20.9	2.69
⊙	RB-065	SS-2	3.5	0.029	0.005			8.4	1.8	27.6	46.7	24.0	2.7

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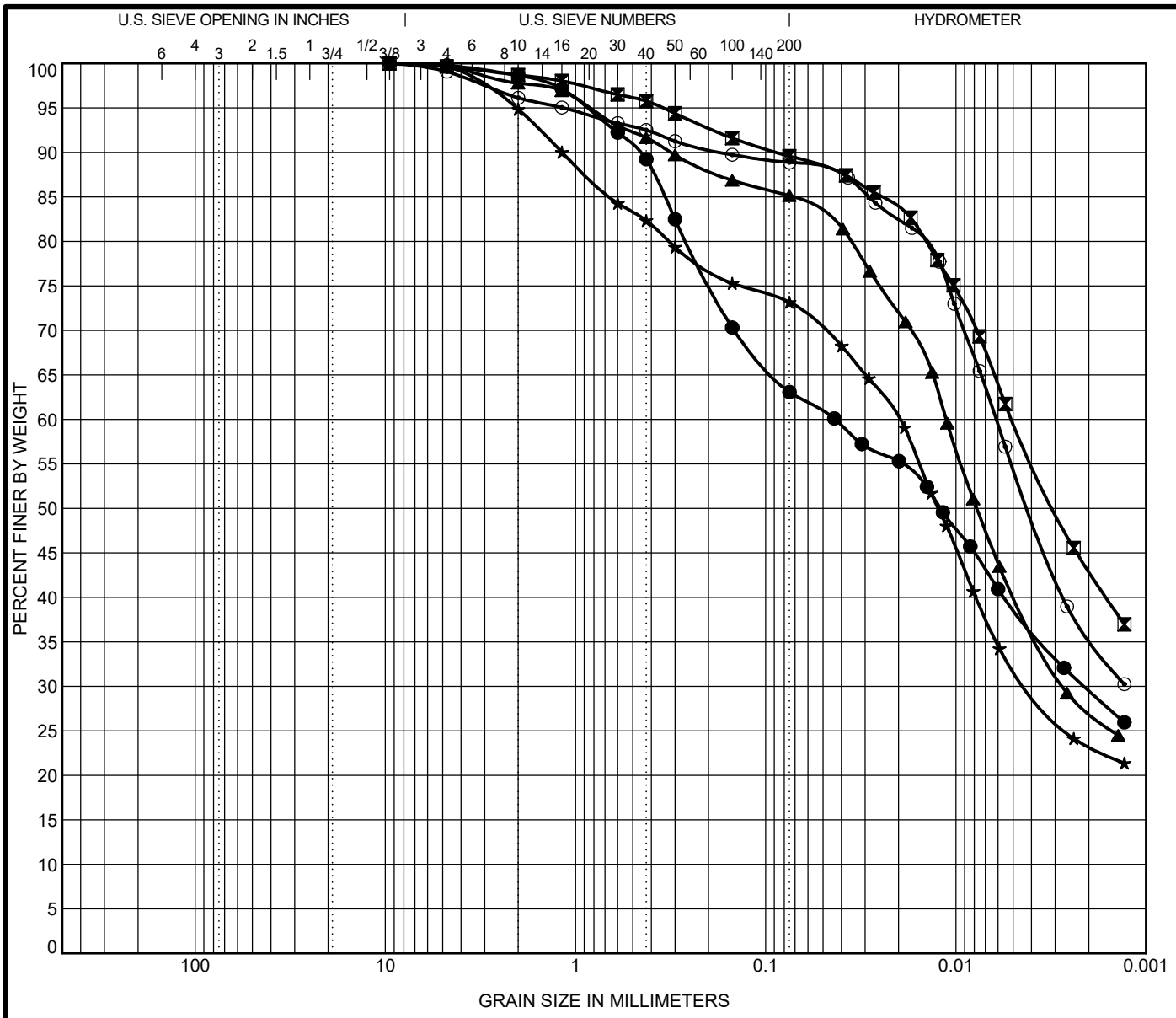

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-067	SS-1	1.0	30785	A-6 (8) CLAY LOAM	33.0	17.0	16.0		
⊠	RB-077	SS-1	1.0	30795	A-7-6 (23) CLAY	44.0	19.0	25.0		
▲	RB-083	SS-1	1.0	30796	A-6 (10) SILTY CLAY LOAM	34.0	22.0	12.0		
★	RB-085A	ST-1	1.0	31377	A-6 (6) CLAY LOAM	31.0	20.0	11.0		
⊙	RB-090	SS-1	1.3	31323	A-6 (13) SILTY CLAY	35.0	20.0	15.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-067	SS-1	1.0	0.043	0.002			8.7	1.4	35.6	33.5	29.6	2.73
⊠	RB-077	SS-1	1.0	0.005				7.6	1.3	9.1	46.6	43.0	2.75
▲	RB-083	SS-1	1.0	0.011	0.003			7.7	2.2	12.6	57.9	27.2	2.72
★	RB-085A	ST-1	1.0	0.02	0.004			7.8	5.1	21.7	49.9	23.3	2.82
⊙	RB-090	SS-1	1.3	0.006				8.2	3.9	7.3	53.2	35.7	2.81

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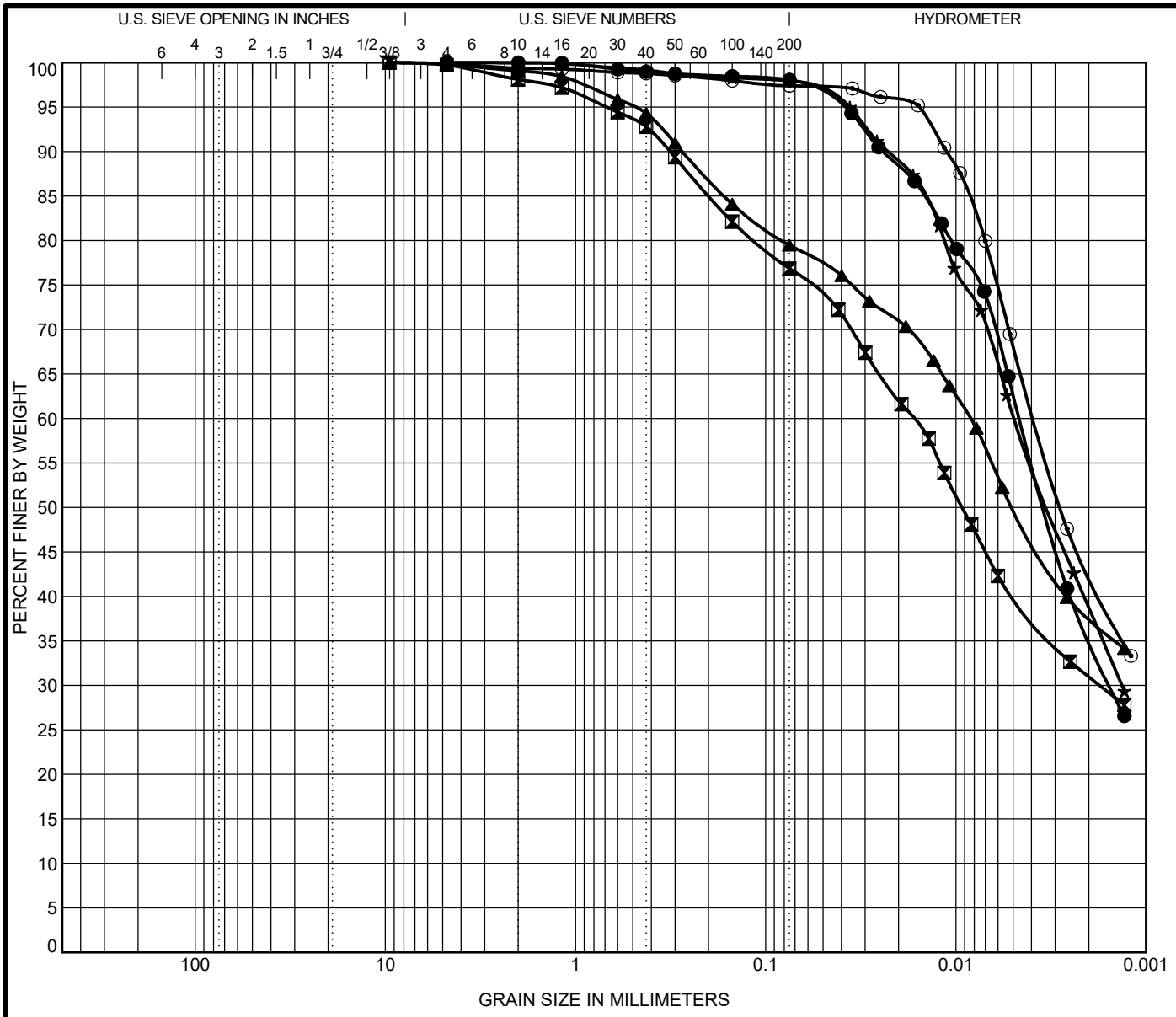

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-093	SS-1	1.0	30797	A-7-6 (24) SILTY CLAY	47.0	26.0	21.0		
⊠	RB-096	SS-2	2.7	30798	A-6 (11) CLAY	33.0	17.0	16.0		
▲	RB-107	SS-1	1.0	30799	A-6 (13) CLAY	38.0	20.0	18.0		
★	RB-117	SS-1	1.0	30800	A-7-6 (29) SILTY CLAY	54.0	29.0	25.0		
⊙	RB-122	SS-1	1.3	31324	A-7-6 (25) SILTY CLAY	46.0	23.0	23.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-093	SS-1	1.0	0.005	0.002			8.1	0.0	1.9	62.6	35.5	2.86
⊠	RB-096	SS-2	2.7	0.017	0.002			7.9	1.9	21.2	45.8	31.0	2.7
▲	RB-107	SS-1	1.0	0.008				7.5	0.9	19.6	41.8	37.7	2.76
★	RB-117	SS-1	1.0	0.005	0.001			8.1	0.0	2.0	59.2	38.7	2.77
⊙	RB-122	SS-1	1.3	0.004				8.2	0.6	2.0	54.6	42.8	2.83

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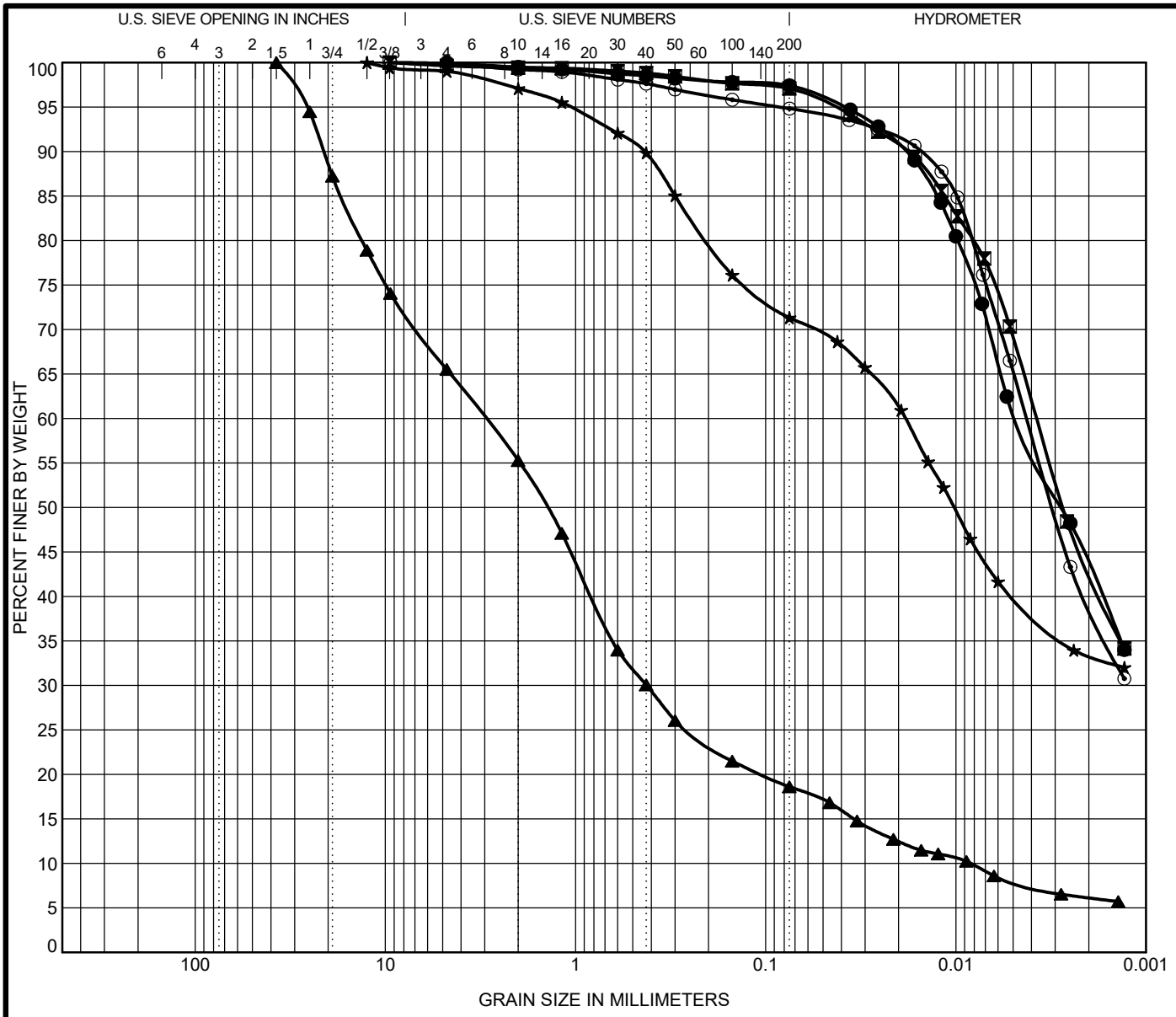

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-124	SS-1	1.3	30801	A-7-6 (25) SILTY CLAY	49.0	27.0	22.0		
⊠	RB-127A	ST-1	1.0	30851	A-7-6 (20) SILTY CLAY	44.0	26.0	18.0		
▲	RB-132	SS-1	1.9	30930	A-1-b (0) SAND & GRAVEL	17.0	15.0	2.0	7.14	355.21
★	RB-134A	ST-1	1.0	31378	A-6 (8) CLAY	32.0	18.0	14.0		
⊙	RB-137	SS-1	1.0	30931	A-7-6 (29) SILTY CLAY	52.0	25.0	27.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-124	SS-1	1.3	0.005				8	0.5	2.1	54.0	43.4	2.79
⊠	RB-127A	ST-1	1.0	0.004				8.4	0.6	2.3	54.1	43.0	2.81
▲	RB-132	SS-1	1.9	2.981	0.423	0.008		8.3	44.7	36.7	12.5	6.1	2.76
★	RB-134A	ST-1	1.0	0.018				7.2	2.9	25.8	37.9	33.4	2.68
⊙	RB-137	SS-1	1.0	0.004				7.6	0.8	4.4	55.8	39.0	2.79

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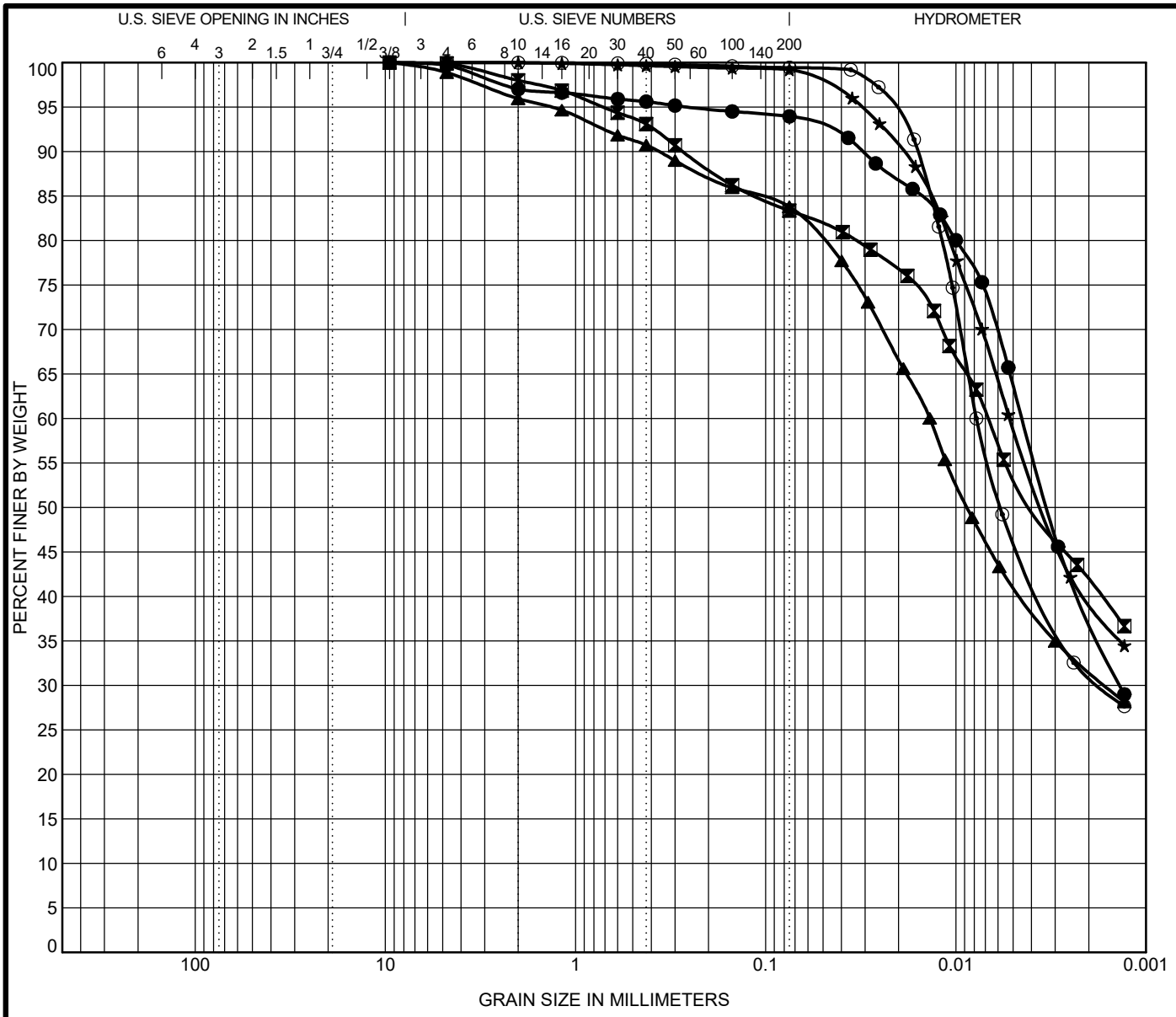

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-138	SS-1	1.3	31460	A-7-6 (22) SILTY CLAY	45.0	24.0	21.0		
⊠	RB-141A	ST-1	1.0	31379	A-7-6 (22) CLAY	45.0	18.0	27.0		
▲	RB-154	SS-1	1.1	31461	A-6 (16) SILTY CLAY	37.0	17.0	20.0		
★	RB-161	SS-1	1.0	30932	A-6 (18) SILTY CLAY	39.0	23.0	16.0		
⊙	RB-162A	ST-1	1.0	31369	A-6 (12) SILTY CLAY	36.0	25.0	11.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-138	SS-1	1.3	0.004	0.001			9.1	3.0	3.1	56.0	37.9	2.76
⊠	RB-141A	ST-1	1.0	0.007				7.7	2.0	14.6	41.5	41.9	2.74
▲	RB-154	SS-1	1.1	0.014	0.002			8.4	4.1	12.2	52.1	31.7	2.67
★	RB-161	SS-1	1.0	0.005				8.2	0.0	0.8	59.7	39.5	2.87
⊙	RB-162A	ST-1	1.0	0.008	0.002			7.8	0.0	0.5	68.3	31.1	2.77

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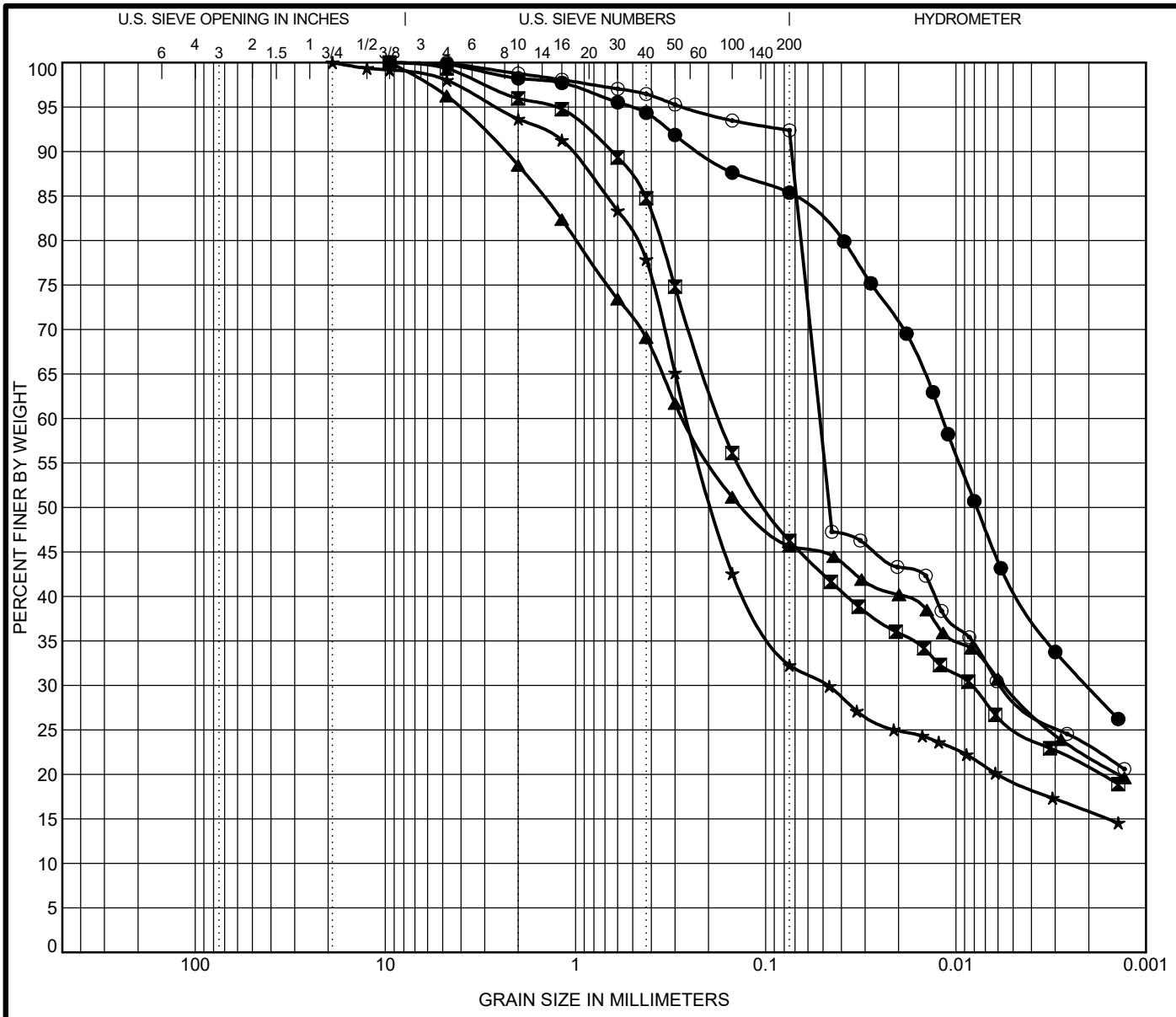

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
● RB-169A	ST-1	1.0	30852	A-6 (10) SILTY CLAY LOAM	33.0	20.0	13.0		
⊠ RB-182	SS-1	1.1	31462	A-4 (1) SANDY CLAY LOAM	22.0	13.0	9.0		
▲ RB-183	SS-1	1.0	30990	A-6 (2) SANDY CLAY LOAM	34.0	23.0	11.0		
★ RB-183A	ST-1	1.0	30944	A-2-4 (0) SANDY LOAM	25.0	18.0	7.0		
⊙ RB-185	SS-1	1.0	30991	A-7-6 (22) SILTY CLAY LOAM	42.0	19.0	23.0		

Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
● RB-169A	ST-1	1.0	0.012	0.002			6.5	1.8	12.8	55.6	29.8	2.78
⊠ RB-182	SS-1	1.1	0.173	0.008			9.2	4.0	49.7	25.6	20.7	2.74
▲ RB-183	SS-1	1.0	0.269	0.006			8.3	11.6	42.8	23.7	22.0	2.81
★ RB-183A	ST-1	1.0	0.256	0.047			8.1	6.3	61.4	16.5	15.8	2.72
⊙ RB-185	SS-1	1.0	0.052	0.006			7.3	1.2	6.4	69.3	23.1	2.77

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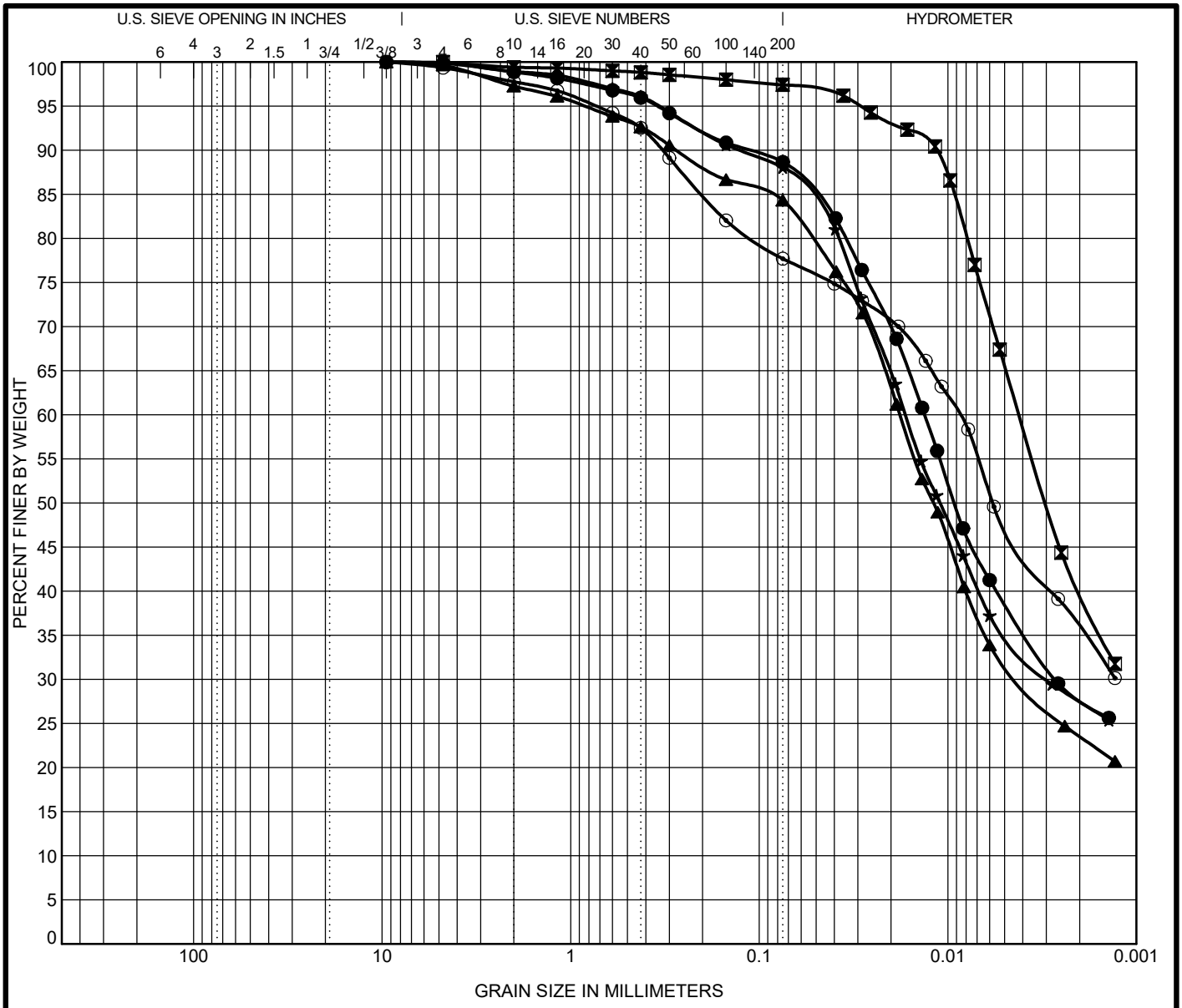

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-190A	ST-1	1.0	31380	A-4 (6) SILTY CLAY LOAM	28.0	20.0	8.0		
⊠	RB-197	SS-1	1.0	30992	A-7-6 (22) SILTY CLAY	46.0	27.0	19.0		
▲	RB-211A	ST-1	1.0	31381	A-4 (4) SILTY CLAY LOAM	27.0	21.0	6.0		
★	RB-216	SS-1	1.2	30993	A-4 (8) SILTY CLAY LOAM	29.0	19.0	10.0		
⊙	RB-218A	ST-1	1.0	31382	A-6 (12) CLAY	36.0	19.0	17.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-190A	ST-1	1.0	0.013	0.003			7.1	1.1	10.2	60.8	27.9	2.71
⊠	RB-197	SS-1	1.0	0.004				8.3	0.6	2.0	57.4	40.1	2.77
▲	RB-211A	ST-1	1.0	0.018	0.004			8.2	2.7	12.9	60.8	23.5	2.8
★	RB-216	SS-1	1.2	0.017	0.003			8.6	1.1	10.9	60.6	27.5	2.72
⊙	RB-218A	ST-1	1.0	0.009				7.8	2.2	20.1	42.0	35.7	2.78

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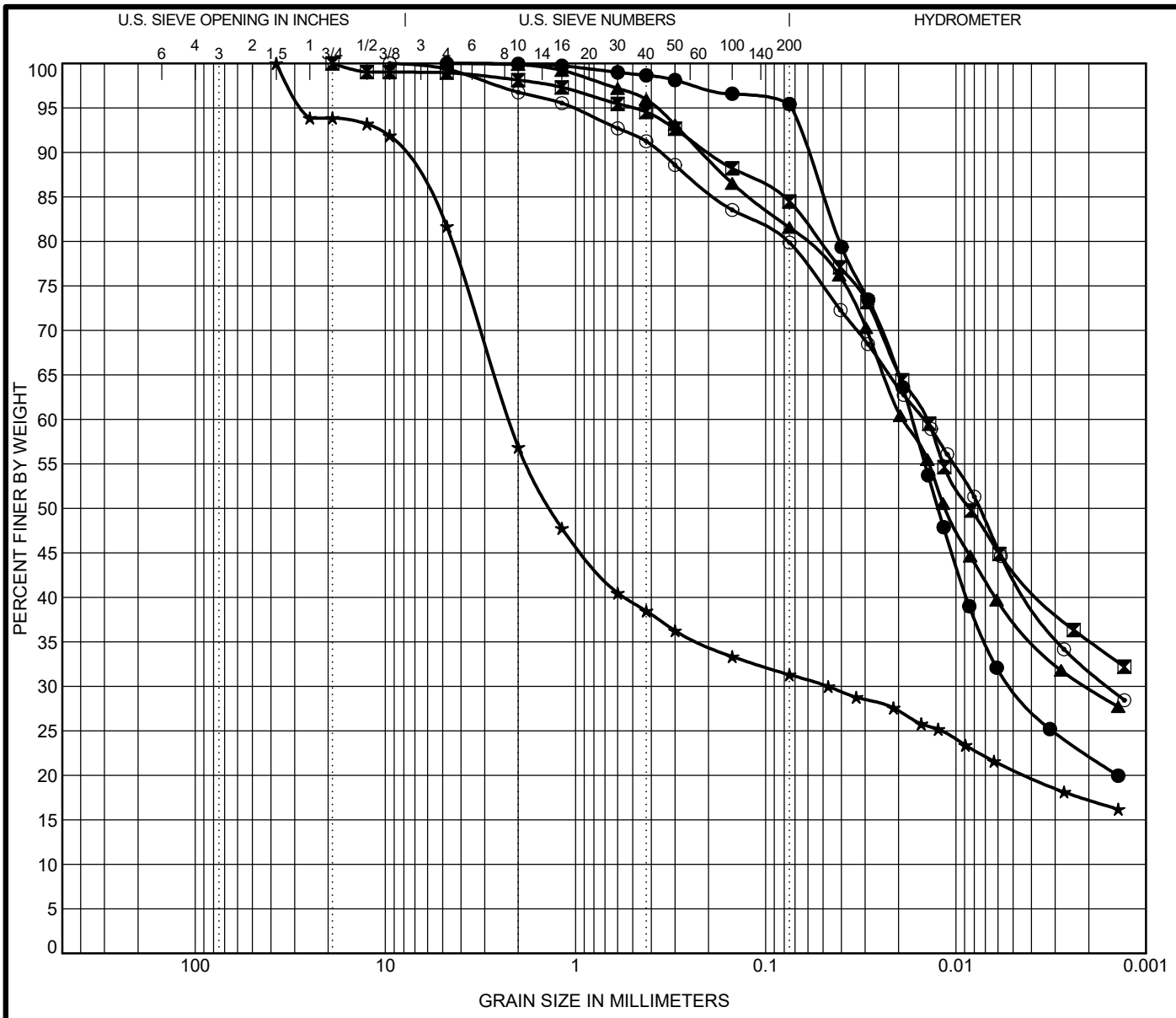

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-224	SS-1	1.0	31463	A-4 (4) SILTY CLAY LOAM	27.0	22.0	5.0		
⊠	RB-234A	ST-1	1.0	31371	A-6 (14) CLAY	38.0	21.0	17.0		
▲	RB-245	SS-1	1.3	30994	A-4 (7) SILTY CLAY LOAM	28.0	18.0	10.0		
★	RB-248A	ST-1	1.0	31383	A-2-7 (2) SANDY LOAM and GRAVEL	44.0	20.0	24.0		
⊙	RB-253	SS-2	2.8	31007	A-6 (12) CLAY	35.0	18.0	17.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-224	SS-1	1.0	0.017	0.005			7.6	0.1	4.5	73.2	22.2	2.72
⊠	RB-234A	ST-1	1.0	0.014				8.5	1.9	13.6	49.4	35.1	2.7
▲	RB-245	SS-1	1.3	0.019	0.002			7.8	0.1	18.3	51.7	29.8	2.68
★	RB-248A	ST-1	1.0	2.23	0.047			8	43.1	25.6	14.1	17.2	2.59
⊙	RB-253	SS-2	2.8	0.015	0.002			9	3.2	16.9	48.1	31.8	2.77

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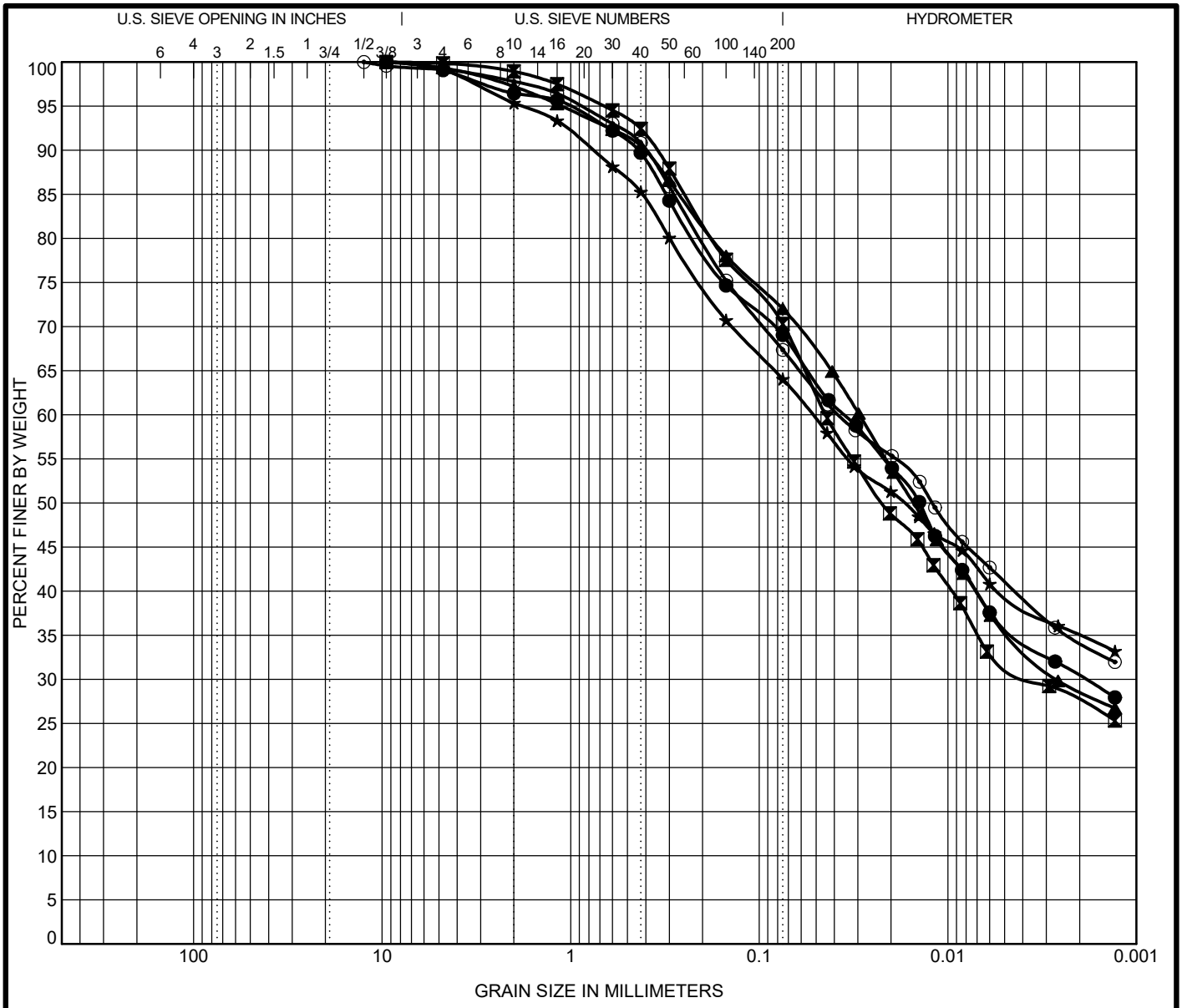

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-255A	ST-1	1.0	31384	A-6 (10) CLAY	33.0	15.0	18.0		
⊠	RB-257	SS-1	1.3	31008	A-4 (4) CLAY LOAM	27.0	18.0	9.0		
▲	RB-262A	ST-1	1.0	31372	A-6 (8) CLAY LOAM	28.0	13.0	15.0		
★	RB-263	SS-3	4.1	31009	A-7-6 (12) CLAY	42.0	19.0	23.0		
⊙	RB-269	SS-2	2.8	31010	A-6 (12) CLAY	37.0	15.0	22.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-255A	ST-1	1.0	0.035	0.002			8	3.6	27.4	38.7	30.3	2.72
⊠	RB-257	SS-1	1.3	0.044	0.003			7.2	1.1	28.6	42.9	27.4	2.71
▲	RB-262A	ST-1	1.0	0.029	0.003			8.4	2.8	25.2	43.4	28.6	2.81
★	RB-263	SS-3	4.1	0.052				7.4	4.7	31.3	29.1	35.0	2.7
⊙	RB-269	SS-2	2.8	0.038				7.4	2.2	30.4	33.1	34.3	2.71

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GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
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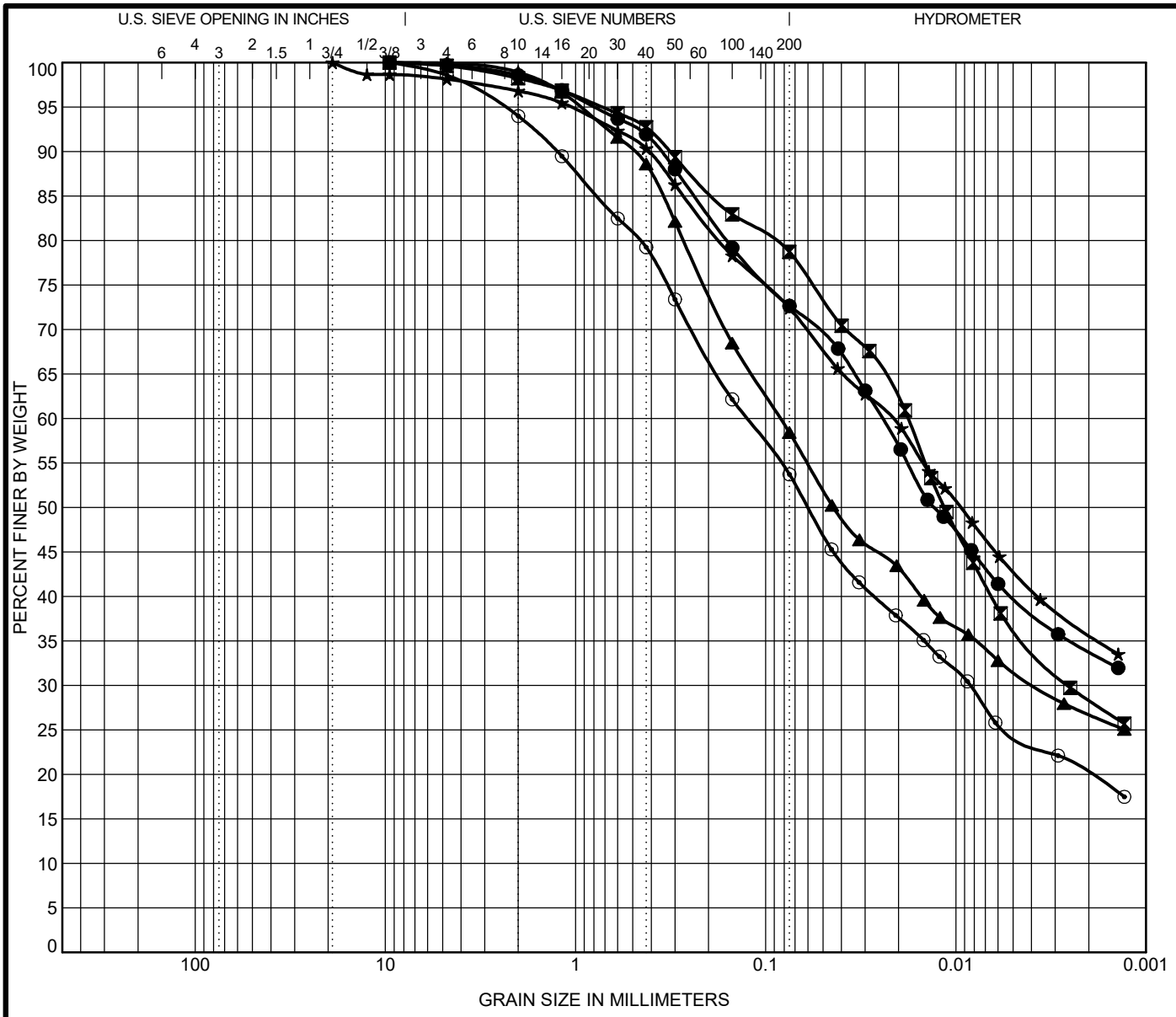
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 10/21/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-269A	ST-1	1.0	30853	A-6 (7) CLAY	32.0	20.0	12.0		
⊠	RB-278A	ST-1	1.0	31373	A-6 (11) SILTY CLAY LOAM	32.0	16.0	16.0		
▲	RB-285	SS-2	2.8	31011	A-6 (5) CLAY LOAM	30.0	16.0	14.0		
★	RB-287	SS-1	1.2	31512	A-7-6 (17) CLAY	43.0	18.0	25.0		
⊙	RB-290	SS-2	2.7	31037	A-4 (0) LOAM	21.0	15.0	6.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-269A	ST-1	1.0	0.024				7	1.4	25.9	38.8	33.8	2.72
⊠	RB-278A	ST-1	1.0	0.018	0.003			6.2	1.8	19.5	50.4	28.4	2.84
▲	RB-285	SS-2	2.8	0.084	0.004			8.3	1.1	40.5	31.7	26.8	2.73
★	RB-287	SS-1	1.2	0.022				7.8	3.2	24.4	36.6	35.8	2.73
⊙	RB-290	SS-2	2.7	0.126	0.008			8.8	6.0	40.3	33.8	20.0	2.74

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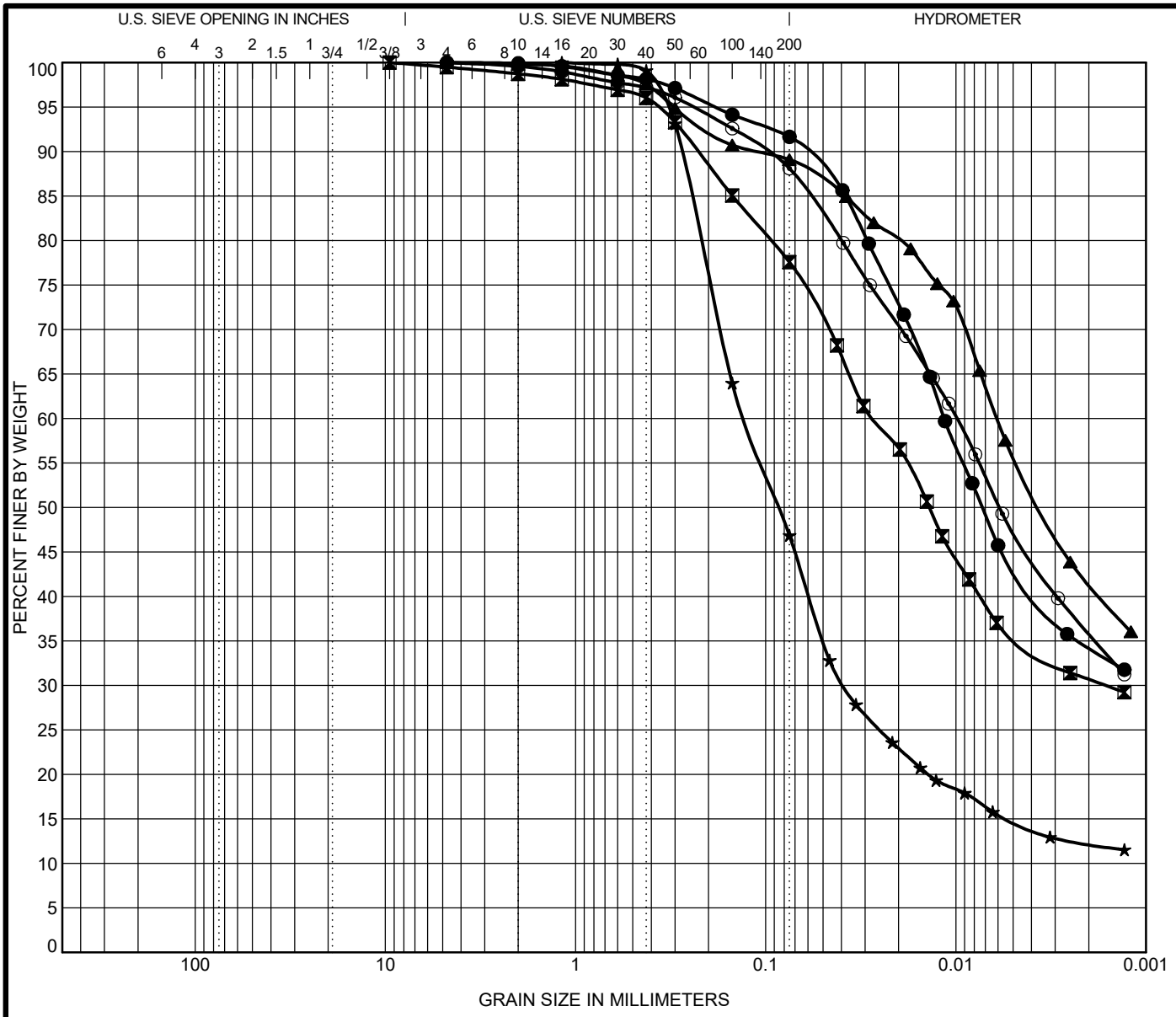

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-305	SS-2	2.8	31038	A-6 (18) SILTY CLAY	37.0	17.0	20.0		
⊠	RB-308A	ST-1	1.0	31374	A-6 (8) CLAY	30.0	17.0	13.0		
▲	RB-314	SS-2	3.2	31049	A-7-6 (19) CLAY	41.0	20.0	21.0		
★	RB-320	SS-2	3.1	31513	A-4 (0) SANDY LOAM	18.0	15.0	3.0		
⊙	RB-322	SS-1	1.4	31050	A-6 (17) SILTY CLAY	38.0	18.0	20.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-305	SS-2	2.8	0.012				6	0.1	8.3	57.4	34.3	2.69
⊠	RB-308A	ST-1	1.0	0.027	0.002			7.7	1.3	21.2	46.9	30.7	2.7
▲	RB-314	SS-2	3.2	0.006				7.7	0.2	10.7	47.6	41.5	2.84
★	RB-320	SS-2	3.1	0.128	0.038			9.2	0.0	53.1	34.7	12.2	2.67
⊙	RB-322	SS-1	1.4	0.01				8.4	0.4	11.5	52.3	35.8	2.76

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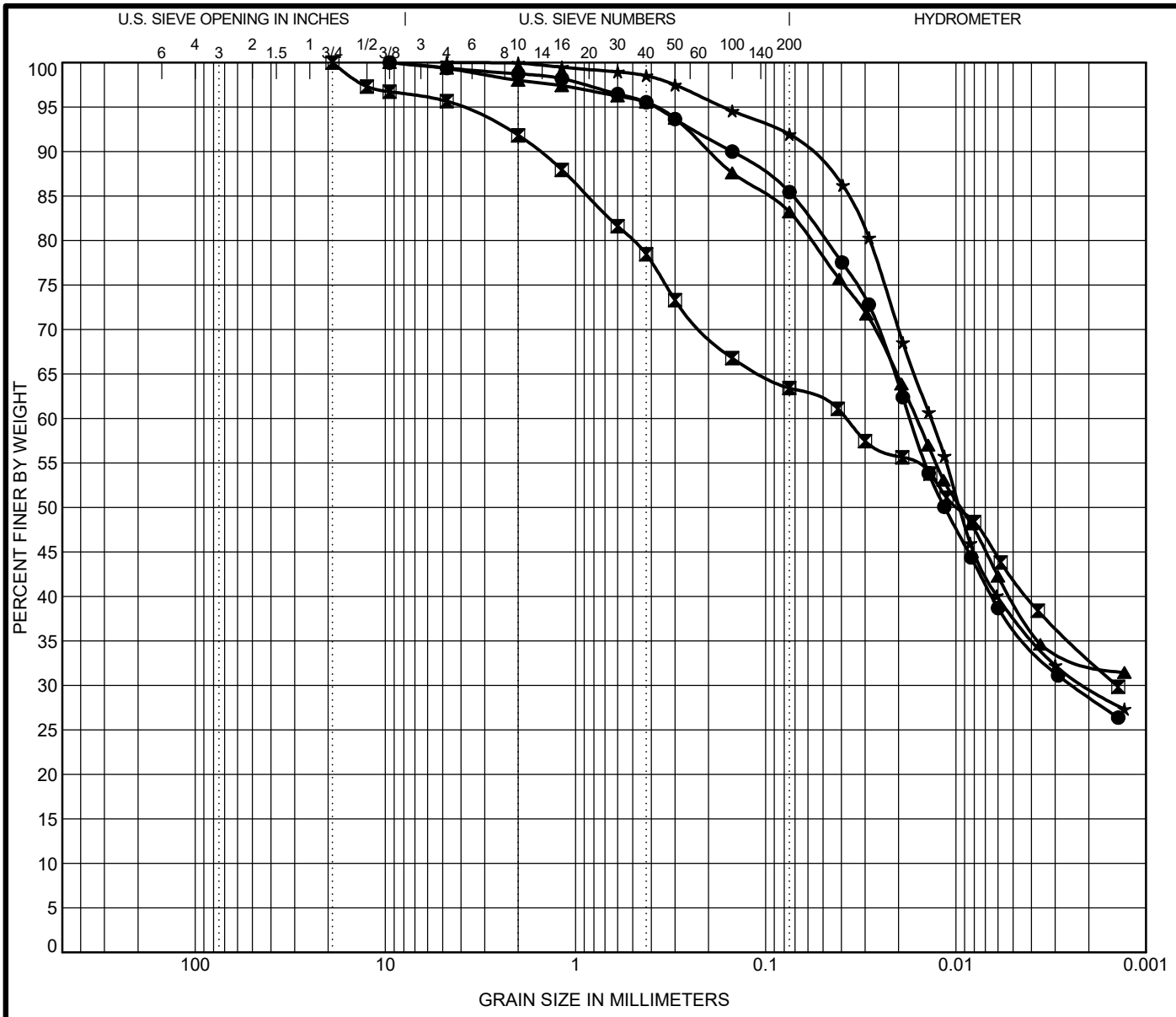

COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-325A	ST-1	1.0	30854	A-4 (8) SILTY CLAY LOAM	31.0	21.0	10.0		
⊠	RB-328	SS-1	1.6	31514	A-6 (8) CLAY	38.0	22.0	16.0		
▲	RB-332A	ST-1	2.0	31375	A-6 (10) SILTY CLAY	31.0	17.0	14.0		
★	RB-333	SS-2	2.8	31051	A-6 (9) SILTY CLAY LOAM	28.0	17.0	11.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-325A	ST-1	1.0	0.017	0.002			8.6	1.3	13.3	56.7	28.7	2.74
⊠	RB-328	SS-1	1.6	0.038	0.001			9	8.2	28.4	30.4	33.0	2.76
▲	RB-332A	ST-1	2.0	0.016				8	2.0	14.8	50.4	32.8	2.69
★	RB-333	SS-2	2.8	0.014	0.002			8.6	0.1	8.0	62.1	29.9	2.68

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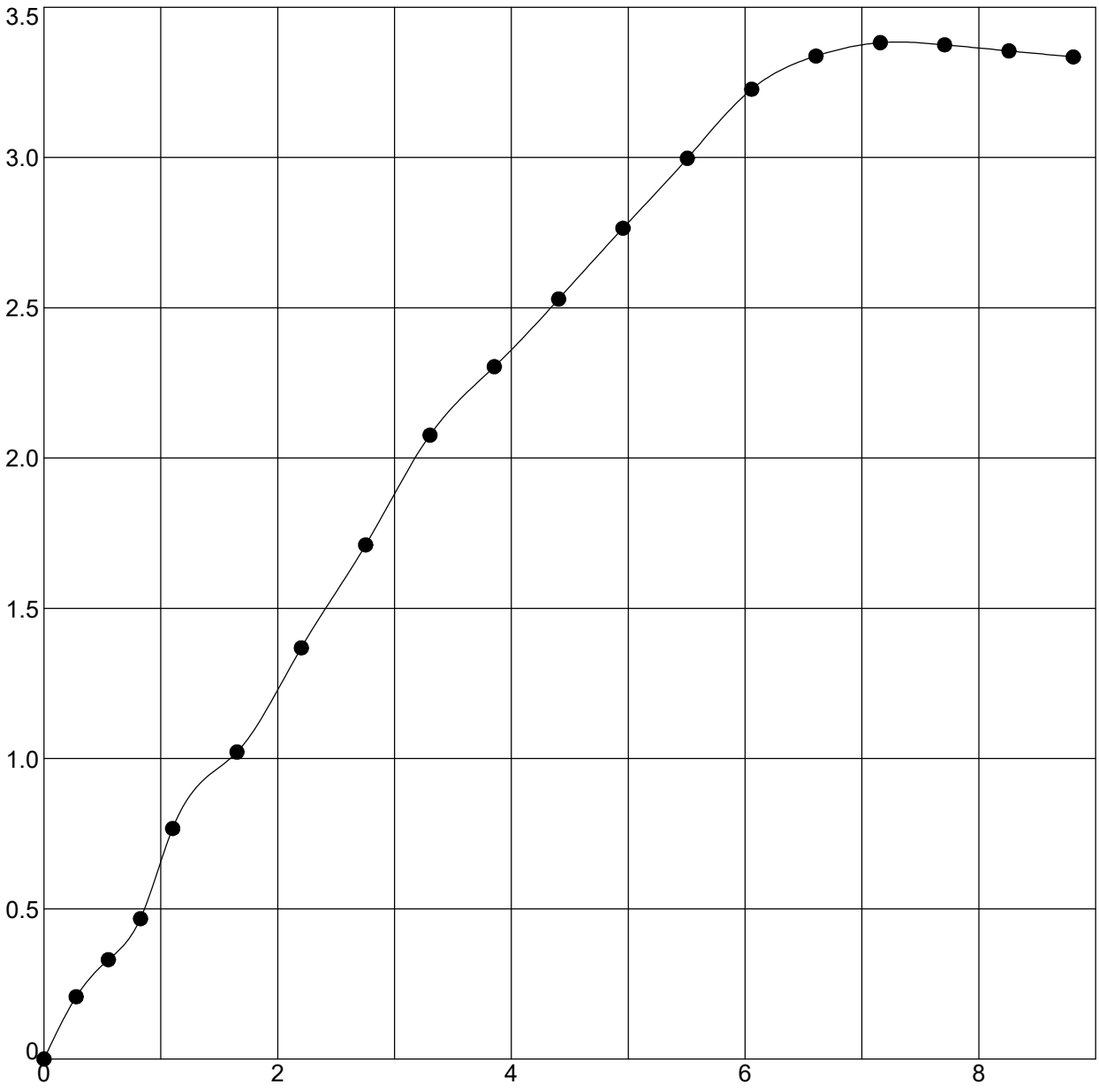

Boring	Sample	Depth	Classification
RB-003	SS-1T	1.3 - 2.8	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.1	135.2	115.4	3.38	1.0	7.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.69	99	0.471	36.65	64.59	1.8

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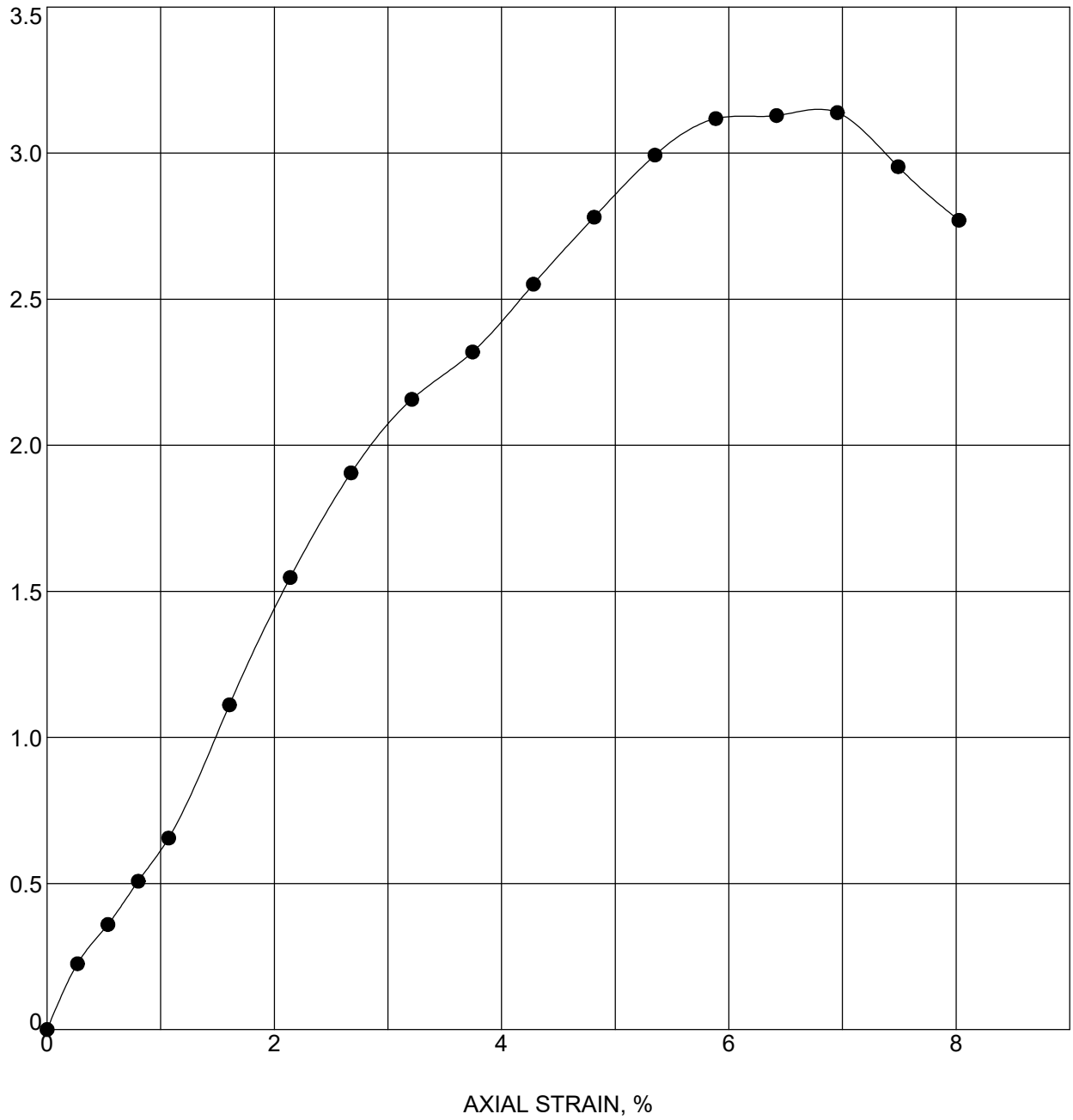
INDOT_UNCONFINED_TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-004	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.7	129.2	108.8	3.14	1.0	7.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.57	91	0.560	35.15	66.47	1.9

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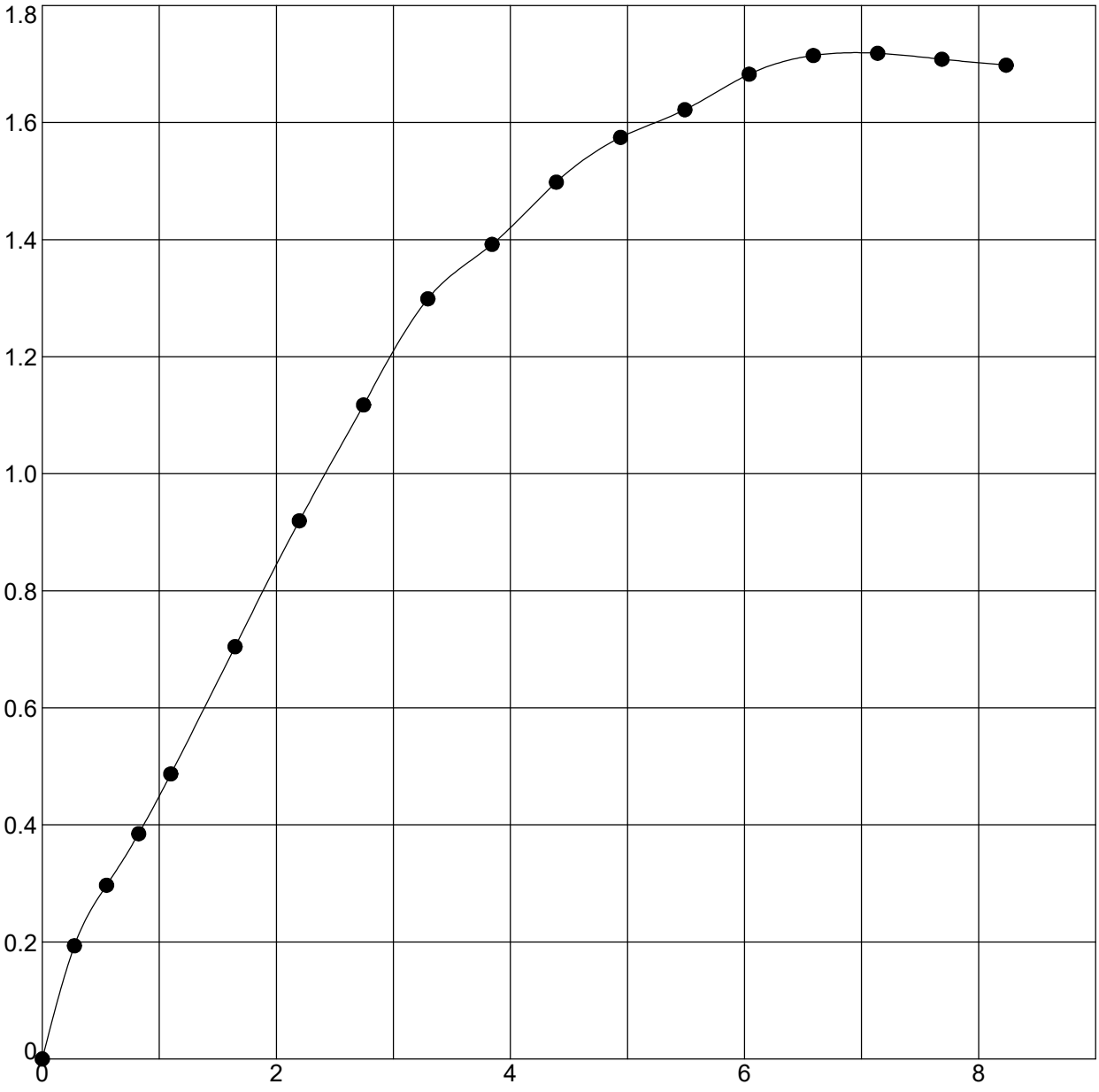

Boring	Sample	Depth	Classification
RB-007	SS-1B	1.6 - 3.1	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.6	128.8	105.9	1.72	1.0	7.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.86	98	0.603	35.31	64.77	1.8

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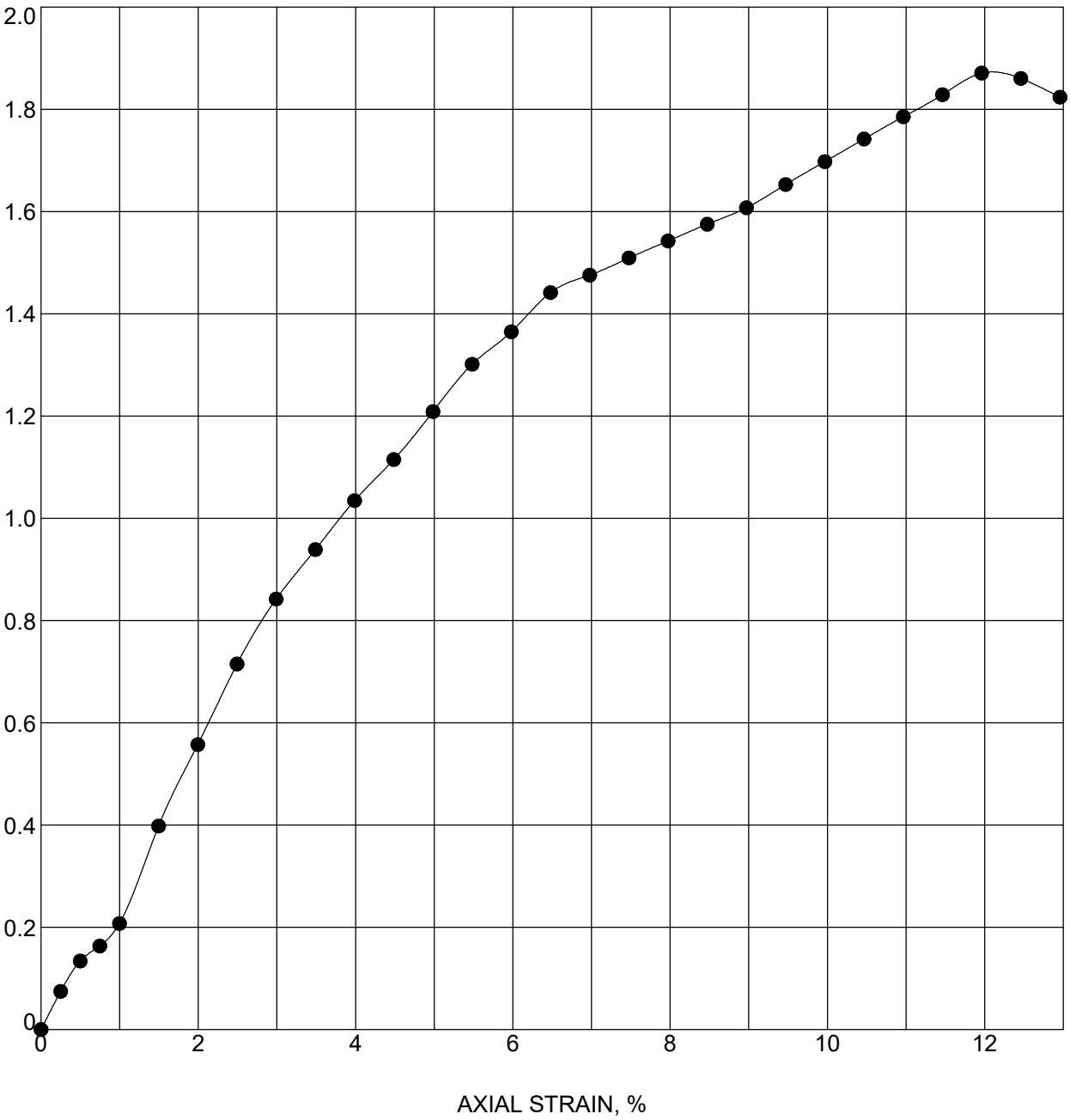

Boring	Sample	Depth	Classification
RB-008	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.1	131.4	112.2	1.87	1.0	12.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.94	91	0.513	35.26	71.35	2.0

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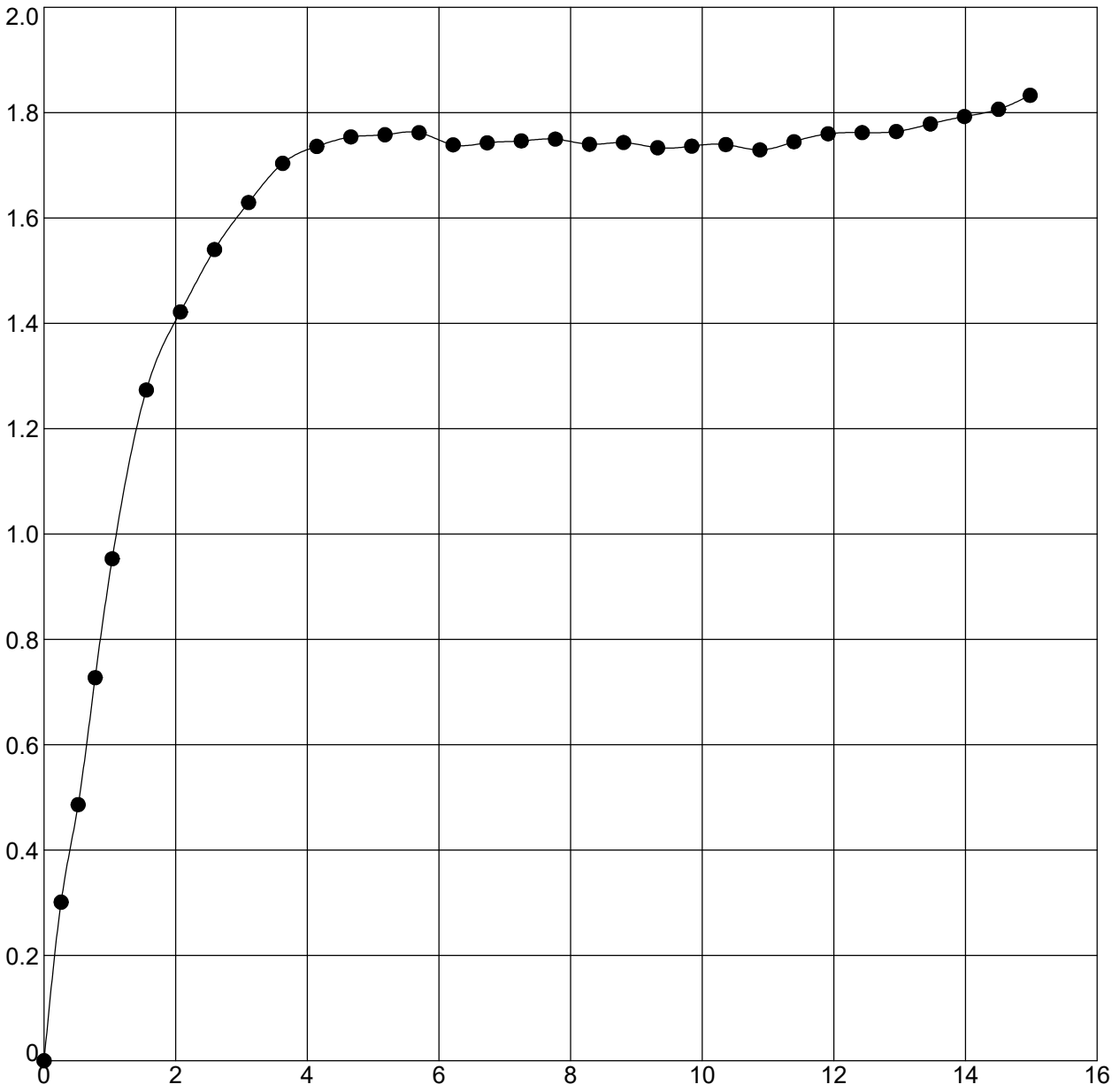

Boring	Sample	Depth	Classification
RB-011	SS-1T	1.2 - 2.7	CLAY A-6 (14)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.3	131.8	108.7	1.83	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.92	100	0.585	35.98	68.66	1.9

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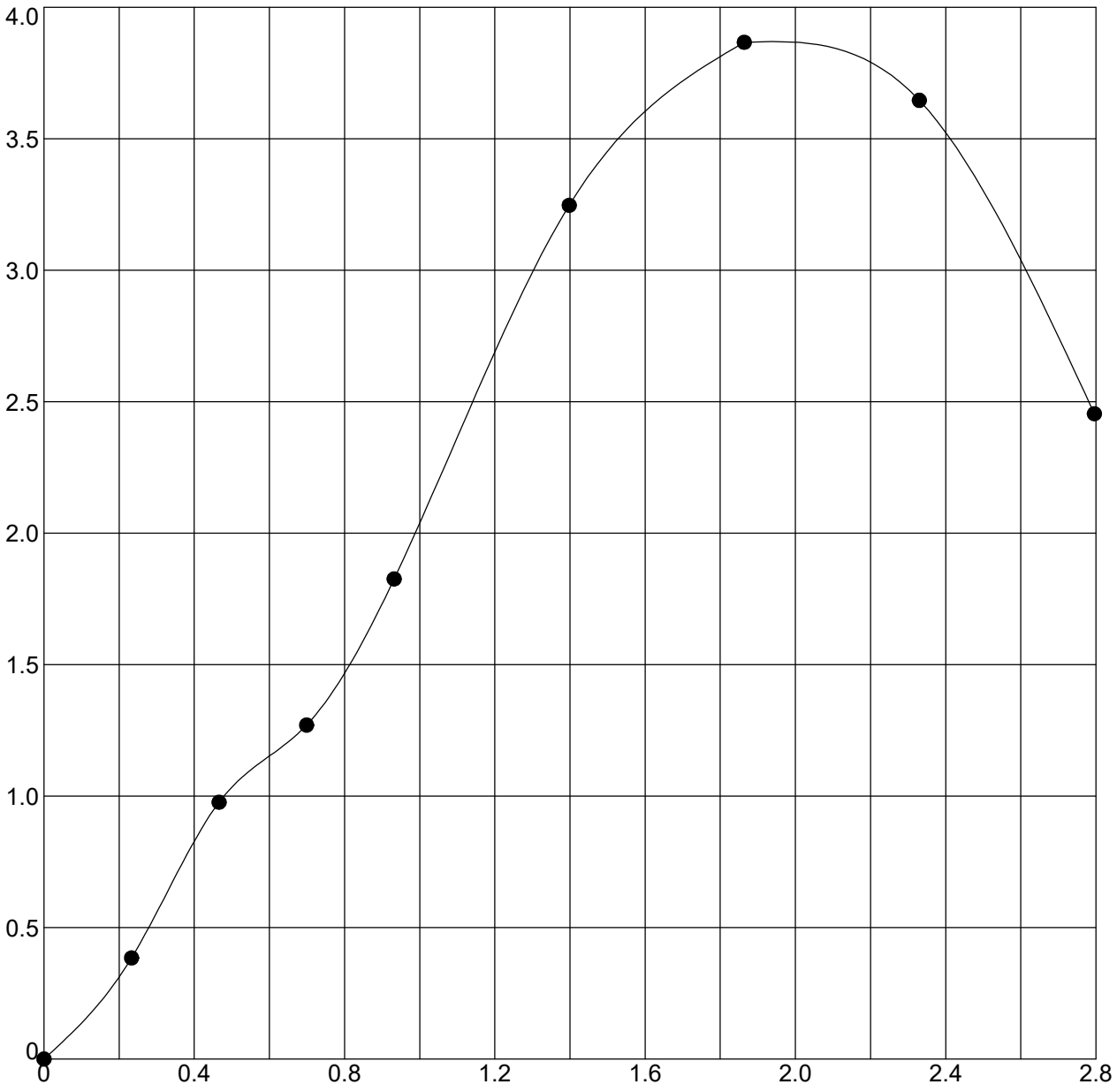

Boring	Sample	Depth	Classification
RB-011A	ST-1	2 - 4	CLAY A-7-6 (17)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.8	129.4	110.8	3.87	0.9	1.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.93	79	0.611	72.87	152.63	2.1

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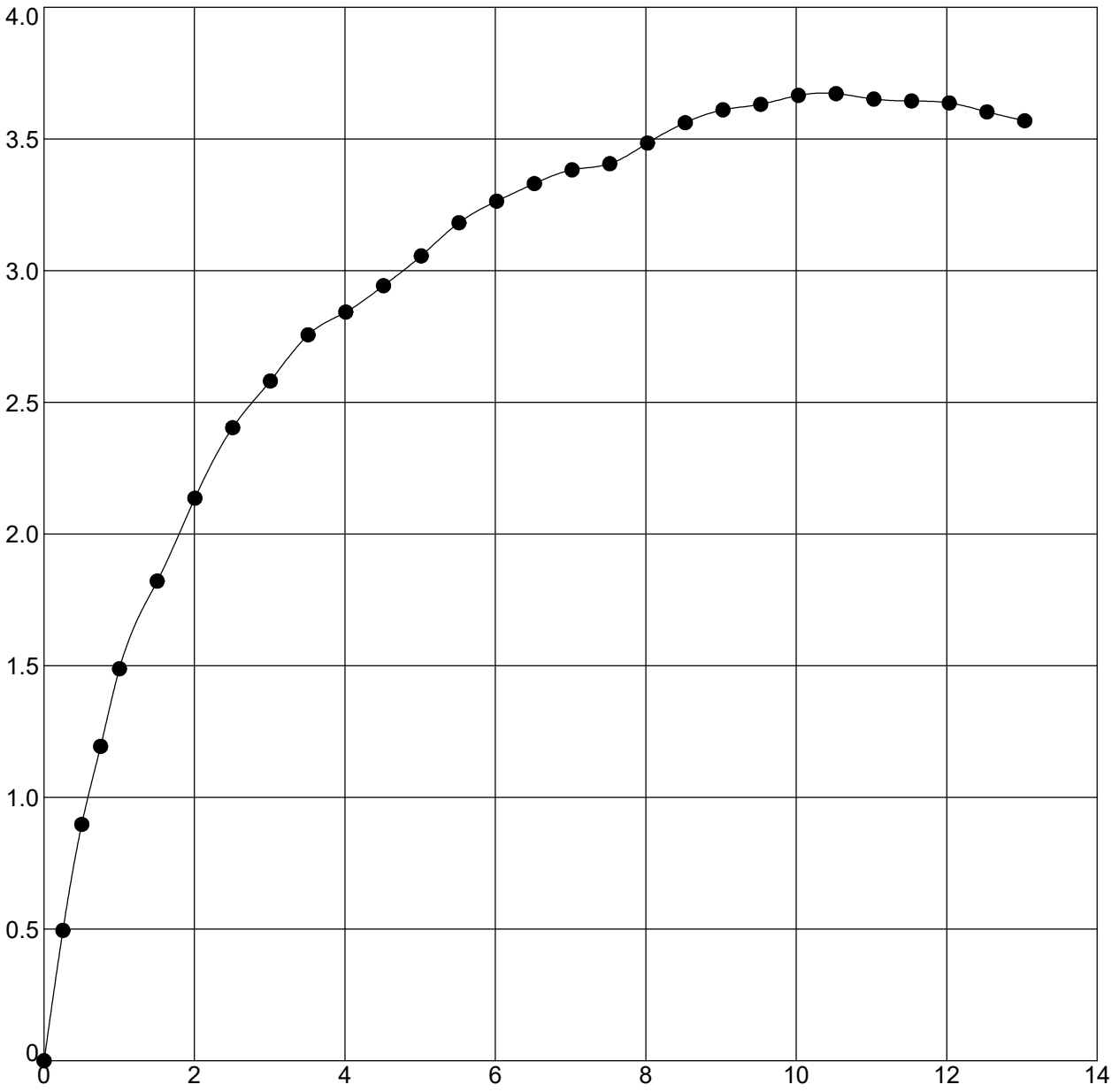

Boring	Sample	Depth	Classification
RB-015	SS-1B	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.2	135.8	115.9	3.67	1.0	10.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.84	100	0.465	35.18	70.92	2.0

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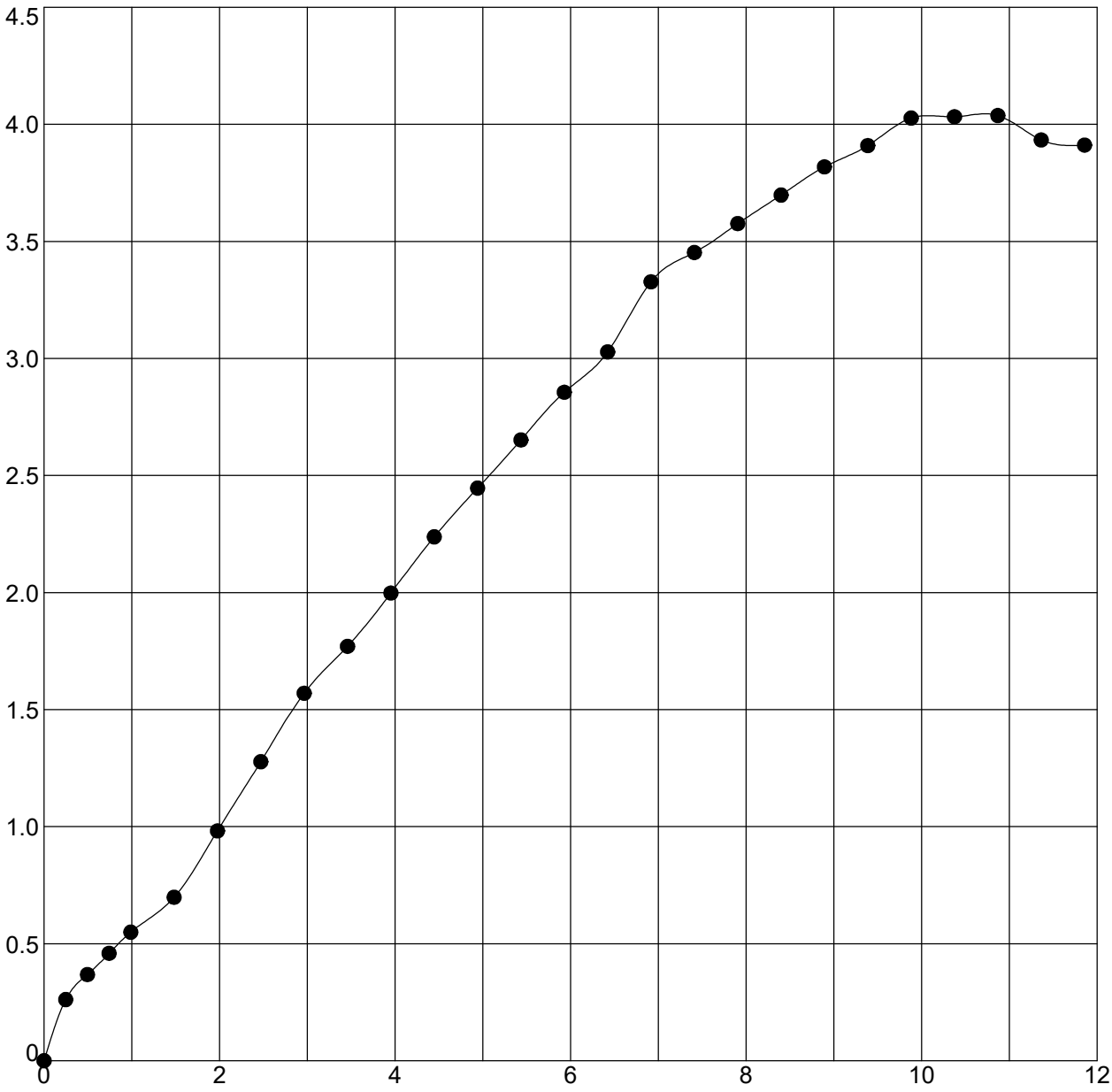

Boring	Sample	Depth	Classification
RB-016	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.1	138.8	121.7	4.04	1.0	10.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.02	97	0.395	34.75	71.98	2.1

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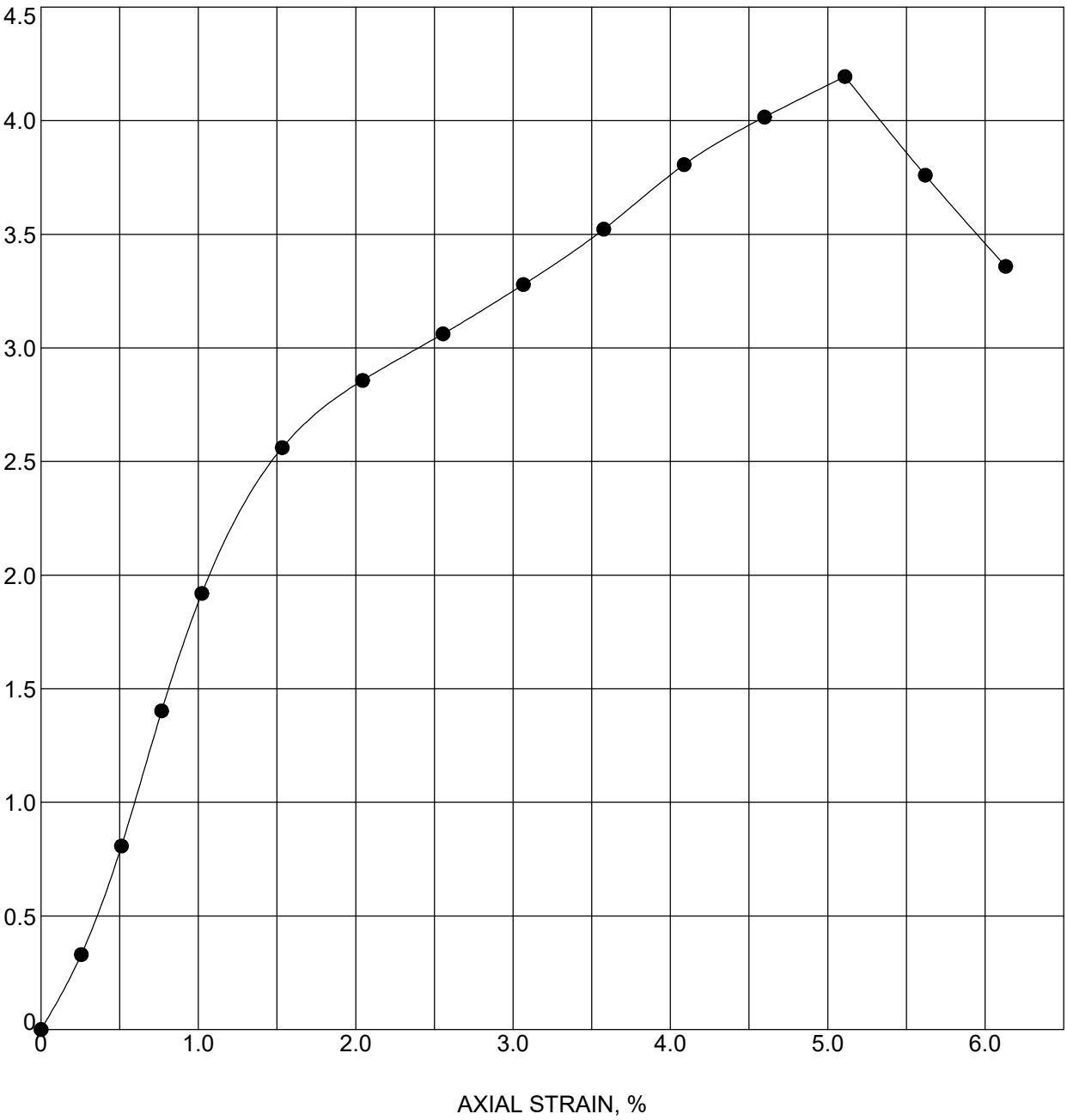

Boring	Sample	Depth	Classification
RB-023	SS-1	1.3 - 2.8	CLAY A-6 (11)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.6	131.4	113.7	4.19	1.0	5.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.10	78	0.570	35.18	69.6	2.0

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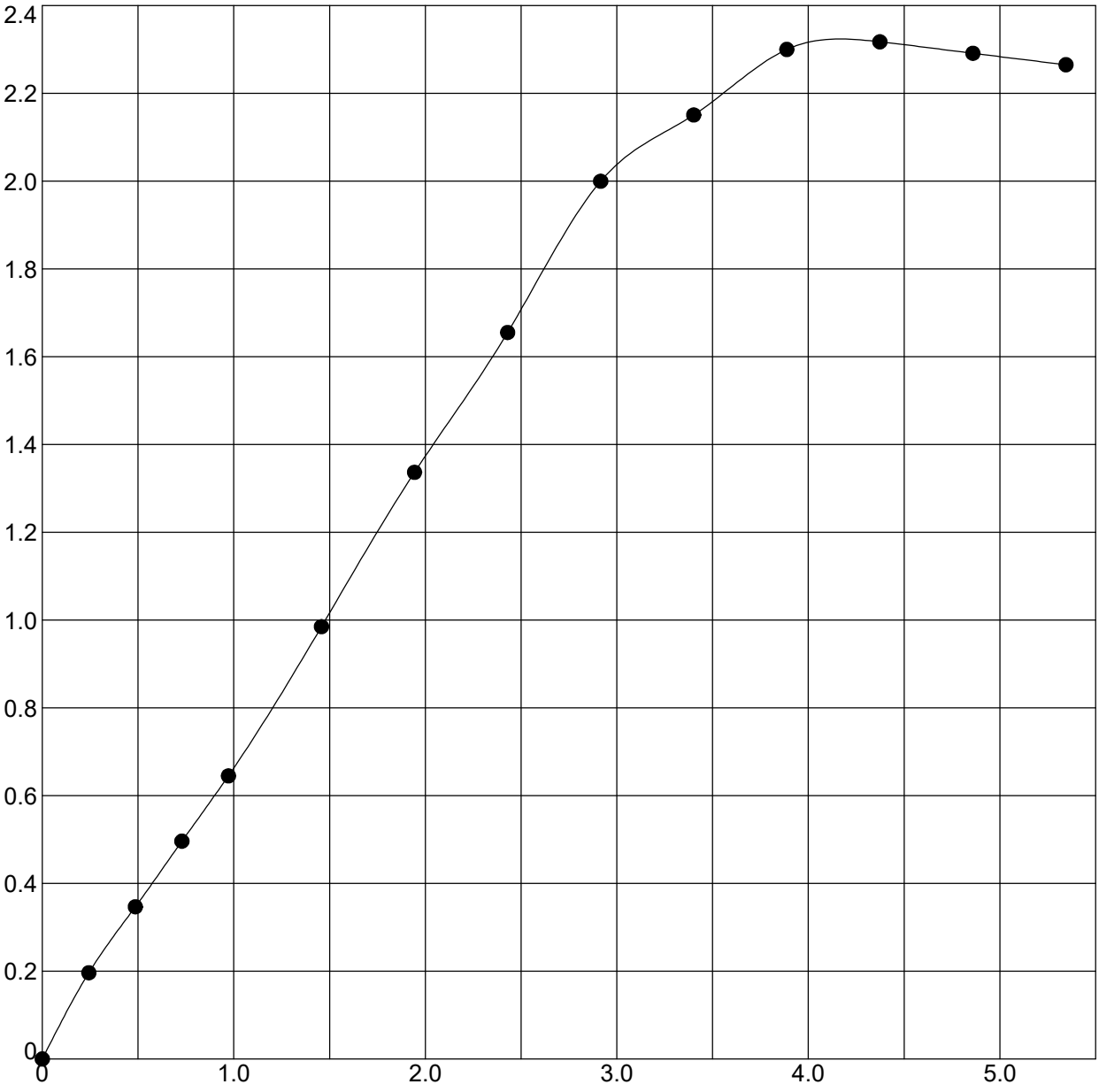

Boring	Sample	Depth	Classification
RB-024	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.0	129.4	109.7	2.32	1.0	4.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.16	89	0.548	35.05	73.18	2.1

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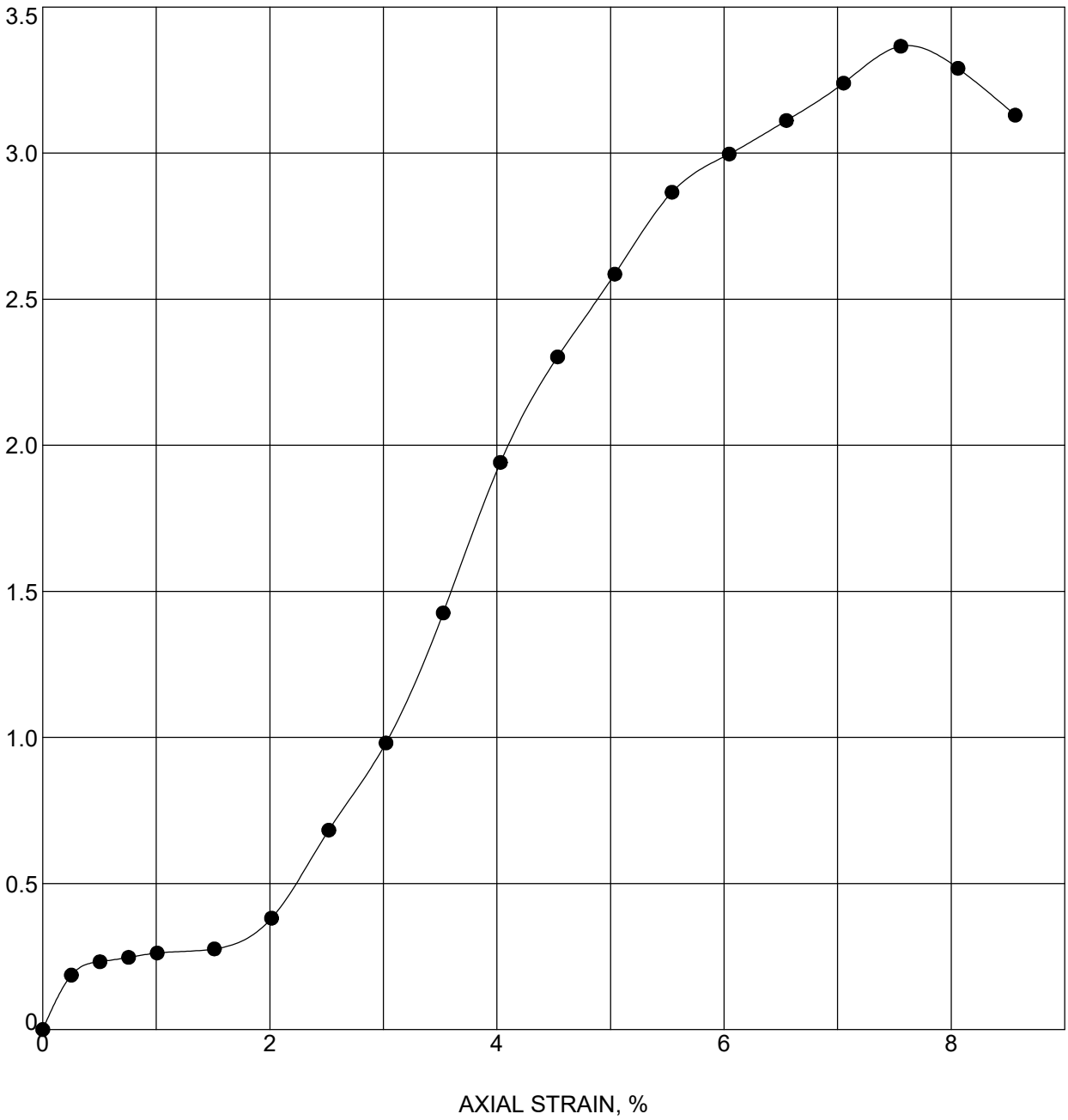

Boring	Sample	Depth	Classification
RB-026	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.8	136.2	116.6	3.37	1.0	7.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.68	100	0.455	34.58	70.59	2.0

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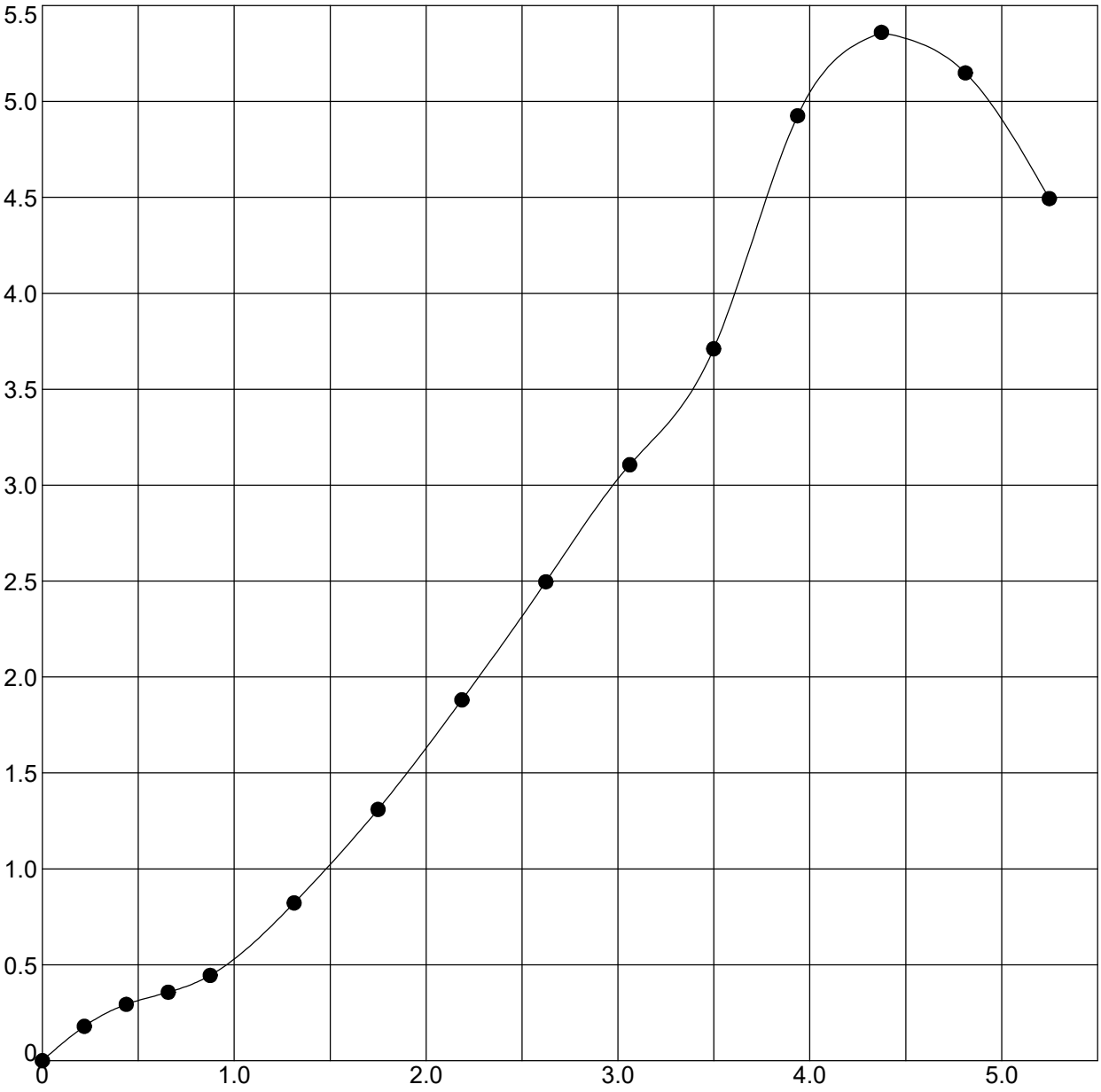

Boring	Sample	Depth	Classification
RB-037	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.0	136.6	118.8	5.36	1.0	4.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.68	95	0.429	38.1	81.31	2.1

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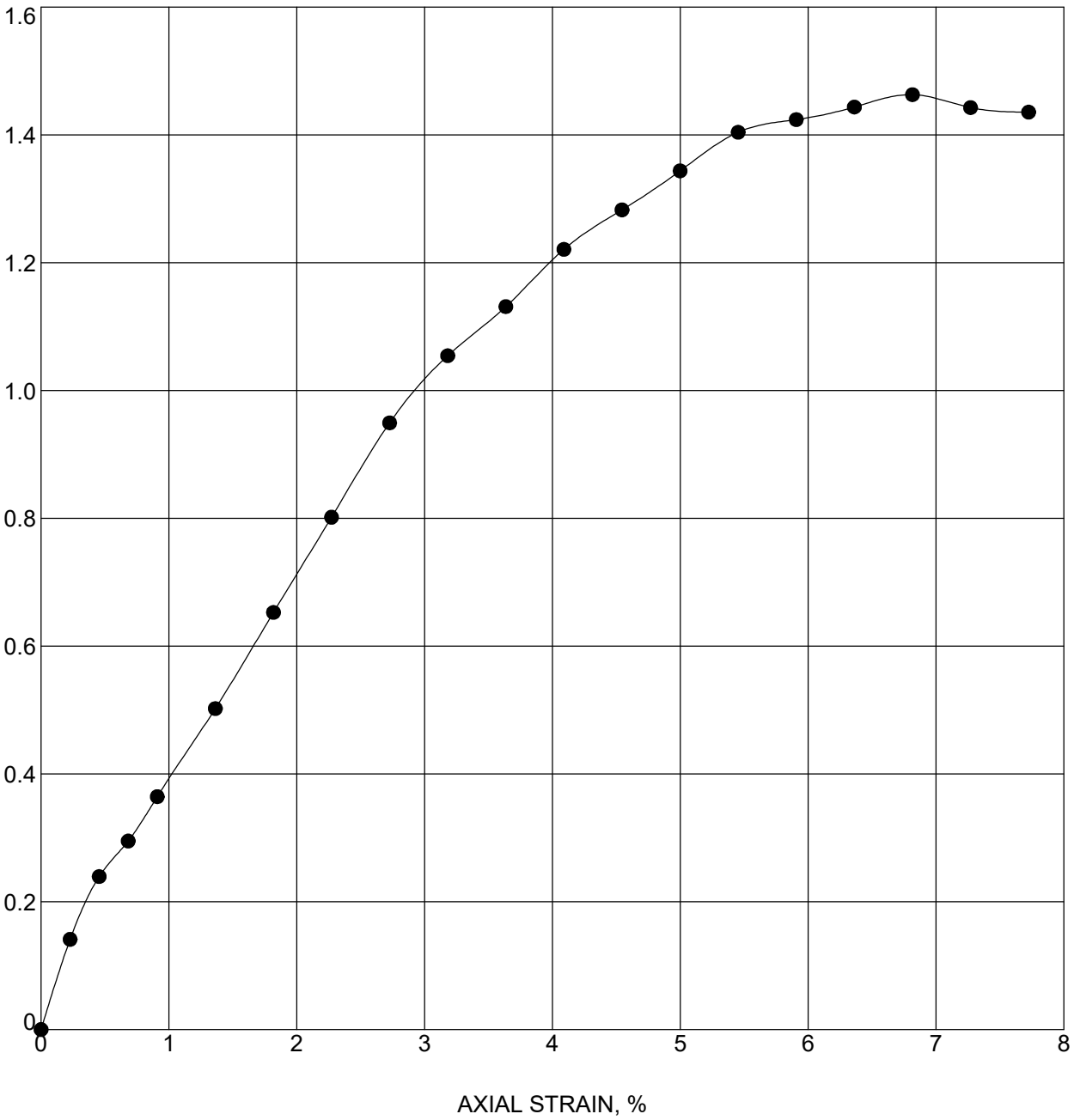

Boring	Sample	Depth	Classification
RB-040	SS-1T	1.1 - 2.6	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.9	123.9	100.8	1.46	1.0	6.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.73	91	0.684	36.27	78.26	2.2

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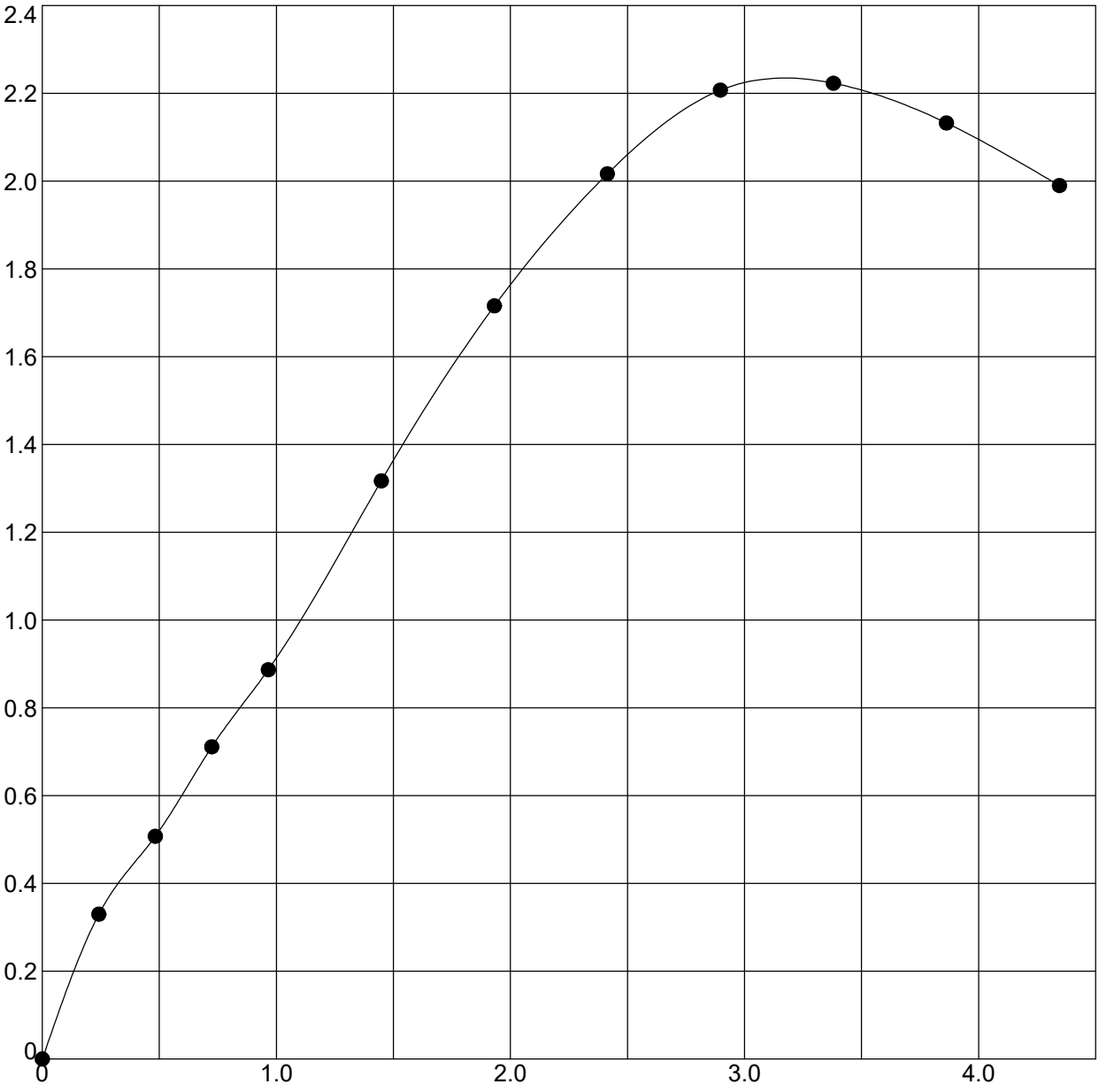
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-043	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.2	133.5	113.0	2.22	1.0	3.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.11	99	0.503	36.75	73.65	2.0

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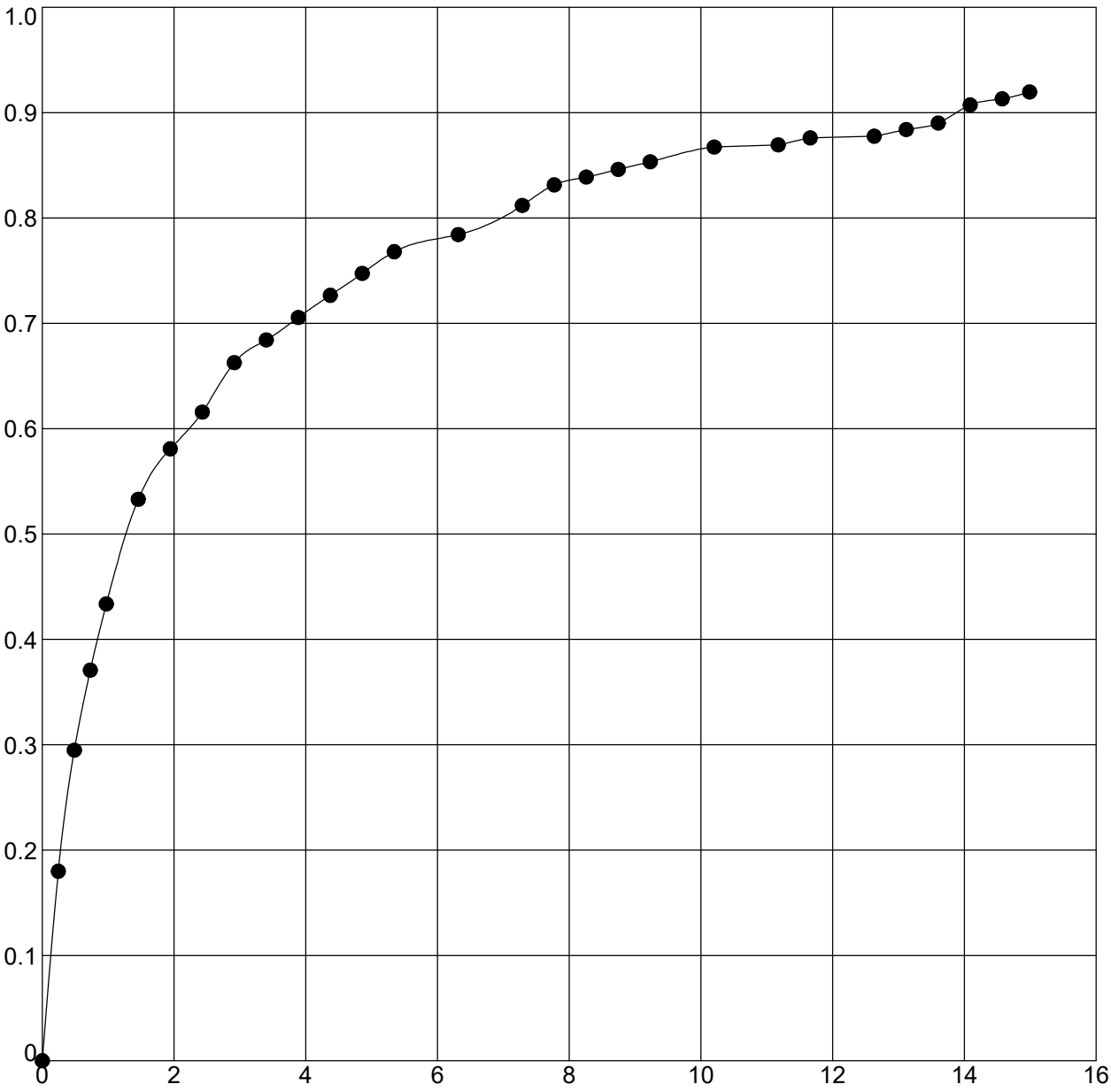

Boring	Sample	Depth	Classification
RB-046	SS-2B	2.8 - 4.3	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.6	128.9	105.2	0.92	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.46	100	0.614	38.01	73.2	1.9

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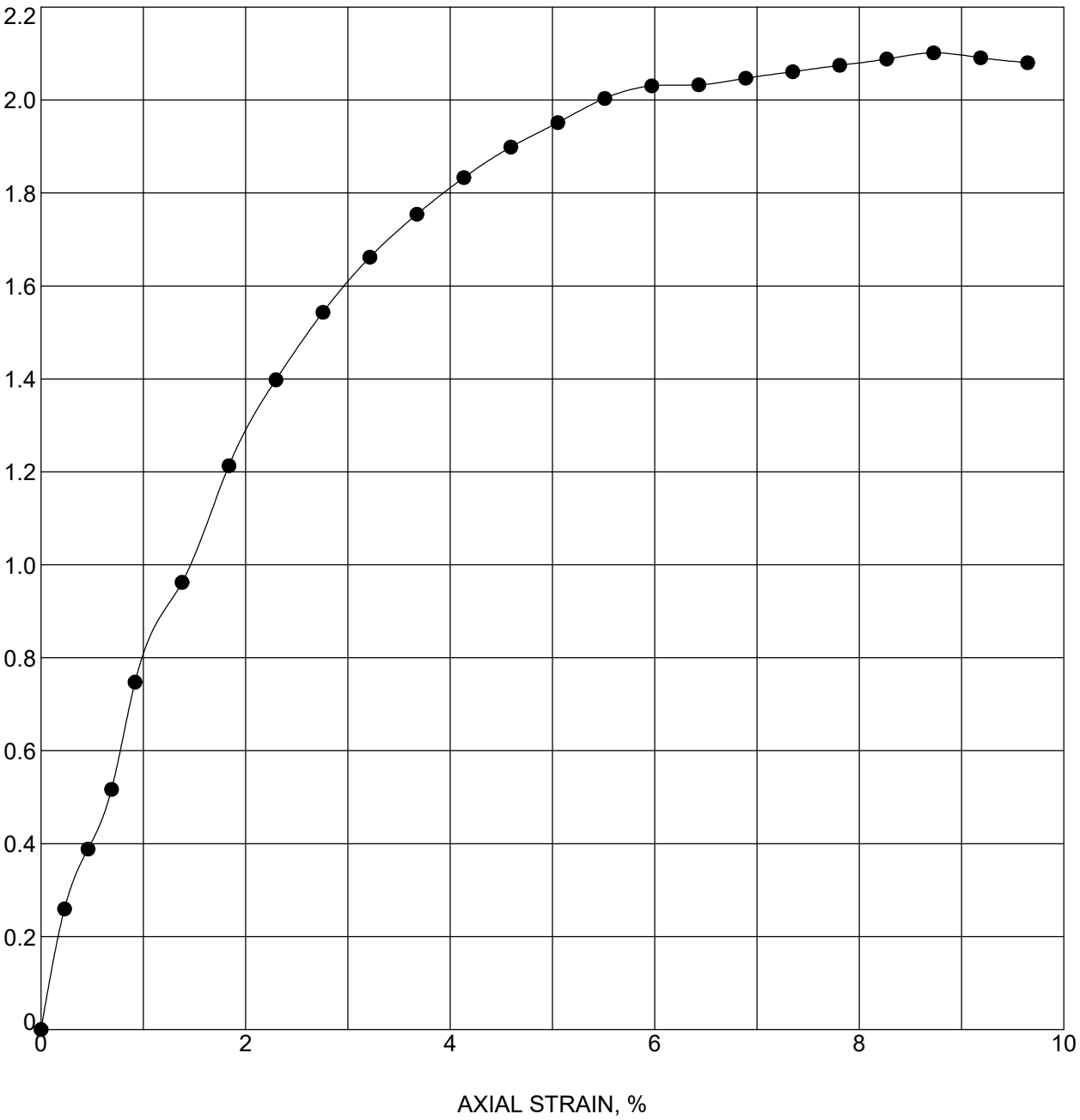

Boring	Sample	Depth	Classification
RB-055	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	122.3	100.9	2.10	1.0	8.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.05	84	0.682	37.82	77.42	2.0

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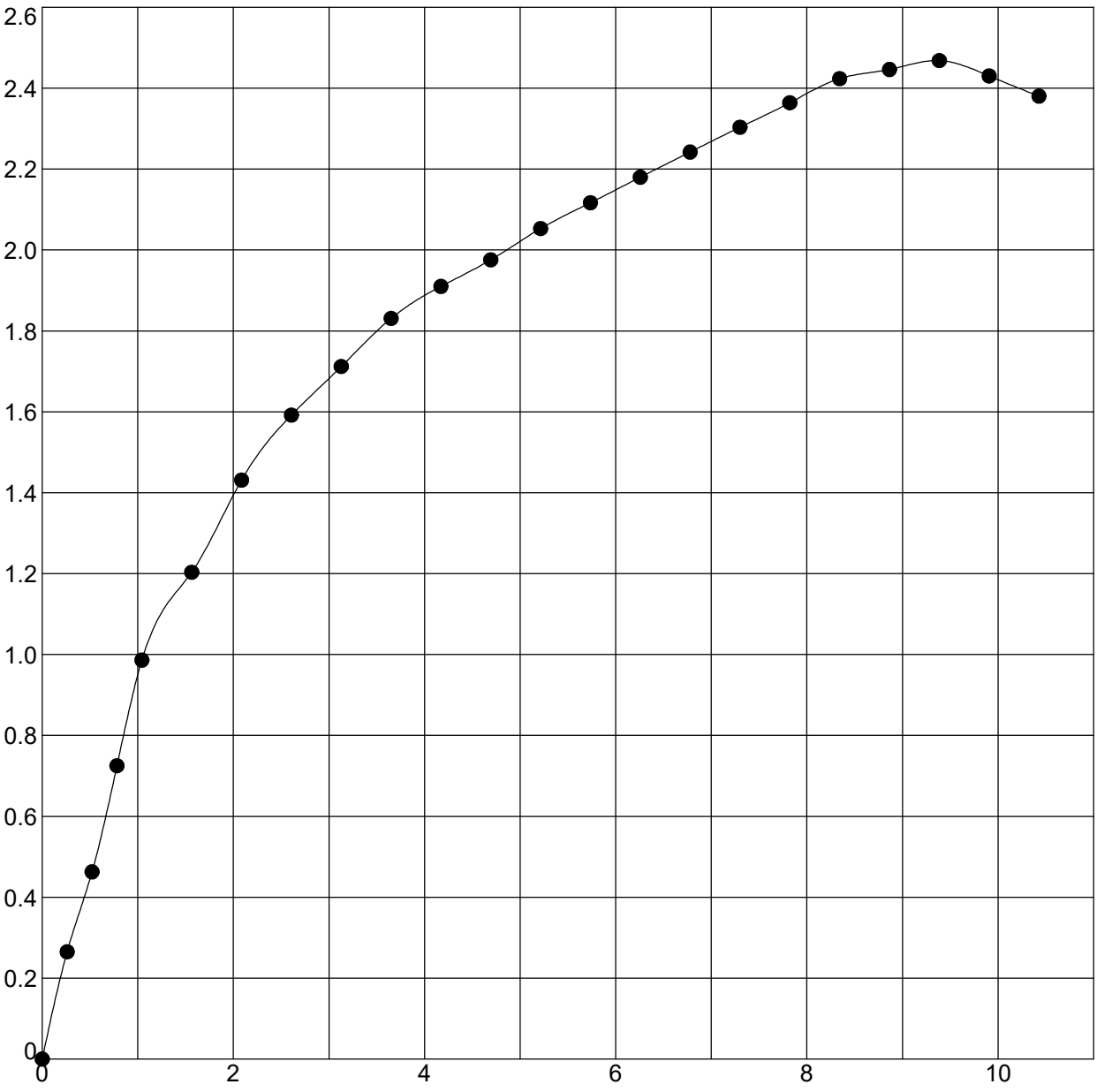

Boring	Sample	Depth	Classification
RB-060	SS-1T	0.8 - 2.3	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.8	115.1	95.3	2.47	1.0	9.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.23	72	0.782	37.42	68.2	1.8

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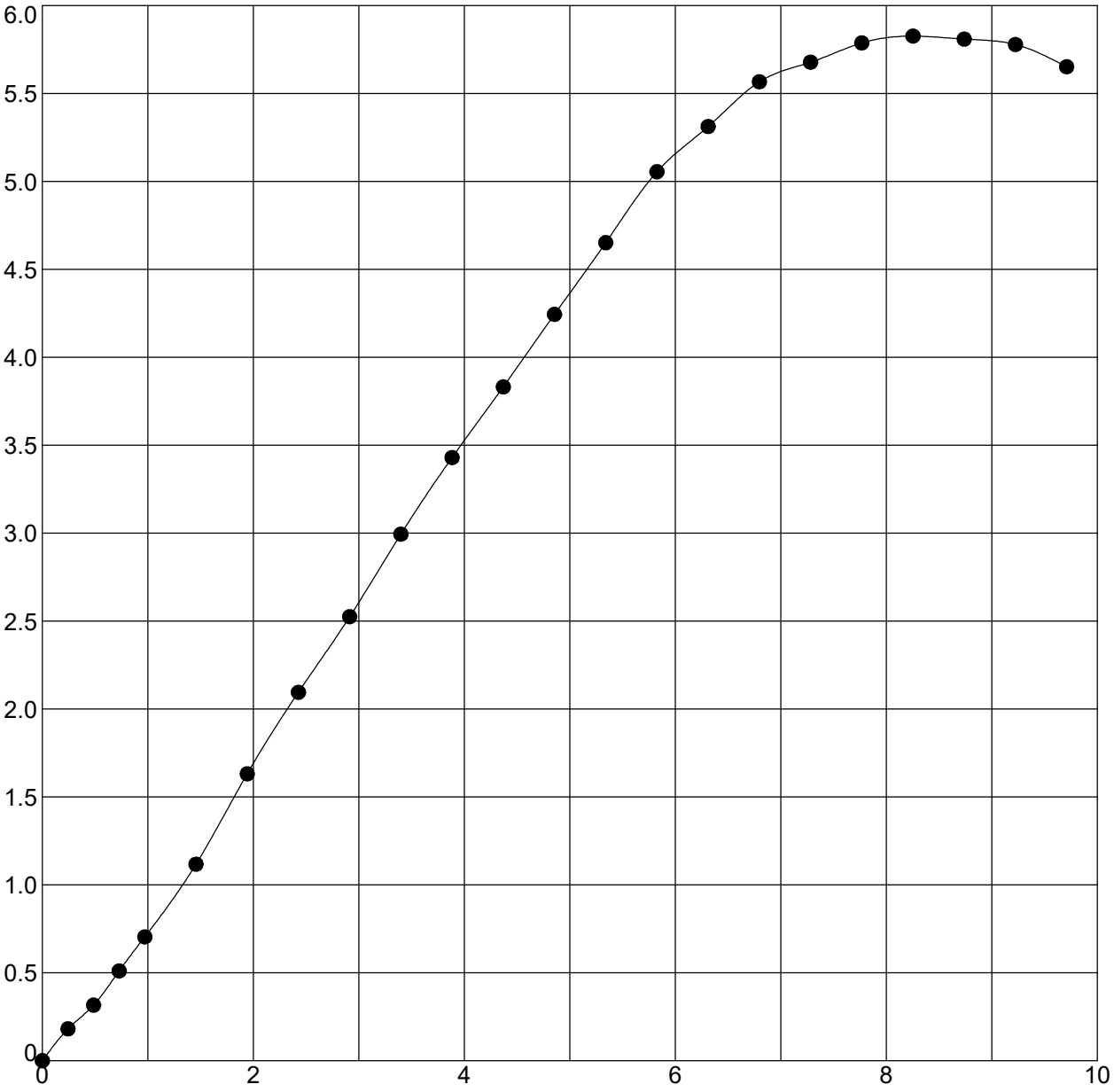

Boring	Sample	Depth	Classification
RB-061	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.4	133.8	115.9	5.83	1.0	8.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.91	90	0.464	35.08	73.25	2.1

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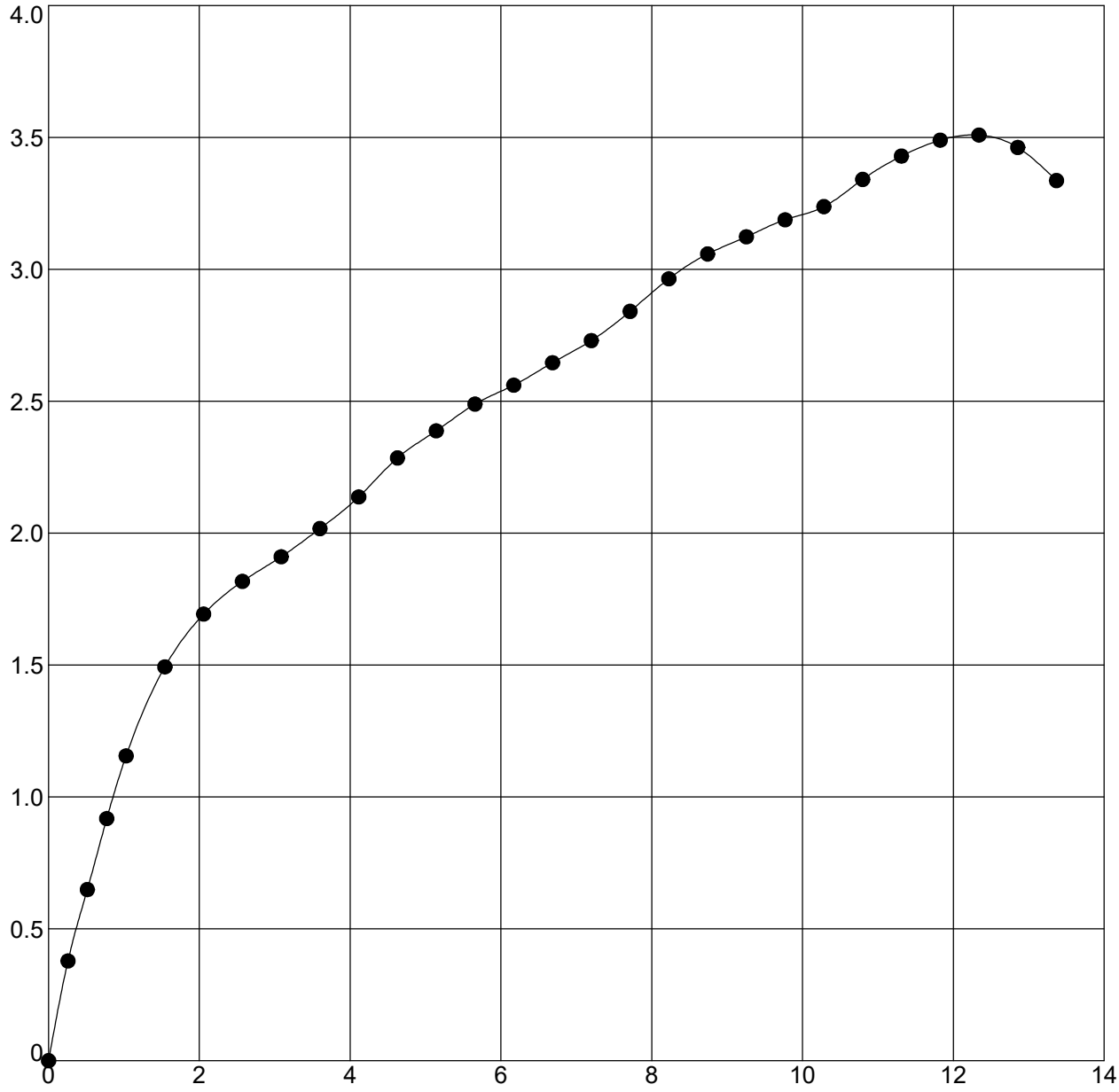

Boring	Sample	Depth	Classification
RB-062	SS-1B	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.5	132.6	115.8	3.51	1.0	12.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.75	84	0.465	35.03	69.16	2.0

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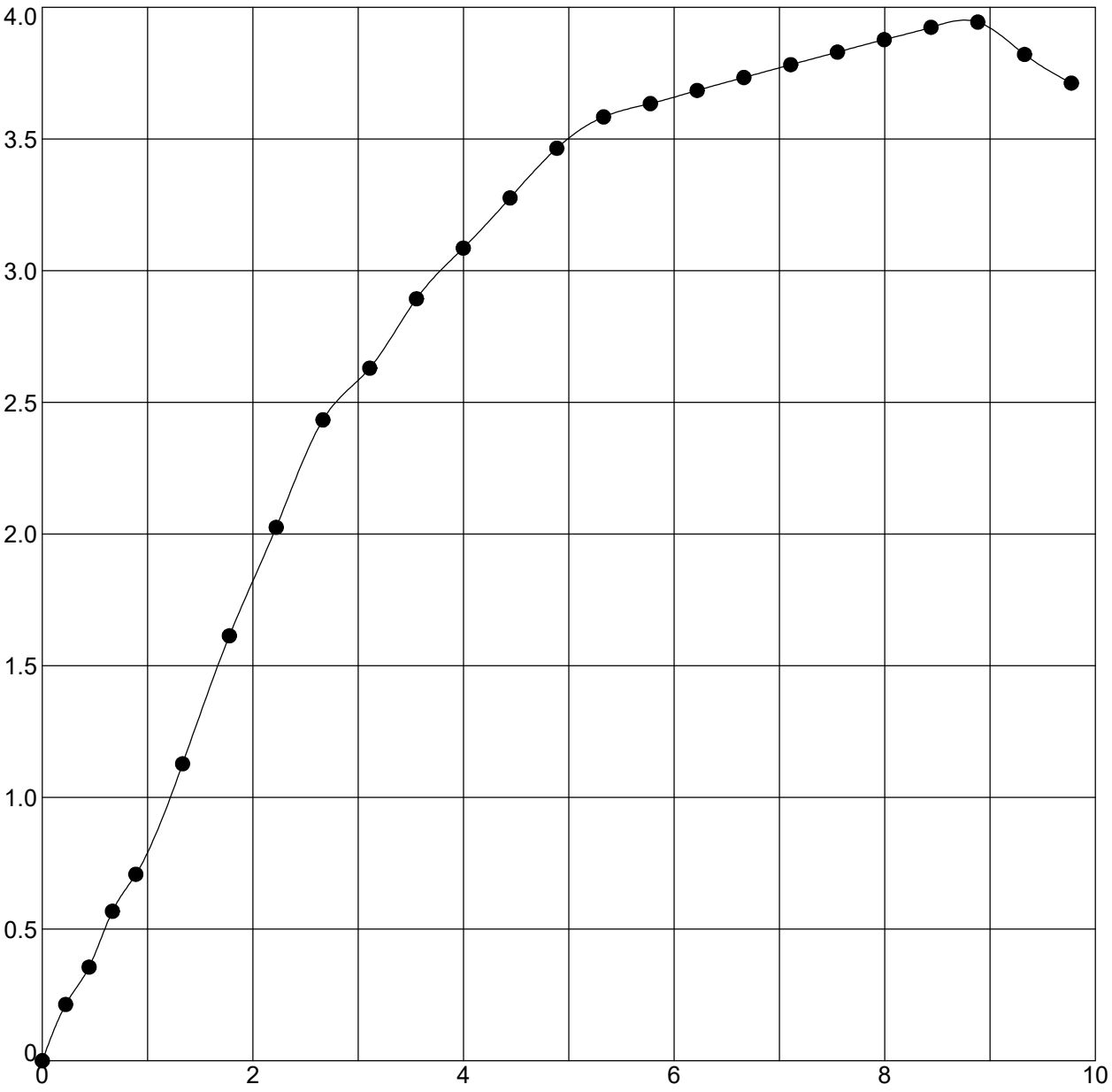

Boring	Sample	Depth	Classification
RB-063	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.7	131.8	113.9	3.94	1.0	8.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.97	87	0.490	36.09	80.06	2.2

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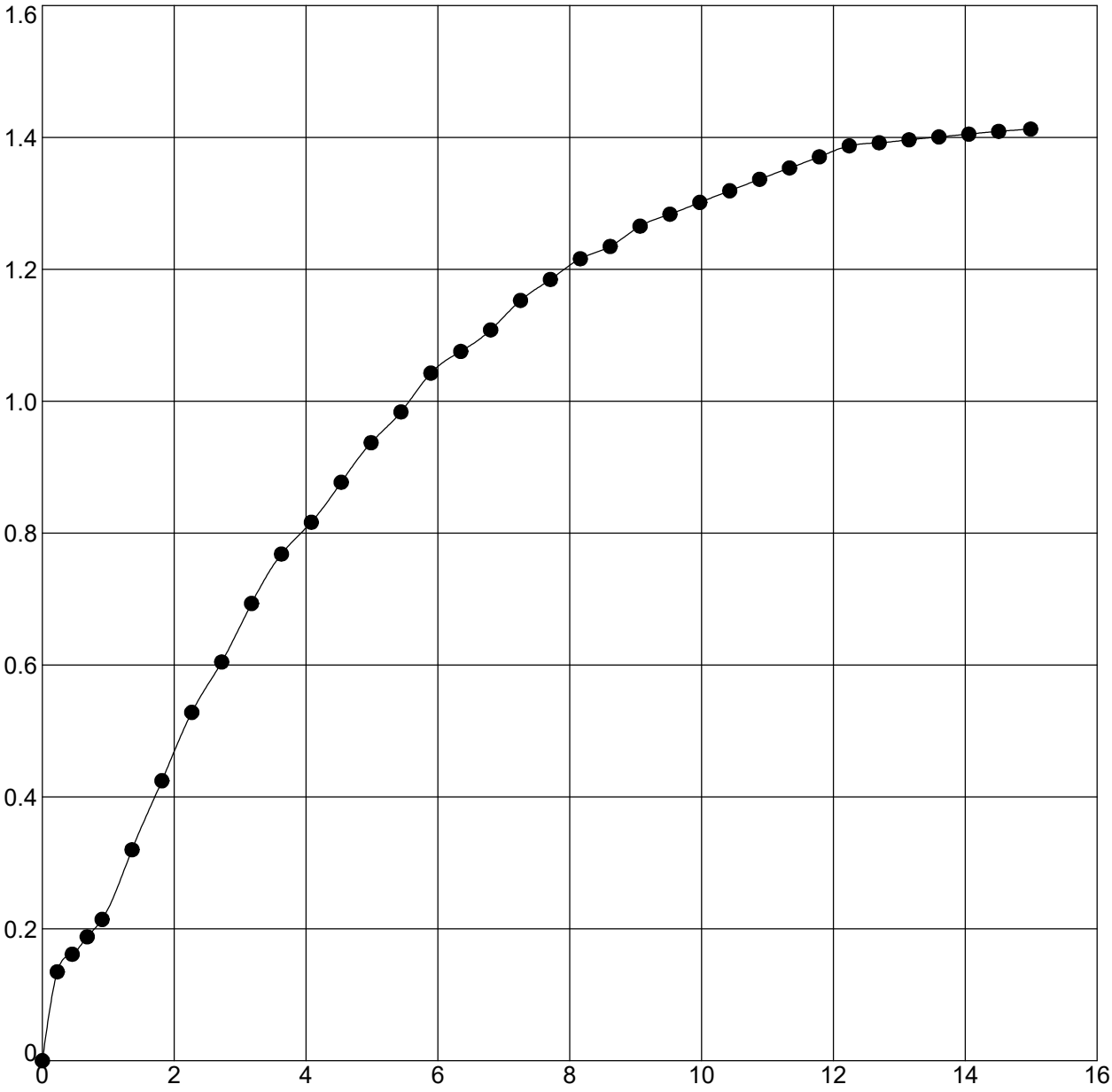

Boring	Sample	Depth	Classification
RB-065	SS-2	3.5 - 5	CLAY LOAM A-4 (3)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.8	133.9	114.7	1.41	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.71	97	0.469	37.11	78.44	2.1

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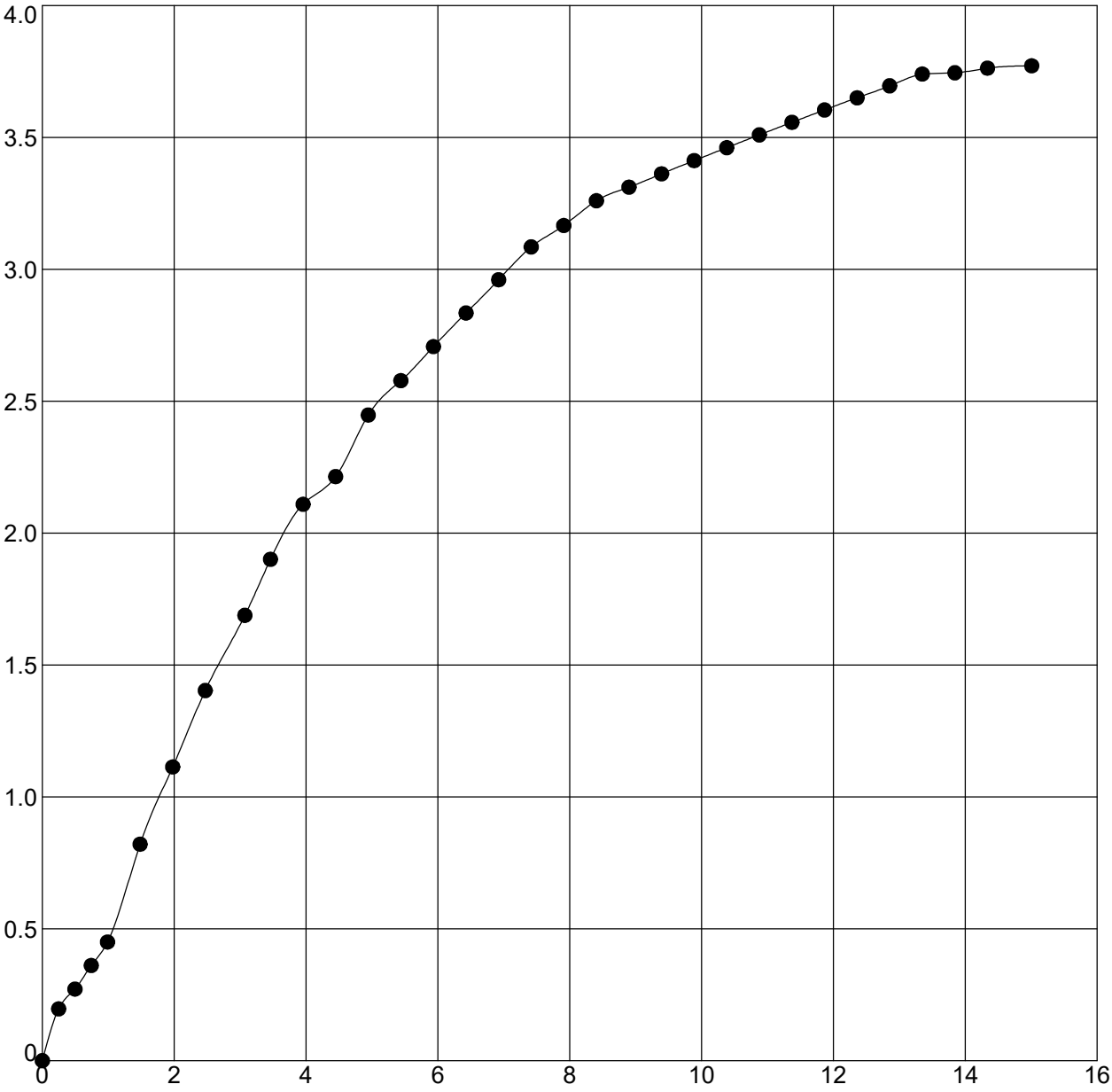

Boring	Sample	Depth	Classification
RB-067	SS-2B	3.5 - 5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.2	133.4	113.9	3.77	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.89	95	0.491	35.05	71.93	2.1

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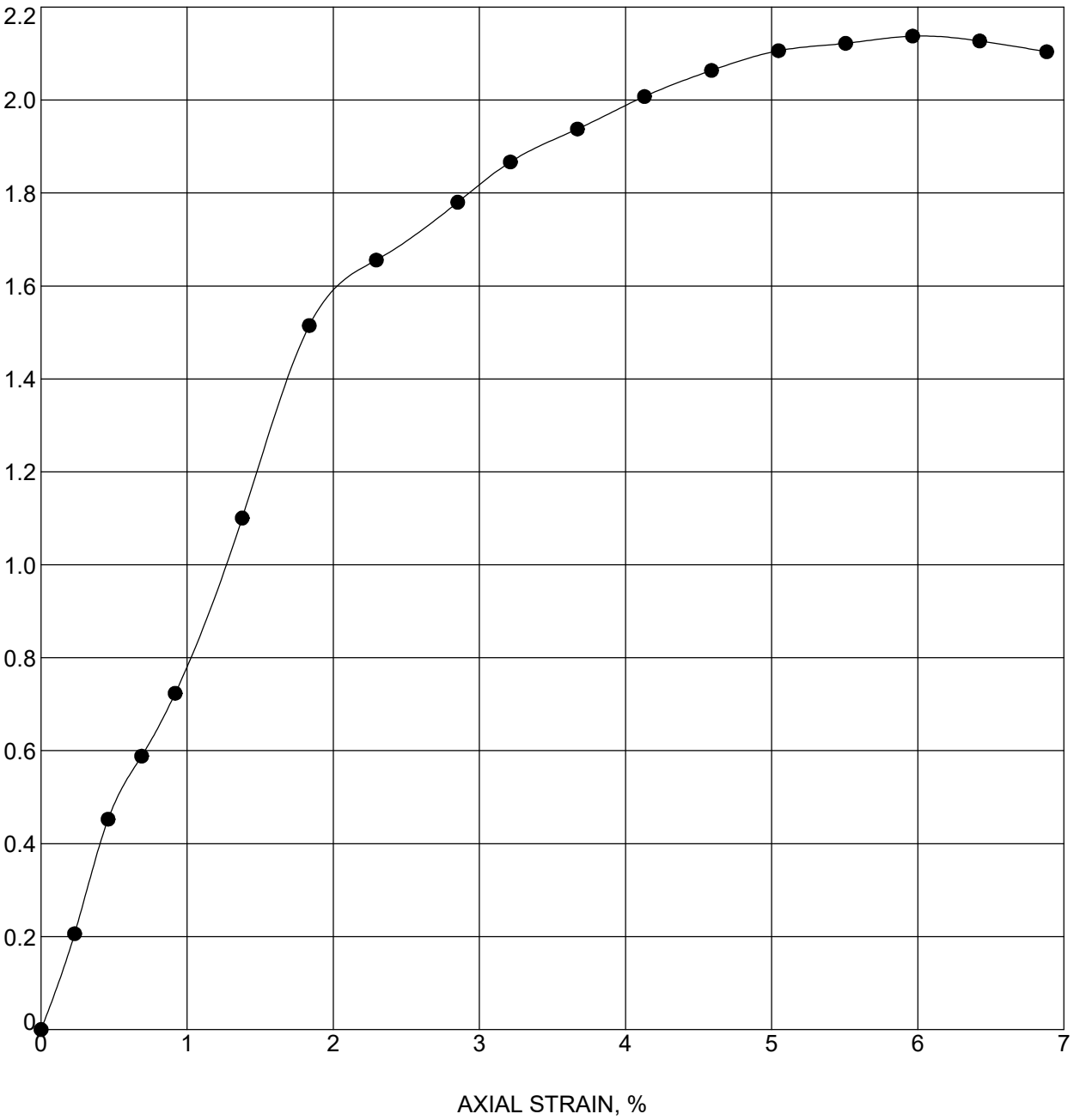

Boring	Sample	Depth	Classification
RB-069	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.3	127.1	103.9	2.14	1.0	6.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.07	96	0.633	36.75	77.5	2.1

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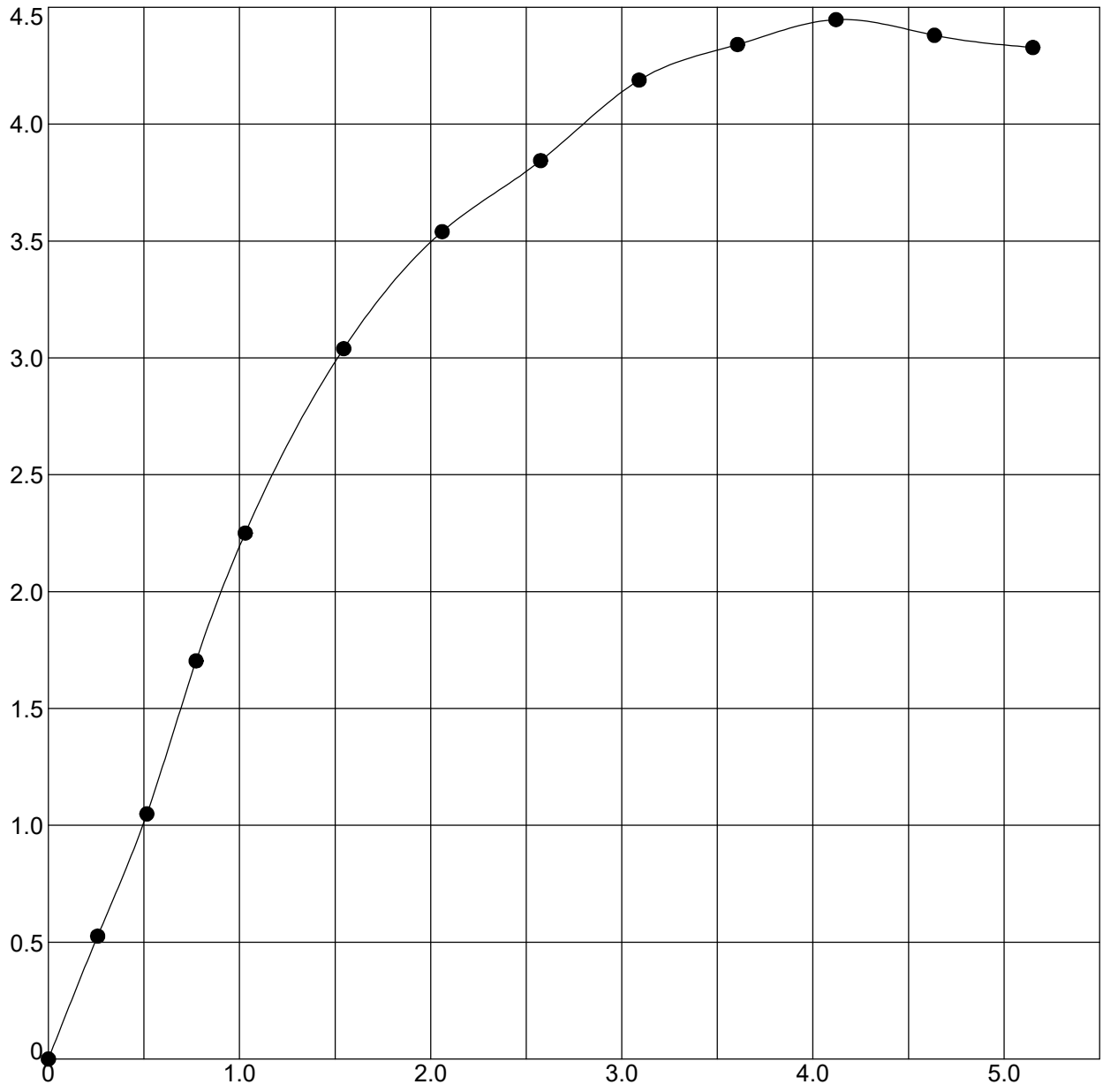

Boring	Sample	Depth	Classification
RB-070	SS-1T	1.3 - 2.8	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.4	124.3	108.7	4.45	1.0	4.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.22	70	0.562	35.15	69.04	2.0

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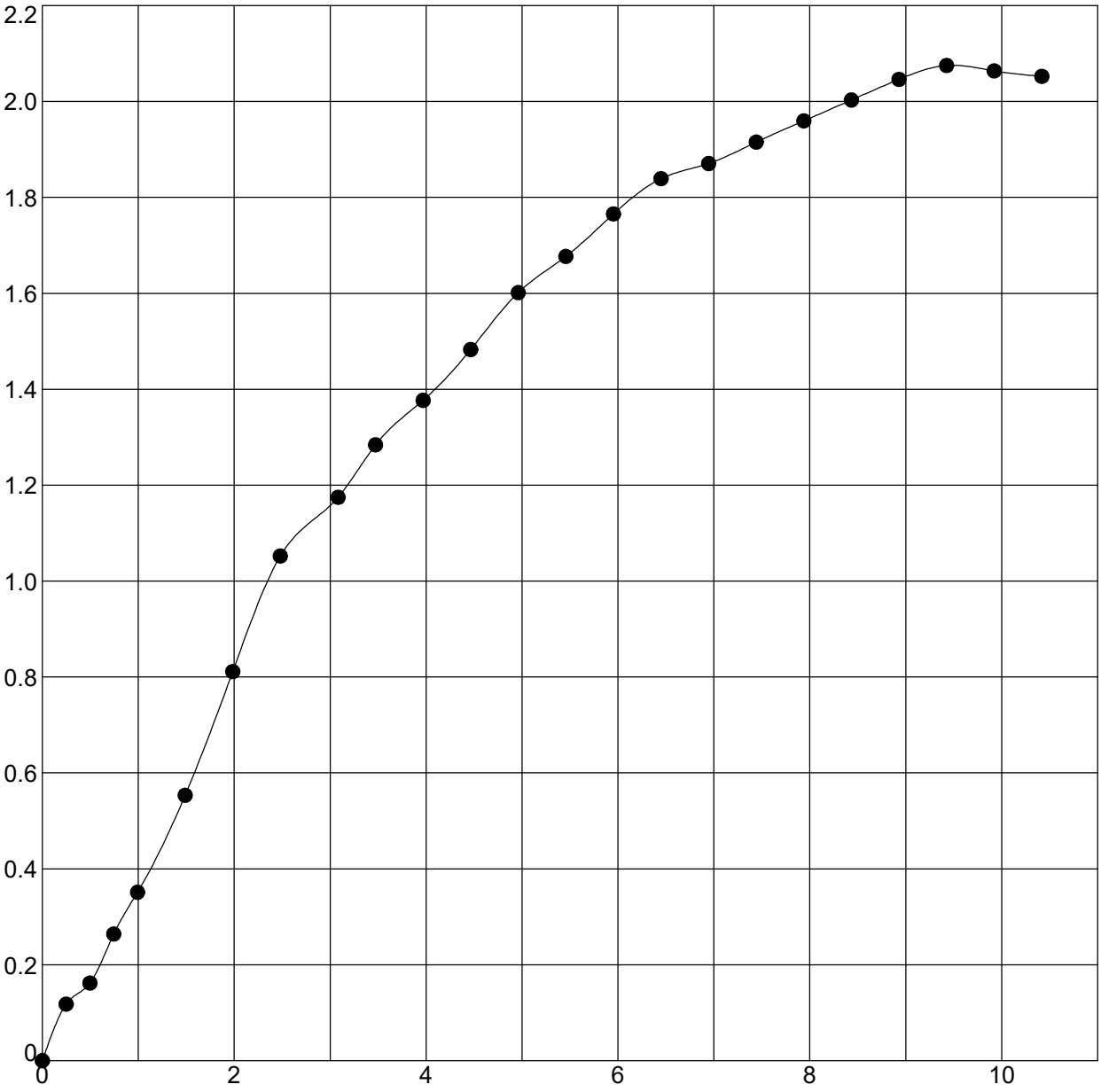

Boring	Sample	Depth	Classification
RB-071	SS-2T	3.5 - 5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	127.1	104.9	2.08	1.0	9.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.04	93	0.618	35.48	71.68	2.0

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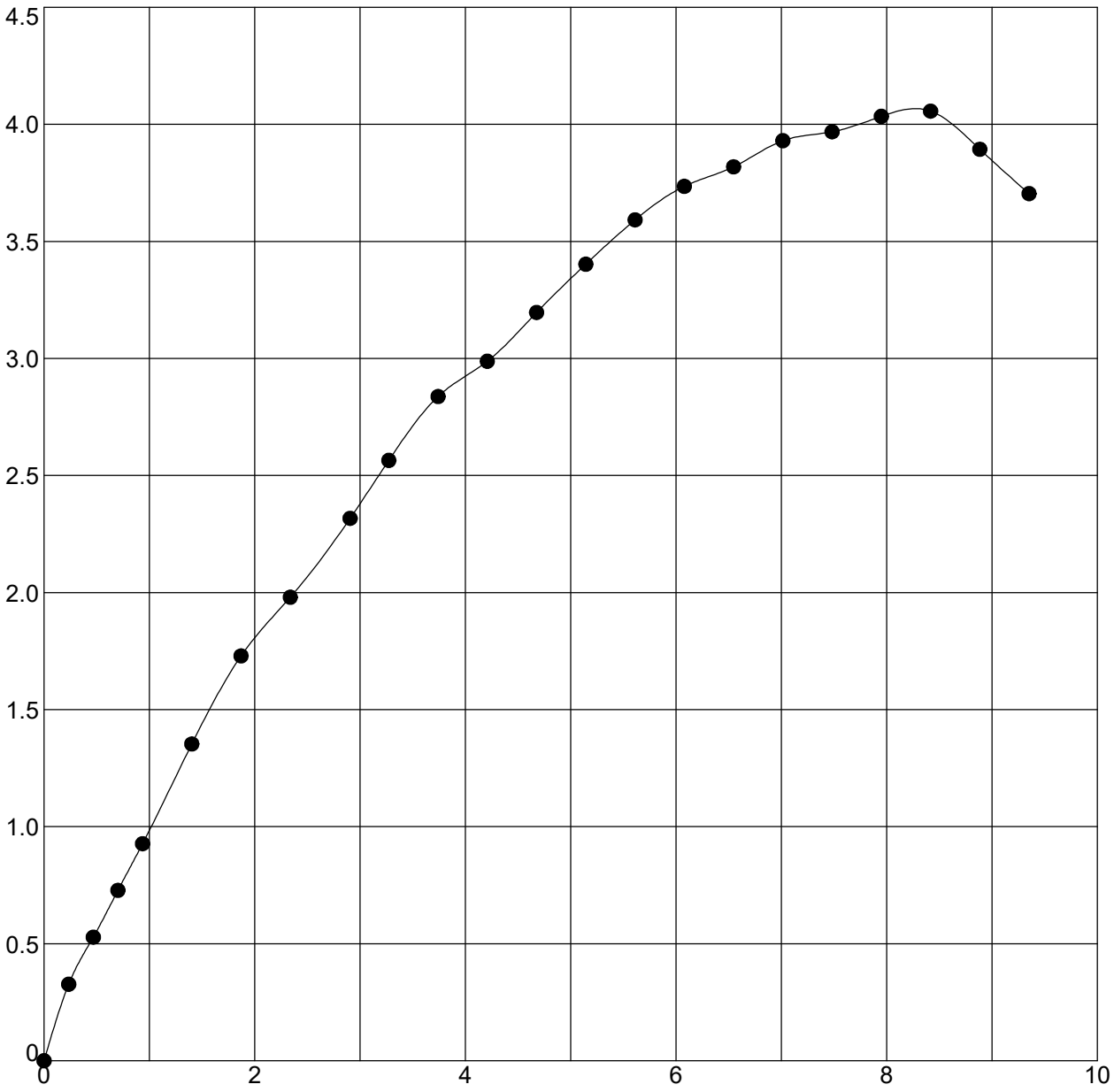

Boring	Sample	Depth	Classification
RB-073	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.8	130.8	111.1	4.06	1.0	8.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.03	92	0.528	34.54	76.05	2.2

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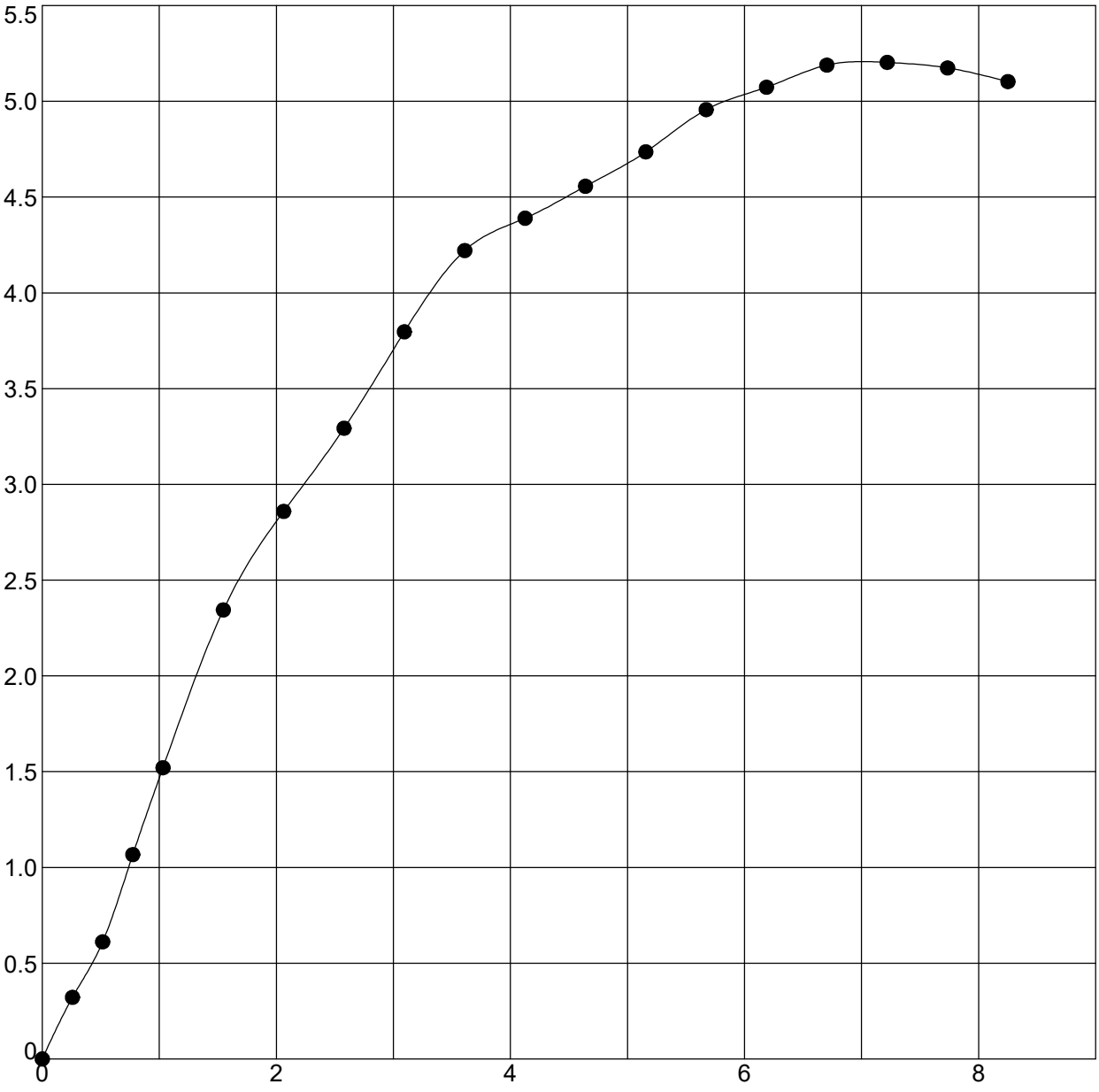

Boring	Sample	Depth	Classification
RB-077	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.6	132.0	111.4	5.20	1.0	7.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.60	96	0.524	34.8	68.96	2.0

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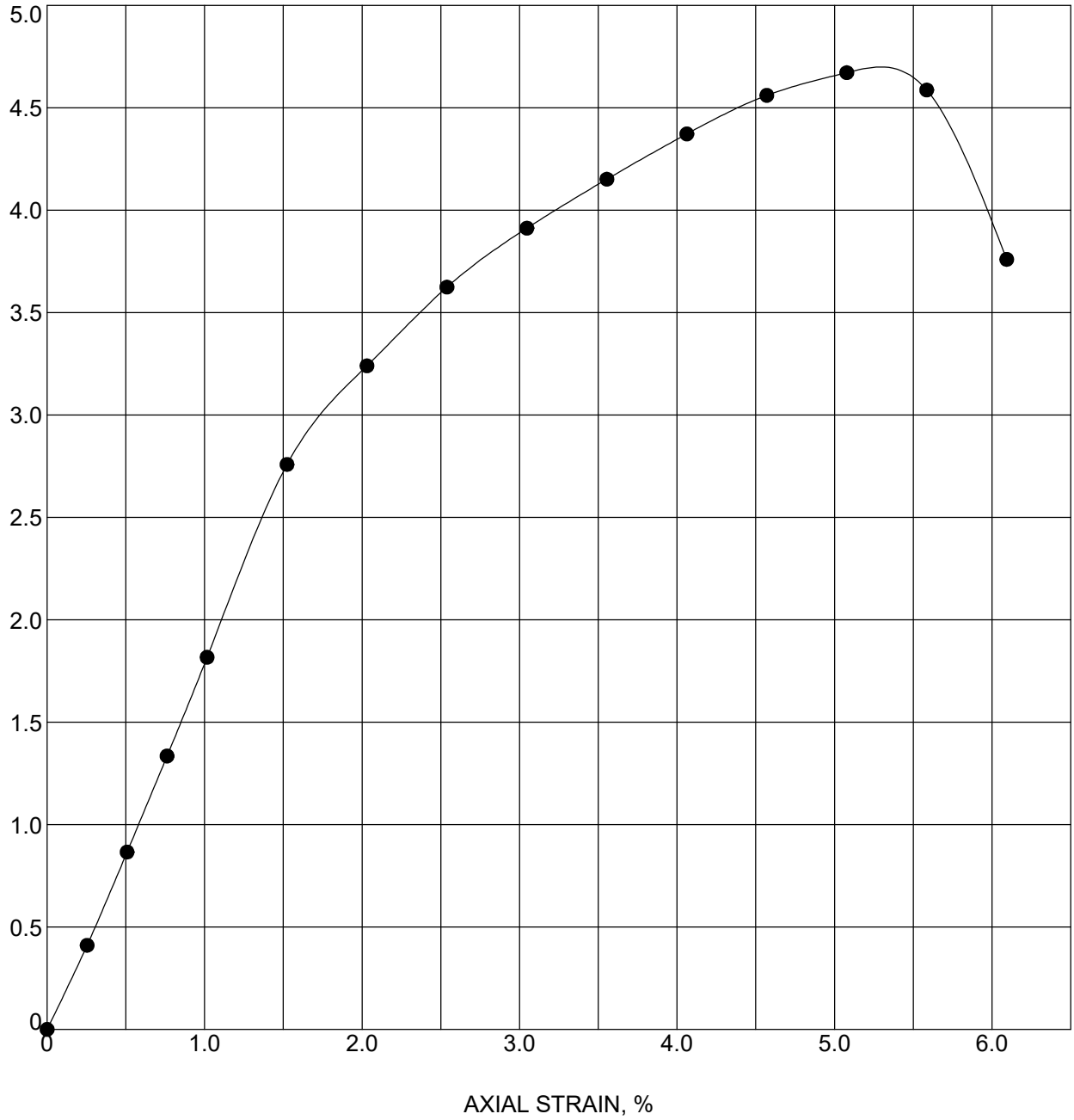

Boring	Sample	Depth	Classification
RB-078	SS-1T	1.2 - 2.7	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.2	134.1	113.4	4.67	1.0	5.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.34	100	0.496	34.29	70.03	2.0

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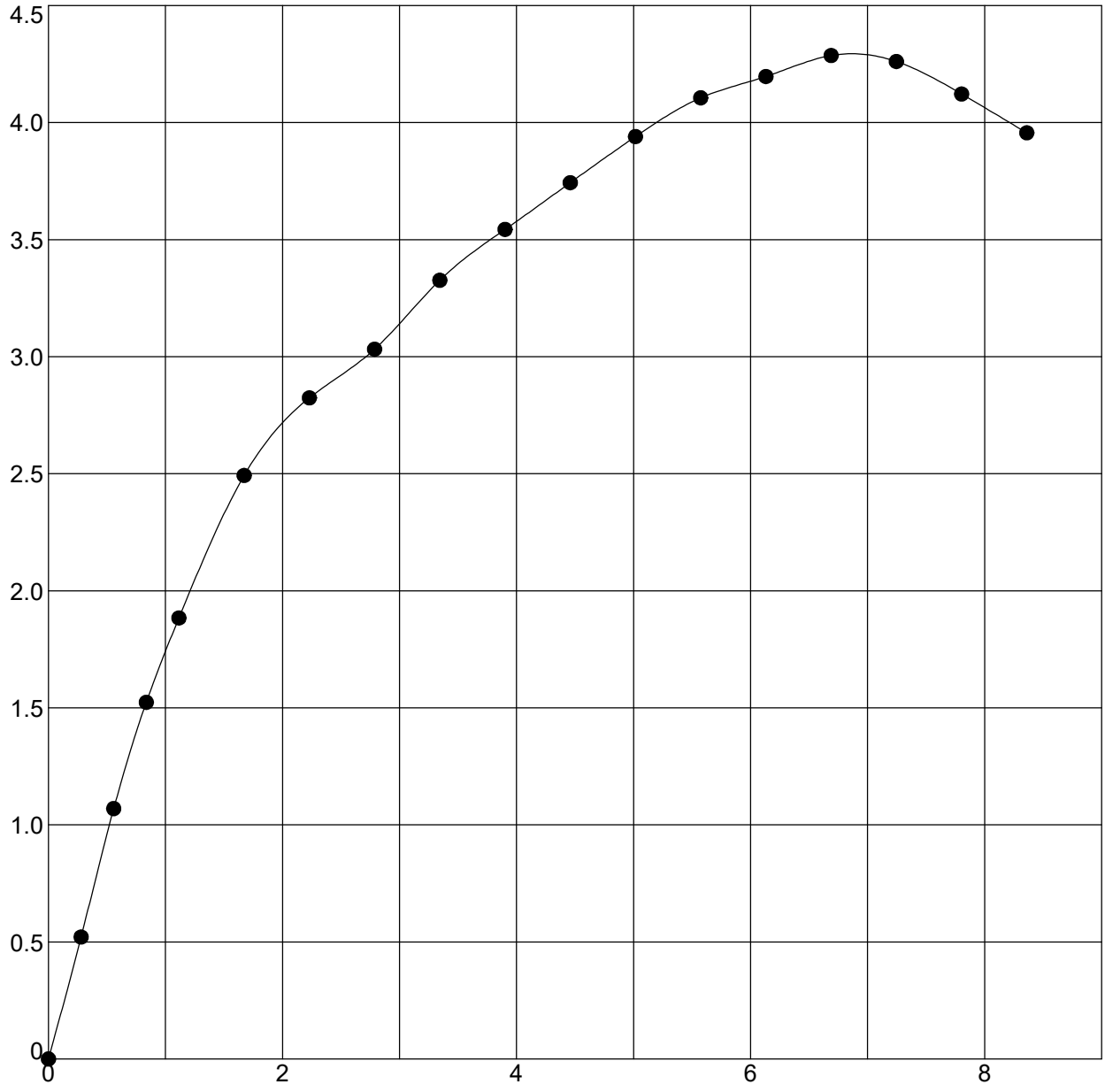

Boring	Sample	Depth	Classification
RB-082	SS-1T	1.2 - 2.7	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.1	133.1	112.6	4.29	1.0	6.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.14	97	0.507	34.8	63.8	1.8

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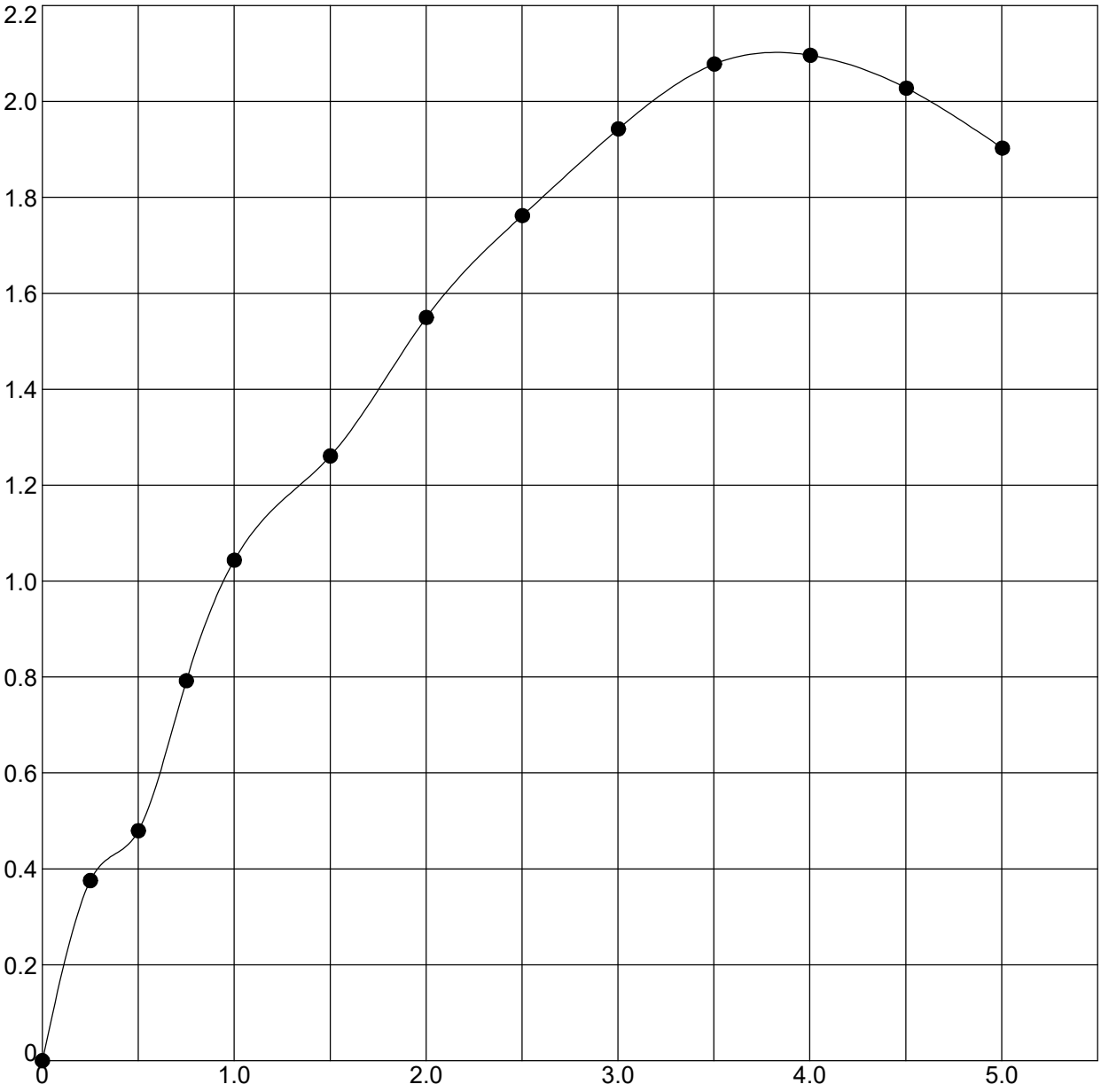

Boring	Sample	Depth	Classification
RB-085	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.9	132.7	113.6	2.10	1.0	4.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.05	93	0.494	35.15	71.07	2.0

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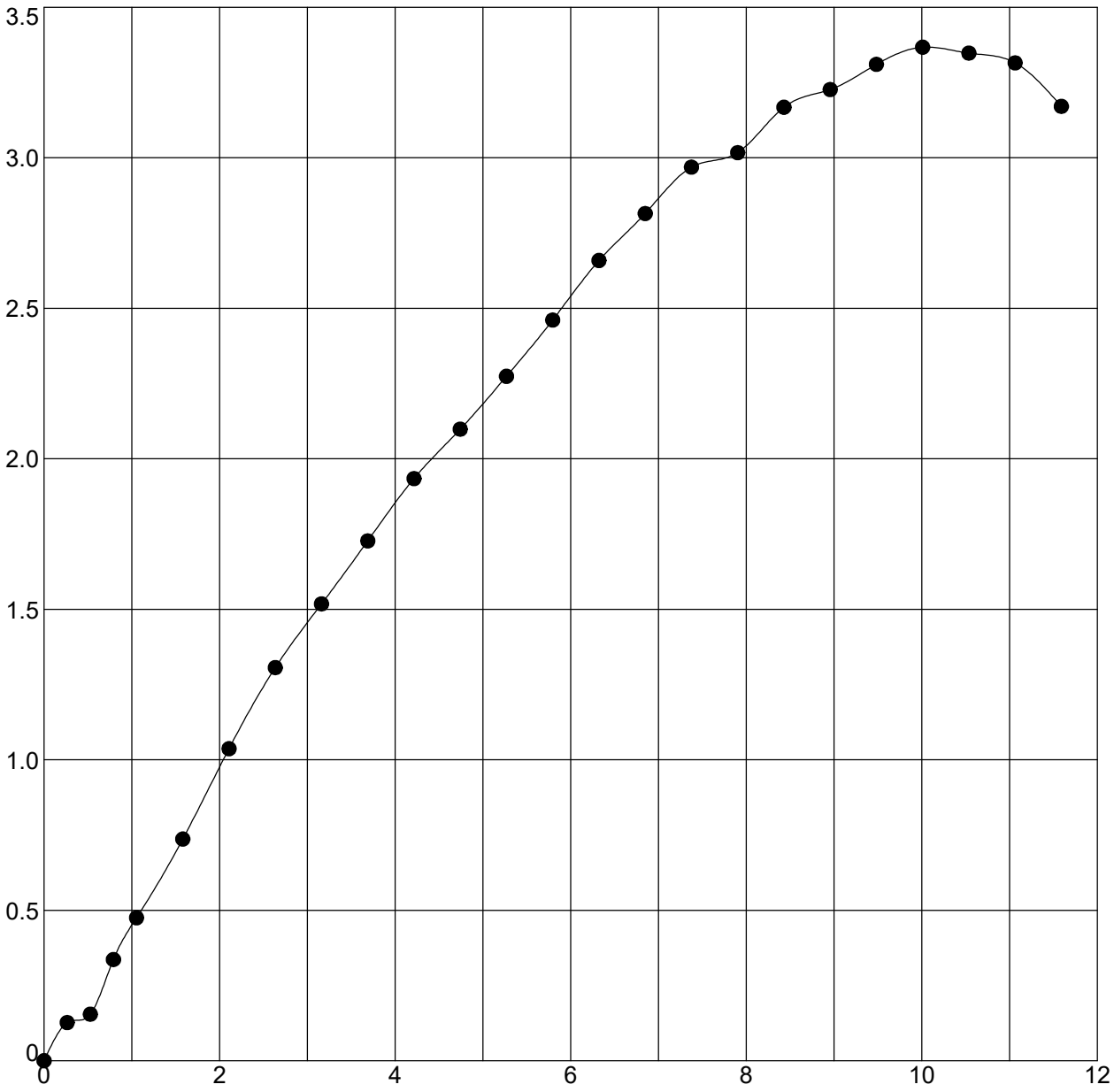

Boring	Sample	Depth	Classification
RB-086	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.5	126.1	103.8	3.37	1.0	10.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.68	92	0.635	36.3	67.5	1.9

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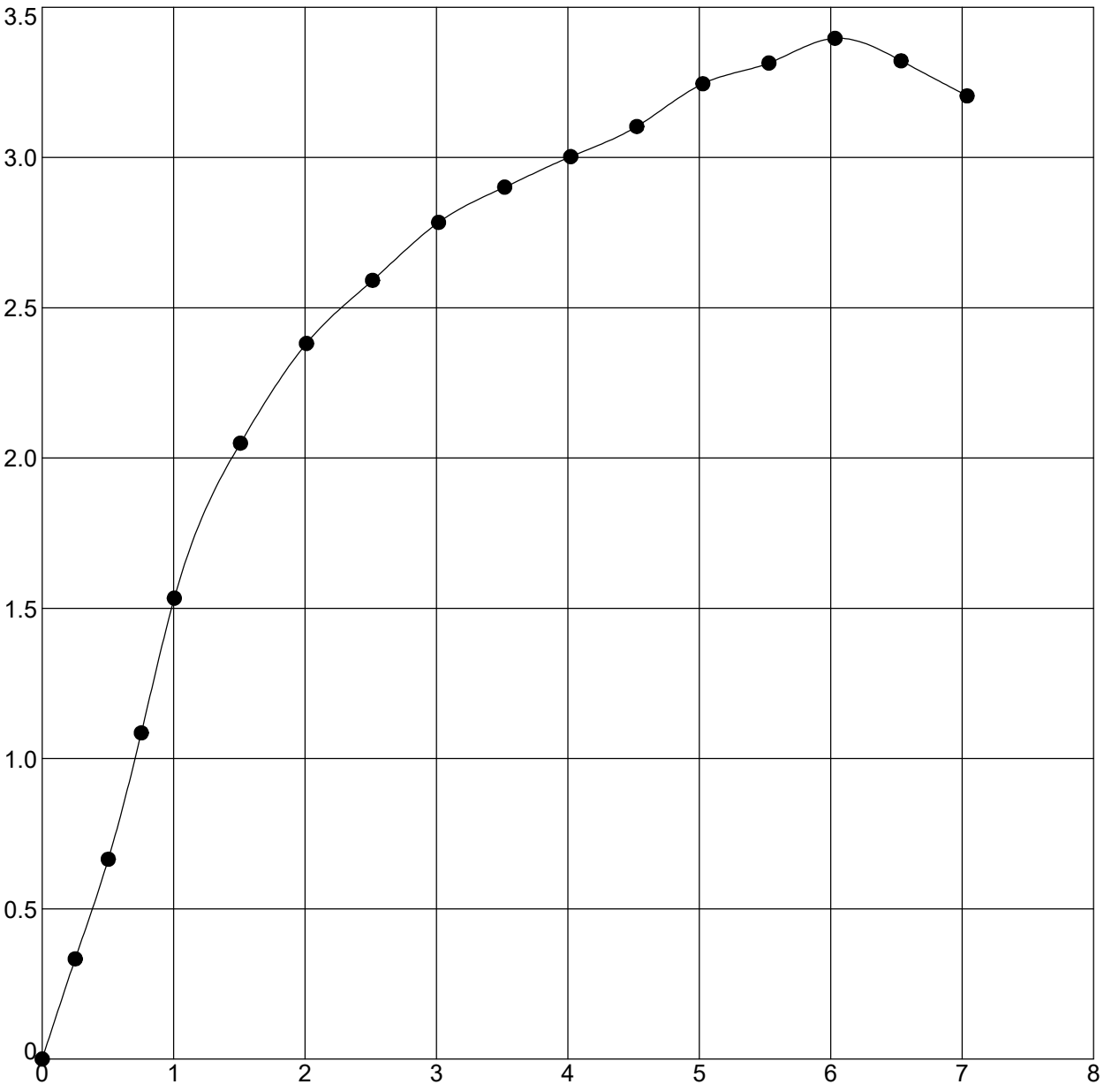
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-089	SS-2T	3.5 - 5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.3	129.3	108.3	3.40	1.0	6.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.70	93	0.567	35	70.74	2.0

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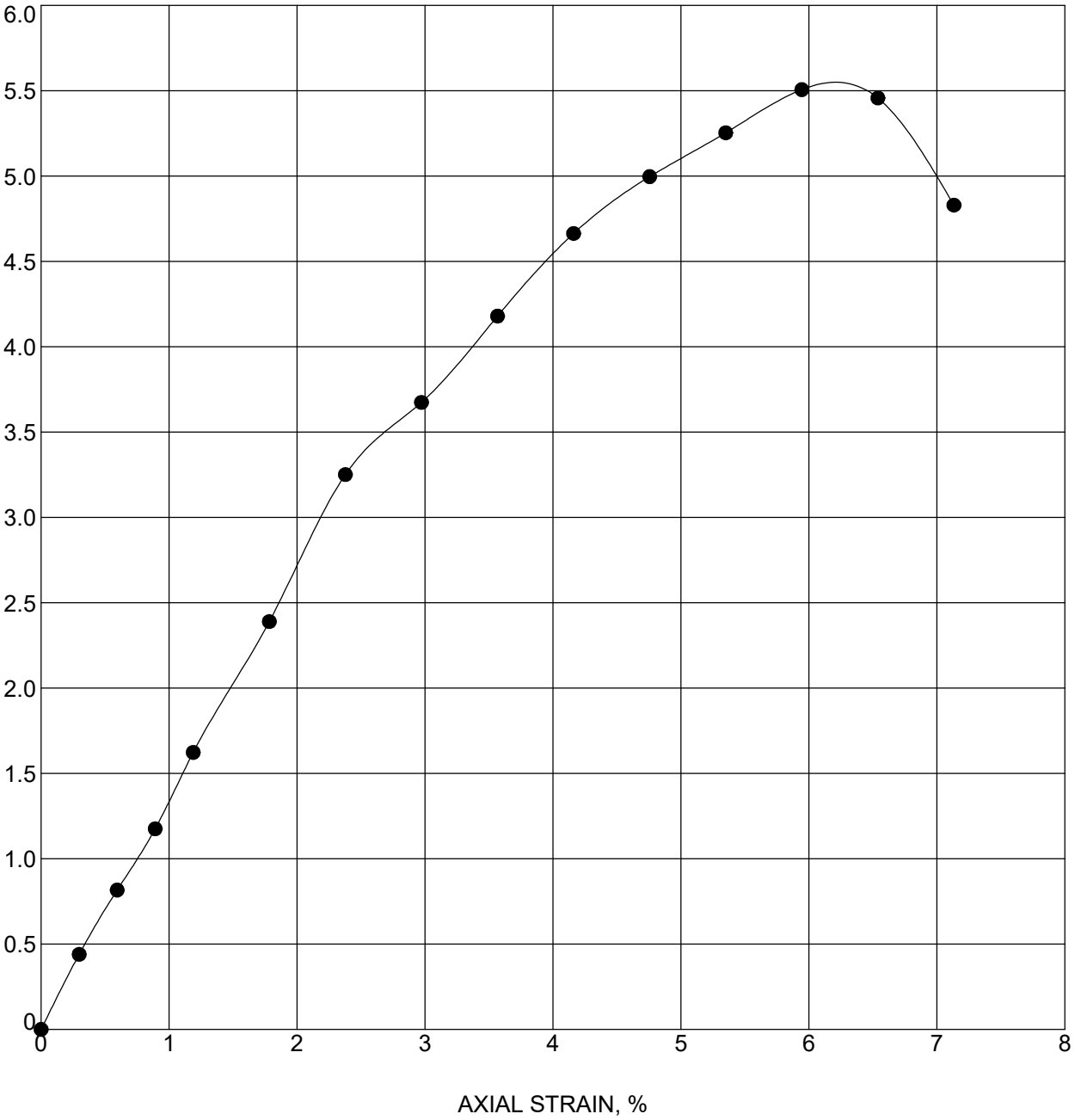

Boring	Sample	Depth	Classification
RB-091	SS-1B	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.6	128.7	108.6	5.51	1.2	5.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.75	90	0.564	34.98	59.82	1.7

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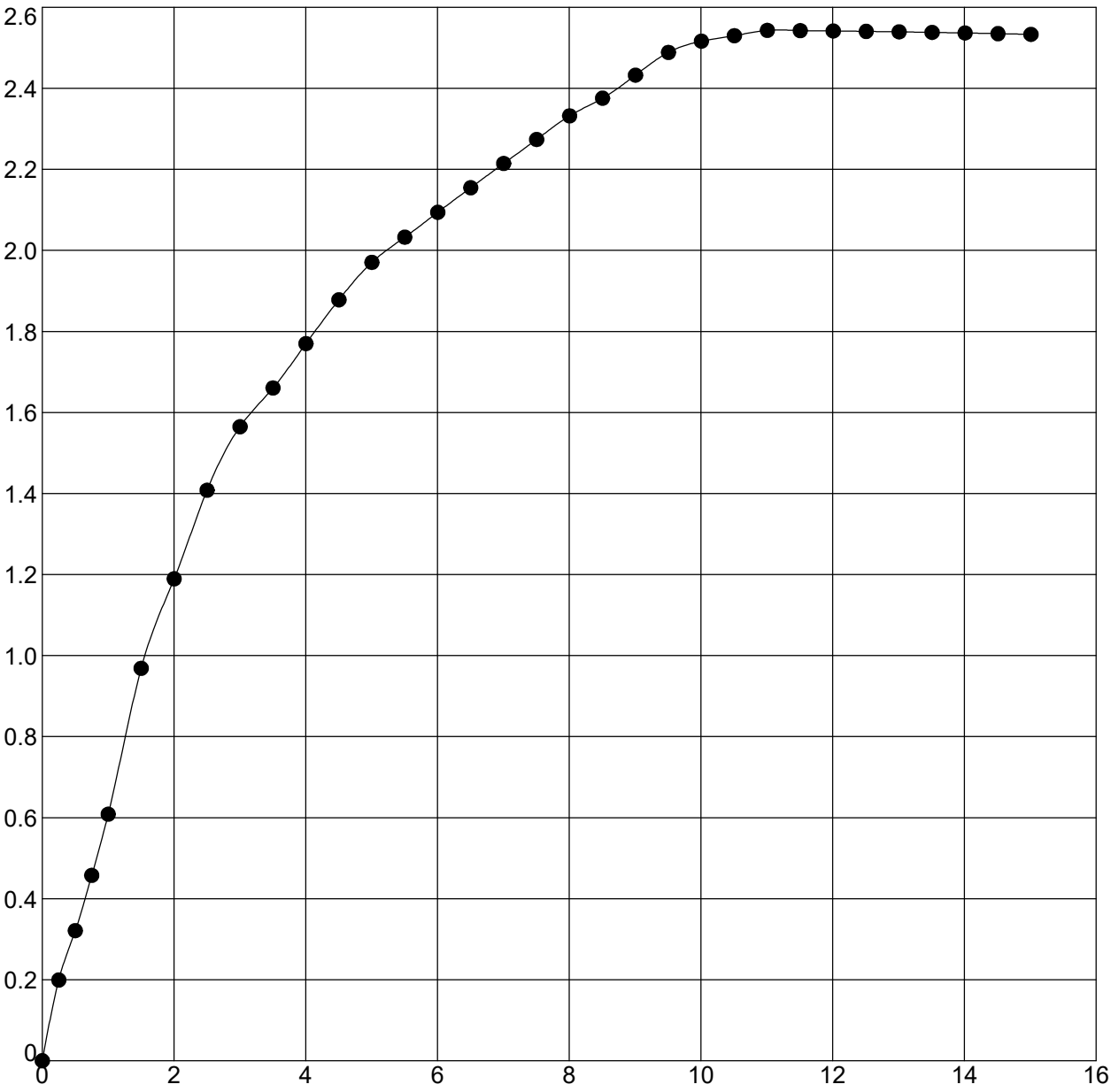
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21

Attachment 11-2



Boring	Sample	Depth	Classification
RB-095	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.2	132.6	112.1	2.54	1.0	11.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.27	97	0.514	34.8	71.07	2.0

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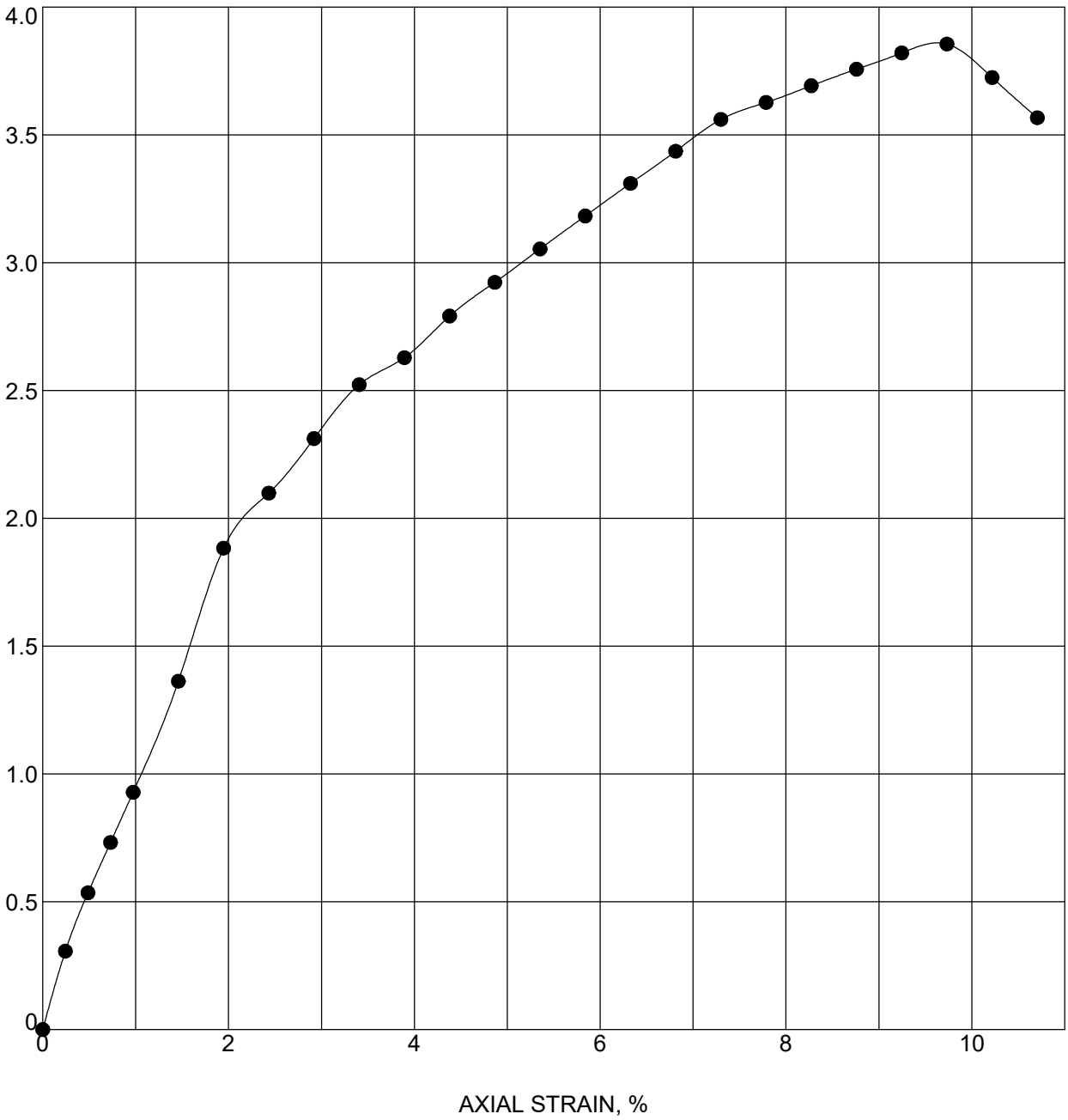
INDOT_UNCONFINED_TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-097	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.8	134.0	114.8	3.86	1.0	9.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.93	95	0.479	34.8	73.08	2.1

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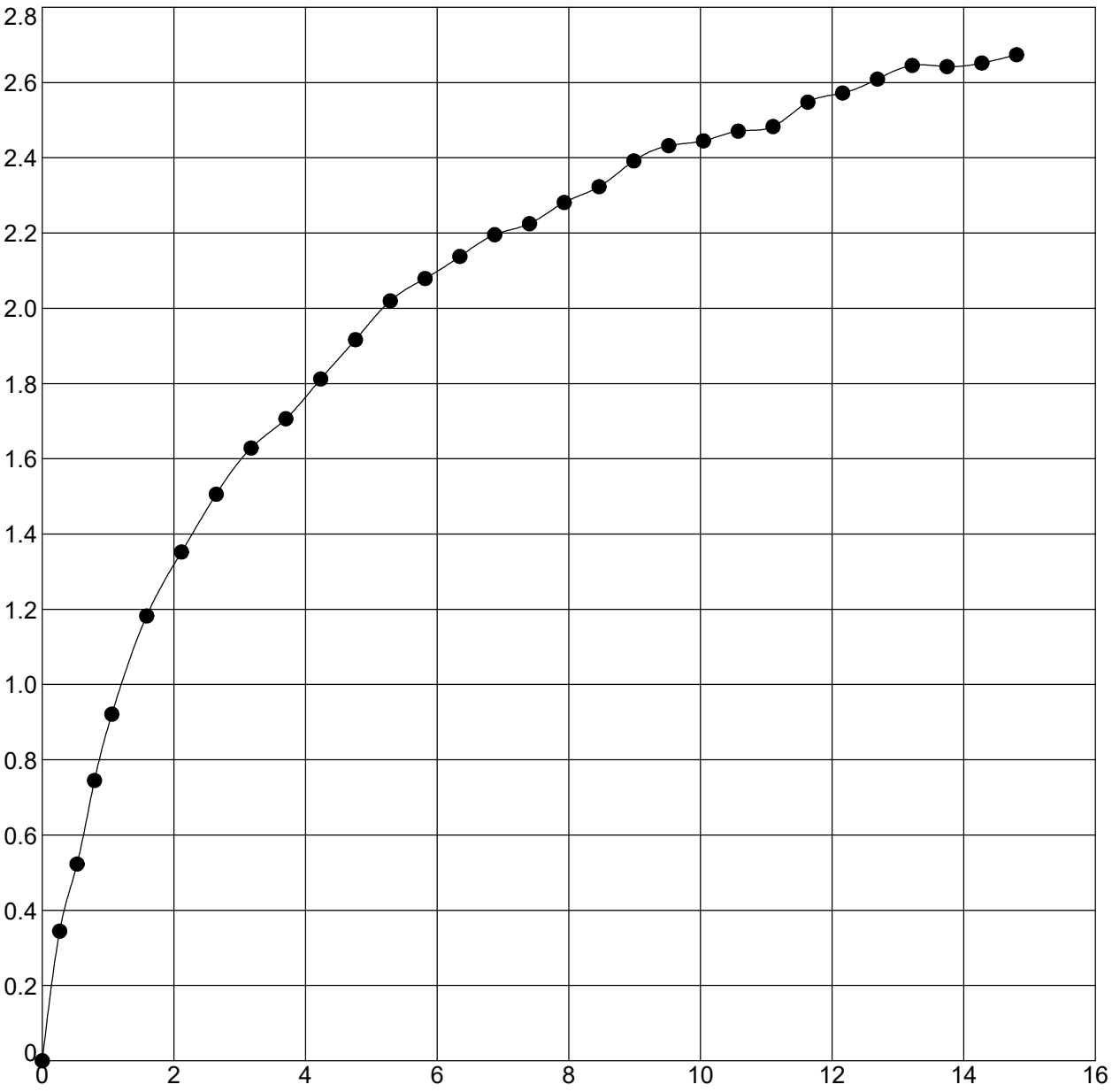

Boring	Sample	Depth	Classification
RB-098	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.4	131.5	109.2	2.67	1.0	14.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.34	100	0.554	35.2	67.26	1.9

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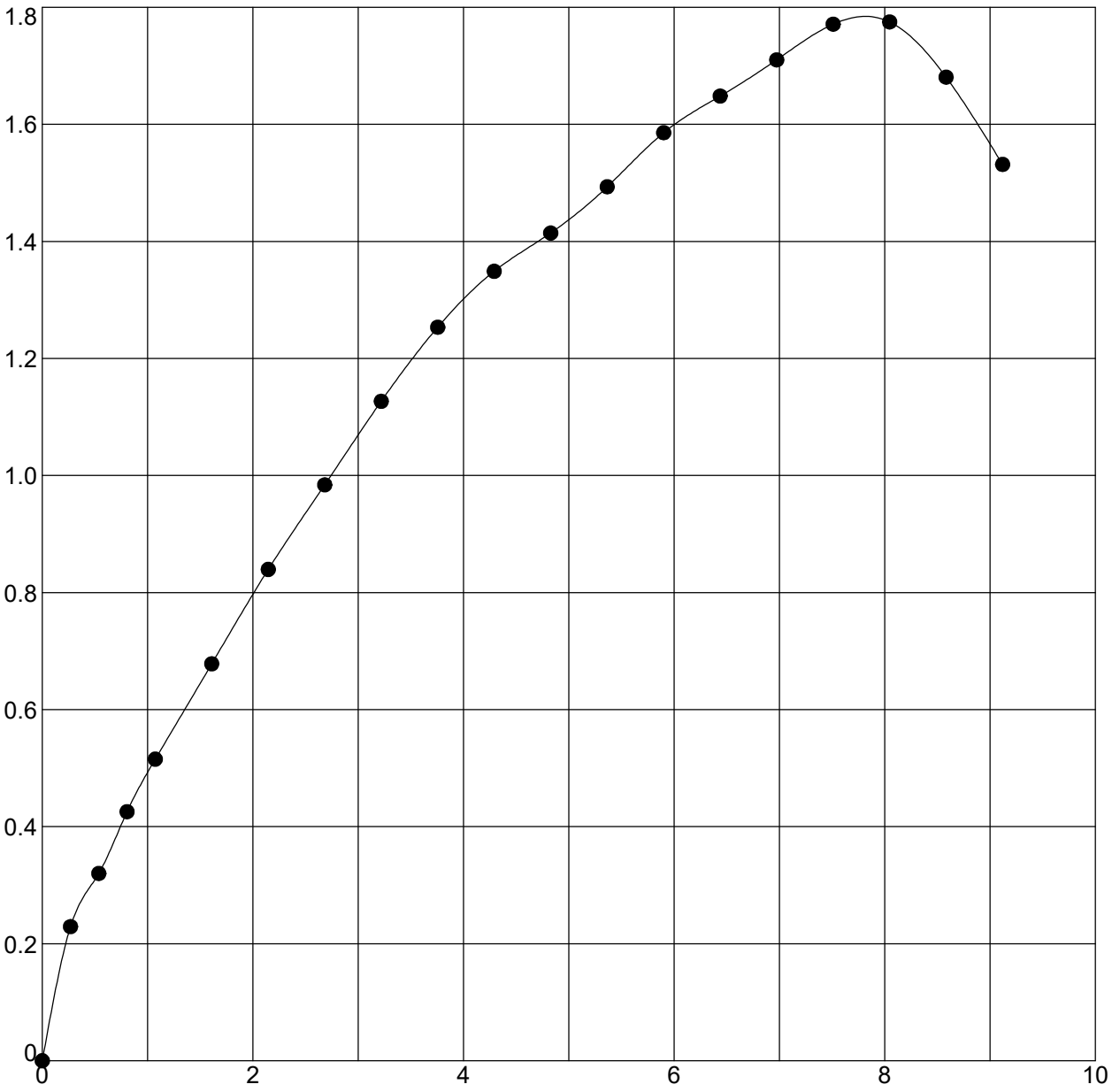

Boring	Sample	Depth	Classification
RB-101	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	123.4	101.9	1.78	1.1	8.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.89	86	0.666	34.85	66.29	1.9

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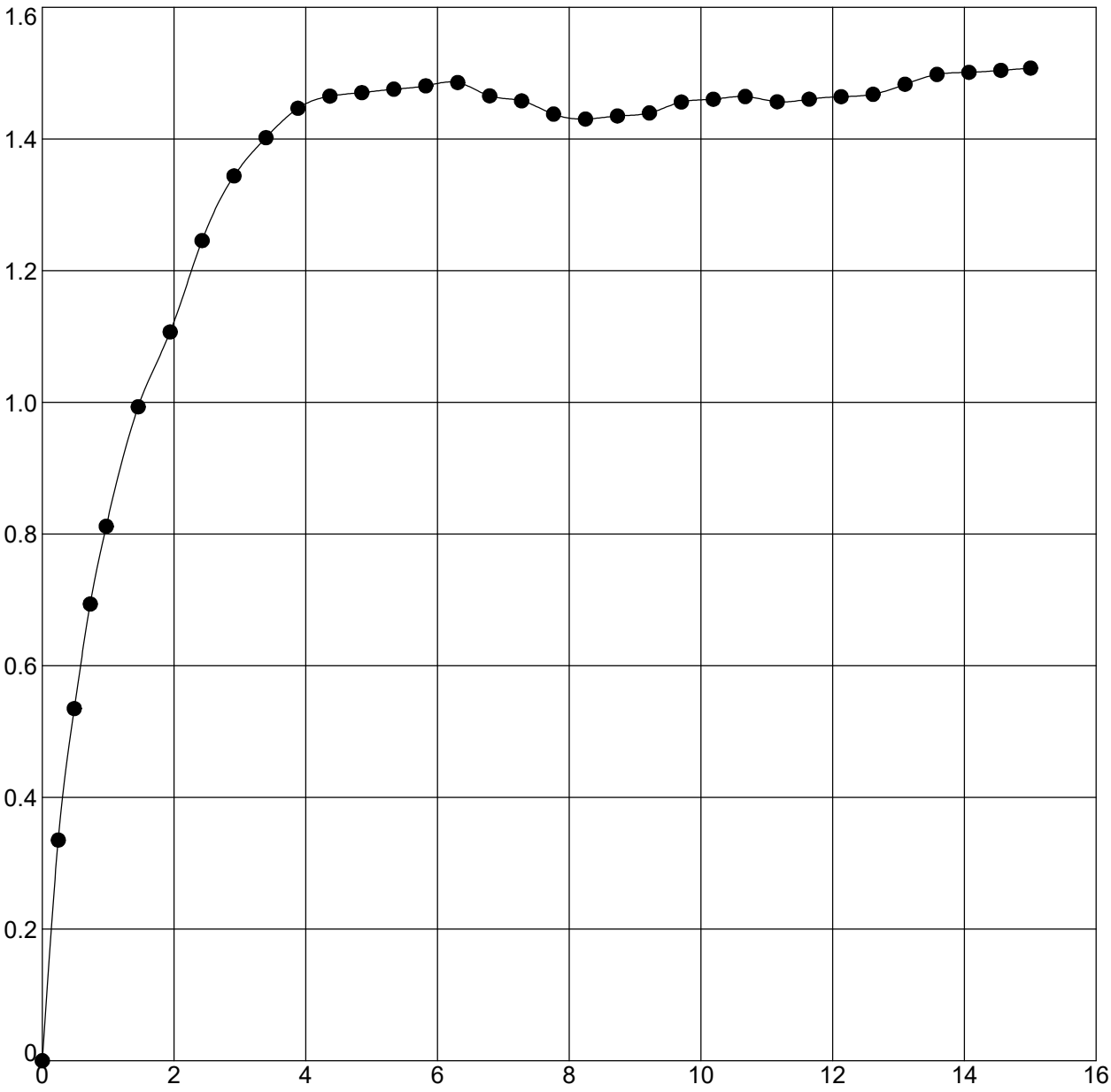

Boring	Sample	Depth	Classification
RB-102	SS-2T	2.7 - 4.3	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.4	129.6	106.7	1.51	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.75	99	0.591	37.21	73.3	2.0

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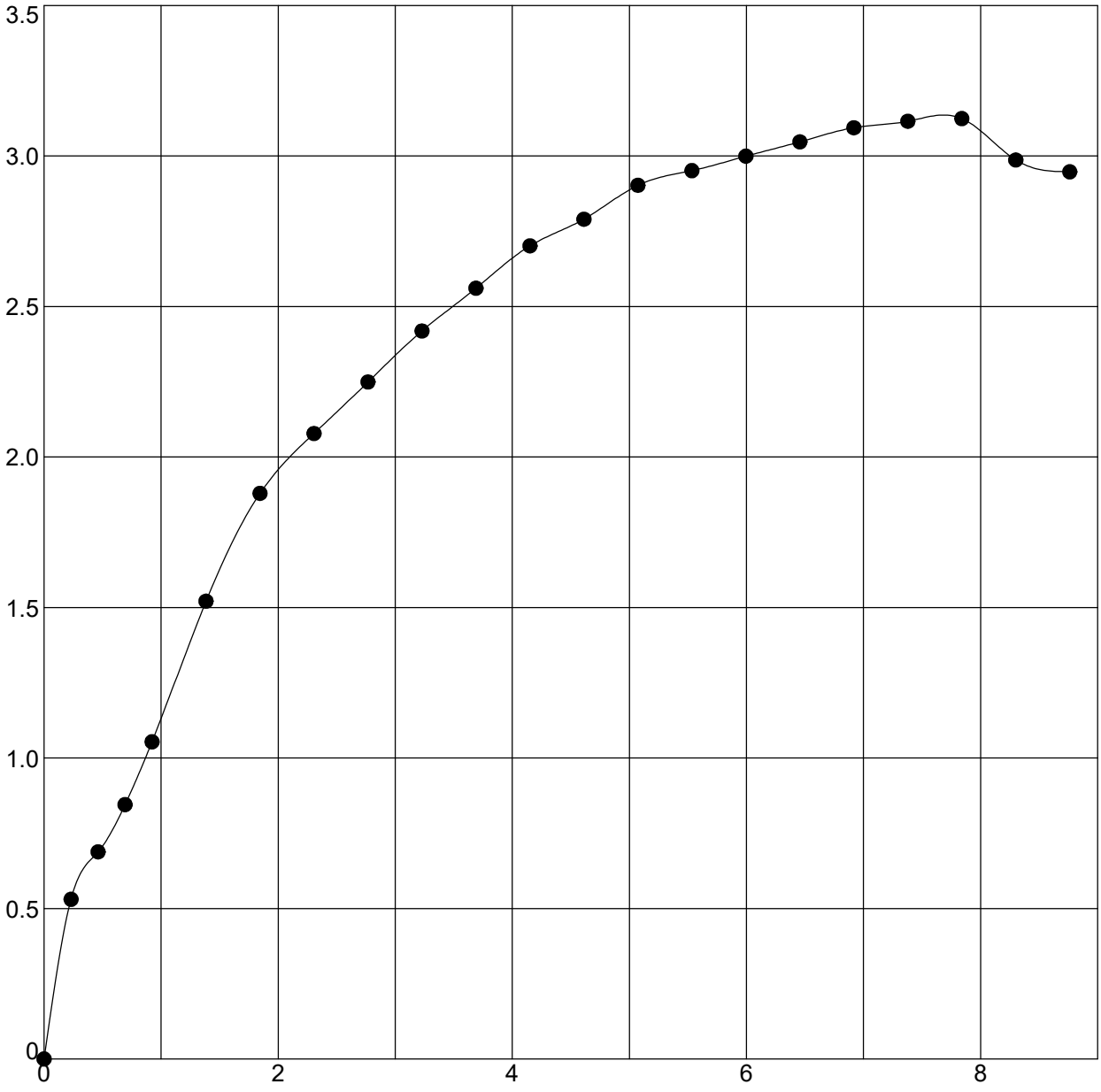

Boring	Sample	Depth	Classification
RB-103	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.1	124.0	104.1	3.12	1.0	7.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.56	82	0.630	37.41	77.11	2.1

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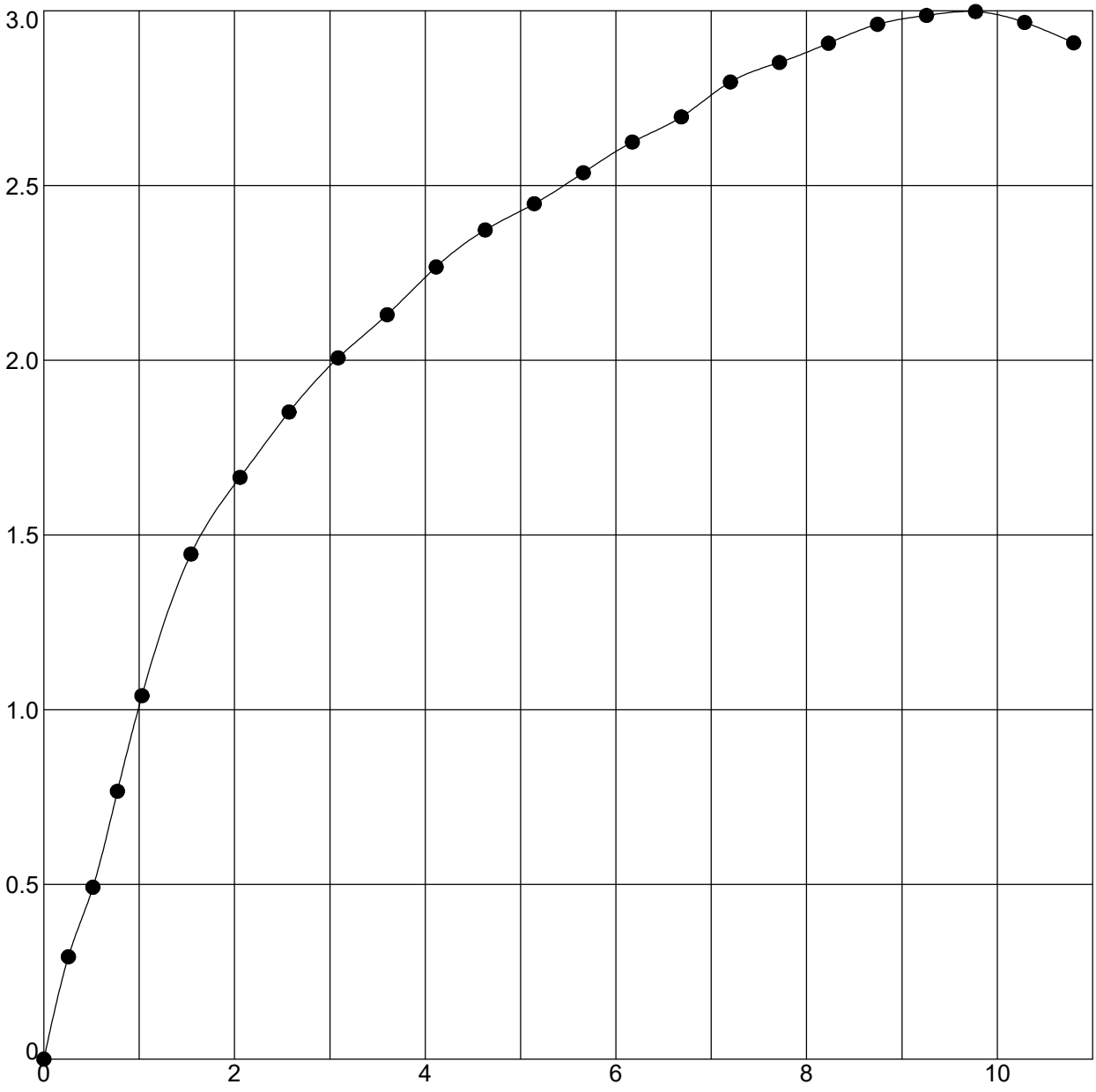

Boring	Sample	Depth	Classification
RB-106	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.4	130.1	108.9	3.00	1.0	9.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.50	95	0.558	34.7	69.14	2.0

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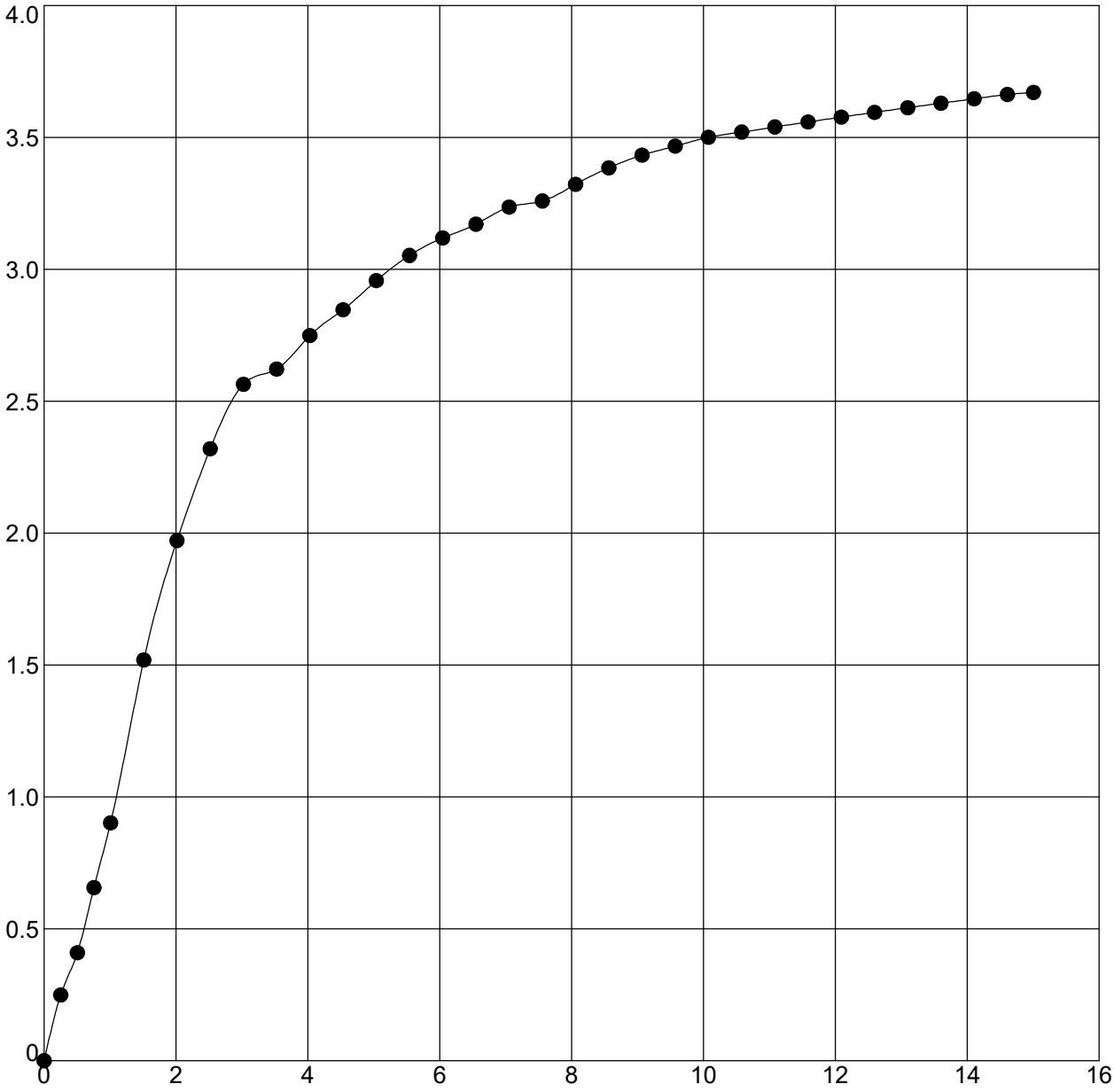

Boring	Sample	Depth	Classification
RB-108	SS-2B	2.6 - 4.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.4	127.7	106.1	3.67	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.84	92	0.600	35.59	70.59	2.0

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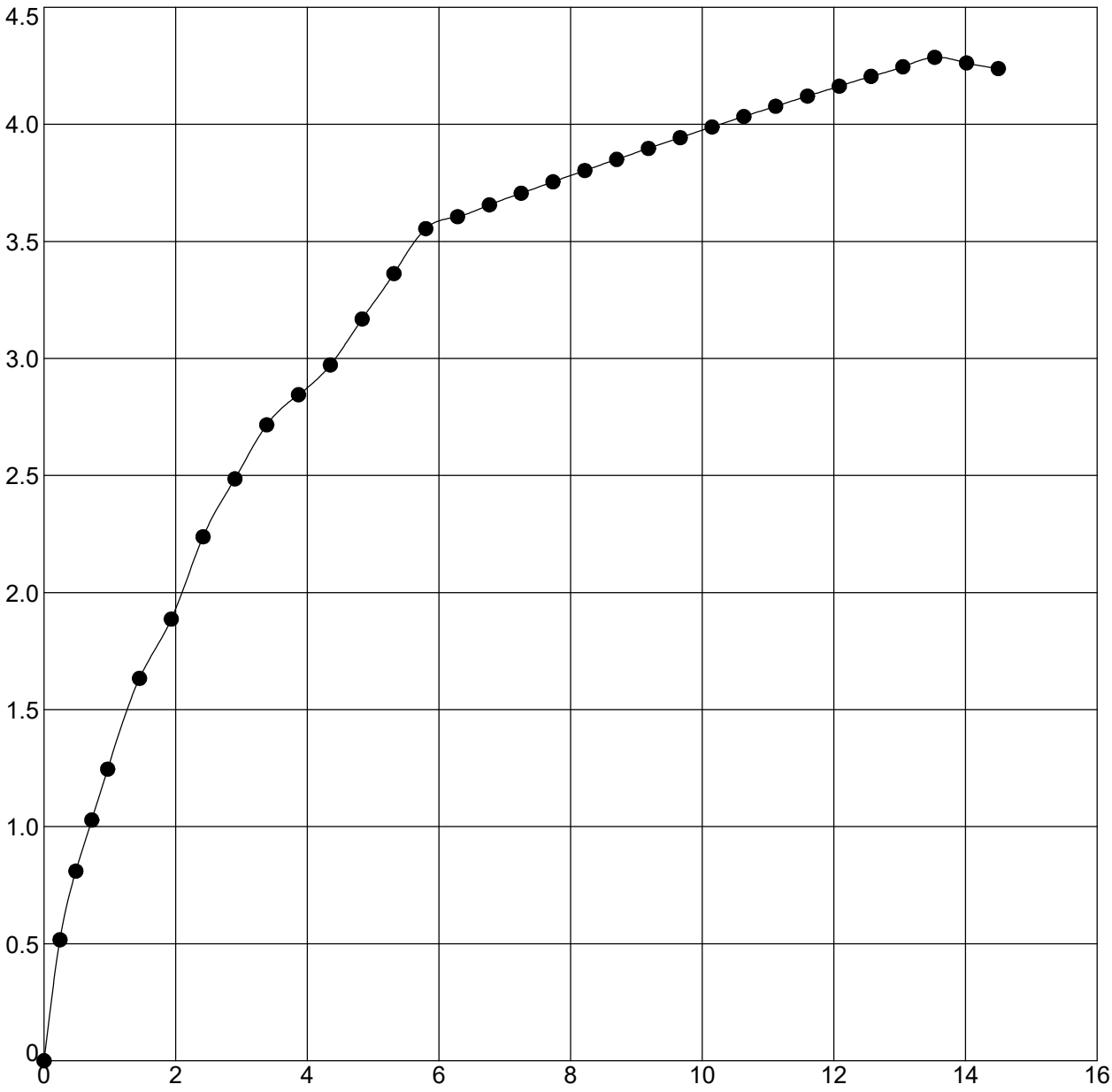
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-111	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.7	130.6	110.0	4.29	1.0	13.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.14	94	0.542	35.46	73.58	2.1

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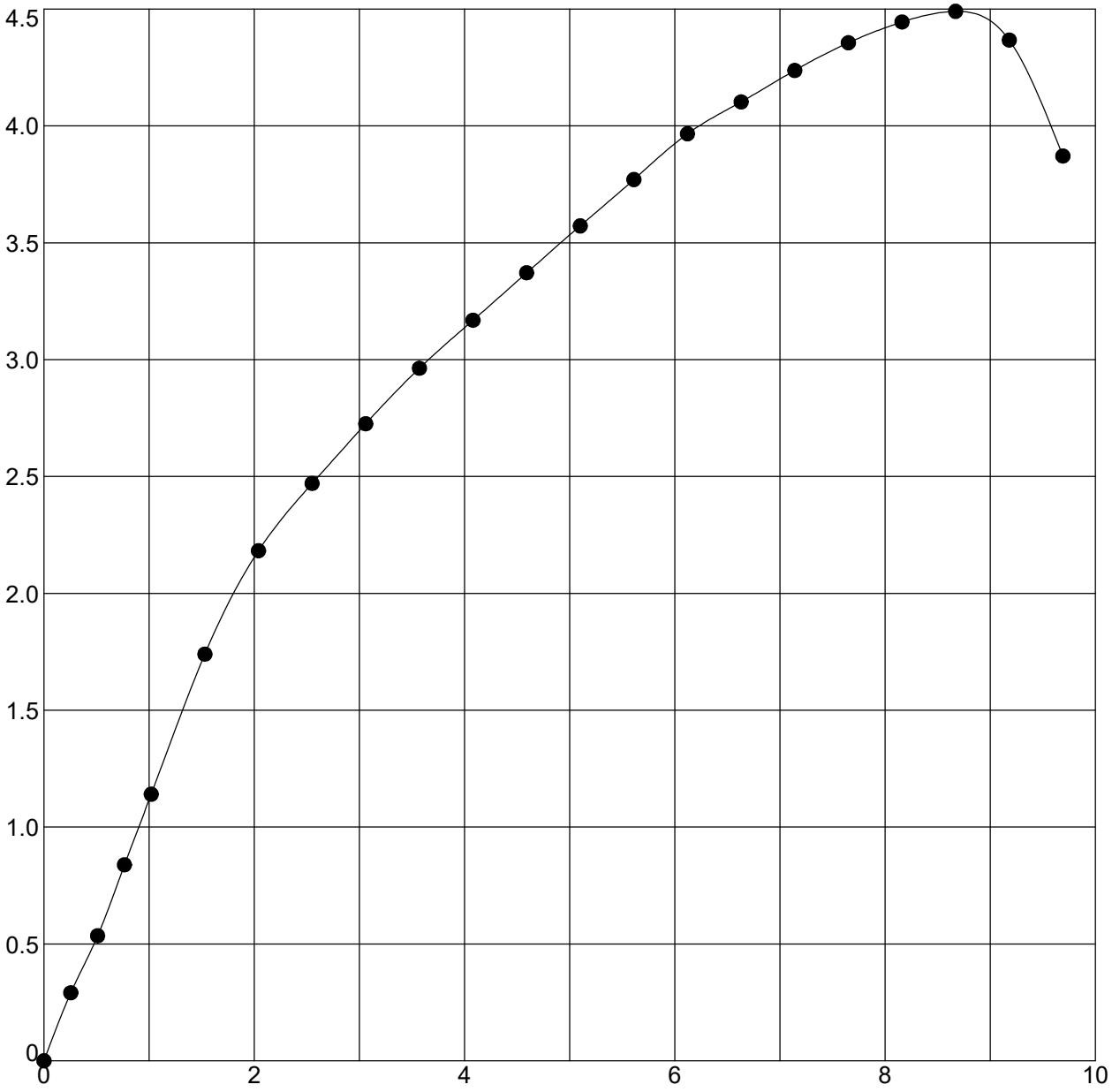

Boring	Sample	Depth	Classification
RB-113	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.4	132.9	112.2	4.49	1.0	8.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.25	98	0.512	34.8	69.72	2.0

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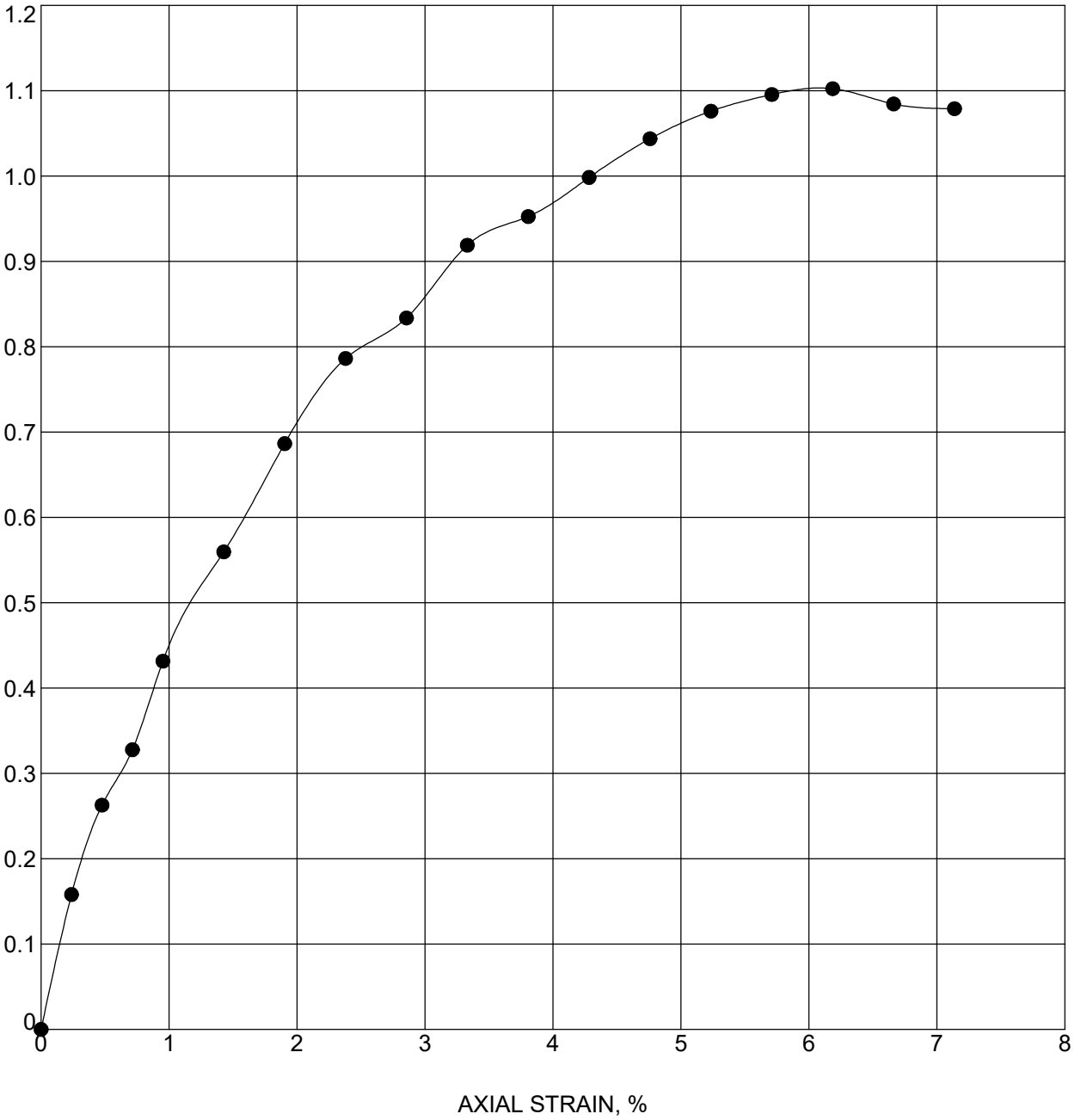

Boring	Sample	Depth	Classification
RB-115	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.3	125.1	101.4	1.10	1.0	6.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.55	94	0.674	37.54	74.73	2.0

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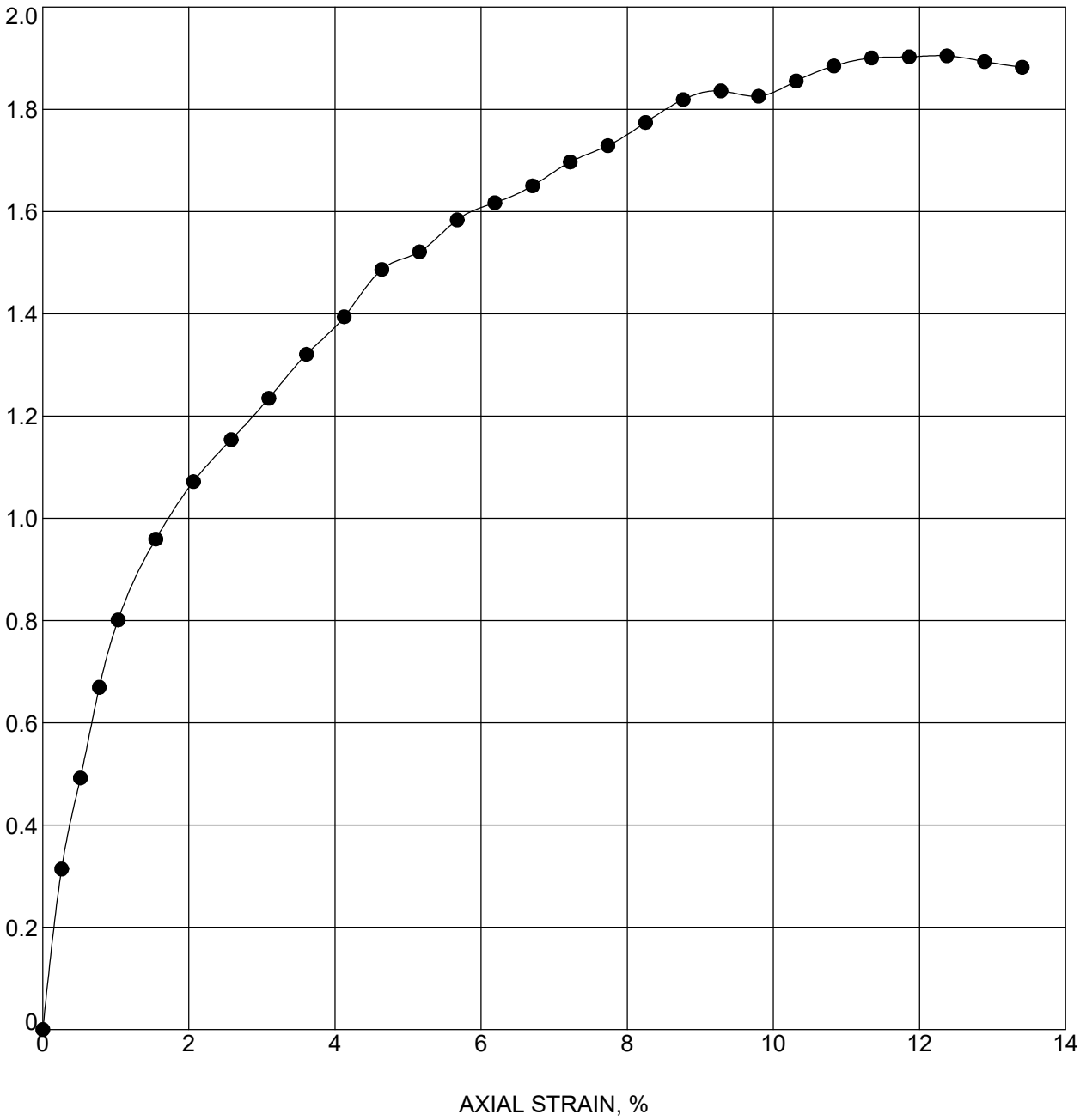

Boring	Sample	Depth	Classification
RB-118	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.2	127.3	105.0	1.90	1.0	12.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.95	94	0.616	35.23	68.96	2.0

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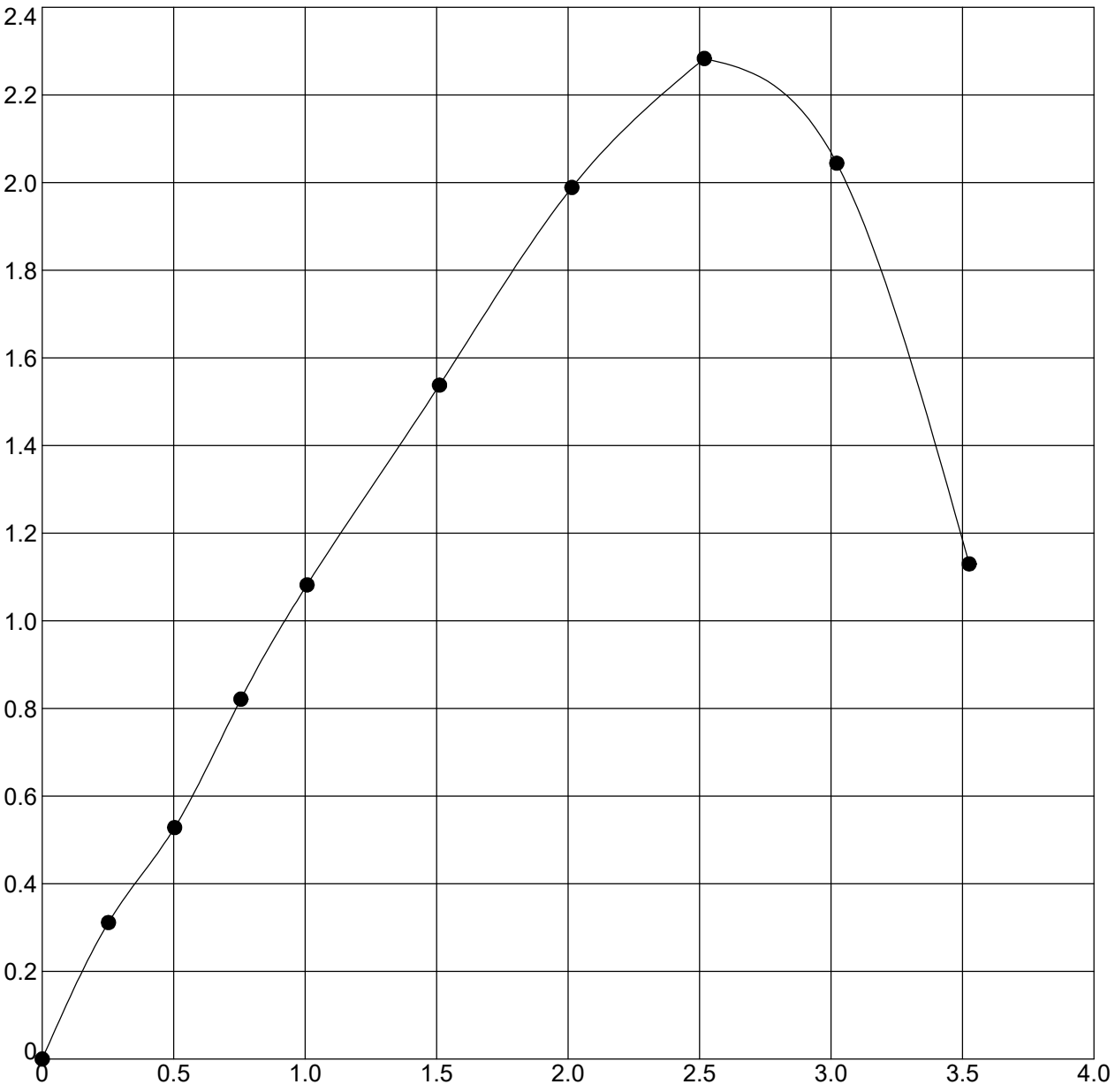

Boring	Sample	Depth	Classification
RB-122	SS-1	1.3 - 2.8	SILTY CLAY A-7-6 (25)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.9	136.5	118.8	2.28	1.0	2.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.14	87	0.486	34.52	70.61	2.0

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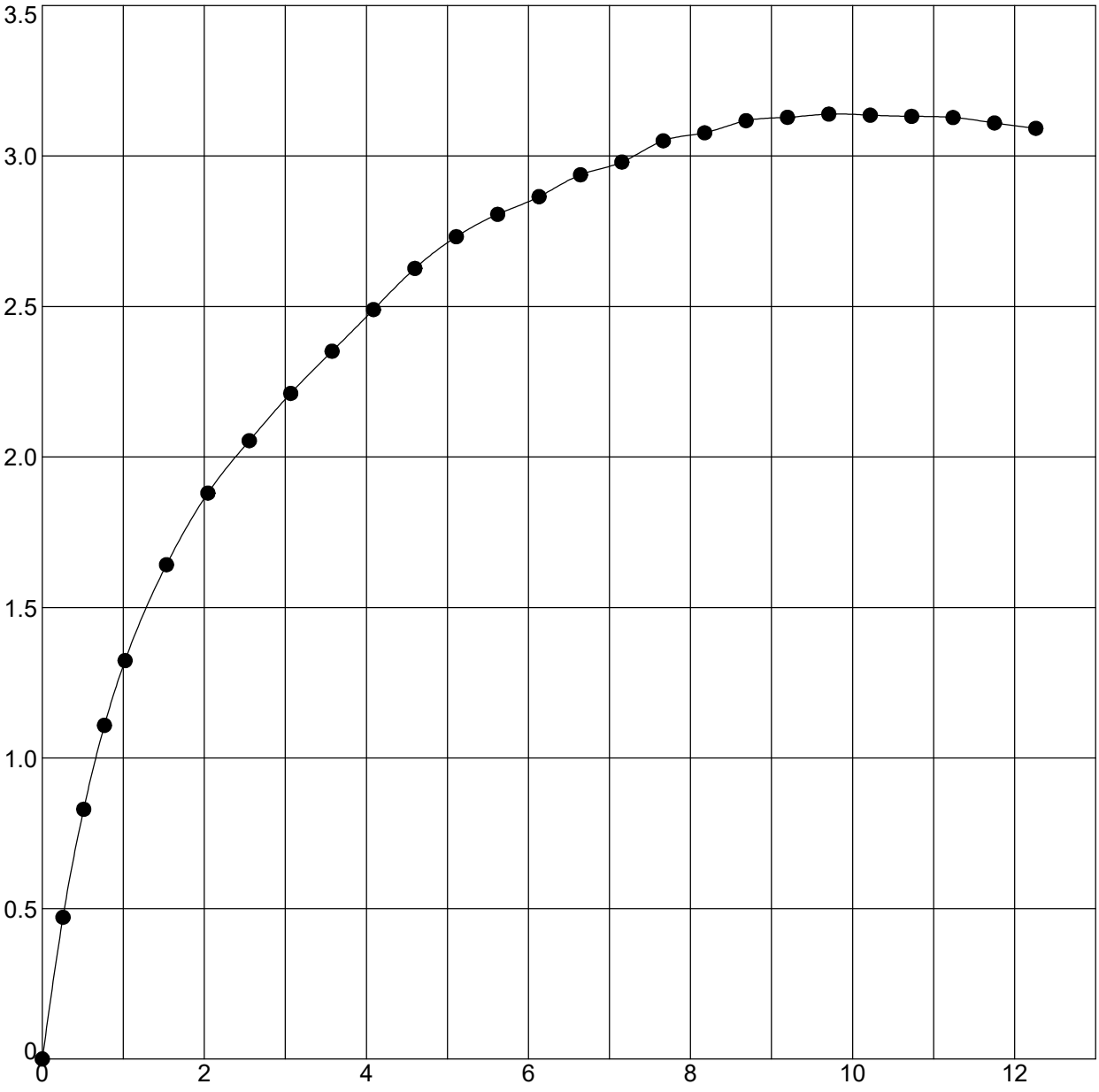

Boring	Sample	Depth	Classification
RB-126	SS-1B	1.2 - 2.7	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
9.2	137.9	126.3	3.14	1.0	9.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.57	73	0.344	34.39	69.6	2.0

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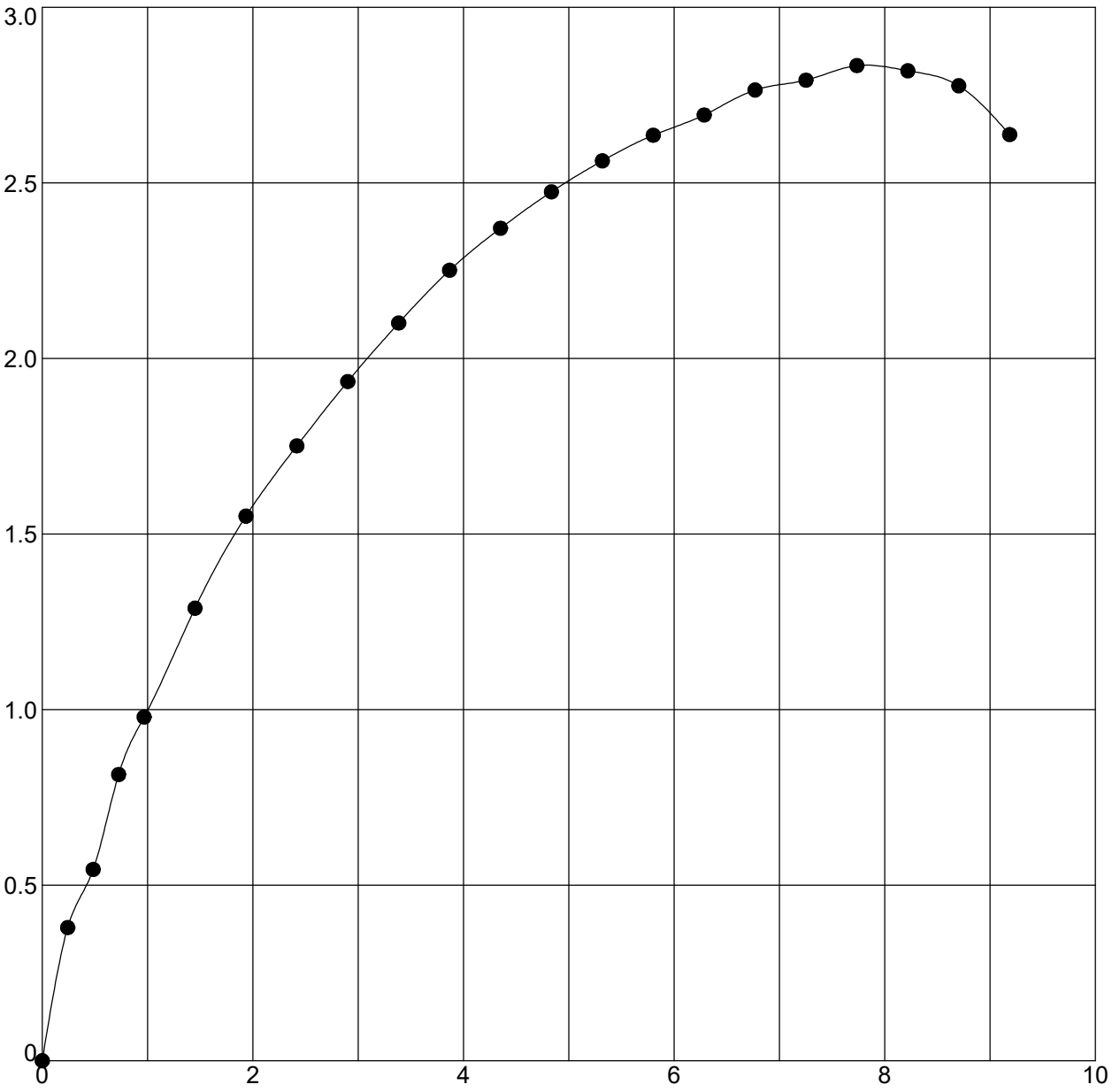

Boring	Sample	Depth	Classification
RB-127	SS-1T	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.5	135.2	115.1	2.83	1.0	7.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.42	100	0.475	34.98	73.55	2.1

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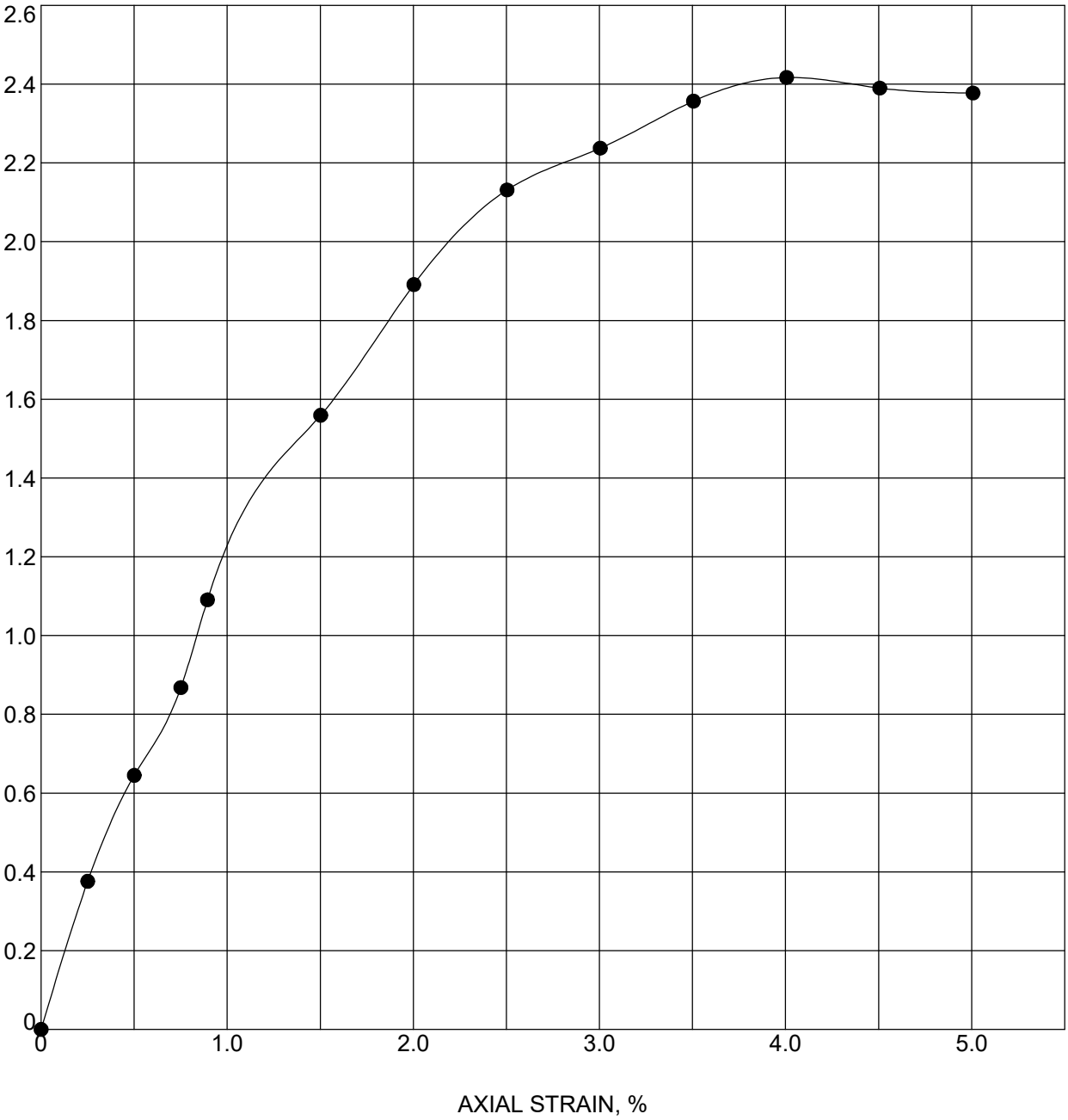

Boring	Sample	Depth	Classification
RB-131	SS-2B	3.5 - 5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.7	131.7	110.0	2.42	1.0	4.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.21	99	0.543	35.13	71.02	2.0

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UNCONFINED COMPRESSION TEST

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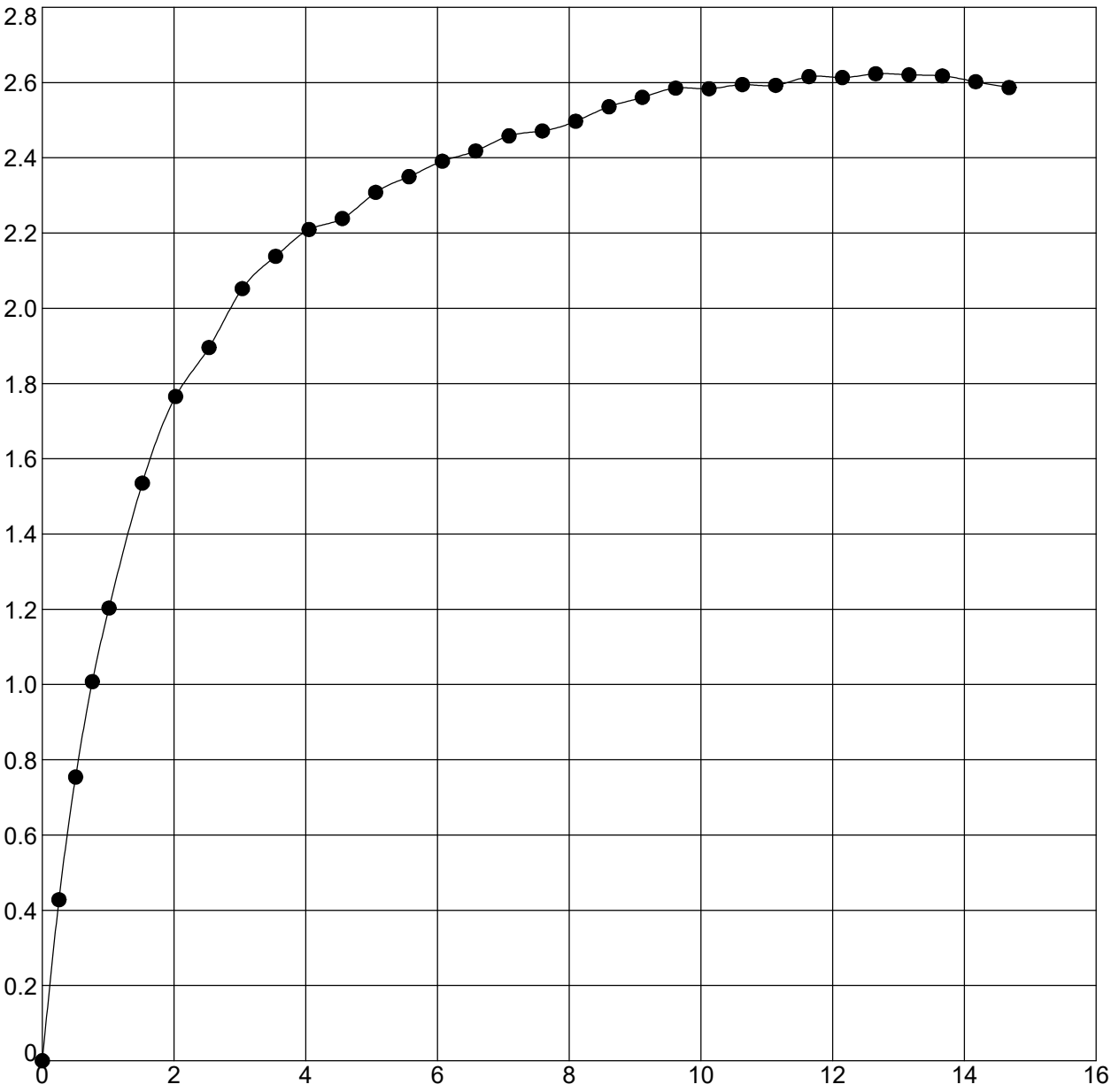
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-134	SS-1B	1.2 - 2.7	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.7	129.9	109.4	2.62	1.0	12.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.31	92	0.552	36.07	70.26	1.9

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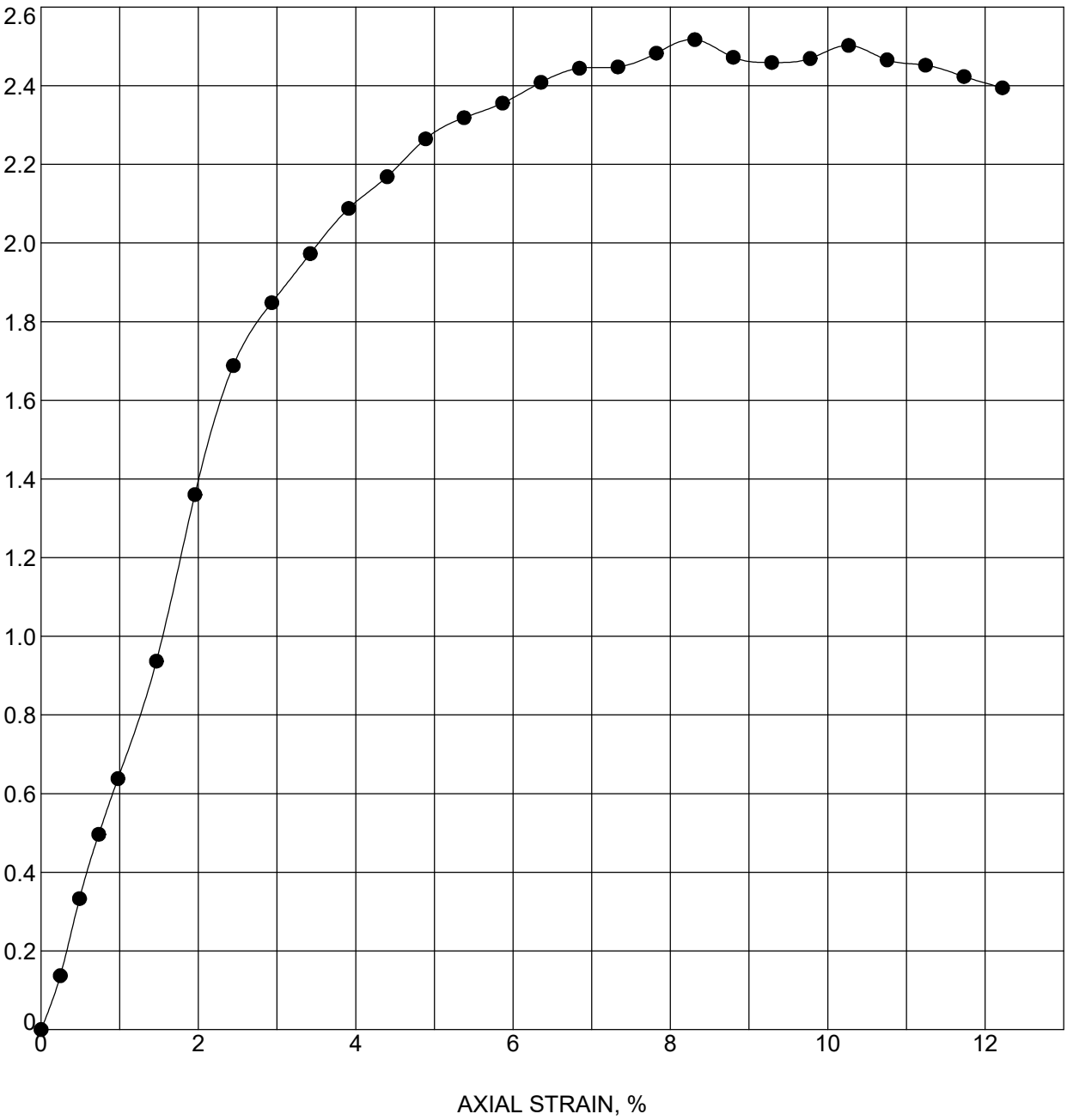

Boring	Sample	Depth	Classification
RB-134A	ST-1	1 - 3	CLAY A-6 (8)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.1	130.8	110.8	2.52	1.0	8.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.26	95	0.510	72.69	145.49	2.0

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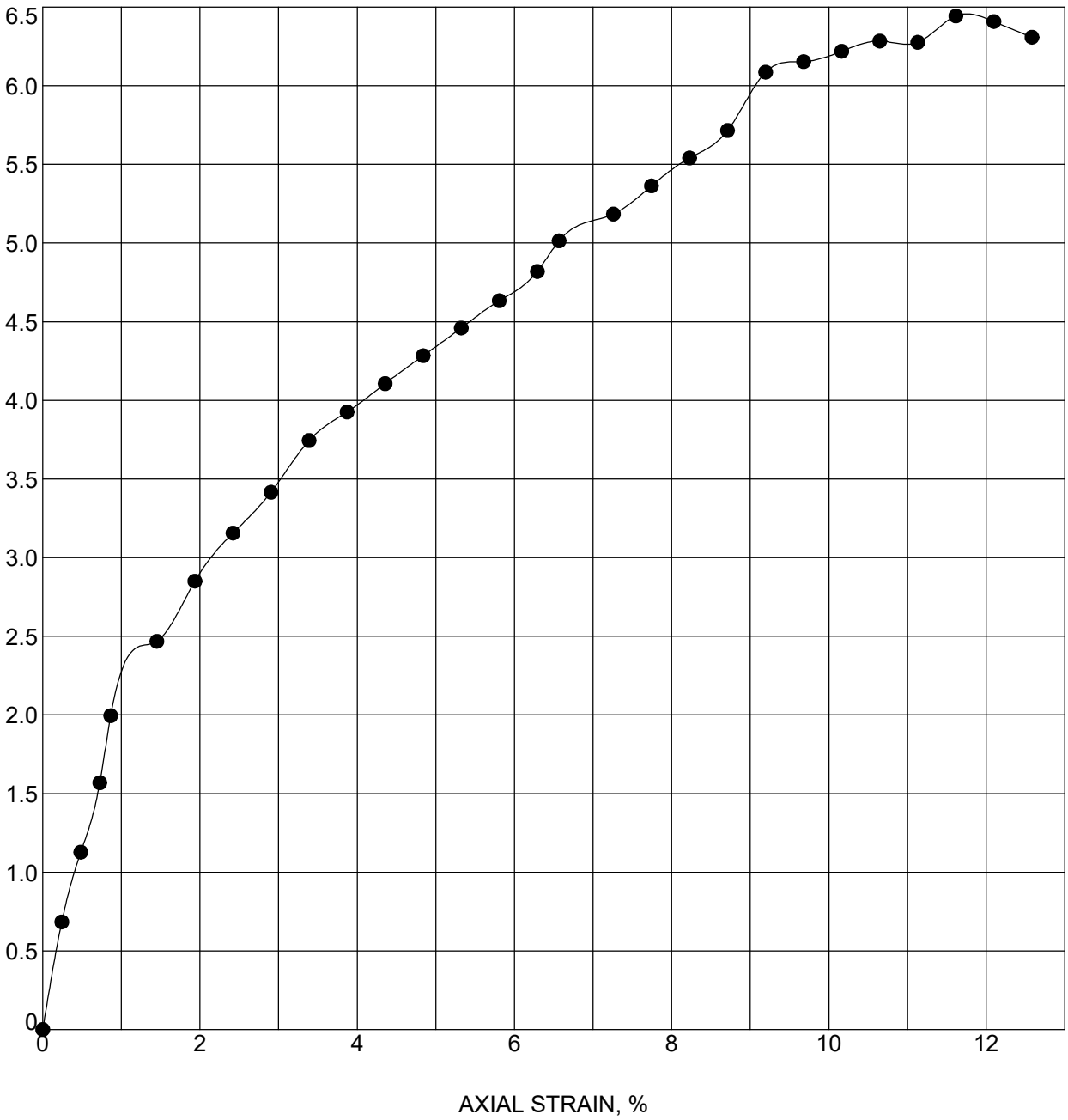
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-135	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.5	135.7	116.4	6.44	1.0	11.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
3.22	98	0.458	35.33	73.48	2.1

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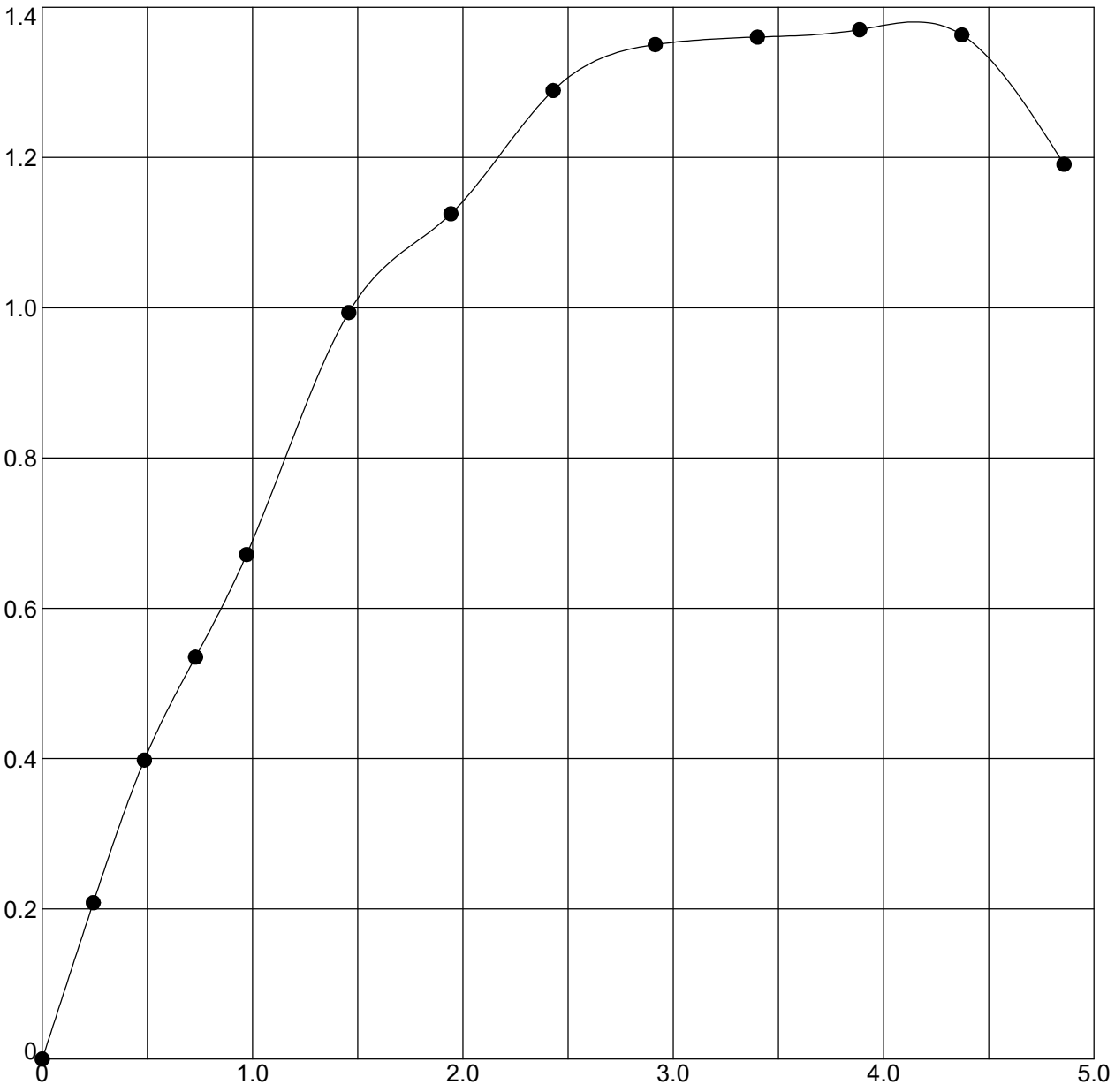

Boring	Sample	Depth	Classification
RB-136A	ST-1	2 - 4	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.4	131.5	111.1	1.37	1.0	3.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.69	95	0.527	73.15	146.41	2.0

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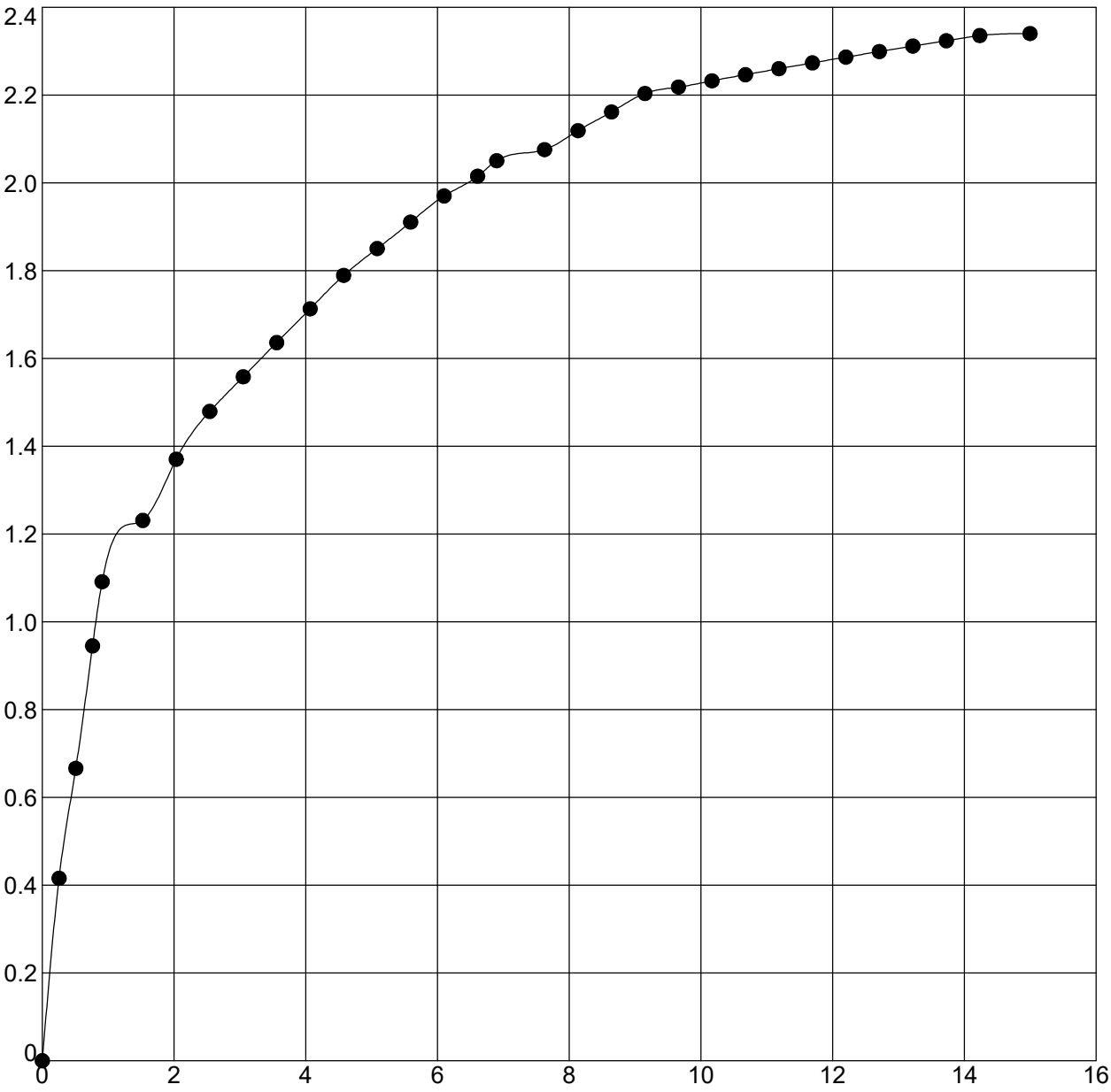

Boring	Sample	Depth	Classification
RB-141	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.0	128.4	106.1	2.34	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.17	95	0.599	35.36	69.95	2.0

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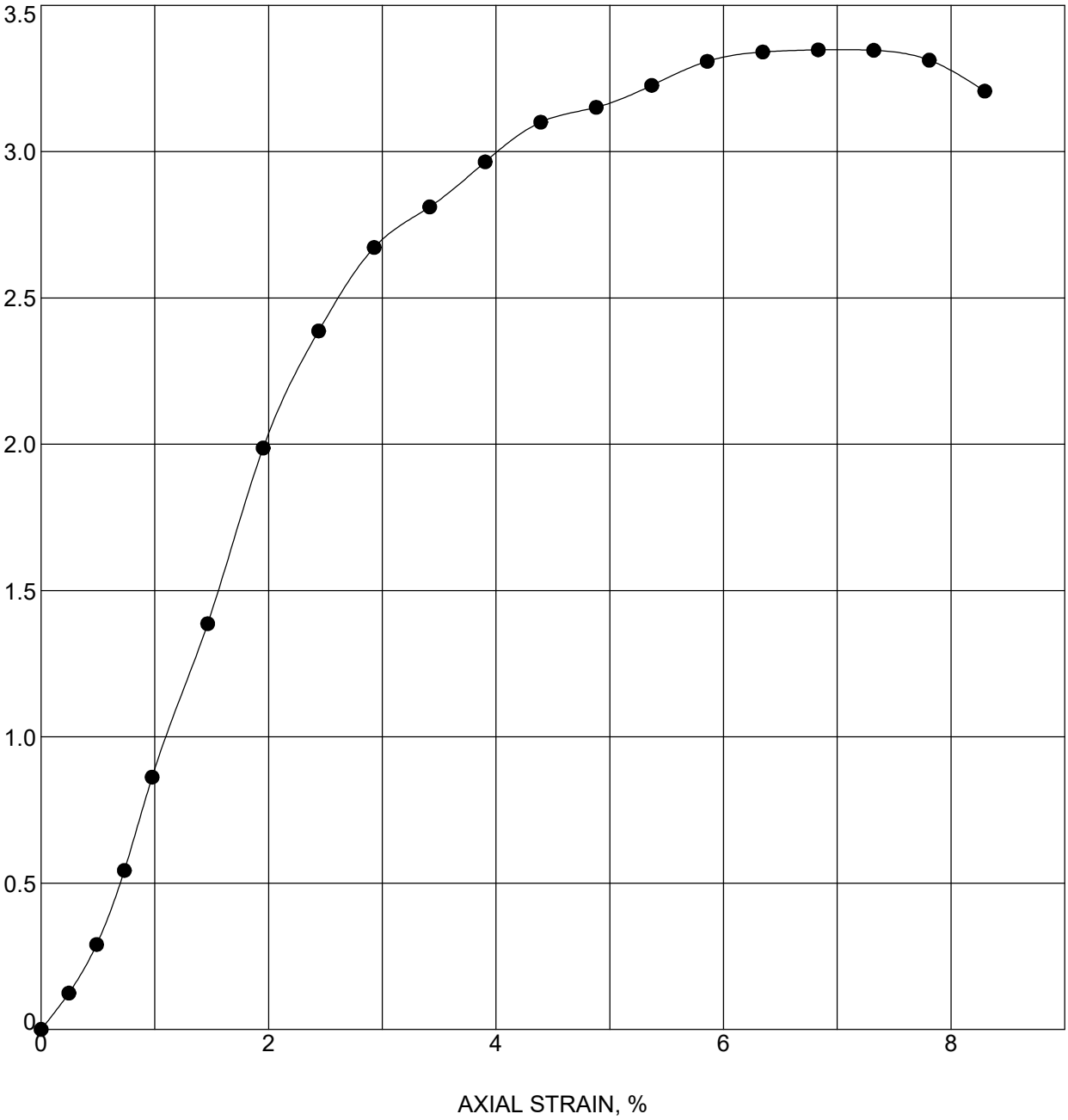

Boring	Sample	Depth	Classification
RB-141A	ST-1	1 - 3	CLAY A-7-6 (22)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.6	142.1	122.9	3.35	1.0	6.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.67	109	0.392	72.36	145.72	2.0

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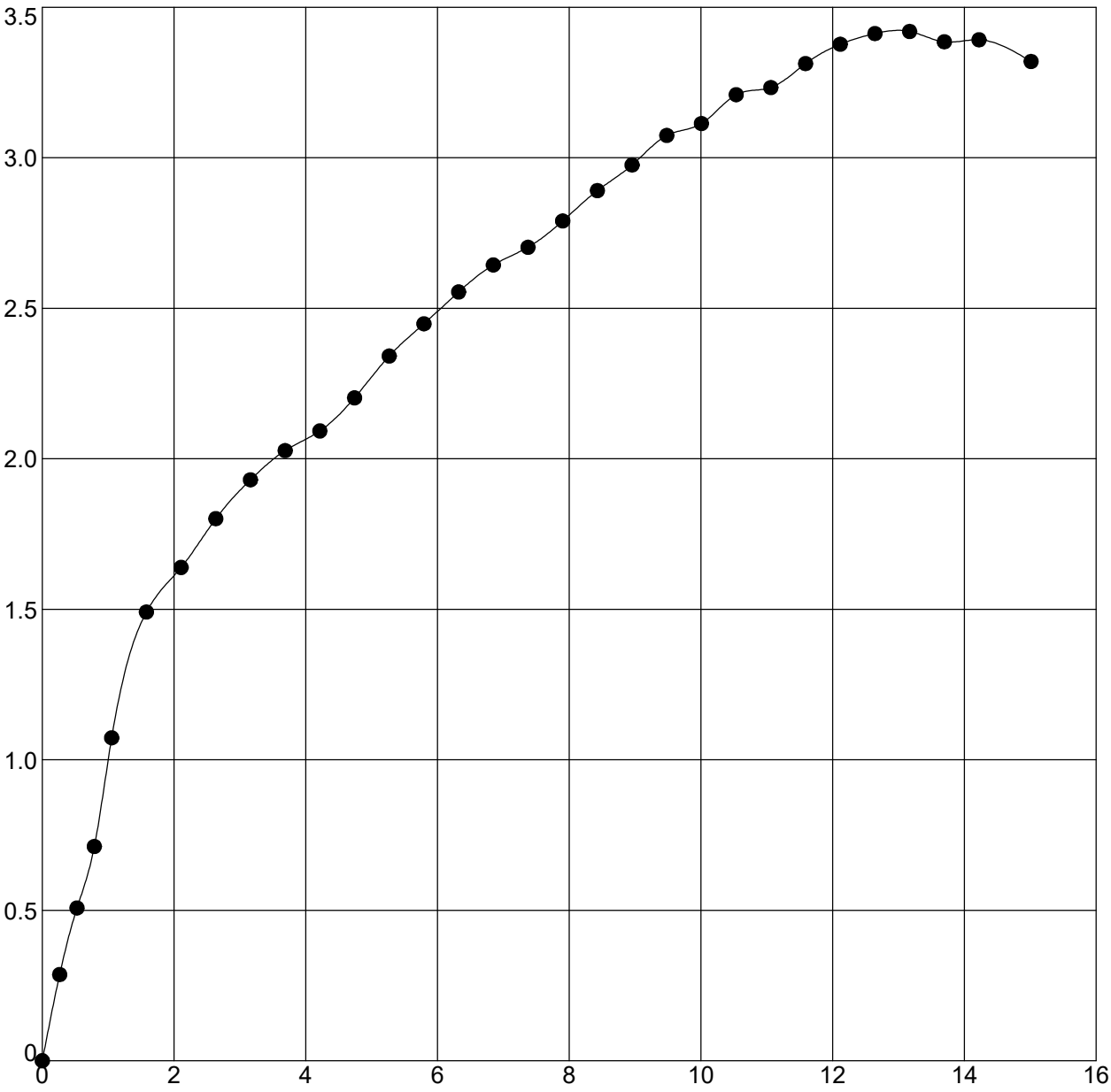

Boring	Sample	Depth	Classification
RB-142	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.1	128.9	105.6	3.42	1.0	13.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.71	101	0.607	34.16	67.51	2.0

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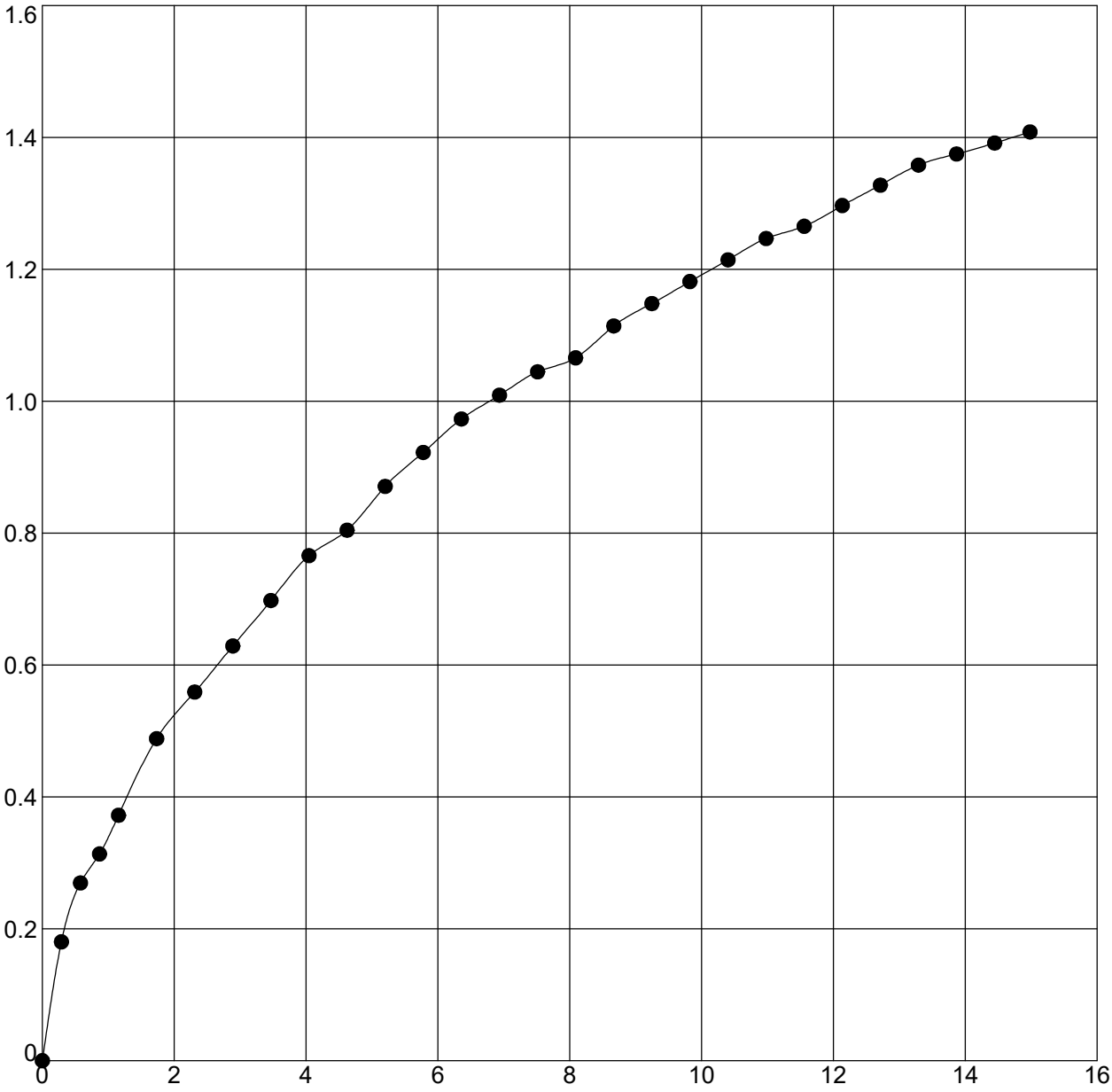

Boring	Sample	Depth	Classification
RB-145	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.9	129.6	106.3	1.41	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.70	100	0.596	35.15	61.54	1.8

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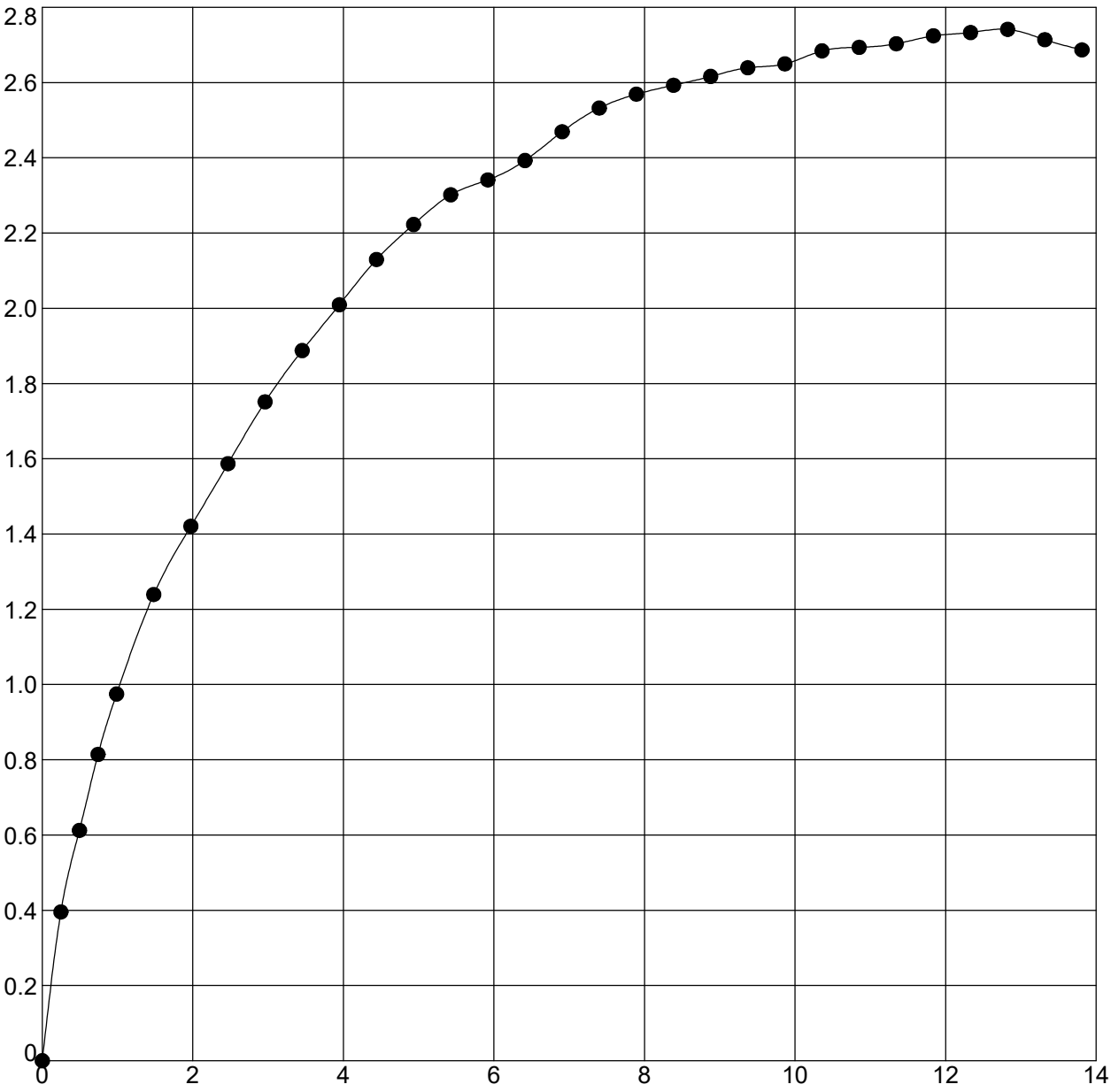
INDOT_UNCONFINED_TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-146	SS-1B	1.2 - 2.7	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.5	127.8	103.5	2.74	1.0	12.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.37	100	0.640	36.89	72.09	2.0

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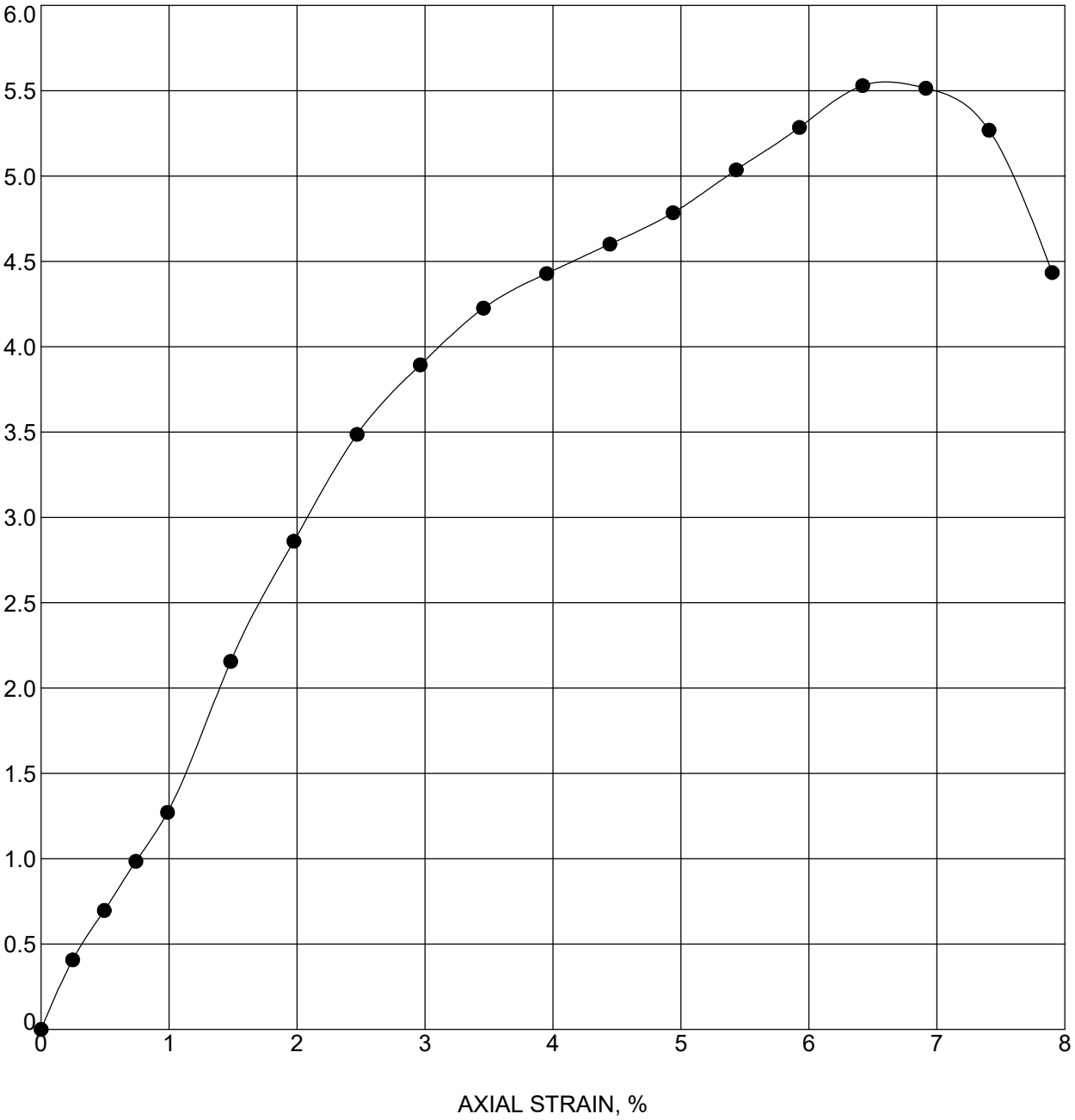
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-149	SS-1T	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.3	127.3	106.6	5.53	1.0	6.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.77	89	0.592	35.71	72.01	2.0

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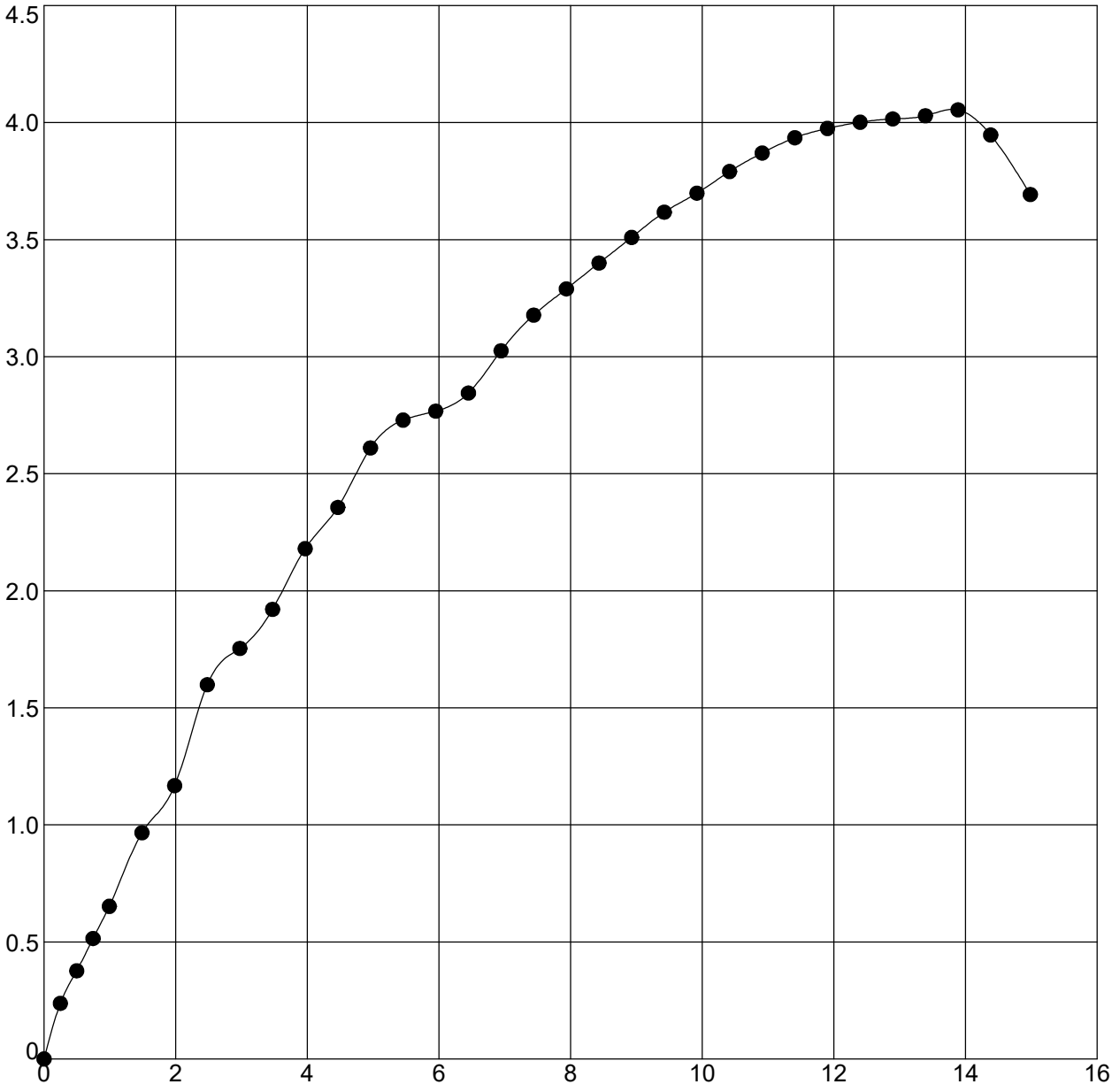
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-151	SS-2T	3.5 - 5	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
24.0	127.5	102.8	4.05	1.0	13.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.03	100	0.651	36.44	71.7	2.0

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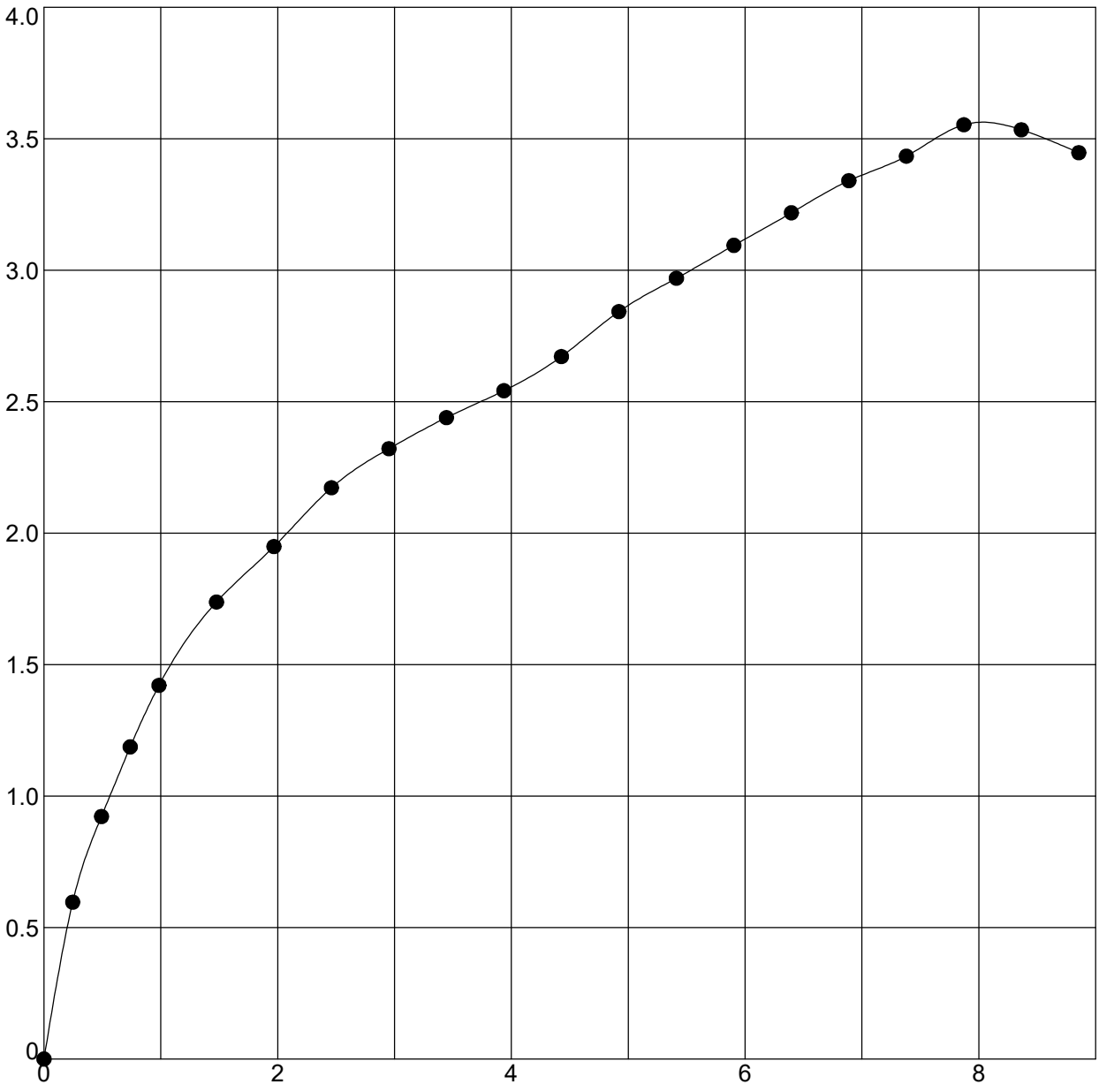

Boring	Sample	Depth	Classification
RB-155	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
24.6	124.7	100.1	3.55	1.0	7.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.78	96	0.696	35.28	72.277	2.0

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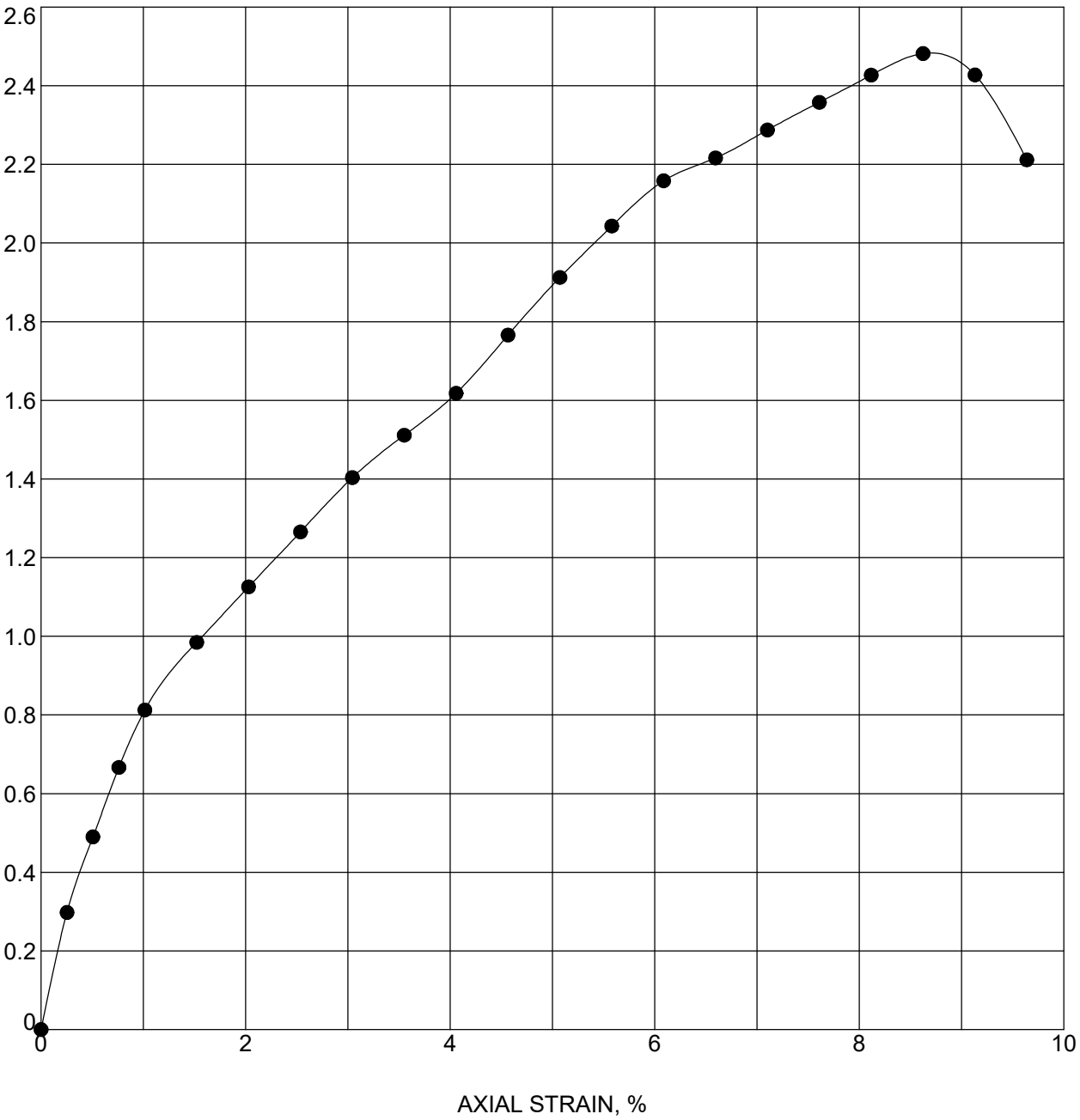

Boring	Sample	Depth	Classification
RB-159	SS-1B	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
25.4	125.5	100.1	2.48	1.0	8.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.24	99	0.696	35.31	70.1	2.0

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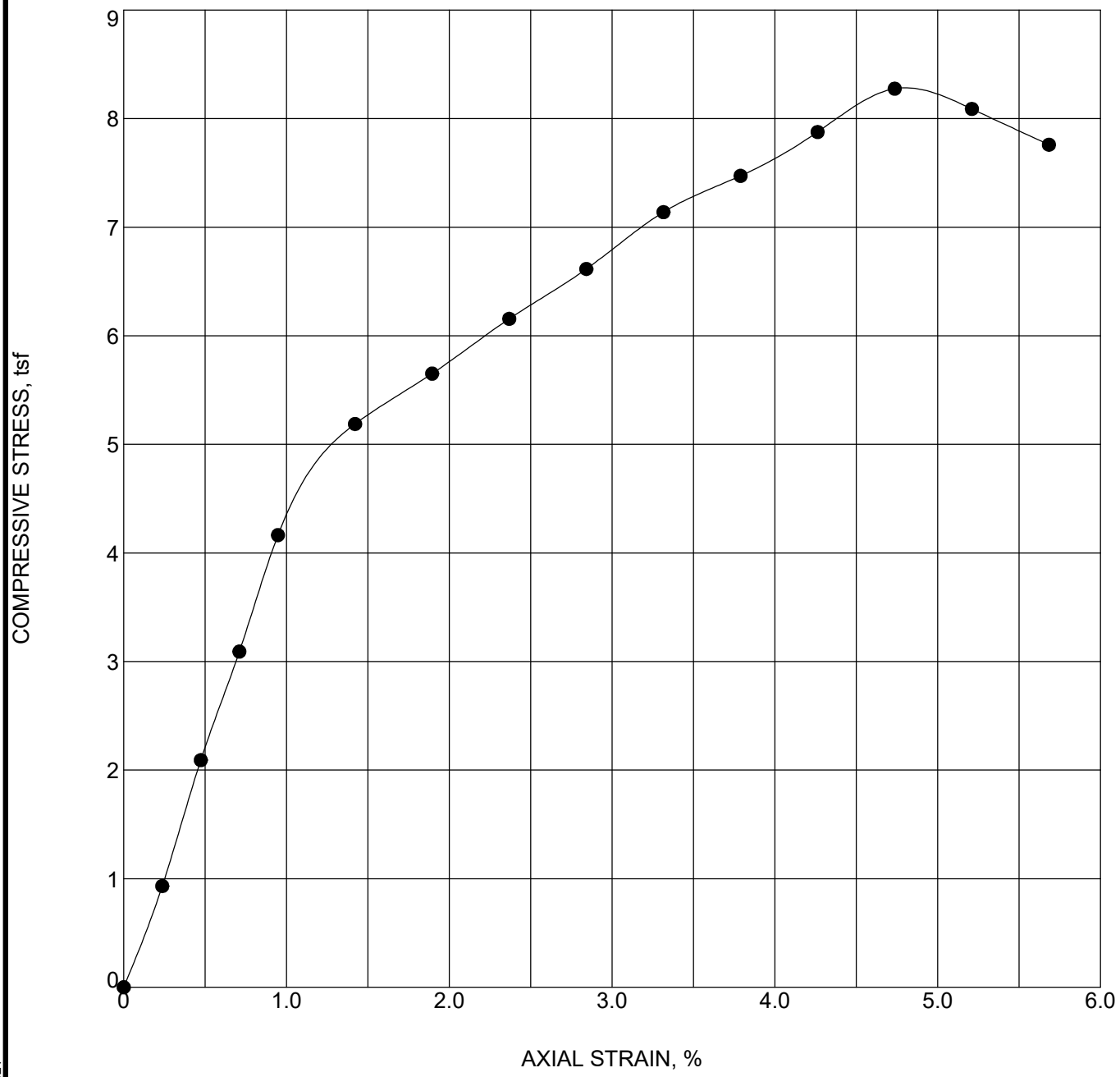

Boring	Sample	Depth	Classification
RB-160	SS-1B	1.2 - 2.7	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.0	136.1	118.3	8.28	1.0	4.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
4.14	94	0.435	34.57	75.08	2.2

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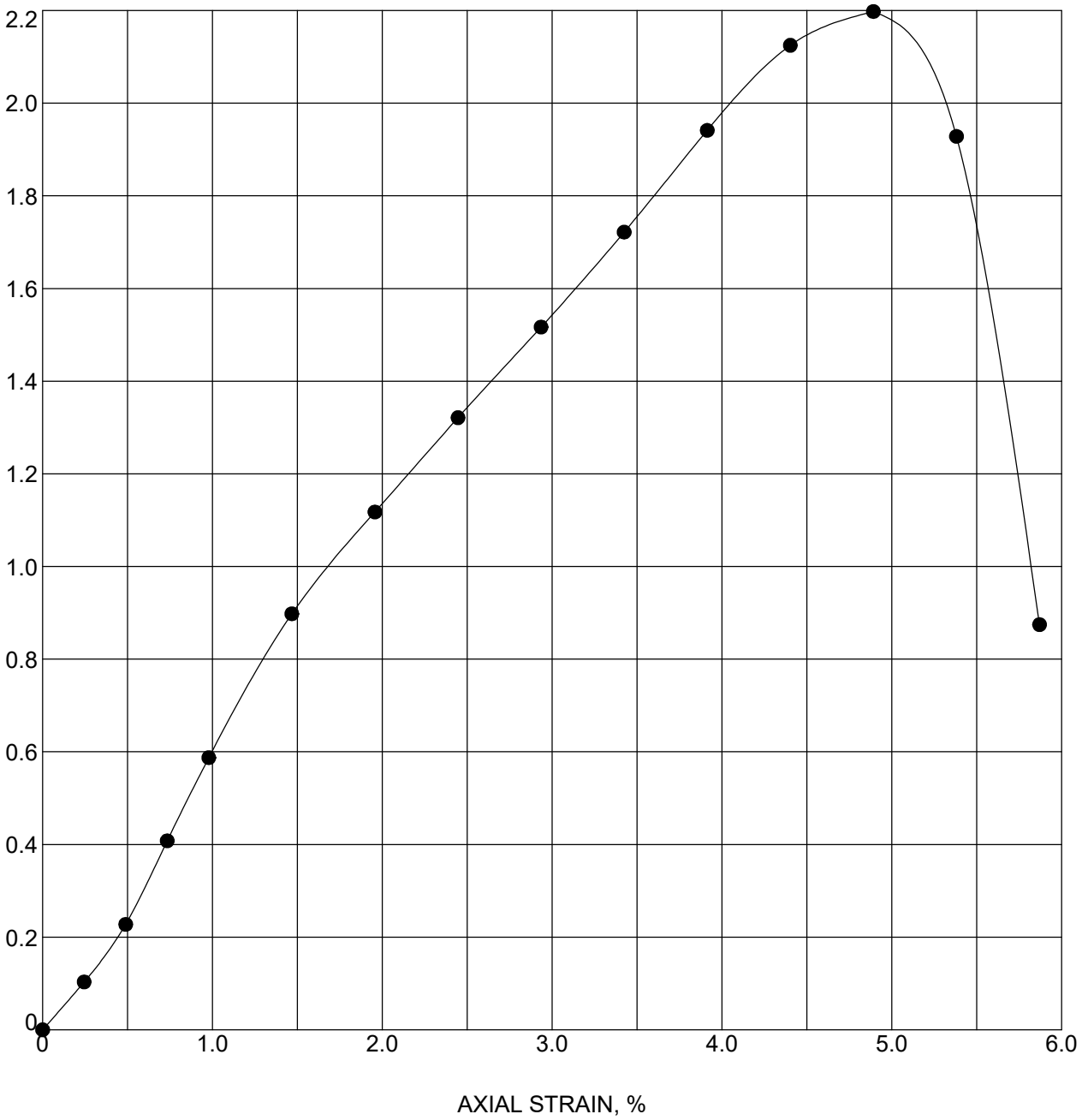

Boring	Sample	Depth	Classification
RB-162A	ST-1	1 - 3	SILTY CLAY A-6 (12)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.3	123.9	100.5	2.20	1.0	4.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.10	90	0.720	72.16	145.39	2.0

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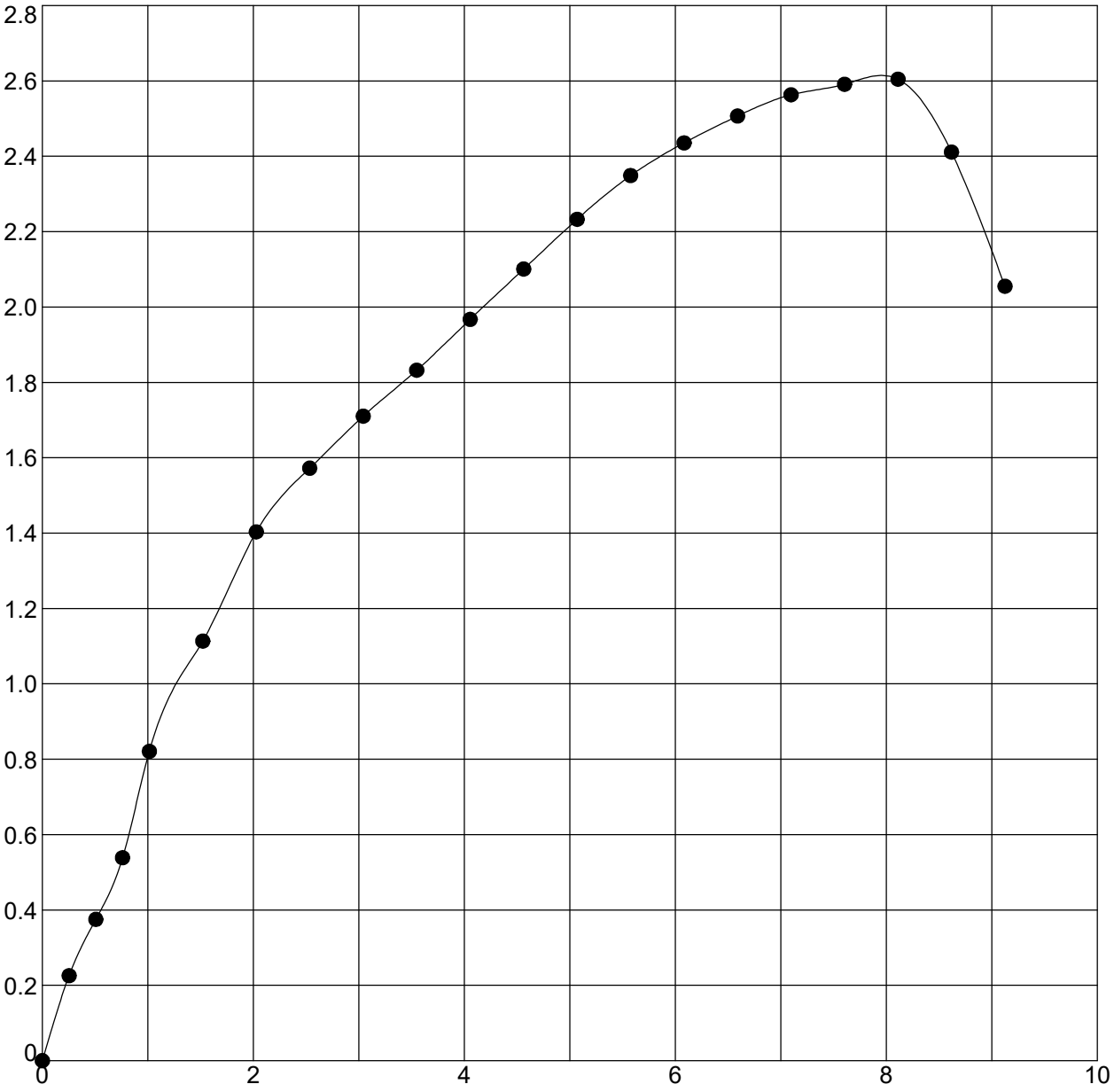

Boring	Sample	Depth	Classification
RB-165	SS-1T	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.7	129.8	106.7	2.60	1.0	8.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.30	100	0.591	35.13	70.15	2.0

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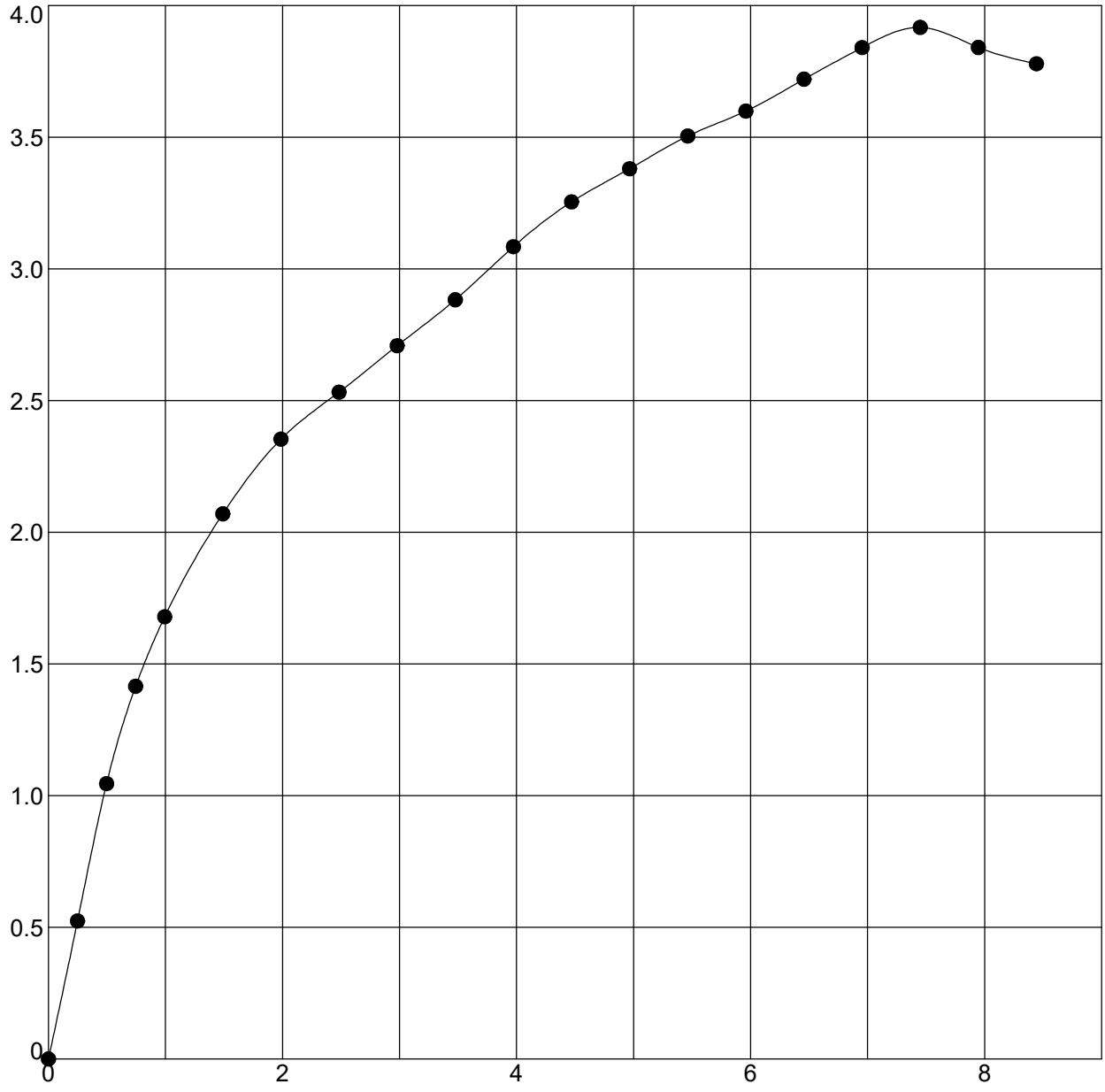

Boring	Sample	Depth	Classification
RB-173	SS-1T	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.9	132.2	110.3	3.92	1.0	7.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.96	100	0.539	35.21	71.6	2.0

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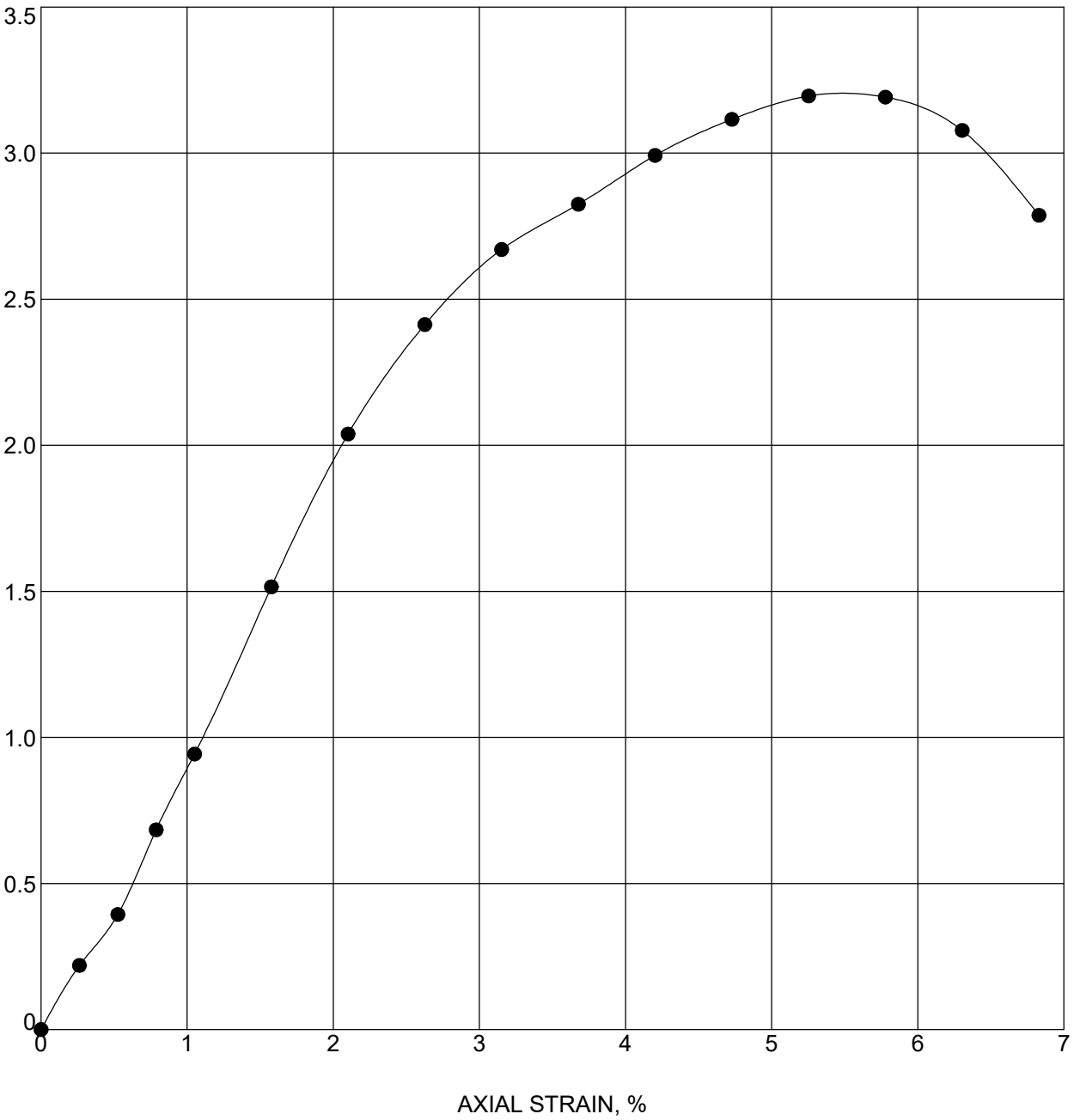

Boring	Sample	Depth	Classification
RB-174	SS-1T	1.3 - 2.8	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.5	130.0	107.0	3.20	1.0	5.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.60	100	0.586	35.62	67.69	1.9

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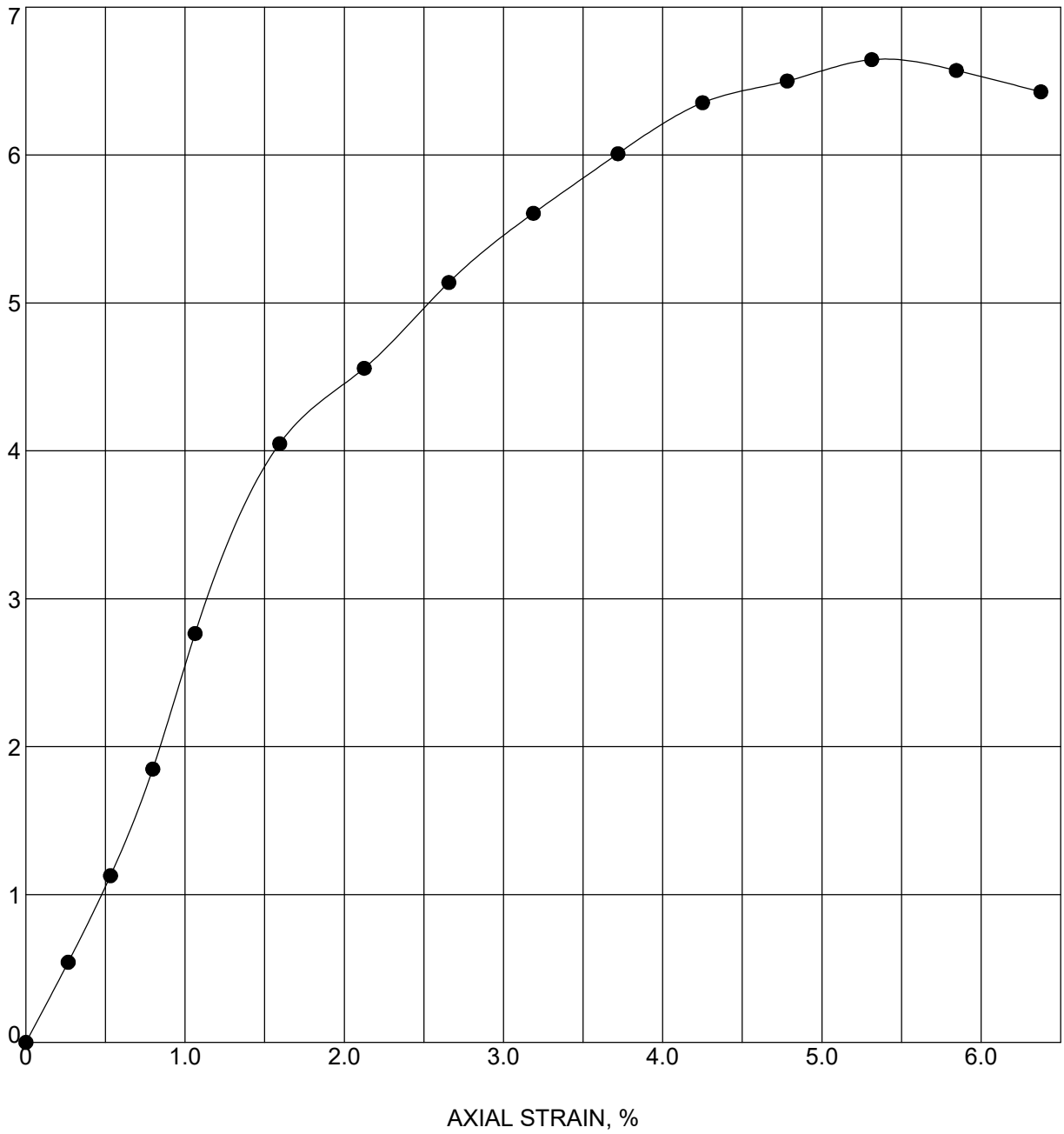
INDOT_UNCONFINED_TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-184	SS-2B	2.7 - 4.2	SANDY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.7	135.4	118.0	6.65	1.1	5.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
3.32	53	0.438	34.62	66.93	1.9

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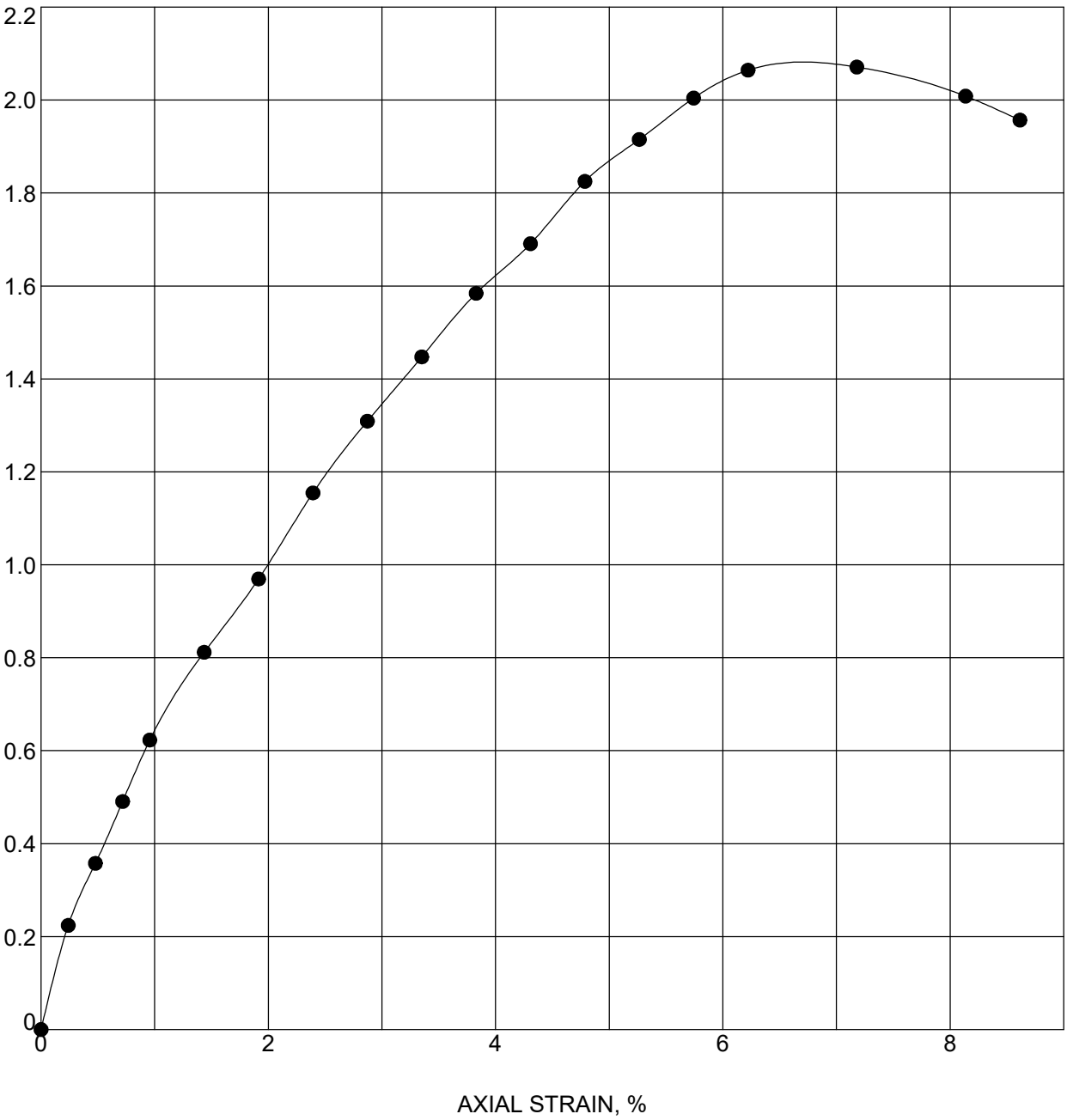

Boring	Sample	Depth	Classification
RB-191	SS-2T	3.5 - 5	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.8	135.8	116.2	2.07	1.0	7.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.04	100	0.460	35.25	74.3	2.1

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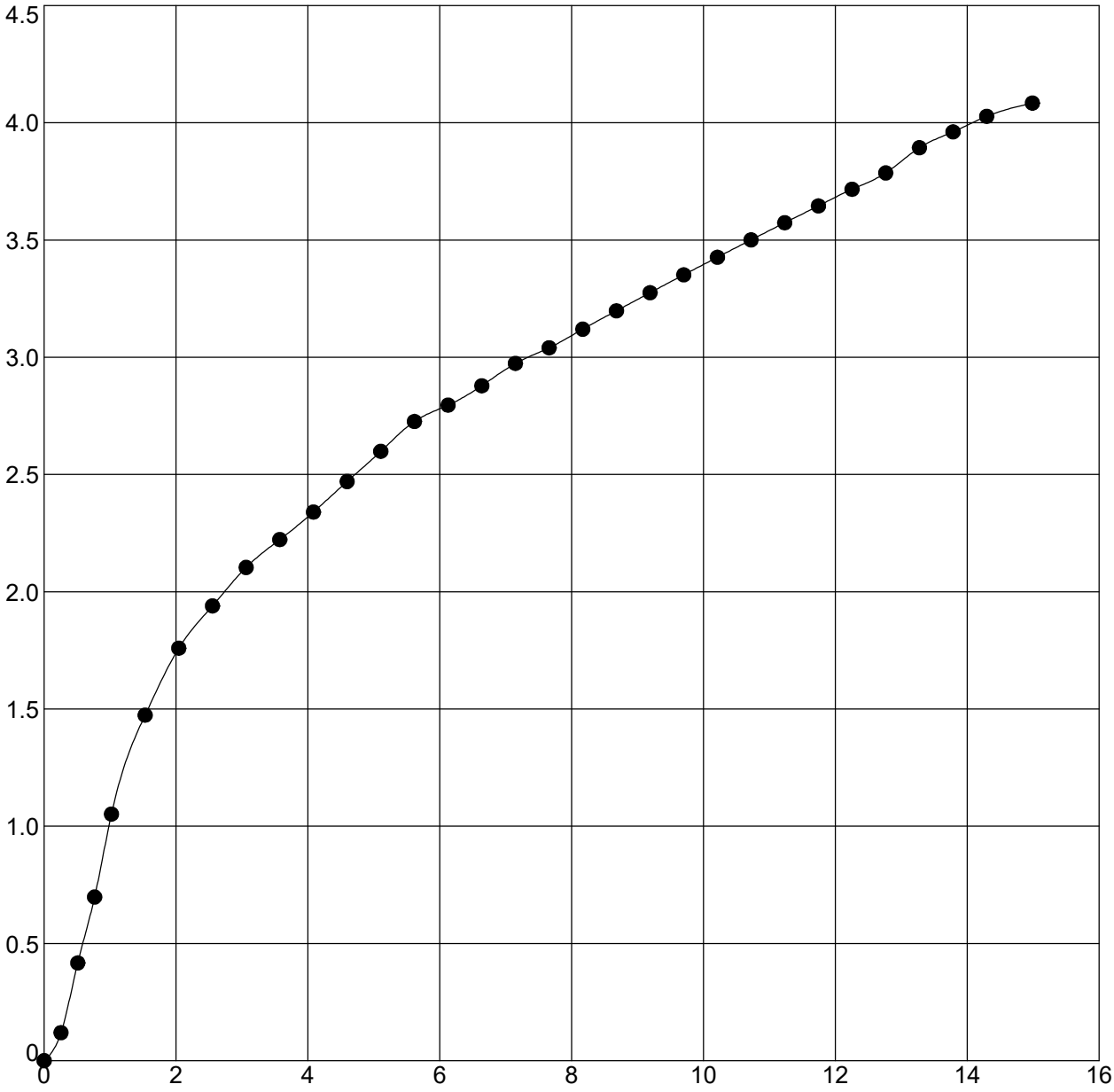

Boring	Sample	Depth	Classification
RB-193	SS-1B	1 - 2.5	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.3	132.1	113.6	4.08	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.04	90	0.494	35.26	69.65	2.0

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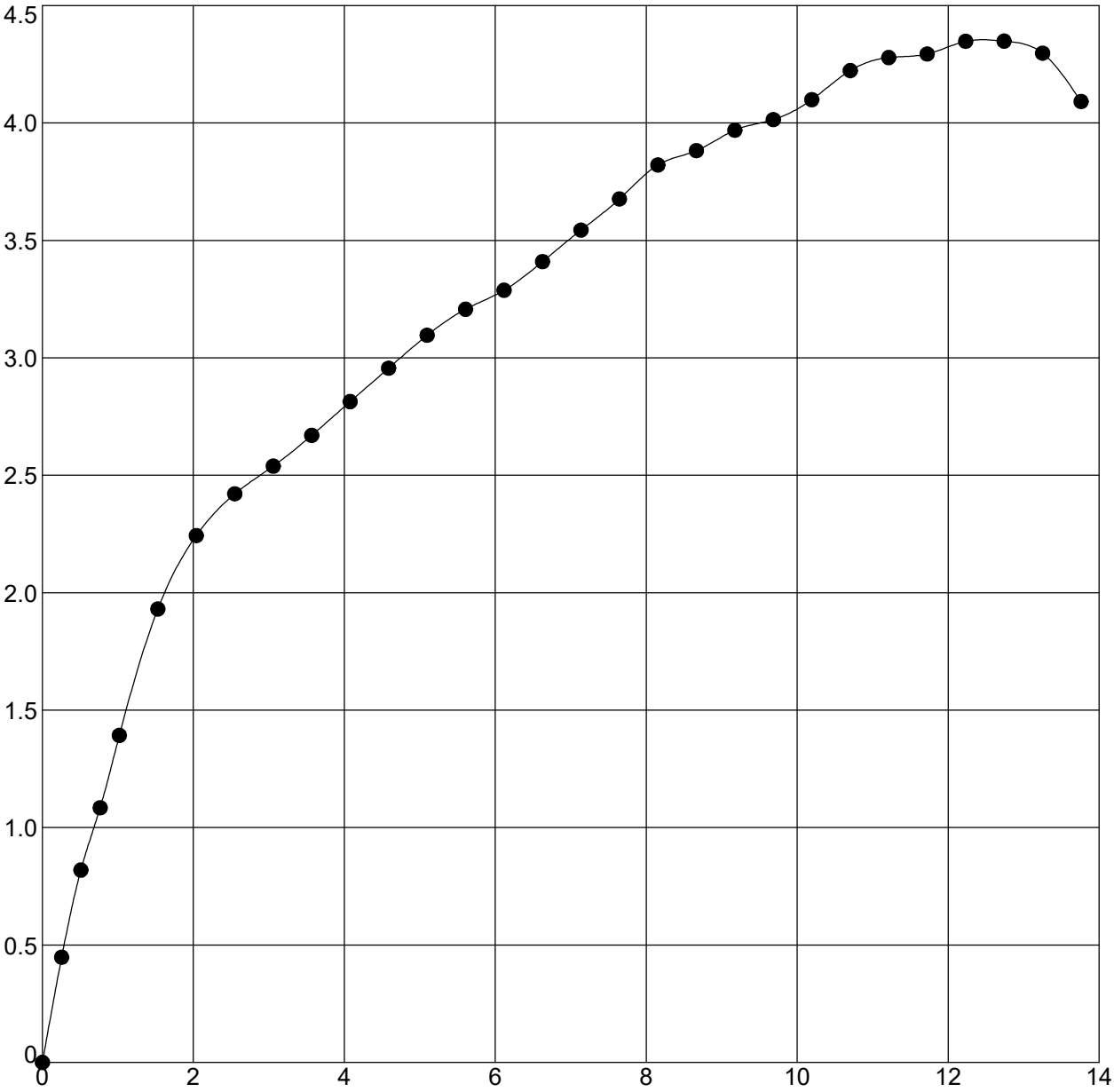

Boring	Sample	Depth	Classification
RB-194	SS-2T	2.3 - 3.8	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.1	129.5	110.6	4.35	1.0	12.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.17	87	0.535	35.26	69.77	2.0

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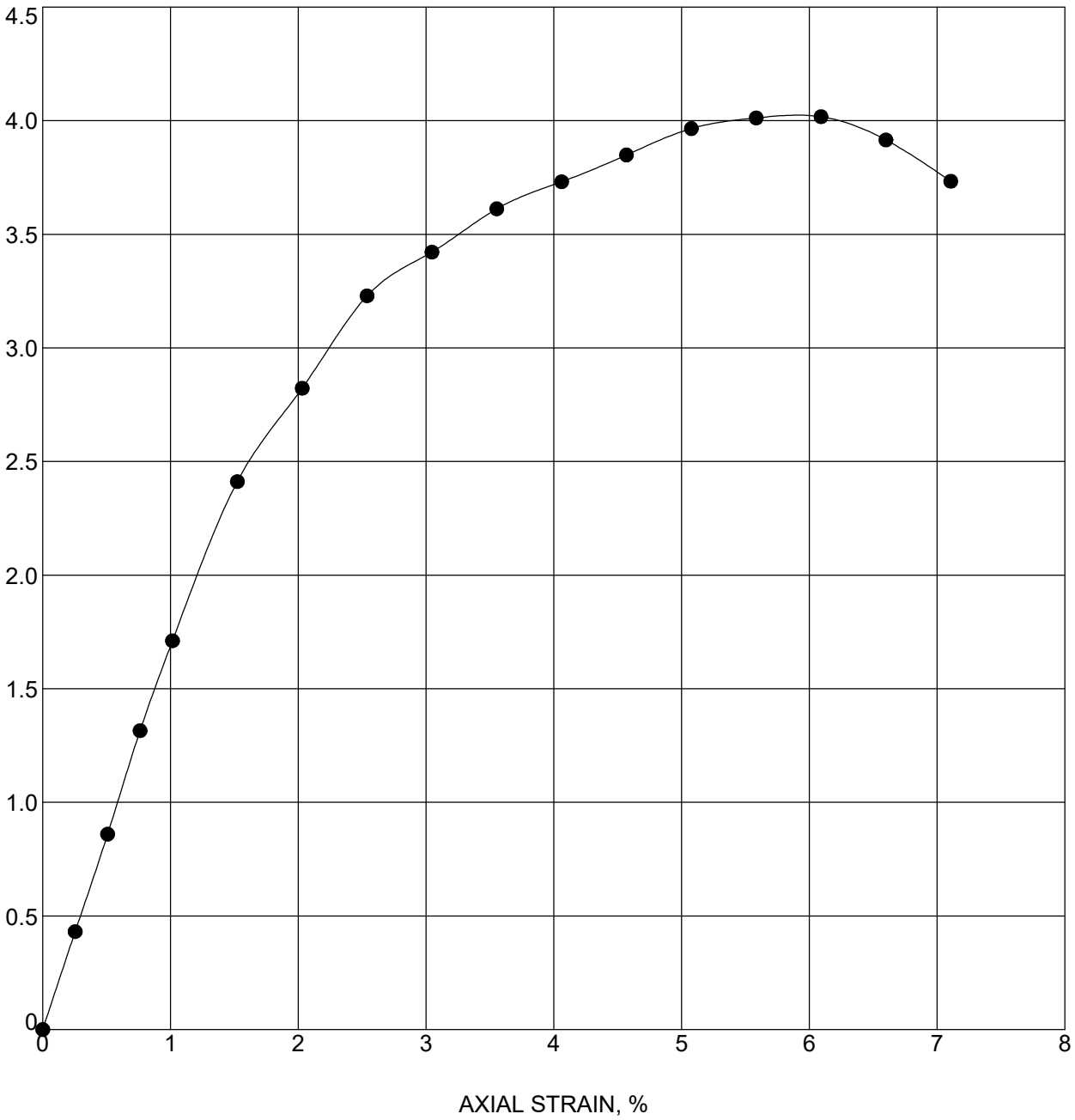

Boring	Sample	Depth	Classification
RB-195	SS-1T	1 - 2.5	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.2	129.7	110.7	4.02	1.0	6.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.01	88	0.534	35.94	70.05	1.9

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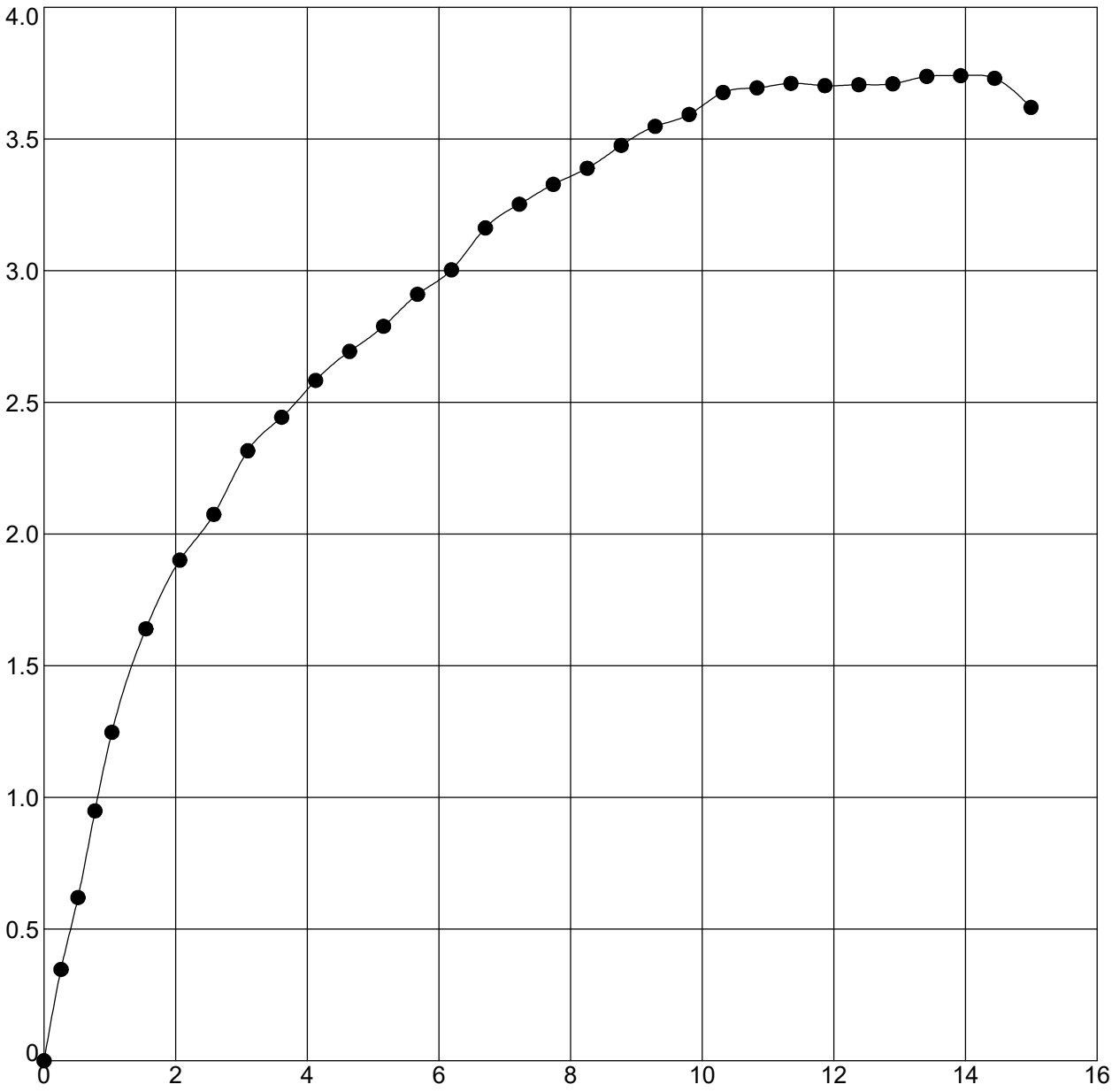

Boring	Sample	Depth	Classification
RB-202	SS-1T	1.5 - 3	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.6	132.0	113.2	3.74	1.0	13.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.87	90	0.499	35.84	68.94	1.9

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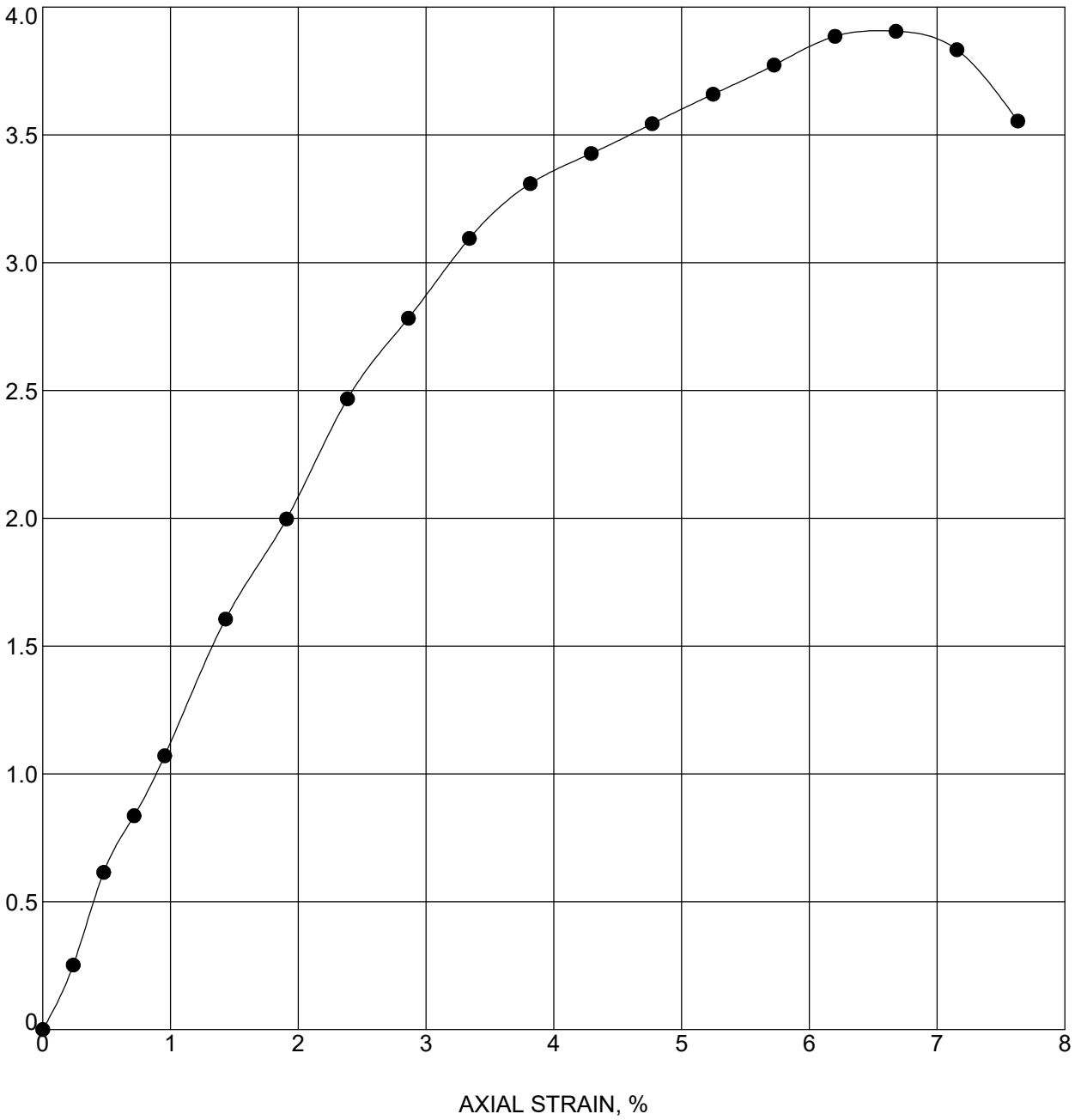

Boring	Sample	Depth	Classification
RB-203	SS-1T	1 - 2.5	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.1	131.5	113.3	3.91	1.0	6.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.95	88	0.498	36.4	74.55	2.0

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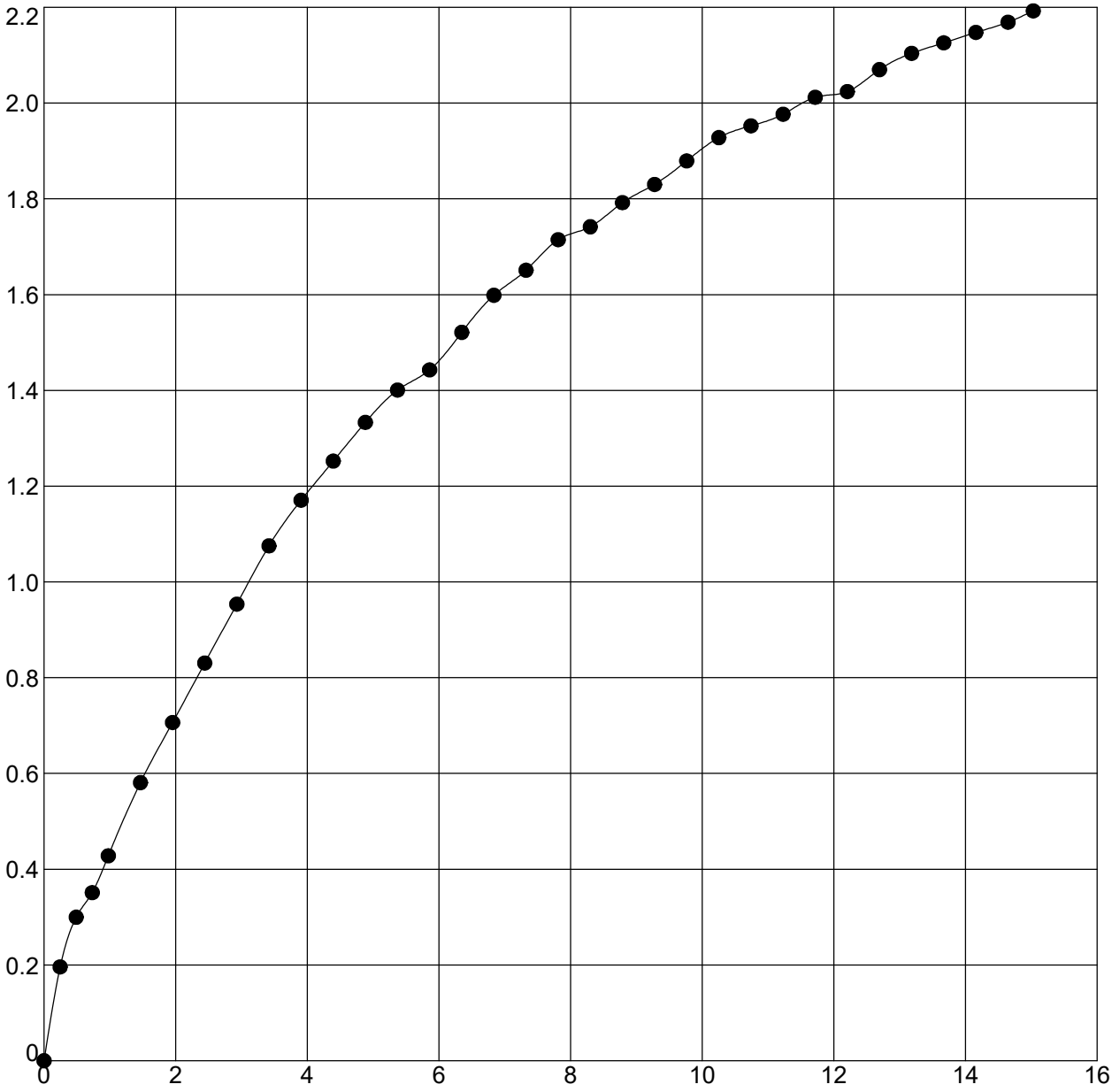

Boring	Sample	Depth	Classification
RB-205	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.6	133.5	112.5	2.19	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.10	100	0.508	37.69	72.84	1.9

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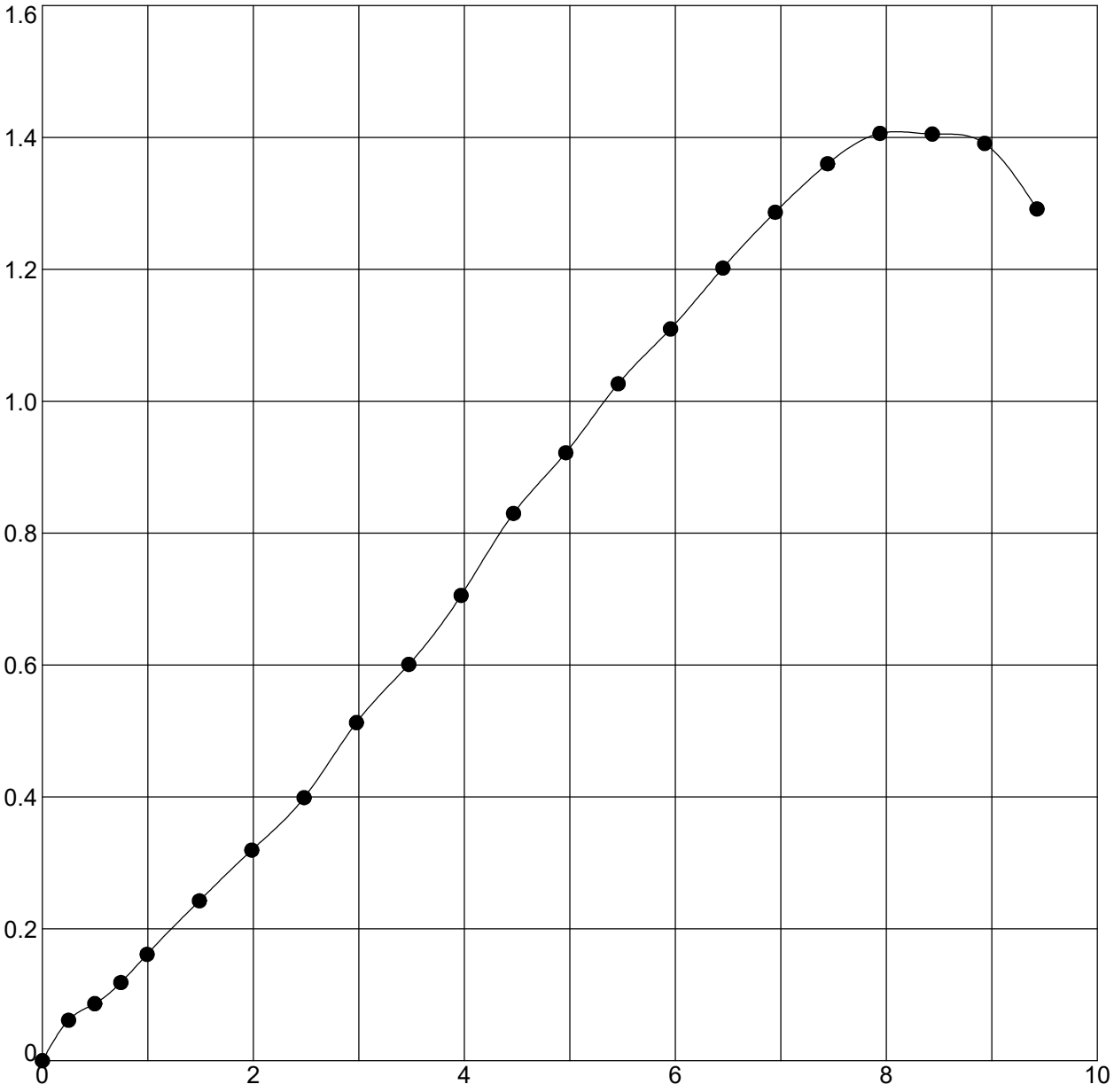

Boring	Sample	Depth	Classification
RB-211A	ST-1	1 - 3	SILTY CLAY LOAM A-4 (4)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.5	128.9	107.9	1.41	1.0	7.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.70	88	0.619	71.7	143.33	2.0

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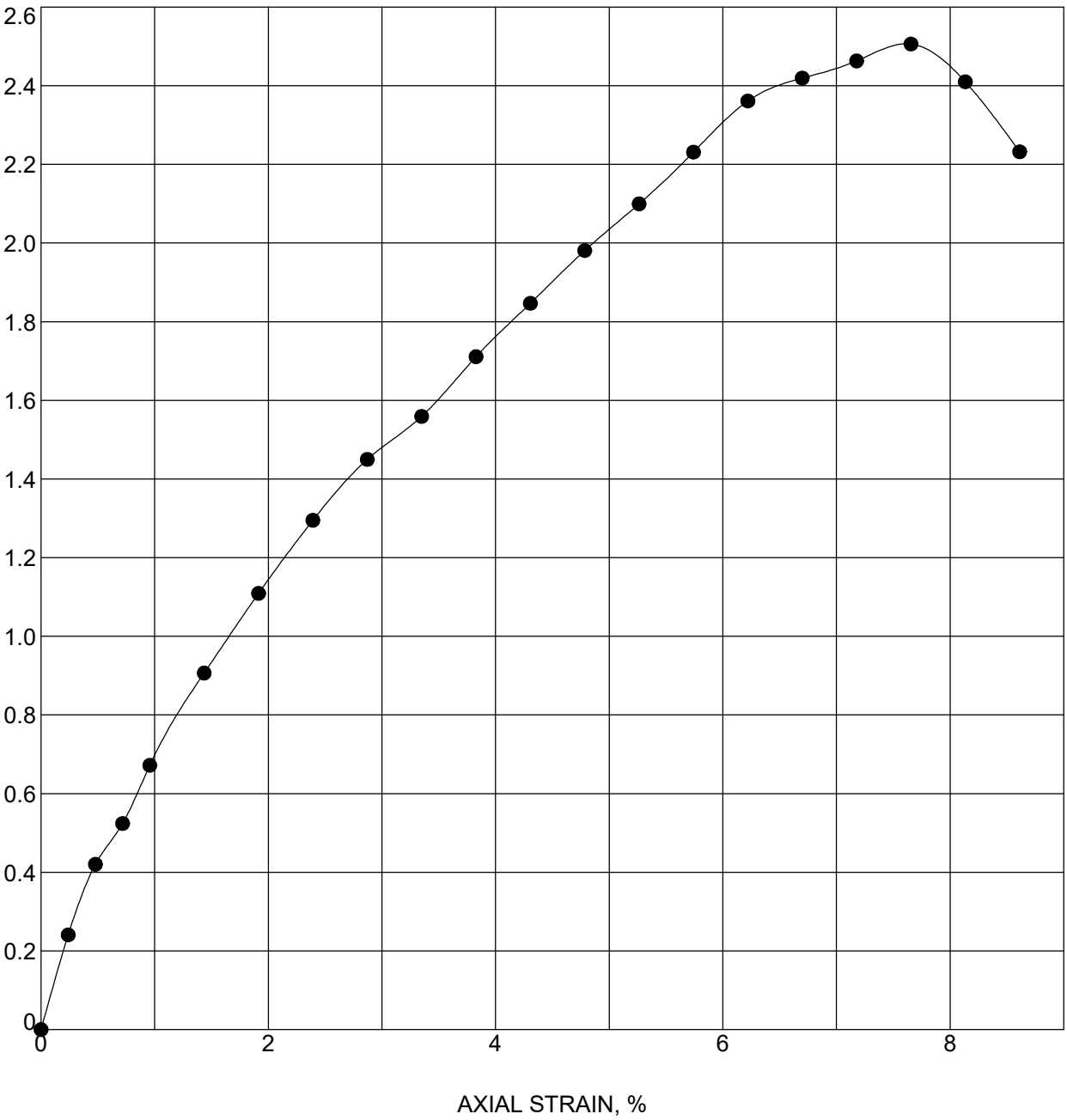

Boring	Sample	Depth	Classification
RB-212	SS-1B	1.1 - 2.6	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.1	130.5	111.5	2.51	1.0	7.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.25	89	0.522	35.13	74.32	2.1

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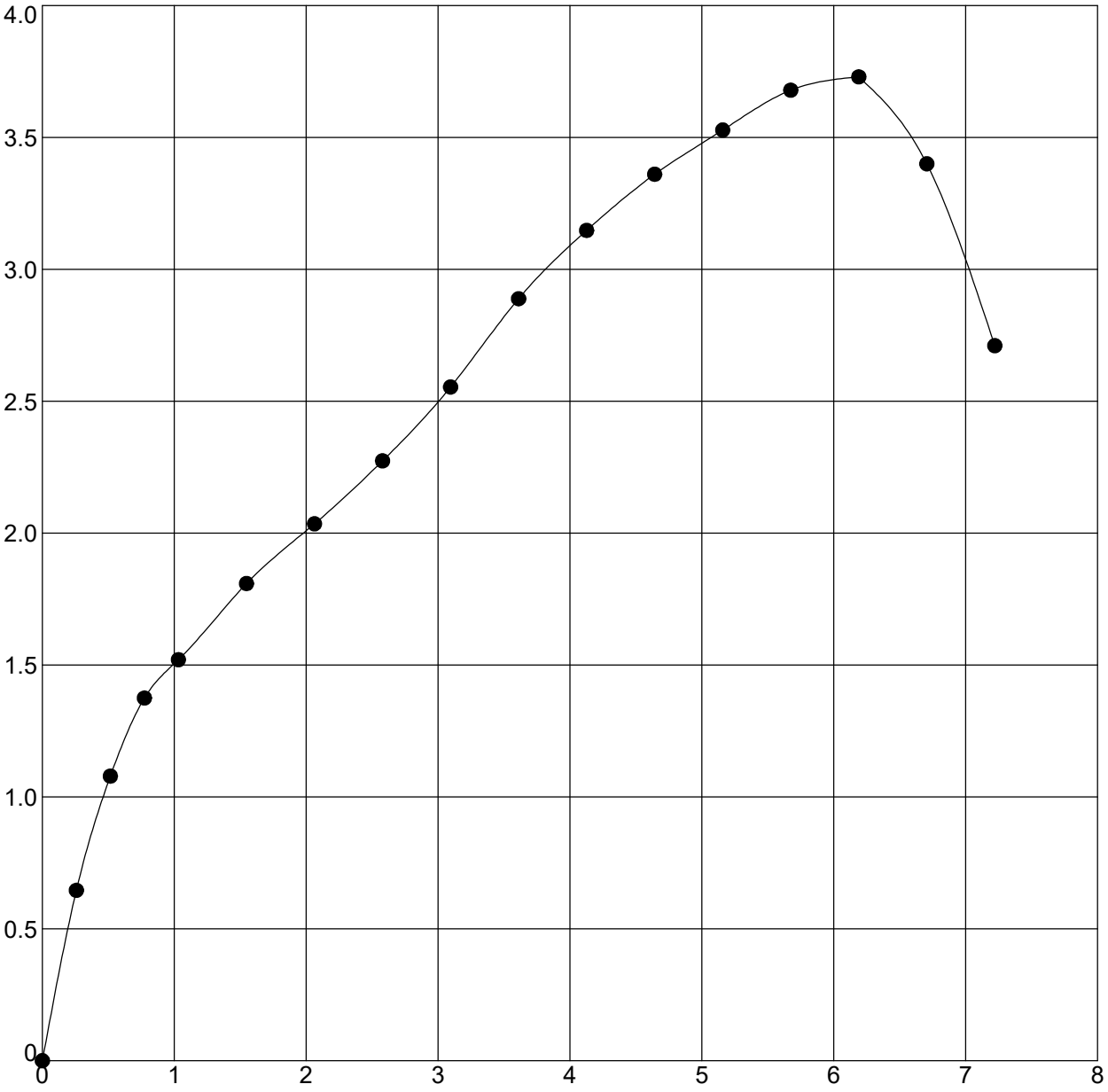

Boring	Sample	Depth	Classification
RB-214	SS-1T	1.3 - 2.8	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.7	135.1	115.8	3.73	1.0	6.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.86	97	0.466	35.15	68.94	2.0

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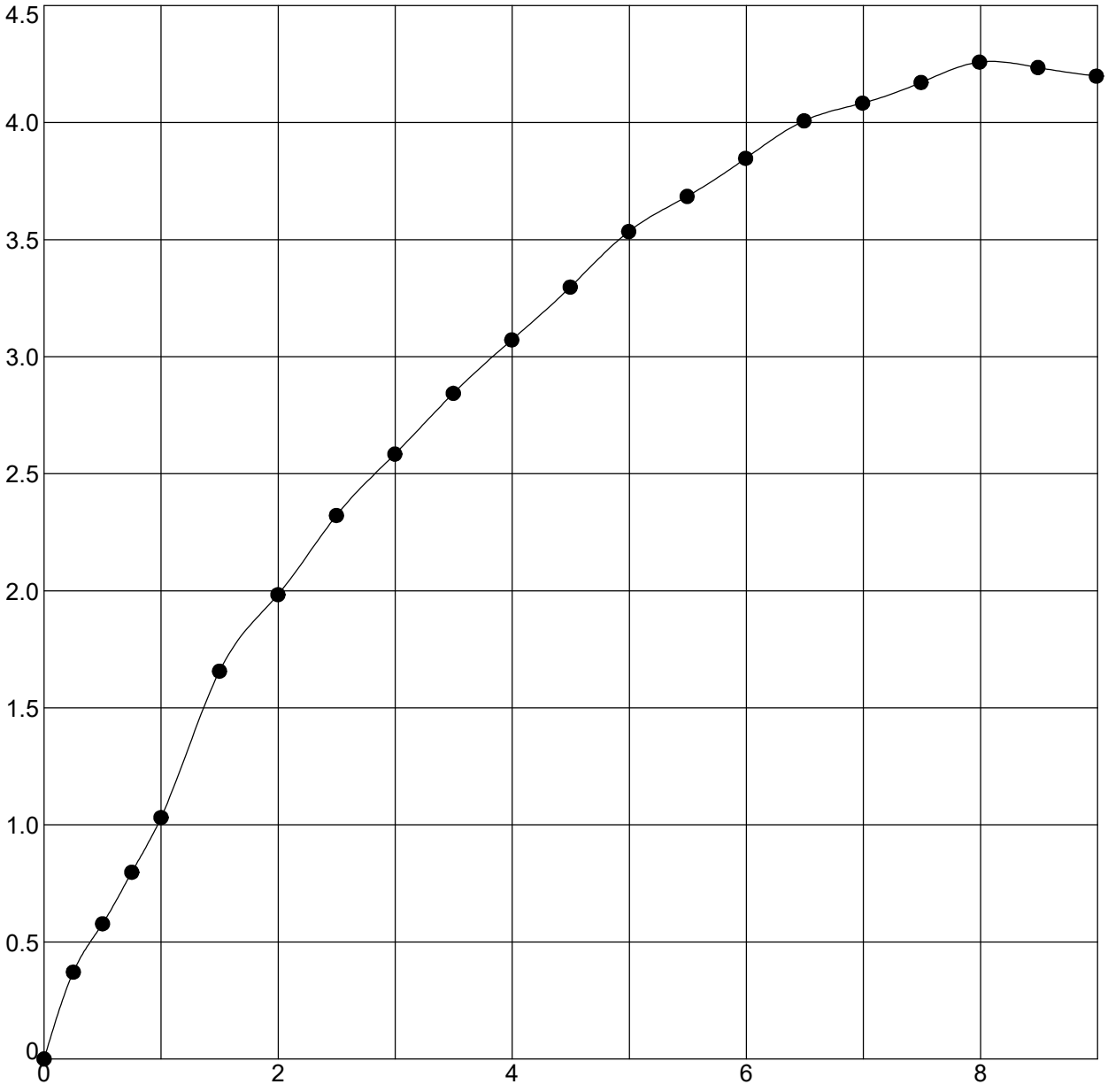

Boring	Sample	Depth	Classification
RB-216	SS-1	1.2 - 2.7	SILTY CLAY LOAM A-4 (8)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.6	132.2	113.4	4.26	1.0	8.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.13	91	0.497	35.36	71.2	2.0

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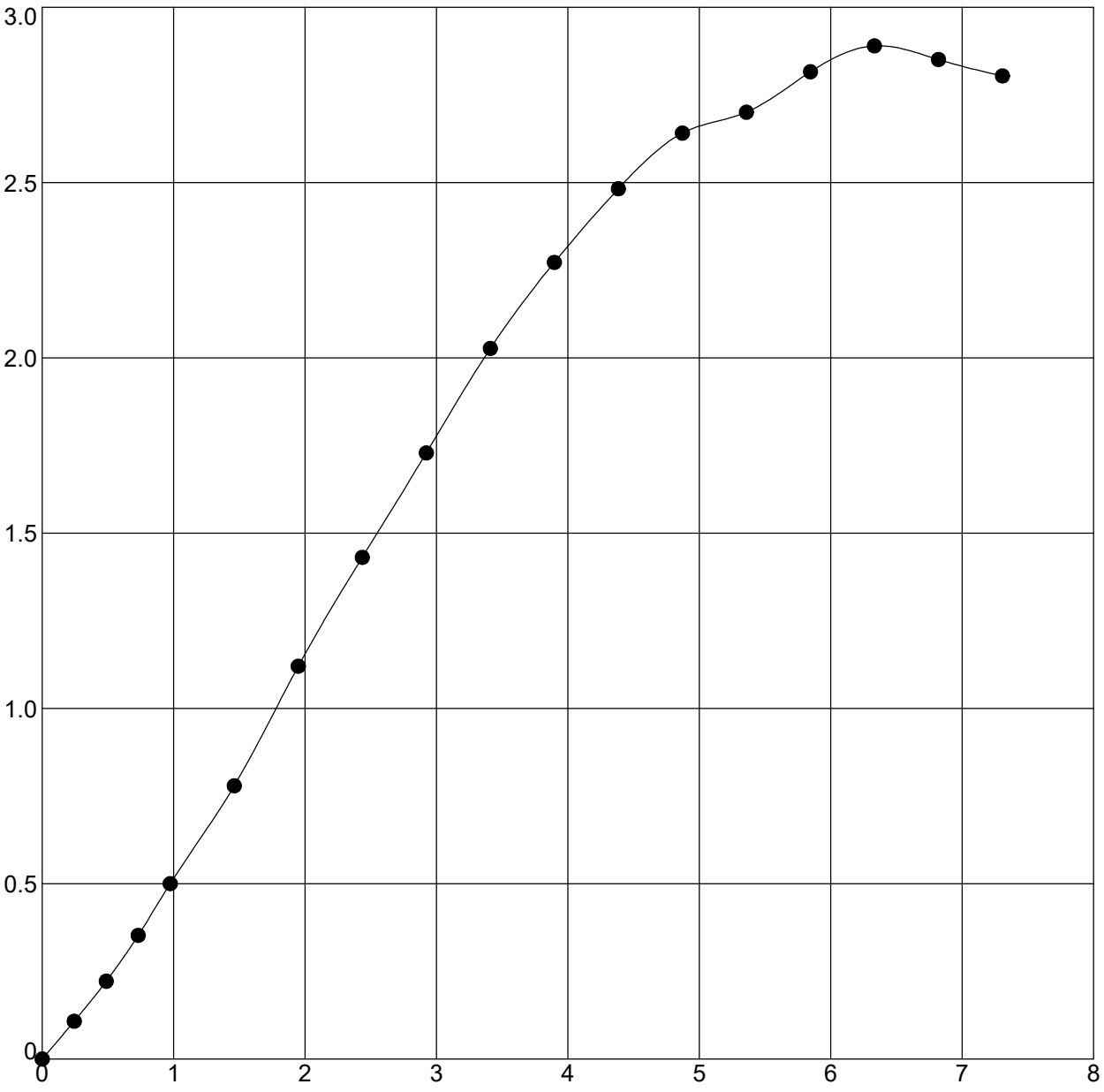

Boring	Sample	Depth	Classification
RB-218A	ST-1	1 - 3	CLAY A-6 (12)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.1	133.4	114.9	2.89	1.0	6.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.44	88	0.509	73.08	146	2.0

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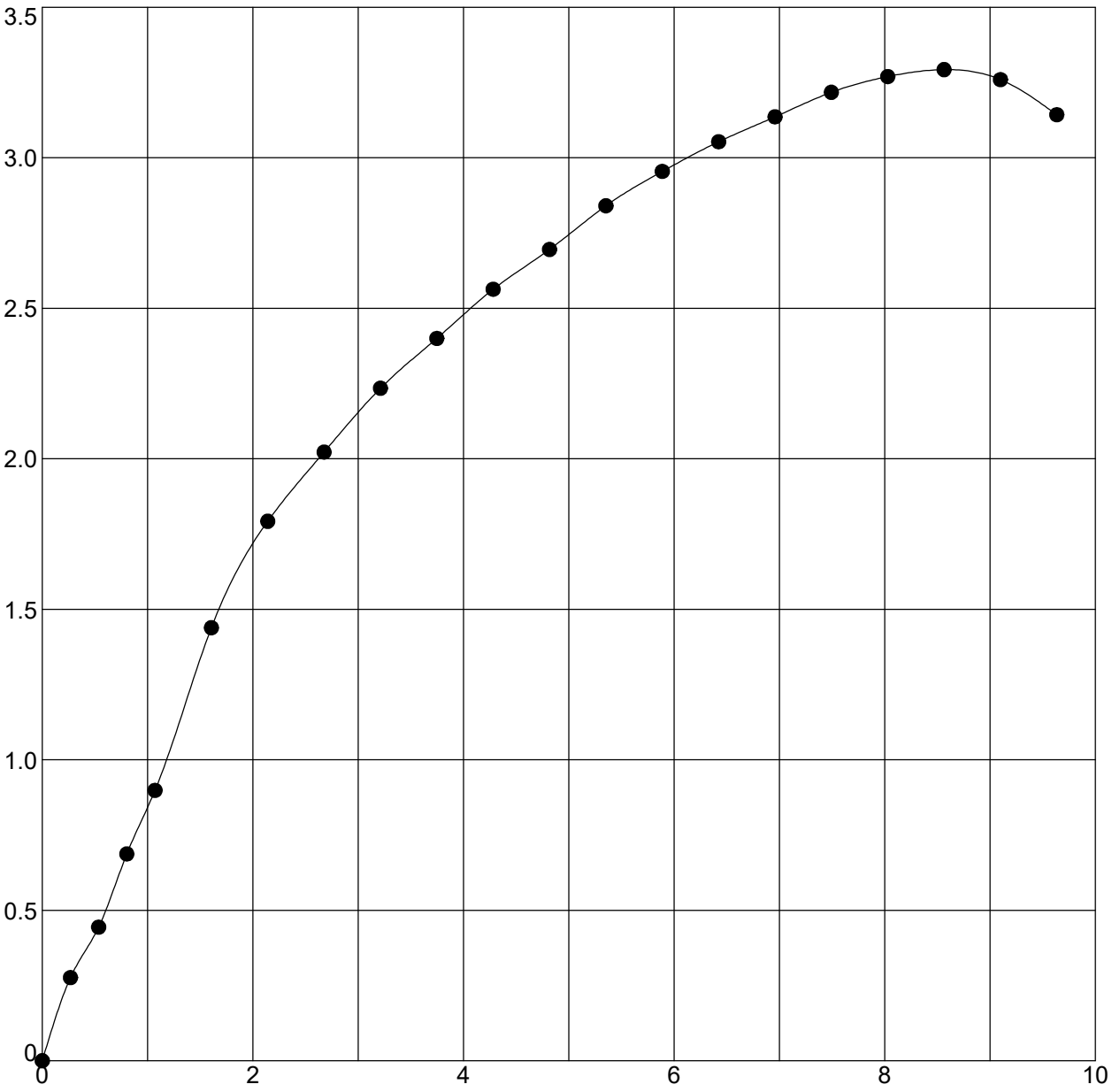

Boring	Sample	Depth	Classification
RB-219	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.3	132.8	112.3	3.29	1.0	8.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.65	97	0.512	34.77	66.44	1.9

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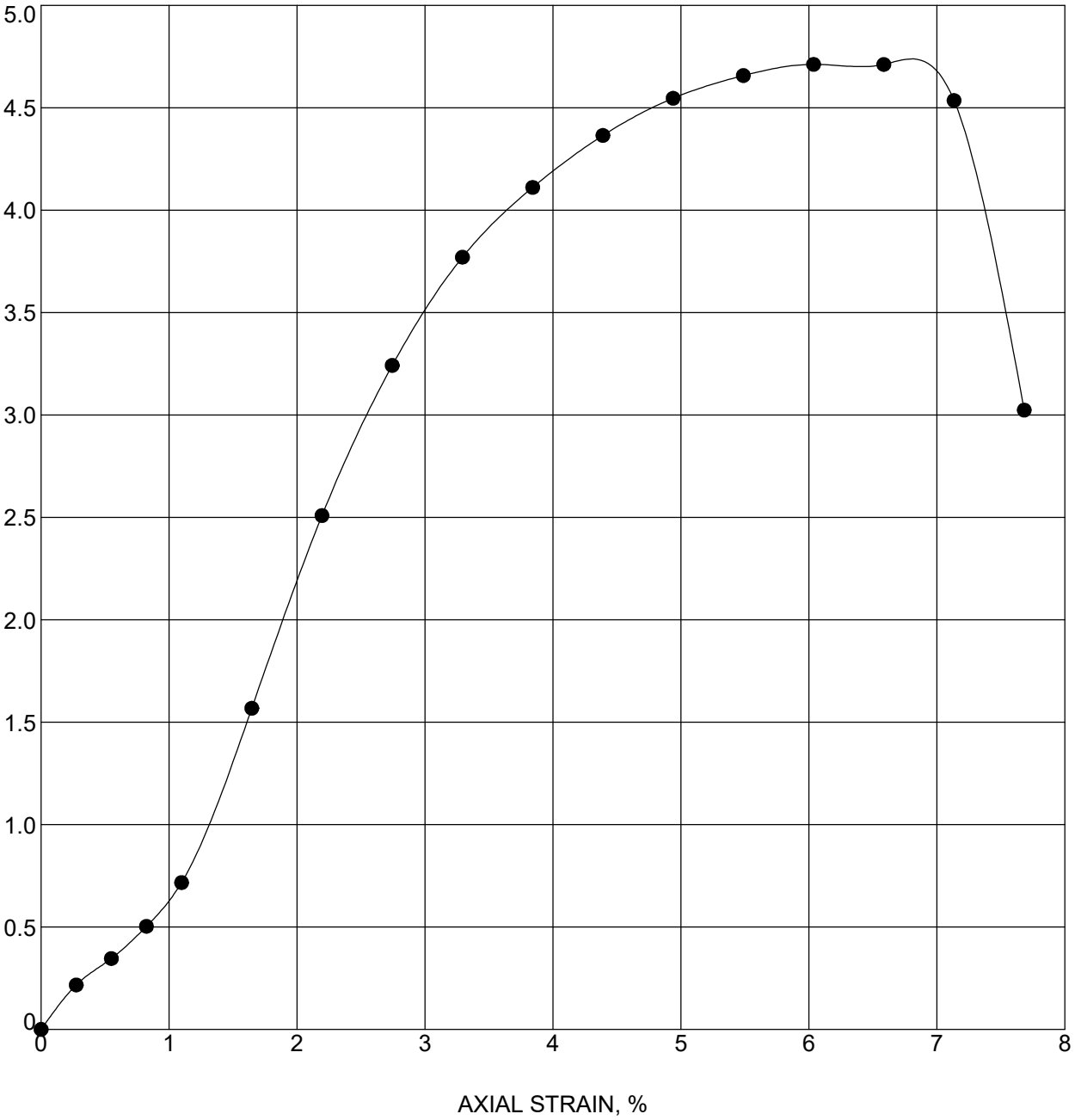

Boring	Sample	Depth	Classification
RB-221	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.9	138.3	120.4	4.71	1.0	6.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.36	99	0.410	35.83	64.8	1.8

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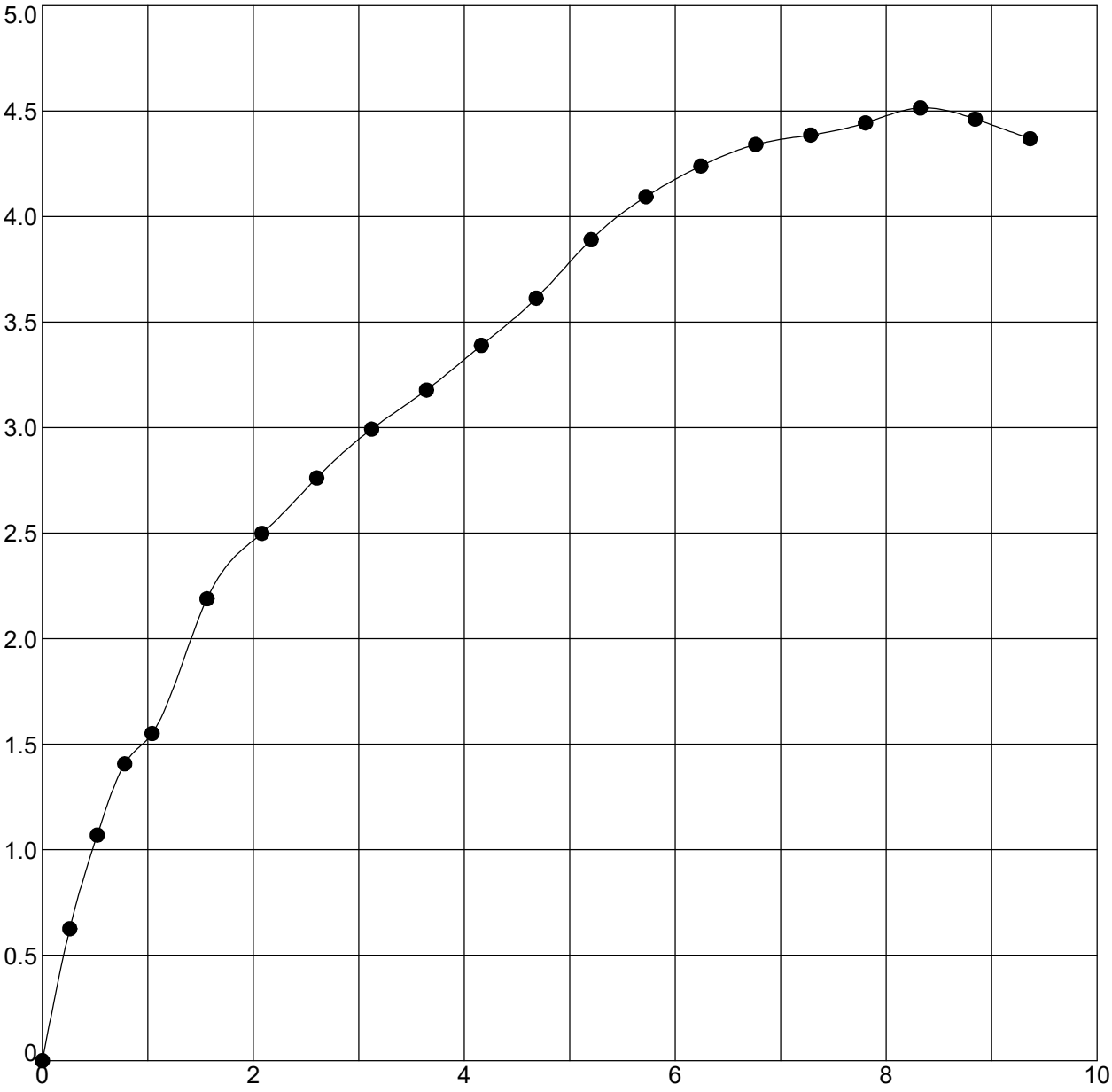

Boring	Sample	Depth	Classification
RB-222	SS-1T	1.3 - 2.8	SILTY CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.6	130.6	111.1	4.51	1.0	8.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.26	91	0.528	35.31	68.35	1.9

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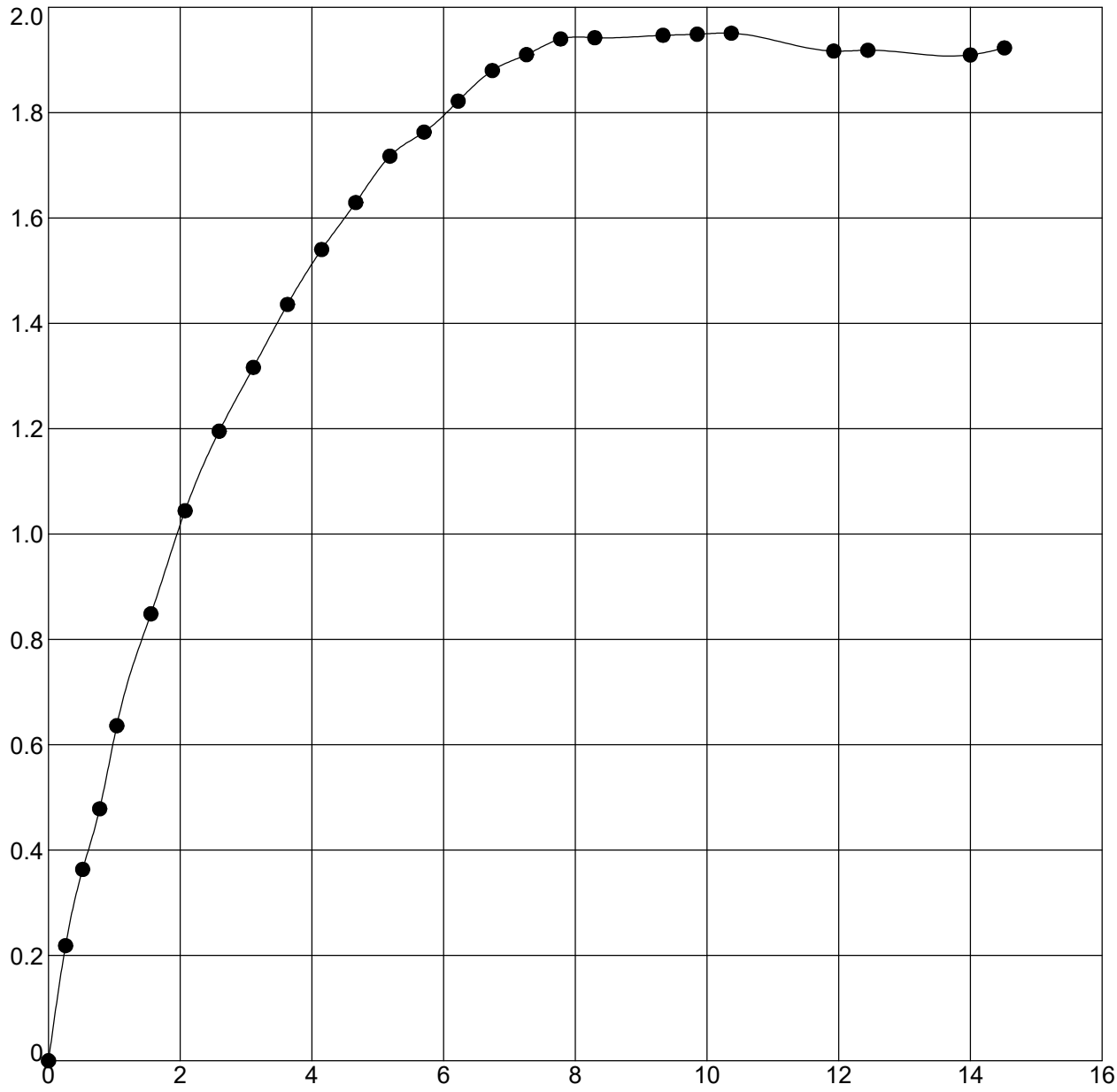

Boring	Sample	Depth	Classification
RB-241	SS-2T	2.8 - 4.3	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.5	134.0	113.2	1.95	1.0	10.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.98	100	0.500	35.69	68.59	1.9

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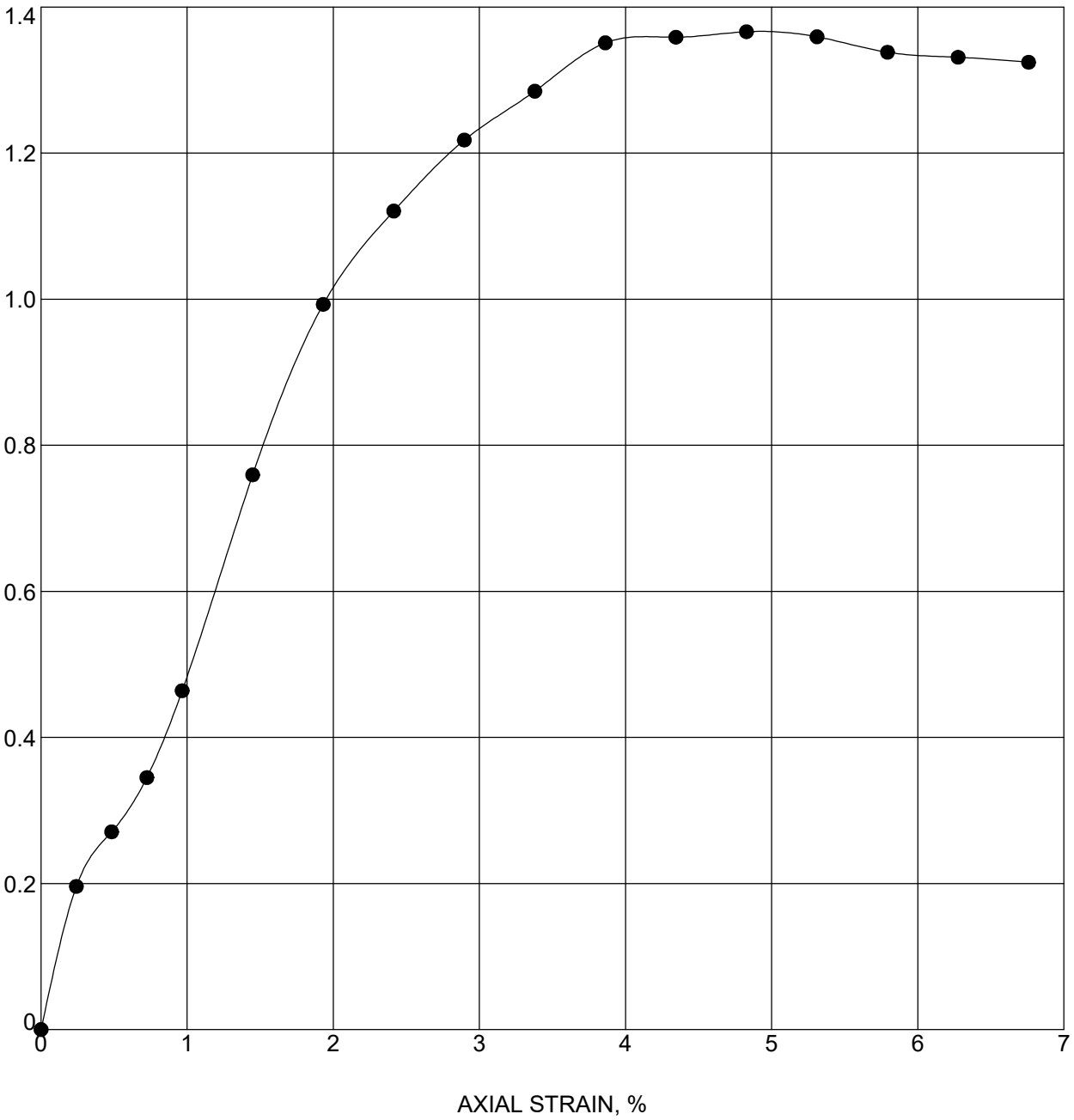

Boring	Sample	Depth	Classification
RB-242	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	128.9	106.4	1.37	1.0	4.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.68	96	0.595	35.09	73.66	2.1

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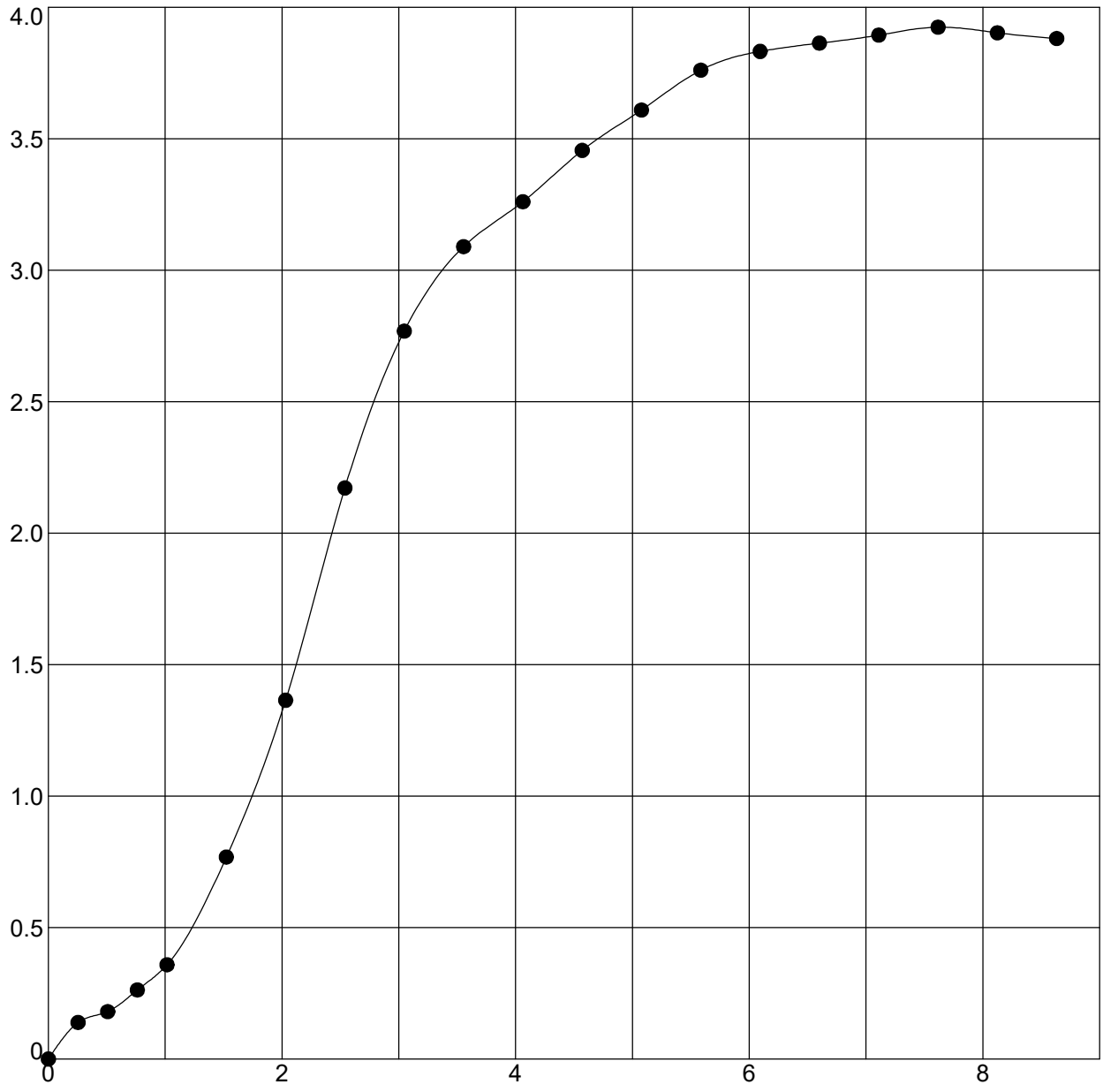

Boring	Sample	Depth	Classification
RB-245	SS-1	1.3 - 2.8	SILTY CLAY LOAM A-4 (7)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
13.9	135.5	118.9	3.92	1.0	7.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.96	92	0.406	36.55	70.03	1.9

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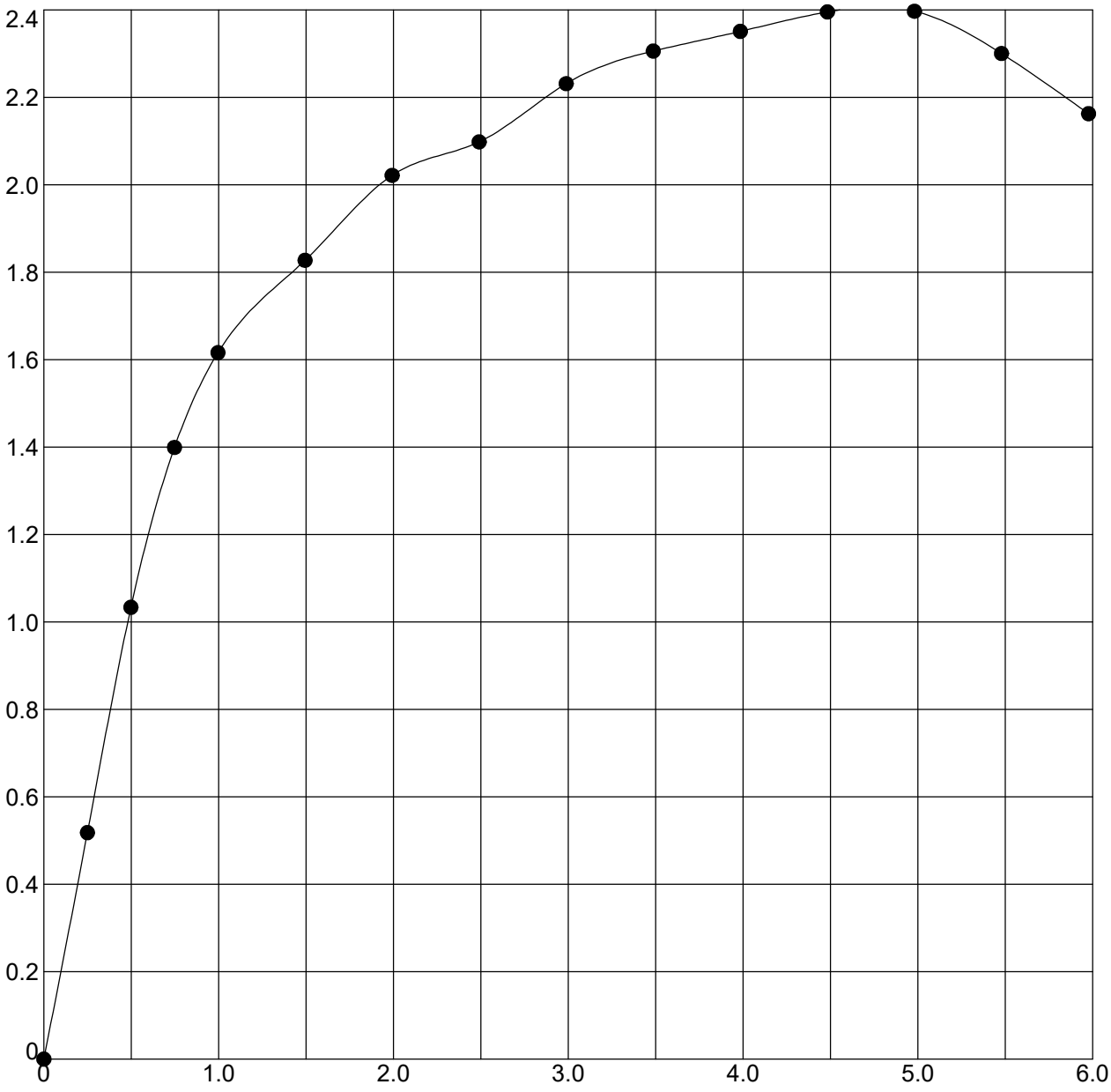

Boring	Sample	Depth	Classification
RB-249	SS-2T	2.8 - 4.3	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.4	128.9	109.8	2.40	1.0	5.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.20	87	0.546	35.41	71.4	2.0

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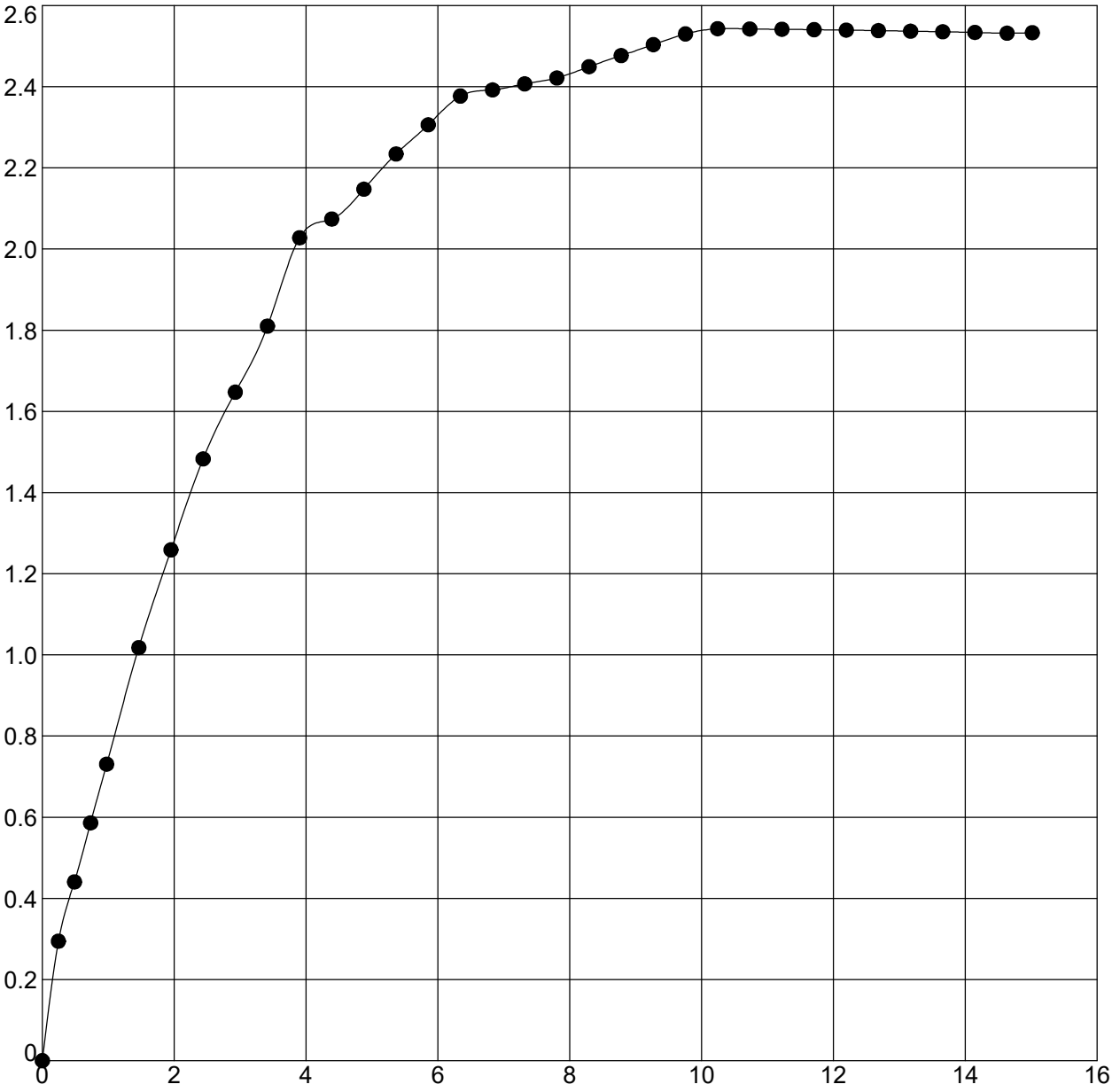

Boring	Sample	Depth	Classification
RB-253	SS-2	2.8 - 4.3	CLAY A-6 (12)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.8	134.8	113.5	2.54	1.0	10.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.27	100	0.523	35.51	72.9	2.1

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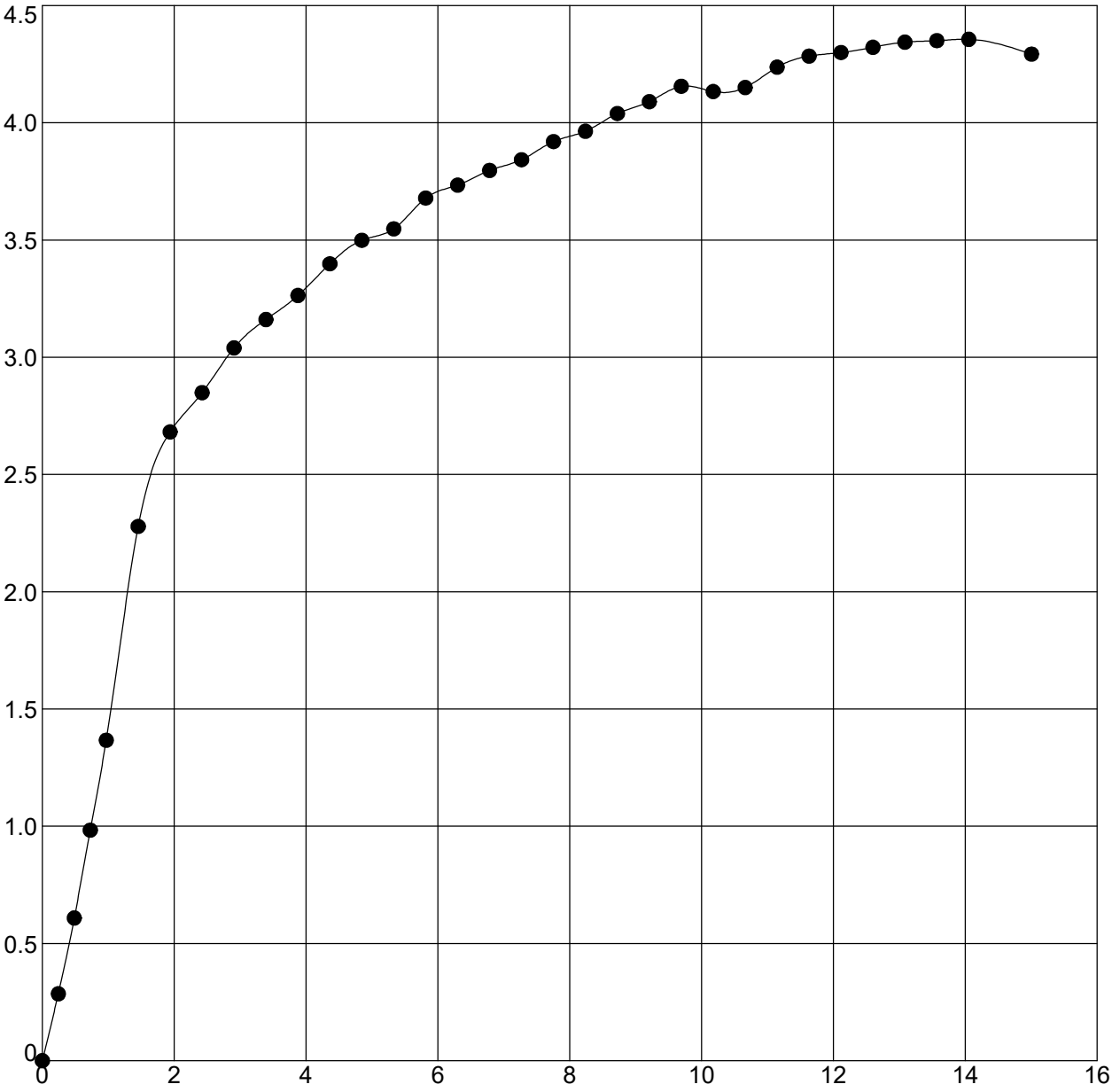

Boring	Sample	Depth	Classification
RB-255A	ST-1	1 - 3	CLAY A-6 (10)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.7	133.8	116.7	4.36	1.0	14.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.18	88	0.454	72.14	146.76	2.0

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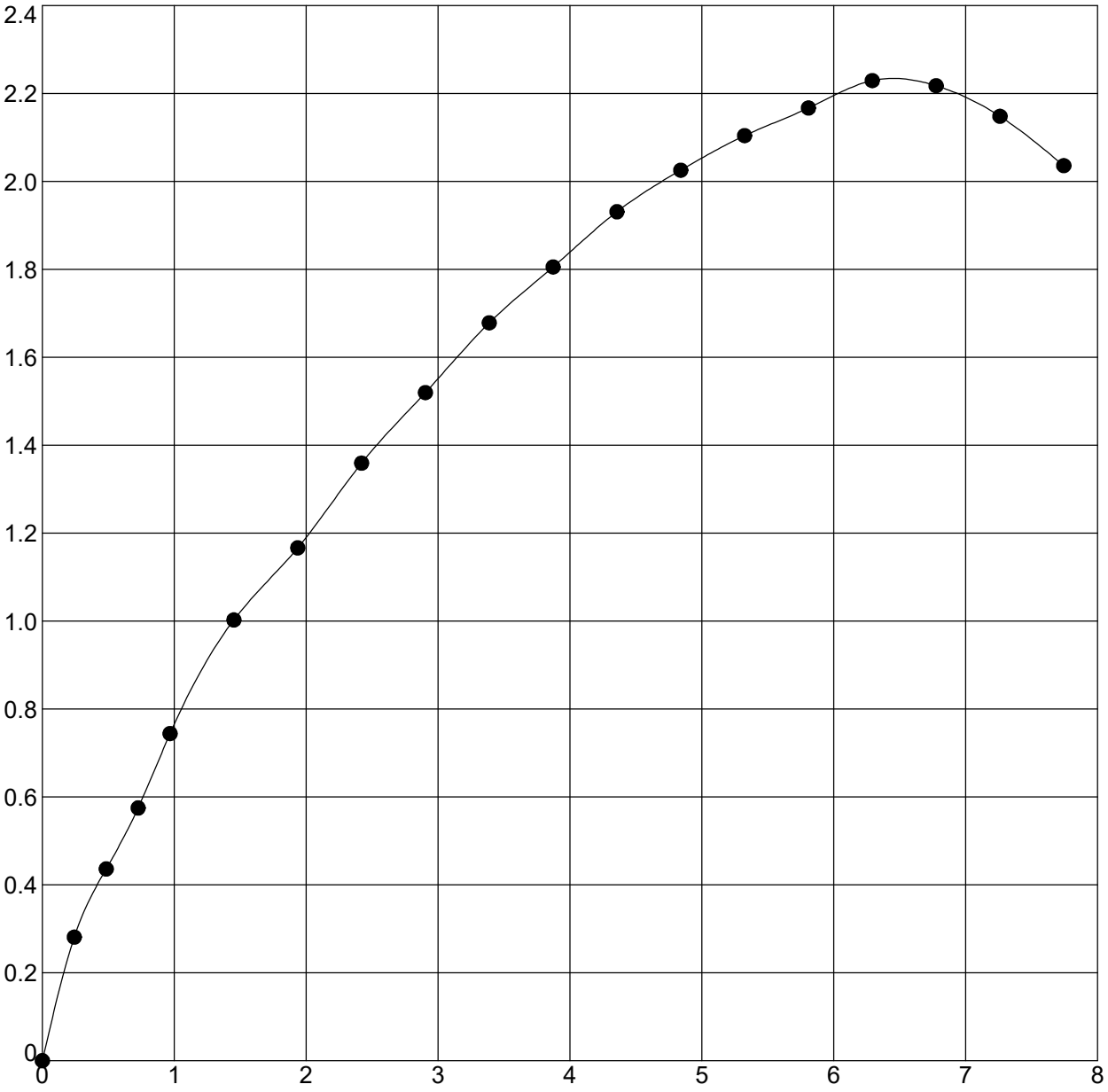

Boring	Sample	Depth	Classification
RB-258	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.7	133.3	112.4	2.23	1.0	6.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.11	100	0.511	34.48	73.47	2.1

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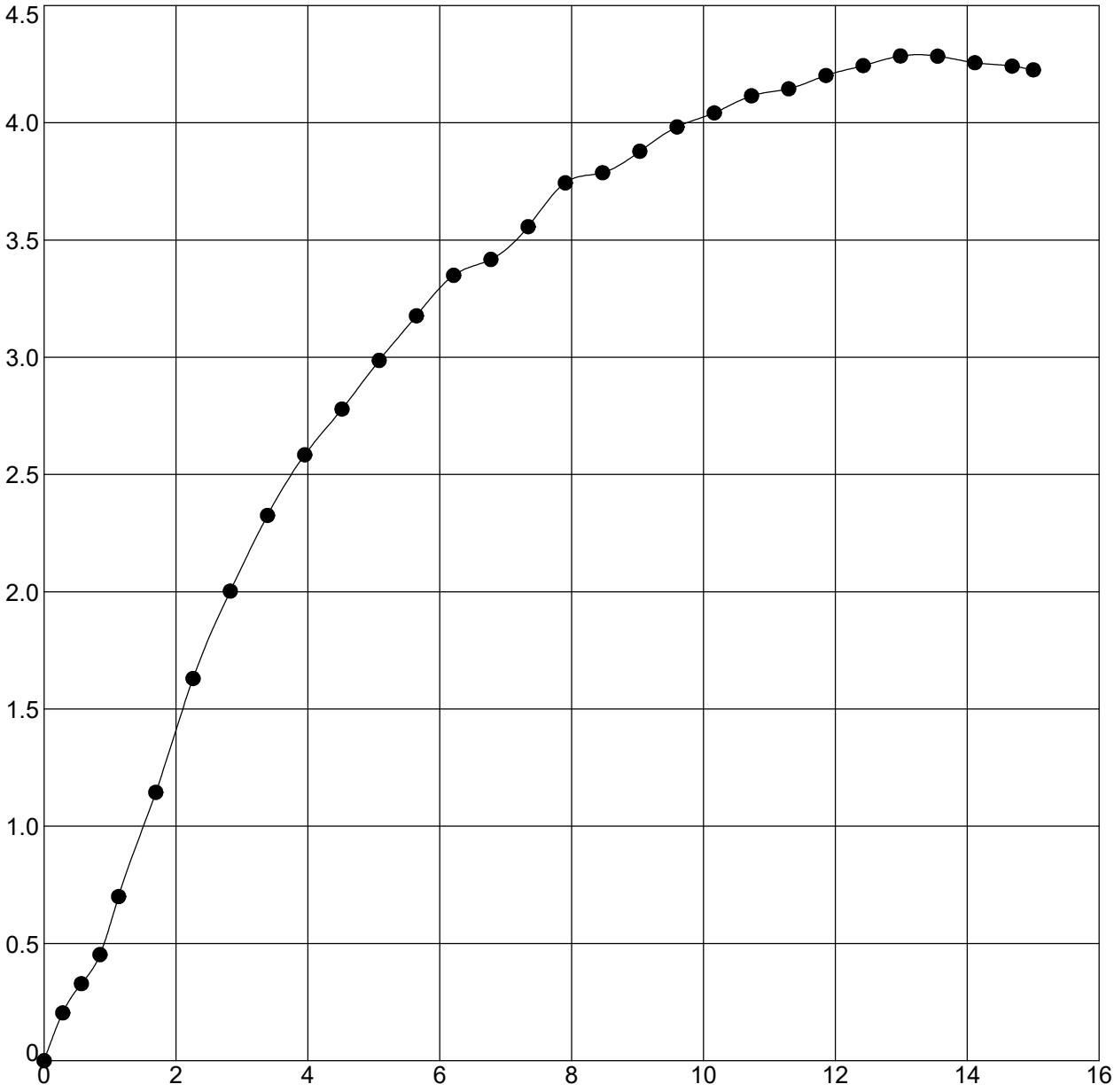

Boring	Sample	Depth	Classification
RB-260	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.6	139.4	121.7	4.28	0.9	13.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.14	100	0.395	34.39	62.98	1.8

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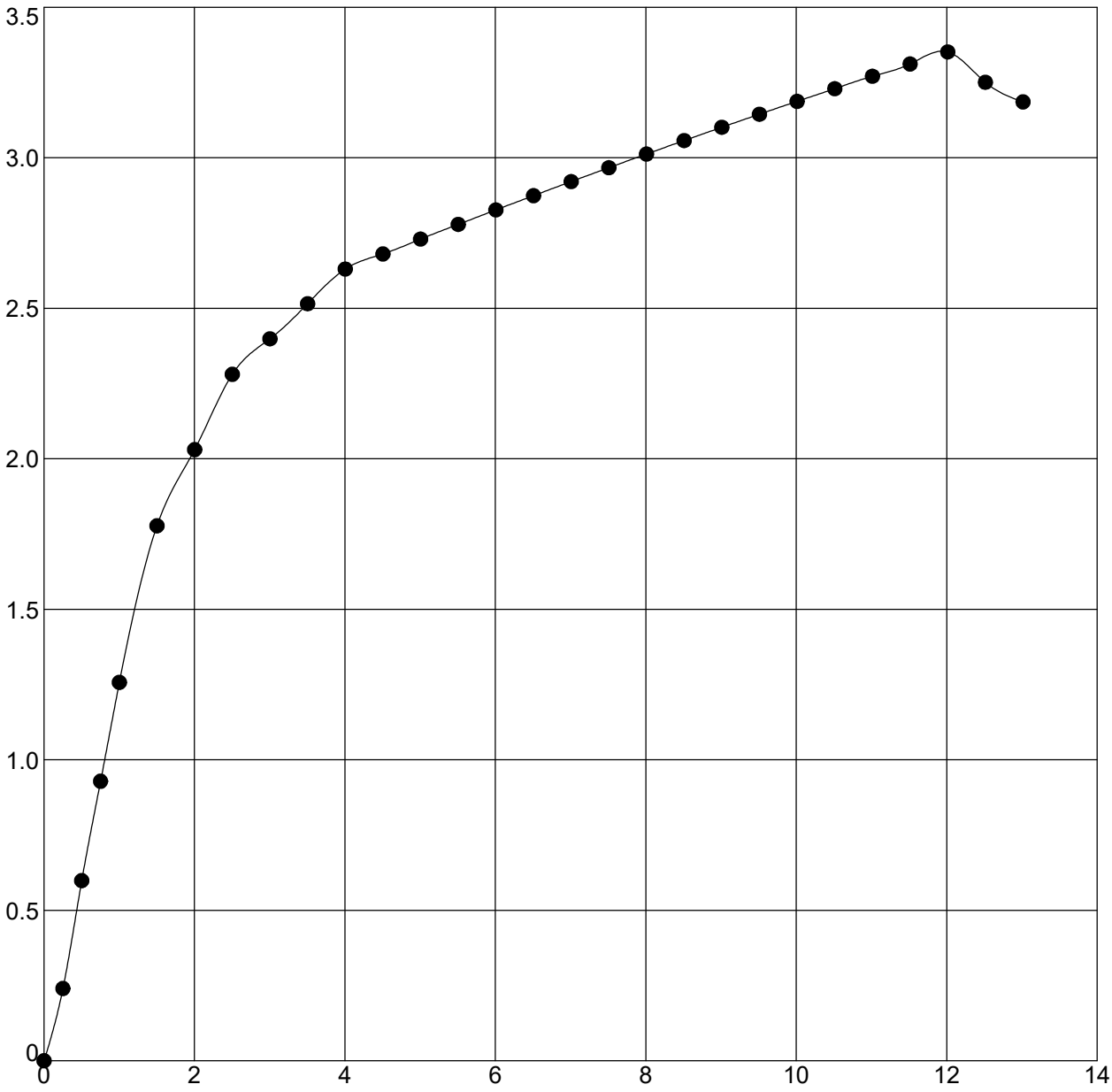

Boring	Sample	Depth	Classification
RB-261	SS-2T	2.9 - 4.4	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.1	132.2	114.9	3.35	1.0	12.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.68	86	0.478	37.31	71.04	1.9

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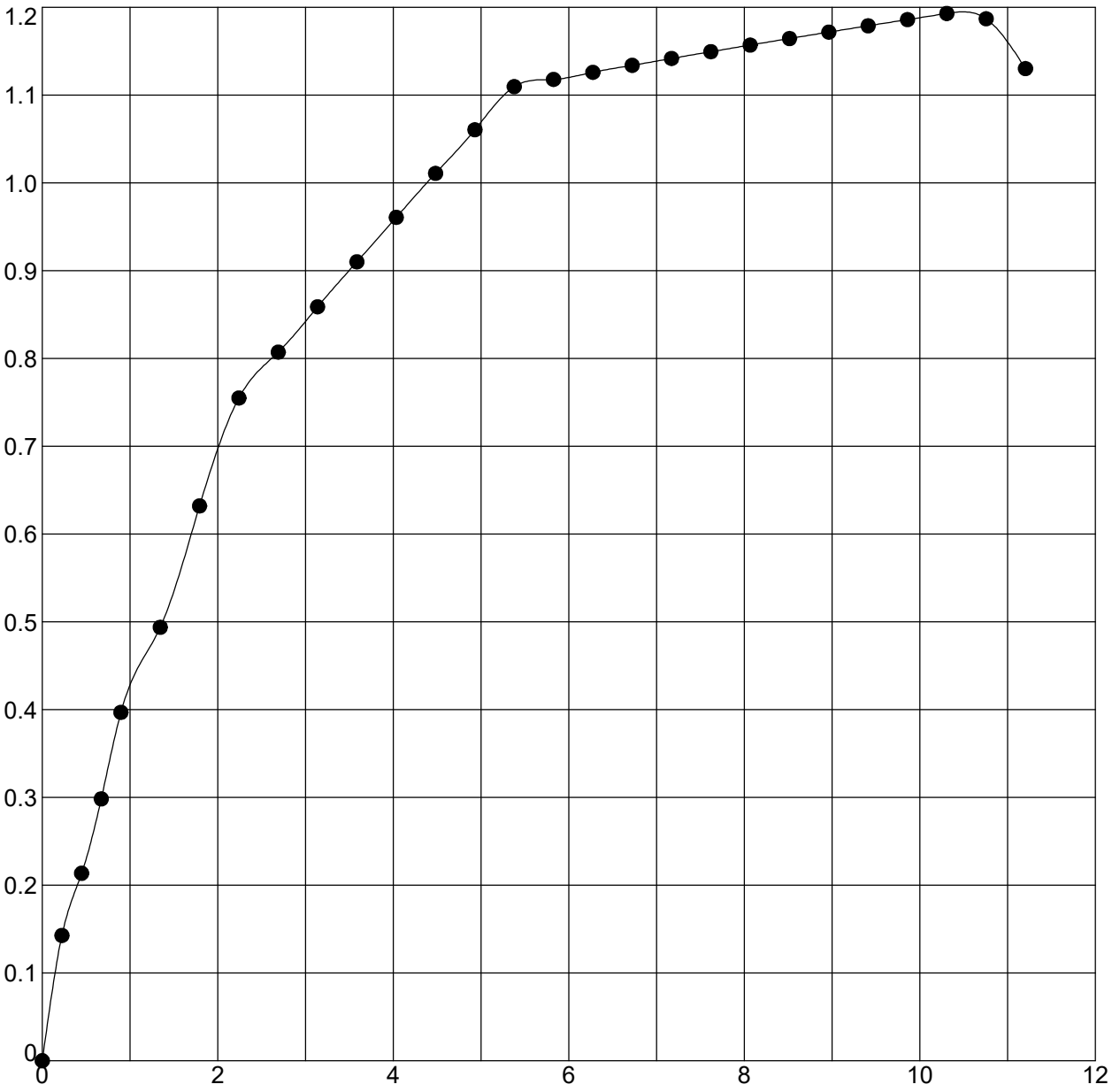

Boring	Sample	Depth	Classification
RB-265	SS-2B	2.7 - 4.2	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.9	125.7	103.1	1.19	0.9	10.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.60	92	0.646	36.07	79.35	2.2

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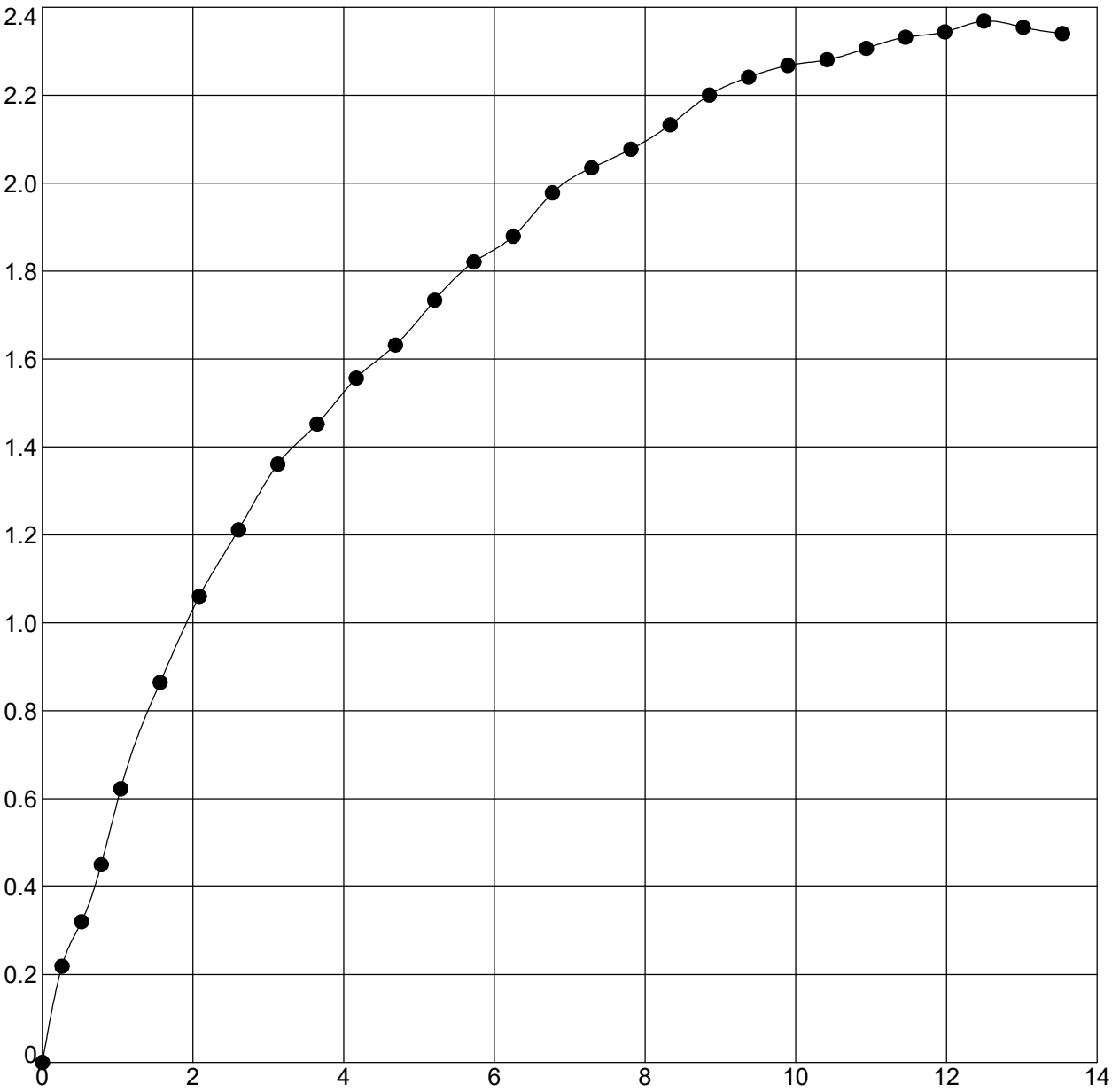

Boring	Sample	Depth	Classification
RB-266	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.8	128.8	109.4	2.37	1.0	12.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.18	88	0.552	35.66	68.28	1.9

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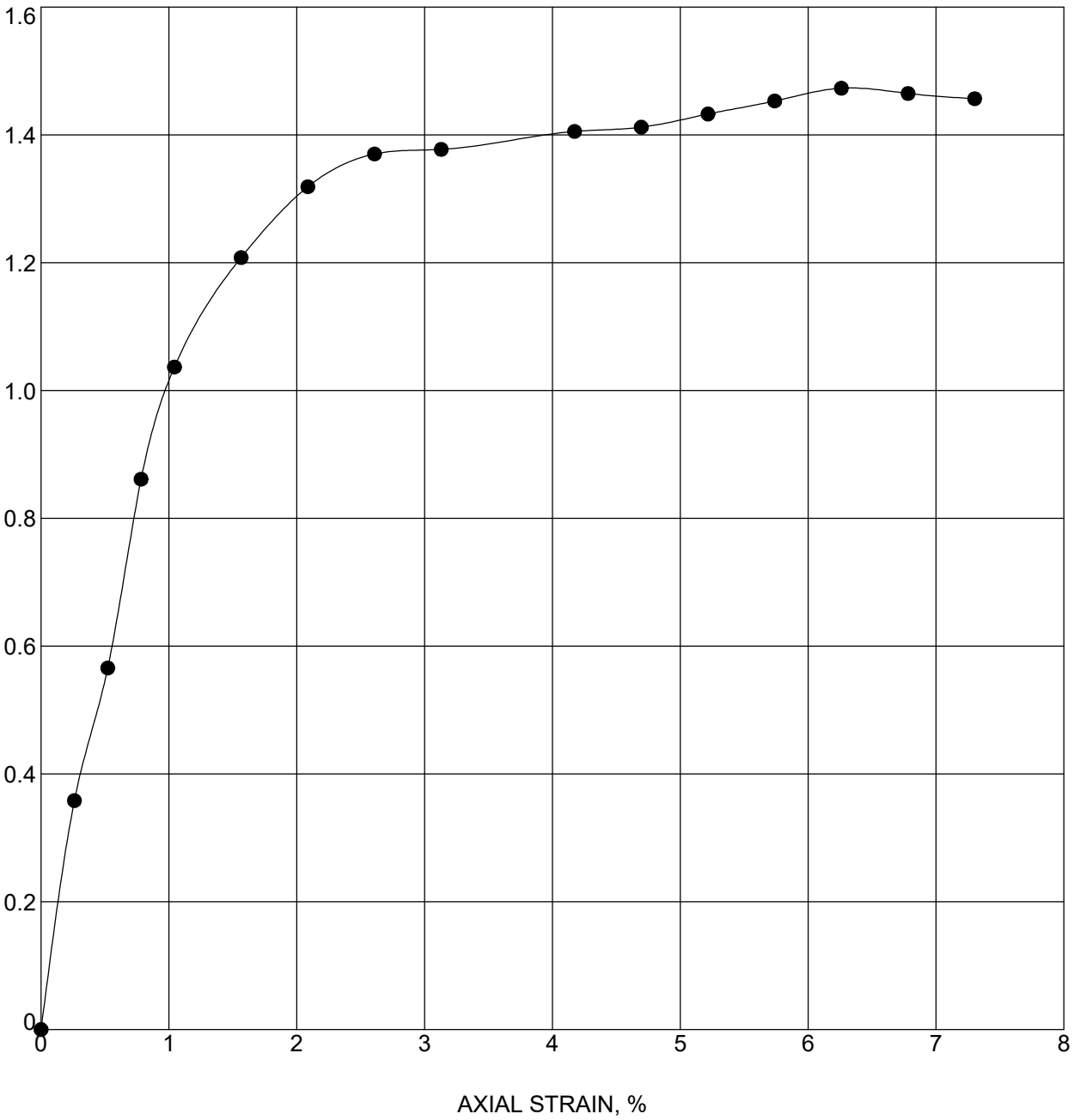

Boring	Sample	Depth	Classification
RB-268	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.8	126.6	104.8	1.47	1.0	6.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.74	91	0.619	35.26	68.17	1.9

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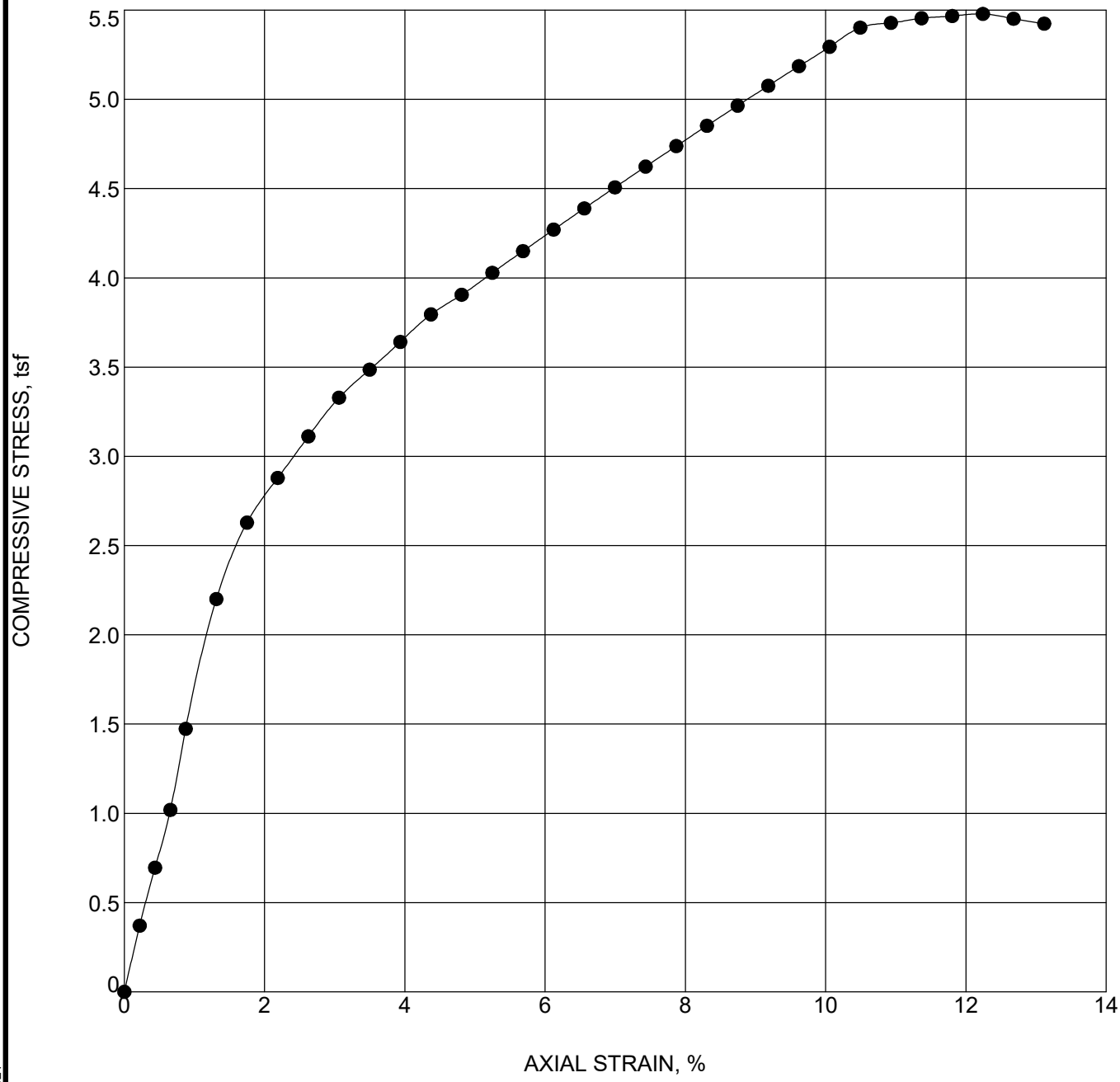

Boring	Sample	Depth	Classification
RB-269	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.0	136.3	119.5	5.48	1.0	12.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.74	91	0.420	35.38	81.33	2.3

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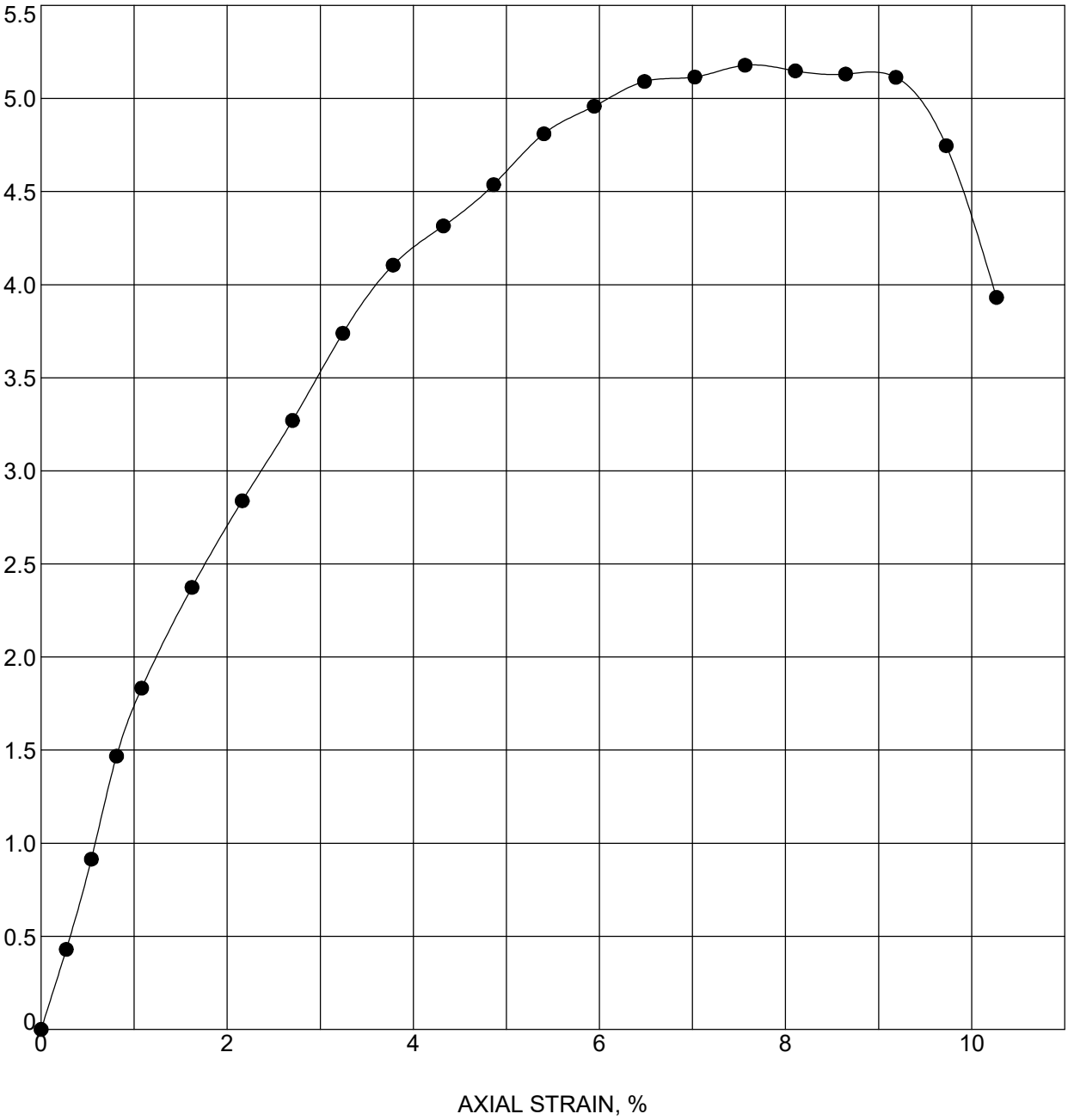

Boring	Sample	Depth	Classification
RB-270	SS-2T	3.5 - 5	LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
9.8	135.6	123.5	5.18	1.0	7.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.59	71	0.374	35.99	65.81	1.8

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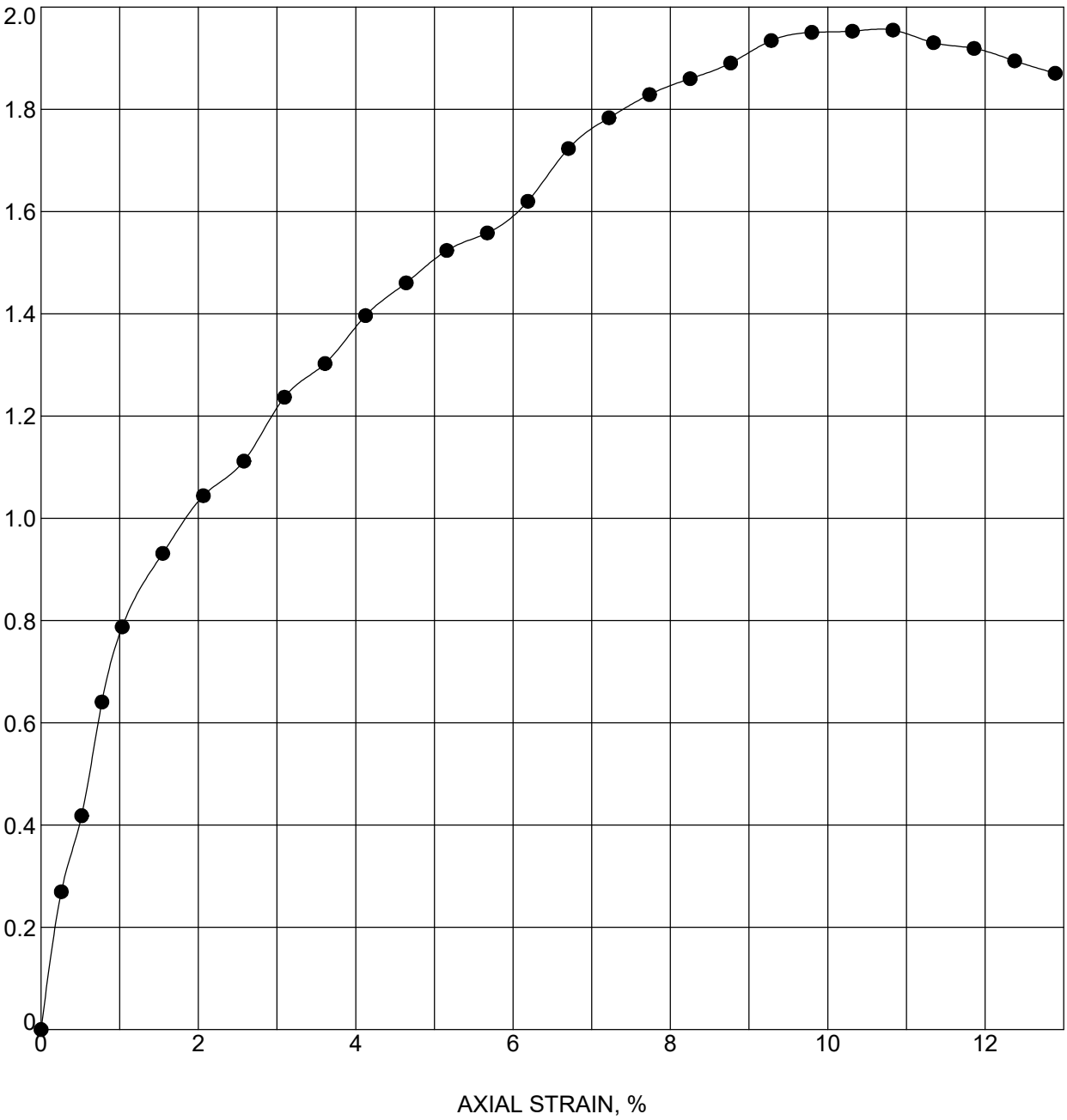

Boring	Sample	Depth	Classification
RB-274	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.9	131.1	111.2	1.96	1.0	10.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.98	92	0.526	35.2	68.96	2.0

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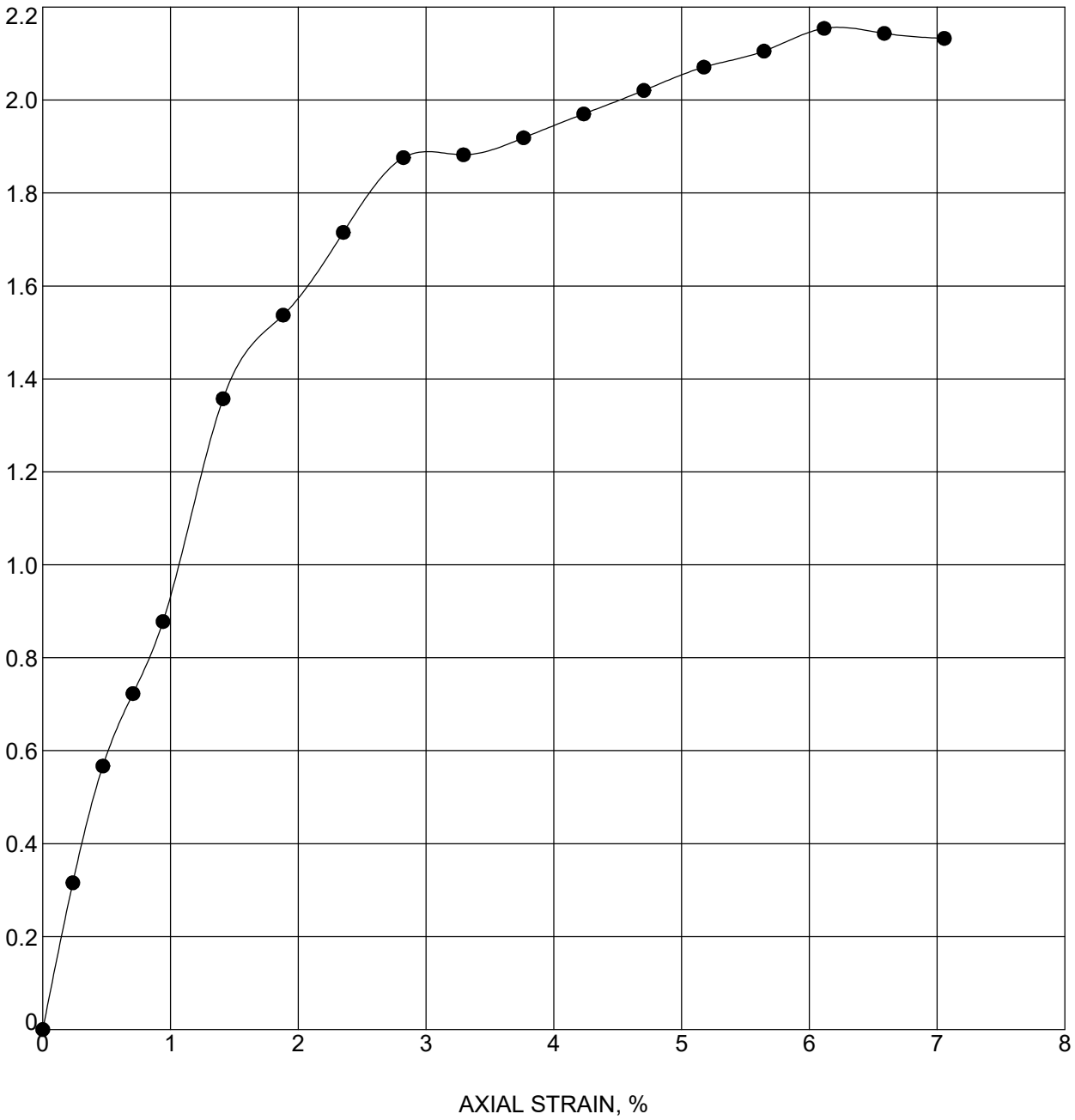

Boring	Sample	Depth	Classification
RB-275	SS-2B	2.5 - 4	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.5	129.9	107.8	2.15	1.0	6.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.08	97	0.574	34.29	75.59	2.2

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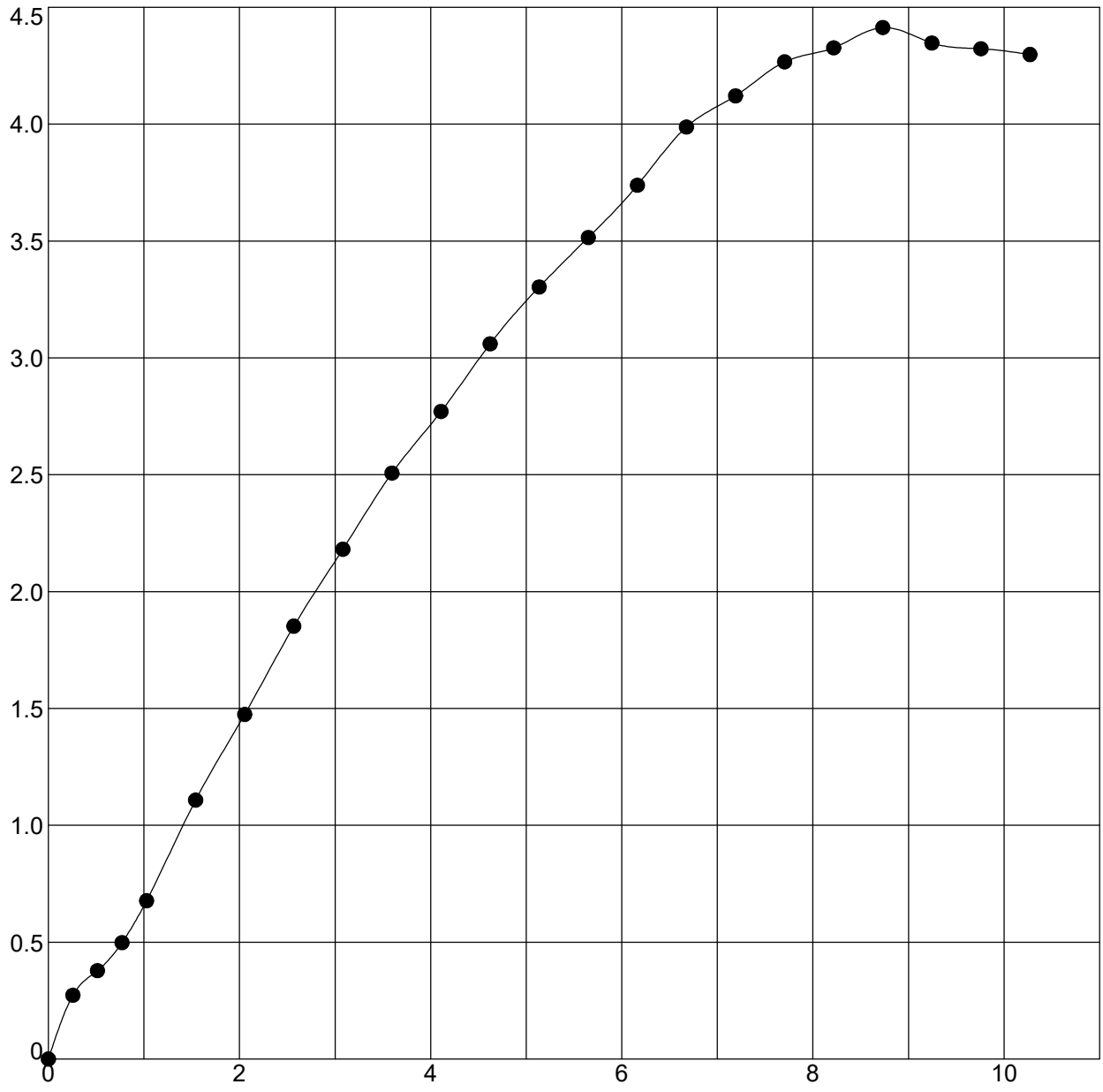

Boring	Sample	Depth	Classification
RB-276	SS-1B	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
13.2	137.1	121.1	4.41	1.0	8.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.21	90	0.402	34.98	69.24	2.0

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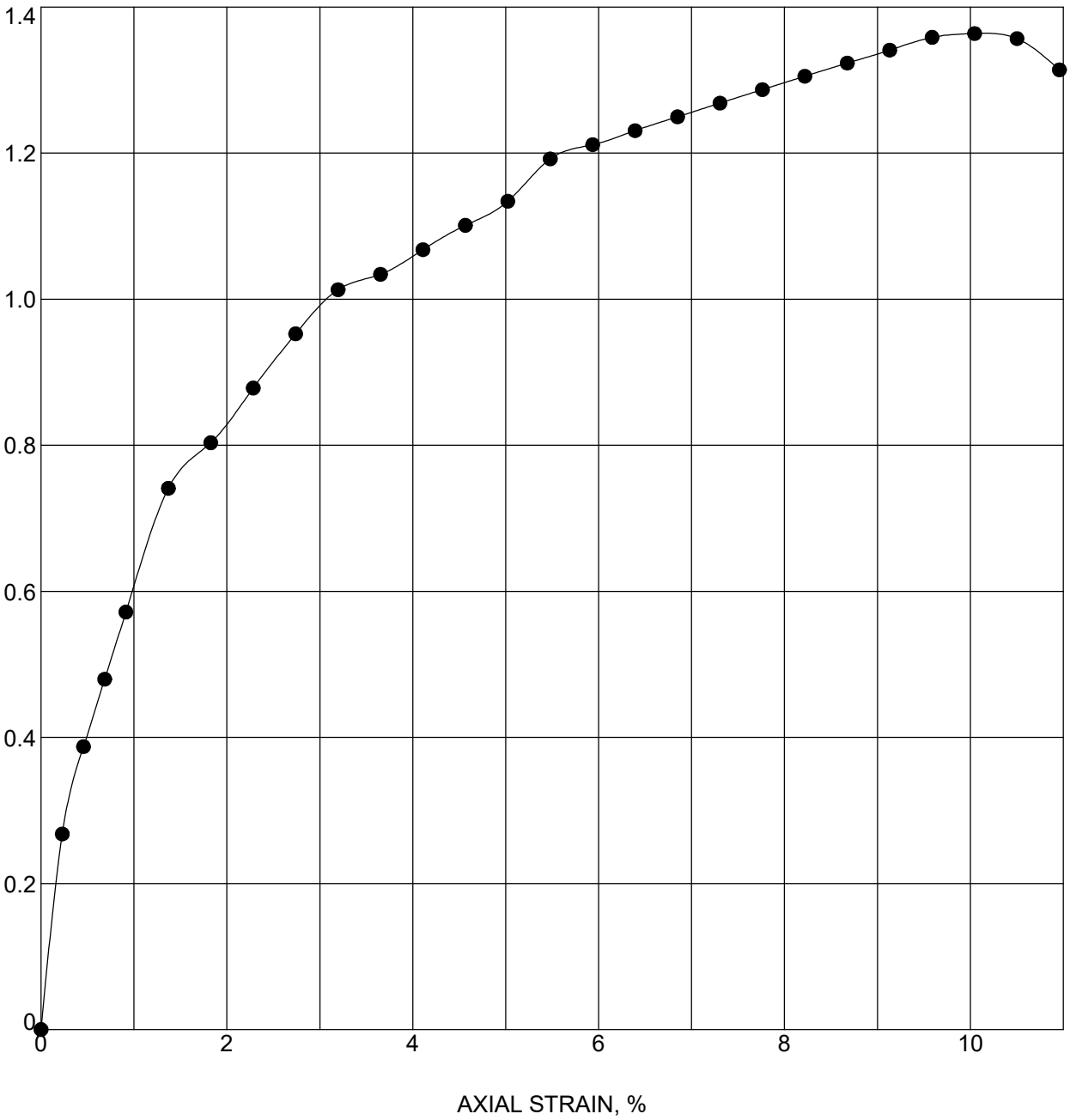

Boring	Sample	Depth	Classification
RB-277	SS-2T	2.9 - 4.4	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.5	123.7	101.0	1.36	1.0	10.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.68	90	0.680	37.24	77.88	2.1

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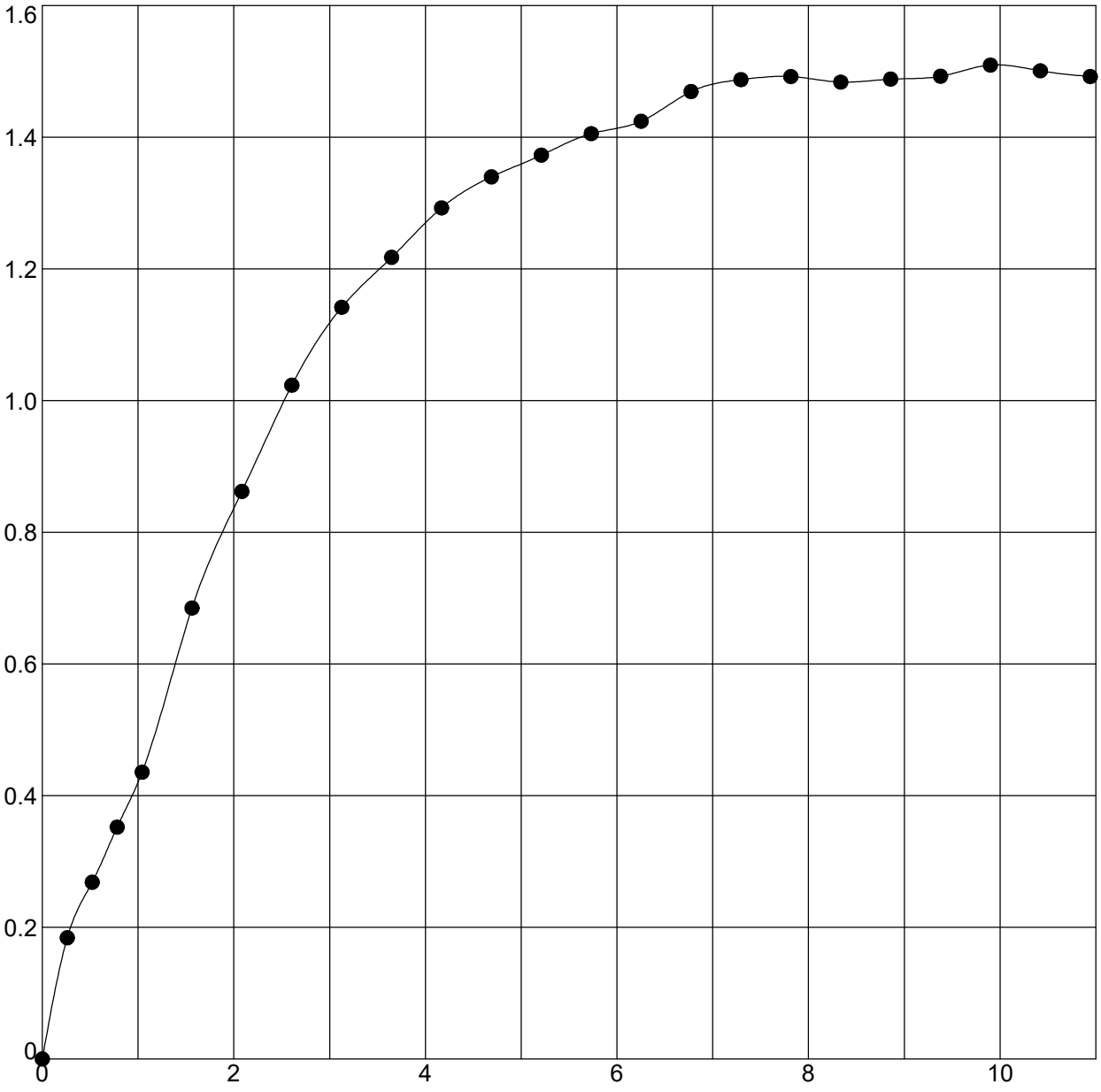

Boring	Sample	Depth	Classification
RB-278	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.6	120.5	98.3	1.51	1.0	9.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.75	84	0.727	36.2	68.25	1.9

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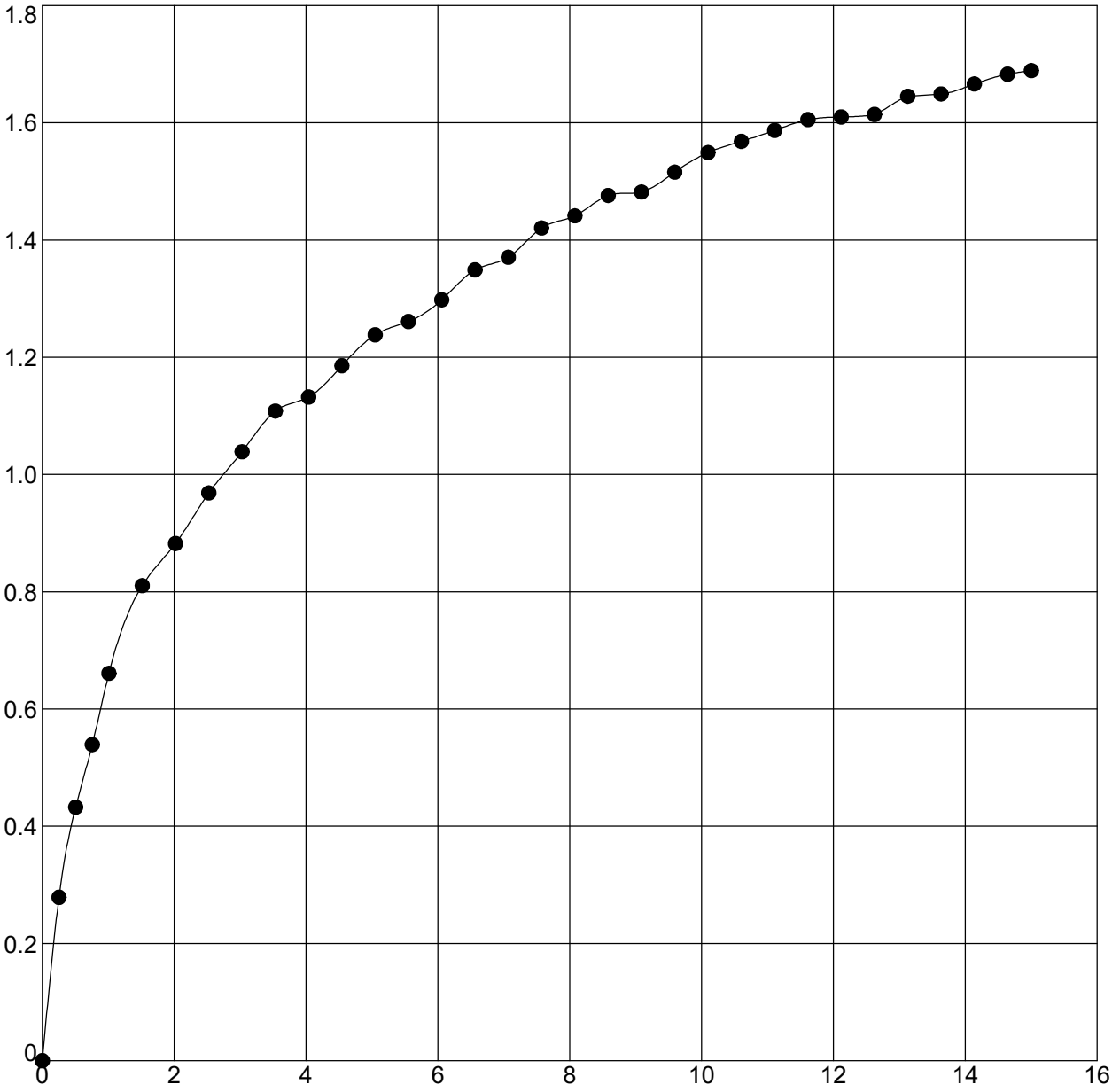

Boring	Sample	Depth	Classification
RB-280	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.5	131.2	108.9	1.69	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.84	100	0.558	34.62	70.43	2.0

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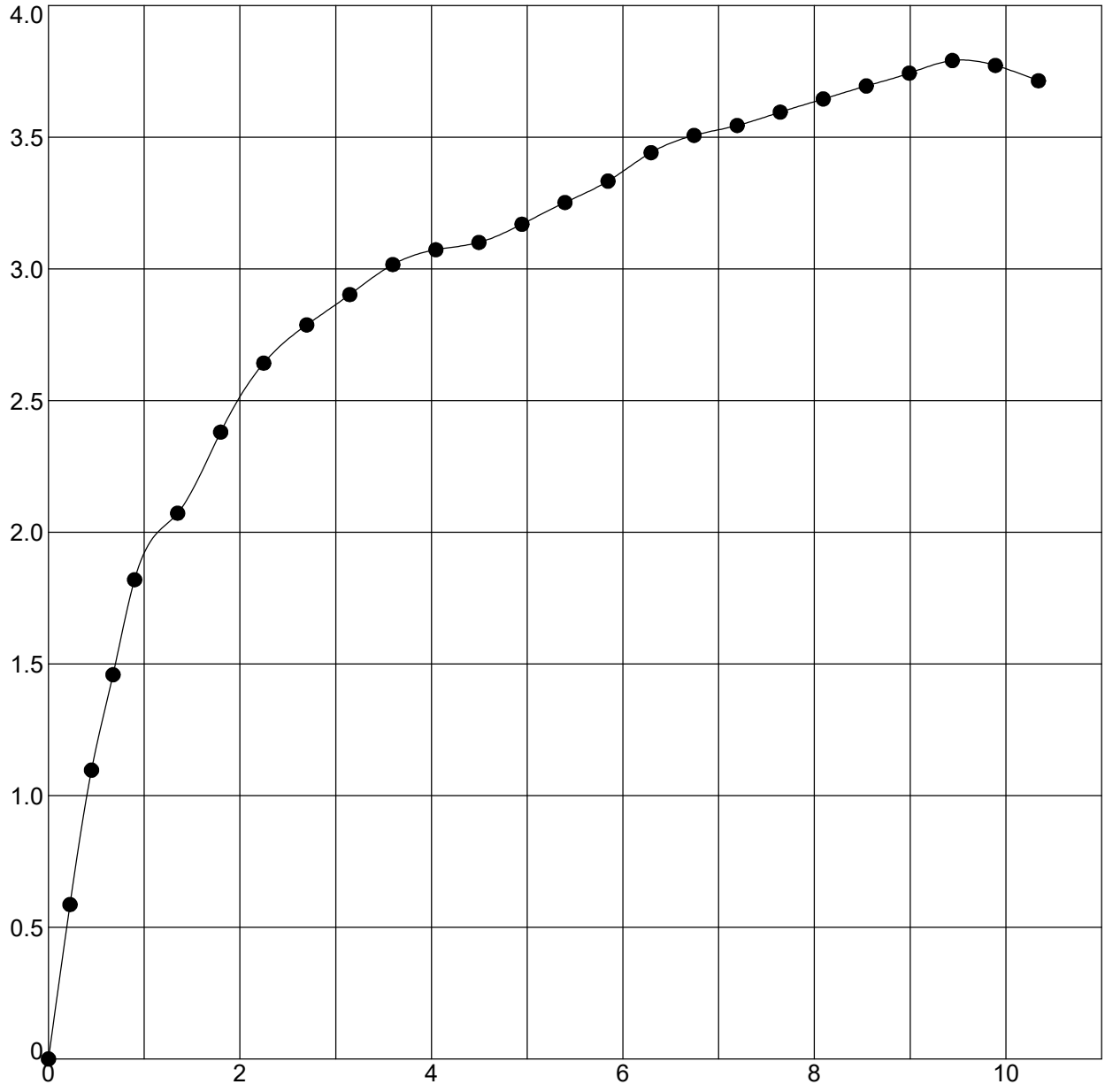

Boring	Sample	Depth	Classification
RB-281	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.1	133.1	114.6	3.79	1.0	9.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.90	91	0.481	35.59	79.1	2.2

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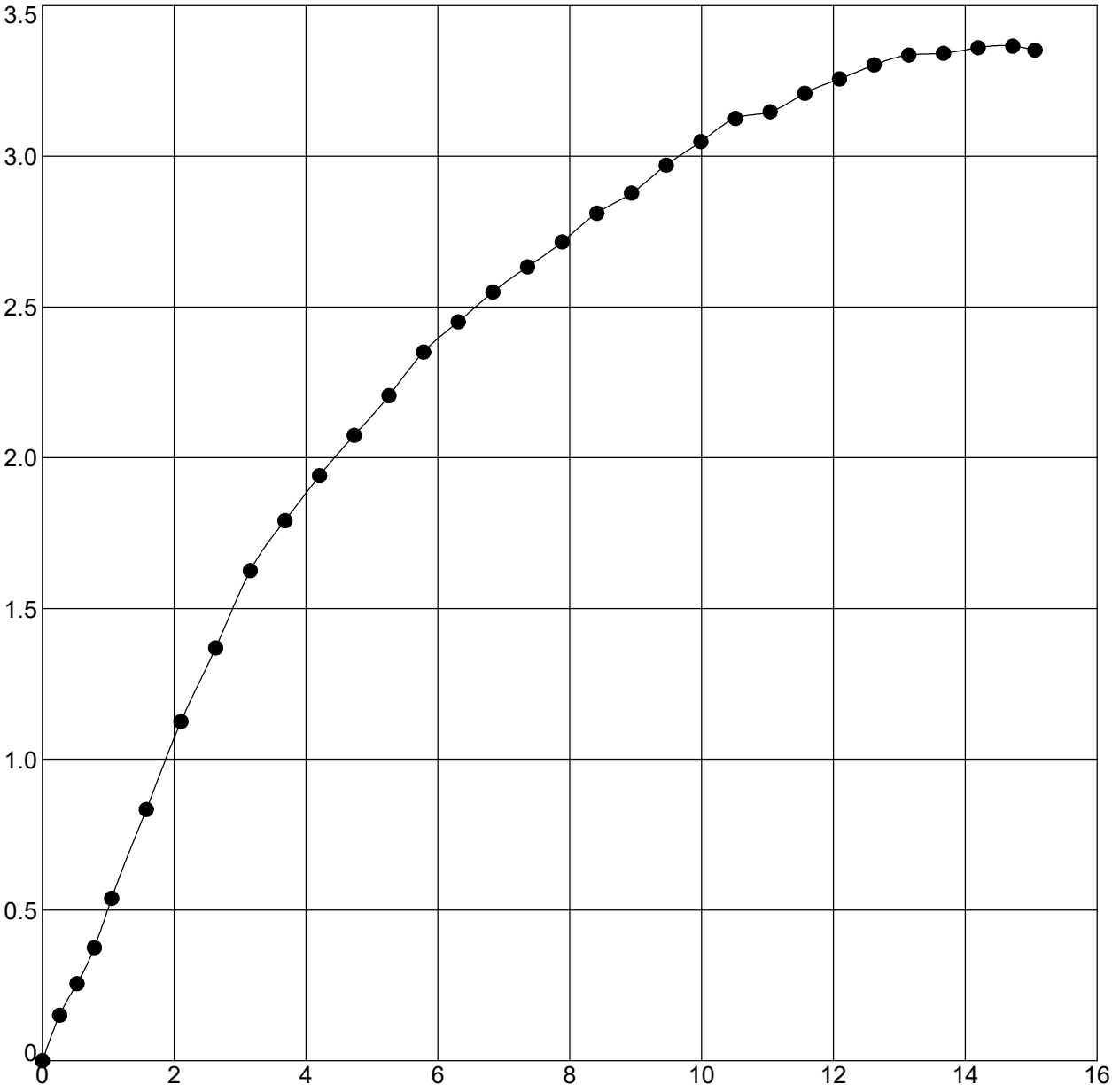

Boring	Sample	Depth	Classification
RB-282	SS-2B	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.6	134.1	115.0	3.37	1.0	14.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.68	95	0.475	35.08	67.64	1.9

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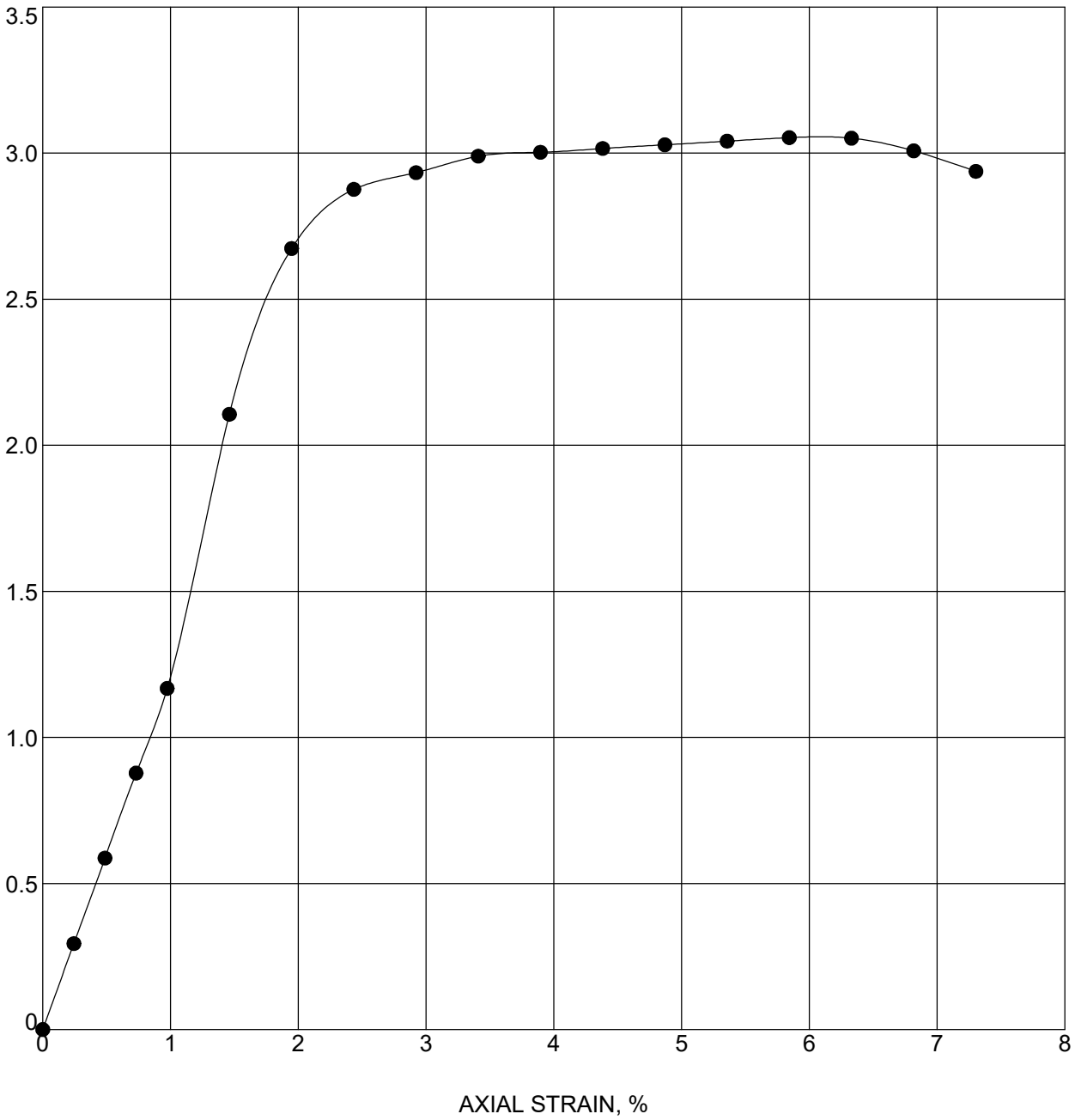

Boring	Sample	Depth	Classification
RB-285	SS-1T	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.8	125.6	104.0	3.05	1.0	5.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.53	90	0.632	35.53	73.03	2.1

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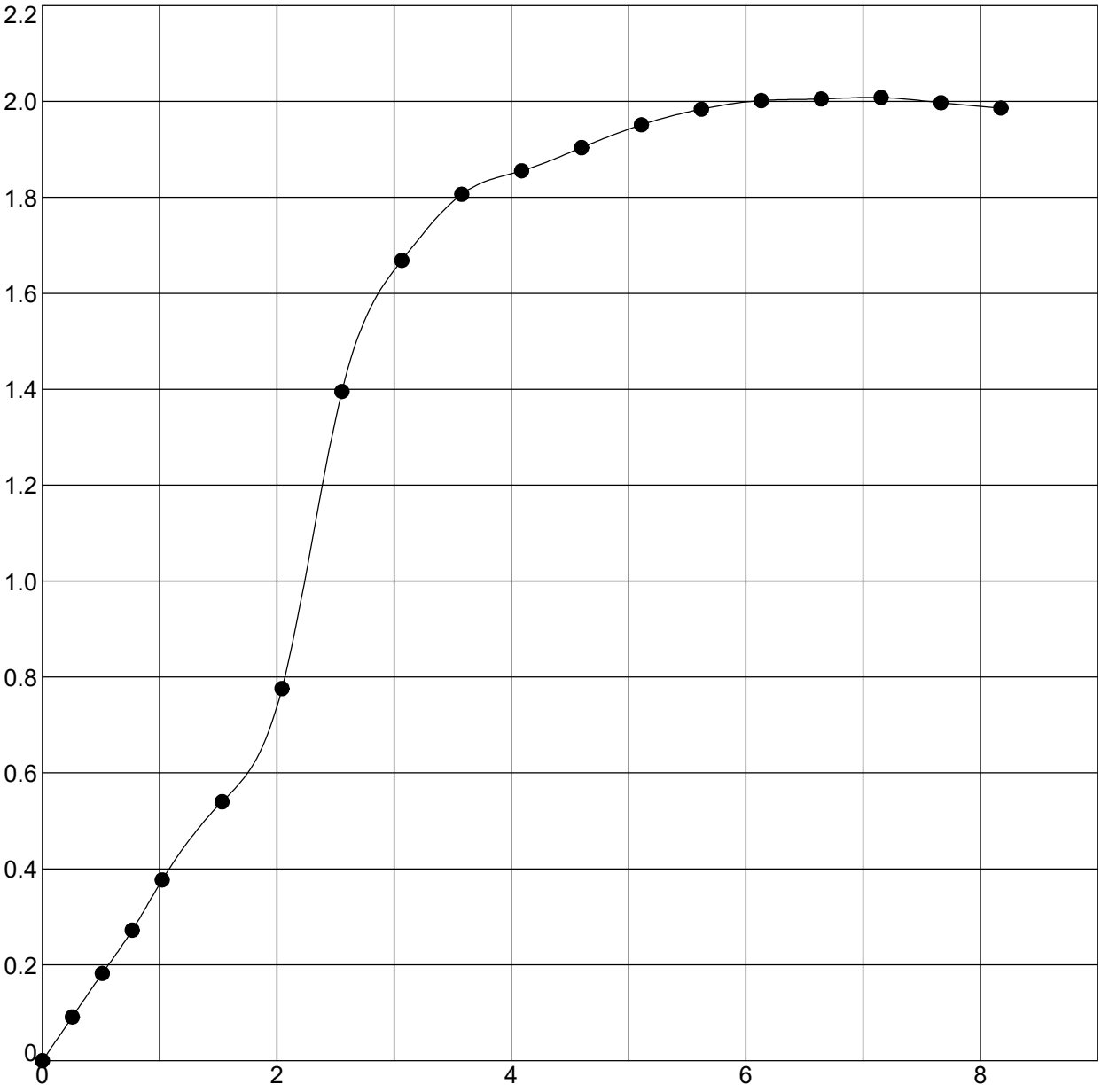

Boring	Sample	Depth	Classification
RB-287	SS-1	1.2 - 2.7	CLAY A-7-6 (17)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.5	131.1	112.5	2.01	1.0	7.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.00	88	0.514	34.95	69.6	2.0

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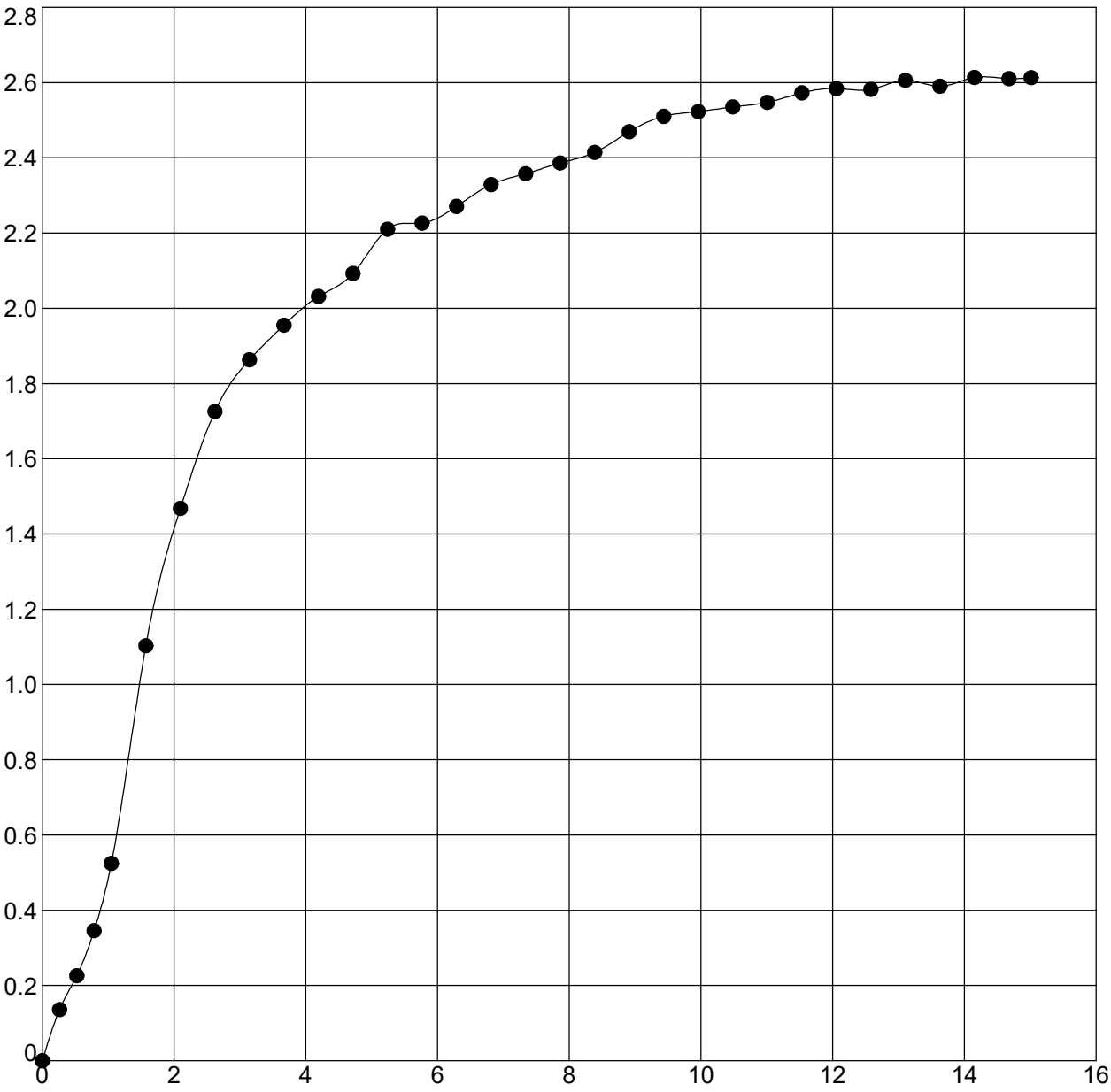

Boring	Sample	Depth	Classification
RB-291	SS-2T	3.4 - 5.9	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.7	133.3	113.3	2.61	1.0	14.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.31	96	0.498	35.05	67.84	1.9

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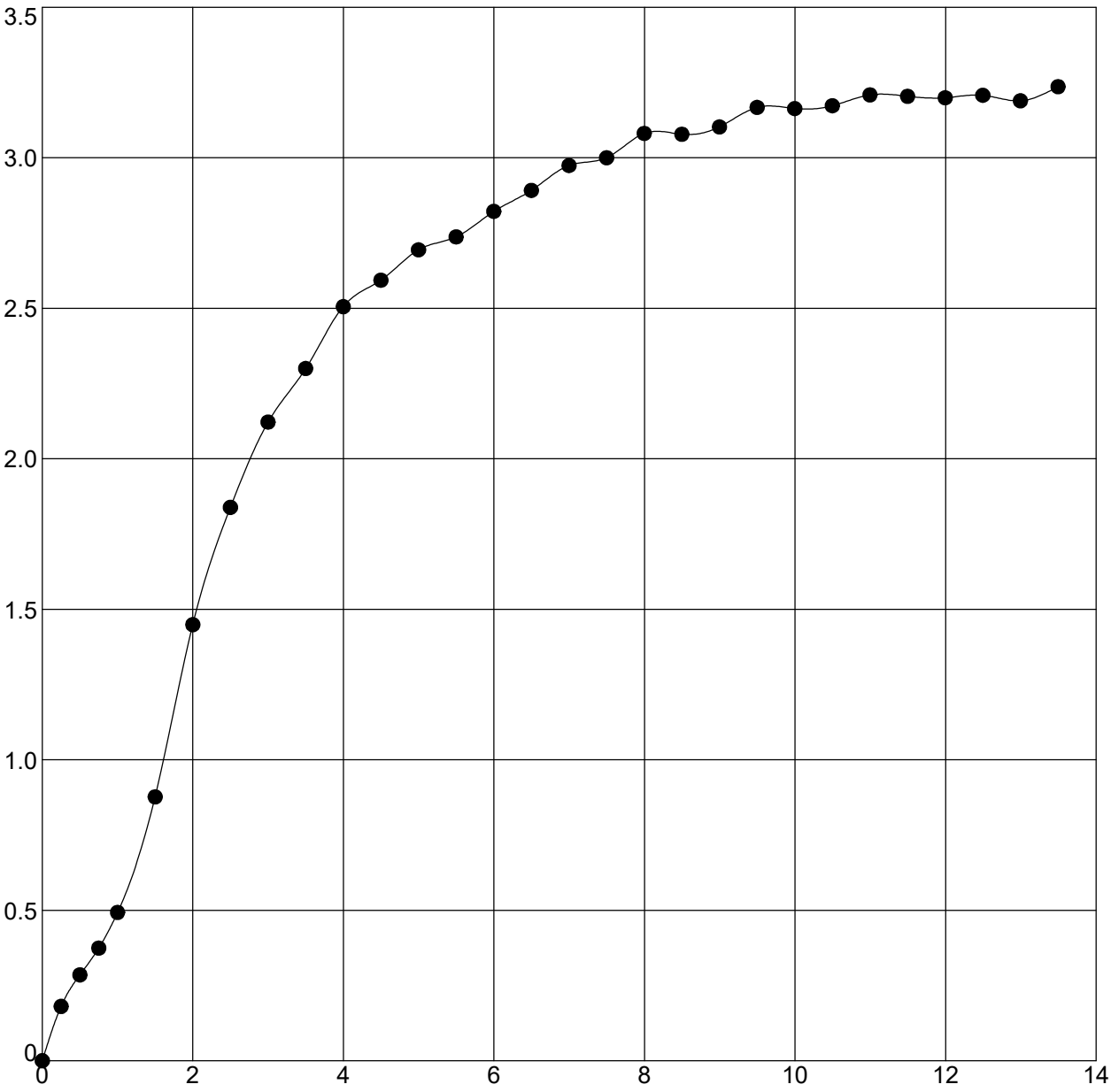

Boring	Sample	Depth	Classification
RB-292	SS-1B	1.3 - 2.8	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.2	134.4	114.7	3.24	1.0	13.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.62	98	0.480	35.12	71.15	2.0

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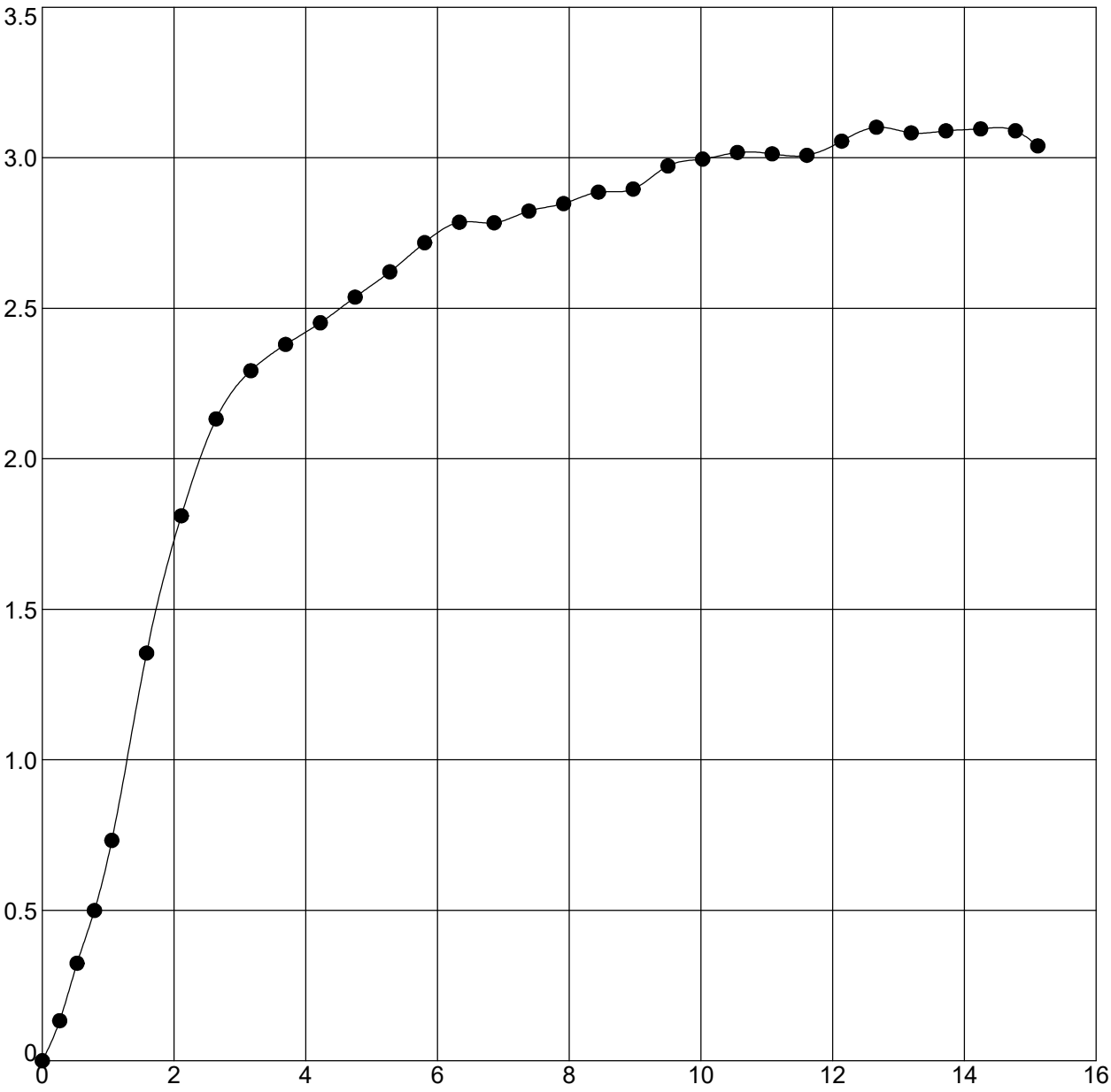

Boring	Sample	Depth	Classification
RB-296	SS-1T	1.3 - 2.8	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.0	134.3	114.8	3.10	1.0	12.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.55	96	0.479	35.46	67.39	1.9

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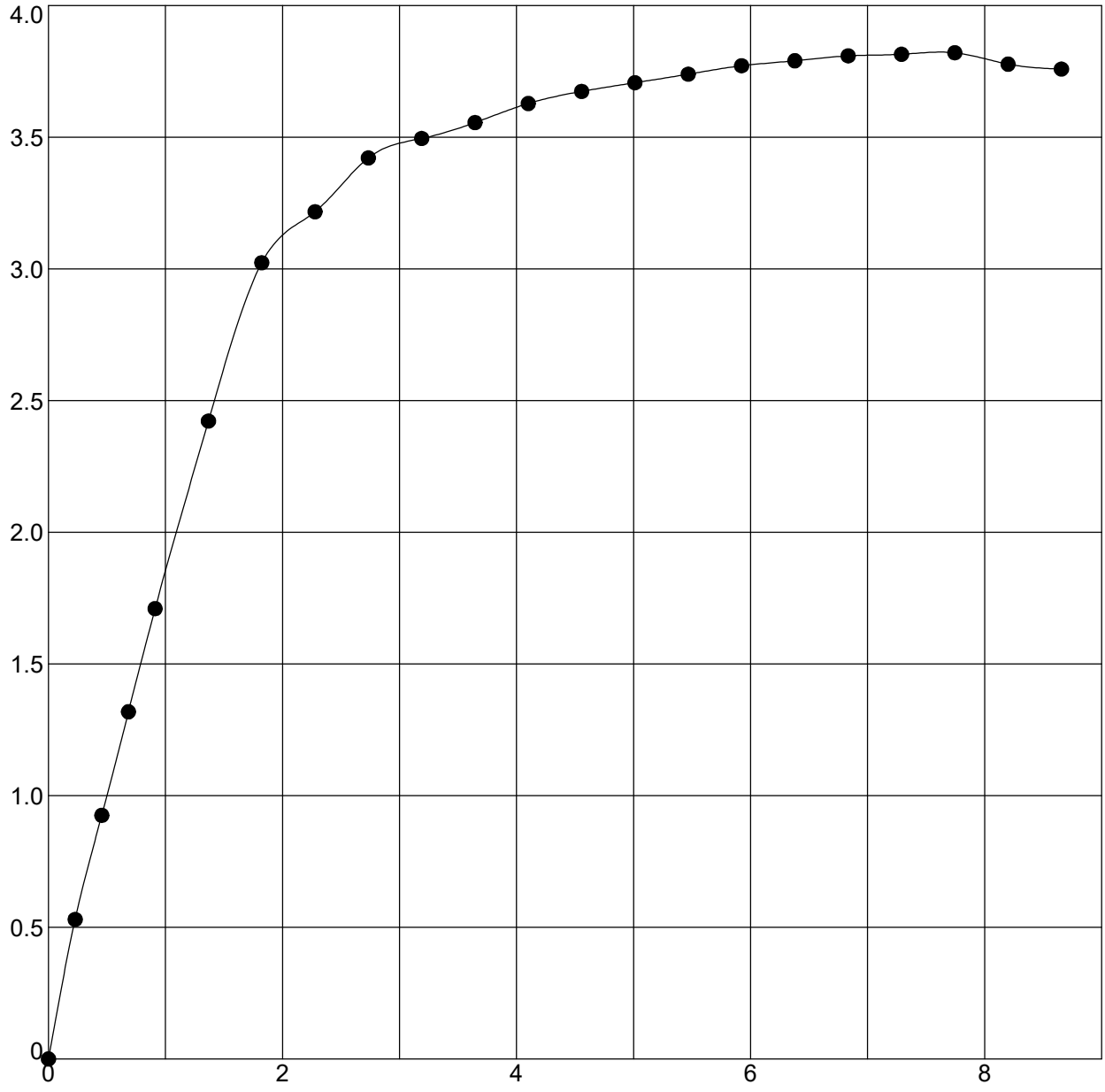

Boring	Sample	Depth	Classification
RB-297	SS-1B	1.3 - 2.8	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.0	136.2	117.4	3.82	1.0	7.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.91	98	0.446	37.44	78.05	2.1

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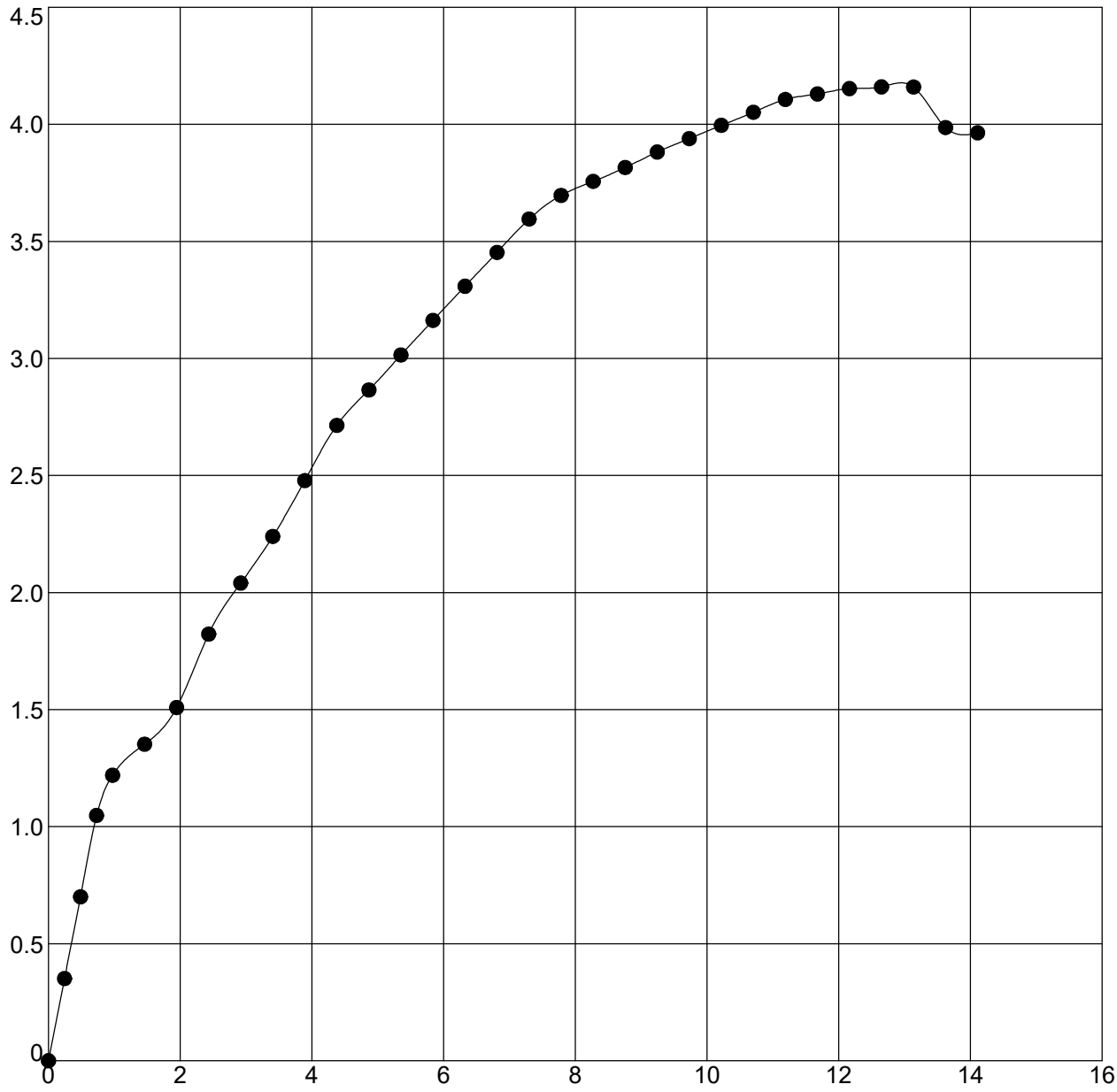

Boring	Sample	Depth	Classification
RB-297A	ST-1	1 - 3	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.7	131.5	114.6	4.16	1.0	12.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.08	83	0.481	72.72	146.18	2.0

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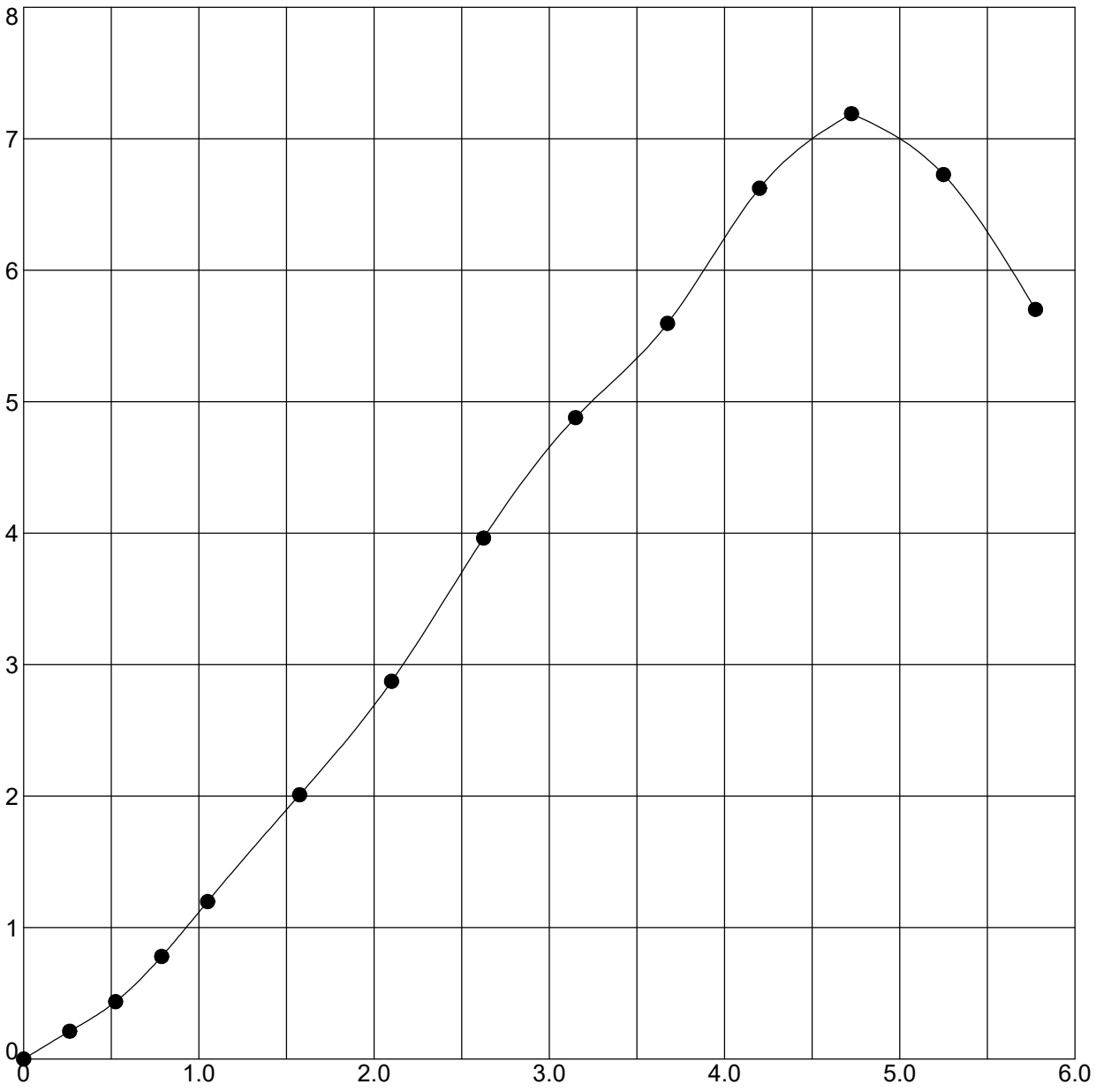

Boring	Sample	Depth	Classification
RB-299	SS-1B	1.3 - 2.8	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.5	134.7	117.6	7.19	1.0	4.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
3.60	89	0.443	35.07	67.74	1.9

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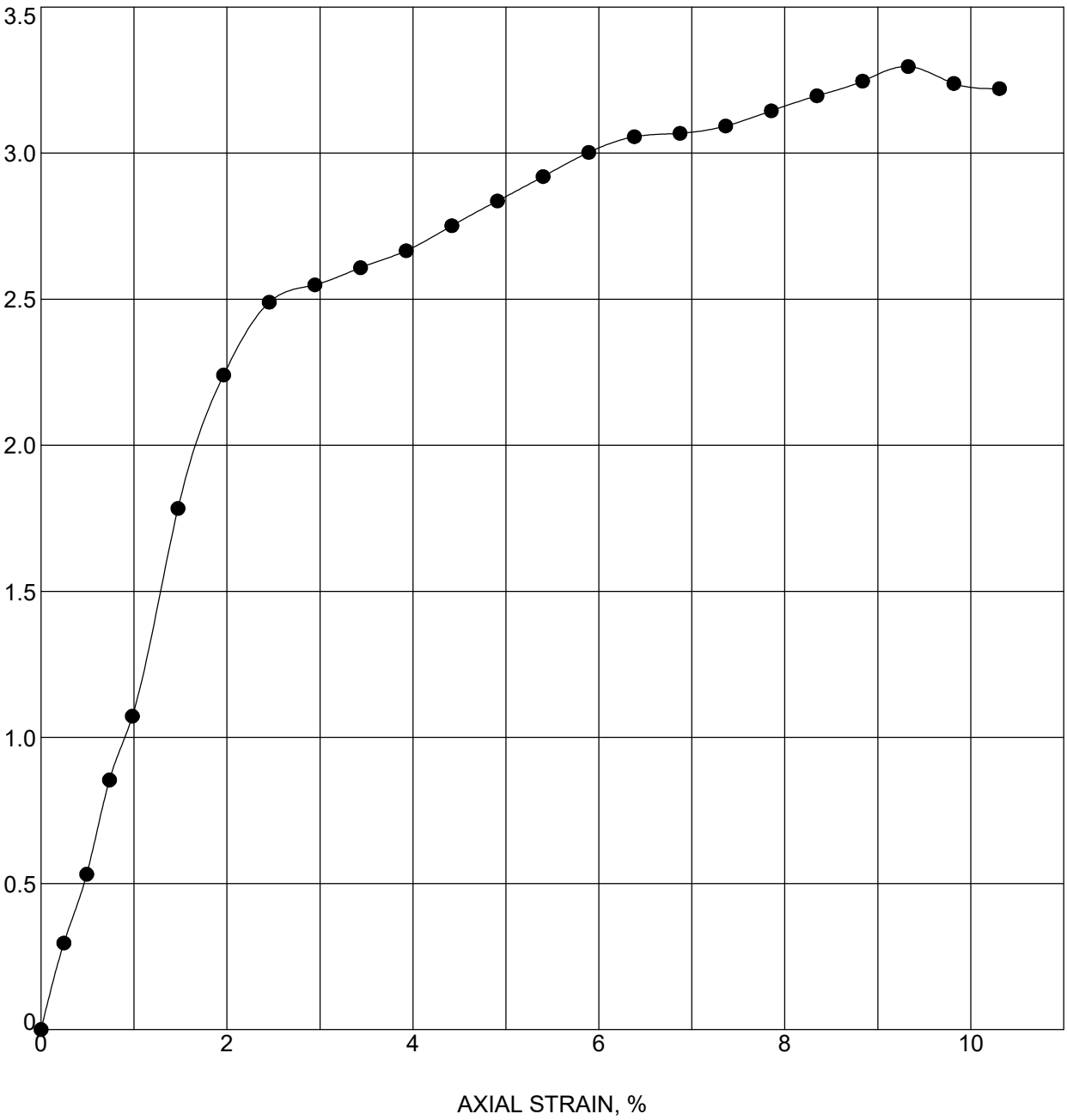

Boring	Sample	Depth	Classification
RB-302	SS-1T	1.1 - 2.6	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
15.2	135.1	117.3	3.30	1.0	9.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.65	92	0.448	35.41	72.44	2.0

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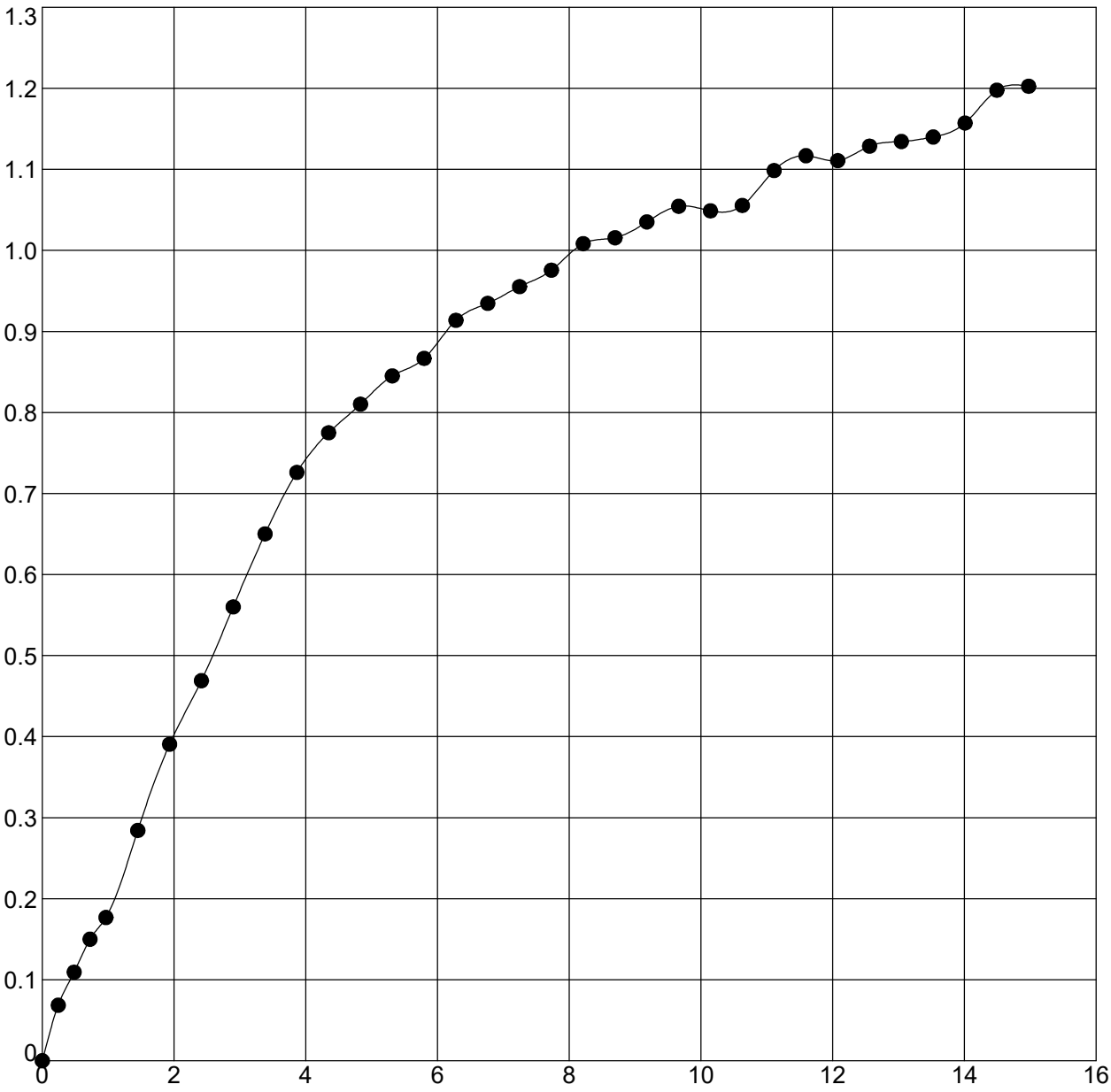

Boring	Sample	Depth	Classification
RB-304	SS-2T	3.2 - 4.7	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	130.8	108.0	1.20	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.60	100	0.572	36.81	73.61	2.0

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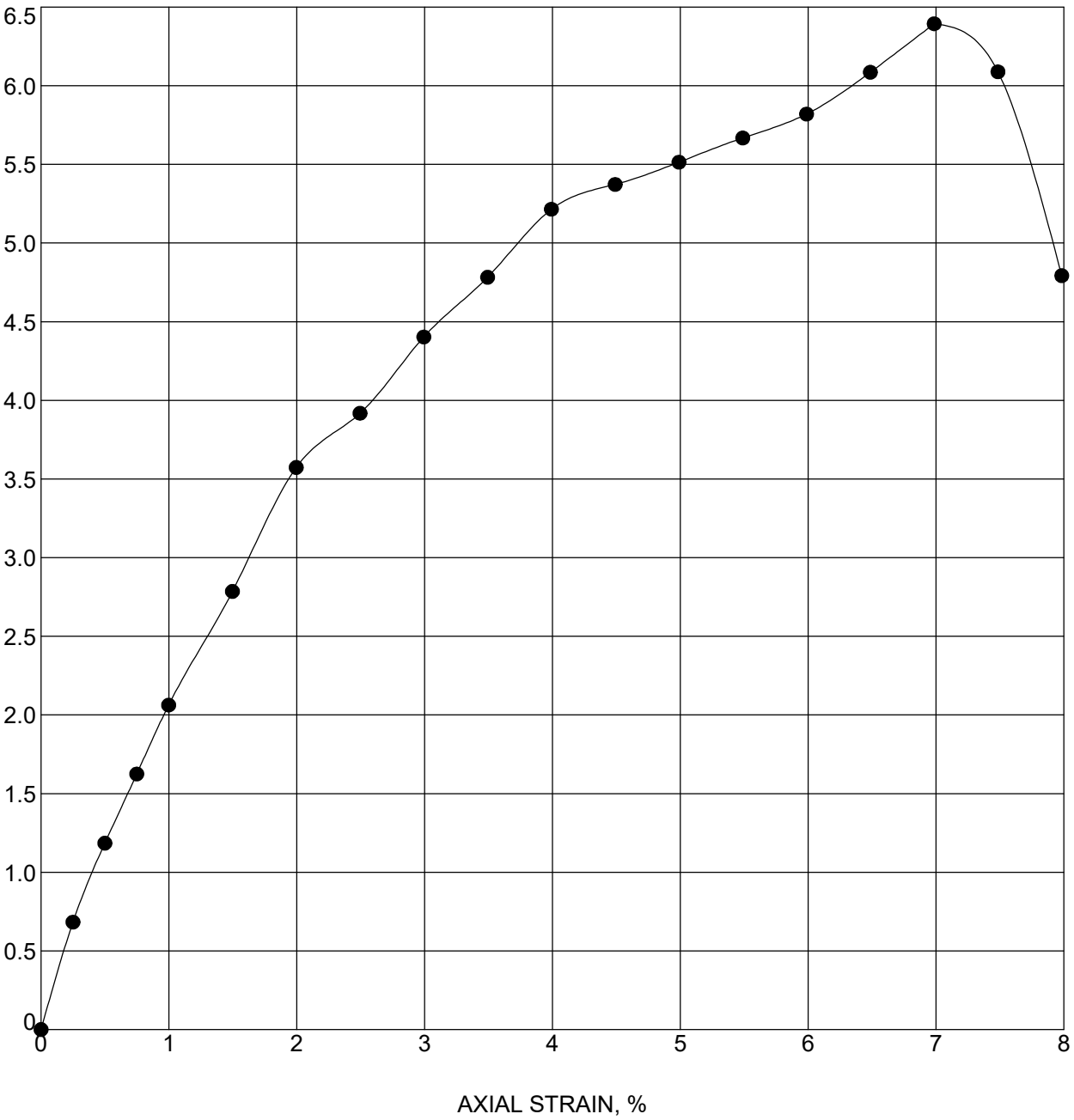

Boring	Sample	Depth	Classification
RB-310	SS-1T	1.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.4	134.5	117.6	6.39	1.0	7.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
3.20	88	0.443	35.36	71.27	2.0

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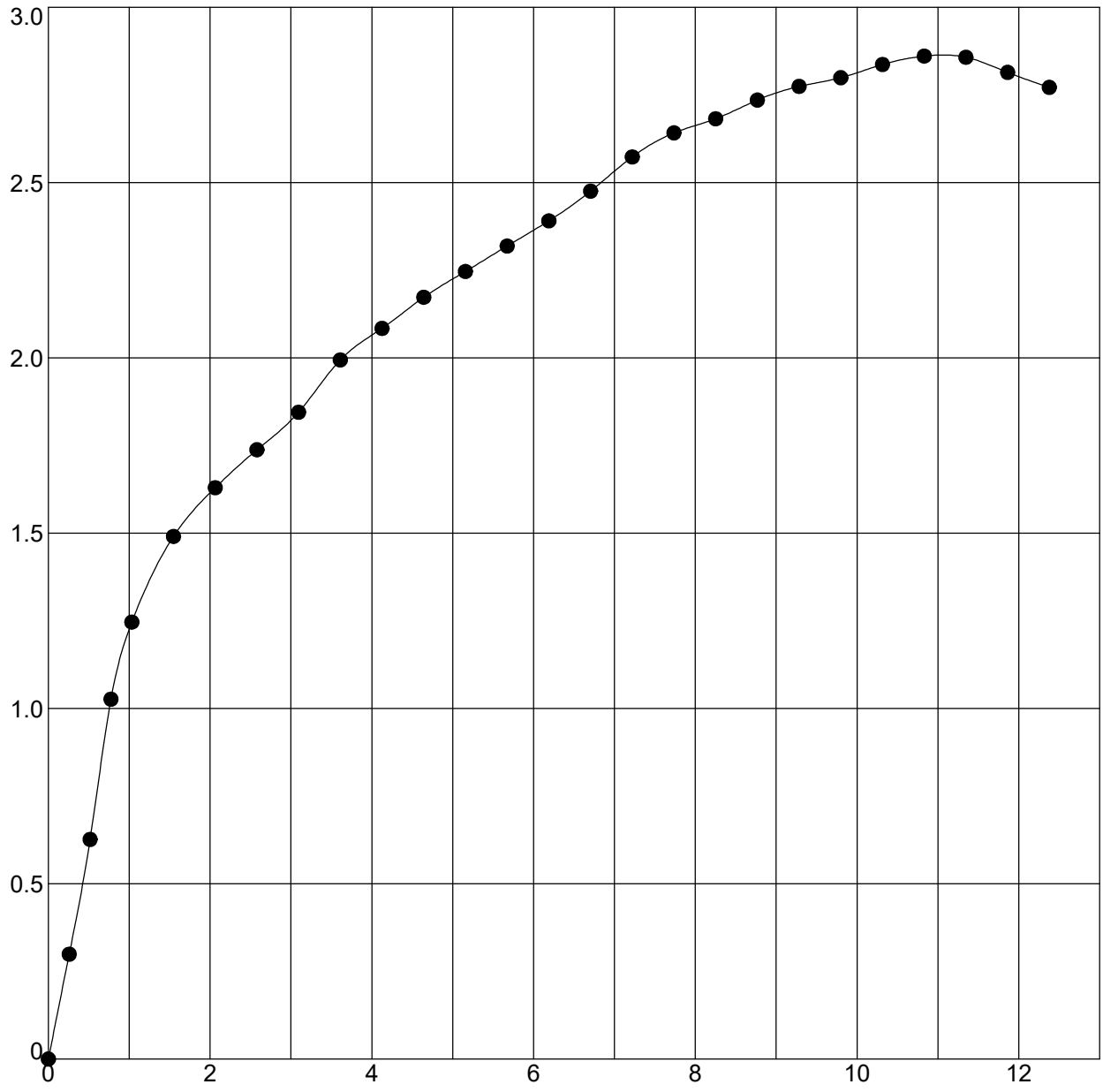

Boring	Sample	Depth	Classification
RB-311	SS-1B	1.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.3	127.7	104.4	2.86	1.0	10.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.43	97	0.626	35.23	68.95	2.0

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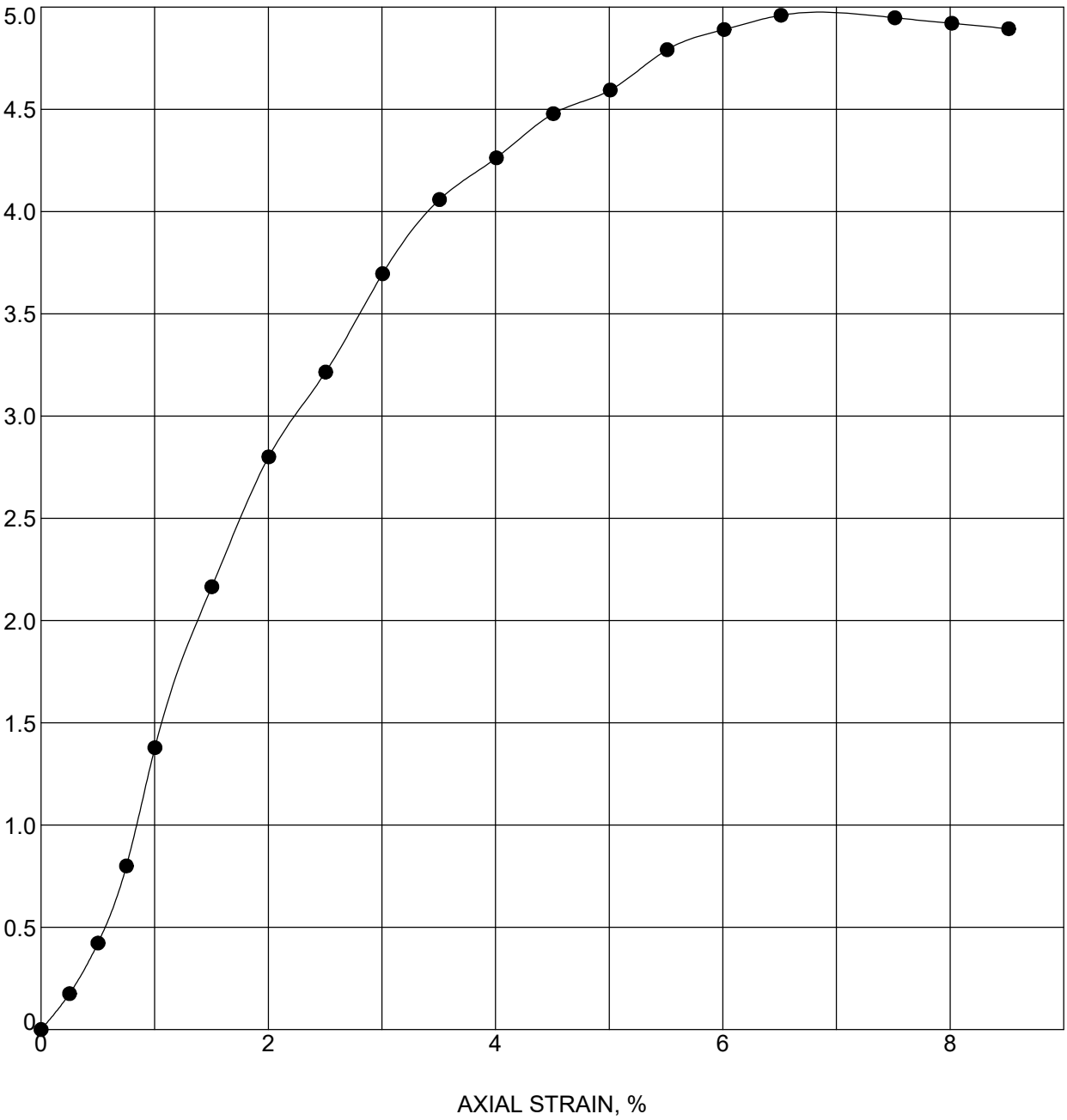

Boring	Sample	Depth	Classification
RB-312	SS-2T	3.1 - 4.6	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.5	135.0	114.9	4.96	1.0	6.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.48	100	0.477	35.63	70.99	2.0

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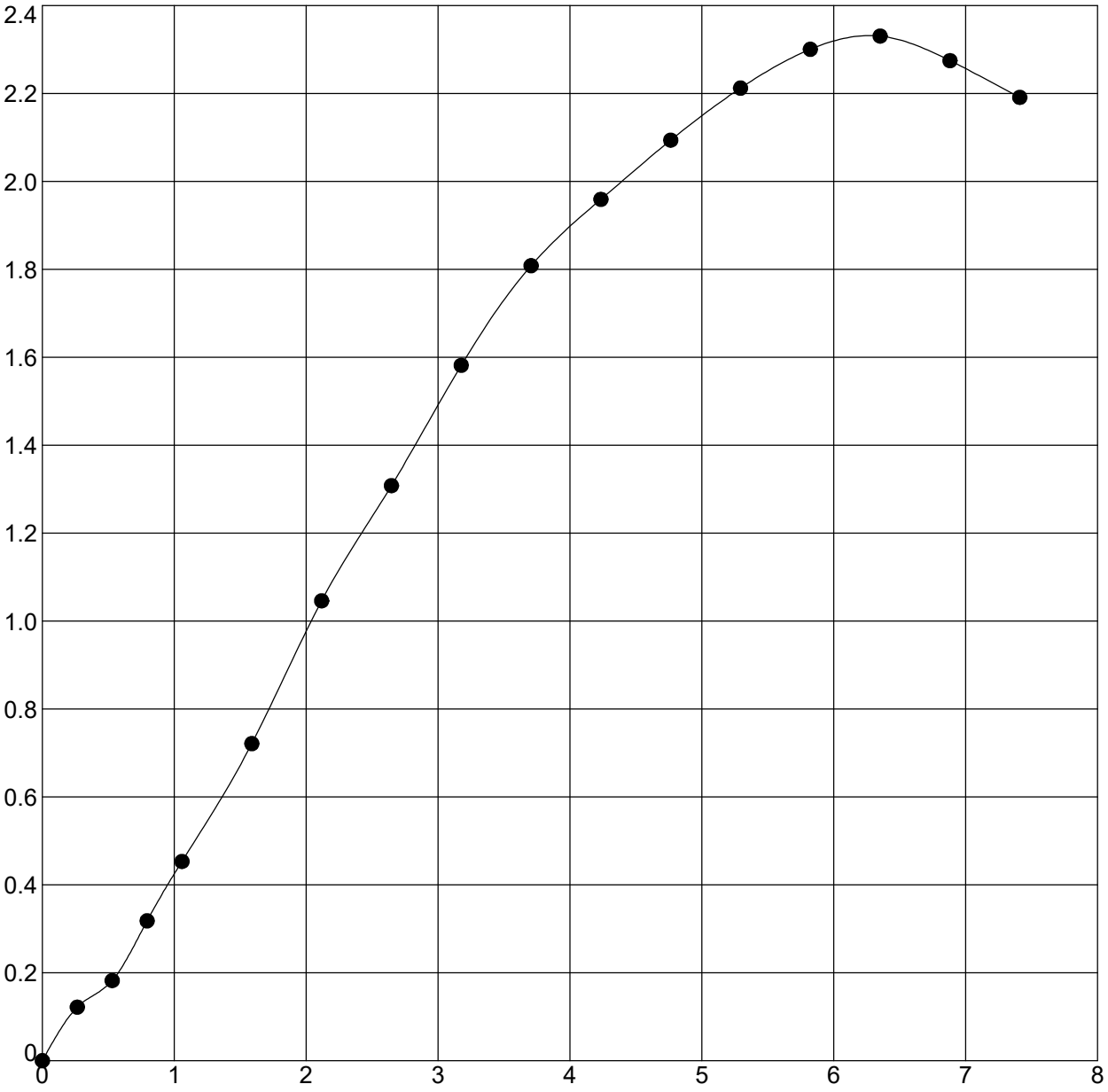

Boring	Sample	Depth	Classification
RB-315	SS-1T	1.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	131.1	108.7	2.33	1.0	6.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.17	100	0.562	34.91	67.18	1.9

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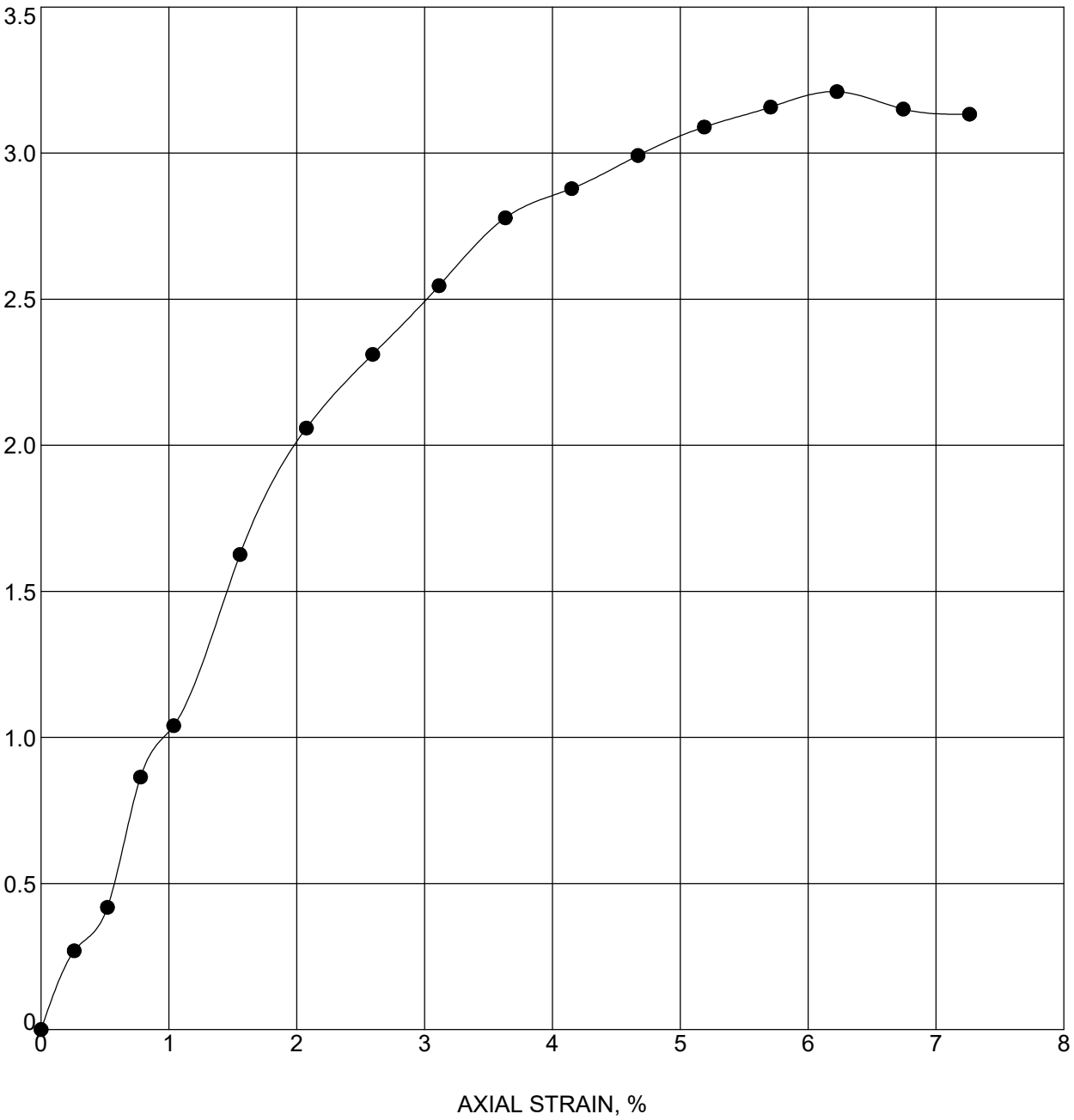

Boring	Sample	Depth	Classification
RB-317	SS-1B	1.4 - 2.9	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	126.8	105.1	3.21	1.0	6.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.61	91	0.614	35.2	68.55	1.9

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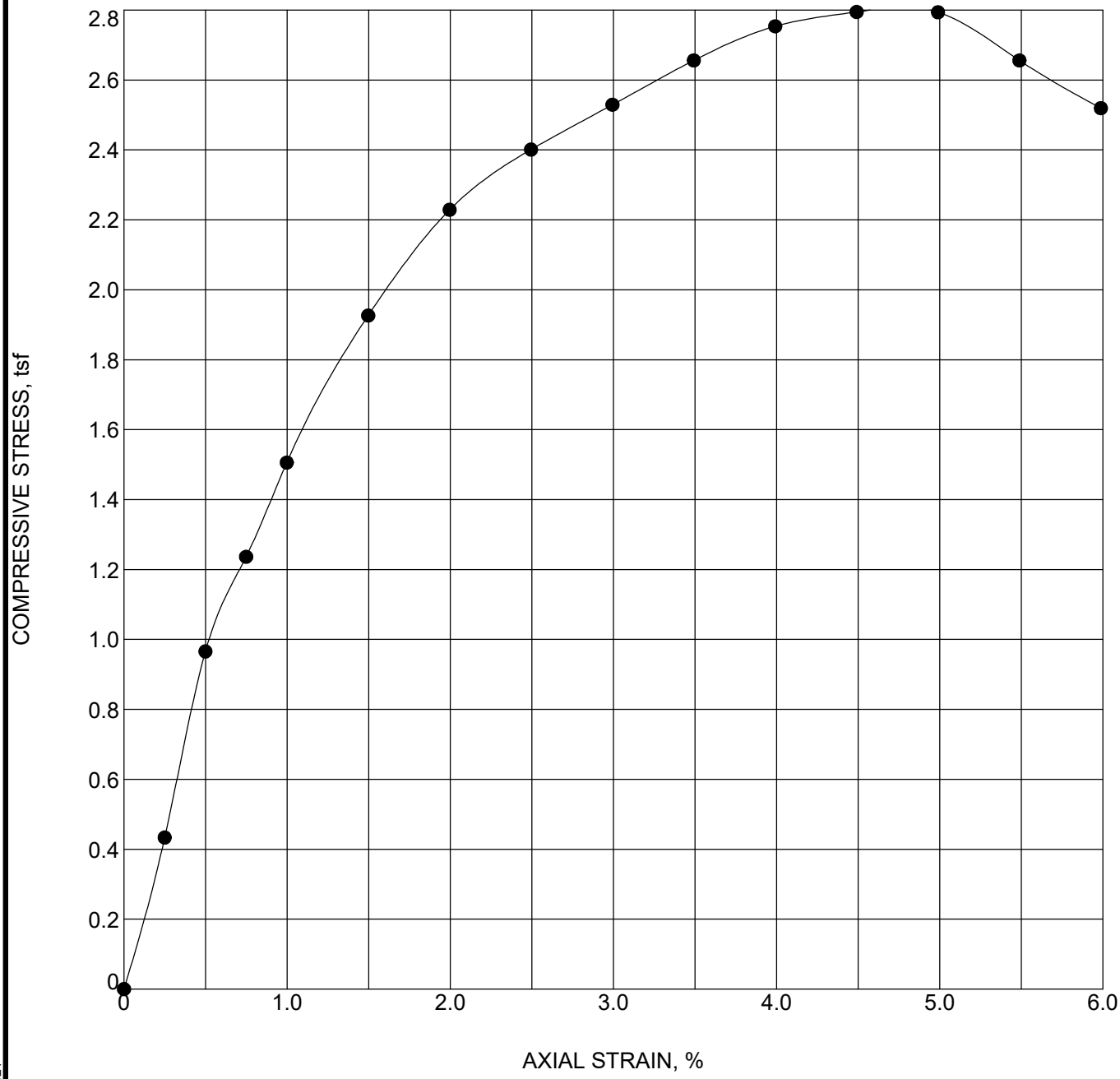
INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-318	SS-2T	2.9 - 4.4	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.2	130.5	111.4	2.79	1.0	4.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.40	89	0.524	35.84	71.27	2.0

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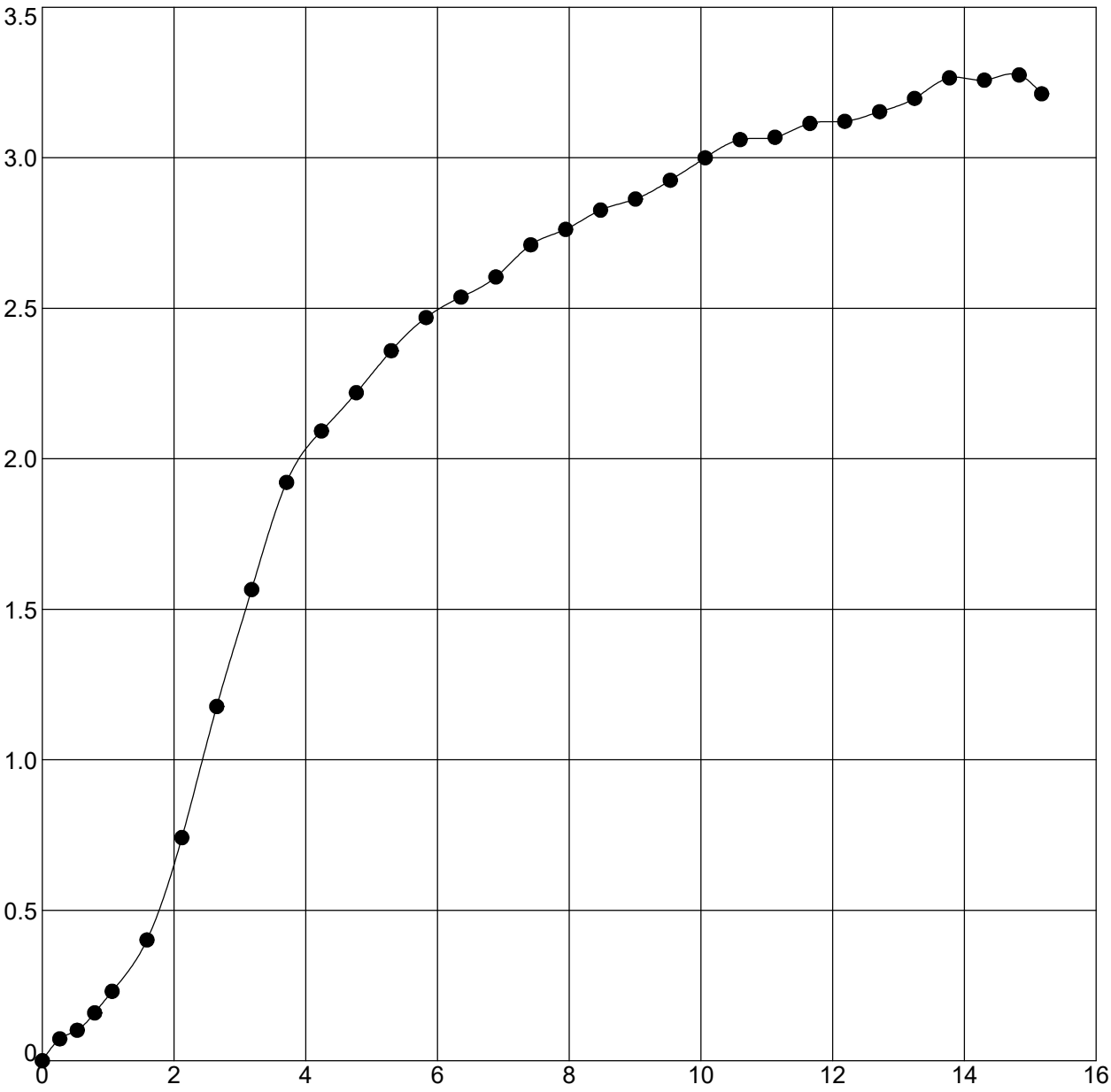
Fax: 317-273-2250

UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-319	SS-1T	1.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.7	134.6	114.3	3.28	1.0	14.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.64	100	0.485	35.74	67.13	1.9

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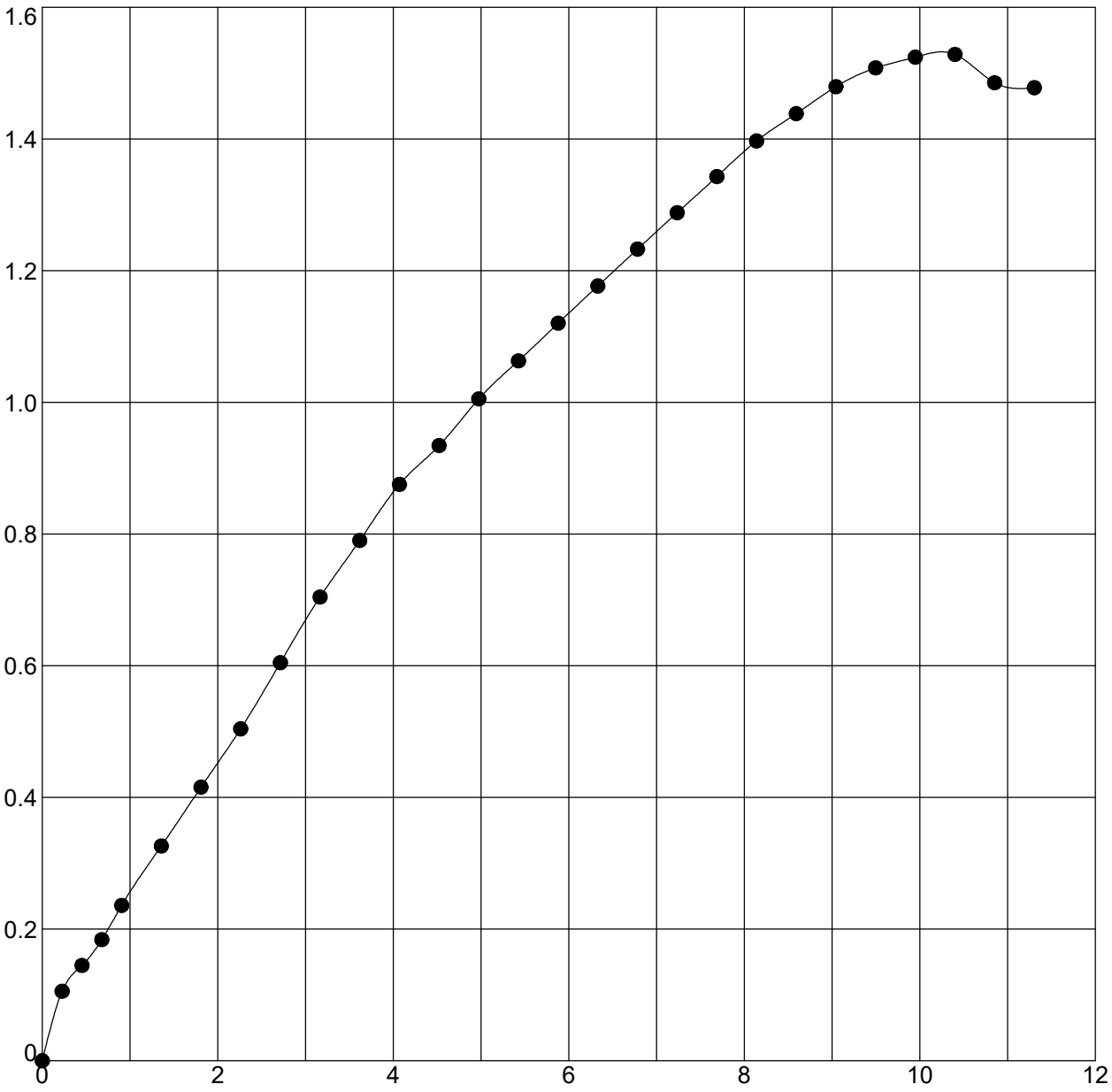
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-326	SS-2T	2.8 - 4.3	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
24.2	127.2	102.5	1.53	1.0	10.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.76	100	0.656	37.51	78.64	2.1

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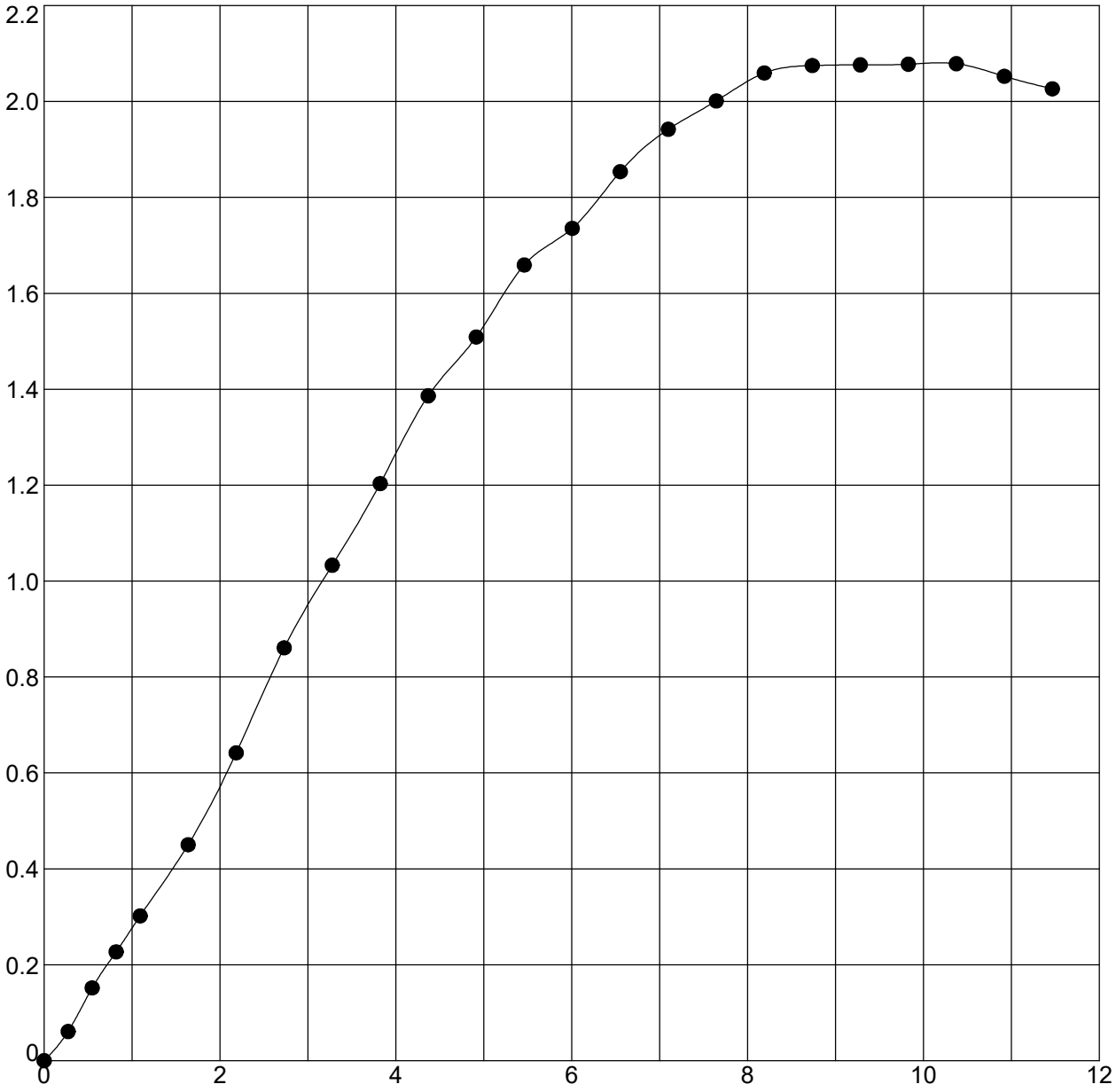
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-327	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.3	132.9	111.3	2.08	1.1	10.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.04	100	0.525	34.92	65.13	1.9

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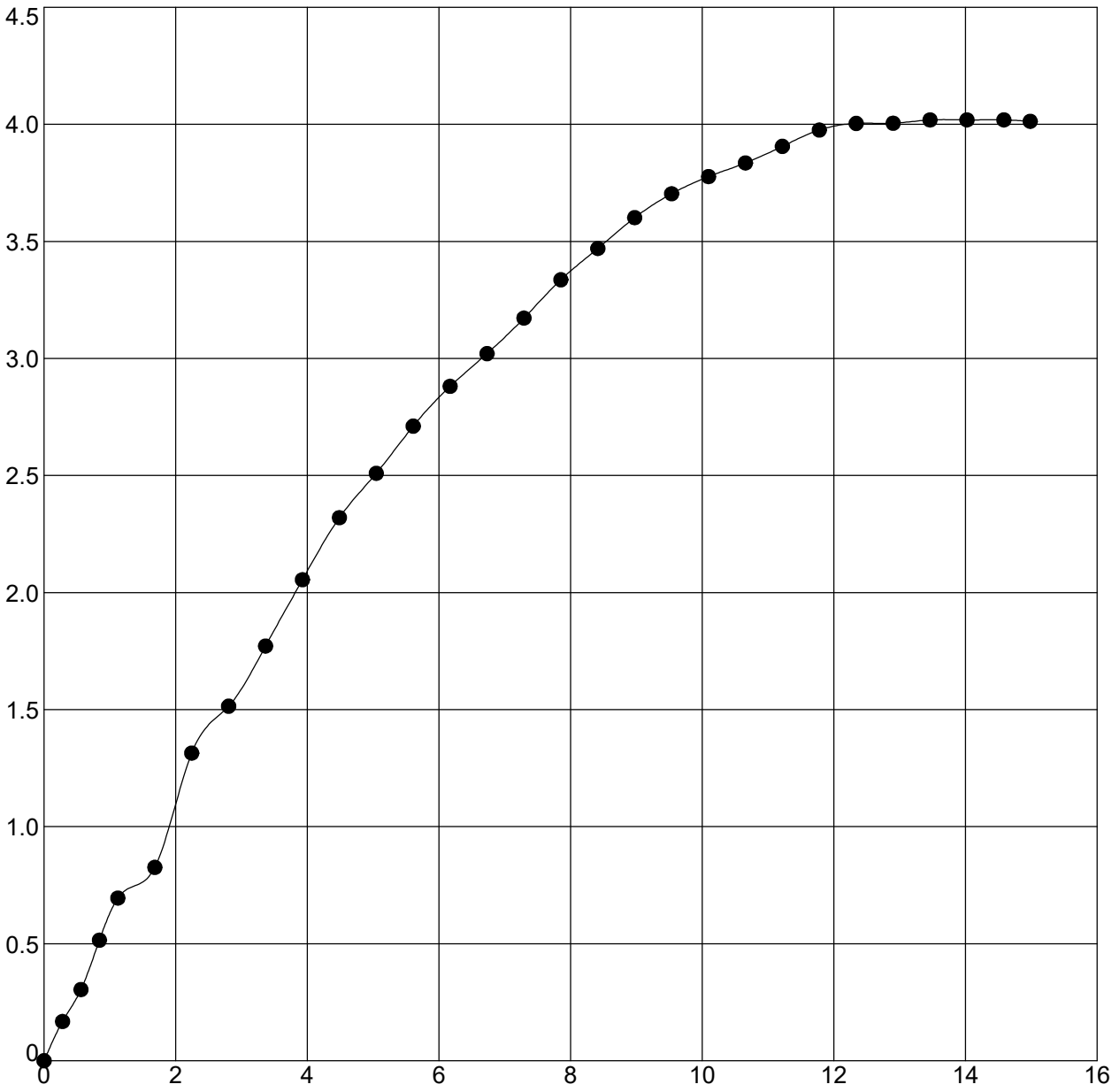
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-331	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.2	132.2	110.9	4.02	1.1	14.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.01	98	0.530	34.9	63.4	1.8

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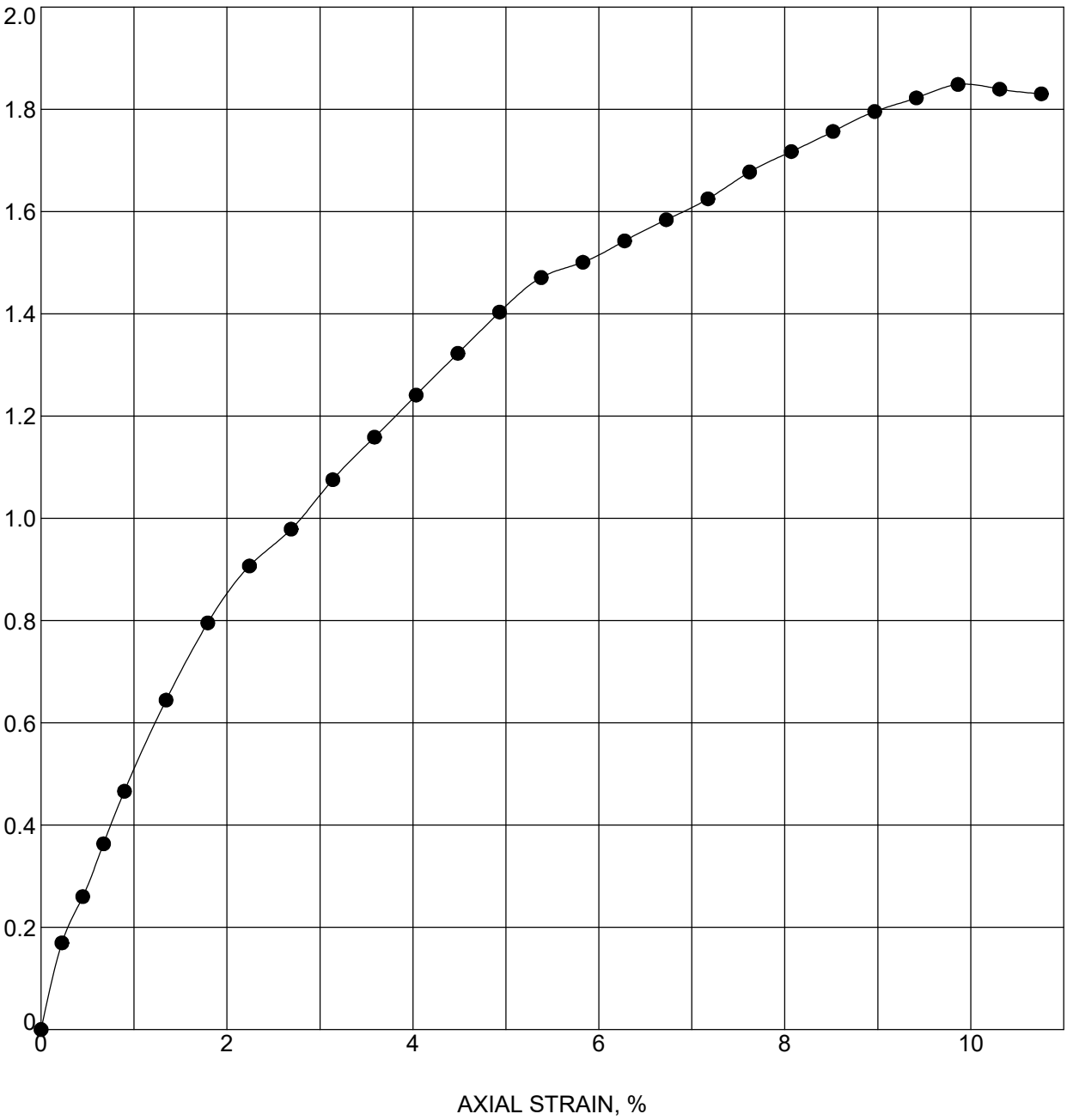
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-333	SS-2	2.8 - 4.3	SILTY CLAY LOAM A-6 (9)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.3	131.6	110.4	1.85	0.9	9.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.92	100	0.515	37.74	79.32	2.1

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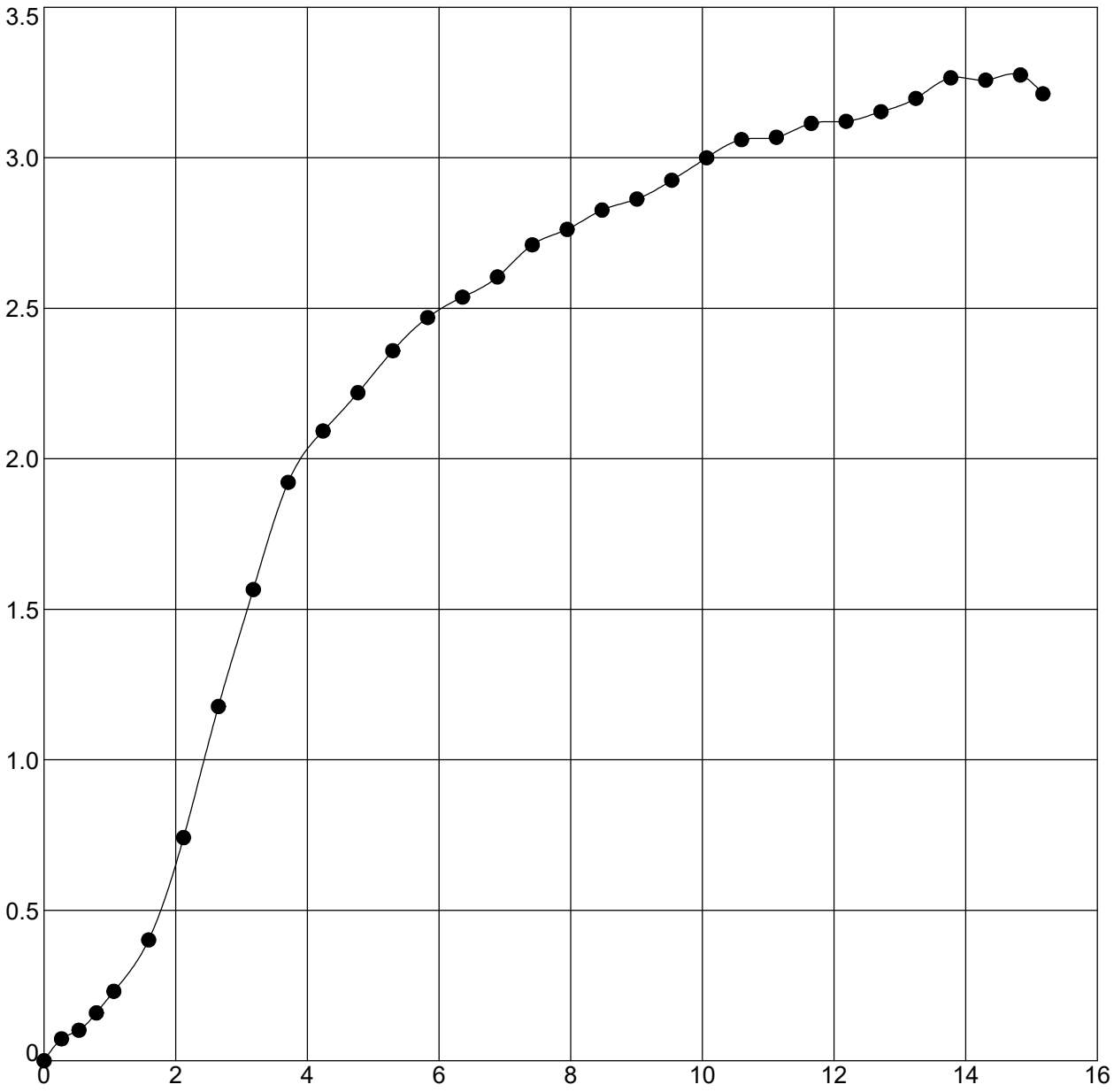
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT UNCONFINED TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Boring	Sample	Depth	Classification
RB-336	SS-1T	1.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.7	134.6	114.3	3.28	1.0	14.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.64	100	0.485	35.74	67.13	1.9

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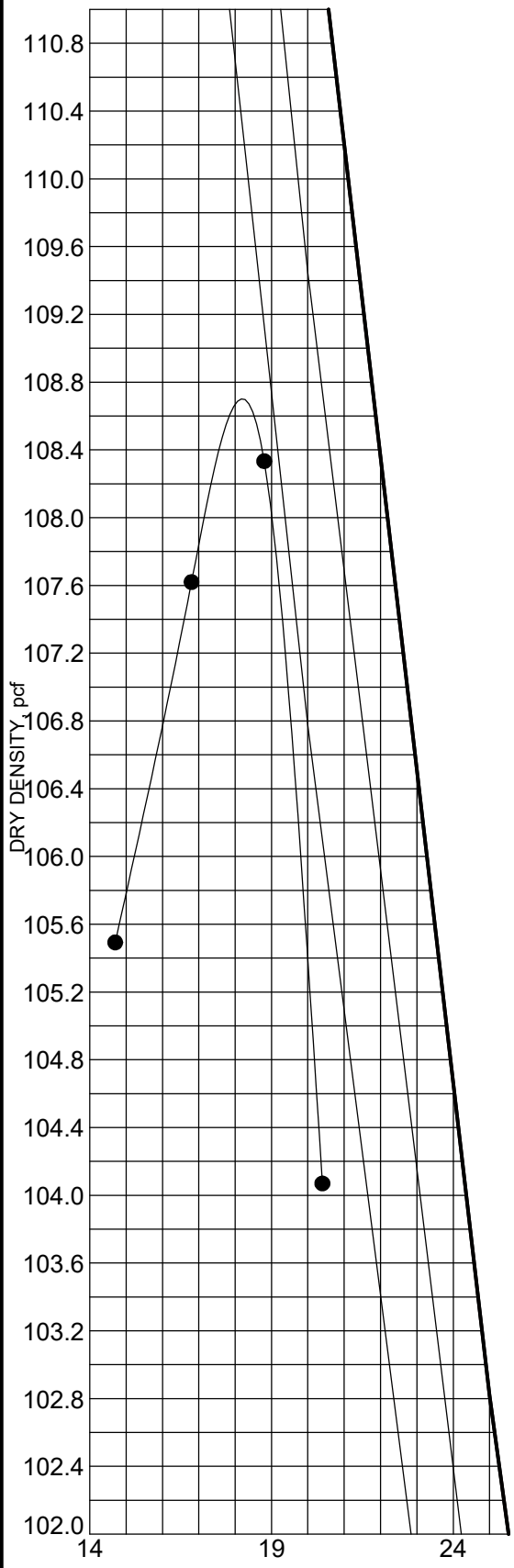
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

INDOT_UNCONFINED_TEST (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 11/3/21



Source of Material: **RB-002B BS-1 1.0**

Description of Material: **SILTY CLAY**

A-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density	**108.7**	**PCF**
Optimum Water Content	**18.2**	**%**

ATTERBERG LIMITS

LL	PL	PI
33.0	**16.0**	**17.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

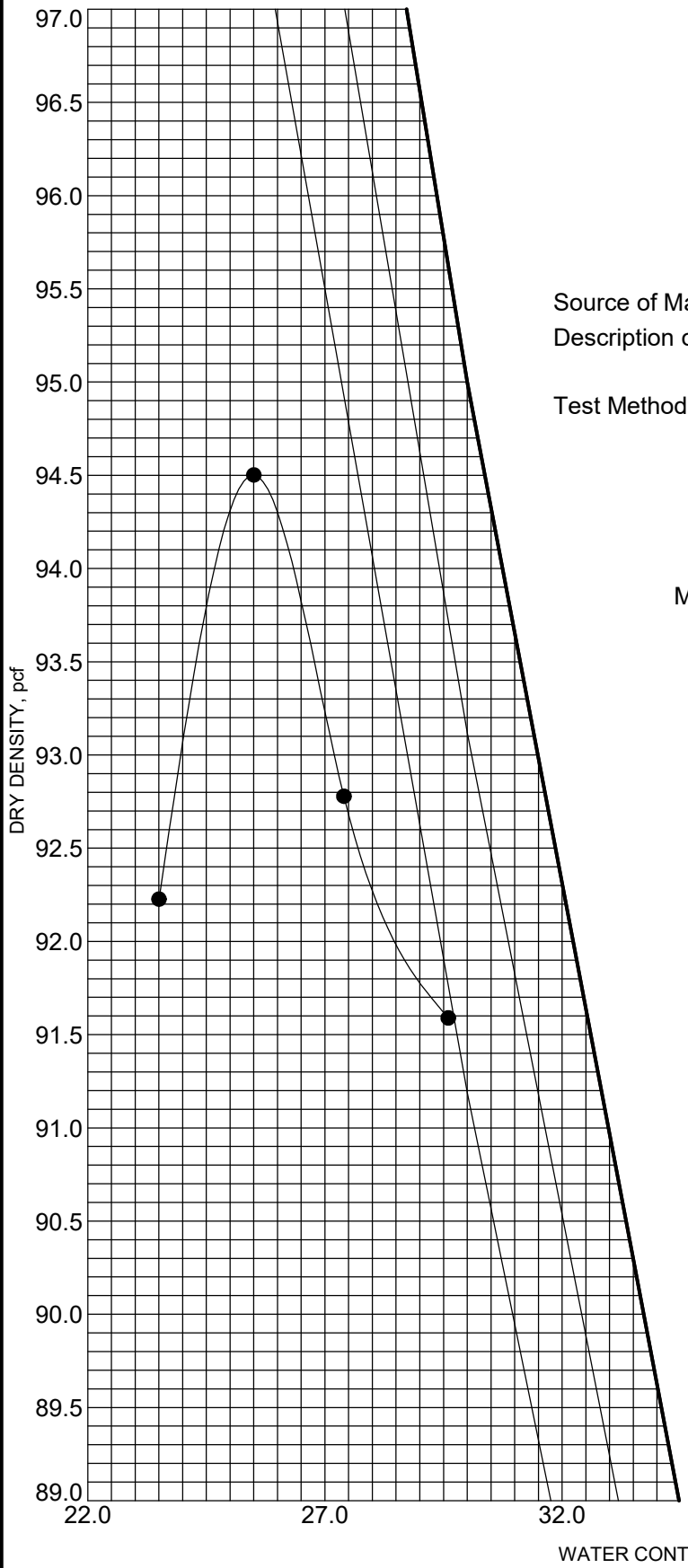
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

INDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-026B BS-1 1.0**

Description of Material: **CLAY LOAM**

A-7-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **94.5 PCF**

Optimum Water Content: **25.5 %**

ATTERBERG LIMITS

LL	PL	PI
50.0	**30.0**	**20.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

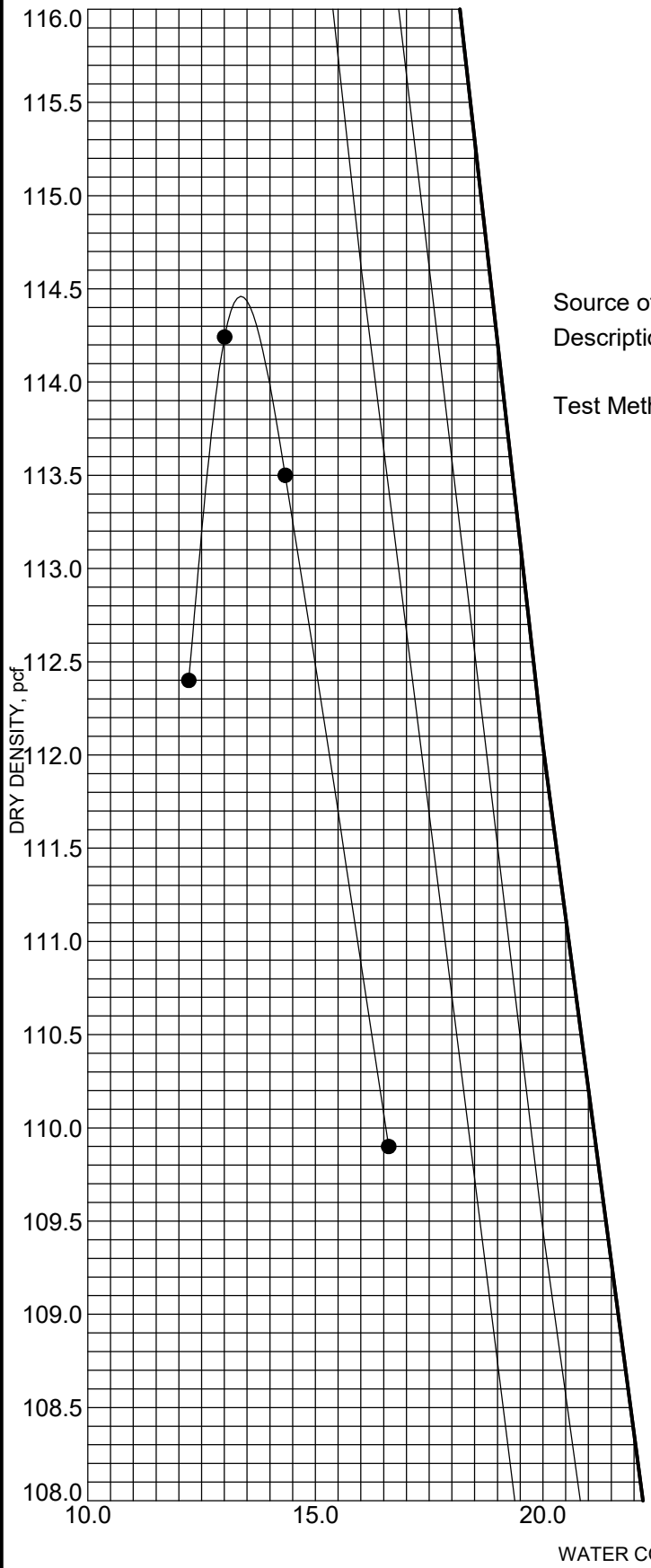
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

INDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-051B BS-1 1.0**

Description of Material: **CLAY LOAM**

A-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **114.4 PCF**

Optimum Water Content: **13.3 %**

ATTERBERG LIMITS

LL	PL	PI
30.0	**19.0**	**11.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

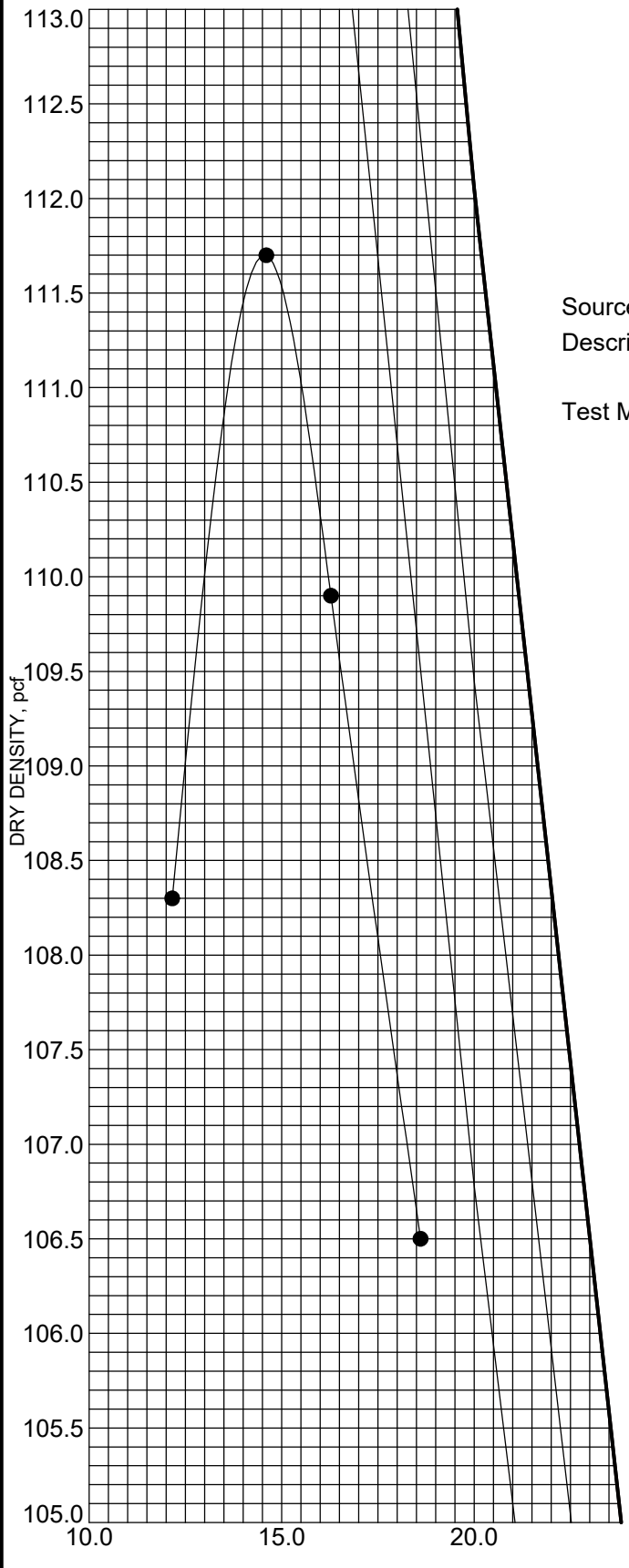
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

...DOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-075B BS-1 1.0**

Description of Material: **SILTY CLAY LOAM**

A-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **111.8 PCF**

Optimum Water Content: **14.5 %**

ATTERBERG LIMITS

LL	PL	PI
36.0	**20.0**	**16.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

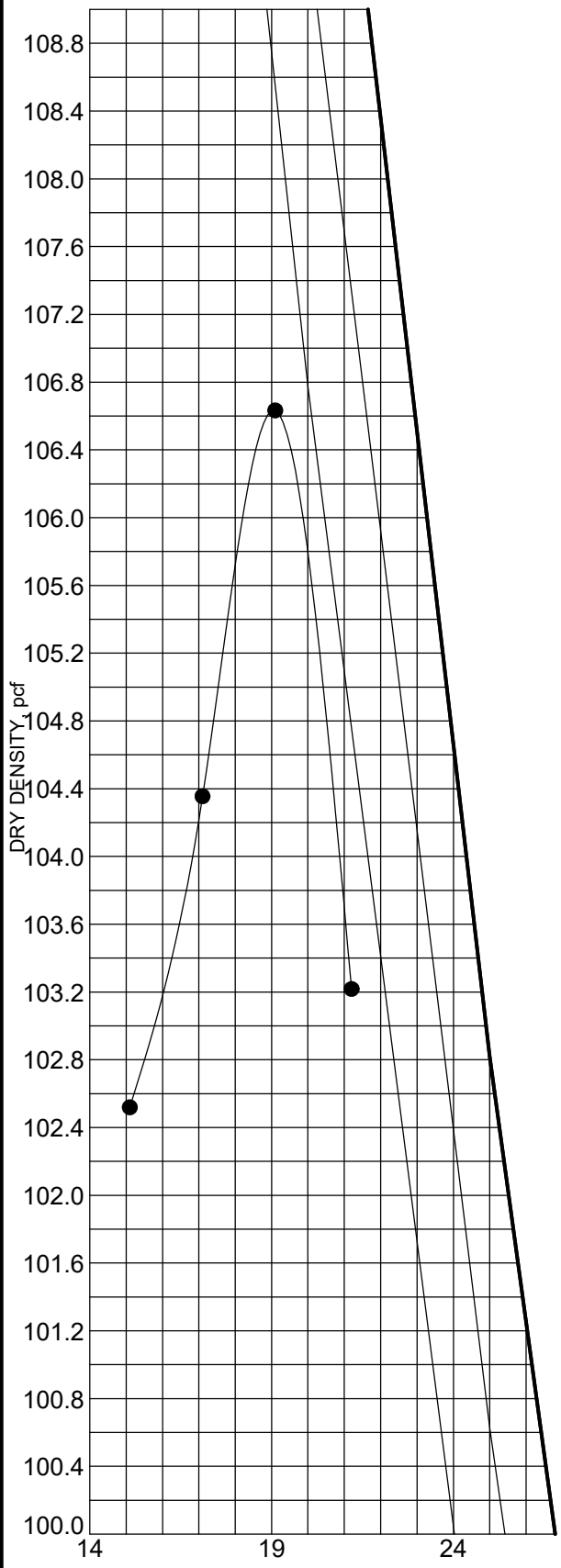
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

INDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-099B BS-1 1.0**

Description of Material: **SILTY CLAY**

A-7-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **106.6 PCF**

Optimum Water Content: **19.0 %**

ATTERBERG LIMITS

LL	PL	PI
41.0	**22.0**	**19.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

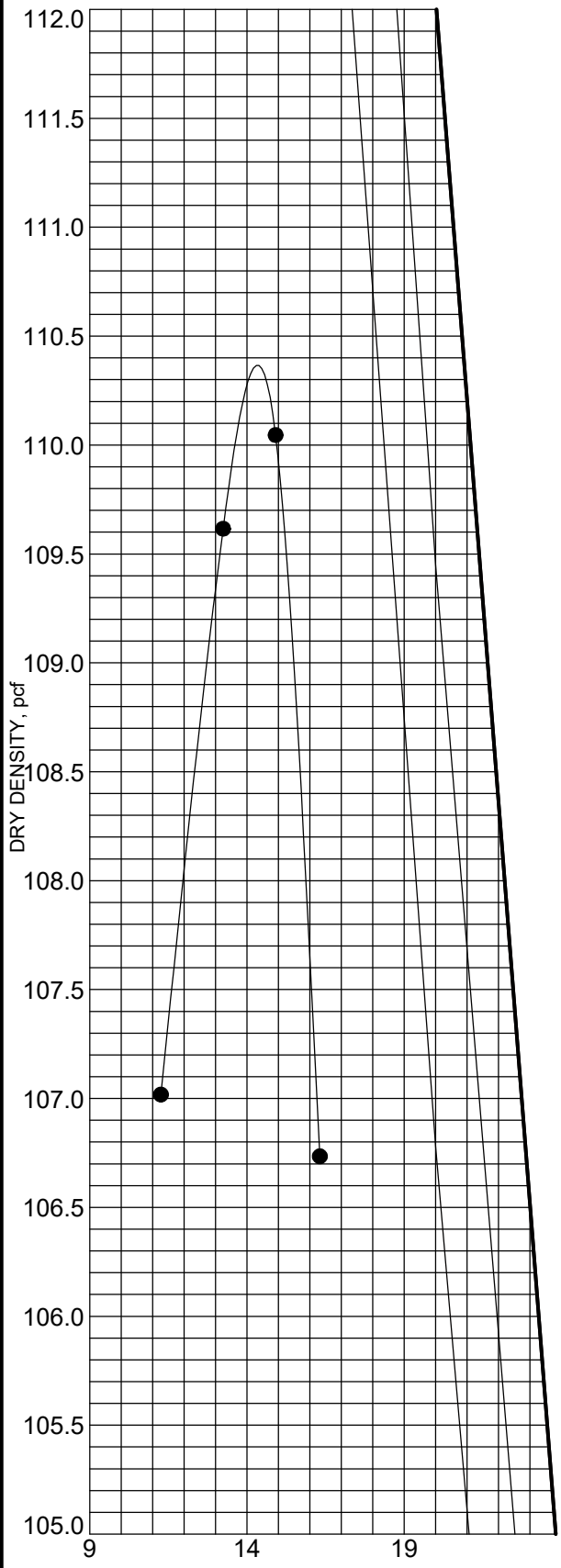
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

DOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-219B BS-1 1.0**

Description of Material: **SILTY CLAY LOAM**

A-4

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **110.4 PCF**

Optimum Water Content: **14.3 %**

ATTERBERG LIMITS

LL	PL	PI
31.0	**19.0**	**12.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

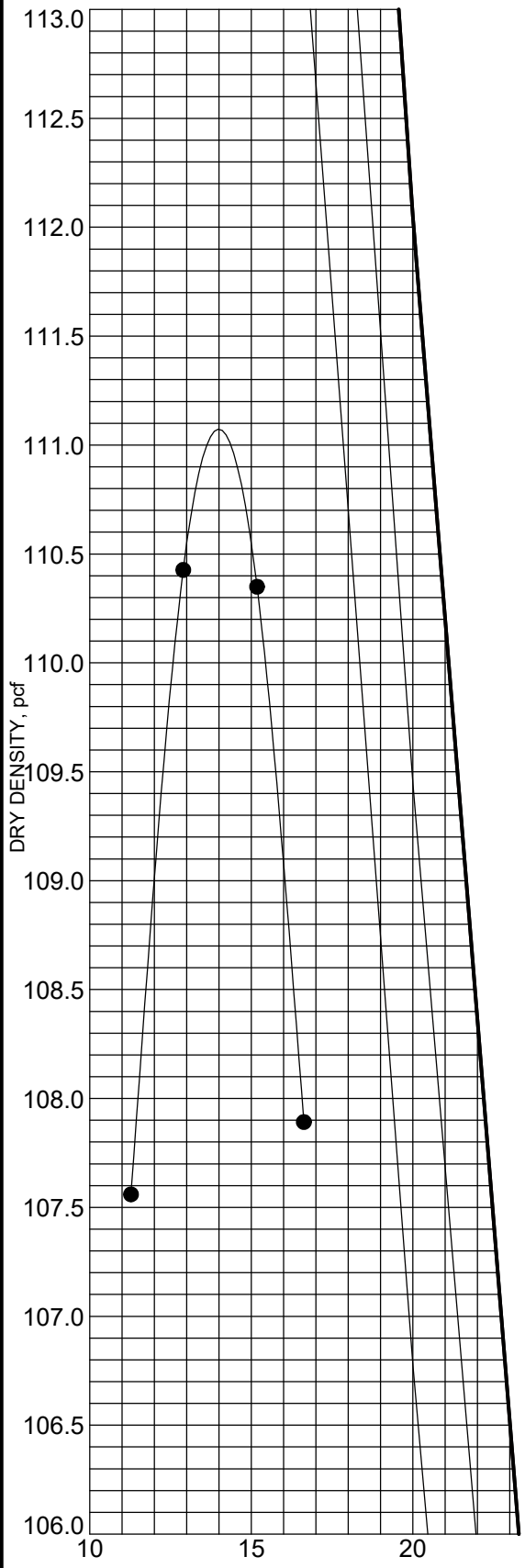
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

INDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-244B BS-1 1.0**

Description of Material: **CLAY**

A-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **111.1 PCF**

Optimum Water Content: **14.1 %**

ATTERBERG LIMITS

LL	PL	PI
32.0	**19.0**	**13.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

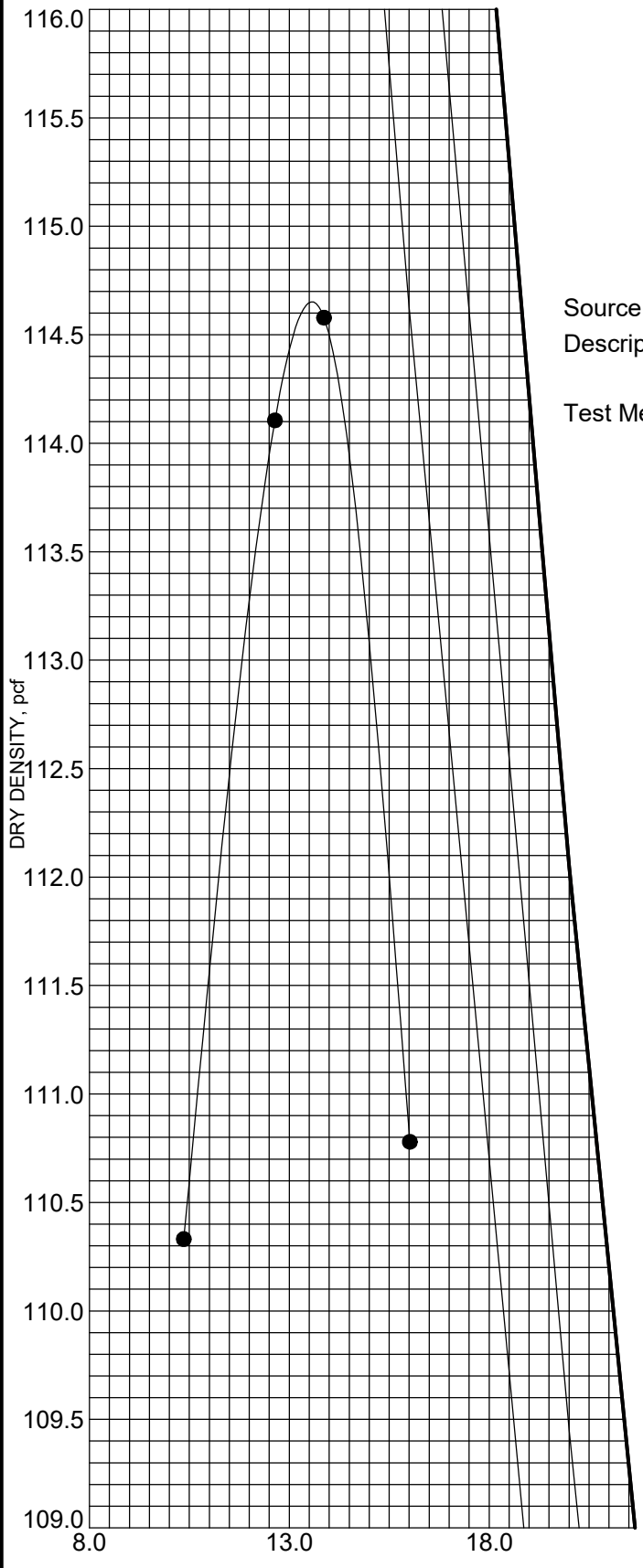
DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

NDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21



Source of Material: **RB-268B BS-1 1.0**

Description of Material: **CLAY**

A-6

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density: **114.7 PCF**

Optimum Water Content: **13.5 %**

ATTERBERG LIMITS

LL	PL	PI
32.0	**15.0**	**17.0**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

DES #: 1700135 Structure #:

Project #: CJ195480 Contract #:

County: Clark and Scott

Location: I-65 from RP 16+27 to 29+10

INDOT_MOISTURE_DENSITY (EEI LOGO) CJ195480.GPJ IN_DOT1.GDT 10/26/21

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM142** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-11A** Sample: **ST-1** Specimen Depth (ft): **2-4'**

Textural Class: **Clay** LL: **41.00** PL: **22.00** AASHTO Class: **A-7-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points	
7.25	15.54
7.26	15.57
7.26	15.56

Diameter(cm)	Length(cm)	Mass(gms)
7.26	15.56	1,319.60

Length to Diameter Ratio> 2.1

Area(cm²)	41.39
Volume(cm³)	643.76
Natural Wet Density(lbs/ft³)	128.00
Dry Density(lbs/ft³)	111.60

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,421.90
Dry Soil w/tare mass	1,252.80
Tare mass	102.20
Moisture %	14.70

Remarks:

Permanent Strain:

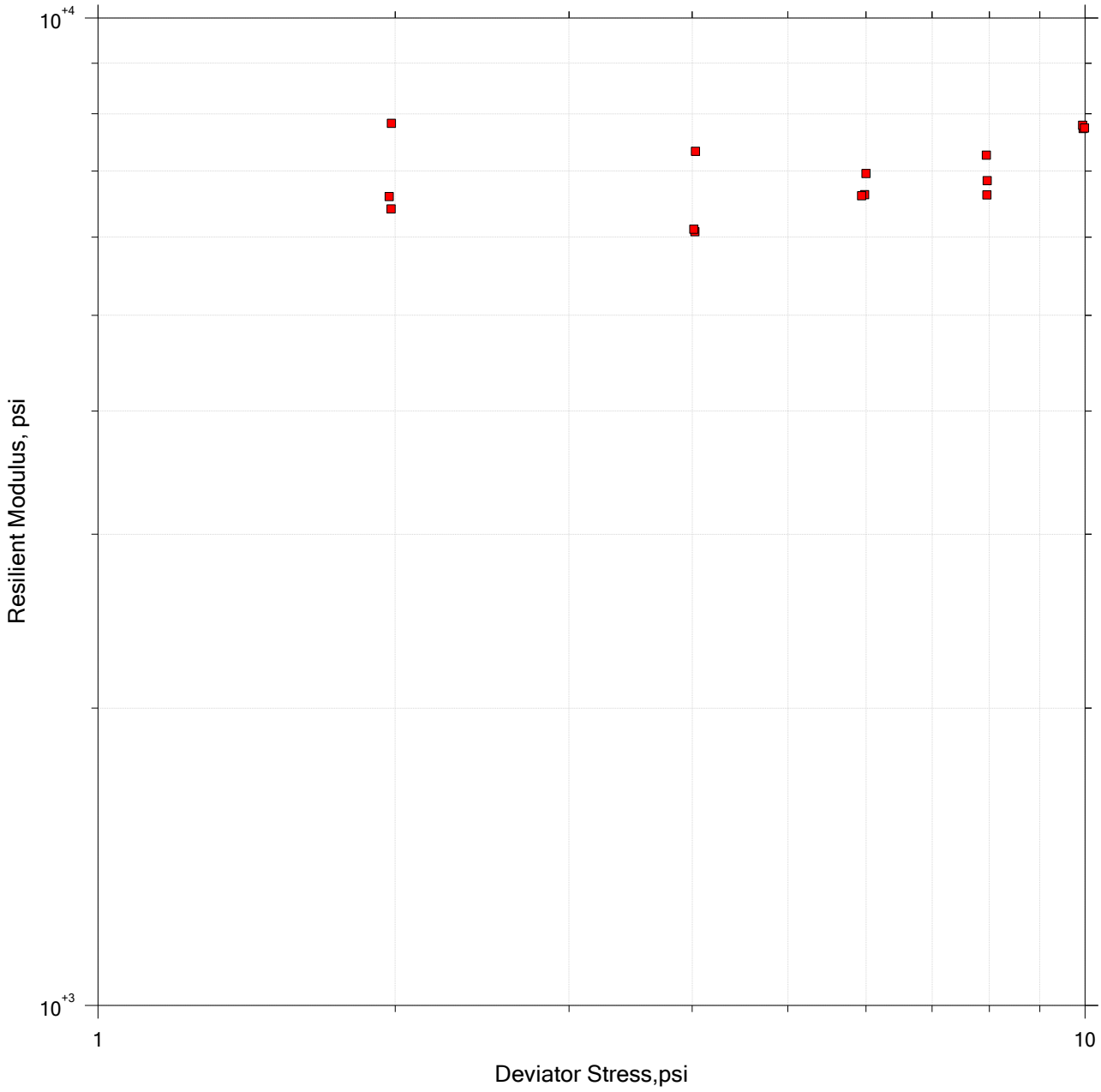
After Conditioning	0.02	%	At Completion >	0.16	%
Sequence >	0.02	mm		0.25	mm

Tested by: Heena Naaz date: 7/23/2021 11:29:32AM

RM TEST

Summary Data

$Mr = 465.72 * Pa * (B/Pa)^{0.152} * (Sd/Pa)^{0.00727}$ r = 0.64699



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-11a	Tester: JMA	Checker:
Sample Number: ST	Test Date: 07/22/2021	Depth: 2.0'-4.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.953	2.000	1.983	0.0143	19.84	0.02	0.00	7822.9	88.482
5.959	4.000	4.029	0.0372	21.91	0.05	0.00	7327.9	93.452
5.932	6.000	6.000	0.0331	23.80	0.08	0.00	6961.1	22.419
5.972	8.000	7.944	0.0427	25.86	0.10	0.00	7262.6	31.576
5.977	10.00	9.956	0.0284	27.89	0.12	0.00	7730.3	22.138
3.975	2.000	1.981	0.0233	13.91	0.03	0.00	6409.8	98.078
3.977	4.000	4.025	0.0410	15.96	0.06	0.00	6075.7	67.915
3.977	6.000	5.979	0.0388	17.91	0.08	0.00	6623.3	36.593
3.977	8.000	7.962	0.0282	19.89	0.10	0.00	6845.5	37.173
3.961	10.00	9.946	0.0344	21.83	0.12	0.00	7789.5	18.163
2.018	2.000	1.972	0.0216	8.027	0.03	0.00	6596.2	84.458
2.023	4.000	4.014	0.0253	10.08	0.06	0.00	6113.1	32.968
2.006	6.000	5.939	0.0368	11.96	0.08	0.00	6607.0	51.049
2.041	8.000	7.954	0.0205	14.08	0.11	0.00	6620.1	19.636
1.993	10.00	9.990	0.0371	15.97	0.12	0.00	7736.4	42.713

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-11a	Tester: JMA	Checker:
	Sample Number: ST	Test Date: 07/22/2021	Depth: 2.0'-4.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM143** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-22A** Sample: **ST-1** Specimen Depth (ft): **1-3**

Textural Class: **Clay Loam** LL: **26.00** PL: **14.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points		
7.26	15.38	
7.26	15.39	
7.23	15.36	
Diameter(cm)	**Length(cm)**	**Mass(gms)**
7.25	15.38	1,319.80
Length to Diameter Ratio>	2.1	

Area(cm²)	41.26
Volume(cm³)	634.40
Natural Wet Density(lbs/ft³)	129.90
Dry Density(lbs/ft³)	114.60

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,427.60
Dry Soil w/tare mass	1,271.90
Tare mass	102.20
Moisture %	13.30

Remarks:

Permanent Strain:

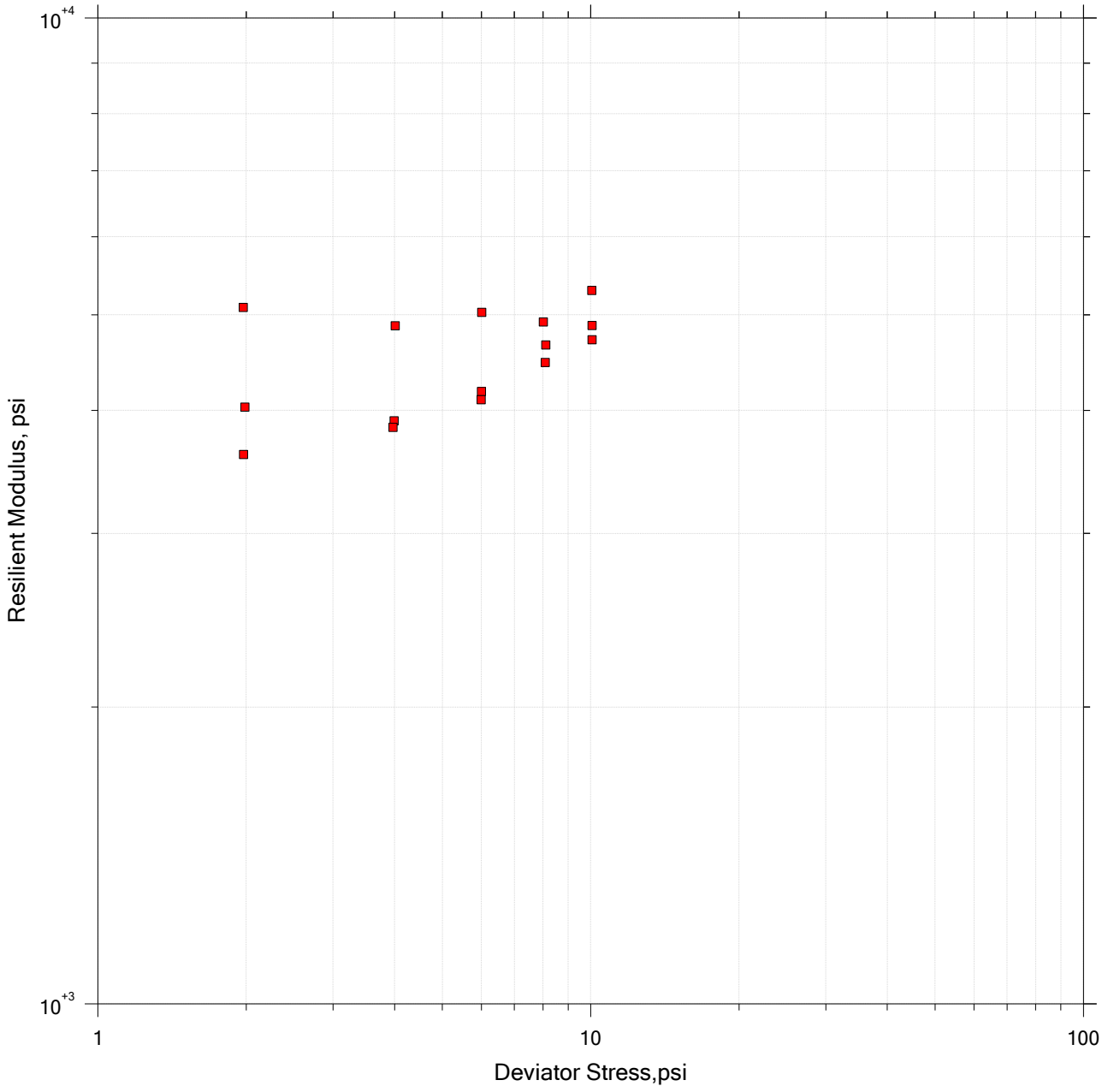
After Conditioning Sequence >	0.00	%	At Completion >	0.17	%
	0.00	mm		0.27	mm

Tested by: Marcus Duke date: 7/26/2021 9:56:10AM

RM TEST

Summary Data

$Mr = 295.62 * Pa * (B/Pa)^{0.289} * (Sd/Pa)^{0.0123}$ r = 0.89551



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-22A	Tester: JMA	Checker:
Sample Number: ST	Test Date: 07/22/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.957	2.000	1.972	0.0178	19.84	0.04	0.00	5085.1	76.695
5.957	4.000	4.011	0.0190	21.88	0.07	0.00	4872.0	22.273
5.937	6.000	6.011	0.0412	23.82	0.11	0.00	5028.3	16.762
5.966	8.000	8.016	0.0452	25.91	0.15	0.00	4917.9	25.262
5.954	10.00	10.05	0.0321	27.91	0.17	0.00	5293.2	6.1417
3.994	2.000	1.986	0.0112	13.97	0.04	0.00	4028.7	63.602
3.987	4.000	3.991	0.0160	15.95	0.09	0.00	3903.3	18.364
3.987	6.000	6.002	0.0265	17.96	0.13	0.00	4178.5	16.053
3.988	8.000	8.106	0.0246	20.07	0.16	0.00	4659.3	18.519
3.987	10.00	10.06	0.0279	22.02	0.19	0.00	4875.0	5.3049
2.021	2.000	1.974	0.0152	8.037	0.05	0.00	3607.8	32.673
2.023	4.000	3.972	0.0261	10.04	0.09	0.00	3844.1	25.273
2.023	6.000	5.997	0.0208	12.07	0.13	0.00	4099.5	6.8765
2.024	8.000	8.090	0.0348	14.16	0.16	0.00	4473.2	11.979
2.023	10.00	10.07	0.0413	16.14	0.19	0.00	4717.8	8.5658

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-22A	Tester: JMA	Checker:
	Sample Number: ST	Test Date: 07/22/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM144** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-162A** Sample: **ST-1** Specimen Depth (ft): **1**

Textural Class: **Silty Clay** LL: **36.00** PL: **25.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points		
7.16	15.15	
7.16	15.16	
7.11	15.13	
Diameter(cm)	**Length(cm)**	**Mass(gms)**
7.14	15.14	1,194.30
Length to Diameter Ratio>	2.1	

Area(cm²)	40.06
Volume(cm³)	606.71
Natural Wet Density(lbs/ft³)	122.90
Dry Density(lbs/ft³)	97.40

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,404.60
Dry Soil w/tare mass	1,156.70
Tare mass	208.00
Moisture %	26.10

Remarks:

Permanent Strain:

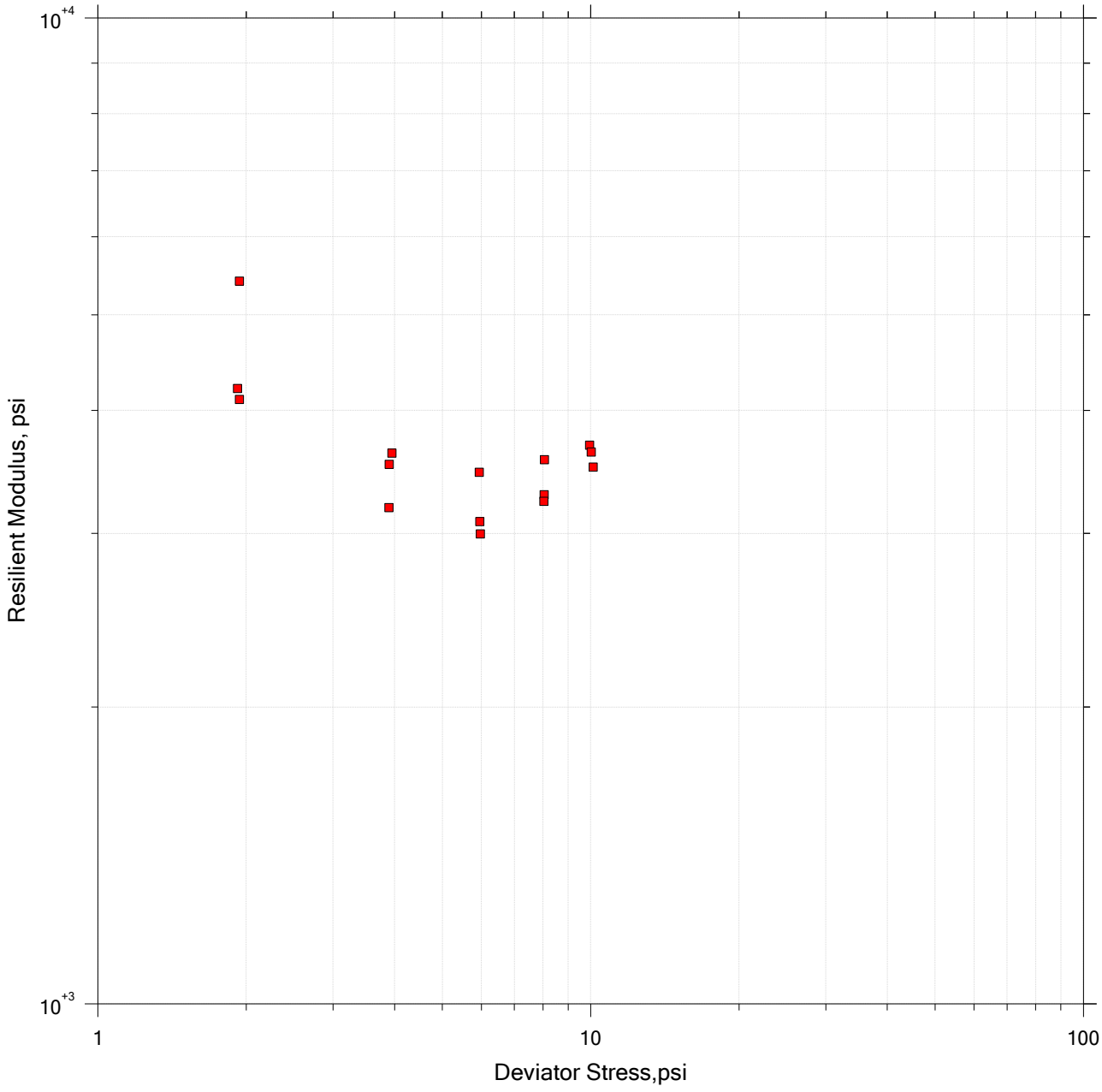
After Conditioning Sequence >	0.14	%	At Completion >	0.92	%
	0.22	mm		1.39	mm

Tested by: Marcus Duke date: 7/28/2021 8:49:04AM

RM TEST

Summary Data

$Mr = 193.59 * Pa * (B/Pa)^{0.156} * (Sd/Pa)^{-0.201}$ r = 0.71138



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-162A	Tester: MGD	Checker:
Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.968	2.000	1.920	0.0093	19.82	0.04	0.00	4208.9	74.957
5.998	4.000	3.950	0.0084	21.94	0.10	0.00	3618.4	23.078
5.987	6.000	5.941	0.0354	23.90	0.15	0.00	3461.6	13.997
6.026	8.000	8.060	0.0365	26.14	0.20	0.00	3564.1	27.769
5.967	10.00	9.946	0.0159	27.85	0.24	0.00	3687.1	10.698
3.984	2.000	1.936	0.0202	13.89	0.03	0.00	5409.7	109.82
4.036	4.000	3.900	0.0160	16.01	0.10	0.00	3524.7	12.801
3.980	6.000	5.956	0.0215	17.90	0.17	0.00	3083.4	12.255
3.984	8.000	8.044	0.0197	19.99	0.22	0.00	3283.3	3.8673
4.003	10.00	10.02	0.0216	22.03	0.25	0.00	3628.0	14.274
2.029	2.000	1.937	0.0180	8.023	0.04	0.00	4101.6	54.784
2.031	4.000	3.896	0.0173	9.989	0.11	0.00	3187.3	14.487
2.033	6.000	5.972	0.0145	12.07	0.18	0.00	2997.7	10.122
2.034	8.000	8.033	0.0067	14.14	0.22	0.00	3232.9	8.5132
2.033	10.00	10.12	0.0336	16.22	0.26	0.00	3502.6	10.434

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-162A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM145** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-234A** Sample: **ST-1** Specimen Depth (ft): **1-3'**

Textural Class: **Clay** LL: **38.00** PL: **21.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points	
7.07	15.02
7.07	14.97
7.08	15.02

Diameter(cm)	Length(cm)	Mass(gms)
7.08	15.00	1,278.20

Length to Diameter Ratio> 2.1

Area(cm^2)	39.33
Volume(cm^3)	589.98
Natural Wet Density(lbs/ft^3)	135.30
Dry Density(lbs/ft^3)	116.00

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,487.50
Dry Soil w/tare mass	1,305.30
Tare mass	208.30
Moisture %	16.60

Remarks:

Permanent Strain:

After Conditioning Sequence >	0.12	%	At Completion >	0.64	%
	0.18	mm		0.97	mm

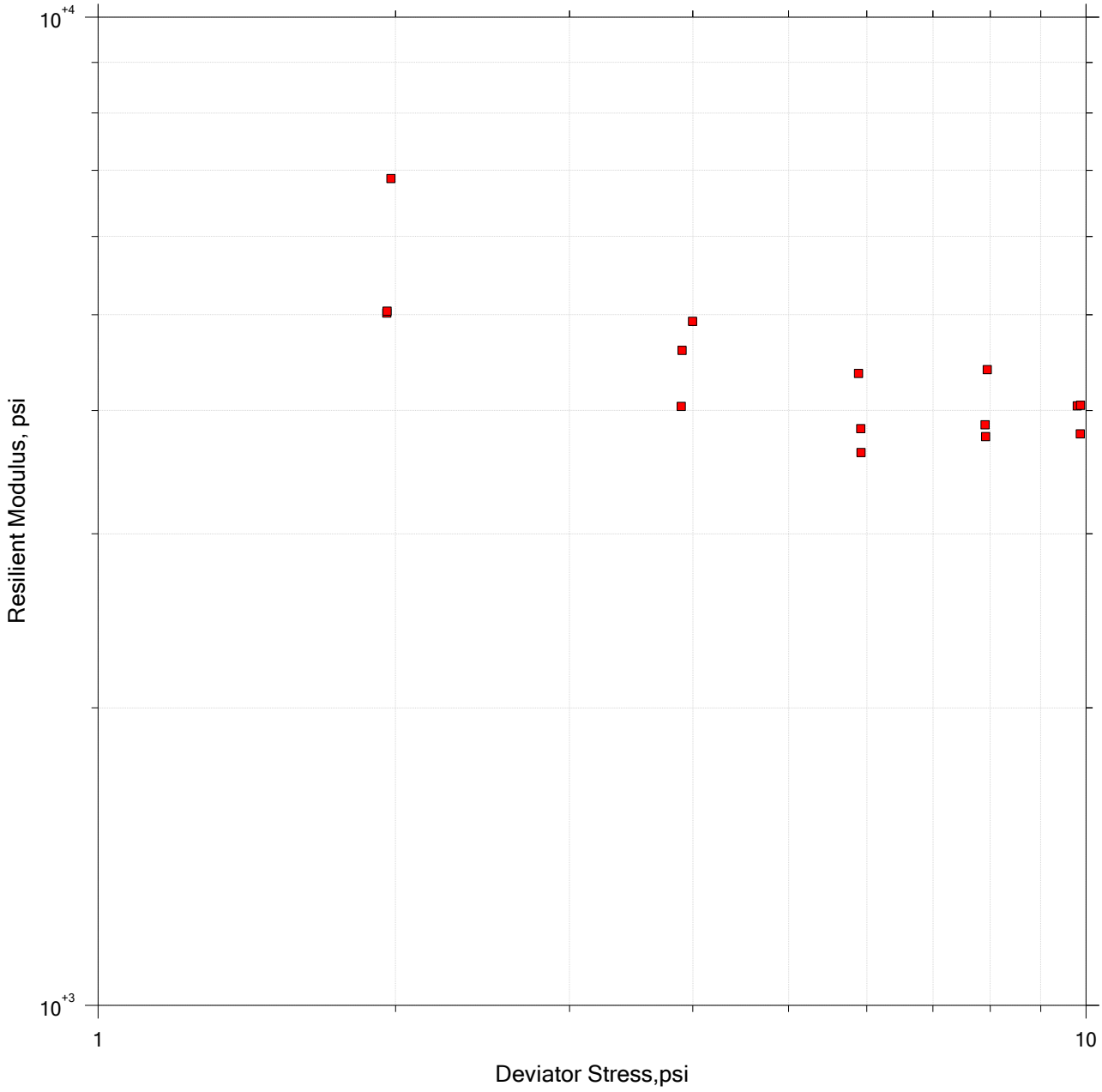
Tested by: Marcus Duke date: 7/28/2021 9:02:06AM

Attachment 11-2

RM TEST

Summary Data

$Mr = 207.37 * Pa * (B/Pa)^{0.269} * (Sd/Pa)^{-0.302}$ r = 0.9258



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-234A	Tester: MGD	Checker:
Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.972	2.000	1.978	0.0215	19.90	0.03	0.00	6865.2	99.012
6.000	4.000	3.996	0.0181	22.00	0.07	0.00	4924.1	46.950
6.032	6.000	5.887	0.0479	23.98	0.12	0.00	4359.9	30.352
5.970	8.000	7.947	0.0090	25.86	0.16	0.00	4398.1	17.288
5.963	10.00	9.802	0.0305	27.69	0.22	0.00	4042.1	37.863
4.007	2.000	1.960	0.0164	13.98	0.04	0.00	5017.8	41.256
4.010	4.000	3.902	0.0141	15.93	0.08	0.00	4601.4	82.185
4.010	6.000	5.915	0.0146	17.94	0.14	0.00	3832.9	43.588
4.010	8.000	7.903	0.0181	19.93	0.18	0.00	3868.7	20.195
4.011	10.00	9.875	0.0166	21.91	0.22	0.02	4048.2	299.52
2.049	2.000	1.961	0.0108	8.110	0.04	0.00	5040.3	36.088
2.043	4.000	3.893	0.0122	10.02	0.09	0.00	4038.3	74.837
2.042	6.000	5.921	0.0116	12.05	0.15	0.00	3627.2	23.794
2.032	8.000	7.912	0.0192	14.01	0.19	0.00	3763.3	9.2410
2.021	10.00	9.866	0.0254	15.93	0.23	0.00	3786.9	19.053

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-234A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM147** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-278A** Sample: **ST-1** Specimen Depth (ft): **1-3'**

Textural Class: **Silty Clay Loam** LL: **32.00** PL: **16.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points		
7.17	15.04	
7.24	15.06	
7.23	15.08	
Diameter(cm)	**Length(cm)**	**Mass(gms)**
7.21	15.06	1,347.50
Length to Diameter Ratio>	2.1	

Area(cm²)	40.87
Volume(cm³)	615.53
Natural Wet Density(lbs/ft³)	136.70
Dry Density(lbs/ft³)	120.30

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,520.40
Dry Soil w/tare mass	1,358.70
Tare mass	172.70
Moisture %	13.60

Remarks:

Permanent Strain:

After Conditioning	0.00	%	At Completion >	0.35	%
Sequence >	0.01	mm		0.52	mm

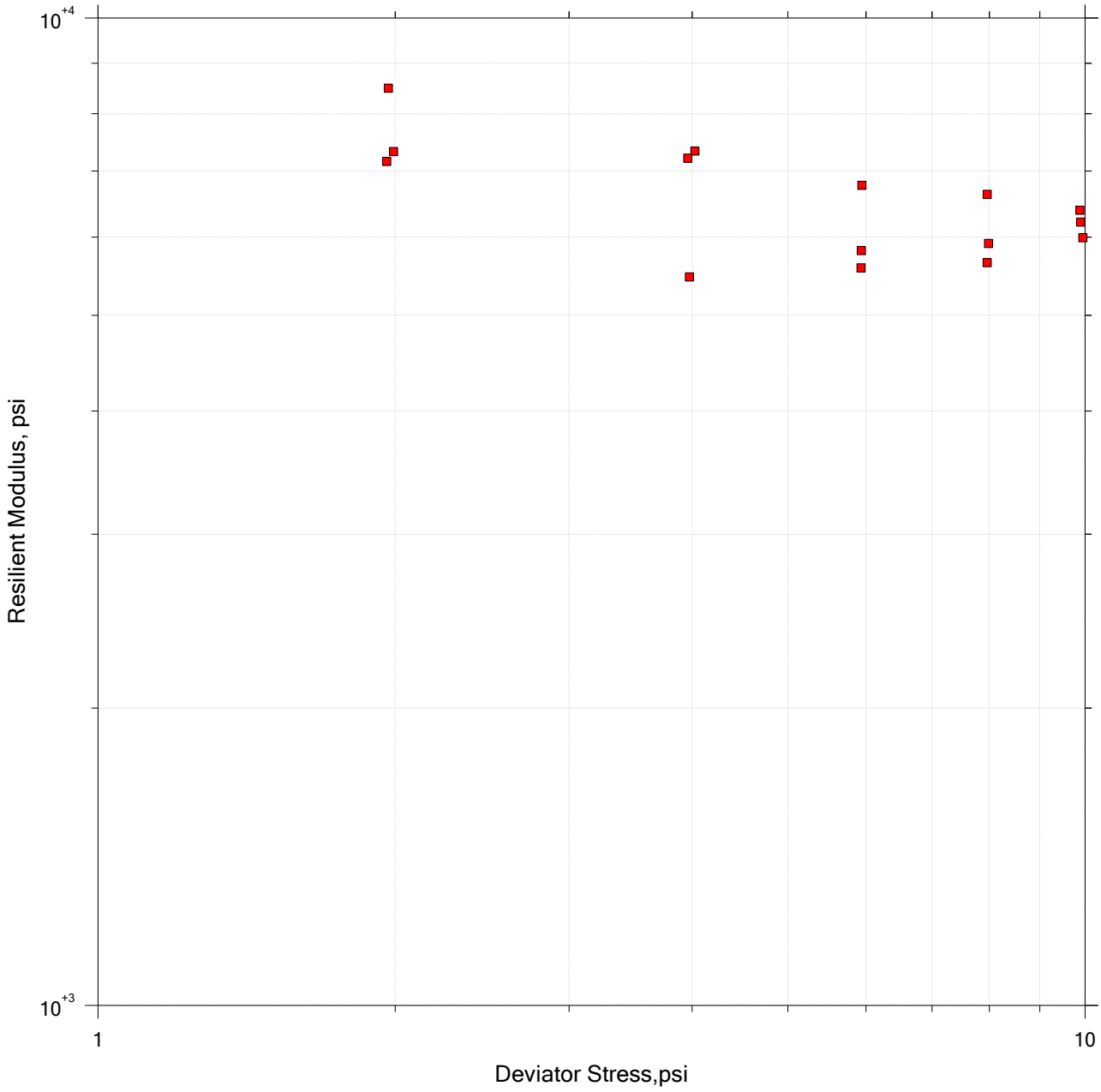
Tested by: Marcus Duke date: 7/28/2021 9:38:54AM

Attachment 11-2

RM TEST

Summary Data

$Mr = 337.34 * Pa * (B/Pa)^{0.257} * (Sd/Pa)^{-0.22}$ r = 0.9082



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-278A	Tester: MGD	Checker:
Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
6.005	2.000	1.968	0.0186	19.98	0.02	0.00	8490.5	250.62
5.986	4.000	4.024	0.0399	21.98	0.05	0.00	7333.4	56.968
5.996	6.000	5.942	0.0343	23.93	0.08	0.00	6771.8	24.063
5.980	8.000	7.961	0.0122	25.90	0.11	0.00	6629.1	37.260
6.011	10.00	9.880	0.0419	27.91	0.14	0.00	6386.5	16.834
4.006	2.000	1.992	0.0182	14.01	0.02	0.00	7326.8	413.85
4.008	4.000	3.958	0.0125	15.98	0.05	0.00	7213.6	123.96
3.994	6.000	5.934	0.0206	17.92	0.09	0.00	5812.9	28.442
4.007	8.000	7.983	0.0367	20.00	0.12	0.00	5911.7	26.044
4.008	10.00	9.899	0.0148	21.92	0.14	0.00	6214.6	10.548
2.037	2.000	1.961	0.0216	8.071	0.02	0.00	7156.0	98.820
2.040	4.000	3.973	0.0089	10.09	0.07	0.00	5466.7	36.167
2.030	6.000	5.932	0.0378	12.02	0.10	0.00	5583.2	52.267
2.032	8.000	7.962	0.0368	14.06	0.13	0.00	5653.2	37.527
2.033	10.00	9.949	0.0425	16.05	0.15	0.00	5991.9	29.866

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-278A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM148** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-308A** Sample: **ST-1** Specimen Depth (ft): **1-3'**

Textural Class: **Clay** LL: **30.00** PL: **17.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points	
7.25	15.05
7.18	15.11
7.12	14.99

Diameter(cm)	Length(cm)	Mass(gms)
7.19	15.05	1,268.80

Length to Diameter Ratio> 2.1

Area(cm²)	40.55
Volume(cm³)	610.22
Natural Wet Density(lbs/ft³)	129.80
Dry Density(lbs/ft³)	105.90

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,479.70
Dry Soil w/tare mass	1,246.10
Tare mass	210.50
Moisture %	22.60

Remarks:

Permanent Strain:

After Conditioning	0.42	%	At Completion >	4.76	%
Sequence >	0.63	mm		7.17	mm

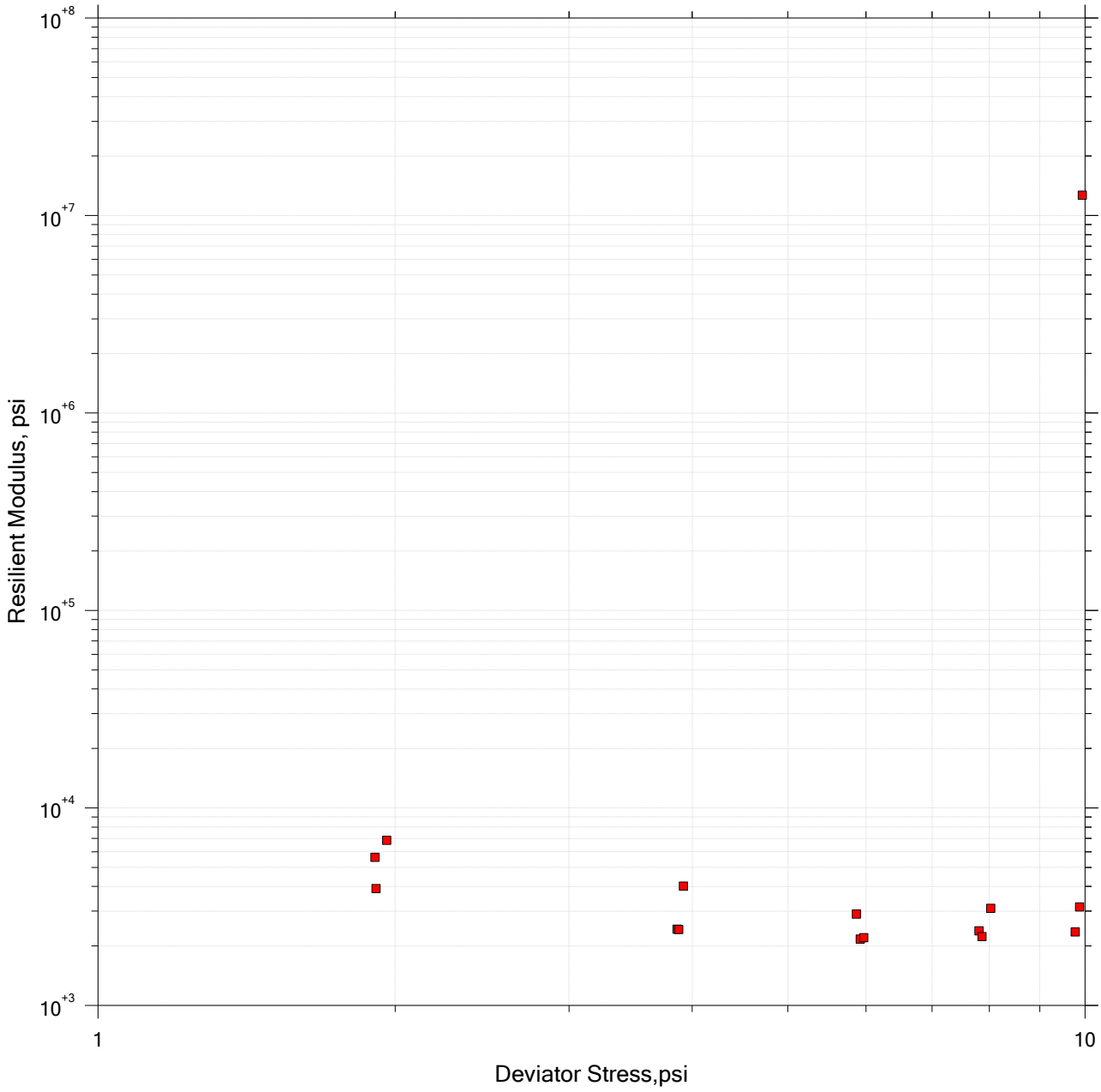
Tested by: Marcus Duke date: 7/29/2021 9:51:31AM

Attachment 11-2

RM TEST

Summary Data

$Mr = 1367.4 * Pa * (B/Pa)^{-1.28} * (Sd/Pa)^{1.08}$ r = 0.26359



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-308A	Tester: MGD	Checker:
Sample Number: ST	Test Date: 07/28/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.979	2.000	1.961	0.0106	19.90	0.03	0.00	6853.7	197.95
6.037	4.000	3.919	0.0112	22.03	0.09	0.00	4022.8	40.077
6.008	6.000	5.866	0.0138	23.89	0.18	0.00	2898.5	26.562
5.998	8.000	7.807	0.0071	25.80	0.29	0.00	2385.1	8.9319
5.997	10.00	9.774	0.0252	27.76	0.37	0.00	2352.4	25.232
4.000	2.000	1.908	0.0085	13.91	0.03	0.00	5622.3	125.05
4.004	4.000	3.860	0.0133	15.87	0.14	0.00	2434.7	12.907
4.005	6.000	5.919	0.0176	17.93	0.24	0.00	2169.8	12.046
4.005	8.000	7.862	0.2564	19.88	0.32	0.01	2228.7	31.384
4.004	10.00	9.877	0.0220	21.89	0.28	0.00	3149.9	51.847
2.033	2.000	1.913	0.0091	8.012	0.04	0.00	3900.1	52.805
2.034	4.000	3.876	0.0110	9.977	0.14	0.00	2425.4	29.552
2.033	6.000	5.971	0.0254	12.07	0.25	0.02	2203.7	55.304
2.032	8.000	8.028	0.0125	14.13	0.23	0.00	3096.6	18.647
2.032	10.00	9.940	0.0202	16.04	0.00	0.00	1.2667e+07	4.5050e+06

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-308A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/28/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM146** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-262A** Sample: **ST-1** Specimen Depth (ft): **ST-1**

Textural Class: **Clay Loam** LL: **28.00** PL: **13.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points		
7.25	14.88	
7.23	14.88	
7.18	14.86	
Diameter(cm)	**Length(cm)**	**Mass(gms)**
7.22	14.87	1,332.30
Length to Diameter Ratio>	2.1	

Area(cm²)	40.93
Volume(cm³)	608.76
Natural Wet Density(lbs/ft³)	136.60
Dry Density(lbs/ft³)	117.10

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,503.40
Dry Soil w/tare mass	1,313.20
Tare mass	169.90
Moisture %	16.60

Remarks:

Permanent Strain:

After Conditioning	0.23	%	At Completion >	0.62	%
Sequence >	0.34	mm		0.92	mm

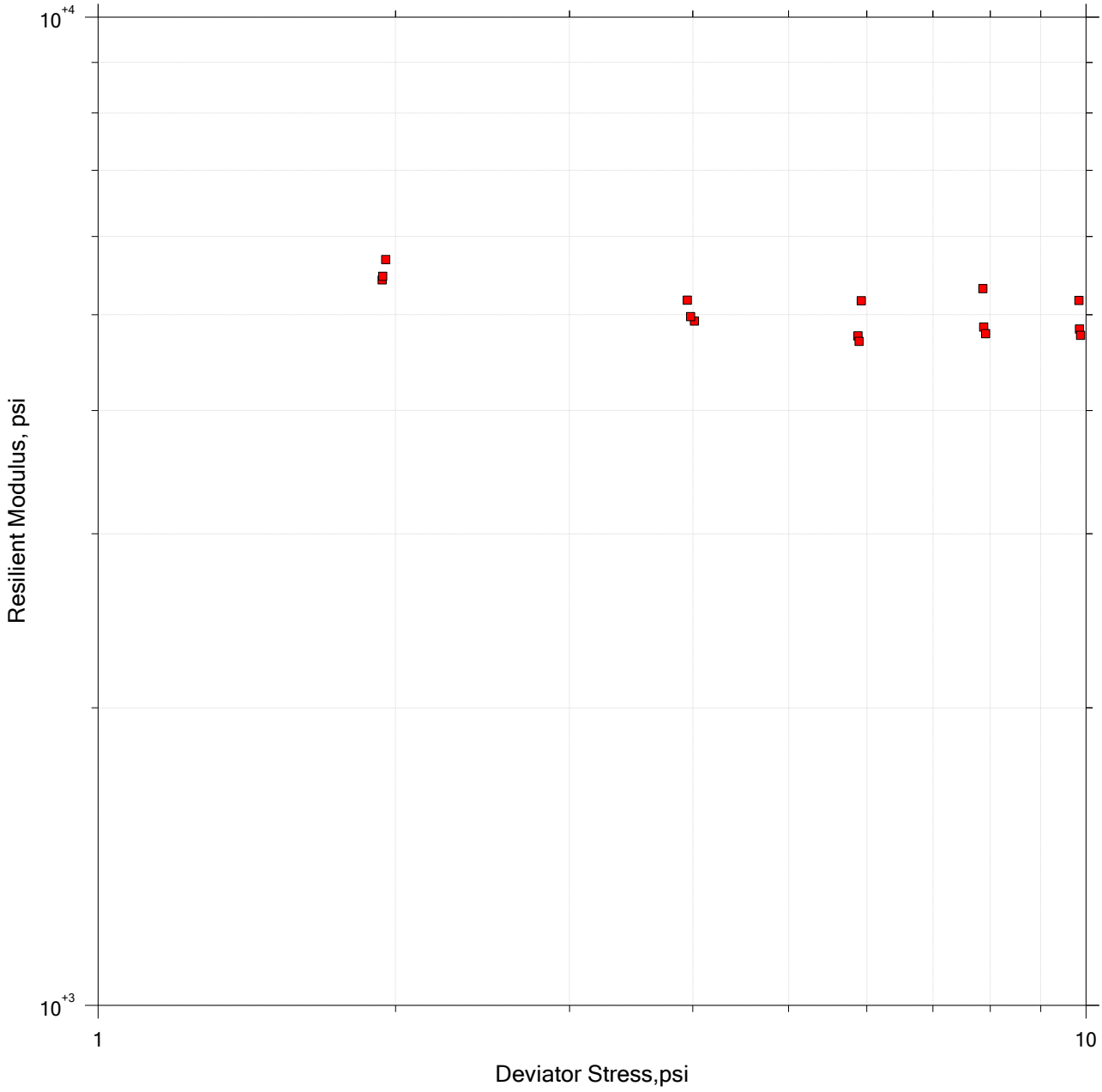
Tested by: Marcus Duke date: 9/15/2021 2:02:31PM

Attachment 11-2

RM TEST

Summary Data

$Mr = 311.92 * Pa * (B/Pa)^{0.0549} * (Sd/Pa)^{-0.0859}$ r = 0.75461



	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-262A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
6.037	2.000	1.939	0.0124	20.05	0.03	0.00	5420.8	106.59
5.947	4.000	4.014	0.0268	21.86	0.07	0.01	4926.7	385.95
5.961	6.000	5.922	0.0324	23.81	0.10	0.00	5166.2	61.572
5.997	8.000	7.865	0.0258	25.86	0.13	0.00	5311.2	15.962
5.981	10.00	9.836	0.0288	27.78	0.17	0.00	5167.9	17.455
4.006	2.000	1.955	0.0138	13.97	0.03	0.00	5684.7	247.44
3.996	4.000	3.978	0.0173	15.97	0.07	0.00	4978.0	26.304
4.002	6.000	5.878	0.0150	17.88	0.11	0.00	4758.5	58.300
4.007	8.000	7.878	0.0156	19.90	0.15	0.00	4856.3	19.177
3.983	10.00	9.847	0.0207	21.80	0.18	0.00	4836.2	10.981
2.042	2.000	1.941	0.0126	8.066	0.03	0.00	5467.3	56.345
2.031	4.000	3.949	0.0203	10.04	0.07	0.00	5171.8	30.604
2.031	6.000	5.892	0.0155	11.99	0.11	0.00	4698.5	38.165
2.029	8.000	7.915	0.0305	14.00	0.15	0.00	4782.4	14.822
2.035	10.00	9.874	0.0181	15.98	0.19	0.00	4766.7	12.632

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-262A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/27/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

AASHTO T307

Resilient Modulus

Rec'd: 07/22/2021 from Earth Exploration, Inc.

Lab No: **21-RM149** Road: **I 65** County: **Scott** Des No: **1700135**

Boring: **RB-332A** Sample: **ST-1** Specimen Depth (ft): **1**

Textural Class: **Silty Clay** LL: **31.00** PL: **17.00** AASHTO Class: **A-6**

Sample Type: **Type II**

Specimen from Shelby Tube

Specimen Before Test

Measurements taken at 1/4 points	
7.22	14.94
7.28	14.86
7.25	14.90

Diameter(cm)	Length(cm)	Mass(gms)
7.25	14.90	1,326.40

Length to Diameter Ratio> 2.1

Area(cm²)	41.25
Volume(cm³)	614.55
Natural Wet Density(lbs/ft³)	134.70
Dry Density(lbs/ft³)	115.30

Moisture on 1/2 or Whole Specimen

Wet Soil w/tare mass	1,537.20
Dry Soil w/tare mass	1,345.50
Tare mass	208.80
Moisture %	16.90

Remarks:

Permanent Strain:

After Conditioning Sequence >	0.09	%	At Completion >	0.30	%
	0.13	mm		0.45	mm

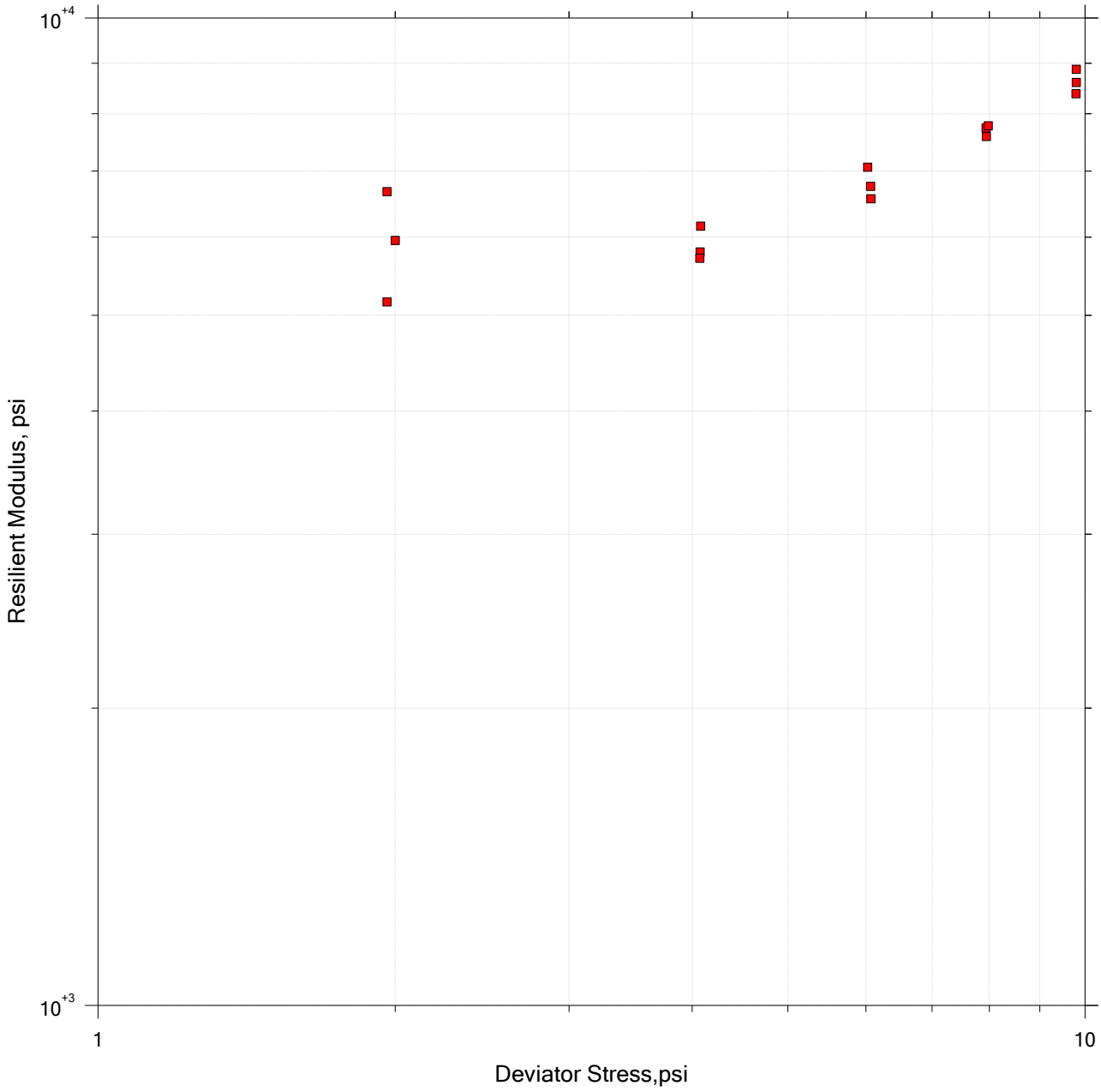
Tested by: Marcus Duke date: 9/15/2021 2:09:29PM

Attachment 11-2

RM TEST

Summary Data

$Mr = 559.85 * Pa * (B/Pa)^{0.148} * (Sd/Pa)^{0.191}$ r = 0.88344



Project Name: SCOTT	Location: I-65	Project Number: 1700135
Boring Number: RB-332A	Tester: MGD	Checker:
Sample Number: ST	Test Date: 07/28/2021	Depth: 1.0'-3.0'
Test Number:	Preparation:	Elevation:
Description: Firmw.: 53.18.0320		
Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

RM TEST

Summary Data

Confining Stress S3 psi	Nom. Max. Deviator Stress psi	Mean Deviator Stress psi	Std. Dev. Deviator Stress psi	Mean Bulk Stress psi	Mean Resilient Strain %	Std. Dev. Resilient Strain %	Mean Resilient Modulus psi	Std. Dev. Resilient Modulus psi
5.963	2.000	1.963	0.0251	19.85	0.03	0.00	6670.1	142.56
6.018	4.000	4.079	0.1044	22.13	0.06	0.00	6156.3	96.191
5.988	6.000	6.021	0.0383	23.98	0.08	0.00	7061.9	42.569
5.963	8.000	7.945	0.0268	25.83	0.09	0.00	7586.4	9.1243
5.981	10.00	9.798	0.0302	27.74	0.10	0.00	8873.2	121.21
4.001	2.000	2.001	0.0224	14.01	0.03	0.00	5951.6	108.42
4.004	4.000	4.075	0.0400	16.09	0.06	0.00	5796.5	61.737
4.004	6.000	6.069	0.0299	18.08	0.08	0.00	6560.3	12.946
4.004	8.000	7.937	0.0440	19.95	0.09	0.00	7740.4	28.458
4.010	10.00	9.800	0.0303	21.83	0.10	0.00	8603.4	40.190
2.039	2.000	1.962	0.0388	8.081	0.03	0.00	5158.3	99.516
2.009	4.000	4.070	0.0583	10.10	0.06	0.00	5712.1	48.924
2.043	6.000	6.063	0.0453	12.19	0.08	0.00	6751.7	29.457
2.040	8.000	7.983	0.0477	14.10	0.09	0.00	7776.7	32.140
2.030	10.00	9.796	0.0280	15.89	0.10	0.00	8381.5	60.482

	Project Name: SCOTT	Location: I-65	Project Number: 1700135
	Boring Number: RB-332A	Tester: MGD	Checker:
	Sample Number: ST	Test Date: 07/28/2021	Depth: 1.0'-3.0'
	Test Number:	Preparation:	Elevation:
	Description: Firmw.: 53.18.0320		
	Remarks: User Must update correct calibration factors and node ID before proceeding to any test.		

Attachment 11-2

Boring No.	Depth (ft)	Sample Type	Soil Type	Moisture Content (%)	S_u, ε = 1% (tsf)	S_u, ε = 1% (psi)	M_r (psi)
RB-003	1.3-2.8	SS	A-6	17.1	0.18	2.5	1,700
RB-004	1-2.5	SS	A-6	18.7	0.45	6.3	4,100
RB-007	1.6-3.1	SS	A-6	21.6	0.40	5.6	3,700
RB-008	1-2.5	SS	A-6	17.1	0.33	4.6	3,100
RB-011	1.2-2.7	SS	A-6	21.3	0.60	8.3	5,400
RB-011A	2-4	ST	A-7-6	16.8	0.60	8.3	5,400
RB-015	1.3-2.8	SS	A-6	17.2	1.50	20.8	11,900
RB-016	1-2.5	SS	A-6	14.1	0.50	6.9	4,500
RB-023	1.3-2.8	SS	A-6	15.6	1.90	26.4	14,200
RB-024	1-2.5	SS	A-6	18.0	0.63	8.8	5,600
RB-026	1-2.5	SS	A-6	16.8	0.50	6.9	4,500
RB-037	1-2.5	SS	A-6	15.0	1.30	18.1	10,600
RB-040	1.1-2.6	SS	A-6	22.9	0.35	4.9	3,200
RB-043	1-2.5	SS	A-6	18.2	0.80	11.1	7,000
RB-046	2.8-4.3	SS	A-6	22.6	0.60	8.3	5,400
RB-055	1-2.5	SS	A-6	21.1	0.60	8.3	5,400
RB-060	.8-2.3	SS	A-6	20.8	0.70	9.7	6,200
RB-061	1-2.5	SS	A-4	15.4	0.80	11.1	7,000
RB-062	1.3-2.8	SS	A-6	14.5	0.30	4.2	2,800
RB-063	1-2.5	SS	A-6	15.7	0.70	9.7	6,200
RB-065	3.5-5	SS	A-4	16.8	0.20	2.8	1,900
RB-067	3.5-5	SS	A-6	17.2	0.50	6.9	4,500
RB-069	1-2.5	SS	A-7-6	22.3	0.80	11.1	7,000
RB-070	1.3-2.8	SS	A-6	14.4	1.00	13.9	8,500
RB-071	3.5-5	SS	A-4	21.1	0.40	5.6	3,700
RB-073	1-2.5	SS	A-7-6	17.8	0.90	12.5	7,800
RB-077	3.5-5	SS	A-7-6	18.6	1.20	16.7	9,900
RB-078	1.2-2.7	SS	A-6	18.2	0.90	12.5	7,800
RB-082	1.2-2.7	SS	A-6	18.1	1.30	18.1	10,600
RB-085	1-2.5	SS	A-6	16.9	0.85	11.8	7,400
RB-086	1.3-2.8	SS	A-7-6	21.5	0.40	5.6	3,700
RB-089	3.5-5	SS	A-6	19.3	1.20	16.7	9,900
RB-091	1-2.5	SS	A-6	18.6	1.40	19.4	11,300
RB-095	1-2.5	SS	A-6	18.2	0.55	7.6	5,000
RB-097	1-2.5	SS	A-6	16.8	0.90	12.5	7,800
RB-098	1.3-2.8	SS	A-7-6	20.4	0.60	8.3	5,400
RB-101	1-2.5	SS	A-6	21.1	0.33	4.6	3,100
RB-102	2.7-4.3	SS	A-6	21.4	0.50	6.9	4,500
RB-103	3.5-5	SS	A-6	19.1	1.00	13.9	8,500
RB-106	1.3-2.8	SS	A-6	19.4	0.95	13.2	8,100
RB-108	2.6-4.1	SS	A-6	20.4	0.90	12.5	7,800

Boring No.	Depth (ft)	Sample Type	Soil Type	Moisture Content (%)	S_u, ε = 1% (tsf)	S_u, ε = 1% (psi)	M_r (psi)
RB-111	1-2.5	SS	A-6	18.7	1.30	18.1	10,600
RB-113	3.5-5	SS	A-6	18.4	1.20	16.7	9,900
RB-115	1-2.5	SS	A-6	23.3	0.33	4.6	3,100
RB-118	1.3-2.8	SS	A-6	21.2	0.35	4.9	3,200
RB-122	1.3-2.8	SS	A-7-6	14.9	1.10	15.3	9,200
RB-126	1.2-2.7	SS	A-7-6	9.2	0.90	12.5	7,800
RB-127	1-2.5	SS	A-7-6	17.5	0.80	11.1	7,000
RB-131	3.5-5	SS	A-7-6	19.7	1.00	13.9	8,500
RB-134	1.2-2.7	SS	A-6	18.7	0.70	9.7	6,200
RB-134A	1-3	ST	A-6	18.1	0.62	8.6	5,500
RB-135	1-2.5	SS	A-6	16.5	1.10	15.3	9,200
RB-136A	2-4	ST	A-6	18.4	0.68	9.4	6,000
RB-141	1-2.5	SS	A-7-6	21.0	1.20	16.7	9,900
RB-141A	1-3	ST	A-7-6	15.6	1.00	13.9	8,500
RB-142	1.3-2.8	SS	A-7-6	22.1	0.80	11.1	7,000
RB-145	1-2.5	SS	A-7-6	21.9	0.30	4.2	2,800
RB-146	1.2-2.7	SS	A-7-6	23.5	0.80	11.1	7,000
RB-149	1-2.5	SS	A-7-6	19.3	1.40	19.4	11,300
RB-151	3.5-5	SS	A-7-6	24.0	1.00	13.9	8,500
RB-155	1-2.5	SS	A-7-6	24.6	1.45	20.1	11,600
RB-159	1-2.5	SS	A-6	25.4	0.80	11.1	7,000
RB-160	1.2-2.7	SS	A-6	15.0	4.30	59.7	20,400
RB-162A	1-3	ST	A-6	23.3	0.60	8.3	5,400
RB-165	1-2.5	SS	A-6	21.7	0.68	9.4	6,000
RB-173	1-2.5	SS	A-6	19.9	1.65	22.9	12,800
RB-174	1.3-2.8	SS	A-6	21.5	1.00	13.9	8,500
RB-184	2.7-4.2	SS	A-4	14.7	2.00	27.8	14,700
RB-191	3.5-5	SS	A-4	16.8	0.38	5.3	3,500
RB-193	1-2.5	SS	A-4	16.3	0.50	6.9	4,500
RB-194	2.3-3.8	SS	A-4	17.1	1.10	15.3	9,200
RB-195	1-2.5	SS	A-4	17.2	1.30	18.1	10,600
RB-202	1.5-3	SS	A-4	16.6	0.50	6.9	4,500
RB-203	1-2.5	SS	A-4	16.1	0.90	12.5	7,800
RB-205	3.5-5	SS	A-6	18.6	0.20	2.8	1,900
RB-211A	1-3	ST	A-4	19.5	0.20	2.8	1,900
RB-212	1.1-2.6	SS	A-4	17.1	0.40	5.6	3,700
RB-214	1.3-2.8	SS	A-4	16.7	0.80	11.1	7,000
RB-216	1.2-2.7	SS	A-4	16.6	0.70	9.7	6,200
RB-218A	1-3	ST	A-6	16.1	0.55	7.6	5,000
RB-219	1-2.5	SS	A-6	18.3	0.80	11.1	7,000
RB-221	1-2.5	SS	A-4	14.9	1.20	16.7	9,900

Boring No.	Depth (ft)	Sample Type	Soil Type	Moisture Content (%)	S_u, ε = 1% (tsf)	S_u, ε = 1% (psi)	M_r (psi)
RB-222	1.3-2.8	SS	A-4	17.6	1.40	19.4	11,300
RB-241	2.8-4.3	SS	A-6	18.5	0.35	4.9	3,200
RB-242	1-2.5	SS	A-6	21.1	0.48	6.7	4,400
RB-245	1.3-2.8	SS	A-4	13.9	0.80	11.1	7,000
RB-249	2.8-4.3	SS	A-6	17.4	1.60	22.2	12,500
RB-253	2.8-4.3	SS	A-6	18.8	0.60	8.3	5,400
RB-255A	1-3	ST	A-6	14.7	1.40	19.4	11,300
RB-258	1-2.5	SS	A-6	18.7	0.55	7.6	5,000
RB-260	3.5-5	SS	A-4	14.6	0.50	6.9	4,500
RB-261	2.9-4.4	SS	A-6	15.1	0.95	13.2	8,100
RB-265	2.7-4.2	SS	A-7-6	21.9	0.33	4.6	3,100
RB-266	1-2.5	SS	A-6	17.8	0.40	5.6	3,700
RB-268	1-2.5	SS	A-6	17.8	1.03	14.3	8,700
RB-269	1.3-2.8	SS	A-6	14.0	1.50	20.8	11,900
RB-270	3.5-5	SS	A-4	9.8	1.00	13.9	8,500
RB-274	1-2.5	SS	A-6	17.9	0.40	5.6	3,700
RB-275	2.5-4	SS	A-6	20.5	0.65	9.0	5,800
RB-276	1-2.5	SS	A-6	13.2	0.70	9.7	6,200
RB-277	2.9-4.4	SS	A-7-6	22.5	0.33	4.6	3,100
RB-278	1-2.5	SS	A-6	22.6	0.40	5.6	3,700
RB-280	1-2.5	SS	A-6	20.5	0.30	4.2	2,800
RB-281	1.3-2.8	SS	A-6	16.1	0.70	9.7	6,200
RB-282	3.5-5	SS	A-6	16.6	0.45	6.3	4,100
RB-285	1.3-2.8	SS	A-7-6	20.8	1.40	19.4	11,300
RB-287	1.2-2.7	SS	A-7-6	16.5	0.25	3.5	2,300
RB-292	1.3-2.8	SS	A-6	17.2	1.30	18.1	10,600
RB-296	1.3-2.8	SS	A-6	17.0	0.90	12.5	7,800
RB-297	1.3-2.8	SS	A-6	16.0	1.70	23.6	13,100
RB-297A	1-3	ST	A-6	14.7	2.70	37.5	17,700
RB-299	1.3-2.8	SS	A-6	14.5	1.50	20.8	11,900
RB-302	1.1-2.6	SS	A-6	15.2	1.00	13.9	8,500
RB-304	3.2-4.7	SS	A-6	21.1	0.18	2.5	1,700
RB-310	1.6-3.1	SS	A-6	14.4	1.70	23.6	13,100
RB-311	1.6-3.1	SS	A-7-6	22.3	0.95	13.2	8,100
RB-312	3.1-4.6	SS	A-7-6	17.5	1.20	16.7	9,900
RB-315	1.6-3.1	SS	A-6	20.6	0.50	6.9	4,500
RB-317	1.4-2.9	SS	A-7-6	20.6	1.00	13.9	8,500
RB-318	2.9-4.4	SS	A-6	17.2	1.50	20.8	11,900
RB-319	1.6-3.1	SS	A-6	17.7	0.50	6.9	4,500
RB-326	2.8-4.3	SS	A-6	24.2	0.20	2.8	1,900
RB-327	1-2.5	SS	A-6	19.3	0.30	4.2	2,800

Estimate of In-Situ Resilient Modulus, M_r, Based on S_u

Boring No.	Depth (ft)	Sample Type	Soil Type	Moisture Content (%)	S_u, ε = 1% (tsf)	S_u, ε = 1% (psi)	M_r (psi)
RB-331	1-2.5	SS	A-6	19.2	0.50	6.9	4,500
RB-333	2.8-4.3	SS	A-6	19.3	0.40	5.6	3,700
RB-336	1.6-3.1	SS	A-6	17.7	0.50	6.9	4,500
						Average of A-4 =	6,700
						Average of A-6 =	6,900
						Average of A-7-6 =	7,400

S_u, taken from unconfined compressive strength at 1% strain.

Reference: Resilient Modulus of Cohesive Soil, A.G. Altschaeffl, et. al., Feb 1997
The conclusions of the referenced document are based on a strain rate of 1%/min.
Engineering judgment was used in interpretation of the test results.

TERRACON CONSULTANTS, INC.
INDIANAPOLIS OFFICE

Summary of Existing Topsoil Test Results for Use with Plant Growth Layer

Rev 4/21

Date: 6/14/2021
Des. No.: 1700135
Project: CJ195480
Location: I-65 ATL from RP 16+27 to 29+10

REF.	LOCATION		ANALYSIS							
			AASHTO T 289	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 267 and T 21**	Bray P-1 Equivalent	NCRRP 221, Chapt 7***
Boring	Sample	Tested Depth	pH	Gravel*	Sand	Silt	Clay	Organic Content (% by Wt)	Phosphorus (ppm)	Potassium (ppm)
				(% by Weight)						
Composite-01	TS-1	2-6"	8.2	11.9	22.6	39.8	25.6	22.9	8	102
Composite-02	TS-1	2-6"	8.3	6.4	29.7	43.7	20.2	10.1	17	94
Composite-04	TS-1	2-6"	8.4	13.1	31.7	36.8	18.3	10.6	6	50
Composite-06	TS-1	2-6"	8.2	13.0	40.5	29.7	16.9	8.0	8	70
Composite-08	TS-1	2-6"	8.0	1.0	15.5	56.6	26.9	12.8	11	81
Composite-10	TS-1	2-6"	7.8	1.7	24.2	49.7	24.5	10.3	8	87
Composite-11	TS-1	2-6"	8.2	4.9	23.2	49.9	22.0	8.5	4	65
Composite-12	TS-1	2-6"	8.1	0.9	25.4	53.1	20.6	9.0	8	79
Composite-14	TS-1	2-6"	8.1	0.8	32.4	46.8	20.0	7.0	7	88
Composite-16	TS-1	2-6"	8.4	7.2	42.7	34.5	15.6	8.7	10	75
Composite-17	TS-1	2-6"	8.3	3.6	36.3	40.6	19.5	13.1	8	74
Acceptable Ranges per RSP 629-R-630 =			6.0 - 7.3	N/A	5 - 50%	30 - 80%	5 - 30%	3 - 10%**	20 - 80	105 - 250

* For informational purposes only

** In Daviess, Gibson, Knox, Pike, Posey, and Vanderburgh Counties, AASHTO T 21 shall also be performed. Acceptable range is 4 - 10%

*** North Central Regional Research Publication 221, Chapter 7

Note: All existing topsoil test results presented herein are for information only.

Attachment 11-2

October 18, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: I-65 Added Travel Lanes
Ramps – SR 160 Interchange and
Henryville Rest Area
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

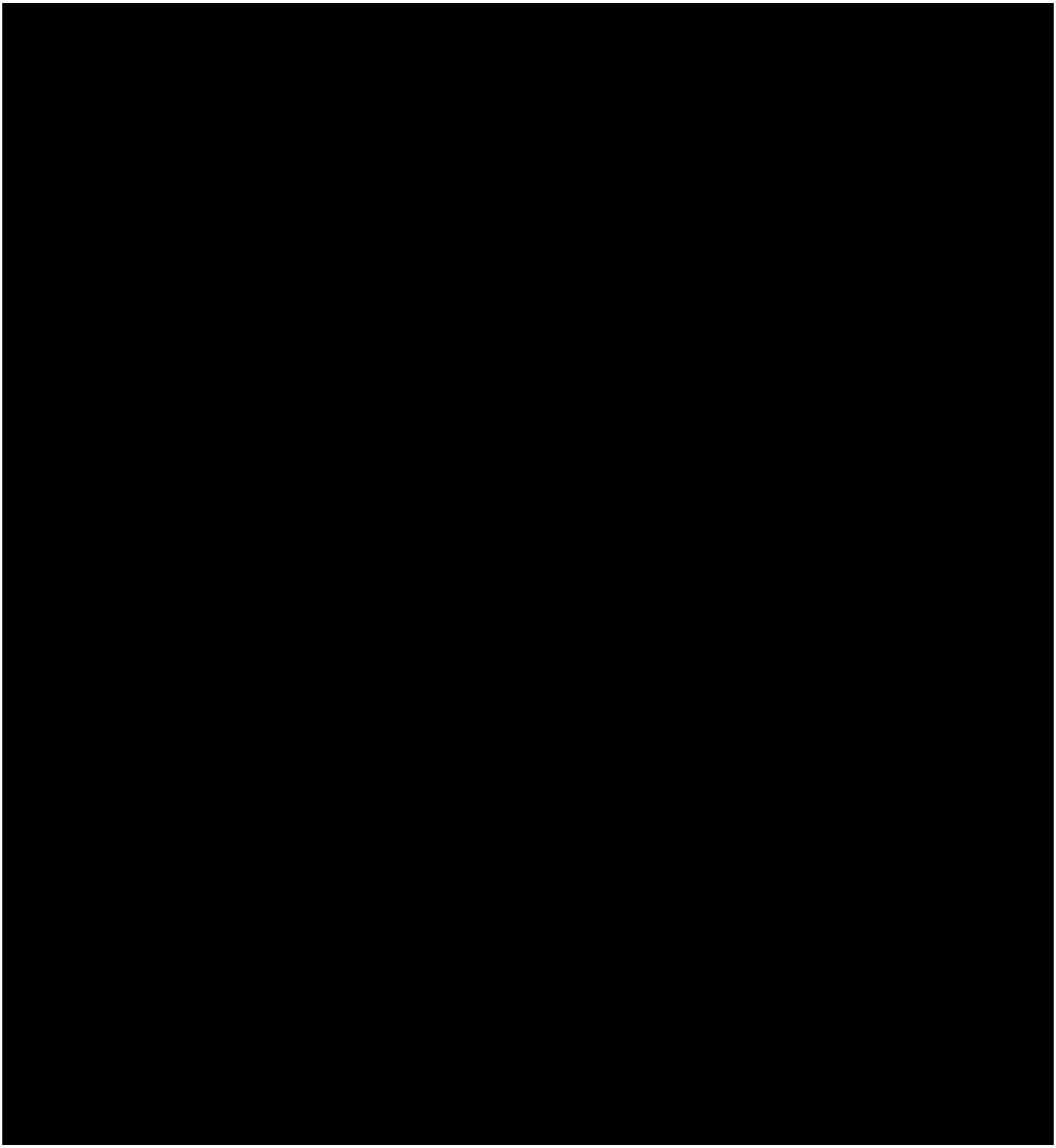
We are providing this letter to support INDOT's efforts to continue with the design for the pavement improvements planned for the ramps at the SR 160 Interchange and Henryville Rest Area. Based on our Geotechnical Evaluation – Roadway Task dated March 17, 2022, milling and resurfacing was previously planned for just the Henryville Rest Area ramps. Based the Stage 2 Plans provided by ASI and on our correspondence with ASI and INDOT, we understand for the purposes of this letter that milling and resurfacing is planned for the ramps at the SR 160 Interchange and Henryville Rest Area and that the ramps at the SR 160 Interchange are also planned to be widened by up to about 4 ft on both sides. Refer to the attached Exploratory Location Plan.

Surface and Subsurface Conditions

The pavement and subbase conditions observed at our boring locations are summarized in the attached Summary of Pavement Cores. Generally on the SR 160 ramps, composite pavement (asphaltic concrete pavement [HMA] over Portland cement concrete pavement [PCCP]) was observed near the SR 160 overpass that transitioned to full-depth HMA toward the I-65 mainline. The locations of these transitions are unknown. Generally on the Henryville Rest Area ramps, composite pavement was observed.

The subsurface conditions at our boring locations typically consisted of A-6 and A-7-6 cohesive soils (clay, silty clay, and silty clay loam) to the maximum depth explored (8 ft). An exception was at Boring RBR-09 where we observed weathered shale beginning near a depth of about 2½ ft below the pavement surface. The cohesive soils were described as medium stiff or better based on SPT N-values. Notable soft conditions were observed near a depth of 2 ft at Boring RBR-03 and near depths of 2 to 4 ft at Boring RBR-07. The moisture content results were typically in the range of about 14 to 22 percent, and the hand penetrometer readings were typically at least 1 ton/sq ft (tsf). Higher moisture contents and/or lower hand penetrometer readings were observed at Borings RBR-05, RBR-06, RBR-07, RBR-11, and RBR-12. Unconfined compression tests indicated undrained shear strengths of typically about 1.4 to 4.5 kips/sq ft (ksf), with a lower exception of about 0.5 ksf observed in the soft condition at Boring RBR-07. We did not observe groundwater at our boring locations. Detailed descriptions of the subsurface conditions and the results of our laboratory testing are provided on the attached boring logs and laboratory summary sheets.

Foundation Soil Preparation and Pavement Design Considerations



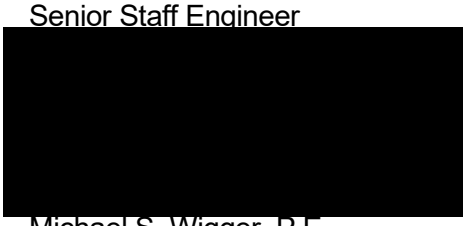
As mentioned, this letter is being provided to support efforts to continue with the pavement design while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.



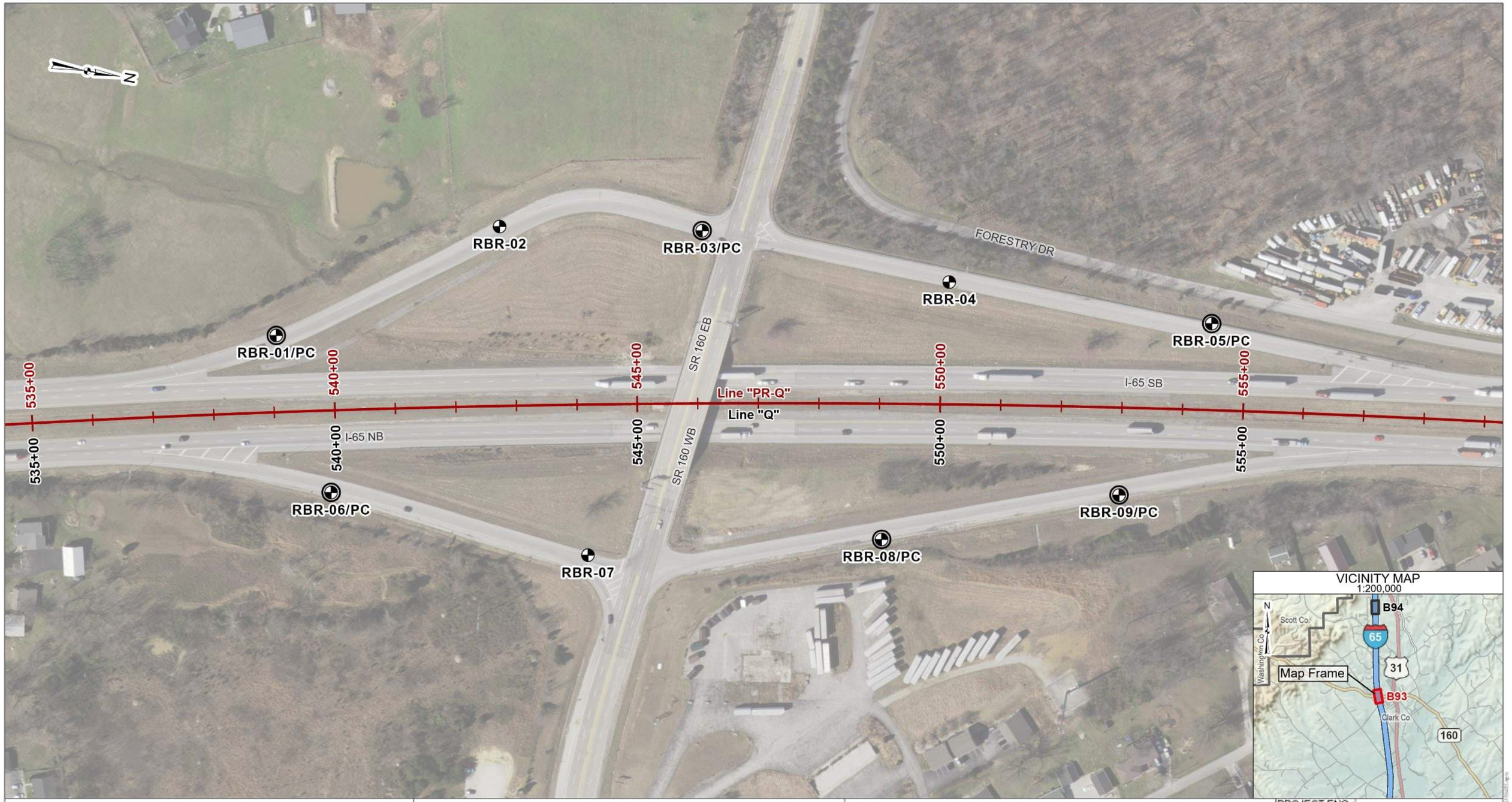
Zack A. Brady, P.E.
Senior Staff Engineer





Michael S. Wigger, P.E.
Principal

Attachments –
Exploratory Location Plan (CJ195480.B93 – B94)
Log of Test Boring (13)
Summary of Pavement Cores
Pavement Core Log (10)
Grain Size Distribution Test Report (2 pages)
Unconfined Compression Test (6)
Estimate of In-Situ Resilient Modulus, Mr, Based on Su



VICINITY MAP
1:200,000

LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
3. Exploratory locations marked in the field by Terracon Consultants, Inc.
4. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Ramps
LOCATION:	Clark County, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 150 ft

Attachment 11-3

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	10/10/2022
DRAWING NO.:	CJ195480.B93

Terracon

N

RBR-12/PC

RBR-13/PC

Silver Creek

I-65 SB

I-65 NB

Line "Q"

700+00

705+00

710+00

715+00

720+00

RBR-10/PC

RBR-11/PC

VICINITY MAP
1:200,000



LEGEND

Test Boring and Pavement Core Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
3. Exploratory locations marked in the field by Terracon Consultants, Inc.
4. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Ramps
LOCATION:	Clark County, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 150 ft

Attachment 11-3

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	10/10/2022
DRAWING NO.:	CJ195480.B94

Terracon

LOG OF TEST BORING

BORING NO.: **RBR-01/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53845
LONGITUDE : -85.77763
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 567.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 539+11	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 127.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 7.1 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 6.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
		Granular Subbase, (crushed stone) 1.0											
565.0	2.5		SS 1	2-3-3	56	18.2		3.5 2.0		43	17	26	1.1, pH = 7.7, SG = 2.72, soluble sulfate = 390 ppm
		Clay, medium stiff to very stiff, moist, brown, A-7-6(19), Lab No. 34288	SS 2	5-6-6	67	17.5 16.9	114.4	4.5 2.5	4.48				
	5.0		SS 3	5-7-7	56	20.7 19.2		3.25					
560.0		7.1	SS 4	7-8-10	67	19.2 18.0		3.75					
	7.5	Bottom of Boring at 7.1 ft											
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-02**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53937
LONGITUDE : -85.77846
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 573.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 542+81	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 297.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
		Granular Subbase, (crushed stone) 1.1											
			SS 1	3-4-4	44	16.4 16.0		1.0 3.0					
570.0	2.5		SS 2	3-3-4	44	13.3 17.4		4.5 3.0					
		Clay, medium stiff to stiff, moist, brown, with gravel seam near 3 ft, A-7-6, Lab No. 34288											
	5.0		SS 3	5-5-6	56	18.2 19.0		2.0					
			SS 4	5-5-7	56	21.7 13.1		4.5					
		7.0											
		Bottom of Boring at 7.0 ft											
	7.5												
565.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-03/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54028
LONGITUDE : -85.77864
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 579.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 546+12	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 286.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW Caved in at 7.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.1											
		Portland Cement Concrete											
		1.0											
		Granular Subbase, (crushed stone) 1.3											1.3, LOI = 2 percent
			SS 1	1-1-3	56	20.4 15.2		1.5 2.5					
	2.5												
			SS 2	4-4-7	33	14.2 17.6		4.25 2.75					
575.0		**Clay**, soft to stiff, moist, gray to brown below 3 ft, A-7-6, Lab No. 34288											
	5.0		SS 3	5-6-6	56	21.9 17.5		4.0					
			SS 4	6-6-7	44	14.6 18.8		2.5					
		7.3											
	7.5	Bottom of Boring at 7.3 ft											
570.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-04**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54142
LONGITUDE : -85.77858
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 571.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 550+16	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 203.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 7.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 7.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.3											
		Portland Cement Concrete											
570.0		1.1											
		Granular Subbase, (crushed stone) 1.4											
	2.5		SS 1	2-2-3	56	17.7 19.3	111.6	3.5 3.0	1.43				
			SS 2	3-4-5	33	22.5 16.5		2.0 1.75					
	5.0	**Clay**, soft to medium stiff, moist, brown and gray, A-7-6, Lab No. 34288	SS 3	5-5-4	44	20.3 19.3		1.5					
565.0			SS 4	4-5-5	56	15.3 17.0		3.25					
		7.4											
	7.5	Bottom of Boring at 7.4 ft											
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-05/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54263
LONGITUDE : -85.77860
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 557.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 554+47	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 144.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 5.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.8											
555.0	2.5	**Silty Clay Loam**, soft to medium stiff, moist, gray, A-6(9), Lab No. 34289	SS 1	4-4-4	33	16.7 18.9		4.5 1.25					2.4, pH = 6.1, SG = 2.74, LOI = 2 percent, soluble sulfate = 140 ppm
			SS 2	3-3-5	33	24.2		0.25 1.0		32	21	11	
	5.0		SS 3	2-2-3	33	22.6 25.4		0.5					
		5.5											
		Clay, medium stiff, moist, gray, A-7-6, Lab No. 34288	SS 4	3-4-6	67	21.5 22.9		3.0					
550.0	7.5	6.9											
		Bottom of Boring at 6.9 ft											
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-06/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53882
LONGITUDE : -85.77679
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 568.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 539+93	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 135.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.4											
		Granular Subbase, (crushed stone) 0.8											
			SS 1	3-3-3	44	18.0		2.5 3.0		38	19	19	1.5, pH = 8.7, SG = 2.74, soluble sulfate = 70 ppm
565.0	2.5	**Clay**, medium stiff, moist, brown, A-6(12), Lab No. 34290	SS 2	3-4-5	56	23.3 19.5	107.8	2.25 3.75	2.30				
		4.0											
	5.0	**Sandy Loam**, very stiff, moist, brown, (visual)	SS 3	8-10-11	56	11.8 13.2		4.5					
			SS 4	10-12-12	56	12.1 10.3		4.5					
		6.9											
		Bottom of Boring at 6.9 ft											
	7.5												
560.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-07**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54001
LONGITUDE : -85.77668
DATUM : WGS 84
DATE STARTED : 08-11-22
DATE COMPLETED : 08-11-22

ELEVATION	: 578.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 544+18	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 248.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 7.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.2											
		Portland Cement Concrete											
		1.1 **Granular Subbase**, (crushed stone) 1.4											
	2.5		SS 1	1-1-1	67	20.6 21.3	103.1	0.75 0.75	0.52	25	18	7	1.5, pH = 7.1, SG = 2.71, LOI = 3 percent, soluble sulfate = 90 ppm
575.0		**Silty Clay Loam**, very soft to soft, moist, brown, A-4(4), Lab No. 34291											
			SS 2	2-2-3	67	19.1 23.2		2.5 0.25					
		4.5											
	5.0		SS 3	3-3-5	56	23.4 20.8		4.0					
		Clay, medium stiff to very stiff, moist, brown, A-6, Lab No. 34290											
			SS 4	6-9-9	56	13.5 17.3		4.0					
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
570.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-08/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54132
LONGITUDE : -85.77705
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 570.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 549+09	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 223.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 7.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.6											
		Granular Subbase, (crushed stone) 1.1											
	2.5		SS 1	3-4-6	56	15.8 16.4		1.5 1.75					
			SS 2	4-5-7	56	18.2 20.3	108.9	4.5 4.0	2.27				
		Clay, medium stiff to very stiff, moist, brown, with sandy loam seam near 2 ft, A-6, Lab No. 34290											
565.0	5.0		SS 3	7-7-8	67	19.6 19.4		2.0					
			SS 4	7-8-10	67	18.5 20.0		4.5					
		7.0											
	7.5	Bottom of Boring at 7.0 ft											
560.0	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-09/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.54234
LONGITUDE : -85.77753
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 560.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 553+02	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 143.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 6.9 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 3.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.6											
		Granular Subbase, (crushed stone) 1.0											1.0, pH = 7.0, SG = 2.82, soluble sulfate = 500 ppm
		Silty Clay, hard, moist, brown, with weathered shale fragments, (residual), A-7-6(33), Lab No. 34292	SS 1	10-14-17	67	13.7				56	28	28	
	2.5	2.5	SS 2	33-50/5	74	14.4 13.6		3.25 4.0					
555.0	5.0	**Weathered Shale**, very soft, moist, gray	SS 3	21-30-50/5	71								
			SS 4	33-48-50/5	60								
		6.9											
		Bottom of Boring at 6.9 ft											
	7.5												
550.0	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-10/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.58387
LONGITUDE : -85.77807
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 613.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 704+58	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 213.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 7.2 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.2											
		Portland Cement Concrete 1.0											
		Granular Subbase, (crushed stone) 1.3											1.2, pH = 6.0, SG = 2.77, LOI = 3 percent, soluble sulfate = 230 ppm
			SS 1	3-3-3	33	19.6 20.8		3.0 3.5		44	20	24	
610.0	2.5												
			SS 2	4-4-5	67	20.5 22.2		3.25 3.5					
		Silty Clay, medium stiff to stiff, moist, gray, mild odor near 6 ft, A-7-6(25), Lab No. 34293											
	5.0		SS 3	3-5-6	33	23.4 22.0		2.5					
			SS 4	5-6-6	56	20.5 20.8		3.5					
		7.2											
	7.5	Bottom of Boring at 7.2 ft											
605.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-11/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.58444
LONGITUDE : -85.77769
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 615.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 706+64	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 322.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 8.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 8.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.2											
		Portland Cement Concrete											
		1.7											
		Granular Subbase, (crushed stone) 2.0											2.0, LOI = 3 percent
	2.5		SS 1	2-2-3	44	24.2 20.6	107.8	1.25 2.75	3.55				
													3.5, LOI = 3 percent
			SS 2	2-3-3	56	26.6 23.0		2.0 1.5					
610.0	5.0	**Silty Clay**, soft to stiff, moist, gray, with organic matter near 7 ft, A-7-6, Lab No. 34293	SS 3	3-4-6	56	23.0 26.3		3.0					6.5, LOI = 5 percent
	7.5		SS 4	6-6-7	22	26.8							
		8.0											
		Bottom of Boring at 8.0 ft											
605.0	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

LOG OF TEST BORING

BORING NO.: **RBR-12/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.58650
LONGITUDE : -85.78011
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 628.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 714+14	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 369.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 7.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Granular Subbase, (crushed stone) 1.4											
625.0	2.5	**Silty Clay**, medium stiff to very stiff, moist, brown, with sand seam near 4 ft, A-7-6, Lab No. 34293	SS 1	3-3-3	33	24.8 23.7		4.5 1.75					
			SS 2	5-5-7	33	25.4 23.9		1.25 2.0					
	5.0		SS 3	4-5-5	44	19.4 23.0		4.5					
			SS 4	5-8-8	56	23.0 23.8		4.0					
		7.4											
	7.5	Bottom of Boring at 7.4 ft											
620.0													
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

LOG OF TEST BORING

BORING NO.: **RBR-13/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Pavement Improvements
LOCATION : I-65 Added Travel Lanes: Ramps
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.58695
LONGITUDE : -85.77978
DATUM : WGS 84
DATE STARTED : 08-10-22
DATE COMPLETED : 08-10-22

ELEVATION	: 630.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 715+78	RIG TYPE	: Probe	DRILLER/INSP	: C.B.
OFFSET	: 275.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 7.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.2											
		Portland Cement Concrete 0.9											
		Granular Subbase, (crushed stone) 1.3											1.3, pH = 7.4, SG = 2.75, LOI = 3 percent, soluble sulfate = 190 ppm
	2.5		SS 1	3-4-6	44	20.4		2.0 2.0		37	22	15	
			SS 2	6-7-7	67	23.2 23.7		2.75 2.0					
		Silty Clay, medium stiff to stiff, moist, brown, with sand seam near 6 ft, A-7-6(25), Lab No. 34293											
625.0	5.0		SS 3	7-7-7	33	22.5 20.3		2.5					
			SS 4	7-5-5	33	22.7 24.6		2.75					
		7.3											
	7.5	Bottom of Boring at 7.3 ft											
620.0	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/18/22

Attachment 11-3

Summary of Pavement Cores
I-65 Added Travel Lanes: Ramps
Terracon Project No. CJ195480
Des. No. 1700135
Clark Co., Indiana

I-65 near SR 160													
Core	**Station**	**Offset Line "PR-Q"**	**Direction**	**Lane**	**Date**	**Overall Thickness (in)**	**Overall Type**	**Layer 1 Thickness (in.)**	**Layer 1 Type**	**Layer 2 Thickness (in.)**	**Layer 2 Type**	**Subbase Type**	**Subbase Thickness (in.)**
RBR-01/PC	539+11	127 ft Lt.	Southbound	On-Ramp	8/11/22	8.3	HMA	8.3	HMA	---	---	Crushed Stone	4.0
RBR-03/PC	546+12	286 ft Lt.	Southbound	On-Ramp	8/11/22	12.0	COMPOSITE	1.6	HMA	10.4	PCCP	Crushed Stone	4.0
RBR-05/PC	554+47	144 ft Lt.	Southbound	Off-Ramp	8/11/22	10.0	HMA	10.0	HMA	---	---		
RBR-06/PC	539+93	135 ft Rt.	Northbound	Off-Ramp	8/11/22	5.0	HMA	5.0	HMA	---	---	Crushed Stone	4.0
RBR-08/PC	549+09	223 ft Rt.	Northbound	On-Ramp	8/10/22	7.0	HMA	7.0	HMA	---	---	Crushed Stone	6.0
RBR-09/PC	553+02	143 ft Rt.	Northbound	On-Ramp	8/10/22	7.6	HMA	7.6	HMA	---	---	Crushed Stone	4.0
I-65 near Henryville Rest Area													
Core	**Station**	**Offset Line "Q"**	**Direction**	**Lane**	**Date**	**Overall Thickness**	**Overall Type**	**Layer 1 Thickness**	**Layer 1 Type**	**Layer 2 Thickness**	**Layer 2 Type**	**Subbase Type**	**Subbase Thickness**
RBR-10/PC	704+58	213 ft Rt.	Northbound	Off-Ramp	8/10/22	11.5	COMPOSITE	2.0	HMA	9.5	PCCP	Crushed Stone	4.0
RBR-11/PC	706+64	322 ft Rt.	Northbound	On-Ramp	8/10/22	20.0	COMPOSITE	2.9	HMA	17.1	PCCP	Crushed Stone	4.0
RBR-12/PC	714+14	369 ft Lt.	Southbound	On-Ramp	8/10/22	13.0	HMA	13.0	HMA	---	---	Crushed Stone	4.0
RBR-13/PC	715+78	275 ft Lt.	Southbound	Off-Ramp	8/10/22	11.2	COMPOSITE	2.3	HMA	8.9	PCCP	Crushed Stone	4.0

Note: While the measurements of layer and overall core thicknesses are reported to the nearest tenth of an inch, an inherent variation in the pavement thickness will occur due to the size of the aggregate. Depending on the aggregate size, the variation in measurements could be 1/2 to 3/4 in.

PAVEMENT CORE LOG NO. RBR-01/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5385° Longitude: -85.7776° Station: 539+11 Offset: 127 ft Lt. Line: "PR-Q"

Direction: Southbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface, slag aggregate, partially stripped, delaminated	
	1.3	**HMA**, 9.5 mm surface	1
	2.3	**HMA**, 12.5 mm intermediate	2
	3.0	**HMA**, 19.0 mm intermediate	3
	3.9	**HMA**, 19.0 mm intermediate	4
		HMA, 19.0 mm intermediate, partially stripped	5
	5.9		6
		Granular Subbase, crushed stone	7
	8.3		8
			9
			10
			11
	12.3		12
		Coring Terminated at 12.3 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/11/2022	Coring Completed: 8/11/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-03/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5403° Longitude: -85.7786° Station: 546+12 Offset: 286 ft Lt. Line: "PR-Q"

Direction: Southbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface, slag aggregate, delaminated	1
	1.6		2
		PCCP, 1.5 in max aggregate size, steel reinforcement near 7 in. and 8 in.	3
			4
			5
			6
			7
			8
			9
			10
			11
	12.0		12
		Granular Subbase, crushed stone	13
			14
	16.0		15
		Coring Terminated at 16 Inches	16







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/11/2022	Coring Completed: 8/11/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-05/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

GRAPHIC LOG

Latitude: 38.5426° Longitude: -85.7786° Station: 554+47 Offset: 144 ft Lt. Line: "PR-Q"

Direction: Southbound Lane: Off-Ramp

DEPTH (In.)

DEPTH		DEPTH (In.)
	HMA, 9.5 mm surface, slag aggregate	1
1.5		
2.2	**HMA**, 9.5 mm surface	2
	HMA, 19.0 mm intermediate	3
3.5		
	HMA, 19.0 mm intermediate, delaminated	4
		5
5.7		
	HMA, 19.0 mm intermediate	6
		7
		8
		9
10.0		10
	Coring Terminated at 10 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/11/2022	Coring Completed: 8/11/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-06/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5388° Longitude: -85.7768° Station: 539+93 Offset: 135 ft Rt. Line: "PR-Q"

Direction: Northbound Lane: Off-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface	
	1.2		1
	1.6	**HMA**, 9.5 mm surface, slag aggregate	
		HMA, 19.0 mm intermediate	2
			3
			4
	5.0		5
		Granular Subbase, crushed stone	6
			7
			8
	9.0		9
		Coring Terminated at 9 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/11/2022	Coring Completed: 8/11/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-08/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5413° Longitude: -85.7771° Station: 549+09 Offset: 223 ft Rt. Line: "PR-Q"

Direction: Northbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface	1
	1.6		
		HMA, 9.5 mm surface	2
	2.9		
		HMA, 19.0 mm intermediate	3 4 5 6
	7.0		7
		Granular Subbase, crushed stone	8 9 10 11 12
	13.0		13
		Coring Terminated at 13 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-09/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near SR 160
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5423° Longitude: -85.7775° Station: 553+02 Offset: 143 ft Rt. Line: "PR-Q"

Direction: Northbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface	1
	2.3		2
		HMA, 19.0 mm intermediate	3
			4
			5
			6
	7.6		7
		Granular Subbase, crushed stone	8
			9
			10
	11.6		11
		Coring Terminated at 11.6 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - SR 160.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-10/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near Henryville Rest Area
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5839° Longitude: -85.7781° Station: 704+58 Offset: 213 ft Rt. Line: "Q"

Direction: Northbound Lane: Off-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface, slag aggregate, partially stripped, delaminated	
	2.0		
		PCCP, 2.0 in. max aggregate size	
	11.5		
		Granular Subbase, crushed stone	
	15.5		
		Coring Terminated at 15.5 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - REST AREA.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-11/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near Henryville Rest Area
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5844° Longitude: -85.7777° Station: 706+64 Offset: 322 ft Rt. Line: "Q"

Direction: Northbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5 mm surface, slag aggregate	
	2.9		
		PCCP, 1.25 in. max aggregate size	5
			10
			15
	20.0		20
		Granular Subbase, crushed stone	
	24.0		
		Coring Terminated at 24 Inches	







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - REST AREA.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-12/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near Henryville Rest Area
Clark and Scott Cos., IN

Des. No.: 1700135

Latitude: 38.5865° Longitude: -85.7801° Station: 714+14 Offset: 369 ft Lt. Line: "Q"

Direction: Southbound Lane: On-Ramp

GRAPHIC LOG	DEPTH		DEPTH (In.)
	DEPTH		
	3.0	**HMA**, 9.5 mm surface, slag aggregate, delaminated	1 2 3
	6.0	**HMA**, 25.0 mm base	4 5 6
	13.0	**HMA**, 25.0 mm base	7 8 9 10 11 12
	17.0	**Granular Subbase**, crushed stone	13 14 15 16
		Coring Terminated at 17 Inches	17







Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - REST AREA.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22

PAVEMENT CORE LOG NO. RBR-13/PC

PROJECT: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: I-65 near Henryville Rest Area
Clark and Scott Cos., IN

Des. No.: 1700135

GRAPHIC LOG

Latitude: 38.5869° Longitude: -85.7798° Station: 715+78 Offset: 275 ft Lt. Line: "Q"

Direction: Southbound Lane: Off-Ramp

DEPTH (In.)

DEPTH	
	HMA, 9.5 mm surface, slag aggregate
2.3	
	PCCP, 1.5 in. max aggregate size, steel reinforcement near 5.5 in.
11.2	
	Granular Subbase, crushed stone
15.2	
	Coring Terminated at 15.2 Inches





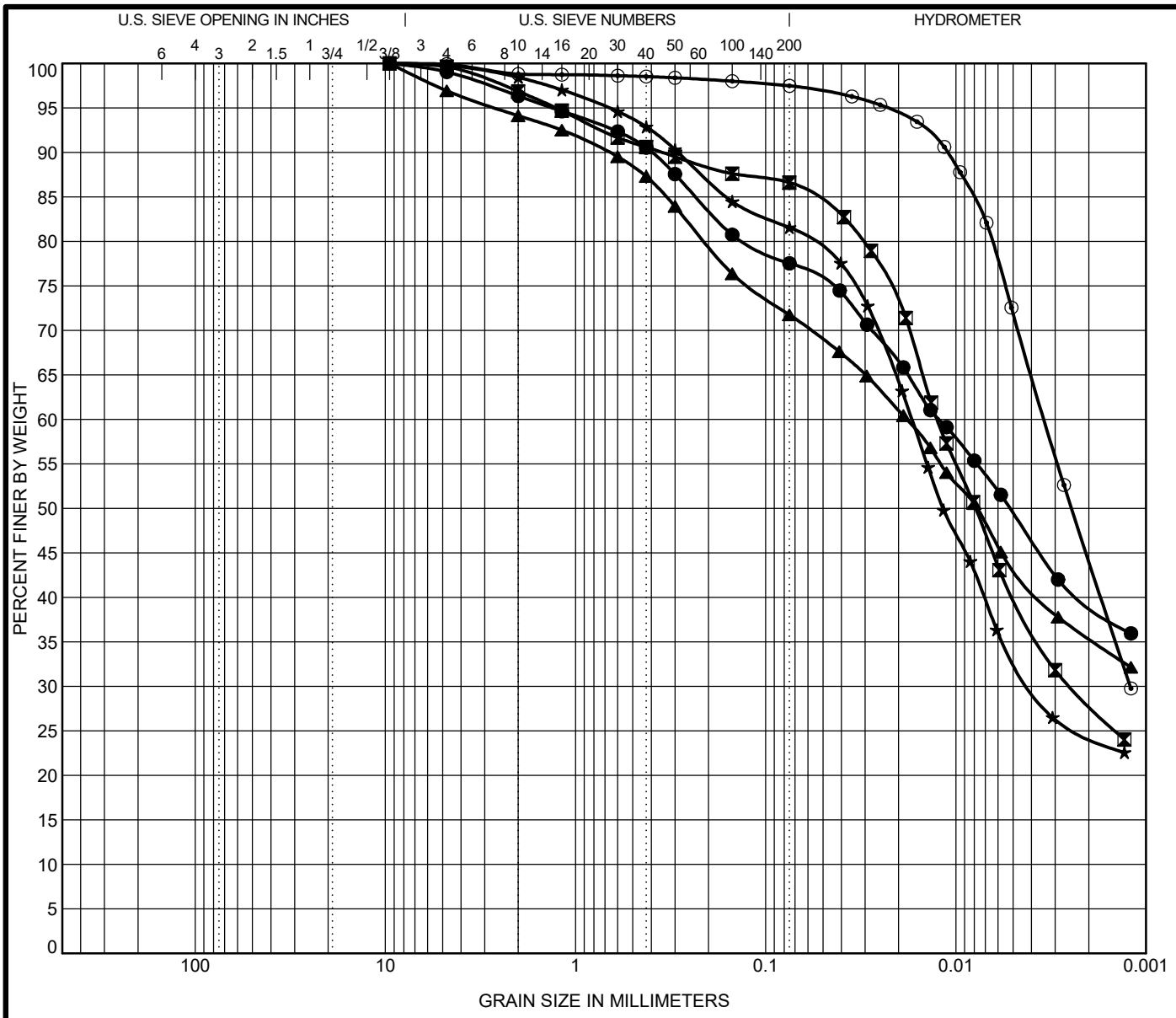


Attachment 11-3

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 8/10/2022	Coring Completed: 8/10/2022
Drill Rig: Core Machine	Driller: C.B.
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE_NO_COORDINATES CJ195480_PC RAMPS - REST AREA.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 10/18/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
● RBR-01/PC	SS-1	1.1	34288	A-7-6 (19) CLAY	43.0	17.0	26.0		
⊠ RBR-05/PC	SS-2	2.4	34289	A-6 (9) SILTY CLAY LOAM	32.0	21.0	11.0		
▲ RBR-06/PC	SS-1	0.9	34290	A-6 (12) CLAY	38.0	19.0	19.0		
★ RBR-07	SS-1	1.5	34291	A-4 (4) SILTY CLAY LOAM	25.0	18.0	7.0		
⊙ RBR-09/PC	SS-1	1.0	34292	A-7-6 (32) SILTY CLAY	56.0	28.0	28.0		

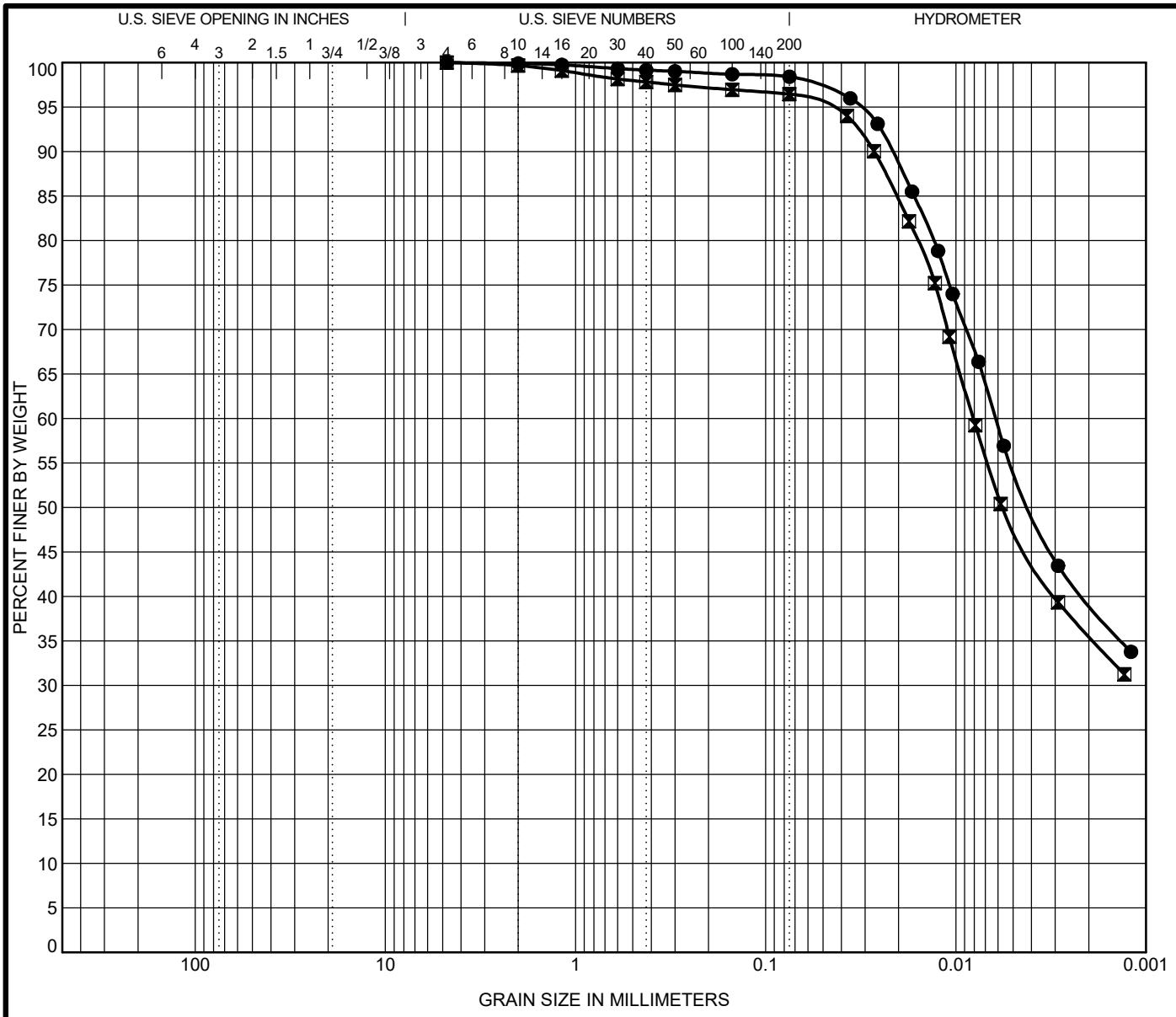
Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
● RBR-01/PC	SS-1	1.1	0.012				7.7	3.7	18.8	38.1	39.5	2.72
⊠ RBR-05/PC	SS-2	2.4	0.013	0.002		1.9	6.1	3.1	10.2	58.6	28.0	2.74
▲ RBR-06/PC	SS-1	0.9	0.018				8.7	5.9	22.4	36.3	35.4	2.74
★ RBR-07	SS-1	1.5	0.017	0.004		2.5	7.1	1.6	16.9	57.0	24.5	2.71
⊙ RBR-09/PC	SS-1	1.0	0.003	0.001			7	1.2	1.3	53.3	44.2	2.82

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RBR-10/PC	SS-1	1.2	34293	A-7-6 (25) SILTY CLAY	44.0	20.0	24.0		
⊠	RBR-13/PC	SS-1	1.3	34294	A-6 (15) SILTY CLAY	37.0	22.0	15.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RBR-10/PC	SS-1	1.2	0.006			3.3	6	0.1	1.5	59.0	39.4	2.77
⊠	RBR-13/PC	SS-1	1.3	0.008			3	7.4	0.3	3.2	60.9	35.6	2.75

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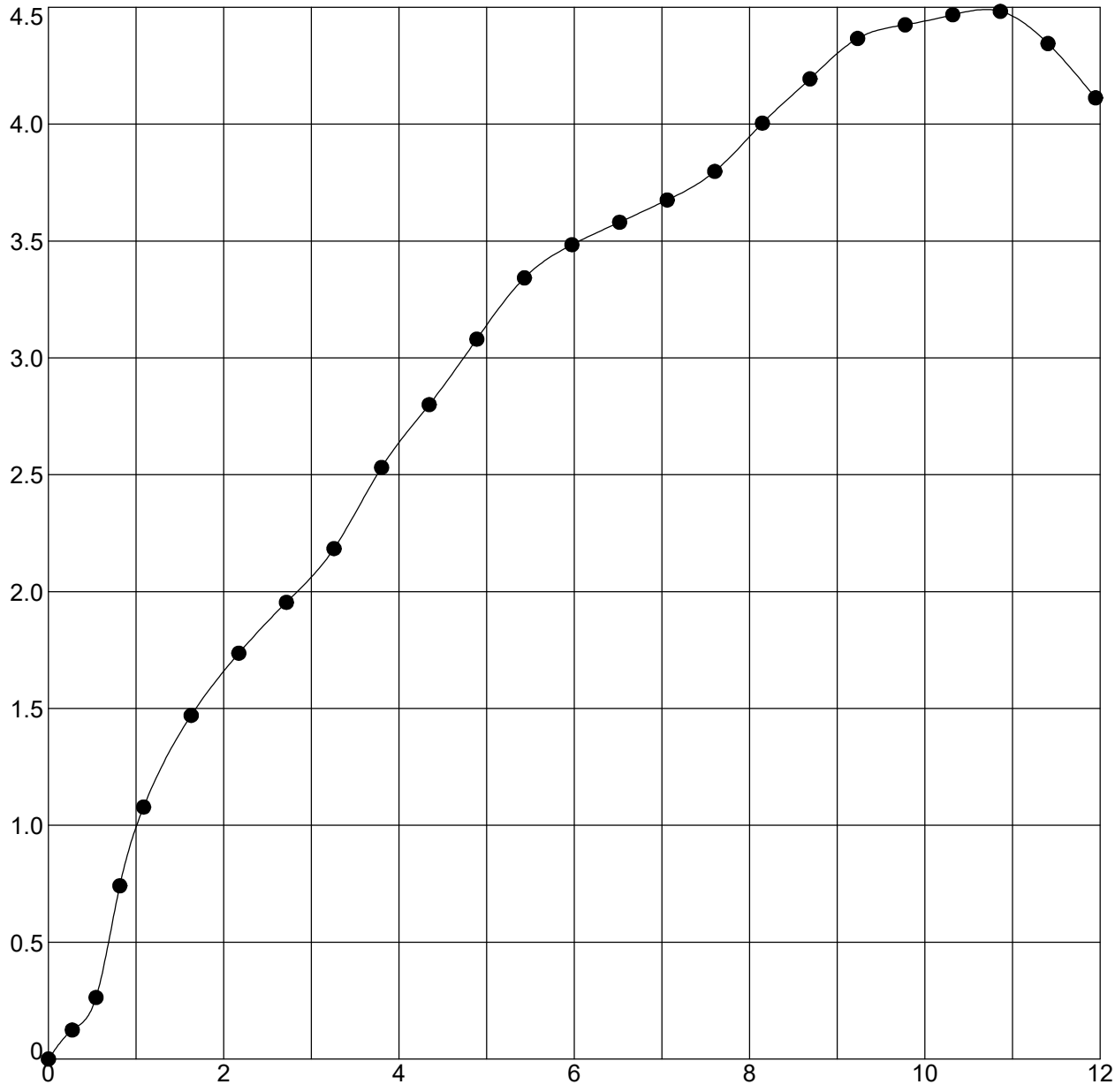
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-01/PC	SS-2T	2.6 - 4.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.5	134.4	114.4	4.48	1.0	10.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.24	98	0.484	34.57	65.48	1.9

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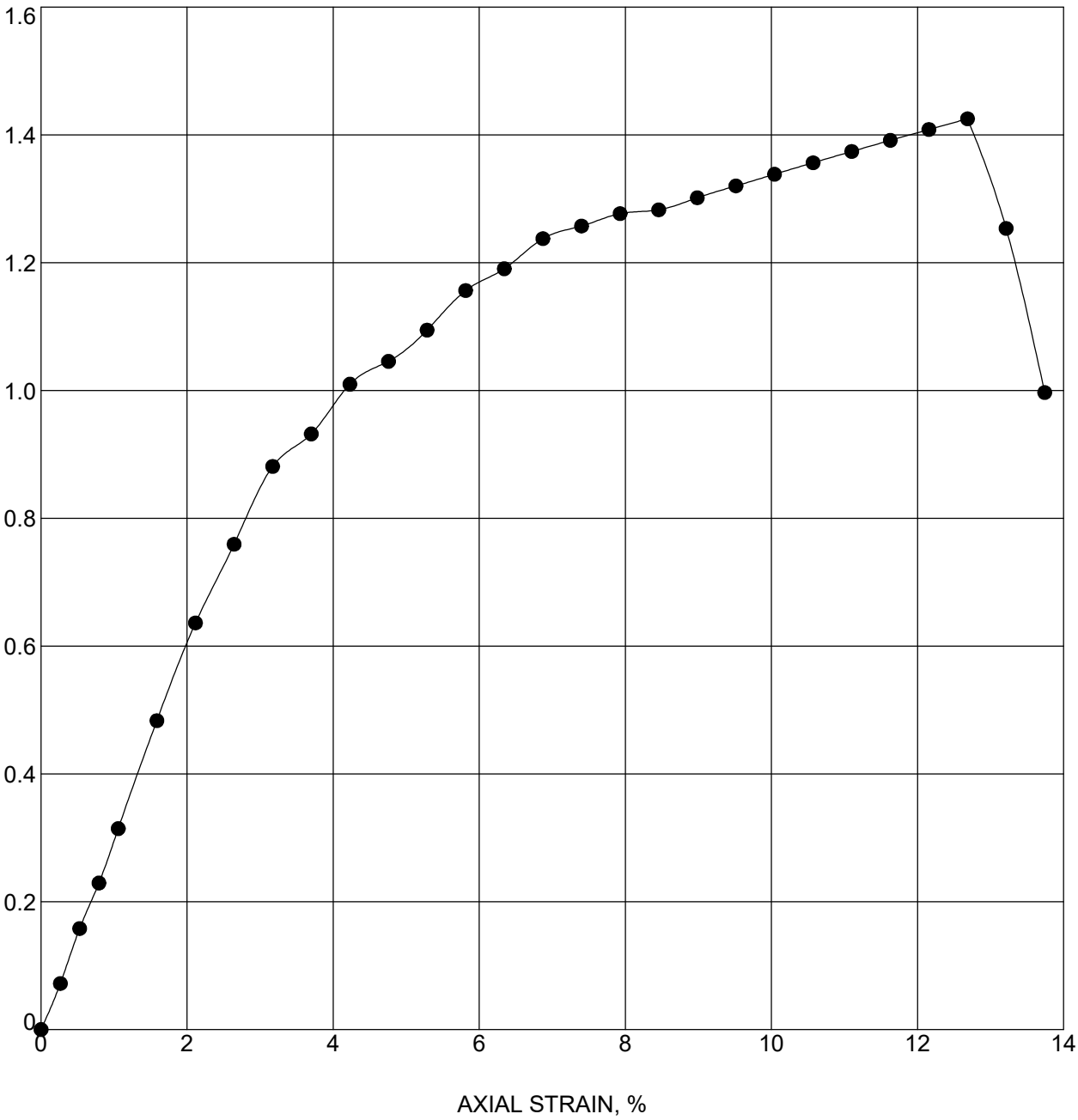
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-04	SS-1T	1.4 - 2.9	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.7	131.4	111.6	1.43	0.0	12.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.71	92	0.520	35.89	67.28	1.9

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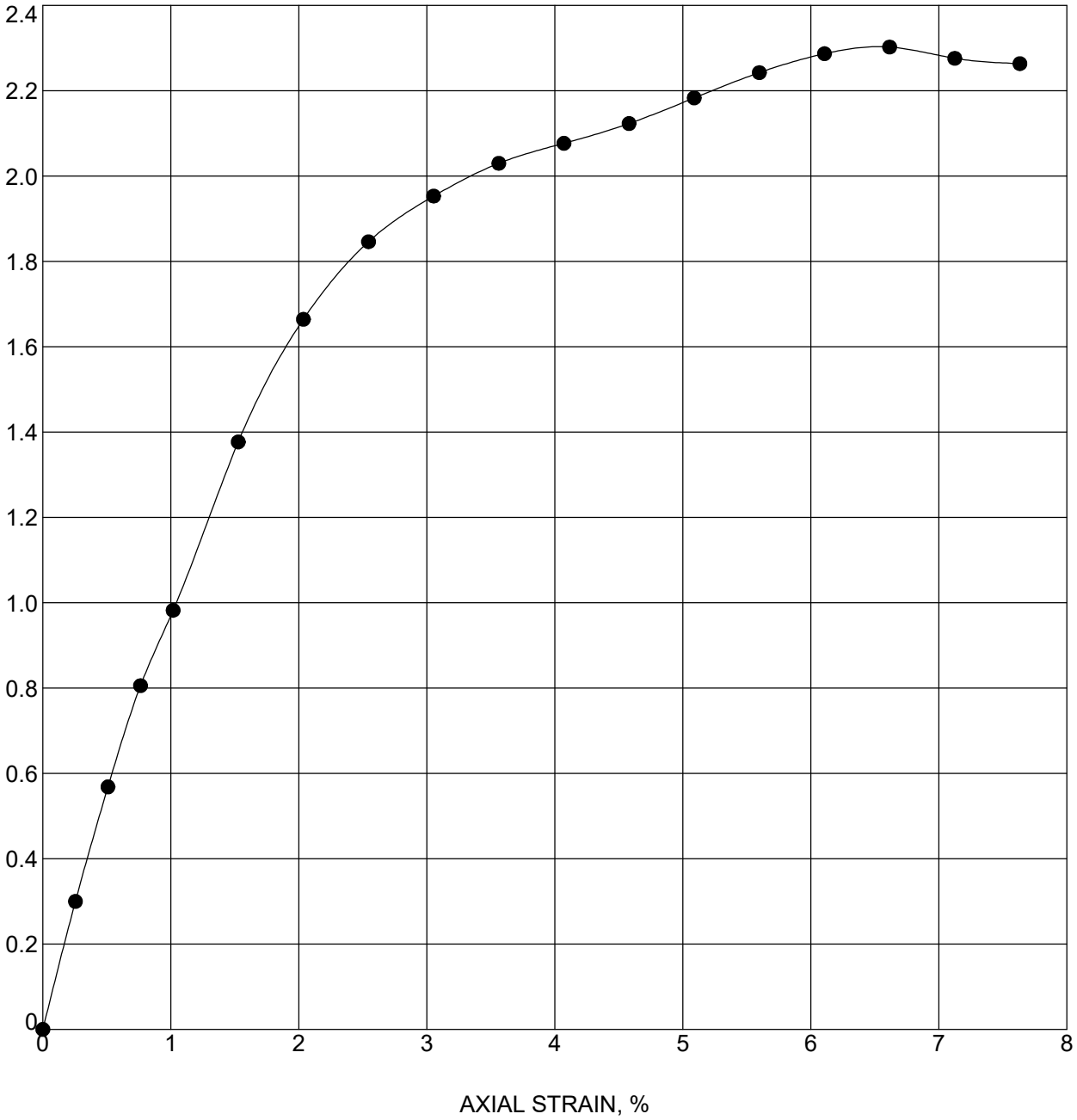
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-06/PC	SS-2B	2.6 - 3.1	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.5	128.8	107.8	2.30	1.0	6.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.15	92	0.574	35.18	69.88	2.0

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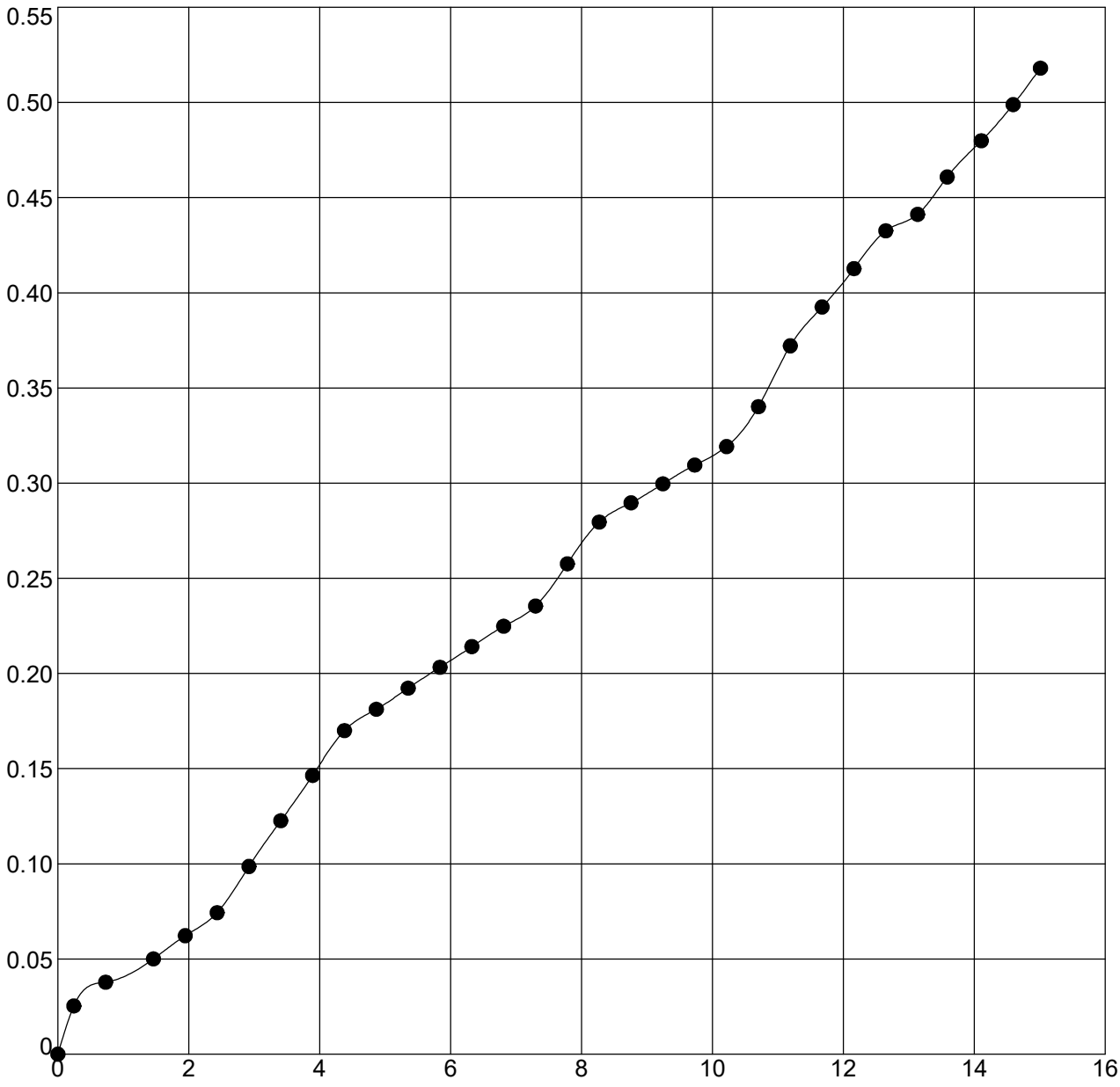
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-07	SS-1	1.5 - 3	SILTY CLAY LOAM A-4 (4)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	124.4	103.1	0.52	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.26	87	0.639	38.28	73.1	1.9

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UNCONFINED COMPRESSION TEST

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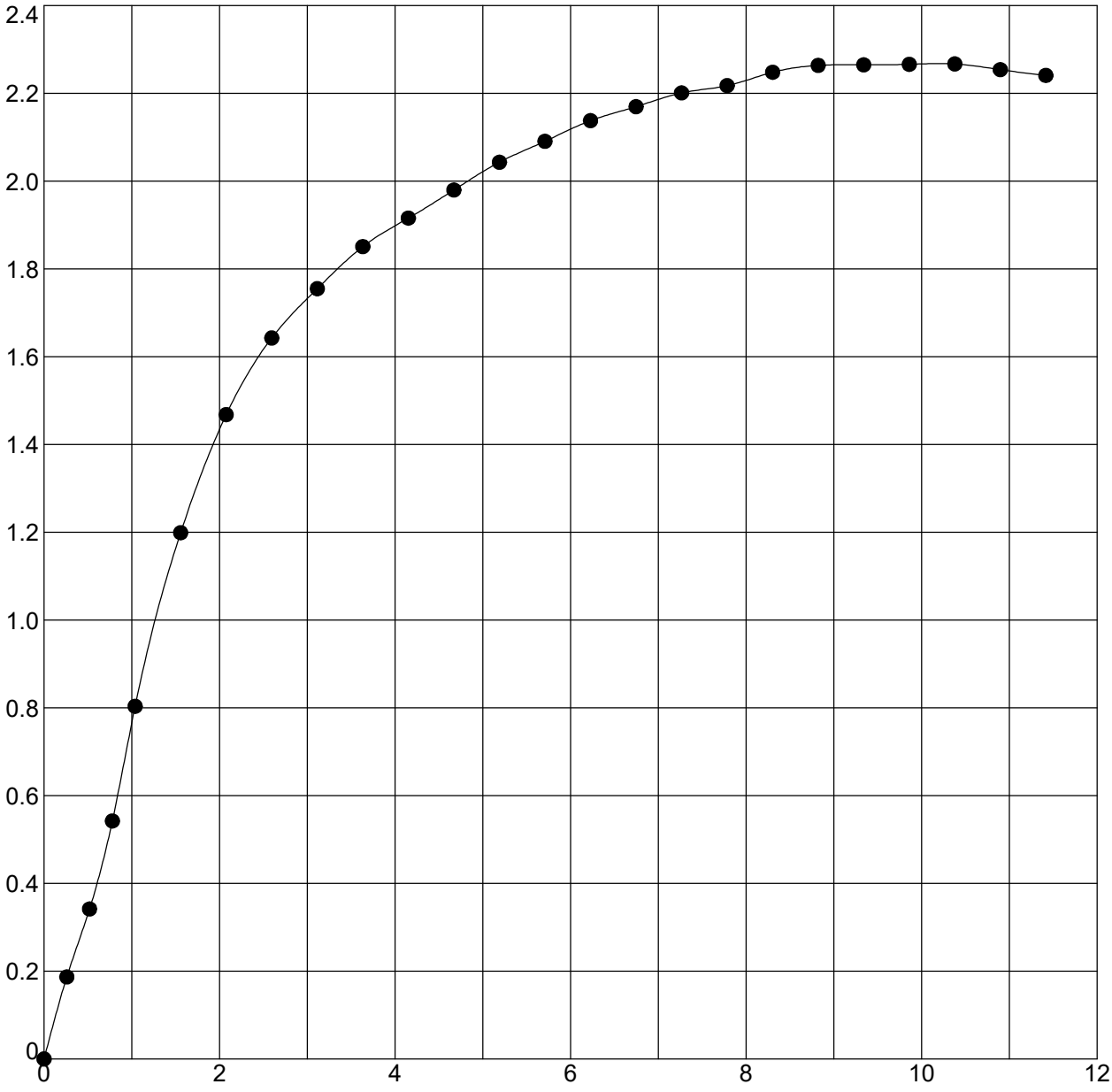
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-08/PC	SS-2B	2.7 - 4.2	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.3	131.1	108.9	2.27	1.0	10.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.13	99	0.559	34.52	68.53	2.0

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UNCONFINED COMPRESSION TEST

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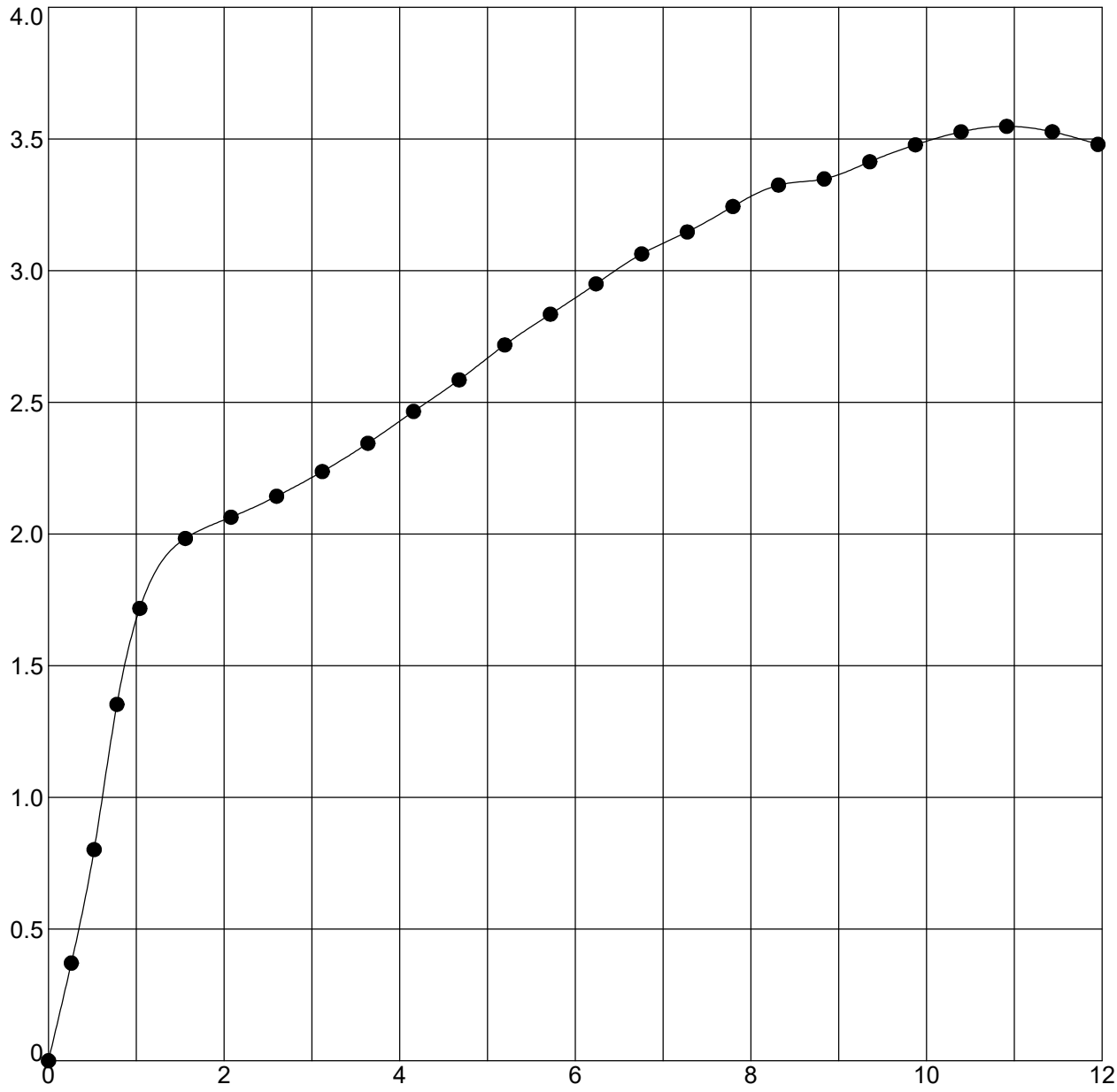
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22



Boring	Sample	Depth	Classification
RBR-11/PC	SS-1B	2.2 - 3.7	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	130.0	107.8	3.55	1.0	10.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.77	97	0.575	34.65	68.43	2.0

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UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 Added Travel Lanes: Ramps

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 1700135 RAMPS.GPJ IN_DOT1.GDT 10/13/22

Estimate of In-Situ Resilient Modulus, Mr, Based on Su

Project: I-65 Added Travel Lanes: Ramps
Location: Clark County, IN
Client: American Structurepoint, Inc.
Project No.: CJ195480

Boring No.	Depth (ft)	Sample Type	Soil Type	Moisture Content (%)	S_u, ε = 1%* (tsf)	S_u, ε = 1% (psi)	M_r (psi)
RBR-01	2.6 - 4.1	SS	A 7-6 Clay	17.5	1.00	13.9	8,500
RBR-04	1.3 - 2.8	SS	A-7-6 Clay	17.7	0.30	4.2	2,800
RBR-06	2.6 - 3.1	SS	A-6 Clay	19.5	0.90	12.5	7,800
RBR-07	1.5 - 3	SS	A-4 Silty Clay Loam	20.6	0.04	0.6	400
RBR-08	2.7 - 4.2	SS	A-7-6 Clay	20.3	0.75	10.4	6,600
					A-7-6 and A-6 Resilient Modulus		**6,425**

*S_u, taken from unconfined compressive strength at 1% strain.

Reference: Resilient Modulus of Cohesive Soil, A.G. Altschaeffl, et. al., Feb 1997
The conclusions of the referenced document are based on a strain rate of 1%/min.
Engineering judgment was used in interpretation of the test results.

October 24, 2022

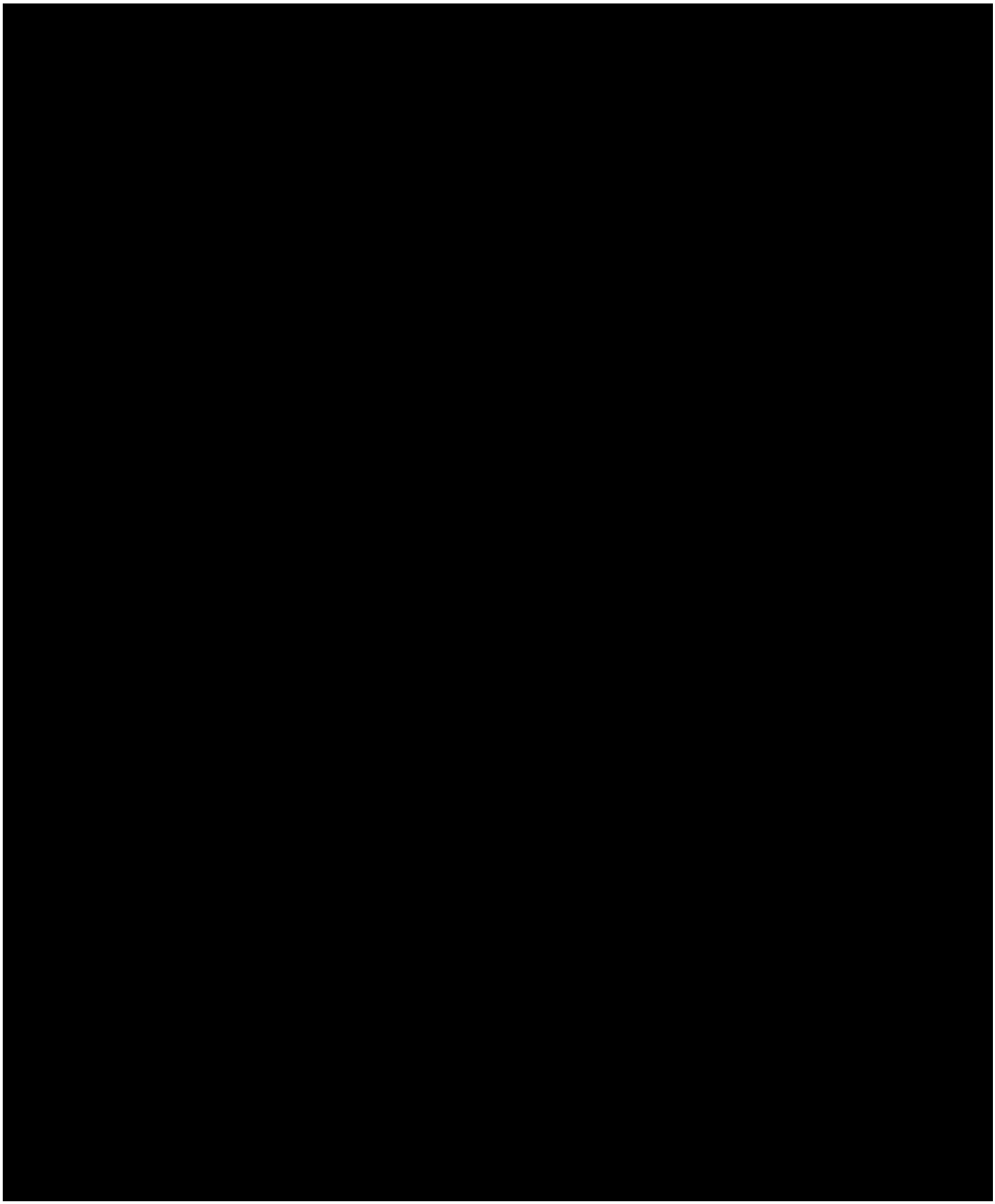
Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Addendum 1, Rev 1 – MOT Task
NB Outside Shoulder Strengthening
I-65 Added Travel Lanes
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

We are providing this revised addendum to support INDOT's efforts to continue with the design of the temporary pavement planned along the northbound outside shoulder for the referenced project. Based on our correspondence with INDOT and American Structurepoint, Inc. (ASI), we understand that INDOT is planning to reconstruct the existing northbound outside shoulder as temporary pavement to be used for the updated maintenance of traffic (MOT) scheme. We understand this is based on the results of INDOT's FWD testing and subsequent risk management strategy. This addendum has been revised to address a recent directive from INDOT, in which INDOT has indicated their preference for the use of [redacted]

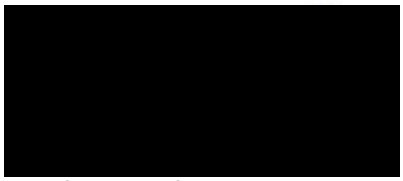
[redacted]



Attachment 11-4

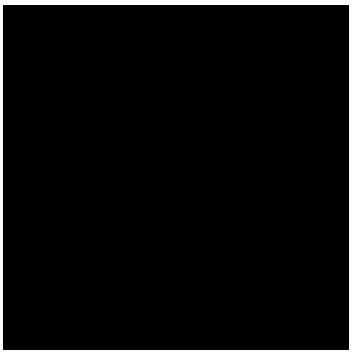
As mentioned, this revised addendum is being provided to support efforts to continue with the pavement design while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.



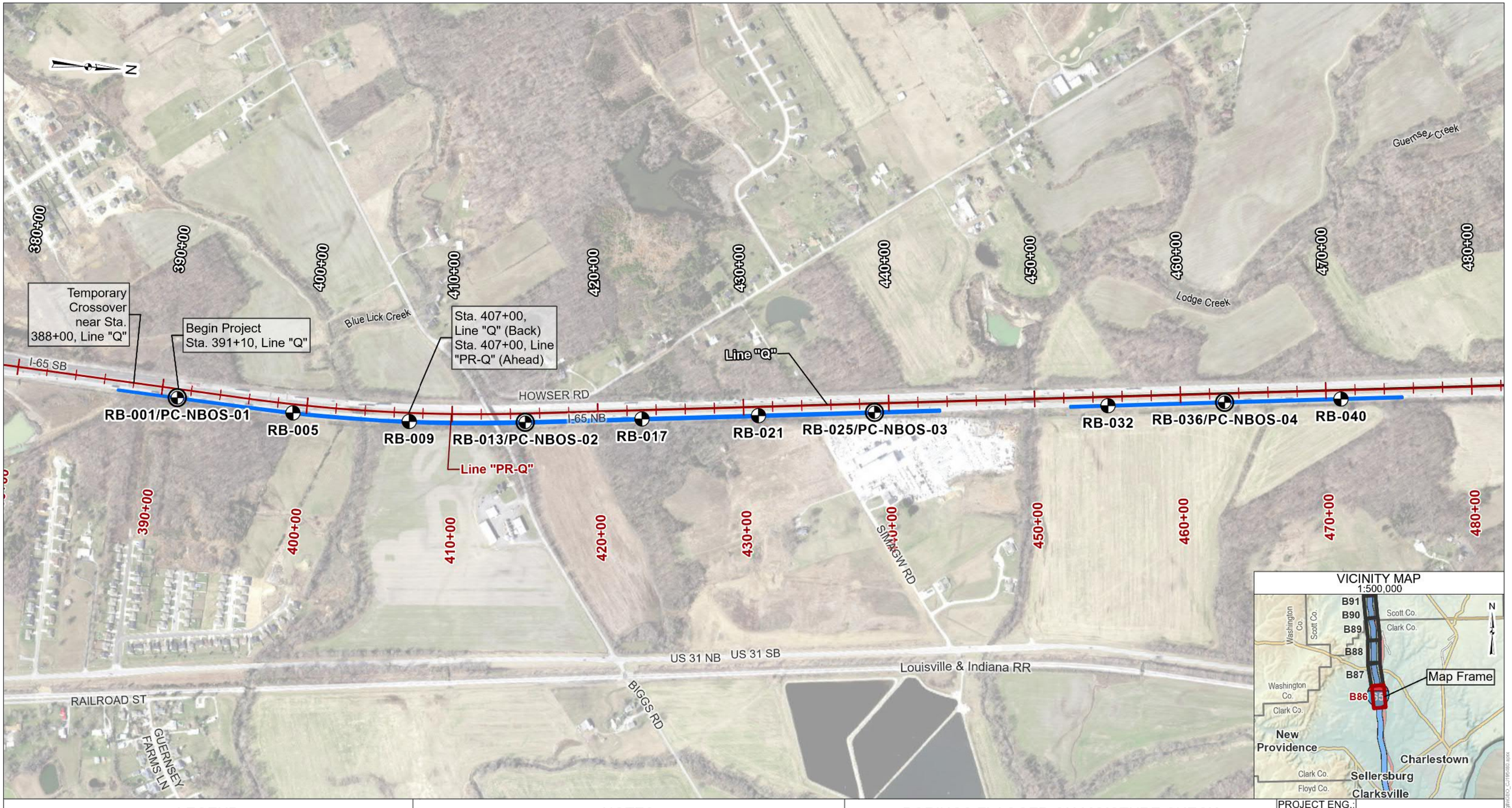
Zack A. Brady, P.E.
Senior Staff Engineer





Michael S. Wigger, P.E.
Principal

Attachments –
Borings Flagged on Moisture Check (Drawing Nos. CJ195480.B86 through B92)



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Alignment provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

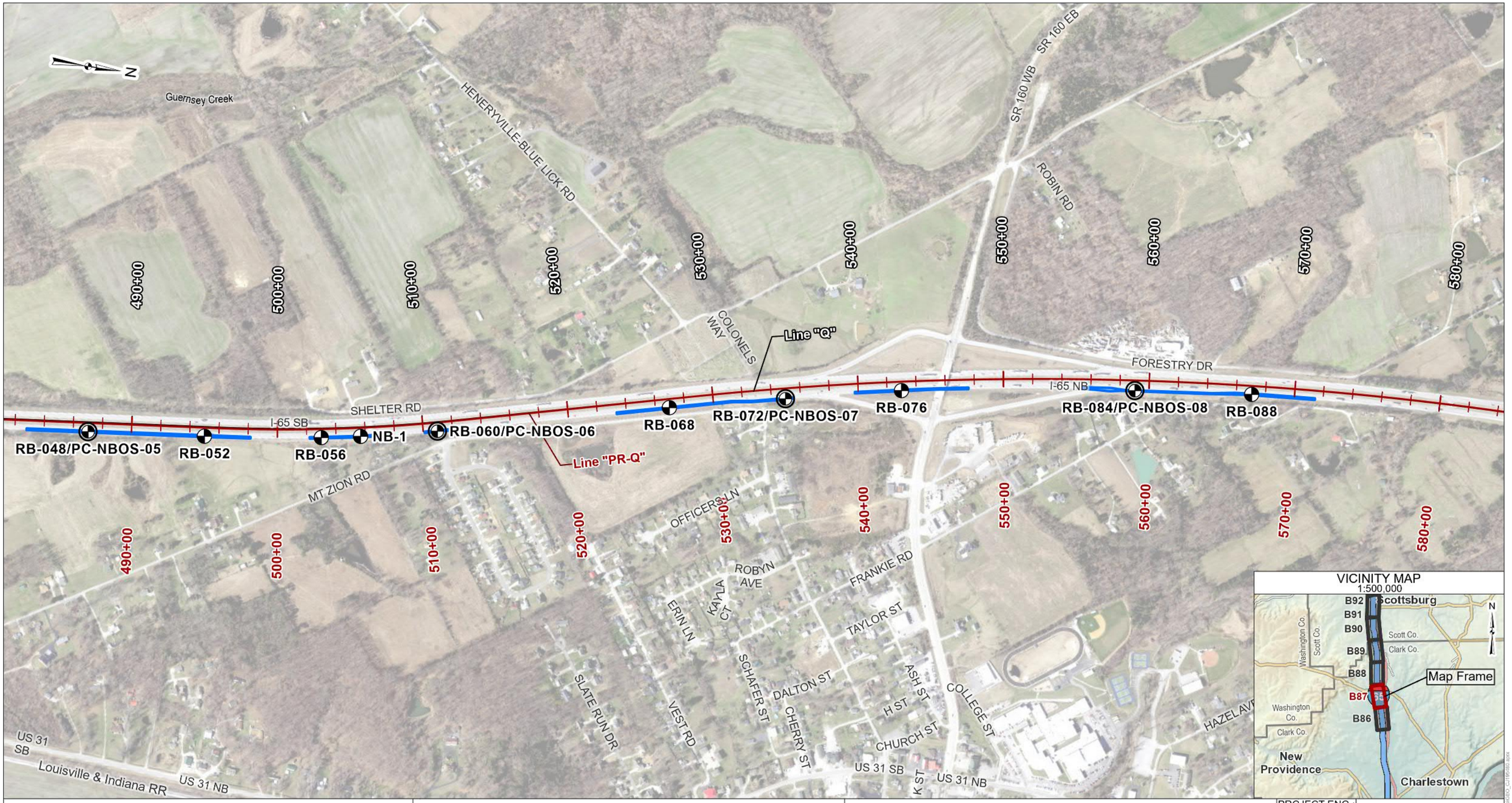
BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B86

Terracon



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

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BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B87

Terracon

N

590+00 600+00 610+00 620+00 630+00 640+00 650+00 660+00 670+00 680+00 690+00

BROWNSTOWN RD

COUNTRY LAKE RD

Line "Q"

Temporary Crossover near Sta. 686+00, Line "Q"

Sta. 679+00.69, Line "PR-Q" (Back)
Sta. 679+00, Line "Q" (Ahead)

I-65 NB

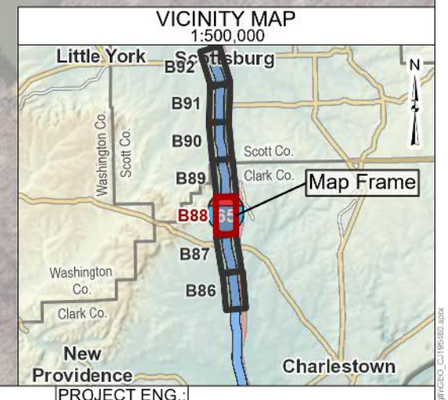
I-65 SB

RB-108/PC-NBOS-10 RB-112 RB-116 RB-120/PC-NBOS-11 RB-136 RB-140 RB-144/PC-NBOS-1 RB-148

Line "PR-Q"

590+00 600+00 610+00 620+00 630+00 640+00 650+00 660+00 670+00 680+00

VICINITY MAP
1:500,000



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

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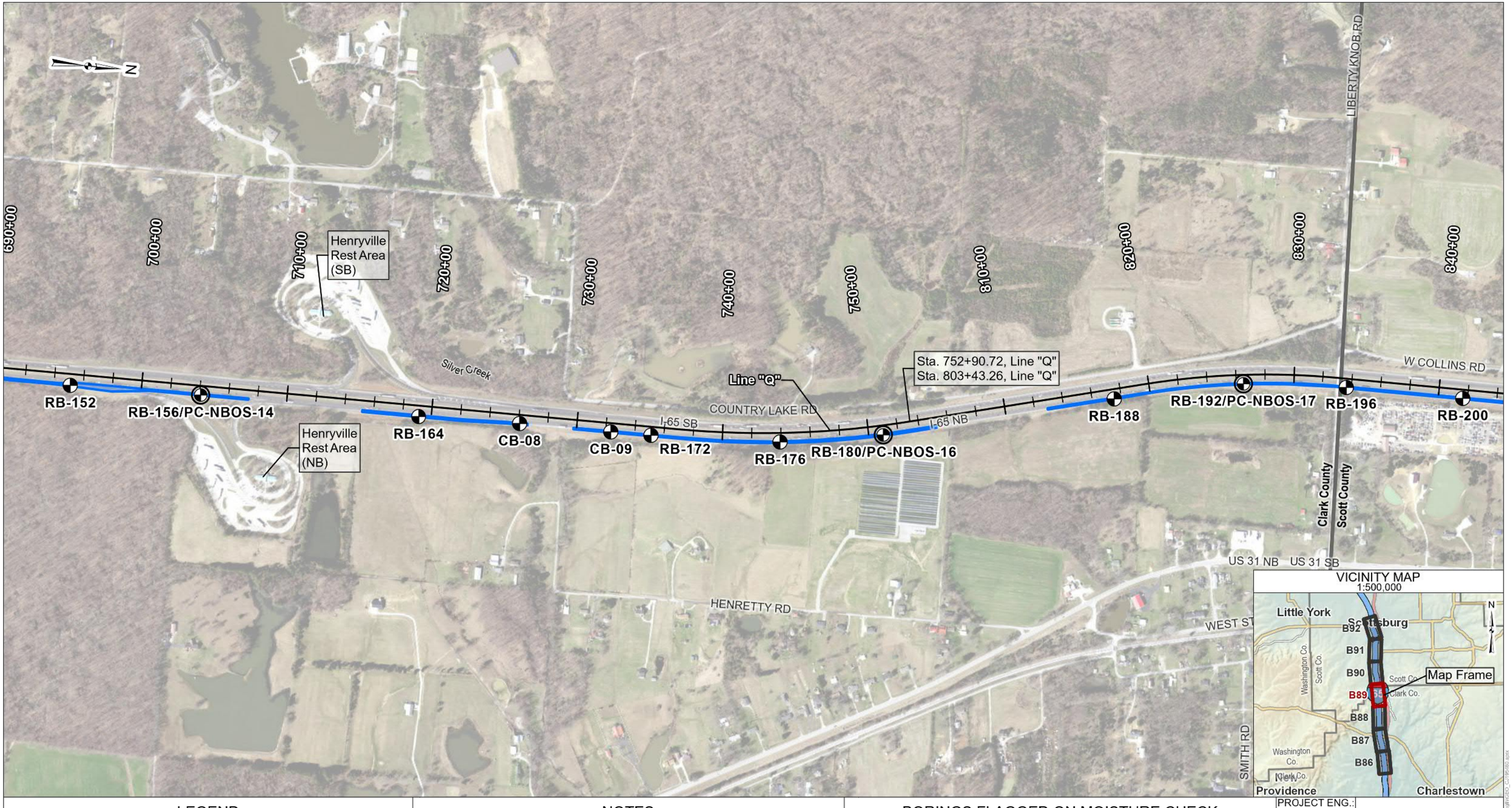
BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B88

Terracon



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

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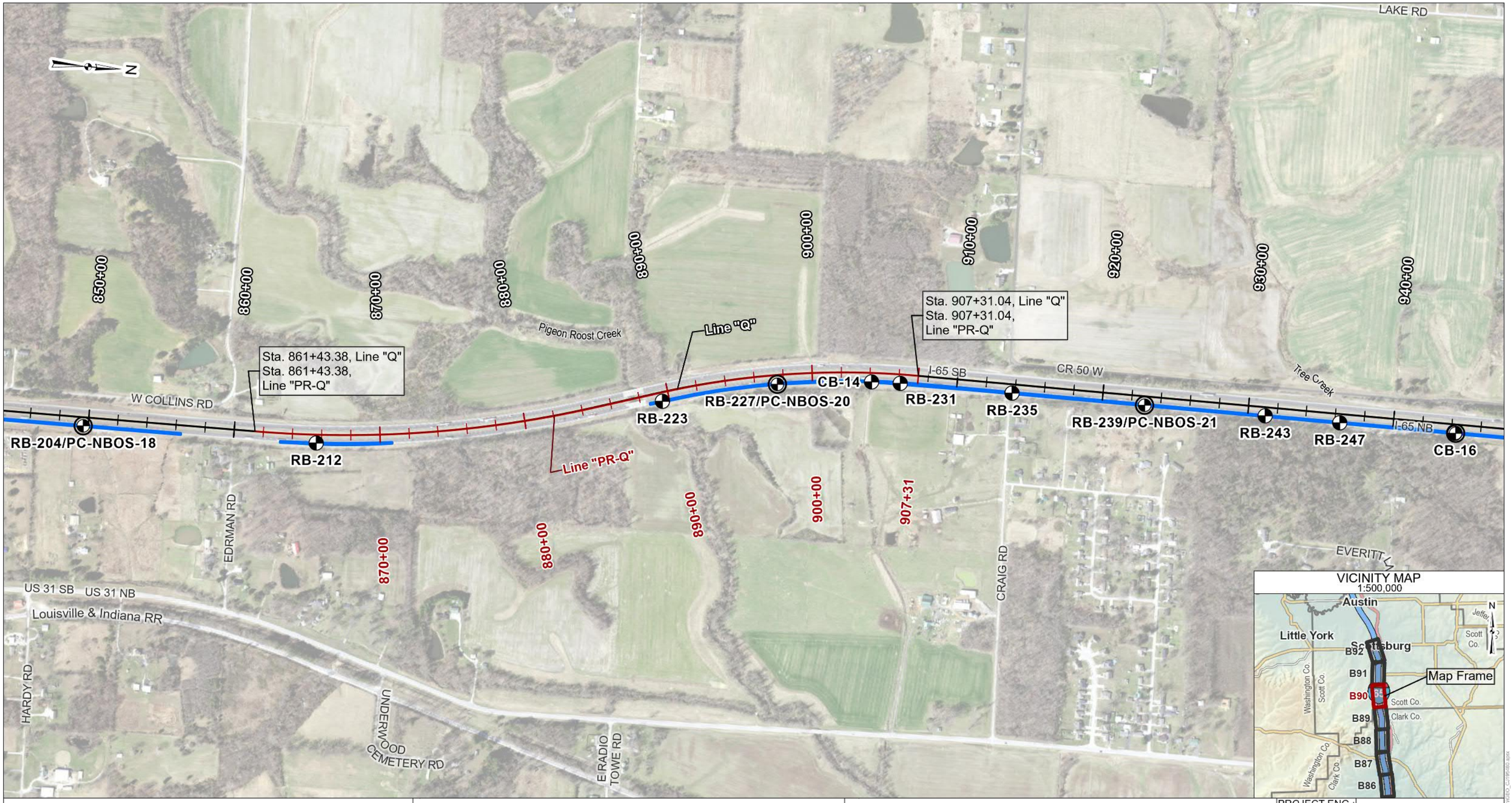
BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B89

Terracon



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

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LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B90

Terracon

N

LEOTA RD

950+00
960+00
970+00
980+00
990+00
1000+00
1010+00
1020+00
1030+00
1040+00
1050+00

Line "Q"

ATL Drop
Sta. 1013+98,
Line "Q"

CR 50 W

I-65 SB

I-65 NB

MIRANDA LN

RB-255
RB-267
RB-271
RB-275/PC-NBOS-24
RB-279
RB-283
RB-294
RB-298/PC-NBOS-26
RB-302

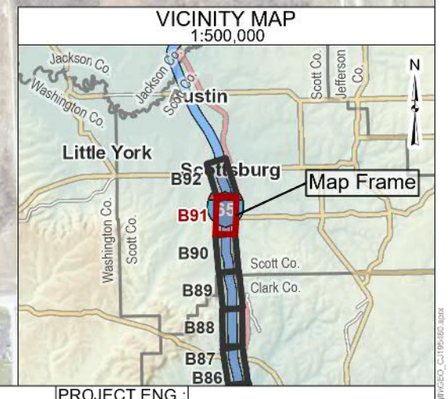
Tree Creek

US 31 SB

SR 356 WB

US 31 NB

VICINITY MAP
1:500,000



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Alignment provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

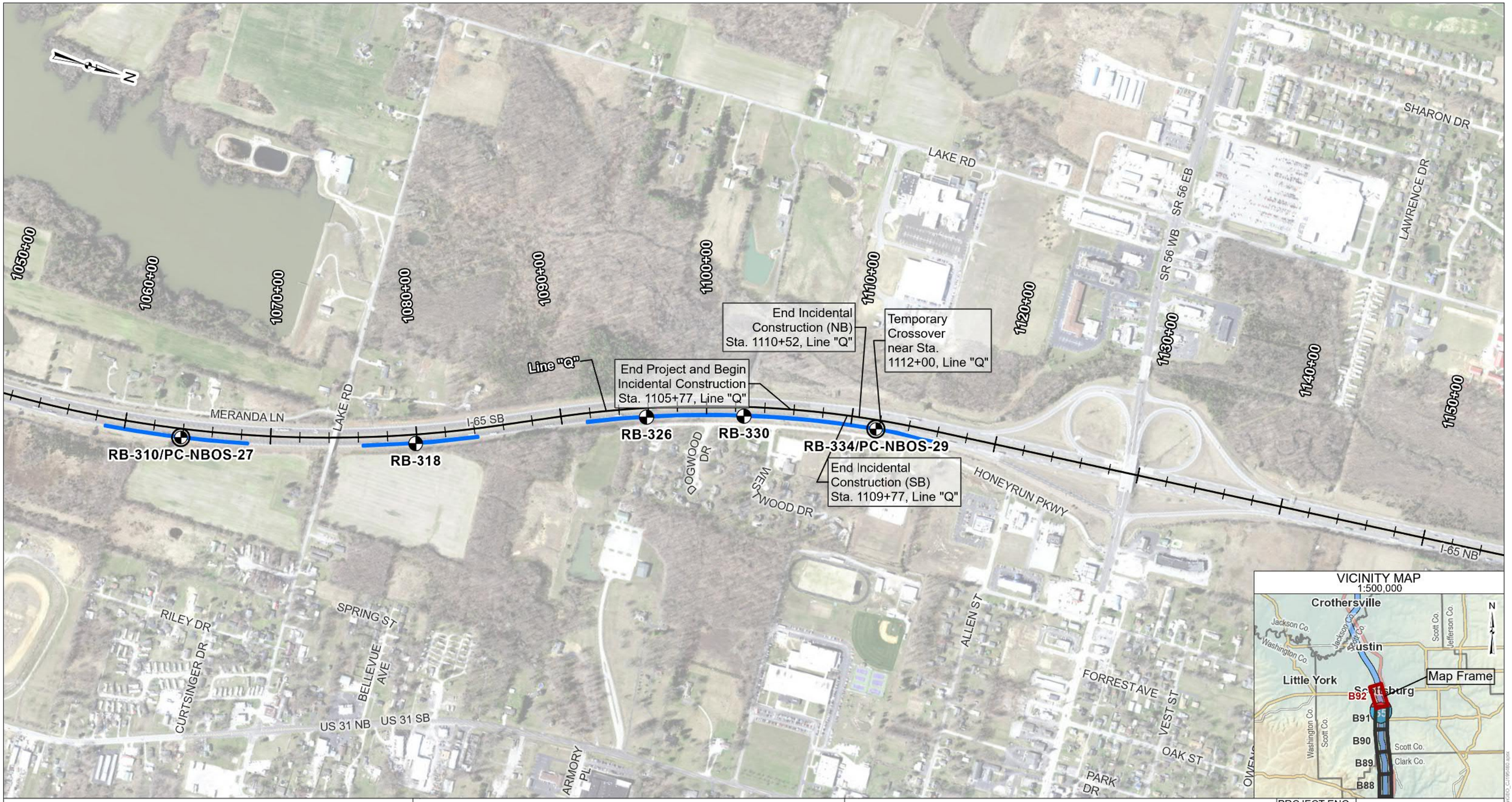
BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B91

terracon



LEGEND

- Test Boring Location and Designation
- Test Boring and Pavement Core Location and Designation
- Areas of Potential Foundation Soil Improvements

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Alignment provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

BORINGS FLAGGED ON MOISTURE CHECK

PROJECT:	I-65 Added Travel Lanes MOT Task - Addendum I: NB Outside Shoulder
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 800 ft

Attachment 11-4

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	08/10/2022
DRAWING NO.:	CJ195480.B92

Terracon

July 11, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Signs Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des No.: 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

This letter is being provided to support your efforts to continue with the design of the cantilever sign foundations planned as part of the referenced project. Based on review of the Stage 2 Plans and our correspondence with American Structurepoint, Inc. (ASI), three new sign foundations and three replacement sign foundations are planned. Refer to the attached Exploratory Location Plan (Drawing No. CJ195480.B84).

Subsurface Conditions

Cohesive soils typically including silty clay, silty clay loam, clay, and clay loam were observed at the boring locations. Sandy loam and silt were also present at Borings IGDEO-1, IGDEO-3, and IGDO-3. Weathered shale was present at the boring locations near depths ranging from about 14 to 33 ft. Groundwater levels as shallow as 1½ ft were observed about '24 hours' after drilling at some boring locations. In our opinion, these groundwater levels are indicative of perched conditions. Detailed descriptions of the subsurface conditions are shown on the attached boring logs.

Overhead Cantilever Sign Foundations

[redacted]



Drilled Shaft Construction Considerations



Concluding Remarks

As mentioned, this letter is being provided to support your efforts to continue with the design of the planned cantilever sign foundations while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,

TERRACON CONSULTANTS, INC.

[redacted]

[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Michael S. Wigger, P.E.
Principal

Attachments –
Important Information About This Geotechnical Engineering Report
Field Methods for Exploring and Sampling Soils and Rock
Exploratory Location Plan (Drawing No. CJ195480.B84)
Log of Test Boring - General Notes
Log of Test Boring (6)
Rock Core Photograph
Grain Size Distribution Test Report (4 pages)
Unconfined Compression Test (13)

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251), continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Standard Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206)

This method consists of driving a 2-in. outside diameter split-barrel sampler using a 140-lb weight falling freely through a distance of 30 in. The sampler is first seated 6 in. into the material to be sampled and then driven 12 in. The number of blows required to drive the sampler the final 12 in. is recorded on the Log of Test Boring and known as the Standard Penetration Resistance or N-value. Recovered samples are first classified as to texture by the field personnel. Later in the laboratory, the field classification is reviewed by a geotechnical engineer or a qualified person under their direction who observes each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207)

This method consists of hydraulically pushing a 2-in. or 3-in. outside diameter thin wall tube into the soil, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(ASTM Designation: D1452)

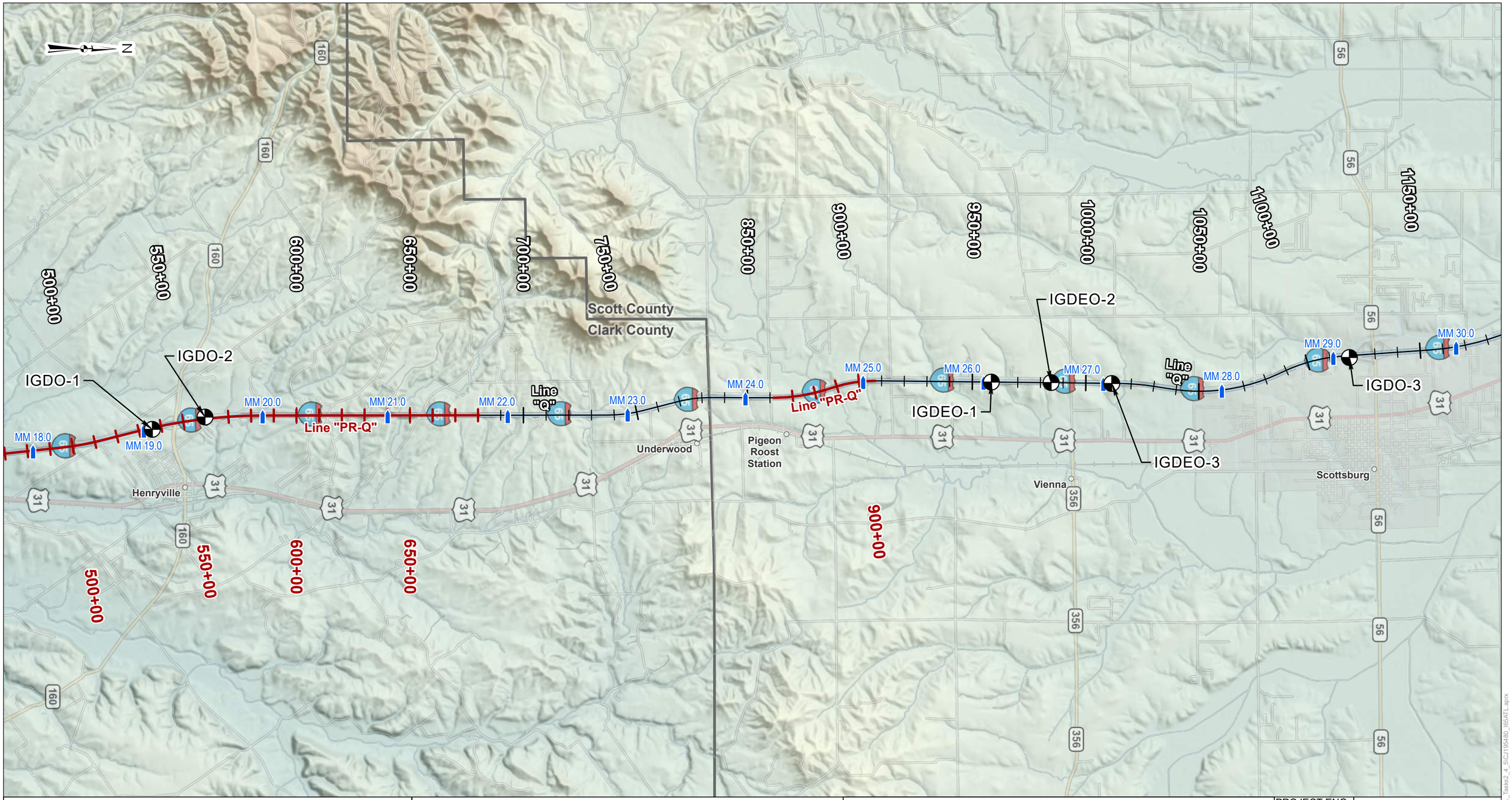
This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-ft intervals or with each change in the substrata. Relatively disturbed samples are obtained, and its use is therefore limited to situations where it is satisfactory to determine the approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225)

This method consists of advancing a hole in rock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-in. outside diameter by 2-in. inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.
** American Society for Testing and Materials



LEGEND

- Test Boring Location and Designation
- Approx. Mile Marker

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Exploratory locations marked in the field by Terracon Consultants, Inc.
3. Refer to Table 1 in the report and the boring logs for specific boring locations.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 4,000'

Attachment 11-5

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	05/25/2022
DRAWING NO.:	CJ195480.B84

Terracon

Imagery credits: Esri, IGIT, USTS, ISGS, Woolpert

C:\GIS\Projects\CJ195480_I65ATL\master\Maps\I65ATL_Task2_4_5\CJ195480_I65ATL.aprx

LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Coarse	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“N Value”
Very soft	0 - 3
Soft	4 - 5
Medium	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

LOG OF TEST BORING

BORING NO.: **IGDEO-1**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 26.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63925
LONGITUDE : -85.78383
DATUM : WGS 84
DATE STARTED : 03-02-22
DATE COMPLETED : 03-02-22

ELEVATION	: 610.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 958+40	RIG TYPE	: D-50 Track	DRILLER/INSP	: J.S.
OFFSET	: 0.0 ft	CASING DIA.	: ---	TEMPERATURE	: 64 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 39.4 ft				

GROUNDWATER: ▽ Encountered at 23.0 ft ▼ At completion NW ▼ 1.5 ft After 24 hr ▨ Caved in at 13.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.8											
	2.5	**Sandy Loam**, medium stiff to stiff, moist, brown, A-2-6(1), Lab No. 33221	SS 1	7-5-8	100	19.4 15.7		1.5 1.0					
605.0	5.0		SS 2	4-4-6	100	21.3 21.6	109.8	0.75 0.75	0.35	35	20	15	3.5, SS-2 : pH = 7.7, SG = 2.85
		6.0											
	7.5	**Clay**, stiff to very stiff, moist, brown, A-6, Lab No. 31384	SS 3	14-6-9	89	18.9		3.0					
600.0	10.0		SS 4	14-8-10	100	21.9		>4.5					
		11.0	SS 5	50/1	0								
	12.5	**Silt**, dense to very dense, moist, brown, A-4(1), Lab No. 33222	SS 6	31-14-20	100	21.5				24	22	2	13.5, SS-6 : pH = 7.8, SG = 2.75
595.0	15.0												
		16.5	SS 7	32-6-10	67	22.8 22.3		4.0					
	17.5	**Silty Clay Loam**, stiff to very stiff, moist, brown, A-4(7), Lab No. 33223	SS 8	6-6-9	94	21.4		0.5		31	24	7	18.5, SS-8 : pH = 6.6, SG = 2.76
590.0	20.0												
		21.0	SS 9	15-7-7	100	26.0		1.75					
	22.5	**Clay Loam**, medium stiff to stiff, moist, brown, (residual), A-4(4), Lab No. 33224	SS 10	4-4-3	67	29.4		0.75		37	27	10	23.5, SS-10 : pH = 7.4, SG = 2.75
585.0	25.0												
		26.0	SS 11	17-34-50/4	96	14.0 15.6		3.0					
	27.5	**Weathered Shale**, very soft, gray											
580.0	30.0		SS 12	23-50/5	93	18.5							

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDEO-1**
SHEET 2 OF 2
LATITUDE : 38.63925
LONGITUDE : -85.78383
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 26.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5		SS 13	32-30-50/4	96								
			SS 14	38-50/5	93								
575.0	35.0	**Weathered Shale**, very soft, gray											
	37.5		SS 15	34-50/4	94								
		39.4	SS 16	33-50/5	93								
570.0	40.0	Bottom of Boring at 39.4 ft											
	42.5												
565.0	45.0												
	47.5												
560.0	50.0												
	52.5												
555.0	55.0												
	57.5												
550.0	60.0												
	62.5												
545.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDEO-2**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 26.6
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64649
LONGITUDE : -85.78371
DATUM : WGS 84
DATE STARTED : 03-02-22
DATE COMPLETED : 03-02-22

ELEVATION : 608.0
STATION : 984+75
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 38.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 44 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▨ Caved in at 16.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.7											
605.0	2.5	**Clay Loam**, very stiff, moist, brown, A-6, Lab No. 31011	SS 1	4-9-15	78	17.3 14.8		2.0 4.25					
	5.0		SS 2	6-11-15	78	12.1 13.7		>4.5 >4.5					
		6.0											
	7.5		SS 3	4-5-7	100	17.1 17.3	117.3	4.5	5.19	35	19	16	6.0, SS-3 : pH = 8, SG = 2.8
600.0	10.0		SS 4	4-5-5	94	19.9	110.0	4.0	4.07				
	12.5		SS 5	6-9-13	100	21.1		4.0					
595.0	15.0		SS 6	5-6-10	100	19.2		>4.5					
	17.5	**Clay**, medium stiff to very stiff, moist, brown to gray below 16 ft, with clay loam seams near 12 ft and 25 ft, (residual below 16 ft), A-6(12), Lab No. 33225	SS 7	4-8-12	94	21.2	107.7	4.5	5.19				
590.0	20.0		SS 8	6-10-19	94	17.9		>4.5					
	22.5		SS 9	5-9-13	100	18.8	112.5	4.0	2.61				
585.0	25.0		SS 10	7-11-17	100	15.1		>4.5					
	27.5		SS 11	7-10-15	100	19.2		>4.5					
580.0	30.0		SS 12	9-11-16	100	16.6		>4.5					

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDEO-2**
SHEET 2 OF 2

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.64649

DES NO. : 1700135 STRUCTURE #: MM 26.6
LONGITUDE : -85.78371

PROJECT TYPE: Added Travel Lanes : New Sign Foundations
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		31.5	SS 13	25-50/5	0								
575.0	32.5		SS 14	42-50/4	94								
	35.0	**Weathered Shale**, very soft, gray	SS 15	48-50/1	97								
570.0	37.5												
		38.9	SS 16	50/5	83								
	40.0	Bottom of Boring at 38.9 ft											
565.0	42.5												
	45.0												
	47.5												
560.0	50.0												
	52.5												
555.0	55.0												
	57.5												
550.0	60.0												
	62.5												
545.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDEO-3**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 27.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.65383
LONGITUDE : -85.78360
DATUM : WGS 84
DATE STARTED : 03-01-22
DATE COMPLETED : 03-01-22

ELEVATION : 592.0
STATION : 1011+50
OFFSET : 0.0 ft
LINE : 'Q'
DEPTH : 36.5 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 65 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at 28.0 ft ▼ At completion 30.0 ft ▼ NW After 24 hr ▩ Caved in at 17.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.7											
590.0	2.5	**Clay Loam**, stiff to very stiff, moist, brown, with silty clay loam seam near 1.5 ft, A-6(7), Lab No. 33226	SS 1	5-7-9	94	11.7 21.5		2.5 1.5					
	5.0	5.0	SS 2	4-4-9	100	22.1 21.0	103.3	1.5 2.5	1.57	29	17	12	3.5, SS-2 : pH = 4.8, SG = 2.76
585.0	7.5		SS 3	7-8-12	100	17.3		3.5					
	10.0	**Sandy Loam**, stiff to very stiff, moist, brown, A-2-6(1), Lab No. 33221	SS 4	4-6-8	89	21.1		2.5					
580.0	12.5		SS 5	5-9-12	100	19.2		1.0		38	22	16	12.0, SS-5 : pH = 6.5, SG = 2.72
		14.0	SS 6	8-17-29	100	14.4		>4.5					
575.0	15.0		SS 7	11-21-28	100	13.2							
	17.5 ▩		SS 8	19-30-32	89	10.8		>4.5					
570.0	20.0		SS 9	42-50/1	97								
	22.5	**Weathered Shale**, very soft, gray-brown to gray below 21 ft	SS 10	30-50/4	94								
565.0	25.0		SS 11	38-50/3	94								
	27.5 ▼		SS 12	20-50/3	31								
	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDEO-3**
SHEET 2 OF 2
LATITUDE : 38.65383
LONGITUDE : -85.78360
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 27.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
560.0	32.5	**Weathered Shale**, very soft, gray-brown to gray below 21 ft	SS 13	36-50/2	71								
	35.0		SS 14	50/2	0								
555.0	36.5		SS 15	50/2	83								
	37.5	Bottom of Boring at 36.5 ft Auger refusal near 36.5 ft											
550.0	40.0												
	42.5												
545.0	45.0												
	47.5												
540.0	50.0												
	52.5												
535.0	55.0												
	57.5												
530.0	60.0												
	62.5												
	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-1**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 19.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.53773
LONGITUDE : -85.77673
DATUM : WGS 84
DATE STARTED : 04-06-22
DATE COMPLETED : 04-06-22

ELEVATION : 566.0
STATION : 535+96
OFFSET : 71.0 ft Right
LINE : 'PR-Q'
DEPTH : 39.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 48 °F
WEATHER : Clear

GROUNDWATER: ▽ Encountered at NW ▼ At completion 19.0 ft ▩ Caved in at 32.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
565.0		**Asphaltic Concrete** 1.0 **Granular Subbase**, (gravel) 1.3											
	2.5	**Clay**, very soft to medium stiff, moist, brown, A-7-6, Lab No. 30795	SS 1	4-4-4	78	19.8 16.4		3.5 >4.5					
	5.0		SS 2	2-1-2	44	20.1 20.2		0.25 <0.25					
560.0		6.0											
	7.5		SS 3	5-6-7	100	18.7	107.4	2.75	2.56				
	10.0		SS 4	2-3-4	100	19.5		3.0		35	18	17	8.5, SS-5 : pH = 7.8, SG = 2.74
555.0			SS 5	2-3-6	100	17.1		>4.5					
	12.5												
	15.0	**Clay**, medium stiff to hard, moist, brown to gray-brown, with sandy loam seams near 14 and 24 ft, A-6(11), Lab No. 33299	SS 6	3-6-12	100	15.3 14.6		3.5					
550.0			SS 7	5-10-16	100	16.6		>4.5					
	17.5												
	20.0		SS 8	6-6-11	100	18.3		>4.5					
545.0			SS 9	5-7-12	100	17.6		>4.5					
	22.5												
	25.0		SS 10	5-13-26	100	10.7		3.5					
540.0		26.0											
	27.5	**Weathered Shale**, very soft, gray to gray-brown	SS 11	23-45-50/5	95								
	30.0		SS 12	19-42-50/4	90								

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-1**
SHEET 2 OF 2

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.53773

DES NO. : 1700135 STRUCTURE #: MM 19.1
LONGITUDE : -85.77673

PROJECT TYPE: Added Travel Lanes : New Sign Foundations
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
535.0	32.5		SS 13	41-50/2	48								
	35.0	**Weathered Shale**, very soft, gray to gray-brown	SS 14	39-23-45	44								
530.0	37.5		SS 15	44-50/2	48								
		39.2	SS 16	40-50/2	71								
	40.0	Bottom of Boring at 39.2 ft											
525.0	42.5												
	45.0												
520.0	47.5												
	50.0												
515.0	52.5												
	55.0												
510.0	57.5												
	60.0												
505.0	62.5												
	65.0												
500.0													

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-2**
SHEET 1 OF 2

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 19.5
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.54411
LONGITUDE : -85.77860
DATUM : WGS 84
DATE STARTED : 02-28-22
DATE COMPLETED : 02-28-22

ELEVATION	: 550.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 559+76	RIG TYPE	: D-50 Track	DRILLER/INSP	: J.S.
OFFSET	: 77.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 40 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 36.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 12.0 ft ▼ 3.0 ft After 24 hr ▨ Caved in at 18.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-6, Lab No. 31377 3.0	SS 1	2-4-5	67	20.2 16.1		2.0 2.5					
545.0	5.0		SS 2	2-3-4	67	19.6 23.7		2.25 3.5					
	7.5	**Clay**, medium stiff to very stiff, moist, brown to gray near 6 ft and below 13 ft, with silty loam seam near 5 ft, with shale fragments below 8 ft, A-7-6(21), Lab No. 33228	SS 3	3-4-5	67	21.5 21.1	104.6	3.75	2.98	43	20	23	6.0, SS-3 : pH = 4.3, SG = 2.8
540.0	10.0		SS 4	8-10-12	78	17.7		3.25					
	12.5	11.0	SS 5	6-7-8	78	20.1 26.0		3.0		30	21	9	11.0, SS-5 : pH = 6.8, SG = 2.81
		Clay Loam, stiff, moist, brown to gray-brown, A-6(6), Lab No. 33294											
535.0	15.0	16.0	SS 6	3-4-9	67	21.7 22.1	103.6	2.75	2.41	31	21	10	13.5, SS-6 : pH = 7.3, SG = 2.8
	17.5		SS 7	20-41-50/4	77	14.0		>4.5					
			SS 8	25-50/4	83								
530.0	20.0		SS 9	30-50/3	63								
	22.5	**Weathered Shale**, very soft, brown to gray below 23 ft	SS 10	27-36-50/3	77								
525.0	25.0		SS 11	36-50/3	83								
	27.5												
520.0	30.0		SS 12	37-50/3	63								

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-2**
SHEET 2 OF 2

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.54411

DES NO. : 1700135 STRUCTURE #: MM 19.5
LONGITUDE : -85.77860

PROJECT TYPE: Added Travel Lanes : New Sign Foundations
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		31.0											
	32.5	**Limestone**, hard, gray, dolomitic	RC 1 RQD= 33%		85				769				
		34.0											
515.0	35.0	**Shale**, soft to hard, black, low bedding planes											
		36.0											
		Bottom of Boring at 36.0 ft											
	37.5	Auger refusal near 31 ft											
510.0	40.0												
	42.5												
505.0	45.0												
	47.5												
500.0	50.0												
	52.5												
495.0	55.0												
	57.5												
490.0	60.0												
	62.5												
485.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-3**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: MM 29.1
PROJECT TYPE: Added Travel Lanes : New Sign Foundations
LOCATION : I-65 from RP 16+27 to 29+10
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.68258
LONGITUDE : -85.78755
DATUM : WGS 84
DATE STARTED : 04-06-22
DATE COMPLETED : 04-06-22

ELEVATION	: 554.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 1118+72	RIG TYPE	: D-50 Track	DRILLER/INSP	: J.S.
OFFSET	: 79.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 44 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 37.0 ft				

GROUNDWATER: ▽ Encountered at 28.0 ft ▼ At completion 17.0 ft ▨ Caved in at 33.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (gravel) 1.3											
	2.5		SS 1	2-2-5	89	18.2 19.4		3.5 3.5					
550.0	5.0	**Silty Clay**, medium stiff to very stiff, moist, brown, A-6 (14), Lab No. 33300	SS 2	6-7-9	44	14.7 14.0		4.0 >4.5					
	7.5		SS 3	2-3-5	78	20.6 19.3	108.8	1.75	1.78	34	18	16	6.0, SS-3 : pH = 3.6, SG = 2.72
		8.0											
545.0	10.0		SS 4	3-3-4	78	23.1	104.4	3.0	2.28				
	12.5		SS 5	1-2-3	89	21.8 21.4	106.8	0.75	0.94	30	16	14	11.0, SS-5 : pH = 6, SG = 2.71
540.0	15.0		SS 6	2-2-4	67	21.2		2.75					
	17.5	**Clay Loam**, soft to medium stiff, moist, gray, with sandy loam seam near 17 ft, with organic matter near 22 ft, A-6(9), Lab No. 33301	SS 7	3-4-6	67	16.2		1.25					
535.0	20.0		SS 8	2-3-3	100	20.1	108.9	0.5	1.02				
	22.5		SS 9	2-2-3	67	31.4		0.75					21.0, LOI = 4 percent
530.0	25.0		SS 10	3-3-3	78	20.8		2.25					23.5, LOI = 3 percent
		26.0											
	27.5	**Sandy Loam**, medium dense to very dense, moist to wet below 28 ft, gray, A-2-4, Lab No. 30944	SS 11	2-3-14	100								
525.0	30.0		SS 12	3-11-15	100								

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

LOG OF TEST BORING

BORING NO.: **IGDO-3**
SHEET 2 OF 2

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.68258

DES NO. : 1700135 STRUCTURE #: MM 29.1
LONGITUDE : -85.78755

PROJECT TYPE: Added Travel Lanes : New Sign Foundations
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5	**Sandy Loam**, medium dense to very dense, moist to wet below 28 ft, gray, A-2-4, Lab No. 30944	SS 13	19-50/3	0								
		33.0											
520.0	35.0	**Weathered Shale**, very soft, gray-brown	SS 14	21-36-50/2	63			>4.5					
			SS 15	50/3	100								
		37.0											
	37.5	Bottom of Boring at 37.0 ft											
515.0		Auger refusal near 37 ft											
	40.0												
	42.5												
510.0	45.0												
	47.5												
505.0	50.0												
	52.5												
500.0	55.0												
	57.5												
495.0	60.0												
	62.5												
490.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 7/11/22

I-65 Added Travel Lanes:

ROCK CORE PHOTOGRAPH

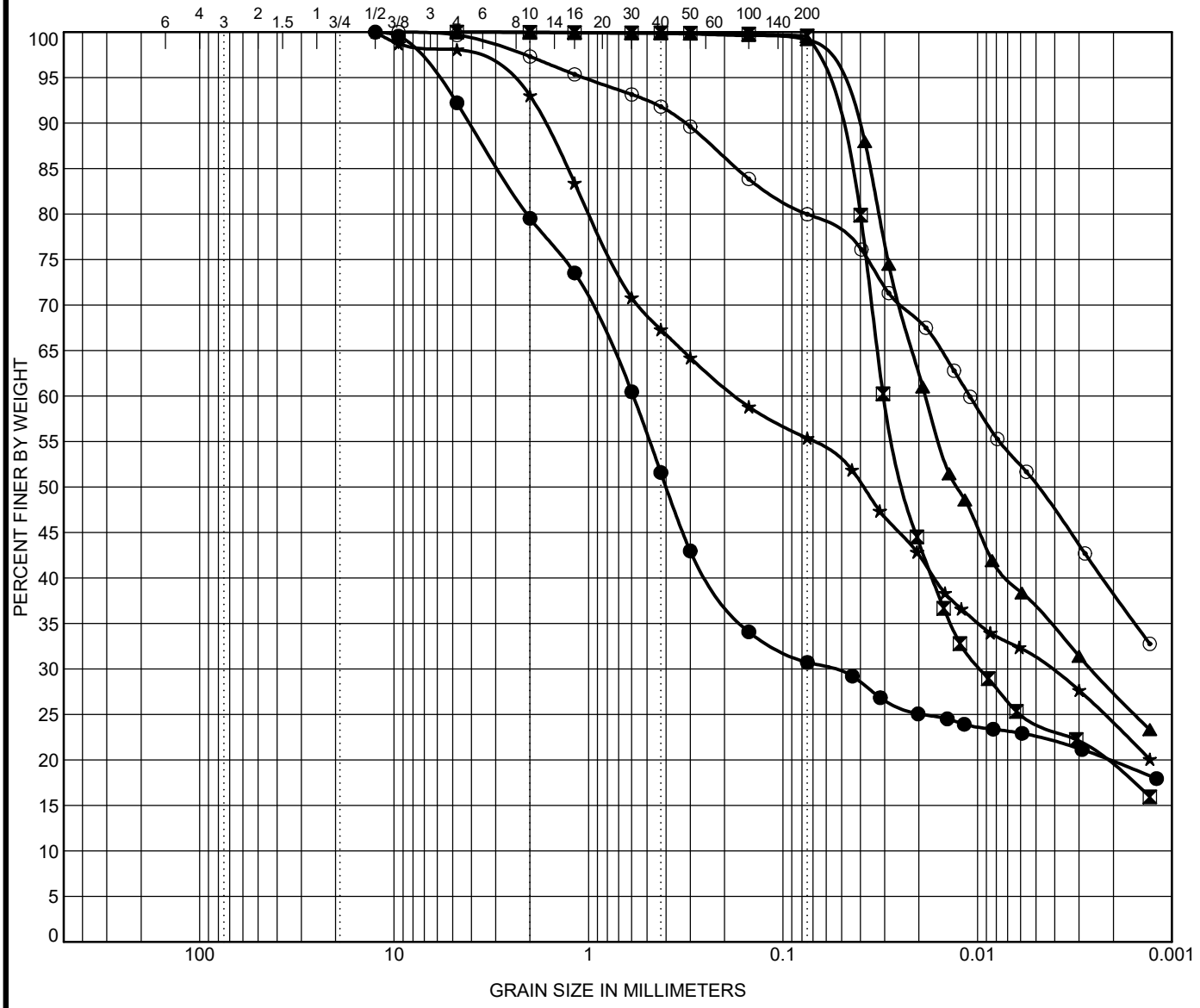
BORING:

IGDO-2

Attachment 11-5



Project No. CJ195480, Boring No. IGDO-2, Rock Core No. RC-1, Depth: 31 – 36 ft



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	IGDEO-1	SS-2	4.0	33221	A-2-6 (1) SANDY LOAM	35.0	20.0	15.0		
⊠	IGDEO-1	SS-6	13.5	33222	A-4 (1) SILT	24.0	22.0	2.0		
▲	IGDEO-1	SS-8	18.5	33223	A-4 (7) SILTY CLAY LOAM	31.0	24.0	7.0		
★	IGDEO-1	SS-10	23.5	33224	A-4 (4) CLAY LOAM	37.0	27.0	10.0		
⊙	IGDEO-2	SS-3	6.5	33225	A-6 (12) CLAY	35.0	19.0	16.0		

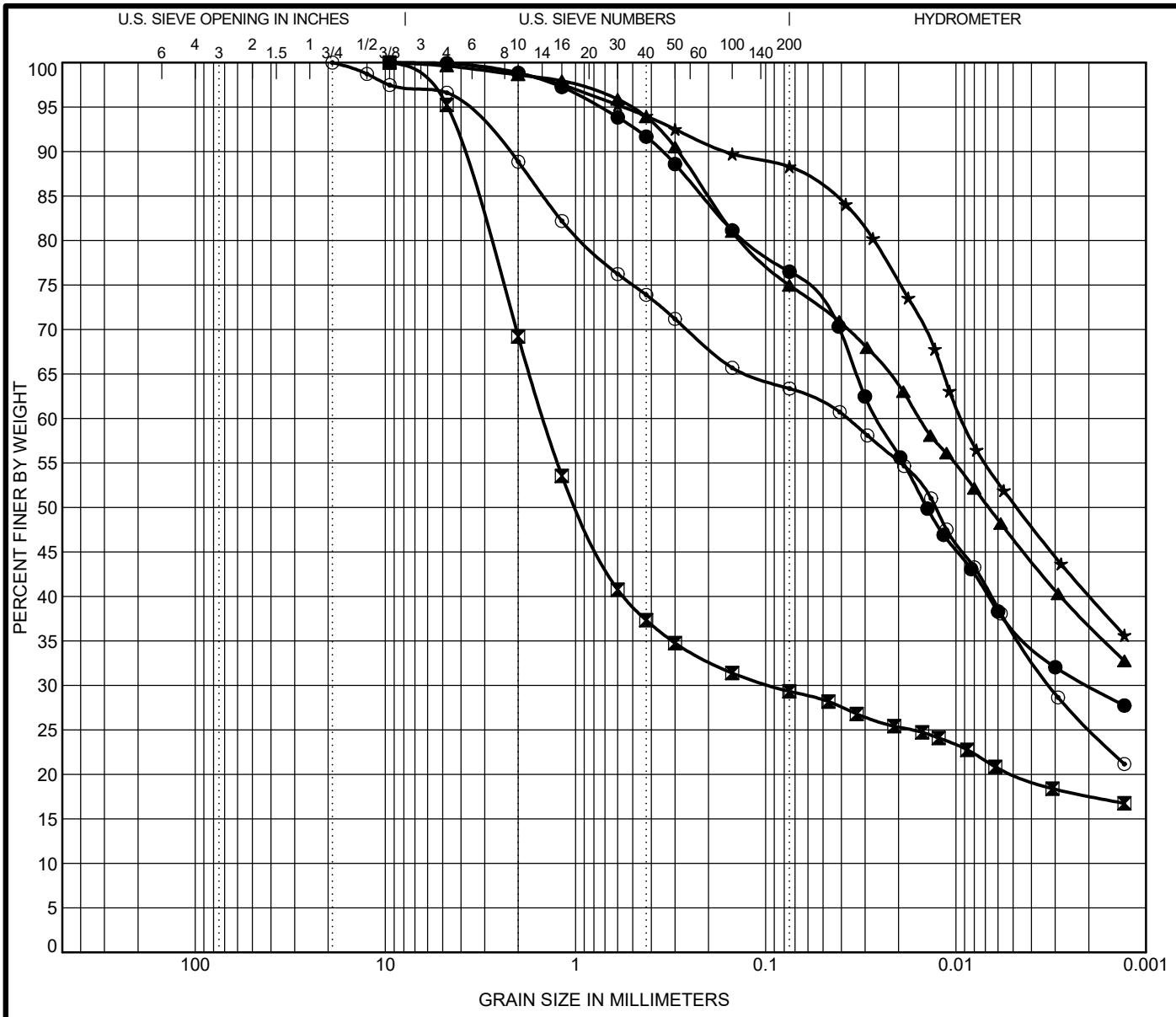
	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	IGDEO-1	SS-2	4.0	0.589	0.058			7.7	20.5	48.8	10.9	19.8	2.85
⊠	IGDEO-1	SS-6	13.5	0.03	0.01			7.8	0.0	0.4	80.5	19.1	2.75
▲	IGDEO-1	SS-8	18.5	0.018	0.003			6.6	0.0	0.8	71.7	27.5	2.76
★	IGDEO-1	SS-10	23.5	0.175	0.004			7.4	7.0	37.6	31.4	24.0	2.72
⊙	IGDEO-2	SS-3	6.5	0.011				8	2.7	17.3	41.6	38.3	2.8

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
● IGDEO-3	SS-2	3.5	33226	A-6 (7) CLAY LOAM	29.0	17.0	12.0		
⊠ IGDEO-3	SS-5	11.0	33227	A-2-6 (1) SANDY LOAM	38.0	22.0	16.0		
▲ IGDO-1	SS-4	8.5	33299	A-6 (11) CLAY	35.0	18.0	17.0		
★ IGDO-2	SS-3	6.5	33228	A-7-6 (21) CLAY	43.0	20.0	23.0		
⊙ IGDO-2	SS-5T	11.0	33294	A-4 (4) CLAY LOAM	30.0	21.0	9.0		

Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
● IGDEO-3	SS-2	3.5	0.026	0.002			4.8	1.2	22.3	46.6	30.0	2.76
⊠ IGDEO-3	SS-5	11.0	1.466	0.094			6.5	30.8	39.9	11.8	17.6	2.72
▲ IGDO-1	SS-4	8.5	0.015				7.8	1.4	23.7	38.2	36.8	2.74
★ IGDO-2	SS-3	6.5	0.009				4.3	1.2	10.5	48.2	40.1	2.8
⊙ IGDO-2	SS-5T	11.0	0.037	0.003			6.8	11.1	25.5	38.2	25.2	2.81

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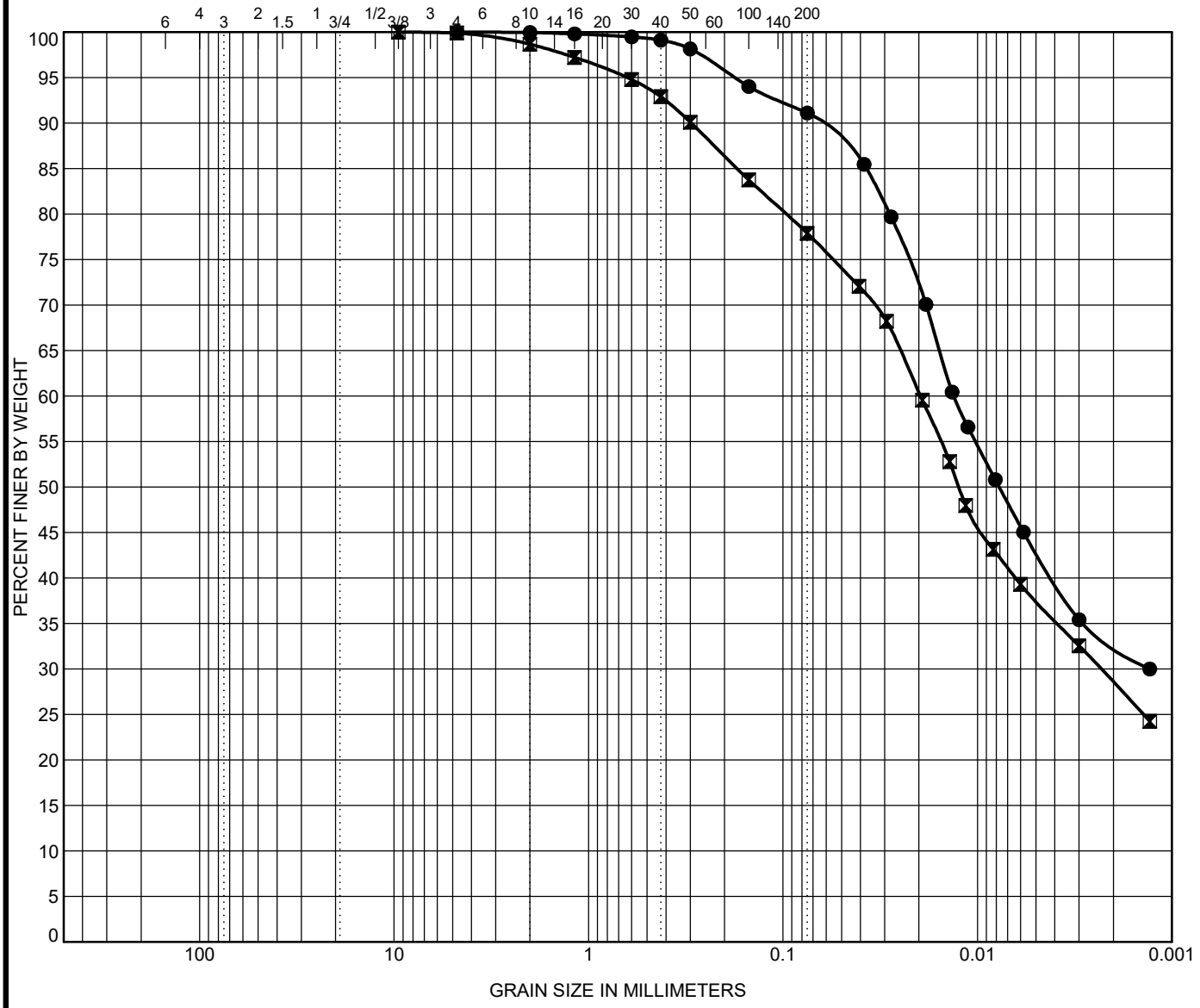
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN DOT1.GDT 5/24/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	IGDO-3	SS-3	6.5	33300	A-6 (14) SILTY CLAY	34.0	18.0	16.0		
⊠	IGDO-3	SS-5	11.5	33301	A-6 (9) CLAY LOAM	30.0	16.0	14.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	IGDO-3	SS-3	6.5	0.013	0.001			3.6	0.0	8.8	58.3	32.8	2.72
⊠	IGDO-3	SS-5	11.5	0.02	0.002			6	1.3	20.8	49.4	28.5	2.71

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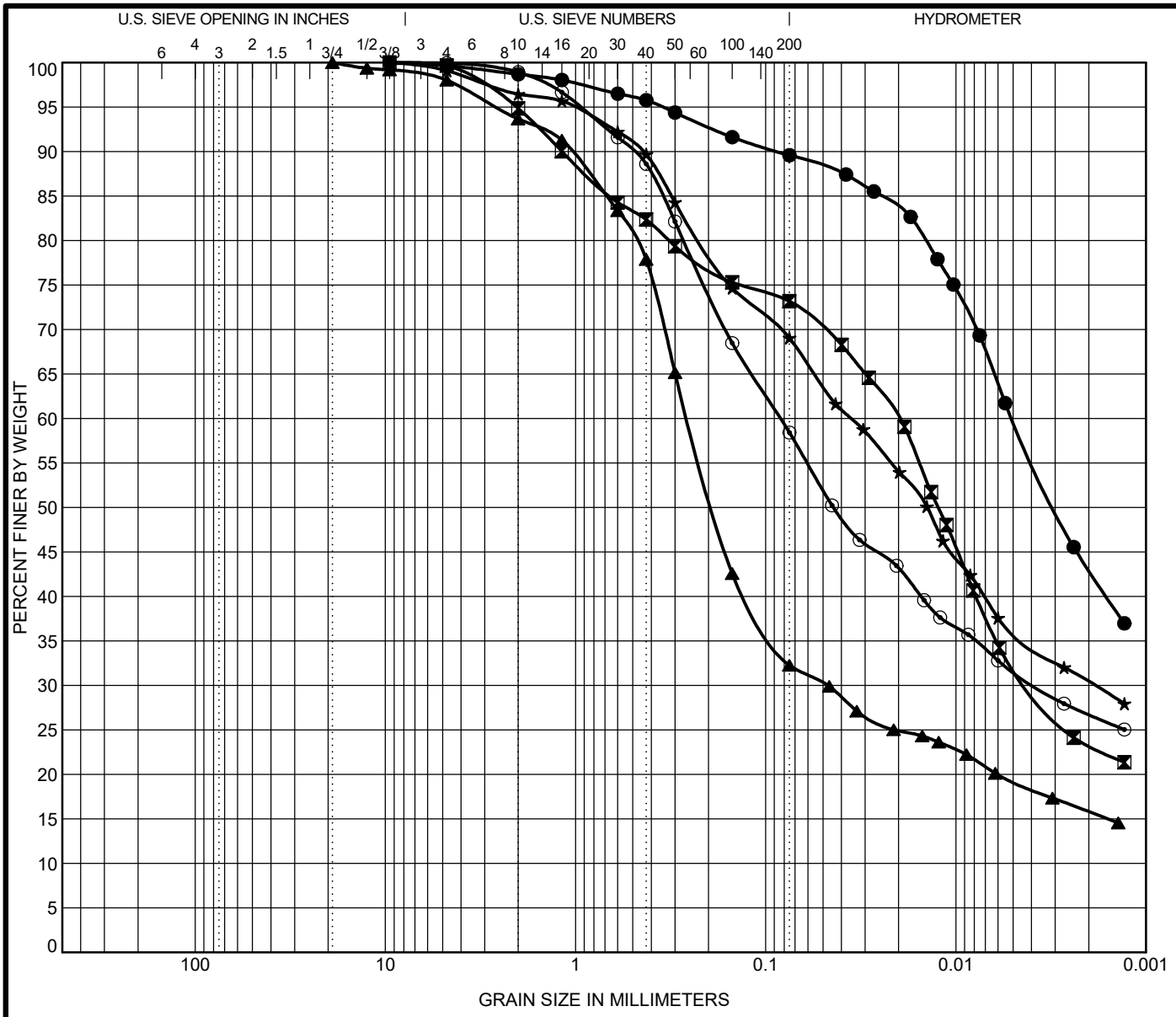
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-077	SS-1	1.0	30795	A-7-6 (23) CLAY	44.0	19.0	25.0		
⊠	RB-085A	ST-1	1.0	31377	A-6 (6) CLAY LOAM	31.0	20.0	11.0		
▲	RB-183A	ST-1	1.0	30944	A-2-4 (0) SANDY LOAM	25.0	18.0	7.0		
★	RB-255A	ST-1	1.0	31384	A-6 (10) CLAY	33.0	15.0	18.0		
⊙	RB-285	SS-2	2.8	31011	A-6 (5) CLAY LOAM	30.0	16.0	14.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-077	SS-1	1.0	0.005				7.6	1.3	9.1	46.6	43.0	2.75
⊠	RB-085A	ST-1	1.0	0.02	0.004			7.8	5.1	21.7	49.9	23.3	2.82
▲	RB-183A	ST-1	1.0	0.256	0.047			8.1	6.3	61.4	16.5	15.8	2.72
★	RB-255A	ST-1	1.0	0.035	0.002			8	3.6	27.4	38.7	30.3	2.72
⊙	RB-285	SS-2	2.8	0.084	0.004			8.3	1.1	40.5	31.7	26.8	2.73

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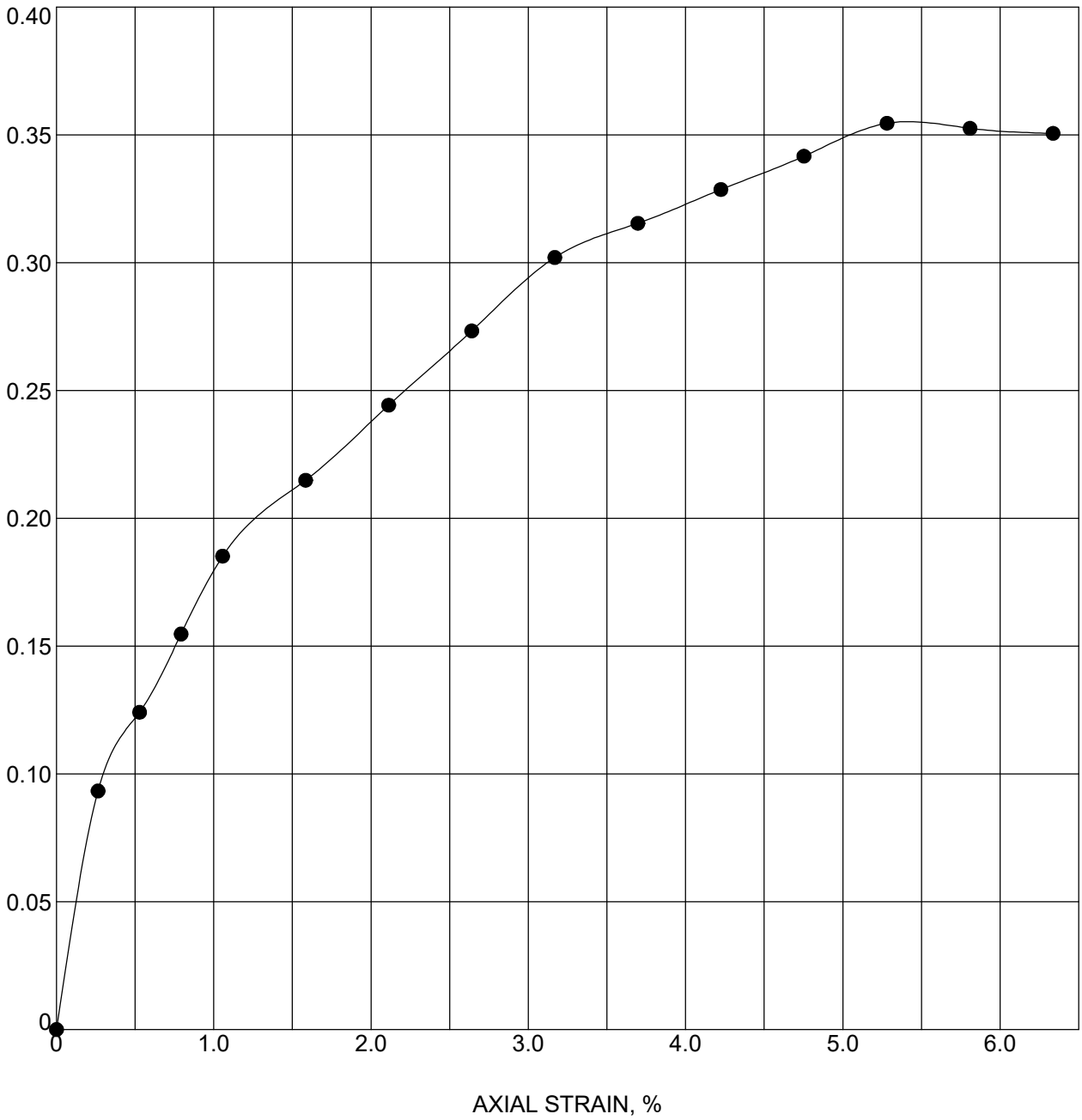
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 5/23/22



Boring	Sample	Depth	Classification
IGDEO-1	SS-2	4 - 5	SANDY LOAM A-2-6 (1)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.6	133.5	109.8	0.35	1.1	5.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.18	99	0.620	34.54	67.34	1.9

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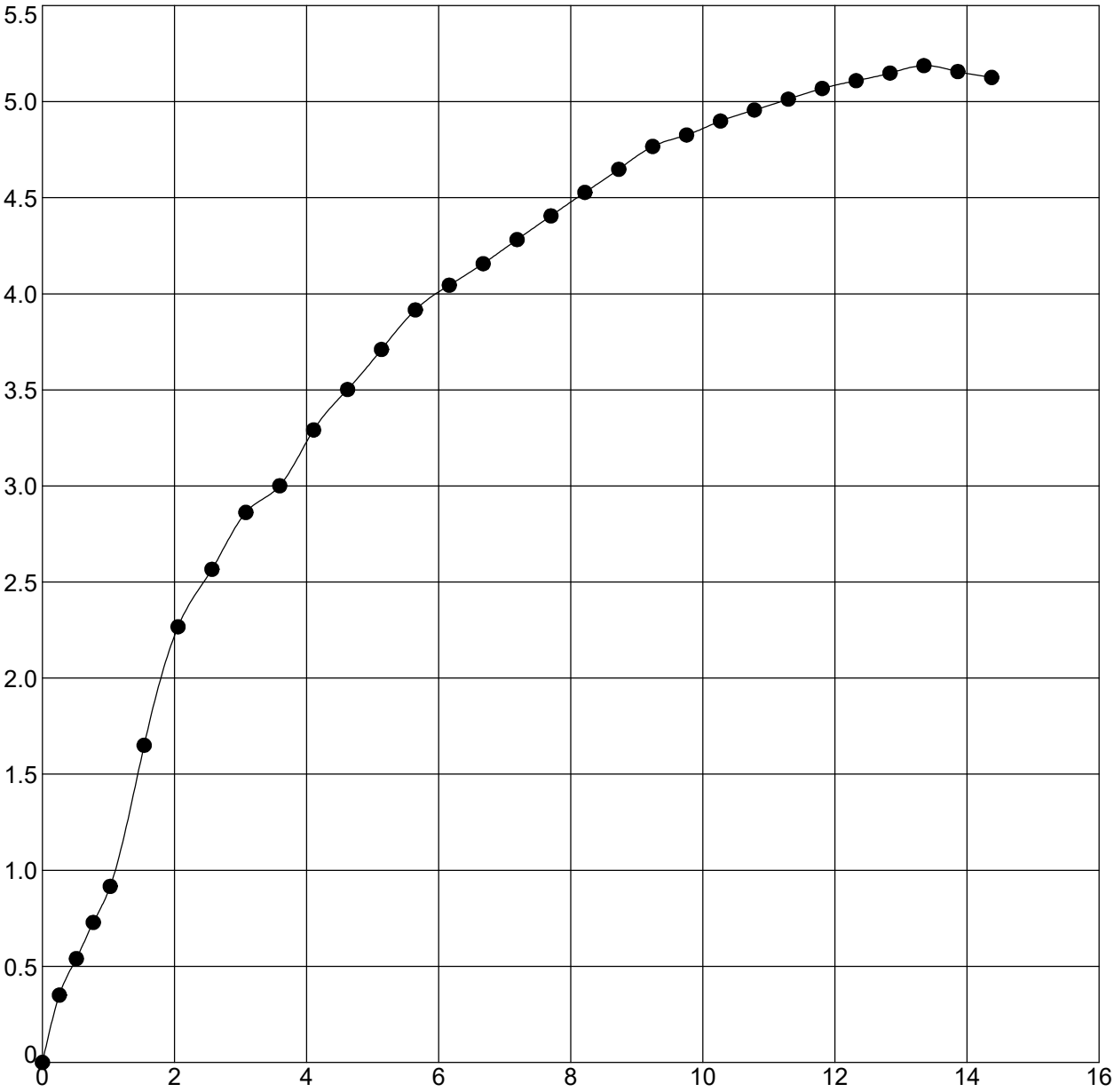
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 26.1
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDEO-2	SS-3	6.5 - 7.5	CLAY A-7-6 (21)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.3	137.6	117.3	5.19	1.0	13.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.59	99	0.490	34.14	69.27	2.0

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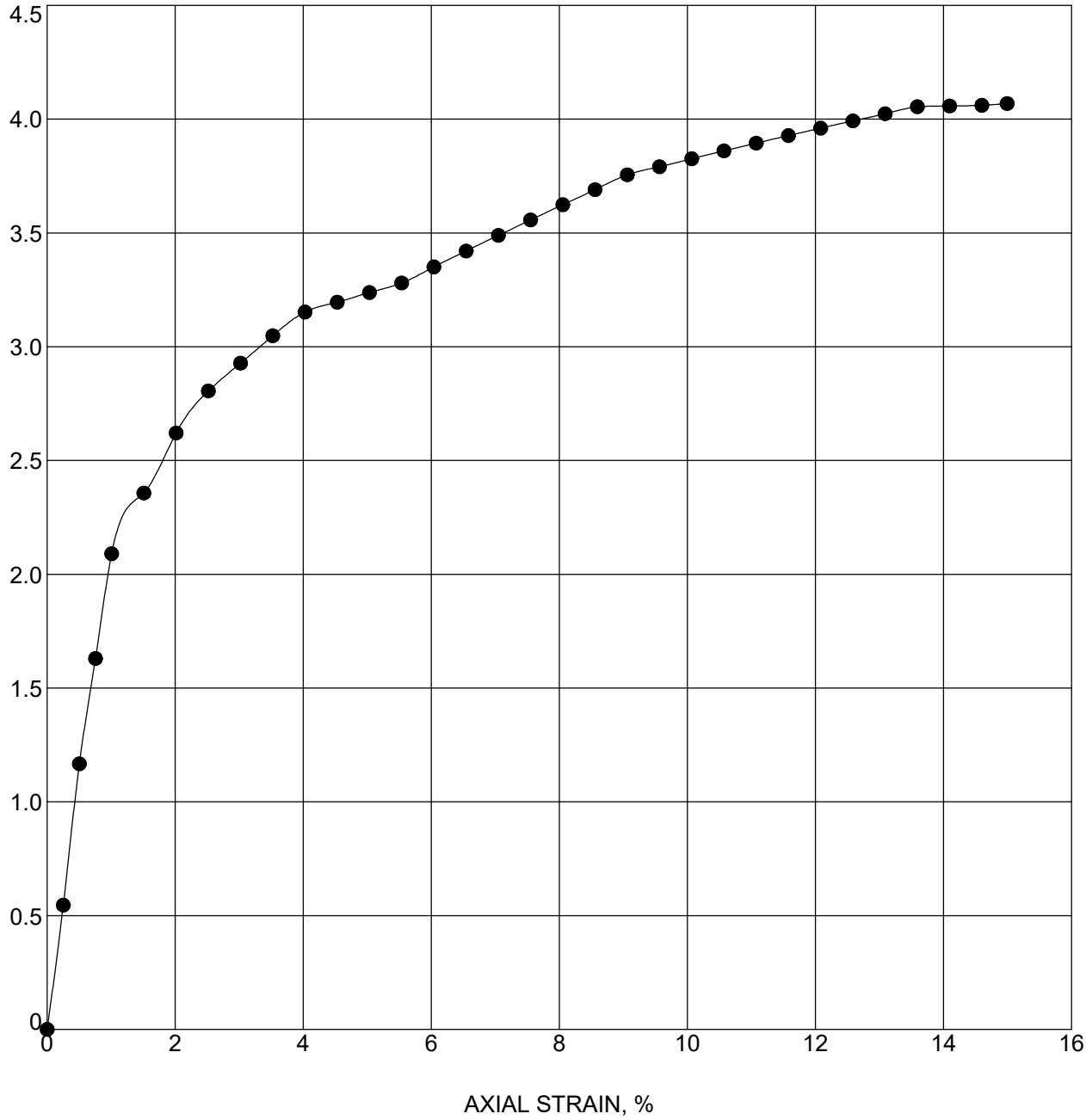
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 26.6
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDEO-2	SS-4B	9 - 10	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.9	131.9	110.0	4.07	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.03	100	0.543	34.49	70.64	2.0

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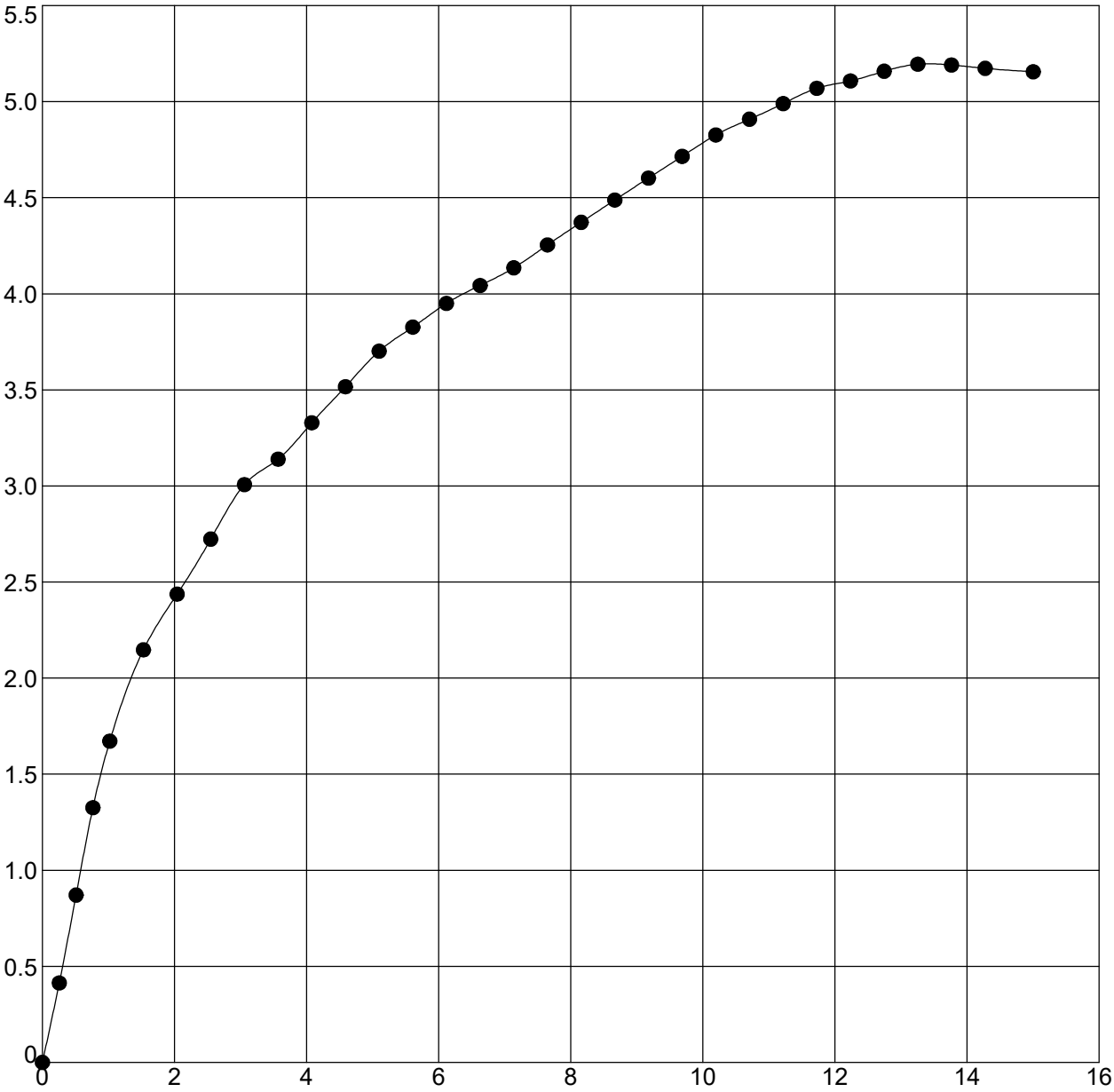
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 26.6
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDEO-2	SS-7T	16.2 - 17.7	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.2	130.5	107.7	5.19	1.0	13.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.60	100	0.576	34.81	69.75	2.0

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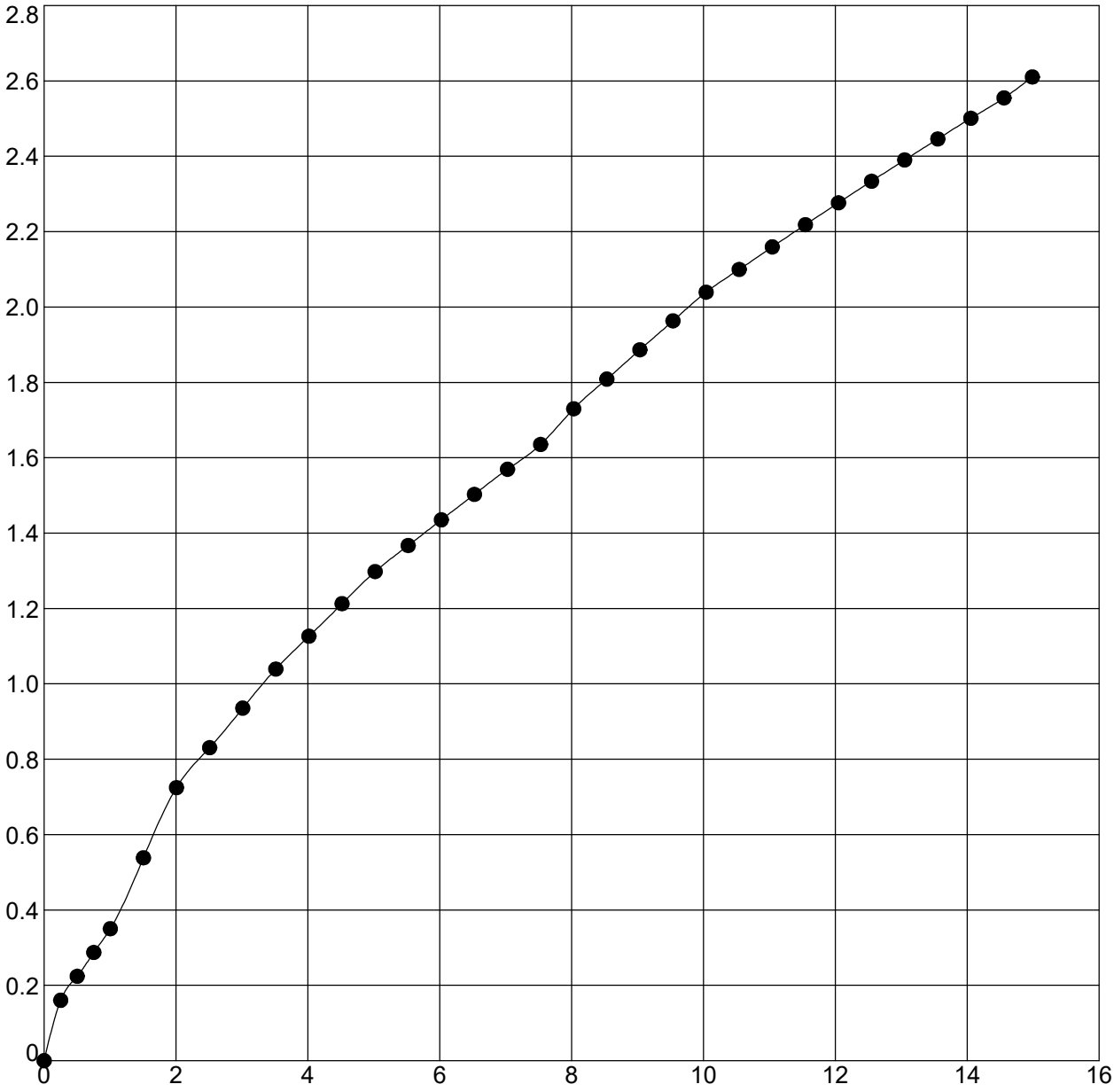
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 26.6
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDEO-2	SS-9B	21.2 - 22.7	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.8	133.5	112.5	2.61	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.31	100	0.509	34.02	70.84	2.1

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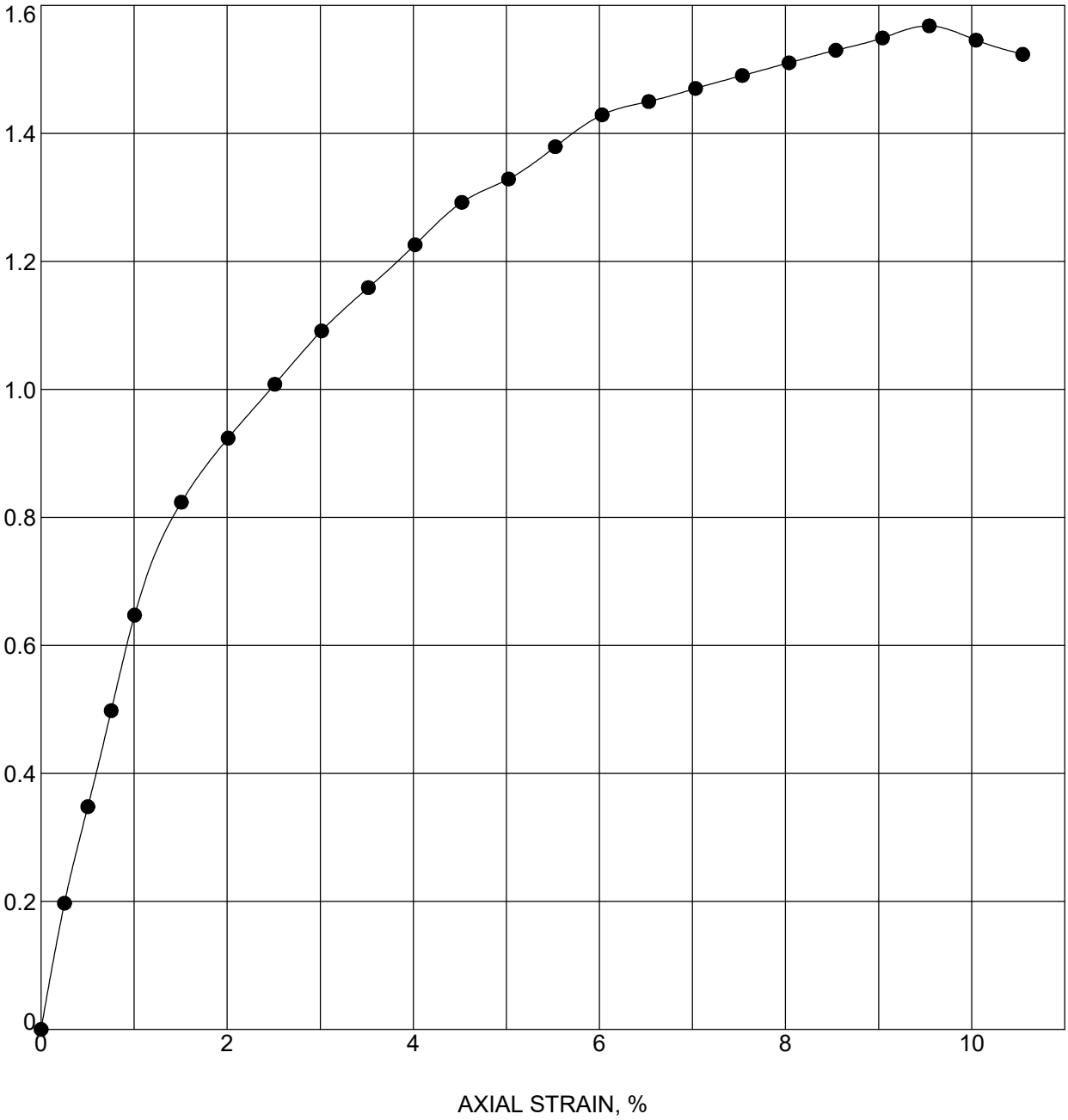
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 26.6
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDEO-3	SS-2	3.5 - 5	CLAY LOAM A-6 (7)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.1	126.1	103.3	1.57	1.0	9.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.78	91	0.667	34.98	70.79	2.0

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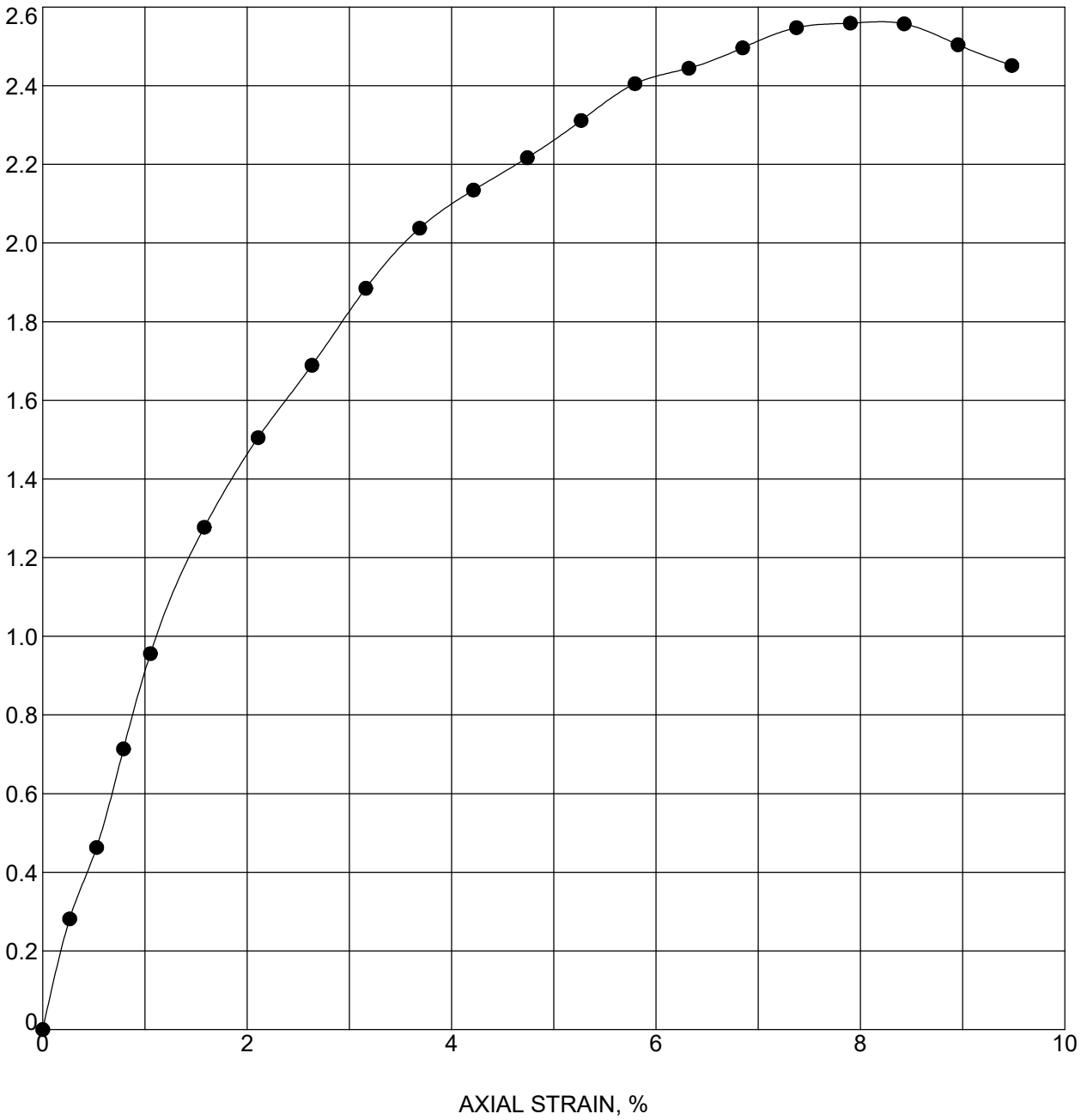
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 27.1
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-1	SS-3T	6 - 7.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.7	127.5	107.4	2.56	1.1	7.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.28	88	0.581	36.32	67.51	1.9

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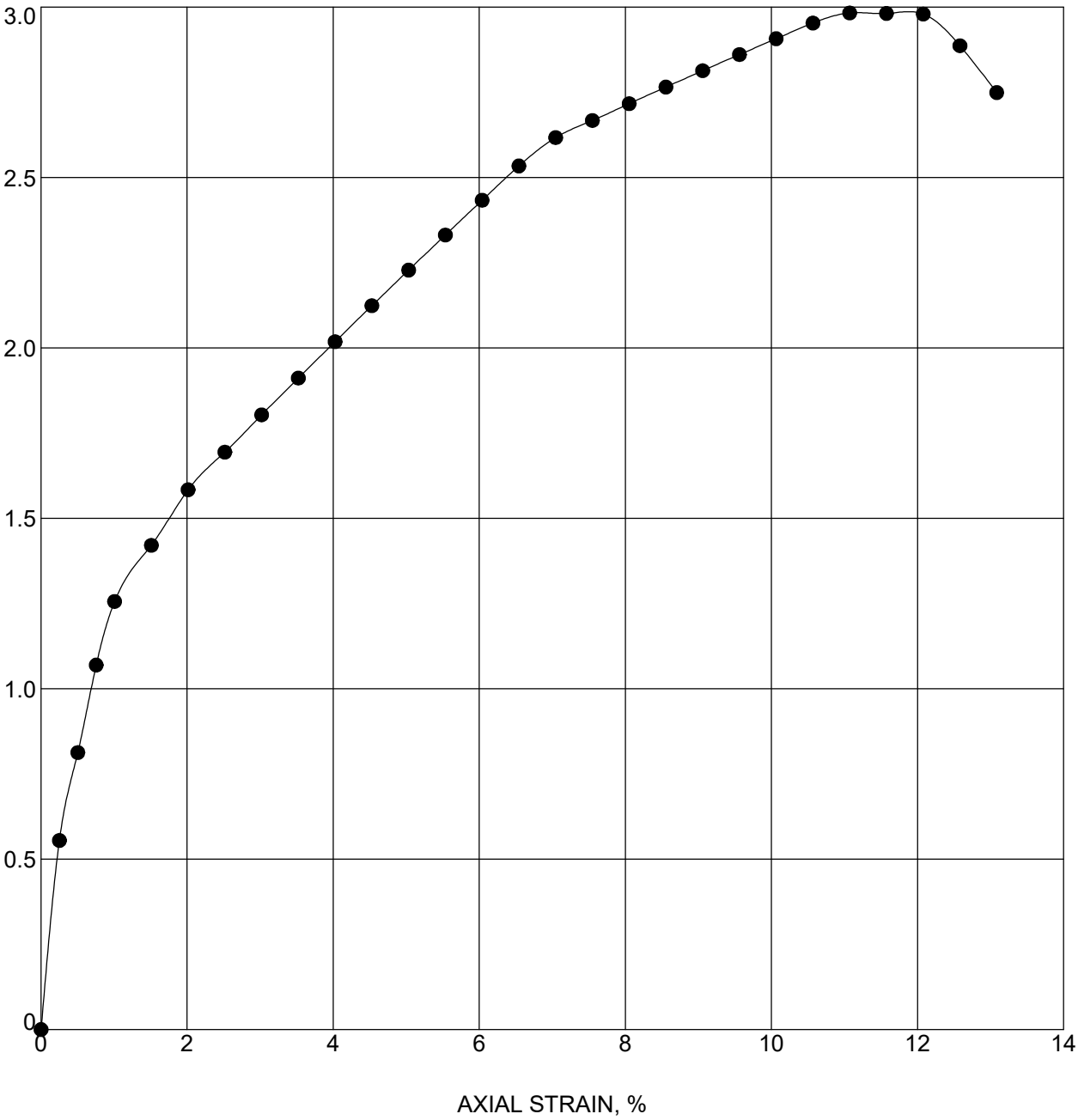
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 19.1
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-2	SS-3	6.5 - 7	CLAY A-7-6 (21)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	126.7	104.6	2.98	1.0	11.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.49	88	0.671	32.72	70.66	2.2

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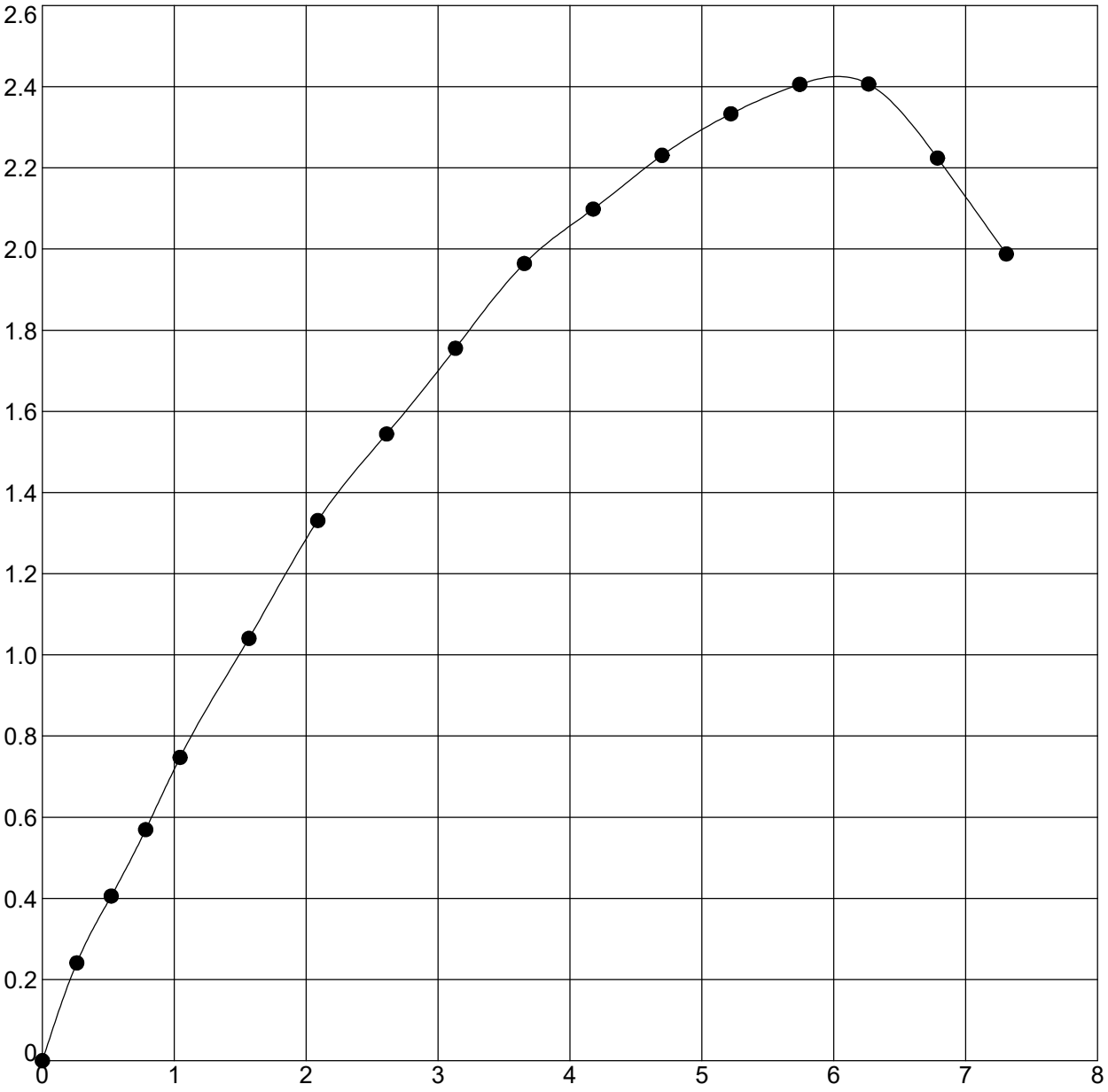
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 19.5
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-2	SS-6	14 - 15	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.1	126.6	103.6	2.41	1.0	6.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.20	90	0.686	35.1	68.12	1.9

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UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 19.5
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

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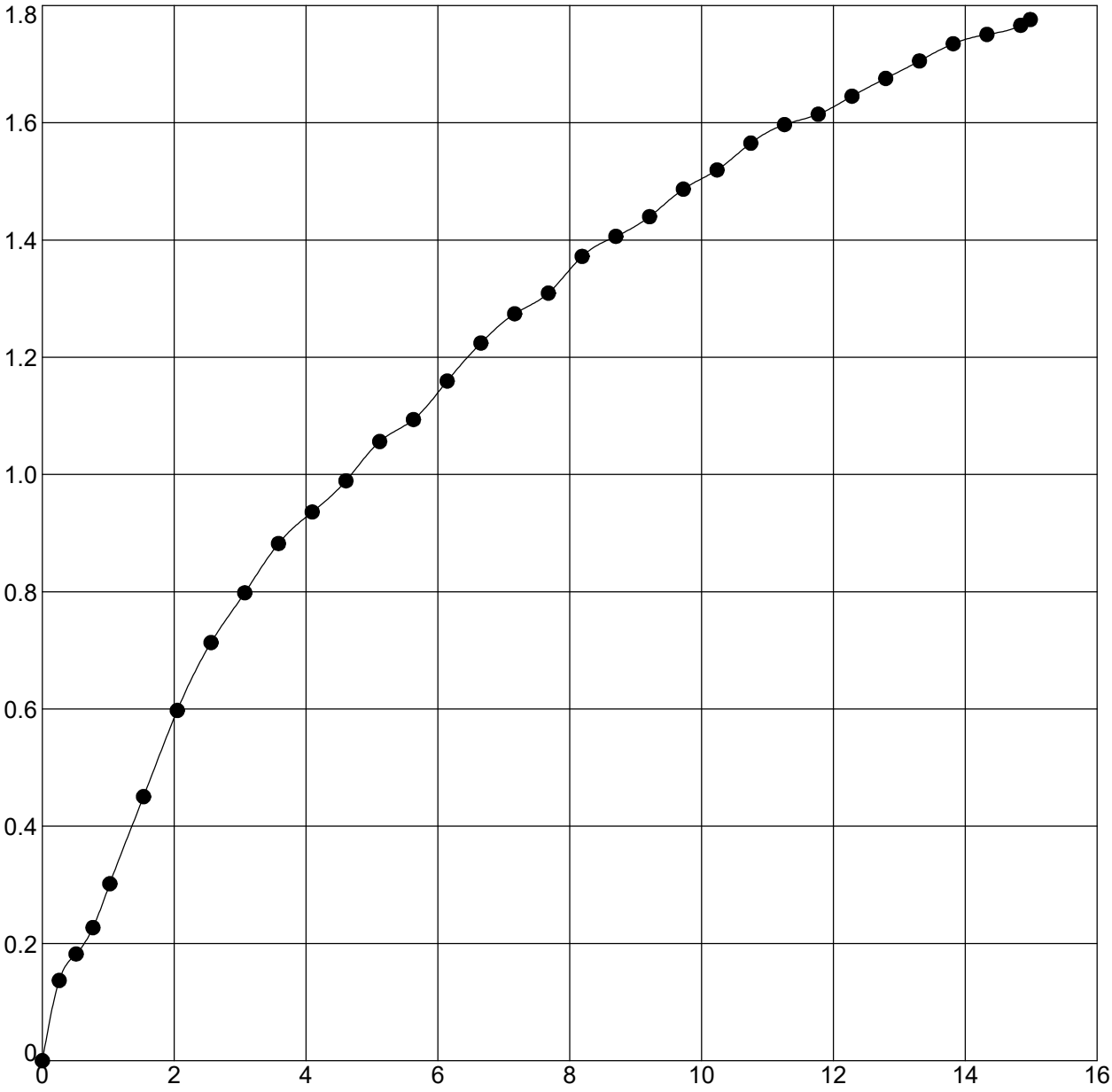

Boring	Sample	Depth	Classification
IGDO-3	SS-3	6.5 - 7	SILTY CLAY A-6 (14)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.3	129.8	108.8	1.78	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.89	94	0.561	34.93	69.49	2.0

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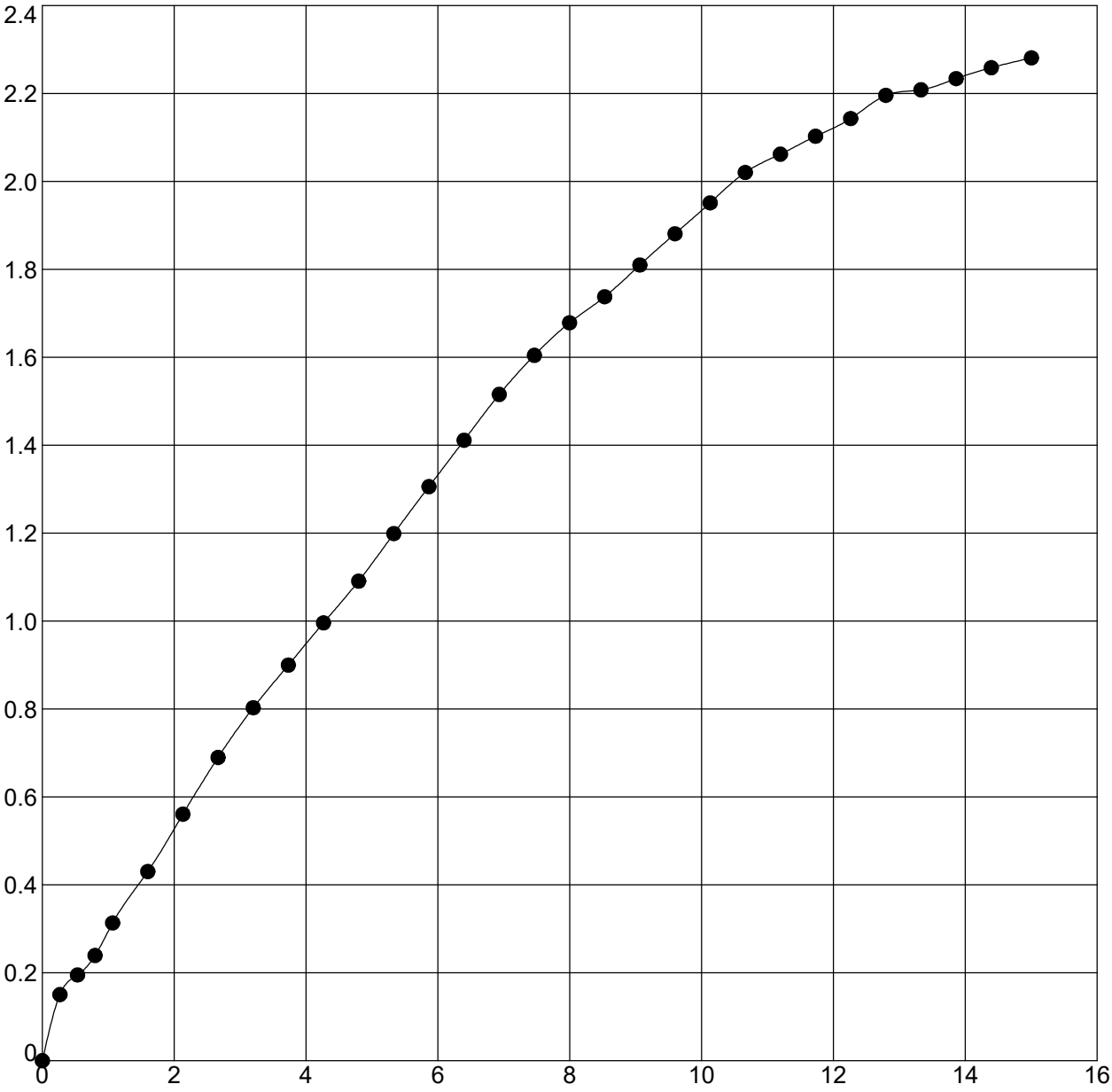
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 29.1
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-3	SS-4T	8.5 - 10	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.1	128.5	104.4	2.28	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.14	100	0.626	35.13	66.7	1.9

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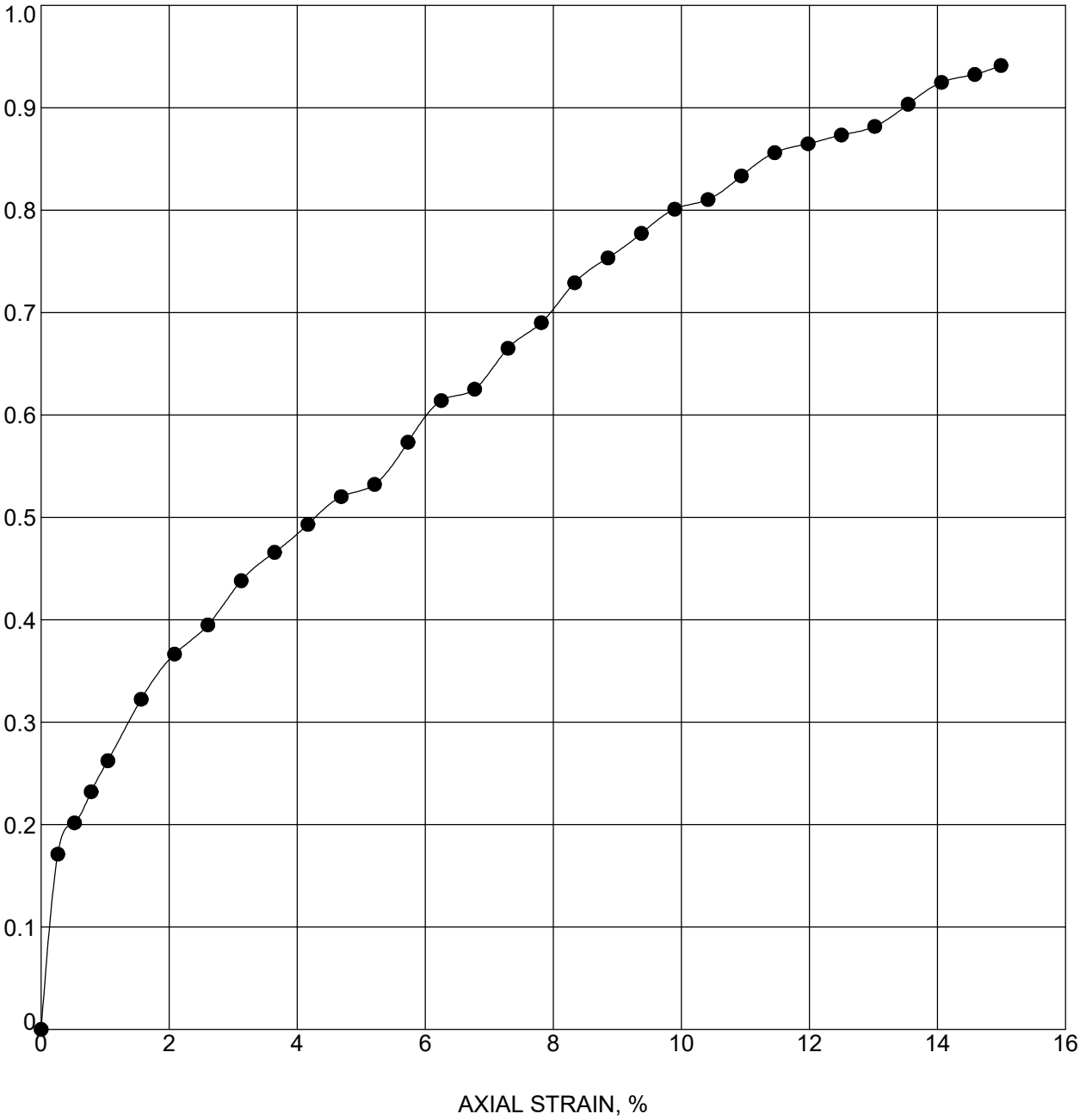
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: MM 29.1
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-3	SS-5	11.5 - 12.5	CLAY LOAM A-6 (9)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.4	129.6	106.8	0.94	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.47	99	0.583	34.54	68.28	2.0

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UNCONFINED COMPRESSION TEST

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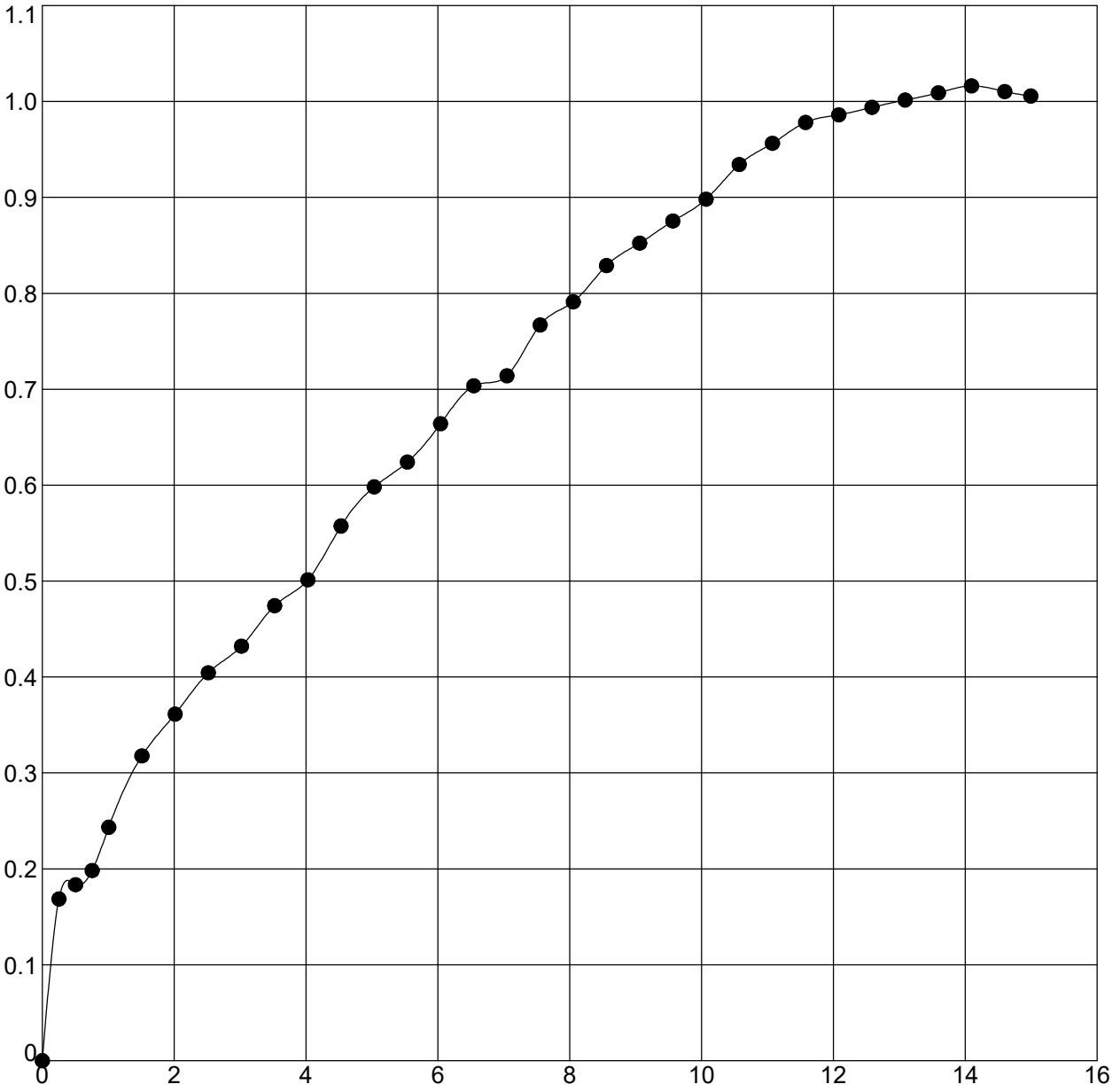
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22



Boring	Sample	Depth	Classification
IGDO-3	SS-8T	18.5 - 20	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.1	130.8	108.9	1.02	1.0	14.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.51	98	0.559	34.8	70.64	2.0

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UNCONFINED COMPRESSION TEST

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County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO 1700135.GPJ IN_DOT1.GDT 5/24/22

April 21, 2023

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Addendum 1 – Signs Task
I-65 over Caney Fork
I-65 Added Travel Lanes
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

Based on our correspondence with ASI, we understand that the planned locations of three cantilever signs (IGDEO-01, 02, and 03) each moved about 900 ft south since our Signs Task Geo Letter dated July 11, 2022 (Signs Geo Letter) was approved.

[redacted]

Refer to our Signs Geo Letter for drilled shaft construction considerations regarding granular soils and perched groundwater.

Sincerely,
TERRACON CONSULTANTS, INC.

[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Michael S. Wigger, P.E.
Principal

July 14, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Noise Barrier Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des No.: 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

This letter is being provided to support your efforts to continue with the design of the ground-mounted noise barrier planned as part of the referenced project. Based on review of the wall callouts provided on the Stage 2 Plans and our correspondence with American Structurepoint, Inc. (ASI), the approximately 1,400-ft long barrier is located along the northbound lanes of I-65 from about Sta. 504+45 to 518+49, Line "PR-Q." Refer to the attached Exploratory Location Plan (Drawing No. CJ195480.B85).

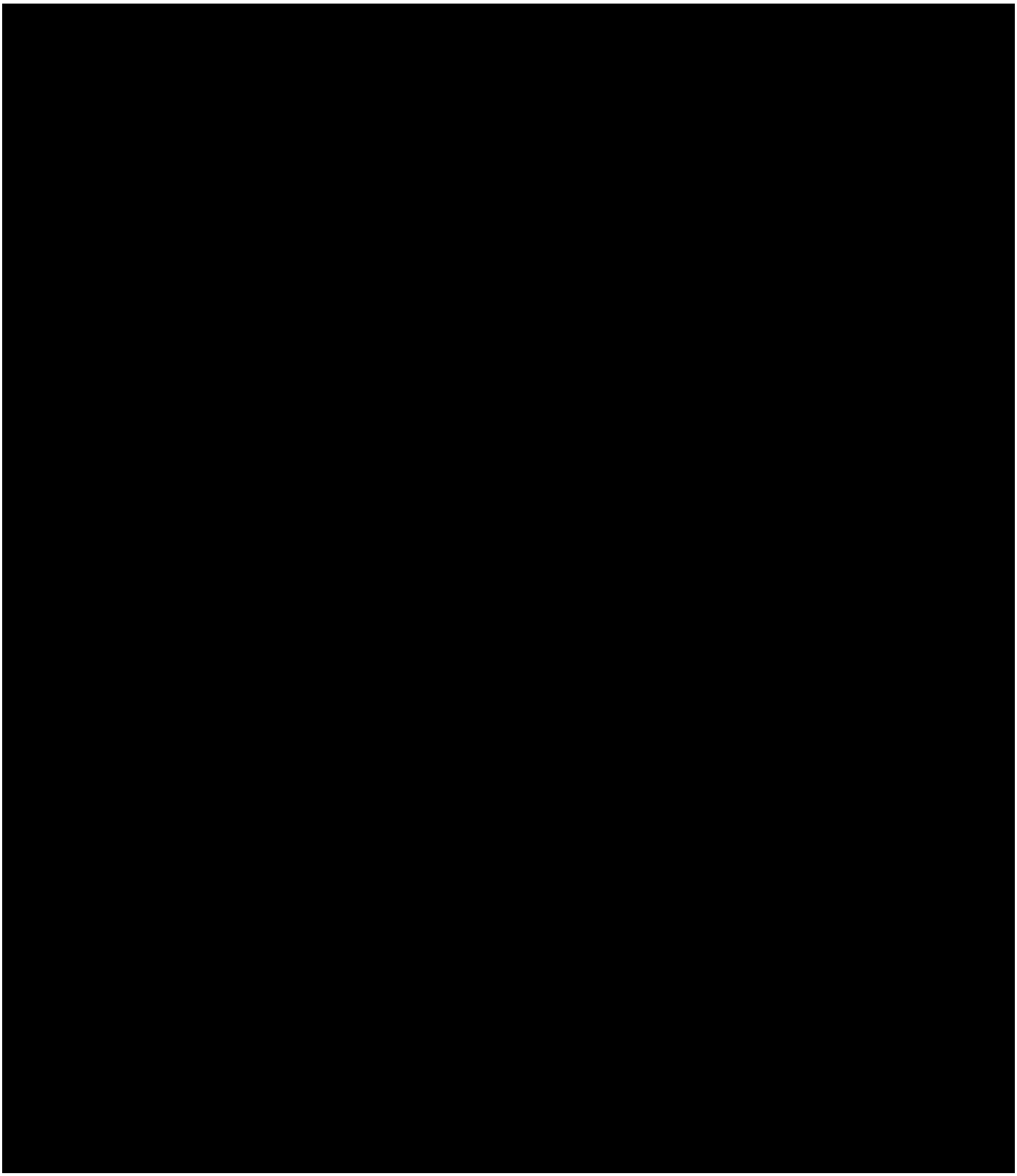
Design and construction of the foundations will be accordance with RSP 620-R-483. The design of the barrier foundations typically consists of the direct-embed of wide-flange steel sections into concrete-filled shafts. The design of the foundations is prescribed to be determined using a soil-structure interaction model. The barrier is located on an existing slope as steep as 3H:1V on the west side of a drainage ditch. Slope effects will need to be accounted for in design of the foundations.

Subsurface Conditions

Cohesive soils typically consisting of A-6 and A-4 clay loam and A-6 clay were observed at the boring locations. A-4 sandy loam was also present at Boring NB-1. Weathered shale likely part of the Borden Group was present at the boring locations near depths ranging from about 9 to 16 ft (El. 526 to 536) and was described as very soft in terms of rock hardness. Harder rock consisting of shale with some layers of limestone (likely Rockford Limestone, where present, over New Albany Shale) was present below the weathered shale at Borings NB-1 through NB-3 near depths ranging from about 10 to 15 ft (El. 522 to 530). Groundwater levels as shallow as 2 ft below existing ground surface were observed about '24 hours' after drilling. In our opinion, these groundwater levels are indicative of perched conditions. Detailed descriptions of the subsurface conditions are shown on the attached boring logs.

Geotechnical Analysis

[redacted]



Attachment 11-7

[redacted]

Concluding Remarks

As mentioned, this letter is being provided to support your efforts to continue with the design of the ground-mounted sound barrier while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,

TERRACON CONSULTANTS, INC.

[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

[redacted]

Michael S. Wigger, P.E.
Principal

Attachments –

Important Information About This Geotechnical Engineering Report
Field Methods for Exploring and Sampling Soils and Rock
Exploratory Location Plan (Drawing No. CJ195480.B85)
Log of Test Boring - General Notes
Log of Test Boring (5)
Rock Core Photographs
Grain Size Distribution Test Report
Unconfined Compression Test (7)
Factored Skin Resistance

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251), continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Standard Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206)

This method consists of driving a 2-in. outside diameter split-barrel sampler using a 140-lb weight falling freely through a distance of 30 in. The sampler is first seated 6 in. into the material to be sampled and then driven 12 in. The number of blows required to drive the sampler the final 12 in. is recorded on the Log of Test Boring and known as the Standard Penetration Resistance or N-value. Recovered samples are first classified as to texture by the field personnel. Later in the laboratory, the field classification is reviewed by a geotechnical engineer or a qualified person under their direction who observes each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207)

This method consists of hydraulically pushing a 2-in. or 3-in. outside diameter thin wall tube into the soil, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(ASTM Designation: D1452)

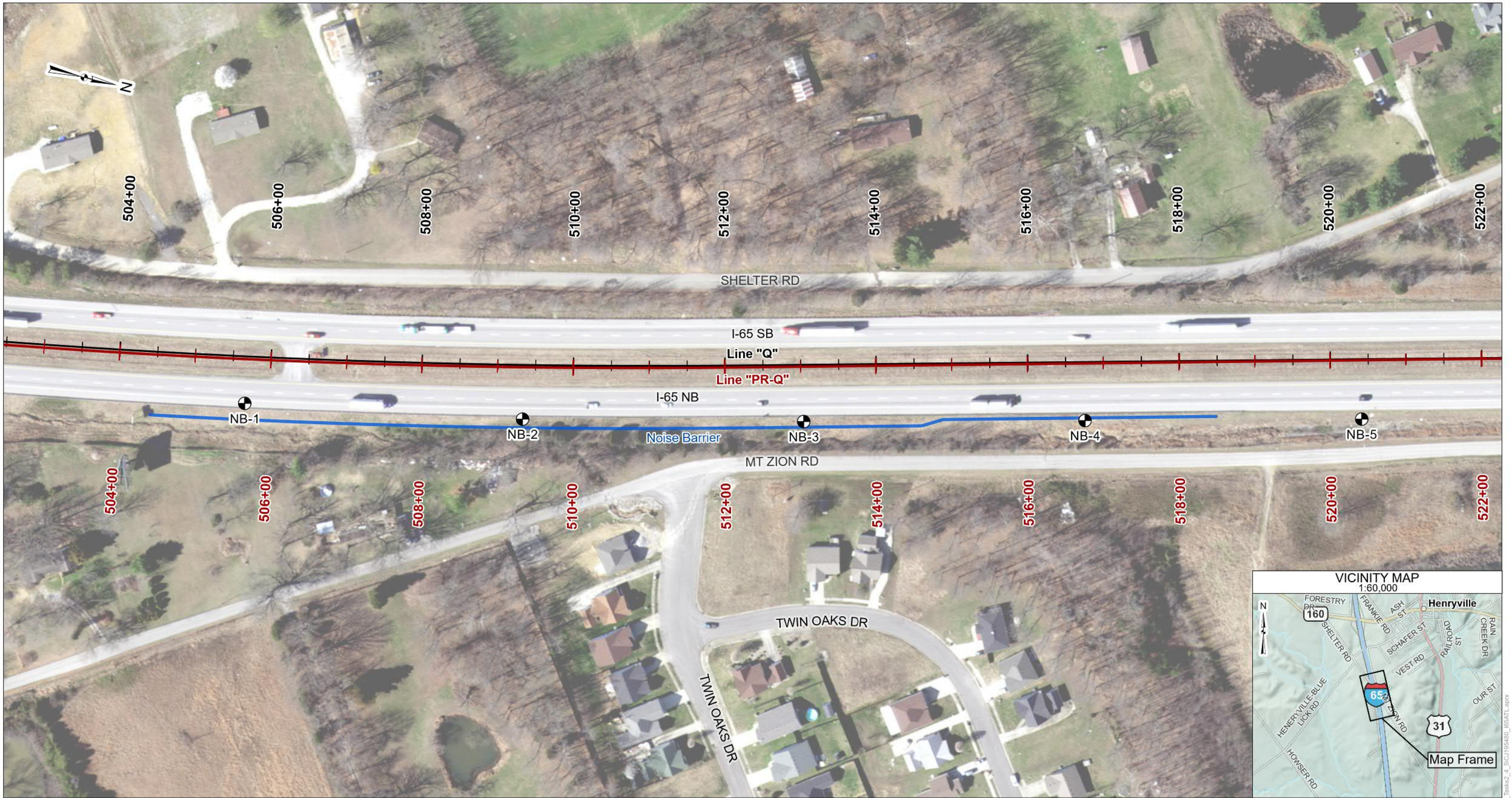
This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-ft intervals or with each change in the substrata. Relatively disturbed samples are obtained, and its use is therefore limited to situations where it is satisfactory to determine the approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225)

This method consists of advancing a hole in rock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-in. outside diameter by 2-in. inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.
** American Society for Testing and Materials



VICINITY MAP
1:60,000

LEGEND

- Test Boring Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Noise Barrier
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
PROJECT NO.:	CJ195480
SCALE:	1" : 120'

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	06/01/2022
DRAWING NO.:	CJ195480.B85

Terracon

Attachment 11-7

C:\GIS\Projects\CJ195480_I65ATL\master\Maps\I65ATL_Tasks2_4_5\CJ195480_I65ATL.aprx

LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Coarse	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“N Value”
Very soft	0 - 3
Soft	4 - 5
Medium	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

LOG OF TEST BORING

BORING NO.: **NB-1**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes: Noise Barrier
LOCATION : I-65 near Henryville
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.52964
LONGITUDE : -85.77428
DATUM : WGS 84
DATE STARTED : 04-06-22
DATE COMPLETED : 04-06-22

ELEVATION	: 537.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 505+68	RIG TYPE	: D-50 Track	DRILLER/INSP	: J.S.
OFFSET	: 58.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 48 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 25.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 3.5 ft ▩ Caved in at 13.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (gravel) 1.3											
535.0	2.5		SS 1	3-2-3	56	22.9 20.0		0.75 1.5					
	5.0	**Clay Loam**, soft to medium stiff, moist, gray, with clay seam near 7 ft, A-6, Lab No. 33230	SS 2	3-4-5	44	22.8 16.9		0.75 2.5					
530.0	7.5	8.0	SS 3	3-3-5	89	19.6		2.75					
	10.0	**Sandy Loam**, soft, moist, gray, with sand seam near 9 ft, A-4(0), Lab No. 33302 11.0	SS 4	3-1-3	67	13.6		0.5		17	13	4	8.5, pH = 6.6, SG = 2.72
525.0	12.5	**Weathered Shale**, very soft, black	SS 5	32-50/5	37	4.6							11.0, LOI = 25 percent
	15.0	15.0	SS 6	36-50/5	46								
520.0	17.5	**Shale**, hard, black to dark gray below 16.5 ft, very low bedding planes, with pyrite nodules below 16 ft, high-angle fractures near 21.5 ft, 23.5 ft and 24.5 ft	RC 1 RQD= 93%		100				598				
515.0	20.0 22.5		RC 2 RQD= 100%		100								
	25.0	25.0											
510.0	27.5	Bottom of Boring at 25.0 ft Auger refusal near 15 ft											
505.0	30.0 32.5												
	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

Attachment 11-7

LOG OF TEST BORING

BORING NO.: **NB-2**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes: Noise Barrier
LOCATION : I-65 near Henryville
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53063
LONGITUDE : -85.77451
DATUM : WGS 84
DATE STARTED : 03-01-22
DATE COMPLETED : 03-01-22

ELEVATION : 540.0
STATION : 509+34
OFFSET : 68.0 ft Right
LINE : 'PR-Q'
DEPTH : 20.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 52 °F
WEATHER : Sunny

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 3.0 ft After 24 hrs ▩ Caved in at 8.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	5-5-6	94	17.6 17.3		4.0 4.0					
535.0	5.0	**Clay Loam**, soft to hard, moist, brown to gray near 9.5 ft, with weathered shale framents near 9.5 ft, A-6(8), Lab No. 33230	SS 2	3-2-2	67	19.0 19.5		2.0 1.25					
	7.5		SS 3	2-3-5	78	18.8 18.5	112.6	2.0	2.38	32	18	14	6.0, SS-3 : pH = 6.2, SG = 2.81
530.0	10.0	10.0	SS 4	1-3-50/2	69	22.5 18.4	105.3	2.25	1.04				
		Shale, very soft, black, low bedding planes, weathered to 10.5 ft 11.0											
	12.5	**Limestone**, hard, gray, dolomitic, horizontally fractured near 12.3 ft and 12.8 ft 13.0	RC 1 RQD= 67%		100				761				
525.0	15.0								242				
	17.5	**Shale**, soft to hard, black, low bedding planes	RC 2 RQD= 98%		100								
520.0	20.0	20.0											
		Bottom of Boring at 20.0 ft											
	22.5	Auger refusal near 10 ft											
515.0	25.0												
	27.5												
510.0	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

LOG OF TEST BORING

BORING NO.: **NB-3**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes: Noise Barrier
LOCATION : I-65 near Henryville
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53162
LONGITUDE : -85.77480
DATUM : WGS 84
DATE STARTED : 03-01-22
DATE COMPLETED : 03-01-22

ELEVATION : 543.0
STATION : 513+04
OFFSET : 72.0 ft Right
LINE : 'PR-Q'
DEPTH : 20.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 46 °F
WEATHER : Overcast

GROUNDWATER: ▽ Encountered at NW ▼ At completion 5.0 ft ▼ 3.5 ft After 24 hrs ▨ Caved in at 6.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
540.0	2.5	**Clay Loam**, medium stiff, moist, brown and gray, with wood fragments near 2 ft and 4.5 ft, with silty loam seams near 2.5 ft and 5 ft, A-6, Lab No. 33232	SS 1	3-4-4	56	17.0 20.1		2.0 1.5					
	5.0		SS 2	2-3-4	89	18.3		1.25 2.25					
		6.0											
535.0	7.5	**Clay**, medium stiff to very stiff, moist, brown to gray below 9.5 ft, with gravel seam near 9 ft, (residual below 9.5 ft), A-6(11), Lab No. 33231	SS 3	3-5-5	89	19.4		1.75		34	17	17	6.0, SS-3 : pH = 6.2, SG = 2.75
	10.0		SS 4	5-8-9	67	18.3		>4.5					
		11.0											
530.0	12.5	**Weathered Shale**, very soft, gray-brown	SS 5	12-18-27	89	11.9		>4.5					
			SS 6	50/3	67	18.1		>4.5					
	15.0												
		Limestone, hard, gray, dolomitic, with soft weathered shale seam near 15 ft 16.3							622				
525.0	17.5	**Shale**, hard, black, low bedding planes	RC 1 RQD= 82%		98				638				
	20.0	20.0											
		Bottom of Boring at 20.0 ft											
	22.5	Auger refusal near 15 ft											
520.0	25.0												
	27.5												
515.0	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

Attachment 11-7

LOG OF TEST BORING

BORING NO.: **NB-4**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes: Noise Barrier
LOCATION : I-65 near Henryville
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53262
LONGITUDE : -85.77511
DATUM : WGS 84
DATE STARTED : 02-28-22
DATE COMPLETED : 02-28-22

ELEVATION : 545.0
STATION : 516+75
OFFSET : 75.0 ft Right
LINE : 'PR-Q'
DEPTH : 24.2 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : D-50 Track
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.S.
TEMPERATURE : 50 °F
WEATHER : Sunny

GROUNDWATER: Encountered at NW At completion NW 11.0 ft After 24 hrs Caved in at 13.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3	SS 1	1-2-2	78	19.2 21.7	106.9	2.25 1.0	1.86				
	2.5												
540.0	5.0	**Clay Loam**, soft to very stiff, moist, brown, (residual below 8.5 ft), A-6(7), Lab No. 33232	SS 2	3-4-6	78	16.0		3.75 2.0		35	16	19	3.5, SS-2 : pH = 7.8, SG = 2.85
	7.5		SS 3	4-6-10	78	23.1		1.0					
		9.0	SS 4	6-10-15	56	18.3		>4.5					
535.0	10.0												
	12.5		SS 5	7-15-22	78	16.4		>4.5					
			SS 6	11-20-30	67	12.5		>4.5					
530.0	15.0	**Weathered Shale**, very soft, gray and brown to gray below 11 ft, with weathered limestone fragments near 19 ft	SS 7	16-23-30	78			>4.5					
	17.5		SS 8	24-50/4	31								
525.0	20.0												
			SS 9	26-50/4	94			>4.5					
	22.5												
		24.2	SS 10	31-50/2	83			>4.5					
520.0	25.0	Bottom of Boring at 24.2 ft											
	27.5												
515.0	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

LOG OF TEST BORING

BORING NO.: **NB-5**
SHEET 1 OF 1

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #:
PROJECT TYPE: Added Travel Lanes: Noise Barrier
LOCATION : I-65 near Henryville
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.53359
LONGITUDE : -85.77541
DATUM : WGS 84
DATE STARTED : 02-28-22
DATE COMPLETED : 02-28-22

ELEVATION	: 550.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 520+41	RIG TYPE	: D-50 Track	DRILLER/INSP	: J.S.
OFFSET	: 78.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 50 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 24.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 2.0 ft After 24 hrs ▩ Caved in at 11.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5		SS 1	2-3-4	56	18.6 21.3	104.0	1.0 1.5	1.12				
545.0	5.0	**Clay Loam**, medium stiff to stiff, moist, gray, with silty clay seam near 4.5 ft, A-4(3), Lab No. 33233	SS 2	3-4-7	78	20.2 24.6	106.5	2.0 2.0	1.49				
	7.5	8.0	SS 3	2-4-4	67	24.5	102.3	0.5	0.37	25	16	9	6.0, SS-3 : pH = 6.4, SG = 2.74
540.0	10.0	**Clay Loam**, stiff, hard below 11 ft, moist, reddish brown to gray and brown below 13 ft, with weathered shale fragments below 13 ft, (residual below 11 ft), A-6, Lab No. 33232	SS 4	3-4-7	78	25.3	100.8	3.0	1.75				
	12.5		SS 5	10-12-21	44	20.3 13.2		3.5					
535.0	15.0	16.0	SS 6	15-50/4	83	7.8							
	17.5		SS 7	20-50/5	93								
530.0	20.0	**Weathered Shale**, very soft, gray	SS 8	25-50/4	94								
	22.5		SS 9	31-50/2	95								
		24.3	SS 10	29-50/4	83								
525.0	25.0	Bottom of Boring at 24.3 ft											
	27.5												
520.0	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

I-65 Added Travel Lanes

ROCK CORE PHOTOGRAPHS

BORINGS:

NB-1, NB-2, and NB-3

Attachment 11-7



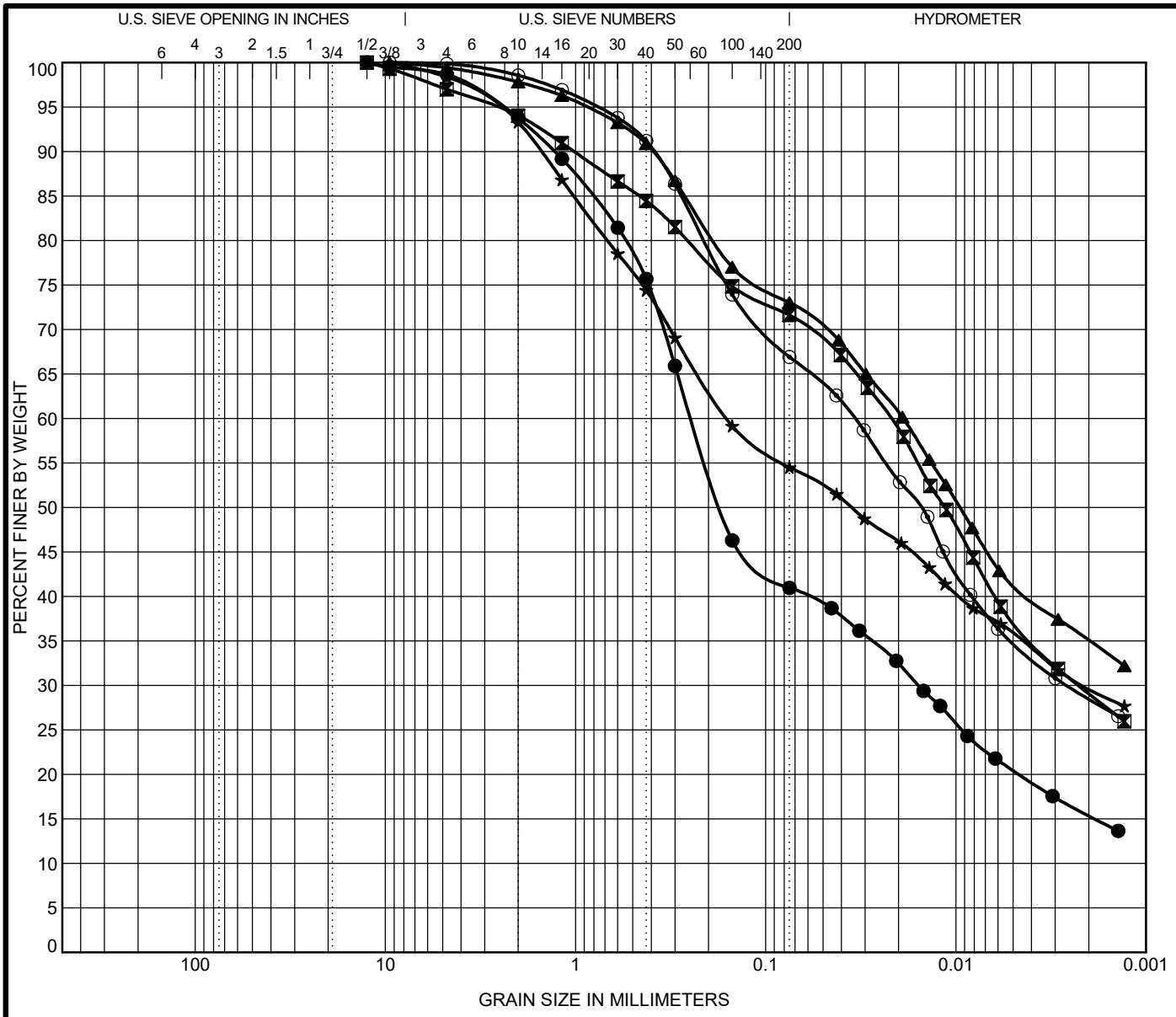
Project No. CJ195480, Boring No. NB-1, Rock Core No. RC-1&2, Depth: 15 – 25 ft



Project No. CJ195480, Boring No. NB-2, Rock Core No. RC-1&2, Depth: 10 – 20 ft



Project No. CJ195480, Boring No. NB-3, Rock Core No. RC-1, Depth: 15 – 20 ft



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
● NB-1	SS-4	8.5	33302	A-4 (0) SANDY LOAM	17.0	13.0	4.0		
⊠ NB-2	SS-3	6.5	33230	A-6 (8) CLAY LOAM	32.0	18.0	14.0		
▲ NB-3	SS-3	6.0	33231	A-6 (11) CLAY	34.0	17.0	17.0		
★ NB-4	SS-2	3.5	33232	A-6 (7) CLAY LOAM	35.0	16.0	19.0		
⊙ NB-5	SS-3	6.5	33233	A-4 (3) CLAY LOAM	25.0	16.0	9.0		

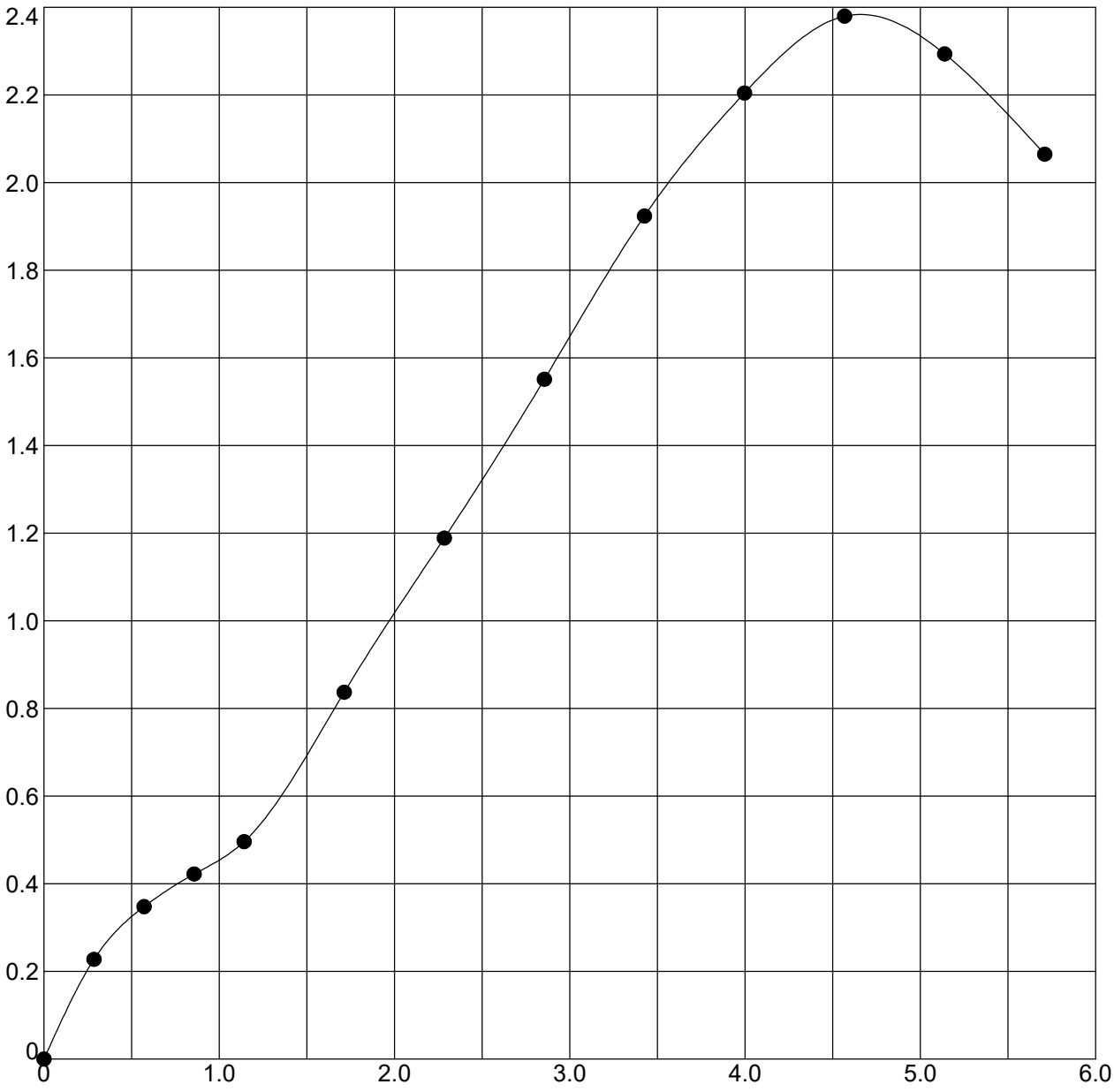
Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
● NB-1	SS-4	8.5	0.243	0.016			6.6	6.2	52.8	25.6	15.4	2.72
⊠ NB-2	SS-3	6.5	0.022	0.002			6.2	6.0	22.4	42.5	29.1	2.81
▲ NB-3	SS-3	6.0	0.019				6.2	2.2	24.8	38.0	35.0	2.75
★ NB-4	SS-2	3.5	0.159	0.002			7.8	6.7	38.8	24.6	29.8	2.85
⊙ NB-5	SS-3	6.5	0.034	0.003			6.4	1.4	31.6	38.4	28.5	2.74

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT GRAIN SIZE (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-2	SS-3	6.5 - 7.5	CLAY LOAM A-6 (8)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.5	133.4	112.6	2.38	1.0	4.6
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.19	93	0.557	34.98	62.28	1.8

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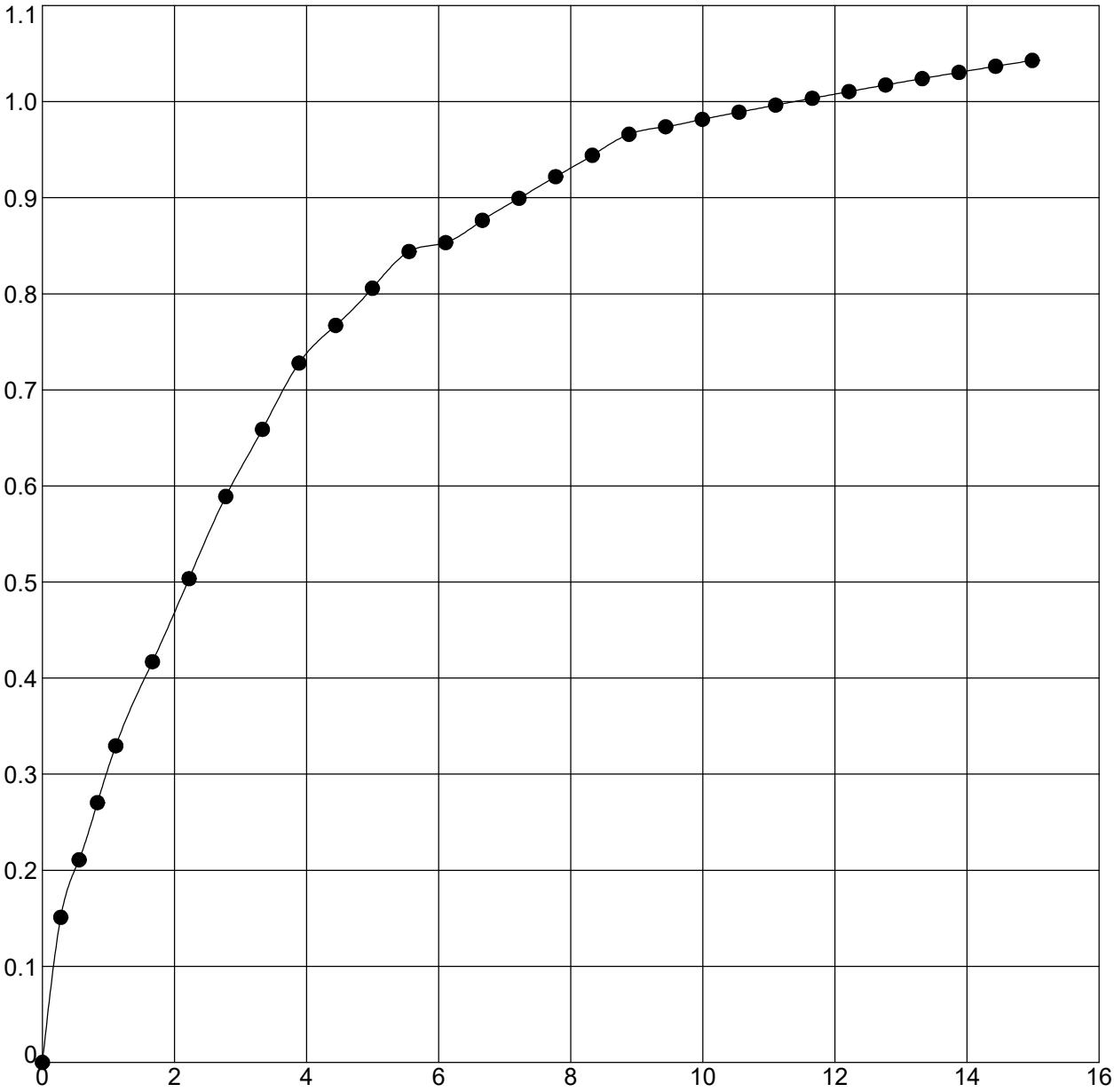
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-2	SS-4T	8.5 - 10	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.5	129.0	105.3	1.04	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.52	100	0.611	35.05	64.06	1.8

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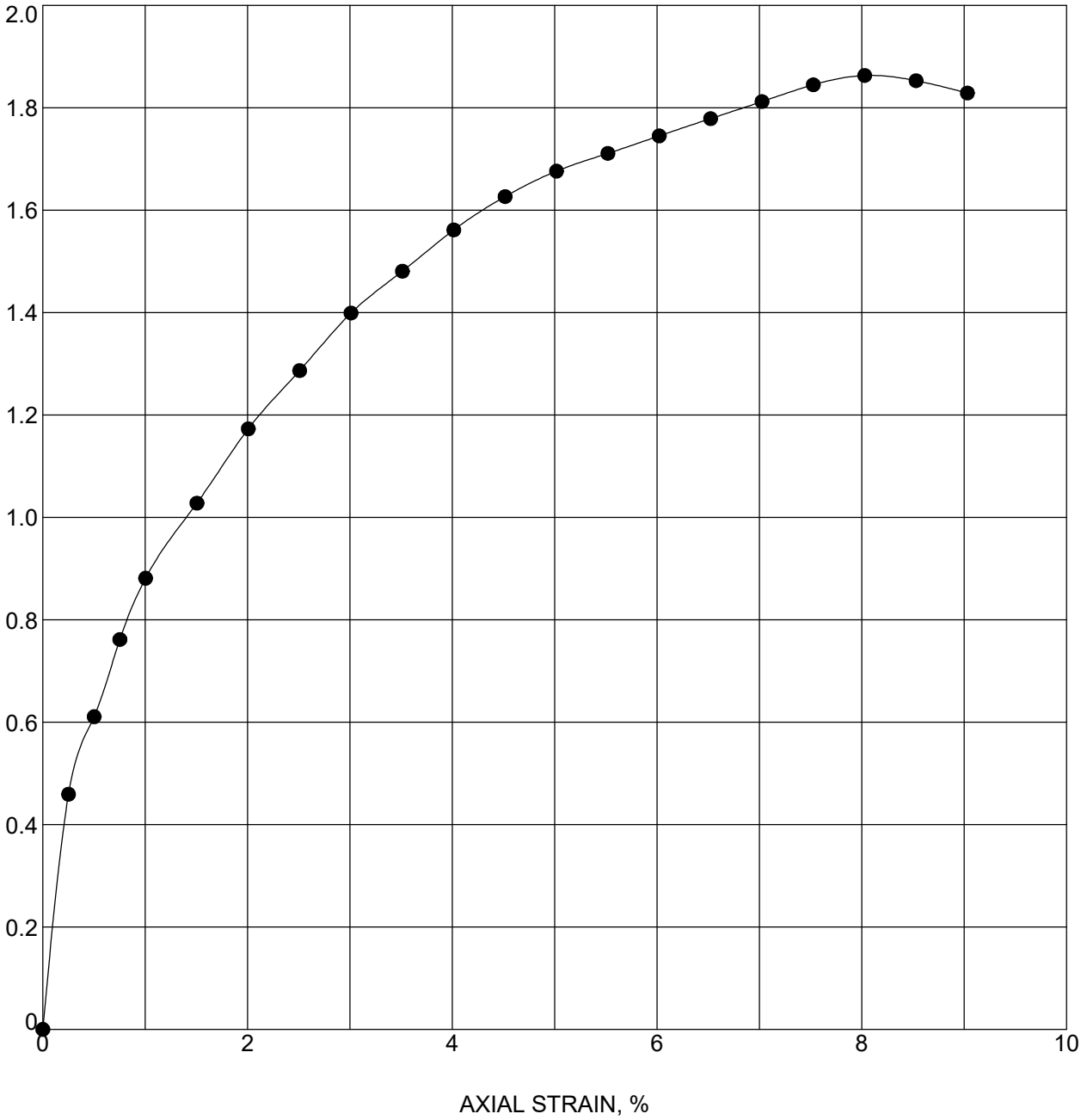
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-4	SS-1T	1 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.2	127.5	106.9	1.86	1.0	8.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.93	89	0.587	34.82	70.87	2.0

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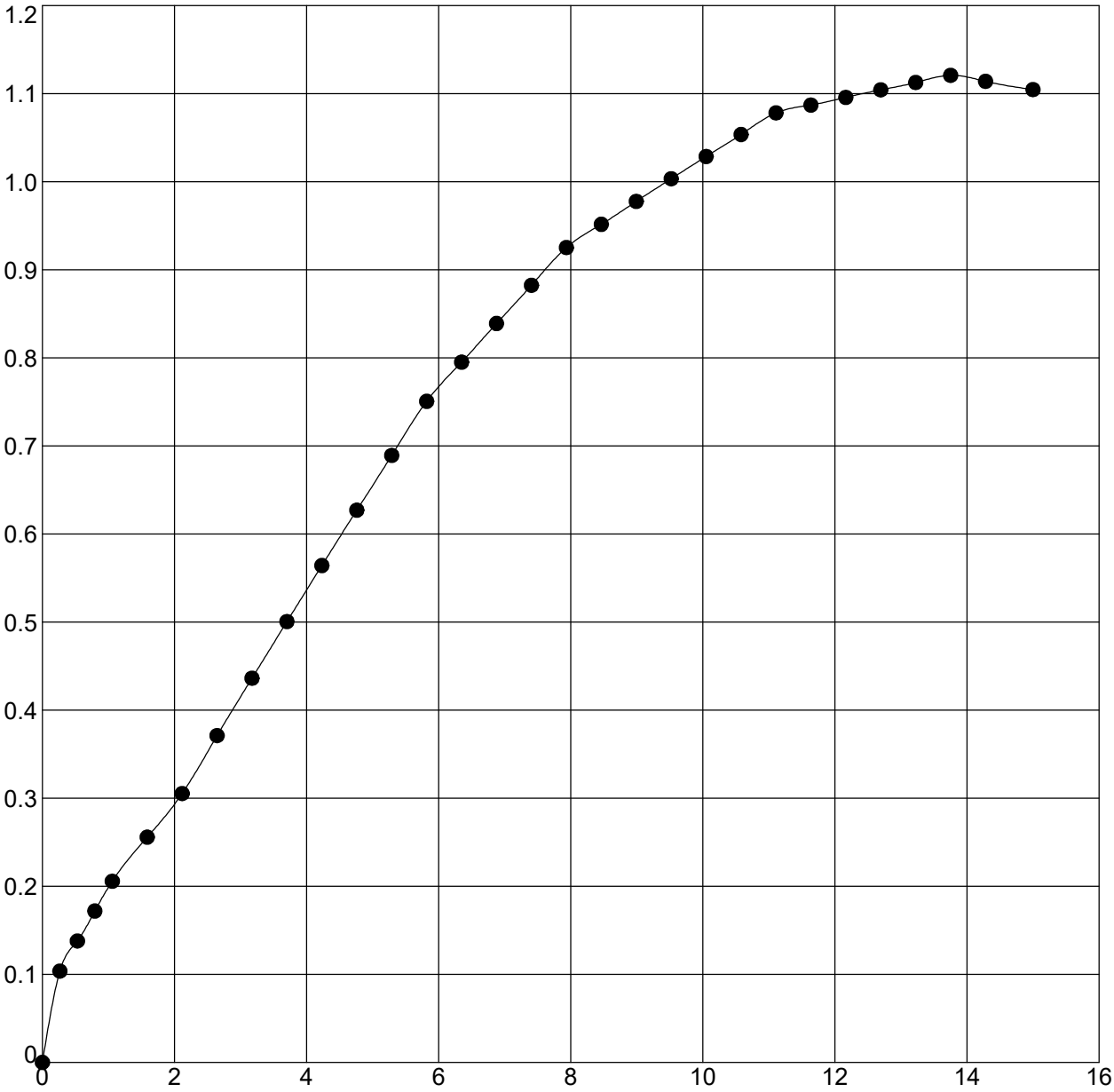
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-5	SS-1B	1.5 - 2.5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.3	126.2	104.0	1.12	1.0	13.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.56	92	0.631	32.77	67.23	2.1

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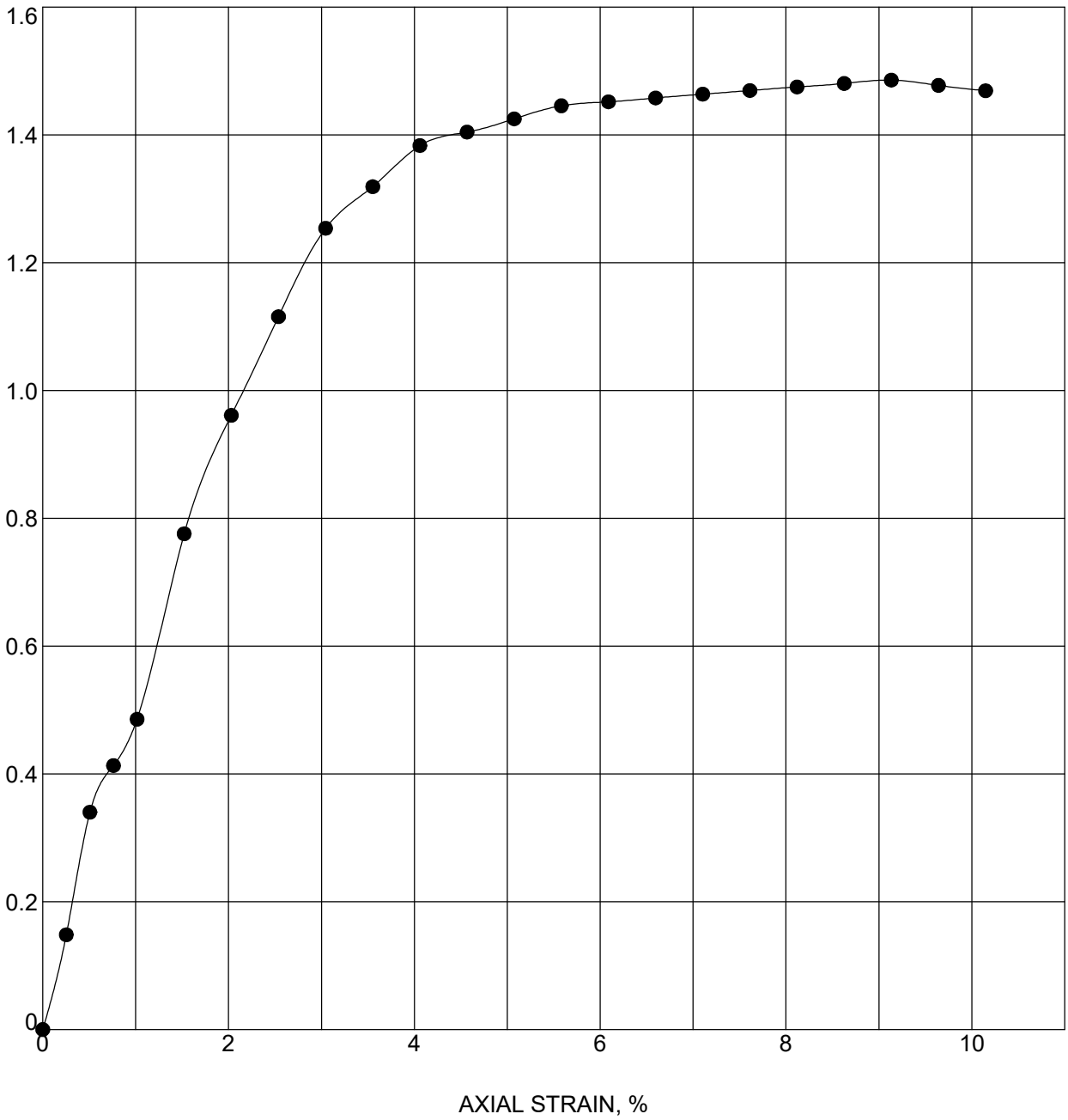
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-5	SS-2T	3.5 - 5	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.2	128.1	106.5	1.49	1.0	9.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.74	93	0.593	35.38	70.08	2.0

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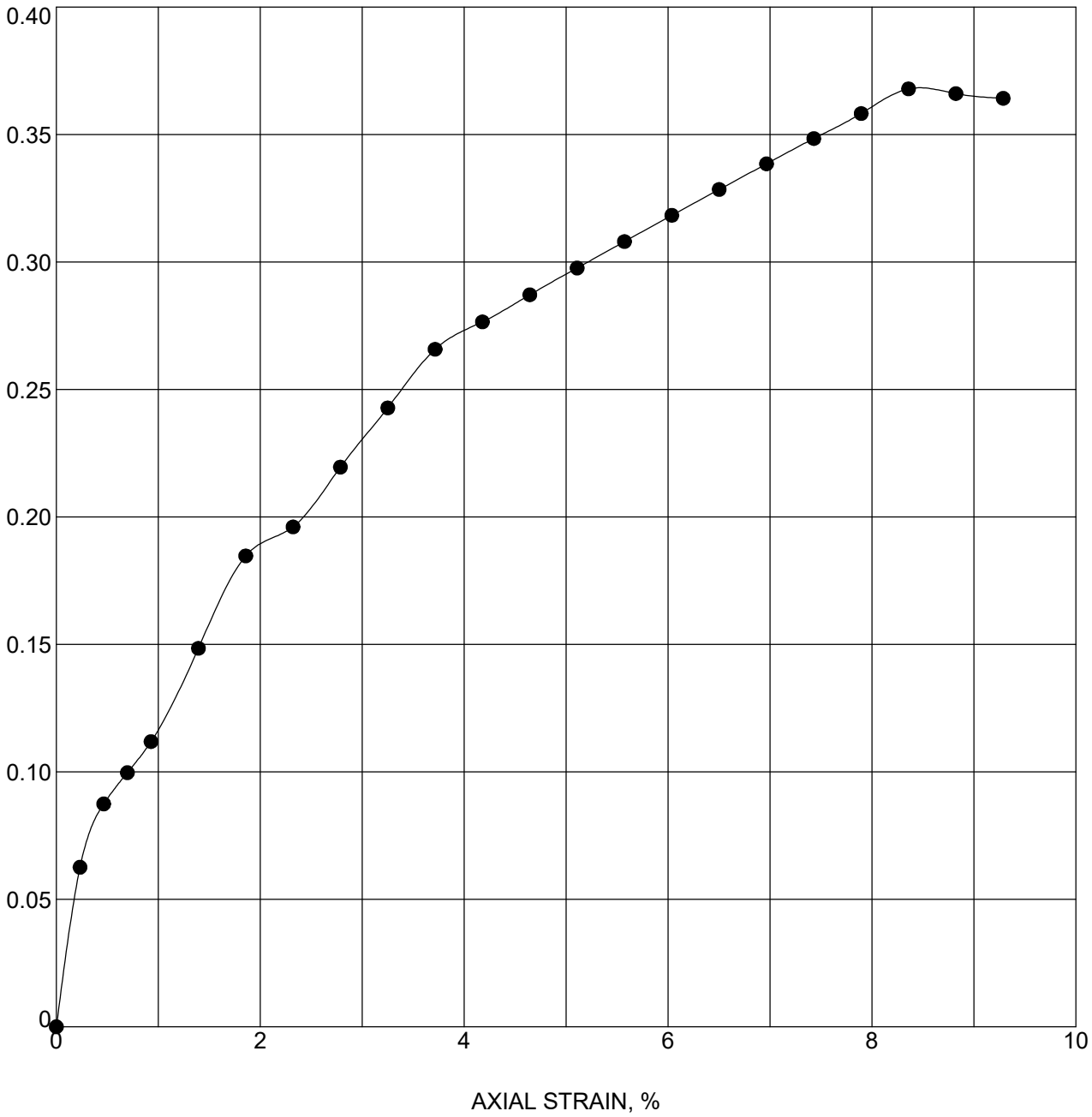
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-5	SS-3	6.5 - 7.5	CLAY LOAM A-4 (3)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
24.5	127.4	102.3	0.37	0.9	8.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.18	100	0.671	38.51	76.58	2.0

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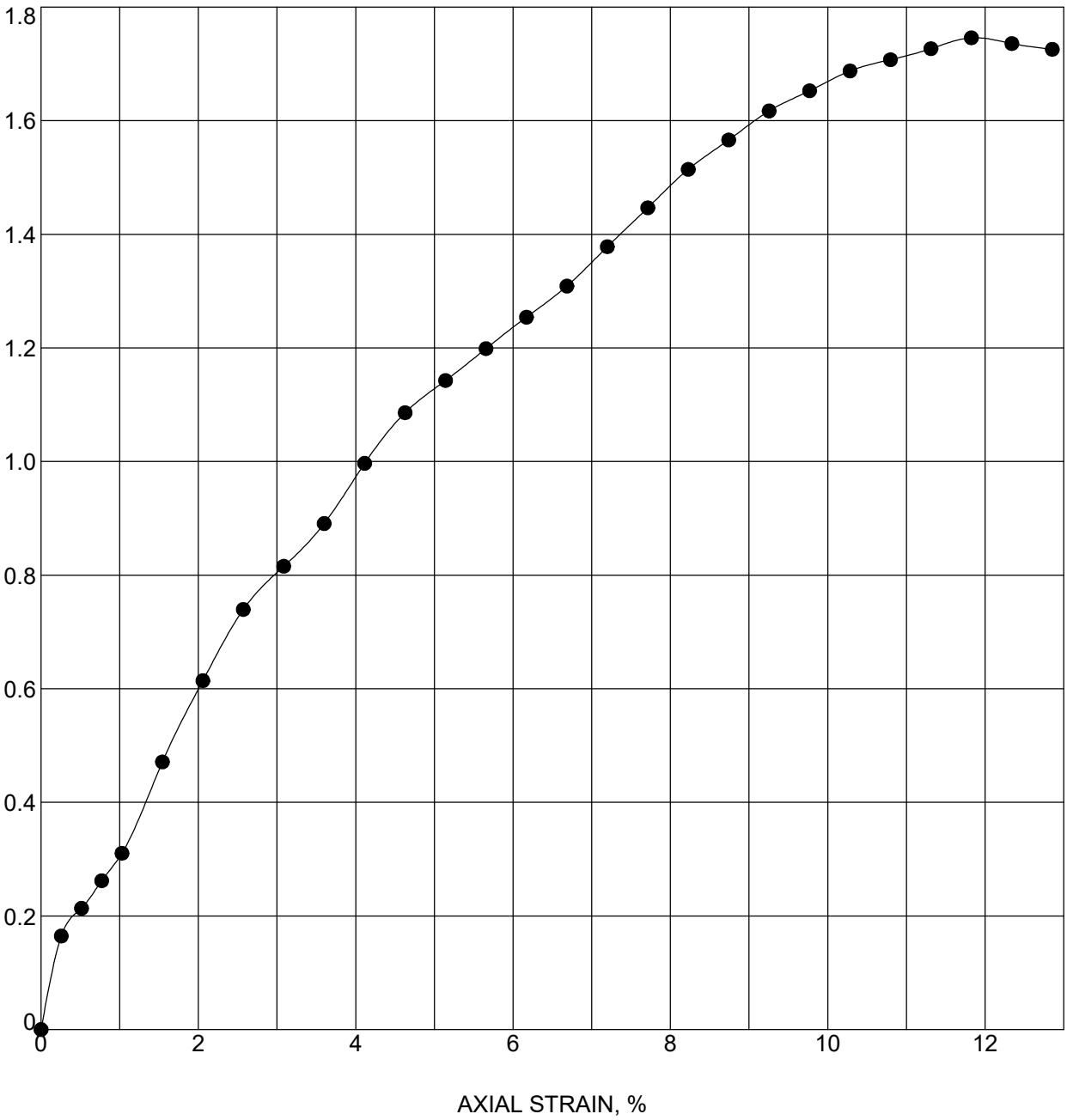
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22



Boring	Sample	Depth	Classification
NB-5	SS-4T	8.5 - 10	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
25.3	126.2	100.8	1.75	1.0	11.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.87	100	0.684	33.58	69.16	2.1

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UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark
Location: I-65 near Henryville

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 LANES - NOISE BARRIER.GPJ IN_DOT1.GDT 7/8/22

Project Name: I-65 Added Travel Lanes

Des No.: 1700135

Engineer: ZAB

Terracon

Noise Barrier

φqs in clay = **0.45**

φqs in rock = **0.55**

Joint modification factor, α_E: **1.00**

FACTORED SKIN RESISTANCE

Table Nos.	Soil Type	El. Interval (ft)	Length (ft)	Moist/Buoyant unit wt (pcf)	S_u (psf)	α	Rock qu (tsf)	$(\varphi qs)q_s$ (psf)
1	**Cohesive**	BOB - 526	7	**65**	**1000**	0.55		250
	Cohesive	526 - 522	4	**70**	**4000**	0.51		950
	Shale	522 - 512	10	**75**			598	18000
2	**Cohesive**	BOB - 529	7	**65**	**1500**	0.55		400
	Limestone	529 - 527	2	**75**			761	20300
	Shale	527 - 520	7	**70**			242	11500
3	**Cohesive**	BOB - 532	9	**65**	**2000**	0.55		500
	Cohesive	532 - 528	4	**70**	**4000**	0.51		950
	Shale	528 - 523	5	**75**			630	18500
4	**Cohesive**	BOB - 536	10	**125**	**1500**	0.55		400
	Cohesive	536 - 521	15	**70**	**4000**	0.51		950
5	**Cohesive**	BOB - 544	4	**65**	**1500**	0.55		400
	Cohesive	544 - 542	2	**65**	**500**	0.55		150
	Cohesive	542 - 534	8	**65**	**3000**	0.55		750
	Cohesive	534 - 526	8	**70**	**4000**	0.51		950

NOTES:

From Section 15.9, AASHTO LRFD Bridge Design Specifications, Ninth Edition, 2020

Weathered shale analysed as cohesive soil with undrained shear strength of 4,000 psf (conservative)

January 25, 2023

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: I-65 Added Travel Lanes
Sheet Pile Cutoff Wall
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

We are providing this letter to support the team's efforts to continue with the design for the sheet pile cutoff wall planned adjacent to the outside southbound shoulder north of the Biggs Road overpass. The wall is planned to begin near Sta. 412+67 and end near Sta. 416+25, Line "PR-Q". Refer to the attached Exploratory Location Plan (Drawing No. CJ195480.B95).

The surface and subsurface conditions at our boring locations are shown on the attached boring logs. The results of our laboratory testing program are also attached. Based on our correspondence with ASI and BLN, we understand that the purpose of the cutoff wall is to address concerns regarding scour from the base flood elevation in the adjacent ditch. Based on cross sections provided by BLN, the invert of the ditch beyond the planned cutoff wall is near El. 478 to 480. We understand that the cutoff wall will be designed considering a retained height to the ditch invert, which will result in a height of about 6 to 8 ft. We also understand that the cutoff wall will be structurally separate from the shoulder and moment slab.

[redacted]

[redacted]

Sincerely,
TERRACON CONSULTANTS, INC.

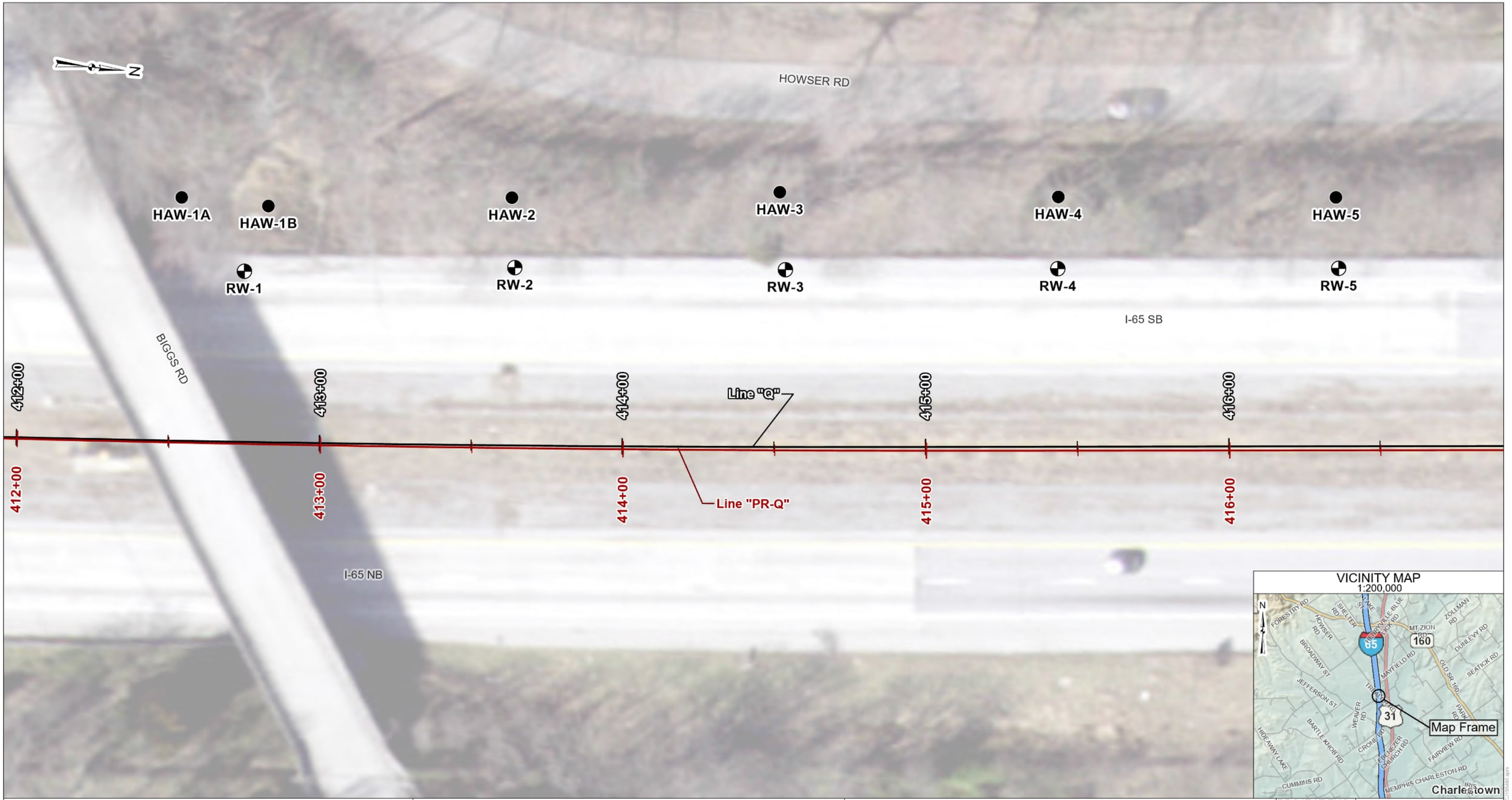
[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Michael S. Wigger, P.E.
Principal

Attachments –
Exploratory Location Plan (CJ195480.B95)
Log of Test Boring (5)
Rock Core Photographs (4 pages)
Summary of Hand Auger Borings
Grain Size Distribution Test Report
Unconfined Compression Test (5)



LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Sheet Pile Cutoff Wall
LOCATION:	Clark County, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1700135
TCI PROJECT NO.:	CJ195480
SCALE:	1 in. = 30 ft

Attachment 11-8

PROJECT ENG.:	ZAB
REVIEWED BY:	MSW
DRAWN BY:	GTG
DATE:	12/22/2022
DRAWING NO.:	CJ195480.B95

Terracon

LOG OF TEST BORING

BORING NO.: **RW-1**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Added Travel Lanes : Sheet Pile Cutoff Wall
LOCATION : I-65 near Biggs Rd.
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.50423
LONGITUDE : -85.77116
DATUM : WGS 84
DATE STARTED : 11-02-22
DATE COMPLETED : 11-02-22

ELEVATION : 485.0
STATION : 412+74
OFFSET : 56.9 ft Left
LINE : 'PR-Q'
DEPTH : 30.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 48 °F
WEATHER : Dark

GROUNDWATER: ▽ Encountered at 14.0 ft ▼ At completion 7.0 ft ▩ Caved in at 18.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.6											
	2.5		SS 1	8-5-4	36	17.8 11.9		3.5 2.0					
			SS 2	5-5-5	67	17.8 20.0		3.25 3.5					
480.0	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, brown to gray below 6 ft, with weathered shale fragments near 6 ft, with clay seam near 7 ft, A-4(8), Lab No. 34840											
	7.5		SS 3	8-5-5	67	26.6 26.9		3.5 2.25					6.5, LOI = 3 percent
			SS 4	4-5-7	78	22.2 22.8	106.4	4.0 4.0	2.36	33	24	9	8.5, pH = 6.9, SG = 2.79
475.0	10.0	11.0											
	12.5		SS 5	4-4-4	78	21.6		2.25					
		Sandy Loam, medium stiff to hard, moist, brown, and gravel, with weathered shale fragments, A-2-6(0), Lab No. 34841	SS 6	4-4-5	67	21.0		1.0		36	25	11	13.5, pH = 6.4, SG = 6.4
470.0	15.0		SS 7	4-5-7	56	15.2							
	17.5												
		19.0											
		Weathered Shale, dark gray 20.0	SS 8	14-18-50/3	64								
465.0	20.0												
	22.5		RC 1 RQD= 15%		100				507				
460.0	25.0	**Shale**, hard, gray to dark gray, low bedding planes											
	27.5		RC 2 RQD= 87%		100								
		30.0											
455.0	30.0	Bottom of Boring at 30.0 ft											
	32.5	Auger refusal near 20 ft											
450.0	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 1/25/23

LOG OF TEST BORING

BORING NO.: **RW-2**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Added Travel Lanes : Sheet Pile Cutoff Wall
LOCATION : I-65 near Biggs Rd.
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.50447
LONGITUDE : -85.77119
DATUM : WGS 84
DATE STARTED : 11-01-22
DATE COMPLETED : 11-02-22

ELEVATION : 485.0
STATION : 413+63
OFFSET : 59.5 ft Left
LINE : 'PR-Q'
DEPTH : 31.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 48 °F
WEATHER : Dark

GROUNDWATER: ▽ Encountered at 12.5 ft ▼ At completion 9.0 ft ▨ Caved in at 21.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
		Sandy Loam, loose, moist, gray, (visual) 2.0	SS 1	7-4-4	44	5.7 17.8		2.25					
	2.5												
			SS 2	4-5-6	67	17.7 16.7		2.5 >4.5					
480.0	5.0												
		Silty Clay Loam, medium stiff to stiff, moist, gray, with sand seam near 2 ft, with weathered shale fragments near 4 ft and below 12 ft, with clay seam near 7 ft, A-4, Lab No. 34840	SS 3	4-4-4	67	23.7 23.0		2.75 3.5					6.0, LOI = 2 percent
	7.5												
			SS 4	4-4-6	78	22.7		2.5					
475.0	10.0												
	12.5		SS 5	4-6-7	67	22.7		3.25					
		13.5											
			SS 6	5-7-8	78	22.1		2.25					
470.0	15.0												
		Sandy Loam, medium stiff to stiff, moist, brown, and gravel, with weathered shale fragments, A-2-6, Lab No. 34841	SS 7	3-3-3	78	21.1							
	17.5												
		20.0	SS 8	4-7-8	77	24.8							
465.0	20.0		SS 9	50/1	83								
		Weathered Shale, gray 21.0											
	22.5		RC 1 RQD= 0%		100								
460.0	25.0												
		Shale, hard, gray to dark gray, low bedding planes							511				
	27.5		RC 2 RQD= 92%		100								
455.0	30.0												
		31.0											
		Bottom of Boring at 31.0 ft											
	32.5	Auger refusal near 21 ft											
450.0	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 1/25/23

LOG OF TEST BORING

BORING NO.: **RW-3**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Added Travel Lanes : Sheet Pile Cutoff Wall
LOCATION : I-65 near Biggs Rd.
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.50472
LONGITUDE : -85.77122
DATUM : WGS 84
DATE STARTED : 11-01-22
DATE COMPLETED : 11-01-22

ELEVATION : 485.0
STATION : 414+53
OFFSET : 59.6 ft Left
LINE : 'PR-Q'
DEPTH : 27.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 52 °F
WEATHER : Dark

GROUNDWATER: ▽ Encountered at 16.5 ft ▼ At completion 8.0 ft ▩ Caved in at 19.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.2											
	2.5		SS 1	3-4-6	56	22.4 15.8		4.0 4.25					
480.0	5.0	**Silty Clay Loam**, medium stiff to stiff, moist, gray, with weathered shale fragments near 2 ft, with sand seam near 4 ft, A-4, Lab No. 34840	SS 2	4-5-8	56	17.9 15.7		4.25 3.75					
	7.5		SS 3	7-4-5	78	16.8 22.0		2.5 4.25					
475.0	10.0	10.0	SS 4	4-4-5	78	22.2		3.5					
	12.5	**Clay**, medium stiff, moist, gray, A-7-6, Lab No. 34842	SS 5	4-5-5	89	25.2	96.0	0.75	0.67				
		14.0											
470.0	15.0	**Silty Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 34843 16.0	SS 6	4-4-6	89	25.2 19.9		2.25 2.0					
	17.5	**Sandy Loam**, stiff, moist, brown, and gravel, with weathered shale fragments, A-2-6, Lab No. 34841	SS 7	4-6-6	89	19.2							
		20.0	SS 8	8-6-9	56	17.0							
465.0	20.0	**Weathered Shale**, gray 22.0	SS 9	22-50/0	33								
	22.5												
460.0	25.0	**Shale**, hard, gray to dark gray, low bedding planes	RC 1 RQD= 43%		100				438				
		27.0											
	27.5	Bottom of Boring at 27.0 ft											
455.0	30.0	Auger refusal near 22 ft											
	32.5												
450.0	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 1/25/23

LOG OF TEST BORING

BORING NO.: **RW-4**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Added Travel Lanes : Sheet Pile Cutoff Wall
LOCATION : I-65 near Biggs Rd.
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.50496
LONGITUDE : -85.77126
DATUM : WGS 84
DATE STARTED : 10-31-22
DATE COMPLETED : 10-31-22

ELEVATION : 486.0
STATION : 415+43
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 29.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 52 °F
WEATHER : Dark

GROUNDWATER: ▽ Encountered at 17.0 ft ▼ At completion 8.0 ft ▨ Caved in at 22.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
485.0		**Asphaltic Concrete** 1.0											
	2.5		SS 1	8-5-5	56	19.5 16.7		1.5 4.0					
	5.0		SS 2	8-5-7	67	17.5 15.8		4.0 >4.5					
480.0		**Silty Clay Loam**, medium stiff to stiff, moist, gray, A-4, Lab No. 34840											
	7.5		SS 3	5-5-5	67	23.8		3.0					
	10.0		SS 4	5-5-6	78	20.6		4.25					
475.0		11.0											
	12.5	**Clay**, medium stiff, moist, gray, A-7-6(20), Lab No. 34842	SS 5	3-3-4	78	24.8		4.25					
		14.0				32.3							
	15.0	**Silty Clay Loam**, moist, brown, A-4(3), Lab No. 34843	ST 1		100	26.9	94.9	0.5	0.67	41	22	19	13.5, pH = 5.1, SG = 2.72
		16.0				25.4 24.6	99.6	1.75	1.36	28	24	4	14.5, pH = 5.2, SG = 2.73
470.0													
	17.5	**Sandy Loam**, medium stiff to stiff, moist, brown, and gravel, with weathered shale fragments, with clay seam near 17 ft, A-2-6, Lab No. 34841	SS 6	4-5-4	78	31.0		1.5					
	20.0		SS 7	4-7-7	67	23.5		1.5					
465.0			SS 8	14-50/1	69								
	22.5	**Weathered Shale**, gray											
		24.0	SS 9	50/1	83								
	25.0												
460.0		**Shale**, hard, gray to dark gray, low bedding planes, with pyrite nodules near 25.5 ft and 26 ft	RC 1 RQD= 43%		100				764				
	27.5												
		29.0											
	30.0	Bottom of Boring at 29.0 ft											
455.0		Auger refusal near 24 ft											
	32.5												
	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 1/25/23

LOG OF TEST BORING

BORING NO.: **RW-5**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1700135 STRUCTURE #: ---
PROJECT TYPE: Added Travel Lanes : Sheet Pile Cutoff Wall
LOCATION : I-65 near Biggs Rd.
COUNTY : Clark PROJECT NO.: CJ195480

LATITUDE : 38.50521
LONGITUDE : -85.77129
DATUM : WGS 84
DATE STARTED : 10-31-22
DATE COMPLETED : 10-31-22

ELEVATION : 488.0
STATION : 416+36
OFFSET : 60.0 ft Left
LINE : 'PR-Q'
DEPTH : 29.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 55
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : D.C.
TEMPERATURE : 52 °F
WEATHER : Dark

GROUNDWATER: ▽ Encountered at 19.0 ft ▼ At completion 7.0 ft ▩ Caved in at 22.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
485.0	2.5		SS 1	7-4-6	67	29.3 19.9		1.75 2.25					
	5.0		SS 2	6-6-7	56	15.6 17.6		>4.5 3.25					
480.0	7.5	**Silty Clay Loam**, medium stiff to stiff, moist, gray, with sandy loam seam near 2 ft, A-4(8), Lab No. 34840	SS 3	4-5-6	67	23.7		2.5					
	10.0		SS 4	6-6-8	78	17.9		4.25					
	12.5	13.0	SS 5	4-5-6	78	22.1		2.75					
475.0	15.0	**Clay**, medium stiff, moist, gray, A-7-6, Lab No. 34842 16.0	SS 6	4-4-5	89	33.2	89.3	3.0	1.79				
470.0	17.5	**Sandy Loam**, medium stiff to hard, moist, brown, and gravel, with weathered shale fragments below 16 ft, A-2-6(0), Lab No. 34841	SS 7	4-4-5	89	24.2		1.75					
	20.0		SS 8	5-6-8	67	15.3		1.0					
		22.0	SS 9	4-11-22	67	22.1							
	22.5	**Weathered Shale**, gray											
465.0		24.0	SS 10	50/1	83								
	25.0	**Shale**, hard, gray to dark gray, low bedding planes, with pyrite nodules near 28 ft	RC 1 RQD= 32%		100								
460.0	27.5	29.0							550				
	30.0	Bottom of Boring at 29.0 ft Auger refusal near 24 ft											
455.0	32.5												
	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 1/25/23

I-65 ATL

ROCK CORE PHOTOGRAPHS

BORINGS:

RW-1 through RW-5

Attachment 11-8



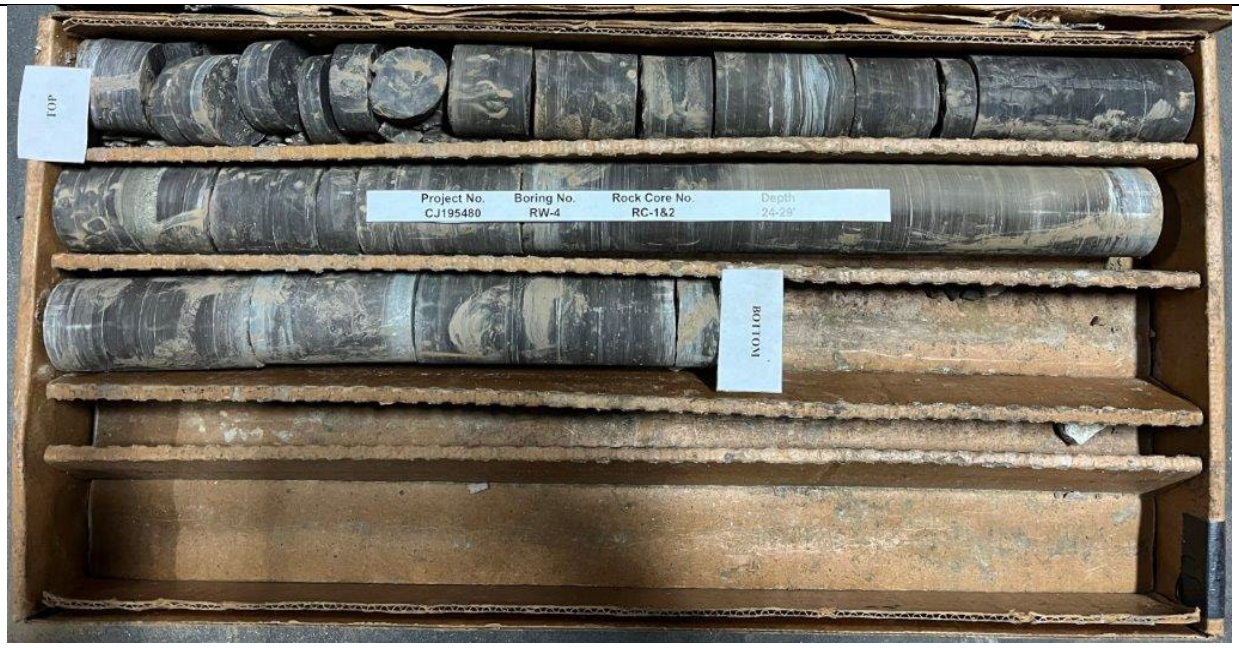
Project No. CJ195480, Boring No. RW-1, Rock Core No. RC-1&2, Depth: 20' – 30'



Project No. CJ195480, Boring No. RW-2, Rock Core No. RC-1&2, Depth: 21' – 31'



Project No. CJ195480, Boring No. RW-3, Rock Core No. RC-1&2, Depth: 22' – 27'



Project No. CJ195480, Boring No. RW-4, Rock Core No. RC-1 &2, Depth: 24' – 29'



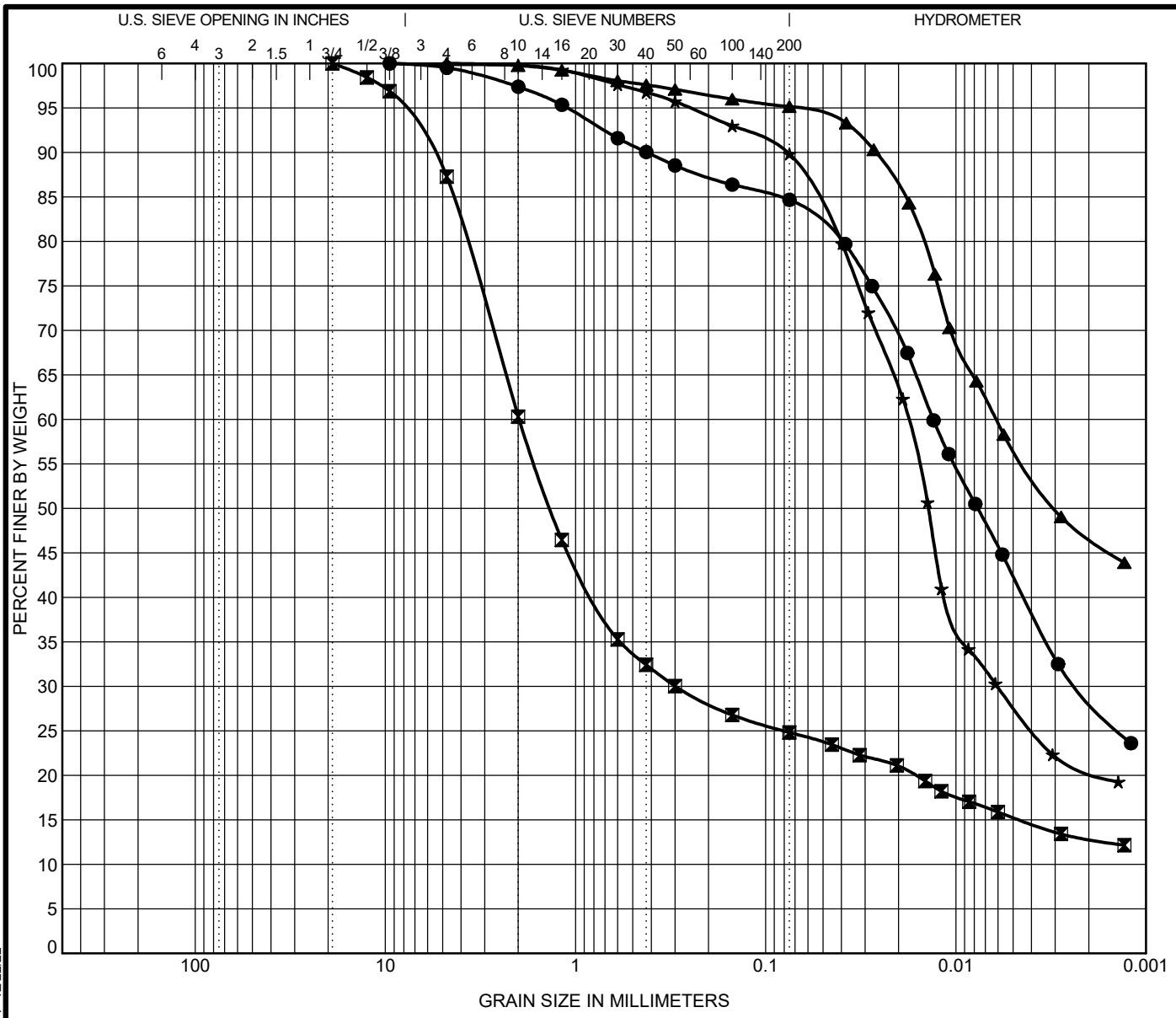
Project No. CJ195480, Boring No. RW-5, Rock Core No. RC-1&2, Depth: 24' – 29'

Summary of Hand Auger Borings
I-65 Added Travel Lanes: Sheet Pile Cutoff Wall
Clark County, IN
Des. No.: 1700135
Terracon Project No.: CJ195480

Boring No.	Station	Offset Line	Elevation (ft)	Depth Interval (ft)	Description*	MC** (%)
HAW-1A	412+53	77 ft Lt. "PR-Q"	485	0 - ¼ ¼ - 2	Topsoil Silty Clay Loam, stiff, brown Hand Auger Refusal near 2 ft	11
HAW-1B	412+81	86 ft Lt. "PR-Q"	478	0 - 3	Silty Clay Loam with organic matter, soft to stiff below 1½ ft, gray and brown (LOI = 6%) Hand Auger Refusal near 3 ft	30 - 43
HAW-2	413+62	92 ft Lt. "PR-Q"	479	0 - ¼ ¼ - 2	Topsoil Silty Clay Loam, stiff, light brown Hand Auger Refusal near 2 ft	11
HAW-3	414+51	92 ft Lt. "PR-Q"	479	0 - ¼ ¼ - 2½	Topsoil Silty Clay Loam, stiff, light brown Hand Auger Refusal near 2½ ft	14
HAW-4	415+44	94 ft Lt. "PR-Q"	480	0 - ¼ ¼ - 2	Topsoil Silty Clay Loam with organic matter, stiff, light brown (LOI = 4%) Hand Auger Refusal near 2 ft	15 - 17
HAW-5	416+35	92 ft Lt. "PR-Q"	480	0 - ¼ ¼ - 2	Topsoil Silty Clay Loam, stiff, light brown Hand Auger Refusal near 2 ft	11

*Consistency description based on ability to advance ½-in. diameter steel rod probe

**MC = moisture content



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RW-1	SS-4T	8.5	34840	A-4 (8) SILTY CLAY LOAM	33.0	24.0	9.0		
⊠	RW-1	SS-6	13.5	34841	A-2-6 (0) SANDY LOAM and GRAVEL	36.0	25.0	11.0		
▲	RW-4	ST-1T	13.5	34842	A-7-6 (20) CLAY	41.0	22.0	19.0		
★	RW-4	ST-1B	14.5	34843	A-4 (3) SILTY CLAY LOAM	28.0	24.0	4.0		

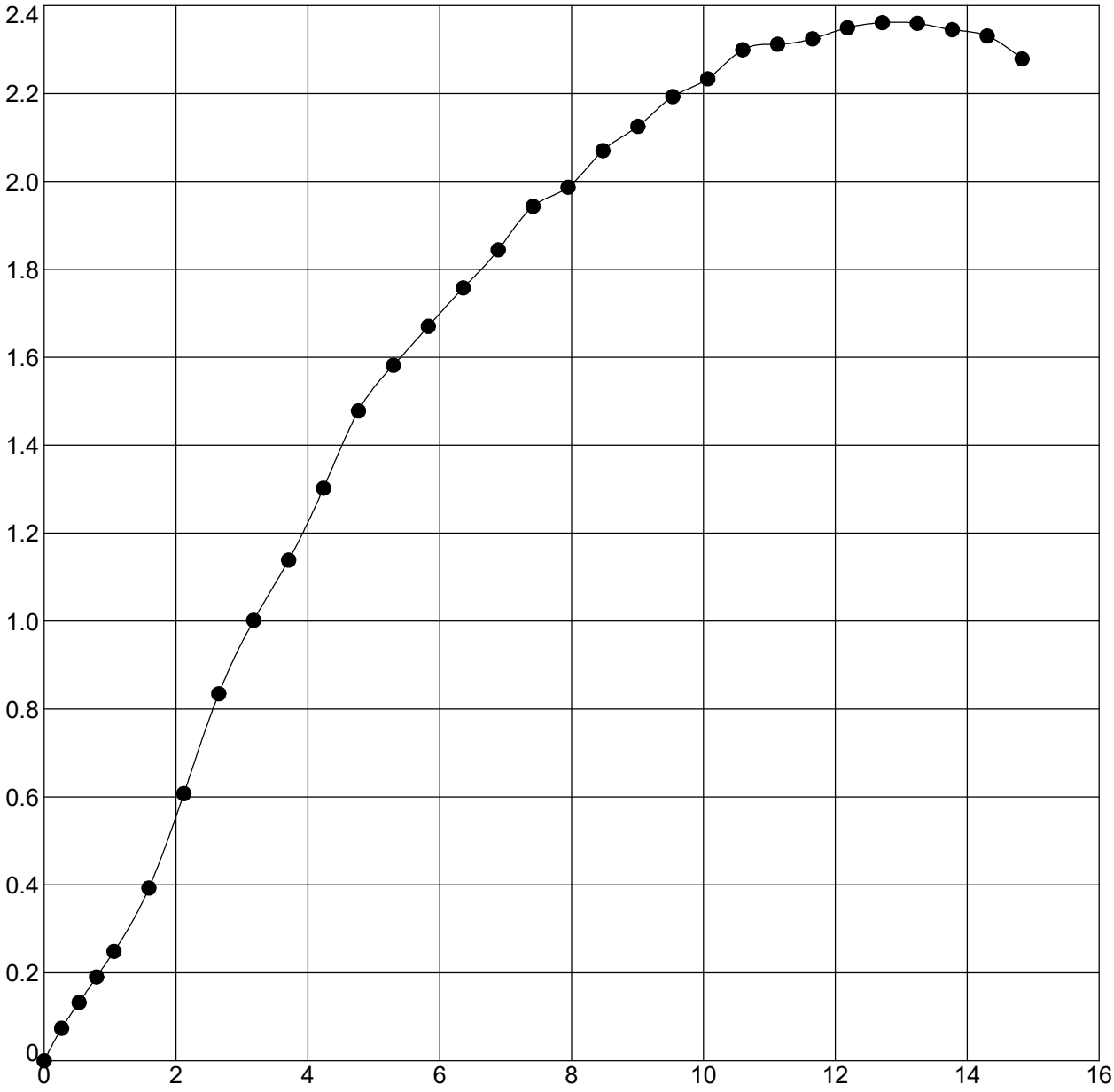
	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RW-1	SS-4T	8.5	0.013	0.002			6.9	2.6	12.7	55.9	28.8	2.79
⊠	RW-1	SS-6	13.5	1.976	0.298			6.4	39.7	35.5	12.0	12.9	2.84
▲	RW-4	ST-1T	13.5	0.006				5.1	0.2	4.6	48.4	46.8	2.72
★	RW-4	ST-1B	14.5	0.018	0.006			5.2	0.2	10.0	69.2	20.6	2.73

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN DOT1.GDT 12/22/22



Boring	Sample	Depth	Classification
RW-1	SS-4T	8.5 - 10	SILTY CLAY LOAM A-4 (8)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
22.2	130.0	106.4	2.36	1.0	12.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.18	97	0.636	35.48	67.13	1.9

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Indianapolis, IN 46214
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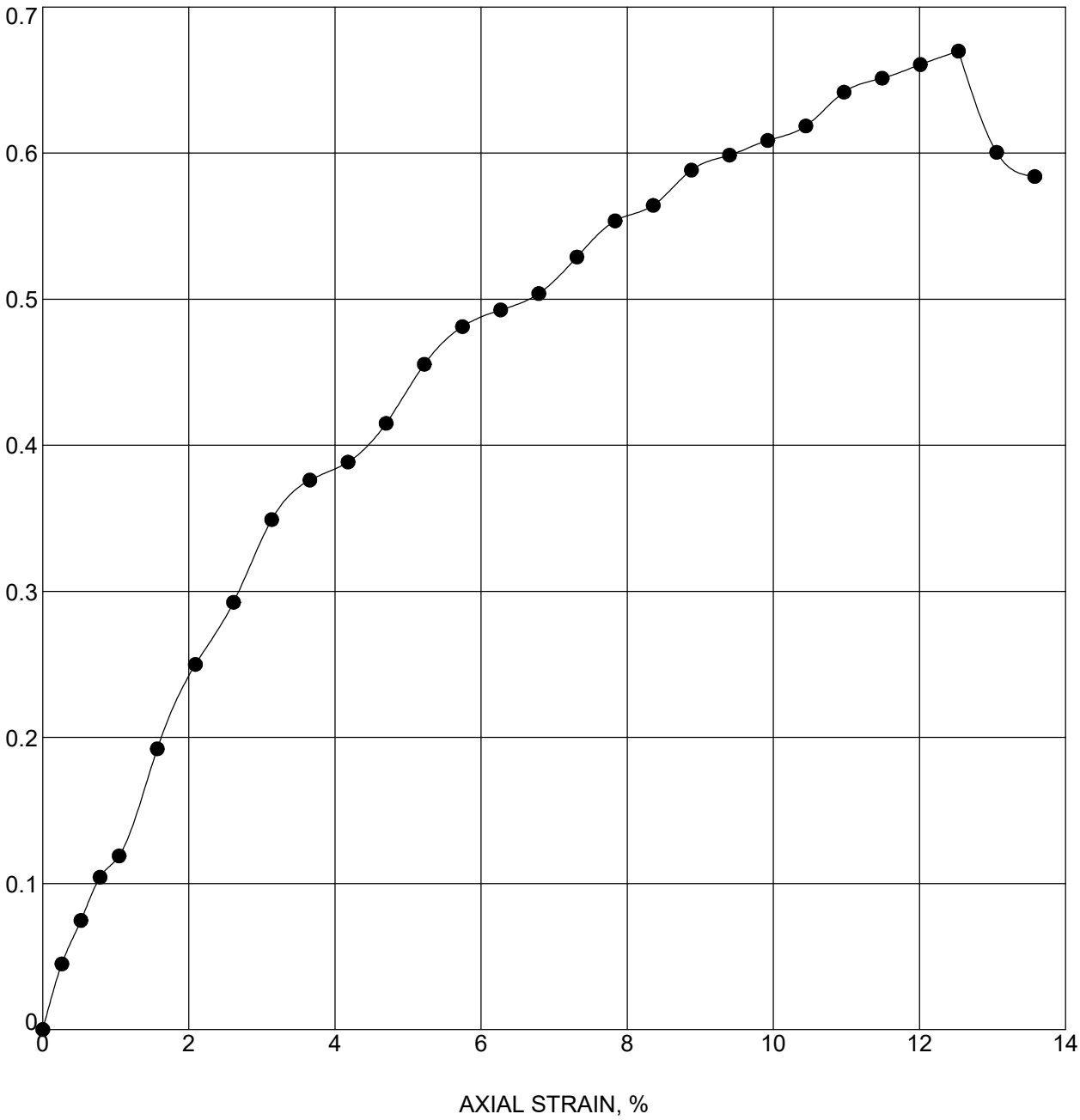
Fax: 317-273-2250

UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 12/22/22



Boring	Sample	Depth	Classification
RW-3	SS-5T	11 - 12.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
25.2	120.2	96.0	0.67	1.0	12.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.33	89	0.769	35.2	68.09	1.9

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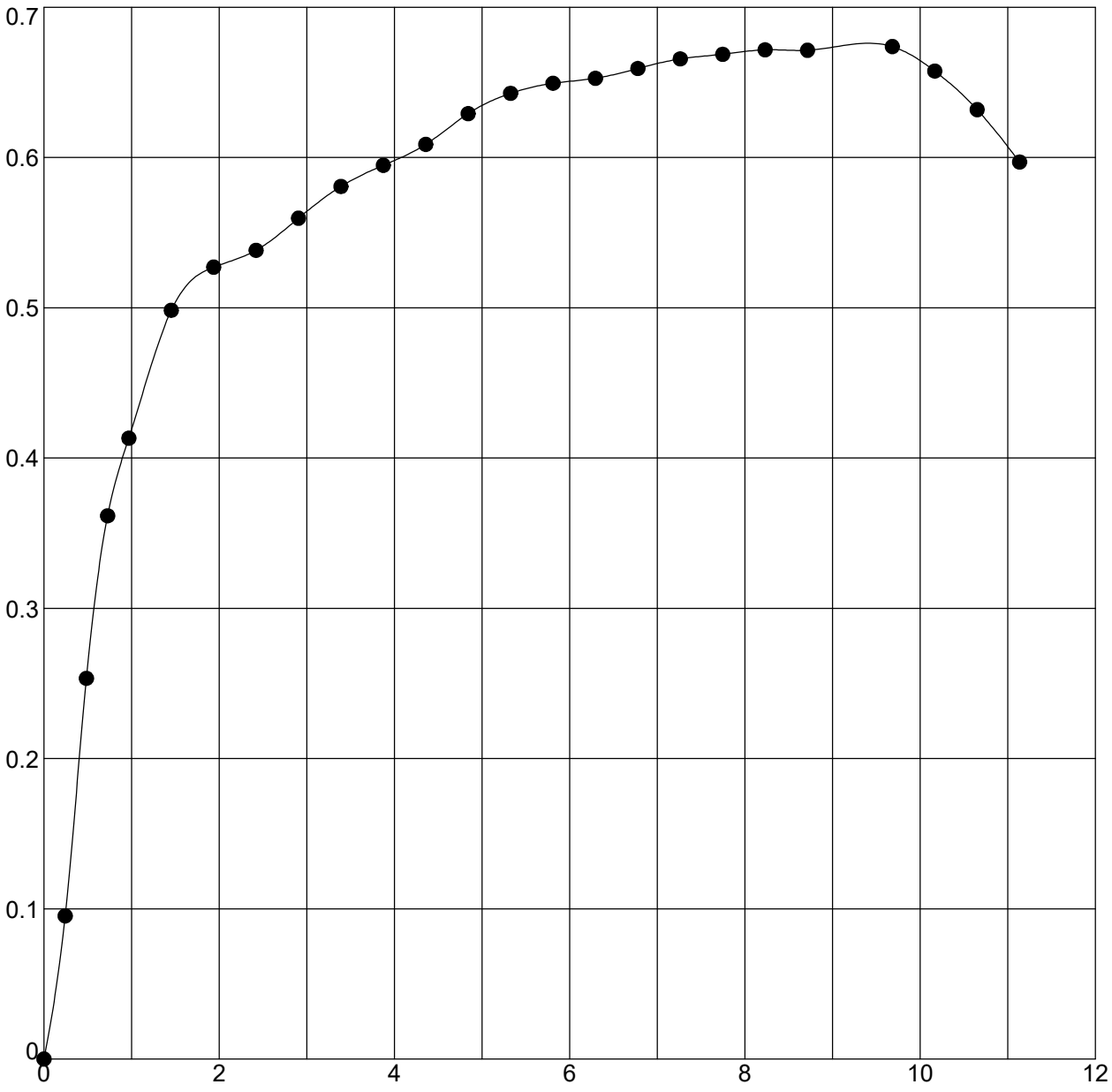
UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 12/22/22



Boring	Sample	Depth	Classification
RW-4	ST-1T	13.5 - 15	CLAY A-7-6 (20)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
26.9	120.3	94.9	0.67	1.0	9.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.34	93	0.789	72.54	146.9	2.0

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Indianapolis, IN 46214
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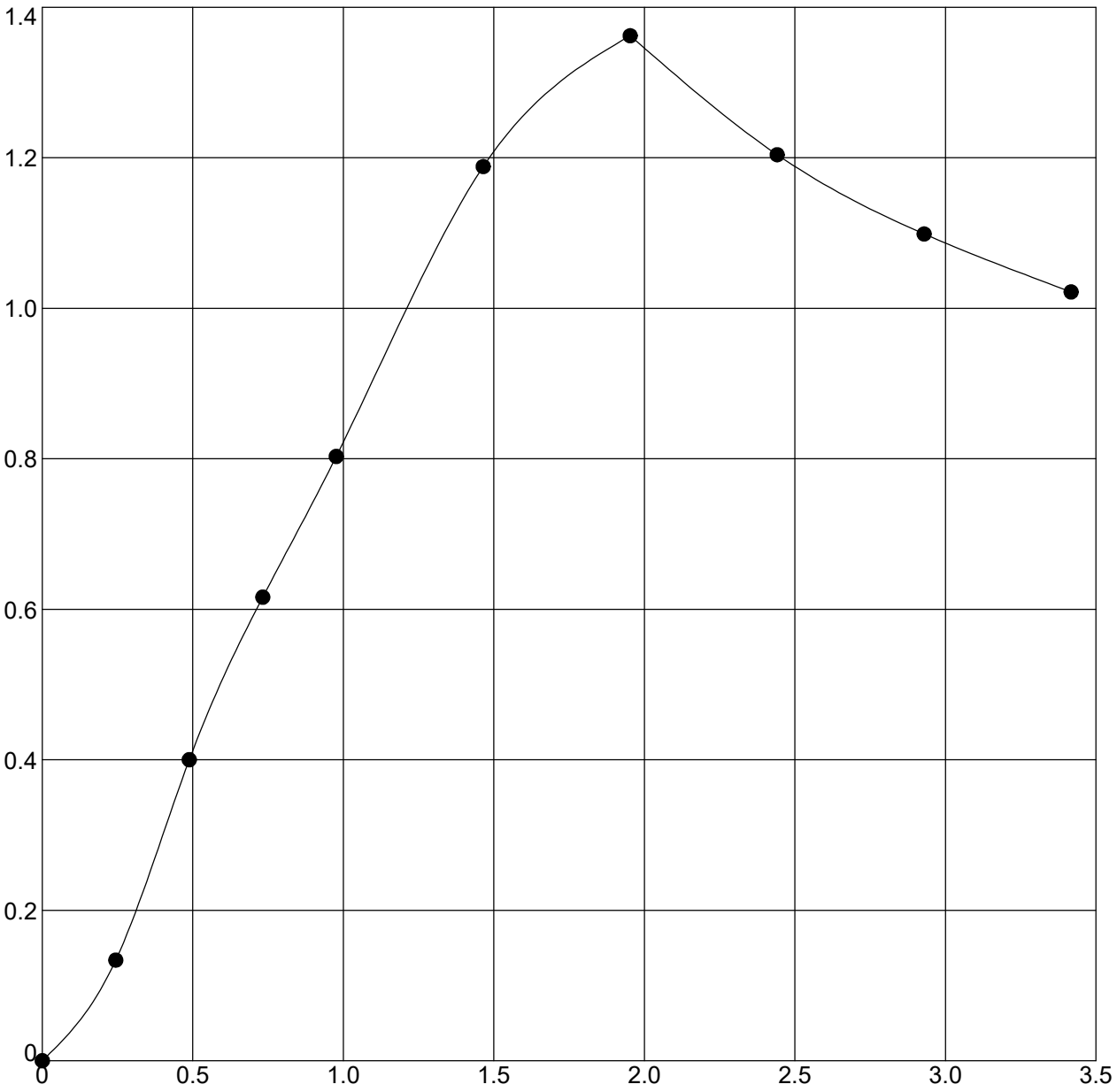
Fax: 317-273-2250

UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 12/22/22



Boring	Sample	Depth	Classification
RW-4	ST-1B	14.5 - 15	SILTY CLAY LOAM A-4 (3)

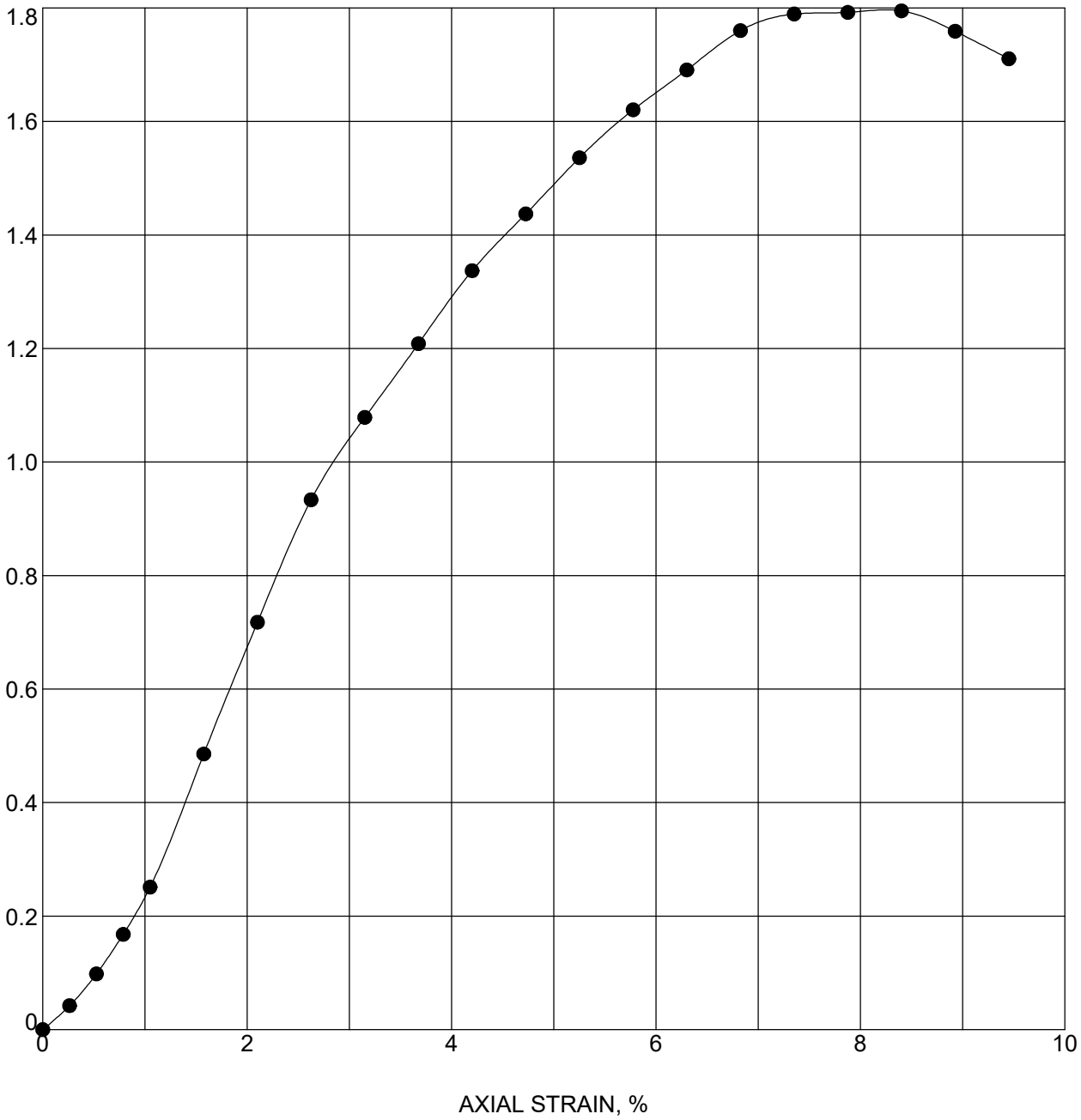
Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
25.4	124.9	99.6	1.36	1.0	2.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.68	98	0.710	72.64	145.67	2.0

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 12/22/22



Boring	Sample	Depth	Classification
RW-5	SS-6T	13.5 - 15	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
33.2	118.9	89.3	1.79	1.0	8.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.90	100	0.901	36.33	67.72	1.9

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7770 West New York Street
Indianapolis, IN 46214
Telephone: 317-273-1690
Fax: 317-273-2250

UNCONFINED COMPRESSION TEST

DES #: 1700135 Structure #: ---
Project #: CJ195480
County: Clark
Location: I-65 near Biggs Rd.

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO 1700135 RETAINING WALLS.GPJ IN_DOT1.GDT 12/22/22

February 11, 2022

Terracon

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Culverts Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des Nos.: 2001593 through 2001599
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

This letter is being provided to support your efforts to continue with the design of the seven large-diameter (i.e., more than 36 in.) culvert replacements planned as part of the referenced project. Based on review of the Stage 2 Plans and our correspondence with American Structurepoint, Inc. (ASI), a summary of the existing large-diameter culverts and proposed replacements is shown in the table below.

Table 1: Summary of Existing Large Culverts and Proposed Replacement Options

Approx. I-65 Route Post (RP)	Des. No.	Existing Pipe Diameter and Type	Assumed Flowline El. *	Proposed Replacement Option(s)	Approx. Planned Invert El.
18+35	2001599	66-in. CMP	522¾	66-in. Smooth / 72-in. CMP, w/ headwalls	522¾ to 523½ / 522¼ to 523
19+90	2001598	102-in. CMP	514	9-ft x 9-ft R.C.** Box, w/ headwalls	513½ to 514½
22+65	2001597	72-in. CMP	594¼	72-in. Circular, Trenchless	593¾ to 596¼
22+77	2001595	72-in. CMP	593¼	72-in. Circular	592¾ to 595¼***
25+05	2001594	60-in. CMP	581¼	60-in. Smooth / 66-in. CMP, Trenchless	580¾ to 583½
25+83	2001596	48-in. R.C.** Pipe	580½	48-in. Circular, Trenchless, w/ headwalls	580¼ to 583
26+20	2001593	72-in. CMP	581¼	72-in. Circular, Trenchless, w/ headwalls	580¾ to 584¼

* Based on Hydraulic Review Memos provided by ASI ** R.C. = Reinforced Concrete
***Note this invert is beyond the existing right-of-way and therefore is outside the limits of the planned pipe replacement.

The trenchless replacement pipes are planned to be installed at an offset ranging from about 9 to 12 ft south of the existing pipes, and the existing pipes are planned to be filled with grout and abandoned in place. A summary of the new structure locations, associated borings, and where riprap is planned is shown in the table below.

Table 2: Summary of Proposed Replacement Locations, Riprap, and Associated Borings

Des. No.	Approx. Sta. from Plan and Profile Sheets	Riprap Planned at Outlet	Revetment Riprap Planned at Inlet	Boring and Hand Auger Boring Nos.
2001599	501+27, Line "PR-Q"	Class 1 / 2	Yes	CB-01, CB-02, HA-CB-01, HA-CB-02
2001598	582+14, Line "PR-Q"	Class 2	No	CB-03 to CB-05 HA-CB-03, HA-CB-05
2001597	725+55, Line "Q"	Class 1	Yes	CB-06 to CB-08 HA-CB-06, HA-CB-08
2001595	732+56, Line "Q"	Class 1	No*	CB-09 to CB-11 HA-CB-09
2001594	903+82, Line "PR-Q"	Class 1	No	CB-12 to CB-14 HA-CB-12, HA-CB-14
2001596	944+10, Line "Q"	Class 1	Yes	CB-15, CB-16 HA-CB-15, HA-CB-16
2001593	964+45, Line "Q"	Class 1	No	CB-17 to CB-19 HA-CB-17, HA-CB-19

* Note this inlet is outside the limits of the planned pipe replacement. We understand that a manhole will be installed on a spread foundation to connect the new pipe to the existing pipe, and that smaller pipes parallel to the ditch will daylight in the ditch to bring drainage from the ditch into the manhole.

Surface and Subsurface Conditions

Several borings were located within the existing I-65 outside shoulders. The remaining borings were located in the I-65 median or existing ditches, with the exception of Boring CB-11, which was located on an existing road aligned parallel to I-65.

Additionally, hand auger borings were performed within the existing channel near the ends of the planned culverts. Topsoil thicknesses near the ends of the culverts ranged from very little to about 4 in. Below this topsoil was typically cohesive soil extending to depths ranging from about ½ to 4 ft. The cohesive soils were typically soft to depths up to about 3 ft. Hand auger refusal on riprap below the soft soils was common. The moisture contents in these cohesive soils typically ranged from about 9 to 23 percent for the stiffer soils or from about 23 to 49 percent for the softer soils. A moisture content of about 71 percent was observed at Hand Auger Boring HA-CB-14. Sand and gravel was present at Hand Auger Boring HA-CB-19. Refer to the Summary of Hand Auger Borings.

The following description of the subsurface conditions is general in nature and does not include all details regarding the soil stratigraphy. Additional descriptions of the subsurface conditions are shown on the attached boring logs.

Subsurface conditions generally consisted of cohesive soils over rock. The cohesive soils were classified as A-4 (loam, clay loam, and sandy/silty clay loam), A-6 (clay, clay loam, and silty clay), and A-7-6 (clay). The consistency of the cohesive soils was typically described as soft to stiff based on SPT N-value criteria developed by INDOT. Exceptions included very soft cohesive soils observed at Boring CB-05 near a depth of 4 ft, Boring CB-12 near a depth of 10 ft, and CB-14 near a depth of 14 ft. Stiffer cohesive soils were typically observed at depths near the rock. The moisture content of the cohesive soils was typically about 15 to 24 percent, and hand penetrometer readings were typically 1 ton/sq ft (tsf) or better. Some exceptions are shown in the table below.

Table 3: Summary of Low Hand Penetrometer Readings and/or Moisture Contents > 24 Percent

Boring No.	Soil Type	Depth Observed (ft)	Hand Pen. Reading (tsf)	Moisture Content (%)
CB-01	A-4 Sandy Clay Loam	6 to 10 (El. 521 to 525) *	¾ to 1	17 to 22
CB-02	A-6 Clay	1 to 2 (El. 524 to 525)	1½ to 3	22 to 27
CB-03	A-7-6 Clay	near 15 (El. 517) *	1	29
CB-06	A-6 Silty Clay	8 to 13 (El. 599 to 604)	1 to >4½	17 to 26
CB-08	A-6 Silty Clay A-7-6 Clay	8 to 12 (El. 600 to 604) near 20 (El. 592)	½ to 2½ 1	25 33
CB-09	A-7-6 Clay	17 to 19 (El. 597)	½ to 2¾	20 to 27
CB-13	A-4 Silty Clay Loam	near 12 (El. 583) *	1	29
CB-14	A-6 Clay A-7-6 Clay	near 15 (El. 583) * near 24 (El. 574)	2½ 4	28 27
CB-17	A-4 Loam	26 to 28 (El. 587 to 589) near 32 (El. 583)	½ to ¾ 1¾	15 to 20 26
CB-18	A-4 Loam	near 25 (El. 587)	1	25

*soft soil conditions were also observed near these depths

The undrained shear strength (using a $\Phi = 0$ concept) of the cohesive soils was observed to range from about 0.8 to 5.0 kips/sq ft (ksf). The in-situ dry density of the cohesive soils was observed to range from about 95 to 120 lbs/cu ft (pcf). Atterberg limit determinations were performed on representative samples of the cohesive soils. Based on these results, the A-4 cohesive soils exhibit slight to medium plasticity based on a Plasticity Index (PI) ranging from 2 to 8. The A-7-6 cohesive soils exhibit medium plasticity based on a PI of 20. Additionally, the pH of the representative samples tested was determined to be in the range of 5.6 to 8.1 and the specific gravity ranged from 2.61 to 2.78.

Weathered shale was typically observed near depths shown in the table below. Rock core samples of shale were collected at Borings CB-01, CB-02, and CB-09.

Table 4: Summary of Weathered Shale Observed and Associated Borings

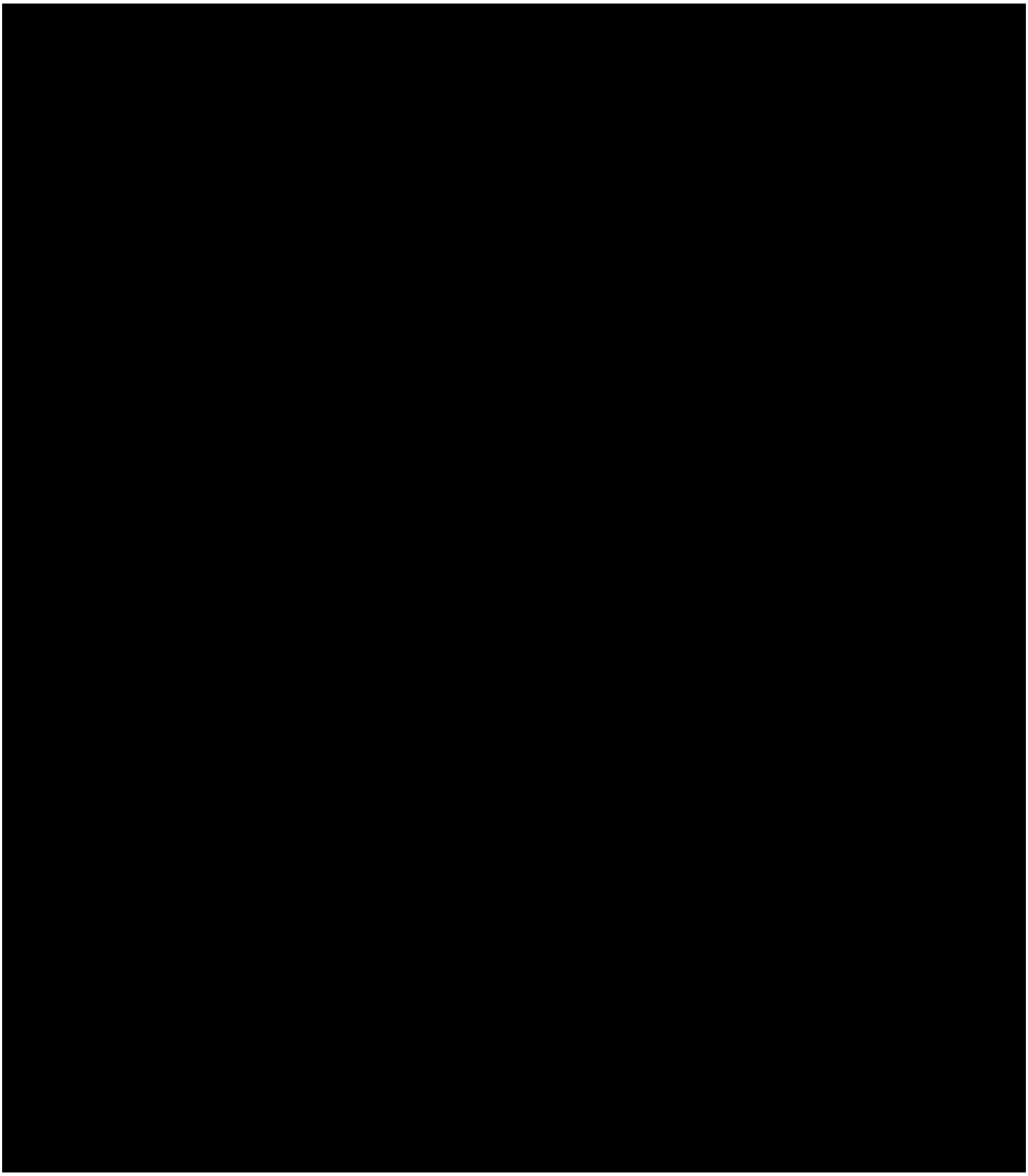
Des. No.	Approx. Sta. from Plan and Profile Sheets	Approx. Depth to Weathered Shale (ft)	Weathered Shale Anticipated Above Invert?	Boring Nos.
2001599	501+27, Line "PR-Q"	6 to 15 (El. 516 to 520)	No	CB-01, CB-02
2001598	582+14, Line "PR-Q"	16 to 18 (El. 513 to 516)	Yes	CB-03 to CB-05
2001597	725+55, Line "Q"	24½ (El. 587½)	No	CB-06 to CB-08
2001595	732+56, Line "Q"	18 to 27 (El. 583 to 591)	No	CB-09 to CB-11
2001594	903+82, Line "PR-Q"	24 (El. 574)	No	CB-12 to CB-14*
2001596	944+10, Line "Q"	22 to 28 (El. 567 to 573)	No	CB-15, CB-16
2001593	964+45, Line "Q"	38 to 49 (El. 566 to 574)	No	CB-17 to CB-19

*Observed at Boring CB-14 only

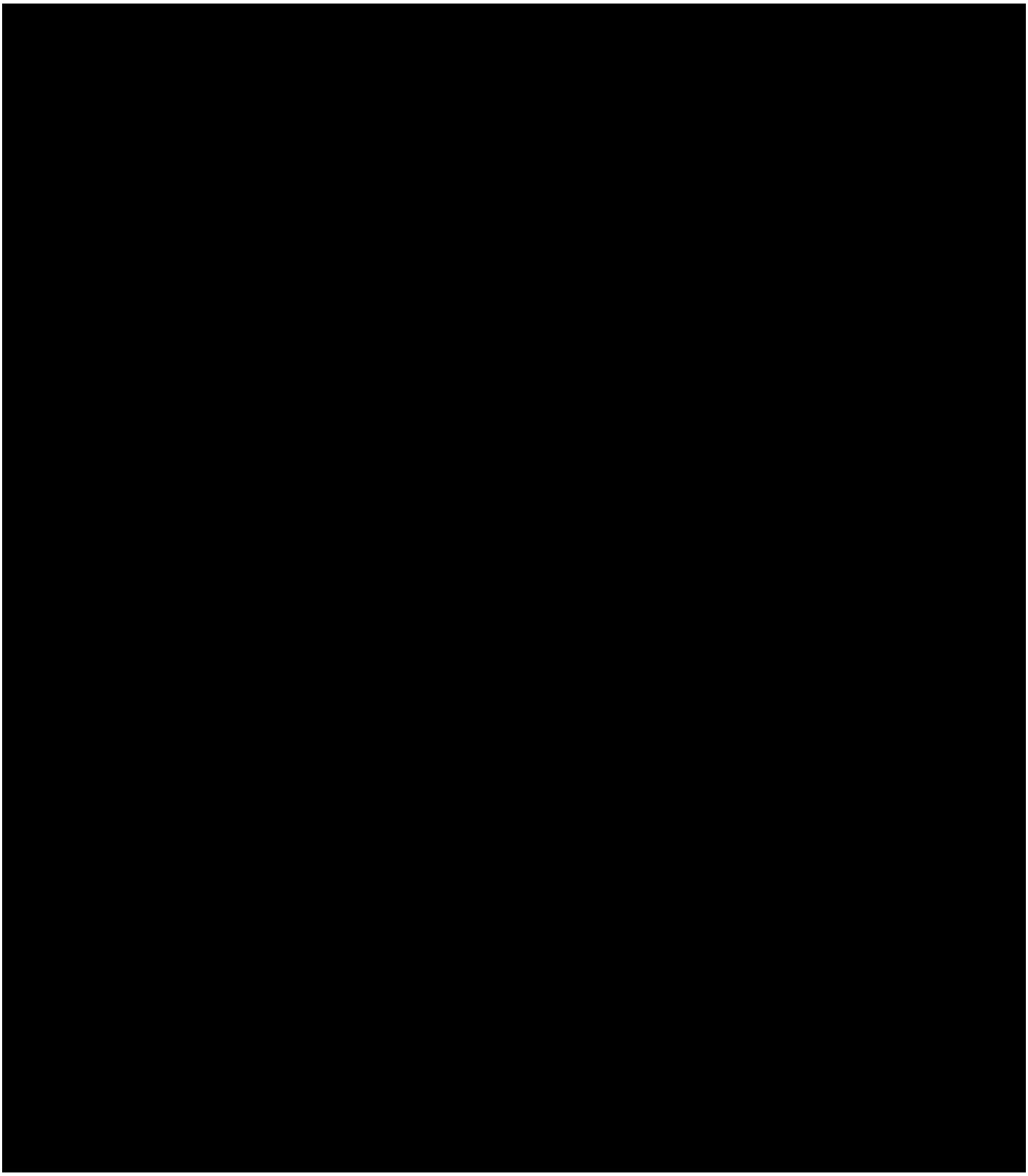
Groundwater observations were made during and upon completion of each boring. At the majority of our test boring locations, groundwater was not observed during the relatively short time period of our field activities. Where groundwater was observed, it was present at depths of about 11 to 26 ft below the existing grade during drilling and about 4 to 17 ft after drilling. Delayed groundwater levels, where present, were observed near a depth of about 1½ ft and near the ground surface. In our opinion, based on our observations and the predominantly cohesive soils, the groundwater observations are indicative of a perched condition. Review of the USDA Web Soil Survey indicated the depth to seasonal groundwater is typically within about 2 to 4 ft below the natural ground surface. There are also intermittent areas where it is more than 6½ ft below the natural ground surface. Groundwater levels of any type will vary due to changes in precipitation, infiltration, run-off, pumping of nearby wells, water level in nearby bodies of water, and other hydrogeological factors. Groundwater level observations are noted on the boring logs.

Discussion and Recommendations

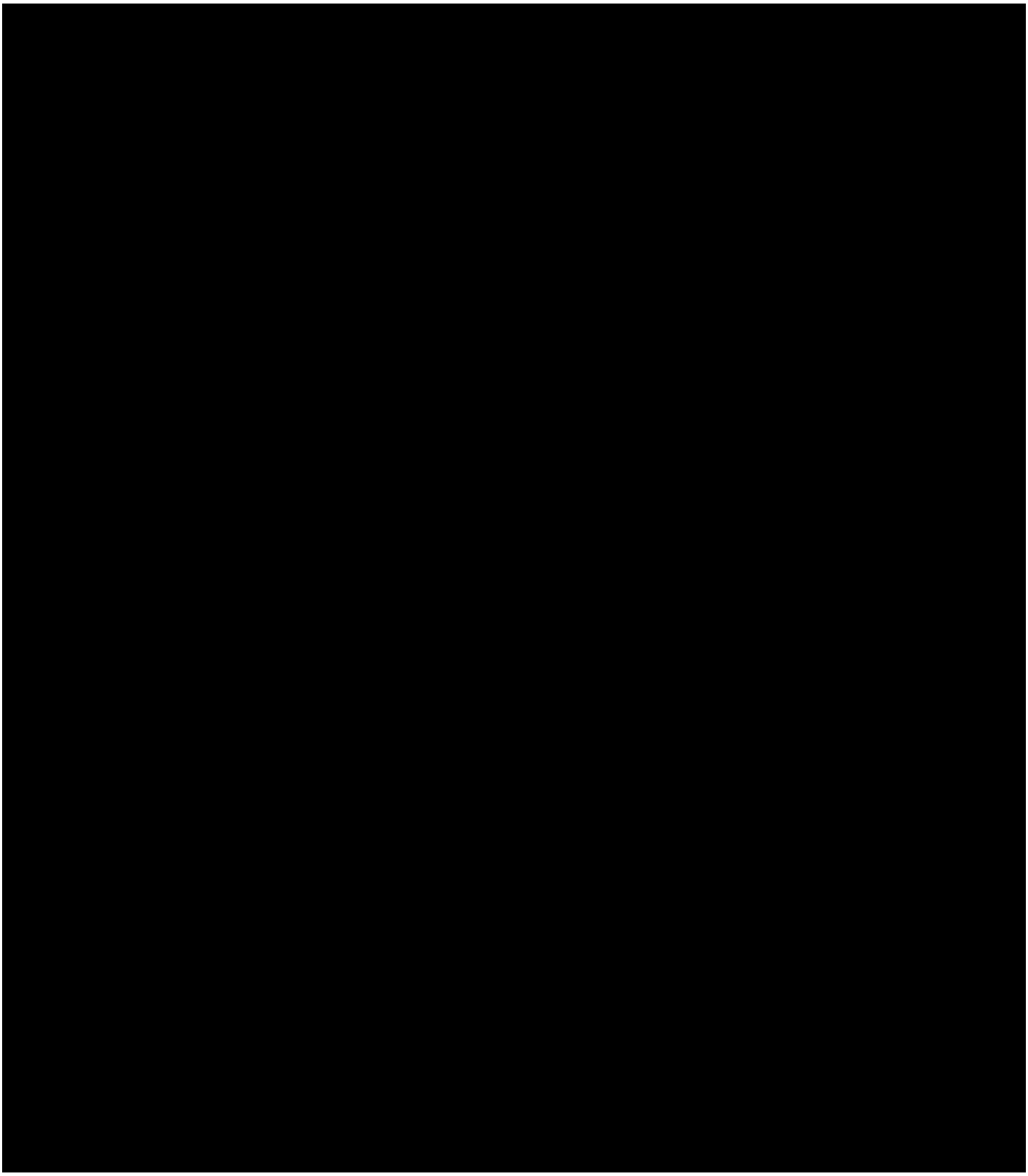
[redacted]



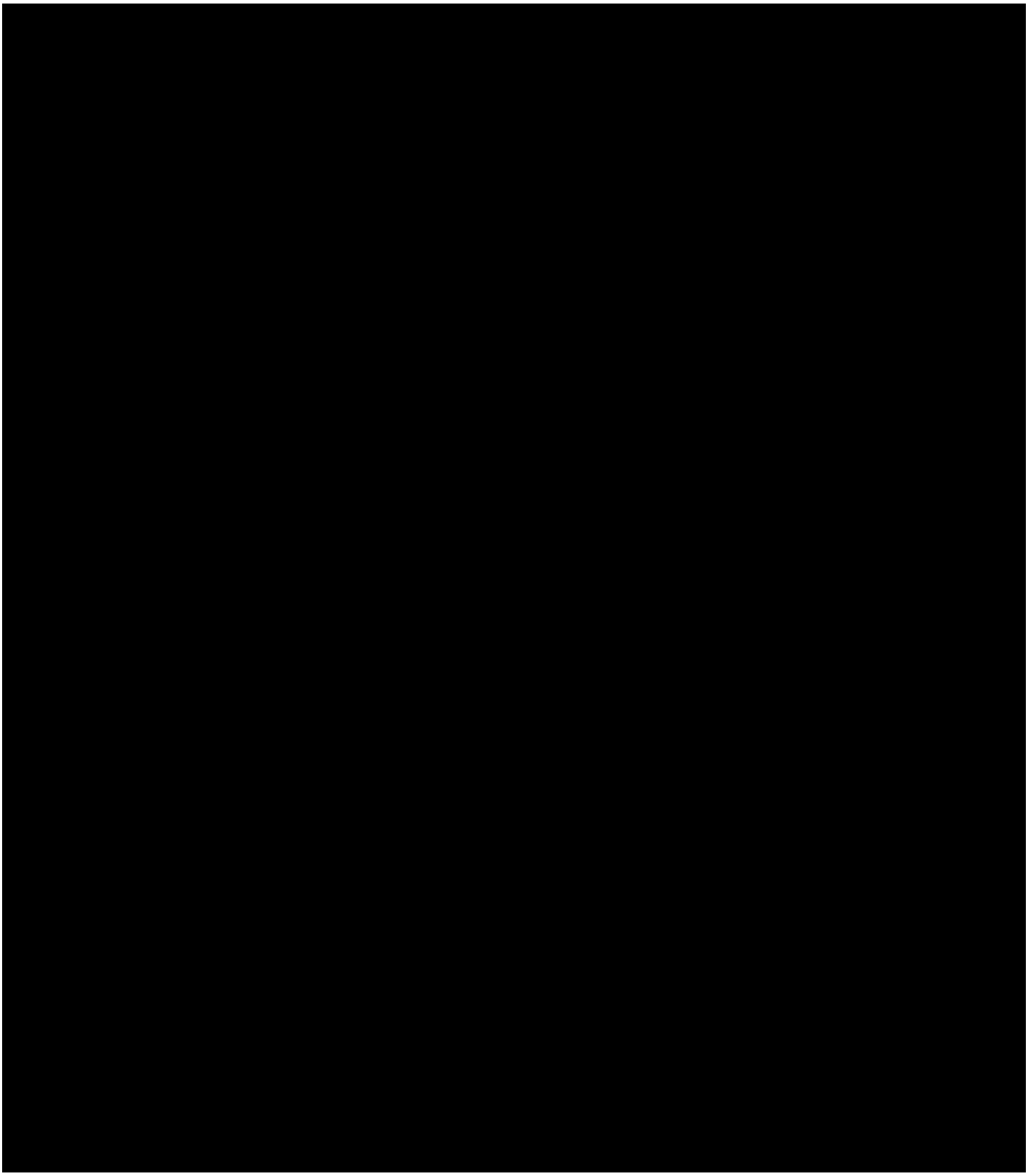
Attachment 11-9



Attachment 11-9



Attachment 11-9



Attachment 11-9

Excavation and Dewatering Considerations

[redacted]

Concluding Remarks

As mentioned, this letter is being provided to support your efforts to continue with the design of the planned culvert replacements while geotechnical activities continue for other elements of the project.

In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.

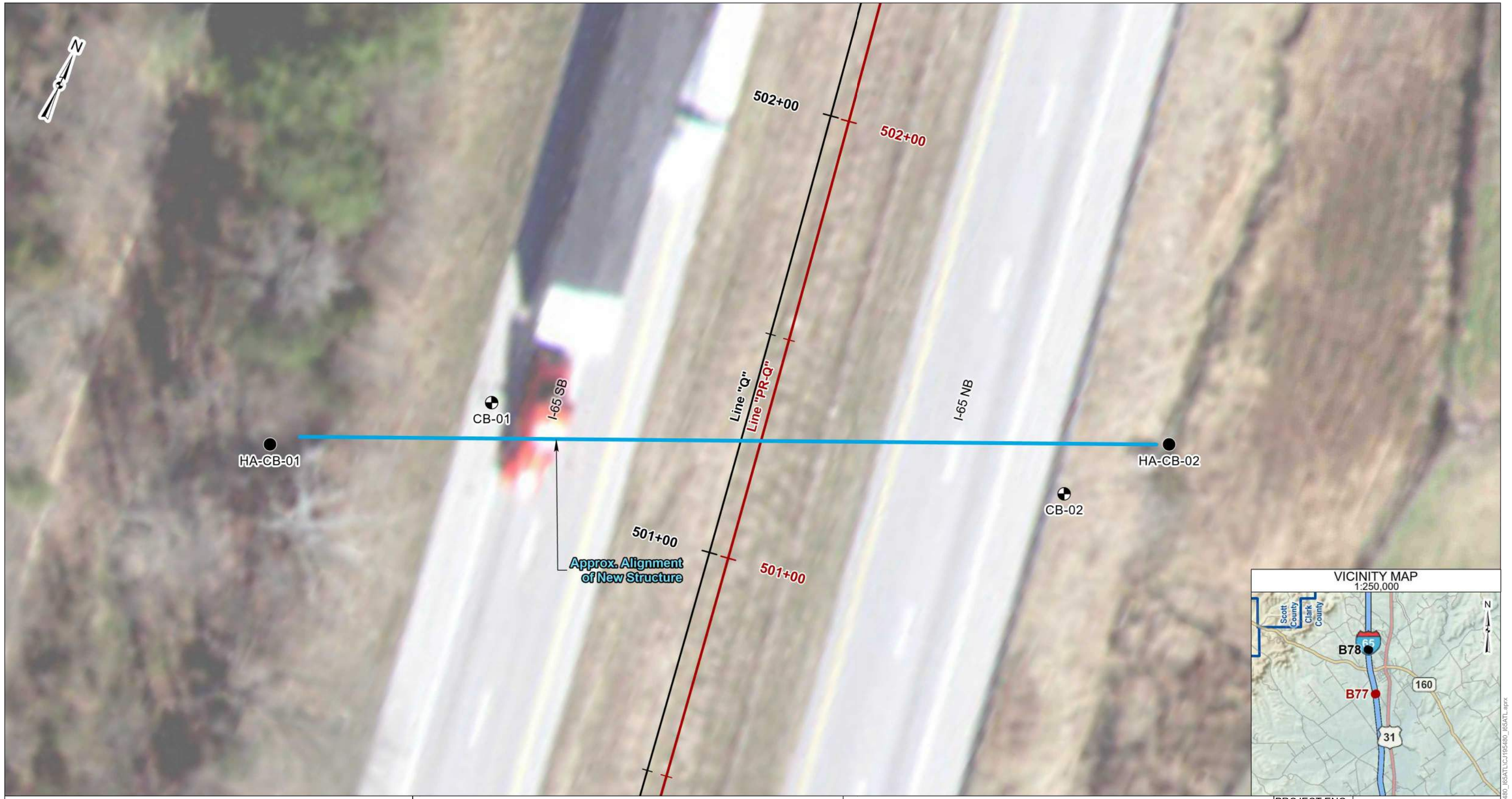
[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Travis J. Pickering, P.E.
Project Engineer

Attachments –
Exploratory Location Plan (Drawing Nos. CJ195480.B77 - .B83)
Log of Test Boring – General Notes
Log of Test Boring (25)
Summary of Hand Auger Borings
Rock Core Photographs
Grain Size Distribution Test Report (8)
Unconfined Compression Test (18)
Bearing Resistance Analysis (5)



VICINITY MAP
1:250,000

LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 18+35
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001599
STRUCTURE NO.:	CV I65-010-18.35
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B77

Terracon

Imagery credits: IGIC, IOT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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N

583+00

583+00

Line "Q"

Line "PR-Q"

582+00

582+00

Approx. Alignment of New Structure

CB-05

CB-04

I-65 SB

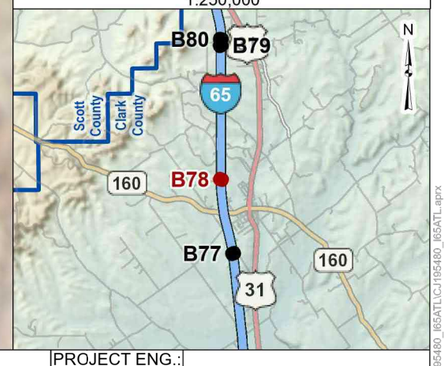
I-65 NB

HA-CB-05

CB-03

HA-CB-03

VICINITY MAP
1:250,000



LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.
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5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 19+90
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001598
STRUCTURE NO.:	CV I65-010-19.90
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B78

Terracon

Imagery credits: Esri, IGT, USTS, Esri, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, USTS, Woolpert Inc.

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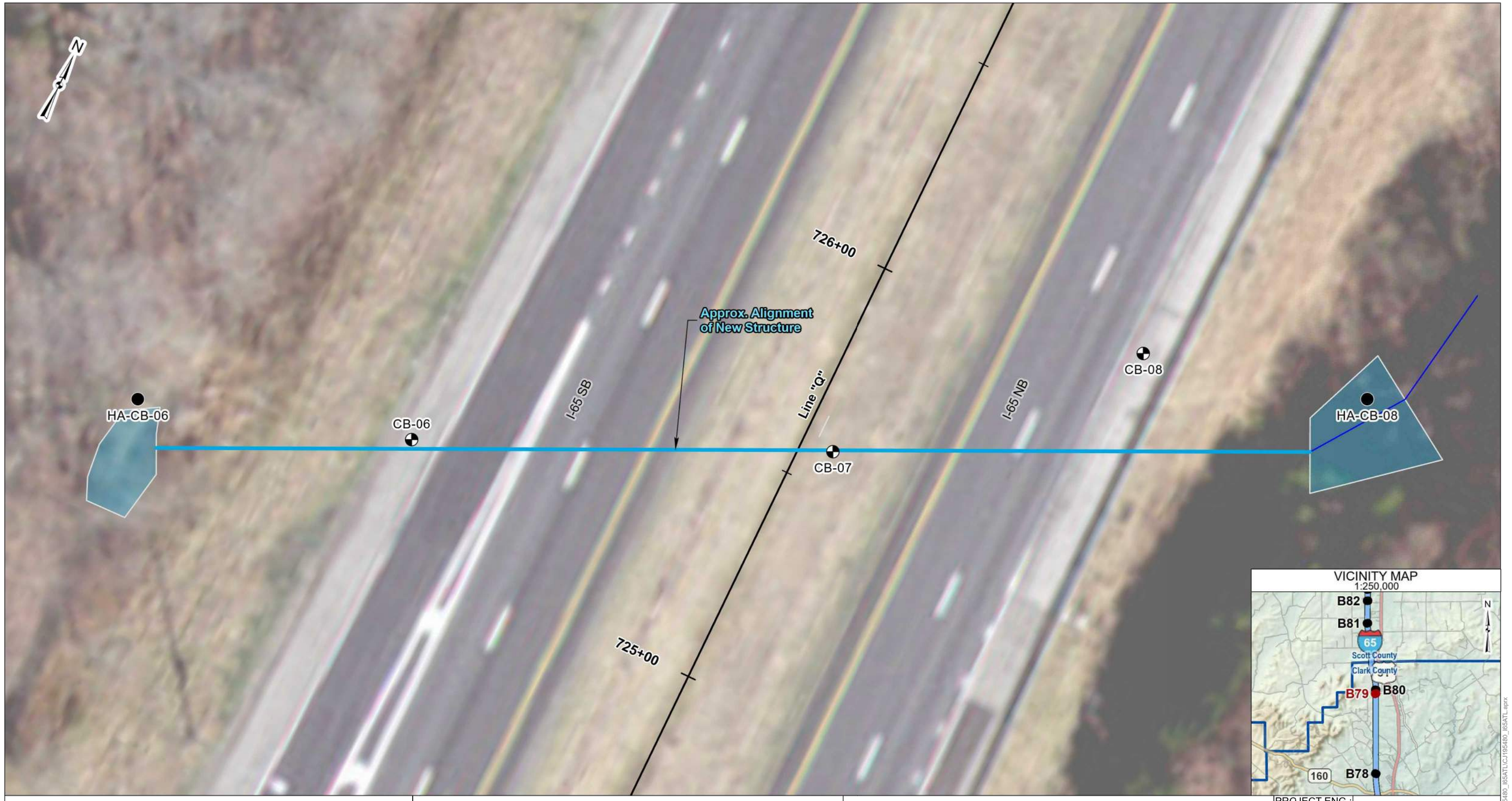

VICINITY MAP
1:250,000

LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 22+65
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001597
STRUCTURE NO.:	CV I65-010-22.65
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B79

Terracon

Imagery credits: Esri,, IOT, LRTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, LRTS, Woolpert Inc.

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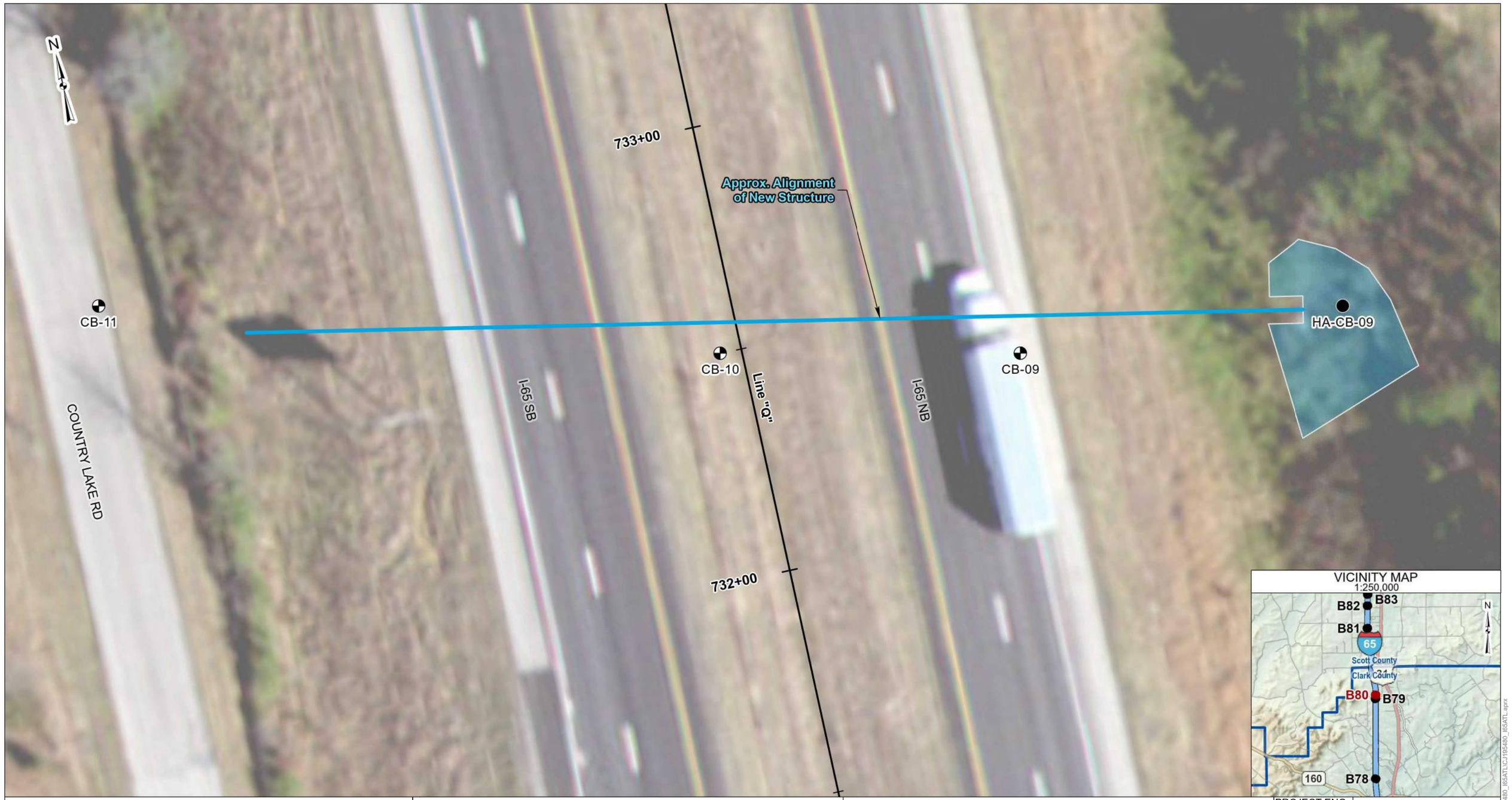

VICINITY MAP
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LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
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3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 22+77
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001595
STRUCTURE NO.:	CV I65-010-22.77
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B80

Terracon

Imagery credits: Esri, IGIC, IOT, URTS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, URTS, Woolpert Inc.

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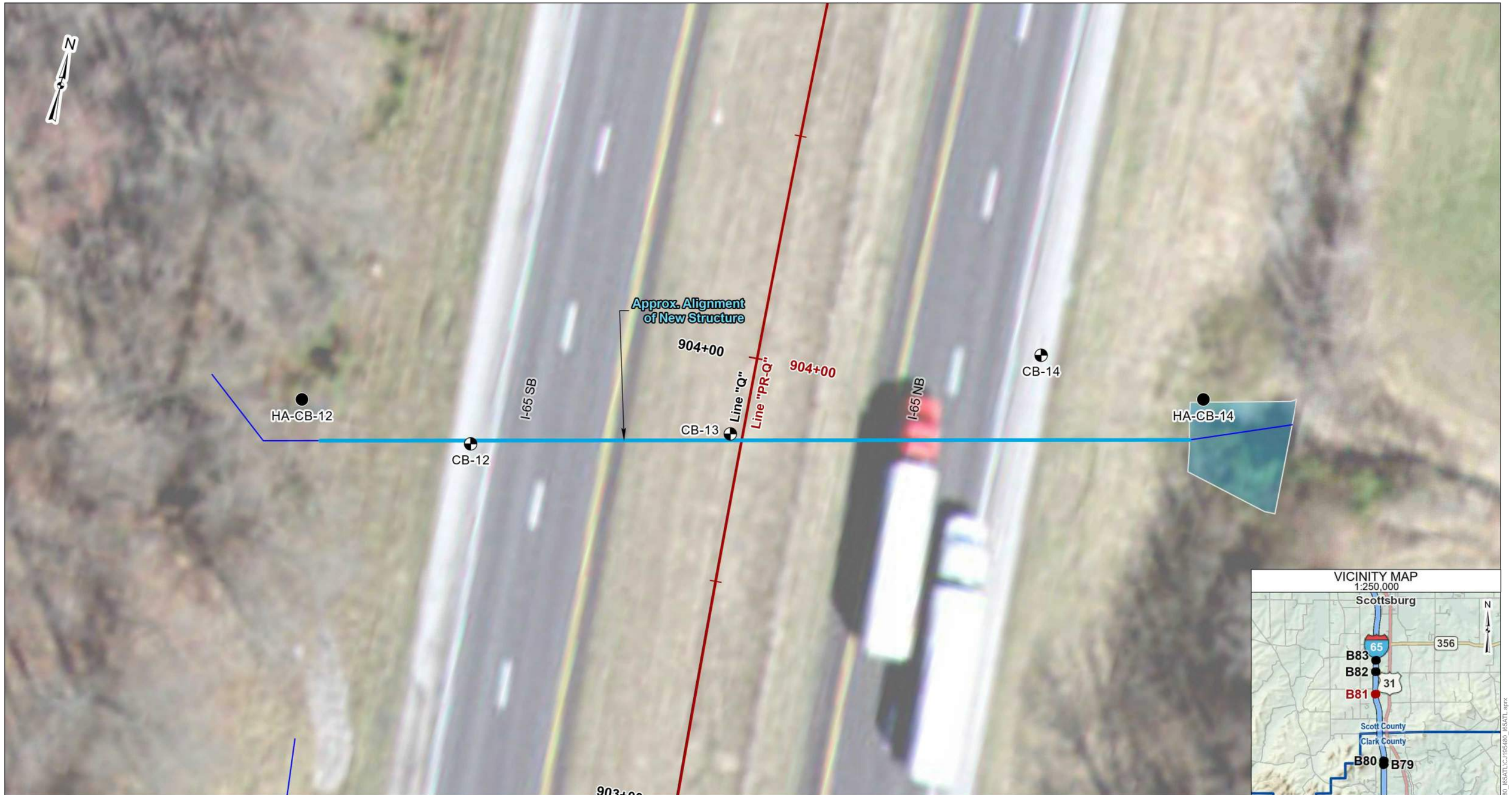

VICINITY MAP
1:250,000

LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "PR-Q"
- Line "Q"

NOTES

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3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 25+05
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001594
STRUCTURE NO.:	CV I65-072-25.05
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022

Terracon

DRAWING NO.:
CJ195480.B81

Imagery credits: Esri,, IOT, UITS, IGIS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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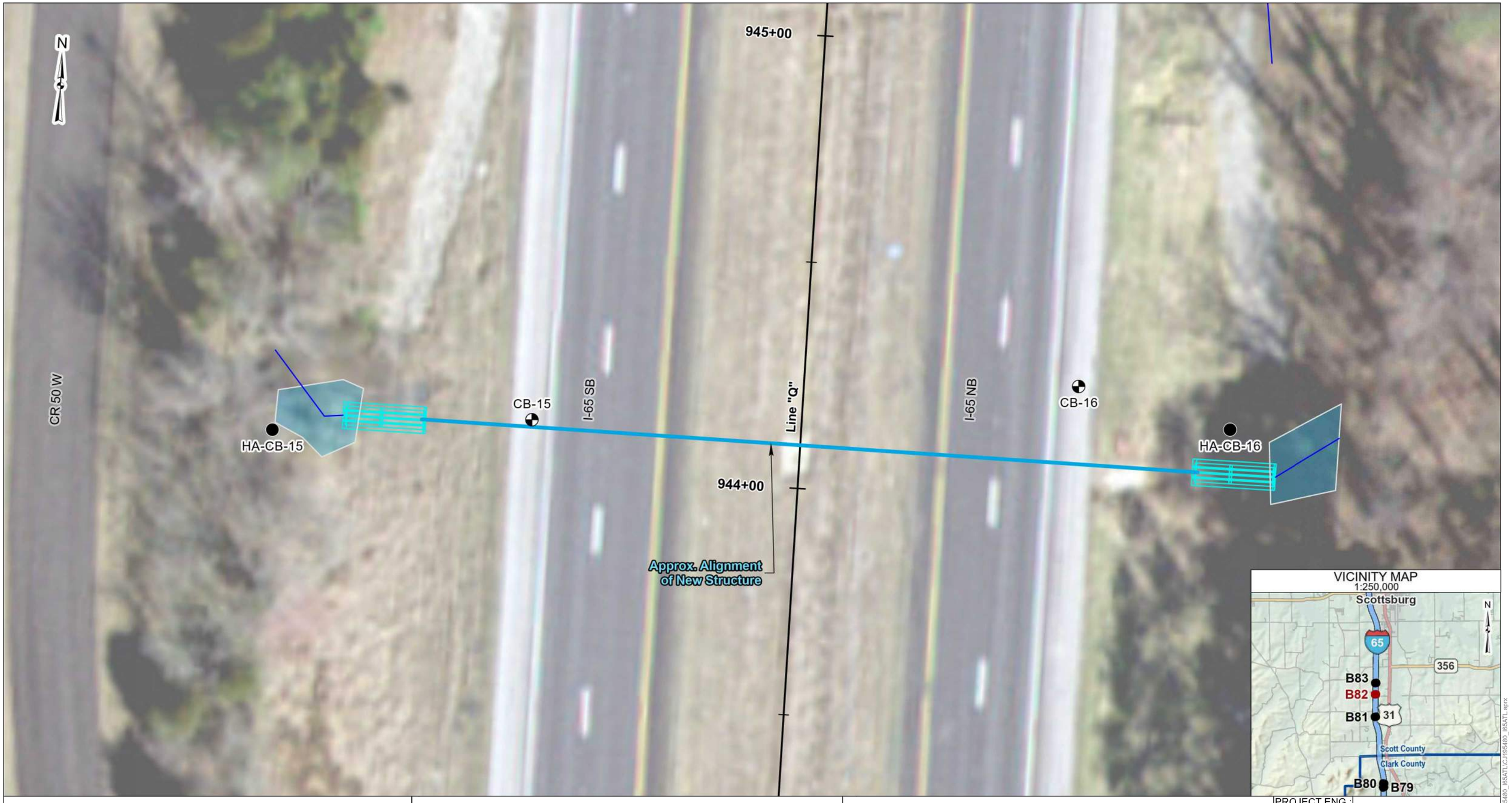

VICINITY MAP
1:250,000

LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 25+83
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001596
STRUCTURE NO.:	CV I65-072-25.83
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B82

Terracon

Imagery credits: Esri, IGIT, UITS, IGS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

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LEGEND

- Test Boring Location and Designation
- Hand Auger Boring Location and Designation
- Line "Q"

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 Added Travel Lanes: Culvert near RP 26+20
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001593
STRUCTURE NO.:	CV I65-072-26.20
PROJECT NO.:	CJ195480
SCALE:	1" : 20'

Attachment 11-9

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	01/04/2022
DRAWING NO.:	CJ195480.B83

Terracon

Imagery credits: IGIC, IOT, LRTS, IGIS, Woolpert, Indiana Office of Information Technology, Indiana University Spatial Data Portal, LRTS, Woolpert Inc.

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LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Coarse	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“N Value”
Very soft	0 - 3
Soft	4 - 5
Medium	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

LOG OF TEST BORING

BORING NO.: **CB-01**
SHEET 1 OF 1

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001599 STRUCTURE #: CV I65-010-18.35
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 18+35
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52837
LONGITUDE : -85.77442
DATUM : WGS 84
DATE STARTED : 08-11-21
DATE COMPLETED : 08-11-21

ELEVATION	: 531.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 501+19	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 6.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
530.0		**Asphaltic Concrete** 0.6 **Granular Subbase**, (crushed stone) 1.0											
	2.5	**Clay**, medium stiff, moist, brown and gray, A-6, Lab No. 30850	SS 1	3-5-5	56	13.3 17.6		>4.5 >4.5					
	5.0	5.0	SS 2	3-4-6	94	20.8 24.7	96.5	3.5 2.5	1.29				
525.0	7.5		SS 3	2-2-2	72	16.7		0.75		26	18	8	7.0, pH = 7.5, SG = 2.62
	10.0	**Sandy Clay Loam**, soft to stiff, hard below 13 ft, moist, brown, with organic matter near 9 ft, with weathered shale fragments near 10 ft, residual soil below 11 ft, A-4 (1), Lab No. 31996	SS 4	1-1-10	56	22.2 20.9		1.0					9.5, LOI = 5 percent
520.0	12.5		SS 5	50/3	100	18.1		>4.5					
	15.0	15.0											15.0, Water introduced for rock coring
515.0	17.5	**Shale**, hard, dark gray, low bedding planes, with pyrite nodules near 17.5 ft	RC 1 RQD= 77%		100				497				
	20.0	20.0											
510.0		Bottom of Boring at 20.0 ft Auger refusal near 15 ft											
	22.5												
	25.0												
505.0	27.5												
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-02**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001599 STRUCTURE #: CV I65-010-18.35
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 18+35
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52847
LONGITUDE : -85.77390
DATUM : WGS 84
DATE STARTED : 08-12-21
DATE COMPLETED : 08-12-21

ELEVATION	: 526.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 501+35	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 82.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
525.0		**Topsoil** 0.1											
	2.5	**Clay**, soft to medium stiff, moist, brown, A-6, Lab No. 30850	SS 1	3-4-4	100	26.6 21.5		1.5 3.0					
	5.0		SS 2	2-2-2	56	21.1 21.1	105.2	1.75 1.5	0.91				
520.0		6.0	SS 3	50/1	83	2.9							
	7.5	**Weathered Shale**, soft, dark gray	SS 4	50/1	83	2.5							
	10.0	10.0											
515.0		Bottom of Boring at 10.0 ft Auger refusal near 10 ft See log for Boring CB-02RC for rock core											
	12.5												
	15.0												
510.0													
	17.5												
	20.0												
505.0													
	22.5												
	25.0												
500.0													
	27.5												
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-02RC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001599 STRUCTURE #: CV I65-010-18.35
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 18+35
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.52847
LONGITUDE : -85.77400
DATUM : WGS 84
DATE STARTED : 08-25-21
DATE COMPLETED : 08-25-21

ELEVATION : 532.0
STATION : 501+35
OFFSET : 71.0 ft Right
LINE : 'PR-Q'
DEPTH : 19.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-57 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 70 °F
WEATHER : Fog

GROUNDWATER: ▽ Encountered at 11.0 ft ▼ At completion 4.0 ft ▩ Caved in at 9.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
530.0	2.5												
	5.0	**Clay**, moist, brown, A-6, Lab No. 30850	ST 1		96	21.8	95.4	2.5 >4.5	1.16				
525.0	7.5												
	10.0												
520.0	12.5	12.0 **Weathered Shale**, dark gray, (field visual) 14.0											
	15.0	**Shale**, hard, dark gray, low bedding planes, with pyrite nodules near 15.5 to 16 ft	RC 1 RQD= 70%		83				445				14.0, Water introduced for rock coring
515.0	17.5	19.0											
	20.0	Bottom of Boring at 19.0 ft Auger refusal near 14 ft											
510.0	22.5												
	25.0												
505.0	27.5												
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-03**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001598 STRUCTURE #: CV I65-010-19.90
PROJECT TYPE: Culvert Replacement, Open Trench
LOCATION : I-65 near RP 19+90
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55015
LONGITUDE : -85.77859
DATUM : WGS 84
DATE STARTED : 08-26-21
DATE COMPLETED : 08-26-21

ELEVATION : 532.0
STATION : 581+71
OFFSET : 68.0 ft Right
LINE : 'PR-Q'
DEPTH : 25.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-57 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 87 °F
WEATHER : Cloudy

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ 1.5 ft After 30 days ▨ Caved in at 10.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.2											
530.0	2.5	**Clay Loam**, soft, moist, brown, A-6, Lab No. 31377	SS 1	1-2-2	0								
	5.0		SS 2	2-2-2	67	23.7 22.5		1.0 1.0					
		6.0											
525.0	7.5		SS 3	2-5-6	67	16.7		3.75					
	10.0	**Clay Loam**, medium stiff to stiff, moist, brown and gray, A-4, Lab No. 31997	SS 4	2-3-5	89	18.6		2.5					
			SS 5	3-4-4-5	50	23.5		2.0					
520.0	12.5		SS 6	3-4-6-6	50	19.9 19.1	106.3	4.0	2.19				
		14.0											
	15.0	**Clay**, soft to very stiff, moist, brown to gray, A-7-6, Lab No. 31998	SS 7	2-2-3-3	50	28.9		1.0					
515.0	17.5		SS 8	7-11-15-17	50	15.0		>4.5					
		18.0											
	20.0	**Weathered Shale**, soft, gray	SS 9	11-20-25-34	8	8.5							
510.0	22.5		SS 10	50/5	83	7.4							
		25.0											
	25.0	Bottom of Boring at 25.0 ft											
505.0	27.5	Auger refusal near 25 ft											
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-04**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001598 STRUCTURE #: CV I65-010-19.90
PROJECT TYPE: Culvert Replacement, Open Trench
LOCATION : I-65 near RP 19+90
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55030
LONGITUDE : -85.77884
DATUM : WGS 84
DATE STARTED : 08-13-21
DATE COMPLETED : 08-13-21

ELEVATION	: 532.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 582+27	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 2.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 17.5 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ Surface After 17 days ▨ Caved in at 7.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
530.0	2.5		SS 1	4-5-7	100	16.4 15.9		>4.5 >4.5					
	5.0	**Clay Loam**, medium stiff to stiff, moist, brown, with silty clay loam seams below 6 ft, A-6, Lab No. 31377	SS 2	6-5-7	67	18.9 20.7		>4.5 3.75					
525.0	7.5 ▨		SS 3	3-4-5	67	22.4		4.0					
		9.5	SS 4	4-5-7	89	24.0		>4.5					
	10.0		SS 5	4-5-6-6	83	17.6	113.1	>4.5	3.66				
520.0	12.5	**Clay Loam**, medium stiff to stiff, moist, brown, with sandy loam seam near 13 ft, with some gravel below 14 ft, A-4(1), Lab No. 31997	SS 6	3-5-5-5	83	17.5		2.5		29	23	6	13.5, pH = 5.6, SG = 2.68
	15.0		SS 7	4-6-8-9	83	18.0		>4.5					
		16.0	SS 8	11-50/4	83	15.3							
515.0	17.5	**Weathered Shale**, soft, gray 17.5											
		Bottom of Boring at 17.5 ft											
		Auger refusal near 17.5 ft											
510.0	20.0												
	22.5												
	25.0												
505.0	27.5												
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-04ST**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001598 STRUCTURE #: CV I65-010-19.90
PROJECT TYPE: Culvert Replacement, Open Trench
LOCATION : I-65 near RP 19+90
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55030
LONGITUDE : -85.77885
DATUM : WGS 84
DATE STARTED : 08-13-21
DATE COMPLETED : 08-13-21

ELEVATION	: 532.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 582+27	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 4.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 5.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
													0.0, Taken at offset to CB-04
		Refer to Boring log for CB-04											
530.0	2.5												
	3.0	**Clay Loam**, moist, brown to gray below 3.5 ft, A-6, Lab No. 31377	ST 1		67			>4.5					
	5.0							4.25					
		Bottom of Boring at 5.0 ft											
525.0	7.5												
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-05**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001598 STRUCTURE #: CV I65-010-19.90
PROJECT TYPE: Culvert Replacement, Open Trench
LOCATION : I-65 near RP 19+90
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.55037
LONGITUDE : -85.77906
DATUM : WGS 84
DATE STARTED : 08-11-21
DATE COMPLETED : 08-11-21

ELEVATION : 531.0
STATION : 582+54
OFFSET : 67.0 ft Left
LINE : 'PR-Q'
DEPTH : 26.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-57 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 81 °F
WEATHER : Sunny

GROUNDWATER: Encountered at NW At completion NW NW After 24 hr Caved in at 16.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
530.0		**Topsoil** 0.3											
	2.5	**Sandy Loam**, soft, moist, brown, (fill; visual) 3.0	SS 1	2-2-3	17	10.4		0.25					
	5.0	**Clay Loam**, very soft, moist, brown, A-6, Lab No. 31377 6.0	SS 2	1-1-2	39	15.9 20.8		1.5 2.0					
525.0	7.5		SS 3	3-3-5	0								
	10.0	**Clay Loam**, medium stiff, moist, brown to gray, A-4, Lab No. 31997	SS 4	3-4-6	56	20.6		4.0					
520.0			SS 5	4-4-6	25	18.0		2.0					
	12.5	14.0	SS 6	3-5-4-5	58	24.3		2.0					
	15.0		SS 7	2-2-3-3	0								
515.0		**Clay**, soft to hard, moist, gray, (residual soil below 16 ft), A-7-6, Lab No. 31998	SS 8	4-12-20-35	50	11.3		>4.5					
	17.5	18.0	SS 9	30-50/5	56	10.0							
	20.0		SS 10	50/2	83	8.6							
510.0		**Weathered Shale**, soft, gray	SS 11	50/5	83	9.2							
	22.5												
	25.0		SS 12	50/5	83	3.4							
505.0		26.0											
	27.5	Bottom of Boring at 26.0 ft Auger refusal near 26 ft											
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-06**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001597 STRUCTURE #: CV I65-010-22.65
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 22+65
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58954
LONGITUDE : -85.77909
DATUM : WGS 84
DATE STARTED : 07-13-21
DATE COMPLETED : 07-13-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 725+21	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 78.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 28.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 24.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0		**Asphaltic Concrete** 0.7	SS 1	3-3-4	78	20.5		3.0					
						19.7		4.5					
	5		SS 2	4-4-6	78	19.3		1.25					
						15.4		3.5					
605.0		**Silty Clay**, medium stiff to stiff, moist, brown, with cobble fragments near 4 ft, with clay loam seam near 6 ft, A-6, Lab No. 30932	SS 3	6-6-6	89	22.8		2.0					
			SS 4	5-5-6	89	24.9		2.5					
	10		SS 5	4-5-6	83	17.2		>4.5					
600.0			SS 6	4-4-5	89	25.8	99.2	1.0	0.93				
		13.0	SS 7	6-7-7	89	22.2		3.25					
	15		SS 8	6-7-8	78	21.7		1.5					
595.0			SS 9	5-6-7	89	21.6		2.0					
		Clay, stiff to hard, moist, brown, A-7-6, Lab No. 31998	SS 10	6-7-10	83	18.0	111.5	3.5	4.95				
	20		SS 11	8-9-11	94	21.5		>4.5					
590.0													
		24.5	SS 12	13-15-30	72	20.1		4.0					
	25					9.6							
585.0		**Weathered Shale**, soft, gray											
		28.8	SS 13	50/4	83								
	30	Bottom of Boring at 28.8 ft											
580.0		Sampler refusal near 29 ft											
	35												
575.0													
	40												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-07**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001597 STRUCTURE #: CV I65-010-22.65
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 22+65
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58965
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 08-13-21
DATE COMPLETED : 08-13-21

ELEVATION	: 610.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 725+59	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 7.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 72 hr ▩ Caved in at 9.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.5											
	2.5		SS 1	3-5-5	89	16.6 21.5		4.0 3.5					
605.0	5.0		SS 2	2-2-3	28	20.5		3.0					
	7.5		SS 3	4-4-7	100	22.4		3.25					
		Silty Clay, soft to stiff, moist, brown, A-6, Lab No. 30932											
600.0	10.0		SS 4	2-3-3	100	23.3		2.5					
			SS 5	2-2-3-5	67	22.9		3.5					
	12.5		SS 6	3-2-3-3	42	21.4		4.0					
595.0	15.0		SS 7	3-2-3-4	67	19.1		2.0					
		16.0											
	17.5	**Clay**, very stiff to hard, moist, gray, A-7-6, Lab No. 31998	SS 8	7-11-13-16	75	15.0		>4.5					
			SS 9	13-16-19-20	83	15.7		>4.5					
590.0	20.0	20.0											
		Bottom of Boring at 20.0 ft											
	22.5												
585.0	25.0												
	27.5												
580.0	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-07ST**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001597 STRUCTURE #: CV I65-010-22.65
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 22+65
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58966
LONGITUDE : -85.77880
DATUM : WGS 84
DATE STARTED : 08-13-21
DATE COMPLETED : 08-13-21

ELEVATION	: 610.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 725+64	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 7.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 12.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
													0.0, Taken at offset to CB-07
605.0	5.0	Refer to Boring log for CB-07											
600.0	10.0	**Silty Clay**, moist, brown, A-6, Lab No. 30932	ST 1		83	20.9	101.7	4.0 4.0	1.97				
	10.0												
	12.0												
	12.5	Bottom of Boring at 12.0 ft											
595.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-08**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001597 STRUCTURE #: CV I65-010-22.65
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 22+65
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.58978
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 07-13-21
DATE COMPLETED : 07-13-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 726+08	RIG TYPE	: B-57 Truck	DRILLER/INSP	: D.C.
OFFSET	: 59.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 38.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 28.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
610.0	2.5		SS 1	5-5-6	67	21.2 17.3		0.5 2.0					
	5.0		SS 2	4-4-5	78	20.1 22.1		2.5 0.5					
605.0	7.5	**Silty Clay**, medium stiff to stiff, moist, brown, with clay loam seam near 2 ft, A-6, Lab No. 30932	SS 3	4-4-5	83	23.3		2.5					
	10.0		SS 4	6-5-6	94	24.7		2.5					
			SS 5	6-6-7	100	24.5		0.5					
600.0	12.5	13.0	SS 6	4-5-5	89	21.7		2.5					
	15.0		SS 7	5-6-5	100	22.0		3.0					
			SS 8	4-5-5	89	21.3		3.25					
595.0	17.5		SS 9	4-5-6	89	19.4		2.5					
		Clay, medium stiff to hard, moist, brown, with organic matter and shale fragments near 20 ft, A-7-6(19), Lab No. 31998	SS 10	4-5-5	83	23.5 22.0	100.8	2.25	1.83	43	23	20	18.5, pH = 6.4, SG = 2.61
	20.0		SS 11	5-5-5	94	33.8		1.0					20.5, LOI = 5 percent
590.0	22.5												
		24.5	SS 12	34-38-45	78	21.5 8.3	104.5	3.25	2.48				
	25.0												
585.0	27.5	**Weathered Shale**, soft, gray											
			SS 13	38-45-48	67	6.8							
	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-08**
SHEET 2 OF 2
LATITUDE : 38.58978
LONGITUDE : -85.77861
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001597 STRUCTURE #: CV I65-010-22.65
PROJECT TYPE: Pipe Replacement, Trenchless

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
580.0	32.5												
	35.0	**Weathered Shale**, soft, gray	SS 14	42-46-48	67	9.2							
575.0	37.5												
	38.8		SS 15	50/3	100	6.7							
	40.0	Bottom of Boring at 38.8 ft Sampler refusal near 39 ft											
570.0	42.5												
	45.0												
565.0	47.5												
	50.0												
560.0	52.5												
	55.0												
555.0	57.5												
	60.0												
550.0	62.5												
	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-09**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 22+77
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59151
LONGITUDE : -85.77861
DATUM : WGS 84
DATE STARTED : 07-14-21
DATE COMPLETED : 07-14-21

ELEVATION	: 614.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 732+36	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 73 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 40.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 27.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.6											
	2.5	**Sandy Loam**, medium stiff, moist, brown, (fill; visual) 3.0	SS 1	4-4-5	67	13.6 6.6		>4.5					
610.0	5.0		SS 2	4-4-5	67	19.2 21.4		1.5 3.0					
	7.5		SS 3	5-5-6	83	18.3		>4.5					
605.0	10.0	**Silty Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30932	SS 4	5-5-5	89	18.6		2.75					
	12.5		SS 5	5-6-6	94	13.9		3.25					
600.0	15.0	15.0	SS 6	5-6-7	67	12.8		3.25					
			SS 7	5-5-5	83	21.8		3.25					
	17.5		SS 8	5-5-6	94	26.7		2.75					17.5, LOI = 3 percent
595.0			SS 9	5-5-7	89	19.6 19.9		0.5					
	20.0	**Clay**, medium stiff to hard, moist, brown to gray below 23 ft, with shale fragments and loam seams below 18 ft, A-7-6, Lab No. 31998	SS 10	5-6-6	83	17.8		1.25					
	22.5		SS 11	6-8-12	94	19.7		4.5					
590.0			SS 12	7-9-11	78	21.3		>4.5					
	25.0		SS 13	13-32-45	89	17.2							
		27.0											
	27.5	**Weathered Shale**, soft, gray											
585.0	30.0		SS 14	15-30-46	44	15.3							

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-09**
SHEET 2 OF 2
LATITUDE : 38.59151
LONGITUDE : -85.77861
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
PROJECT TYPE: Pipe Replacement, Open Trench

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5	**Weathered Shale**, soft, gray											
580.0			SS 15	38-50/4	63	5.8							
	35.0												
	37.5	**Shale**, very soft to moderately hard, gray, low bedding planes	RC 1 RQD= 42%		83								
575.0	40.0												
		Bottom of Boring at 40.0 ft											
		Auger refusal near 35 ft											
	42.5												
570.0	45.0												
	47.5												
565.0	50.0												
	52.5												
560.0	55.0												
	57.5												
555.0	60.0												
	62.5												
550.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-10**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 22+77
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59155
LONGITUDE : -85.77884
DATUM : WGS 84
DATE STARTED : 08-13-21
DATE COMPLETED : 08-13-21

ELEVATION : 612.0
STATION : 732+50
OFFSET : 5.0 ft Left
LINE : 'Q'
DEPTH : 28.9 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : B-57 Truck
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : J.R.
TEMPERATURE : 80 °F
WEATHER : Rain

GROUNDWATER: Encountered at NW At completion NW NW After 72 hr Caved in at 15.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
610.0	2.5	**Topsoil** 0.5 **Silty Clay**, medium stiff, moist, brown, A-6, Lab No. 30932	SS 1	3-3-5	89	15.6 19.1		1.75 2.5					
	5.0	6.0	SS 2	3-4-4	67	20.1 17.5		4.5 >4.5					
605.0	7.5		SS 3	4-3-4	89	20.3		3.0					
	10.0		SS 4	3-3-4	89	23.2		3.25					
600.0	12.5	**Clay**, medium stiff to stiff, moist, brown to gray, with weathered shale fragments near 21 ft, A-7-6, Lab No. 31998											
	15.0		SS 5	4-4-6	78	18.9		2.25					
595.0	17.5		SS 6	3-4-4-4	83	24.1		2.5					
	20.0		SS 7	3-3-4-7	92	22.4		2.25					
		21.0	SS 8	4-6-7-11	83	17.8		2.0					
590.0	22.5												
	25.0	**Weathered Shale**, soft, gray	SS 9	17-50/5	93	12.8							
585.0	27.5												
		28.9	SS 10	50/5	42	5.5							
	30.0	Bottom of Boring at 28.9 ft Sampler refusal near 29 ft											
580.0	32.5												
	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-10ST**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
LATITUDE : 38.59155
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
LONGITUDE : -85.77884
PROJECT TYPE: Pipe Replacement, Open Trench
DATUM : WGS 84
LOCATION : I-65 near RP 22+77
DATE STARTED : 08-13-21
COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-13-21

ELEVATION	: 612.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 732+50	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 7.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 17.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
													0.0, Taken at offset to CB-10
610.0	2.5												
	5.0												
605.0	7.5	Refer to Boring log for CB-10											
	10.0												
600.0	12.5												
	15.0	15.0											
		Clay, moist, gray, A-7-6, Lab No. 31998	ST 1		58	16.1	110.6	2.75 4.25	2.09				
595.0	17.0	17.0											
	17.5	Bottom of Boring at 17.0 ft											

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-11**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
PROJECT TYPE: Pipe Replacement, Open Trench
LOCATION : I-65 near RP 22+77
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.59165
LONGITUDE : -85.77928
DATUM : WGS 84
DATE STARTED : 08-16-21
DATE COMPLETED : 08-16-21

ELEVATION	: 601.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 732+89	RIG TYPE	: B-57 Truck	DRILLER/INSP	: D.C.
OFFSET	: 131.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 27.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 13.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
600.0		**Asphaltic Concrete** 0.5											
	2.5	**Silty Clay**, soft to medium stiff, moist, brown, gray near 5 ft, (fill), A-6, Lab No. 30932	SS 1	2-2-4	56	20.4 17.0		>4.5 >4.5					
	5.0		SS 2	2-2-2	33	21.9		3.5					
		Sandy Gravel, moist, brown, (fill; visual) 6.0											
595.0	7.5		SS 3	4-3-2	44	21.5		2.75					
	10.0		SS 4	3-6-8	100	21.7	106.0	3.25	2.17				
590.0		**Clay**, soft to very stiff, moist, gray, with loam seam near 7 ft, A-7-6, Lab No. 31998											
	12.5	▨											
	15.0		SS 5	7-9-14	89	13.7		>4.5					
585.0	17.5	18.0											
	20.0		SS 6	13-22-37	67	11.4							
580.0	22.5	**Weathered Shale**, soft, gray											
			SS 7	50/5	83	7.3							
575.0	25.0	27.0											
	27.5	Bottom of Boring at 27.0 ft Auger refusal near 27 ft											
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-11ST**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.59165
DES NO. : 2001595 STRUCTURE #: CV I65-010-22.77
LONGITUDE : -85.77927
PROJECT TYPE: Pipe Replacement, Open Trench
DATUM : WGS 84
LOCATION : I-65 near RP 22+77
DATE STARTED : 08-16-21
COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-16-21

ELEVATION	: 601.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 732+89	RIG TYPE	: B-57 Truck	DRILLER/INSP	: D.C.
OFFSET	: 129.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 6.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
600.0													0.0, Taken at offset to CB-11
		Refer to Boring log for CB-11											
	2.5												
	4.0	**Silty Clay**, moist, gray, (fill), A-6, Lab No. 30932	ST 1		100	23.8	95.8	1.25	2.27				
	5.0	**Sandy Gravel**, moist, brown, (fill; visual)											
595.0	6.0	Bottom of Boring at 6.0 ft											
	7.5												
	10.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-12**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001594 STRUCTURE #: CV I65-072-25.05
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+05
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62423
LONGITUDE : -85.78422
DATUM : WGS 84
DATE STARTED : 08-10-21
DATE COMPLETED : 08-10-21

ELEVATION	: 598.9	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 903+70	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 22.0 ft				

GROUNDWATER: ▽ Encountered at 20.0 ft ▼ At completion 17.0 ft ▩ Caved in at 19.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008	SS 1	3-4-5	89	14.7 18.4		>4.5 3.25					
595.0	5.0		SS 2	3-4-6	56	14.7 16.4		>4.5 >4.5					
		6.0											
	7.5		SS 3	4-6-7	100	17.3		1.5					
590.0			SS 4	3-3-3	100	22.8		2.5					
	10.0												
		Silty Clay Loam, very soft to stiff, moist, brown and gray, with clay seams below 11 ft, with organic matter near 13.5 ft, A-4, Lab No. 32000	SS 5	1-1-2-2	50	19.0		2.5					
	12.5		SS 6	3-4-5-5	83	20.8 18.9		1.0					13.5, LOI = 4 percent
585.0													
	15.0		SS 7	4-4-5-6	83	24.4		1.75					
			SS 8	4-4-6-6	75	21.0		1.75					
	17.5	18.0											
580.0			SS 9	4-5-5-5	92	16.4 14.7	120.0	3.0	1.41	21	15	6	18.4, pH = 8.1, SG = 2.72
	20.0	**Sandy Clay Loam**, medium stiff to very stiff, moist, brown, A-4(0), Lab No. 31999											
		22.0	SS 10	7-9-9-10	75	13.2		1.75					
	22.5	Bottom of Boring at 22.0 ft											
575.0													
	25.0												
	27.5												
570.0													
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001594.GPJ IN_DOT1.GDT 1/14/22

Attachment 11-9

LOG OF TEST BORING

BORING NO.: **CB-13**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001594 STRUCTURE #: CV I65-072-25.05
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+05
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62427
LONGITUDE : -85.78403
DATUM : WGS 84
DATE STARTED : 08-16-21
DATE COMPLETED : 08-16-21

ELEVATION	: 595.1	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 903+83	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 3.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at 16.0 ft ▼ At completion NW ▩ Caved in at 14.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5	**Clay Loam**, medium stiff, moist, brown, A-4, Lab No. 31008	SS 1	3-3-6	89	20.4 18.2		3.5 3.5					
		4.0	SS 2	4-4-6	100	16.9 17.6		>4.5 >4.5					
590.0	5.0												
	7.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31371	SS 3	6-6-7	100	22.3		1.5					
		9.0	SS 4	4-5-4	67	21.1		3.5					
585.0	10.0		SS 5	4-4-4-9	75	20.5		2.0					
	12.5		SS 6	2-2-2-2	58	29.1		1.0		28	26	2	12.3, pH = 7.9, SG = 2.78
		Silty Clay Loam, soft to stiff, moist, brown, with sandy loam seam near 11 ft, with clay loam seam near 17 ft, A-4(2), Lab No. 32000				21.4	115.5						
580.0	15.0		SS 7	1-2-2-5	67			2.0					
	17.5		SS 8	4-4-7-8	67	21.3		3.0					
		20.0	SS 9	4-4-5-7	25	18.1		>4.5					
575.0	20.0	Bottom of Boring at 20.0 ft											
570.0	22.5 25.0 27.5 30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001594.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-14**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001594 STRUCTURE #: CV I65-072-25.05
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+05
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62436
LONGITUDE : -85.78381
DATUM : WGS 84
DATE STARTED : 08-26-21
DATE COMPLETED : 08-26-21

ELEVATION	: 597.8	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 904+13	RIG TYPE	: B-57 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 28.9 ft				

GROUNDWATER: ▽ Encountered at 12.0 ft ▼ At completion 8.0 ft ▨ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
595.0	2.5	**Clay Loam**, medium stiff, moist, gray, A-4, Lab No. 31008	SS 1	2-2-4	56	17.2 20.9		3.25 1.5					
	5.0		SS 2	3-3-4	89	22.6 15.1		2.5 >4.5					
		6.0											
590.0	7.5		SS 3	4-5-5	56	17.8		4.5					
	10.0		SS 4	2-3-3	67	20.4		1.5					
		Clay, medium stiff, very soft near 15 ft, moist, gray, A-6, Lab No. 31371	SS 5	3-3-4-4	42	18.2		2.5					
585.0	12.5		SS 6	3-4-5-5	50	22.5		3.0					
	15.0		SS 7	1-1-2-4	54	28.3	96.0	2.5	0.81				
		16.0											
			SS 8	4-5-6-8	42	20.0							17.0, LOI = 4 percent
580.0	17.5	**Sandy Clay Loam**, stiff, wet, gray, with organic matter near 17 ft, (visual)	SS 9	5-5-6-7	50	15.7		2.75					
	20.0												
		Clay, hard, moist, gray, (residual soil), A-7-6, Lab No. 31998											
575.0	22.5												
		24.0											
	25.0		SS 10	23-30-35	56	27.0 14.2		4.0					
		Weathered Shale, soft, gray											
570.0	27.5												
		28.9	SS 11	50/5	83	11.0		>4.5					
	30.0	Bottom of Boring at 28.9 ft											
565.0	32.5												
	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001594.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-15**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001596 STRUCTURE #: CV I65-072-25.83
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+83
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63533
LONGITUDE : -85.78409
DATUM : WGS 84
DATE STARTED : 08-10-21
DATE COMPLETED : 08-10-21

ELEVATION	: 594.7	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 944+12	RIG TYPE	: B-57 Truck	DRILLER/INSP	: B.H.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 29.4 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▨ Caved in at 17.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.5											
	2.5		SS 1	4-6-7	89	19.1 19.8		>4.5 3.75					
590.0	5.0	**Clay**, medium stiff to stiff, A-6, Lab No. 31007	SS 2	3-5-5	67	17.9 17.3		>4.5 >4.5					
		7.0	SS 3	4-8-7	78	14.5		>4.5					
	7.5												
585.0	10.0		SS 4	2-2-2	89	22.1		1.25					
	12.5	**Silty Clay Loam**, soft to stiff, moist, brown and gray, A-4, Lab No. 32001											
580.0	15.0		SS 5	3-5-6	78	17.5		2.0					
	17.5	18.0											
575.0	20.0		SS 6	8-13-14	89	11.2	128.2	>4.5					
	22.5	**Clay Loam**, very stiff, moist, gray, with loam seam near 19 ft, A-4, Lab No. 32002											
570.0	25.0		SS 7	9-10-16	78	18.3		>4.5					
	27.5	28.0											
		Weathered Shale, soft, gray 29.4	SS 8	19-50/5	74	13.8							
565.0	30.0	Bottom of Boring at 29.4 ft											
		Sampler refusal near 29.5 ft											
	32.5												
560.0	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001596.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-15ST**
SHEET 1 OF 1

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001596 STRUCTURE #: CV I65-072-25.83
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+83
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63534
LONGITUDE : -85.78409
DATUM : WGS 84
DATE STARTED : 08-10-21
DATE COMPLETED : 08-10-21

ELEVATION	: 594.7	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 944+14	RIG TYPE	: B-57 Truck	DRILLER/INSP	: B.H.
OFFSET	: 59.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
													0.0, Taken at offset to CB-15
	2.5	Refer to Boring log for CB-15											
590.0	5.0												
	7.5												
	8.0												
585.0	10.0	**Silty Clay Loam**, moist, brown and gray, A-4(4), Lab No. 32001	ST 1		58	20.6 22.8	103.6	1.25 3.5	0.86	26	19	7	9.0, pH = 6.7, SG = 2.72
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
580.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001596.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-16**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001596 STRUCTURE #: CV I65-072-25.83
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 25+83
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.63537
LONGITUDE : -85.78367
DATUM : WGS 84
DATE STARTED : 08-26-21
DATE COMPLETED : 08-26-21

ELEVATION	: 594.6	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 944+26	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 72 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 28.8 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 13.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.1											
	2.5	**Clay Loam**, medium stiff, moist, brown, (fill), A-4, Lab No. 31008 3.0	SS 1	3-3-4	56	16.1 16.8		2.0 3.5					
590.0	5.0		SS 2	3-4-5	56	20.5 18.9		3.0 3.5					
	7.5	**Clay**, medium stiff to soft, moist, brown, gray near 4 ft, A-6, Lab No. 31007	SS 3	4-4-6	56	17.2		2.5					
585.0	10.0	11.0	SS 4	2-2-3	67	19.7		2.75					10.0, LOI = 3 percent
	12.5		SS 5	10-13-17	56	16.6		2.5					
580.0	15.0		SS 6	12-20-21	56	13.8		3.0					
	17.5	**Clay Loam**, very stiff to hard, moist, gray, with clay seam near 19 ft, (residual soil), A-4(2), Lab No. 32002											
575.0	20.0	22.0	SS 7	10-11-13	72	17.9 15.7	114.5	2.5	2.11	23	16	7	19.5, pH = 7.6, SG = 2.74
	22.5												
570.0	25.0	**Weathered Shale**, soft, gray	SS 8	17-26-31	100	9.3							
	27.5	28.8	SS 9	50/3	67	9.6							
565.0	30.0	Bottom of Boring at 28.8 ft Sampler refusal near 29 ft											
	32.5												
560.0	35.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001596.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-17**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 26+20
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64095
LONGITUDE : -85.78401
DATUM : WGS 84
DATE STARTED : 07-15-21
DATE COMPLETED : 07-15-21

ELEVATION	: 614.7	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 964+58	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 75 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 49.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 17.0 ft ▩ Caved in at 35.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 1.0											
		Granular Subbase, (crushed stone) 1.4	SS 1	7-6-8	67	10.4 12.1		1.0 >4.5					
	2.5												
610.0	5.0	**Sandy Loam**, stiff, moist, brown, A-2-7, Lab No. 31383	SS 2	6-6-7	72	15.6 8.4		2.5 >4.5					
		6.0	SS 3	6-8-9	78	11.6		>4.5					
	7.5												
605.0	10.0		SS 4	5-6-9	78	13.1		>4.5					
	12.5												
600.0	15.0	**Clay Loam**, stiff to very stiff, moist, brown, A-6, Lab No. 31372	SS 5	5-5-9	89	13.4		>4.5					
	17.5	▼											
595.0	20.0		SS 6	8-8-10	94	15.9		4.5					
	22.5	23.0											
590.0	25.0		SS 7	5-5-5	83	17.6		>4.5					
			SS 8	5-5-6	72	21.5		1.75					
	27.5	**Loam**, medium stiff to very stiff, moist, brown, with clay loam seams throughout, A-4(0), Lab No. 32003	SS 9	4-4-5	94	19.6		0.75					
			SS 10	4-6-6	94	15.2		0.5		17	15	2	28.0, pH = 6.2, SG = 2.69
585.0	30.0		SS 11	4-6-6	89	15.7		2.0					

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EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-17**
SHEET 2 OF 2
LATITUDE : 38.64095
LONGITUDE : -85.78401
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
PROJECT TYPE: Pipe Replacement, Trenchless

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5	**Loam**, medium stiff to very stiff, moist, brown, with clay loam seams throughout, A-4(0), Lab No. 32003	SS 12	4-5-7	72	25.9	102.2	1.75					
		33.0	SS 13	8-11-16	78	15.7		2.0					
580.0	35.0		SS 14	8-13-15	83	16.7		>4.5					
	37.5												
		Clay, very stiff to hard, moist, brown, possible residual soil, A-7-6, Lab No. 31998	SS 15	13-15-18	89	15.0		>4.5					
575.0	40.0												
	42.5												
			SS 16	13-15-31	89	17.0		>4.5					
570.0	45.0	45.0											
	47.5	**Weathered Shale**, soft, gray											
		49.3	SS 17	42-50/4	83	8.4							
565.0	50.0	Bottom of Boring at 49.3 ft											
		Sampler refusal near 49 ft											
	52.5												
560.0	55.0												
	57.5												
555.0	60.0												
	62.5												
550.0	65.0												
	67.5												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-18**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 26+20
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64097
LONGITUDE : -85.78381
DATUM : WGS 84
DATE STARTED : 08-16-21
DATE COMPLETED : 08-16-21

ELEVATION	: 612.3	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 964+64	RIG TYPE	: B-57 Truck	DRILLER/INSP	: J.R.
OFFSET	: 4.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 73 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Rain
DEPTH	: 39.3 ft				

GROUNDWATER: ▽ Encountered at 26.0 ft ▼ At completion NW ▼ 0.0 ft After >30 days ▨ Caved in at 21.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
610.0	2.5		SS 1	2-3-5	56	15.4 16.3		2.0 2.75					
	5.0		SS 2	4-4-5	89	16.0 14.3		2.5 3.0					
605.0	7.5		SS 3	3-3-6	100	16.4		>4.5					
	10.0		SS 4	4-3-4	100	15.3		3.75					
600.0	12.5	**Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 30853											
	15.0		SS 5	3-3-3	100	18.9		2.25					
595.0	17.5												
	20.0		SS 6	3-5-6	100	14.5		>4.5					
590.0	22.5	23.0											
	25.0	**Loam**, soft to medium stiff, moist, brown, with clay seams below 25 ft, A-4, Lab No. 32003	SS 7	2-2-3	67	21.9		1.0					
		27.0	SS 8	2-3-3-3	33	24.8		1.0					
585.0	27.5		SS 9	4-6-8-9	79	23.5 19.2	102.8	>4.5	1.92				
	30.0	**Clay**, stiff to hard, moist, gray, residual soil below 31 ft, A-7-6, Lab No. 31998	SS 10	5-6-9-11	92	16.4		>4.5					
580.0	32.5		SS 11	17-19-22-23	83	14.4		>4.5					

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EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-18**
SHEET 2 OF 2

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.64097

DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
LONGITUDE : -85.78381

PROJECT TYPE: Pipe Replacement, Trenchless
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	35.0	**Clay**, stiff to hard, moist, gray, residual soil below 31 ft, A-7-6, Lab No. 31998	SS 12	27-50/5	93	11.7		>4.5					
575.0	37.5	38.0											
		Weathered Shale, soft, gray 39.3	SS 13	22-50/4	83	9.8							
	40.0	Bottom of Boring at 39.3 ft											
570.0	42.5	Sampler refusal near 39 ft											
	45.0												
565.0	47.5												
	50.0												
560.0	52.5												
	55.0												
555.0	57.5												
	60.0												
550.0	62.5												
	65.0												
545.0	67.5												
	70.0												
540.0	72.5												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-19**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
PROJECT TYPE: Pipe Replacement, Trenchless
LOCATION : I-65 near RP 26+20
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.64094
LONGITUDE : -85.78359
DATUM : WGS 84
DATE STARTED : 07-14-21
DATE COMPLETED : 07-14-21

ELEVATION	: 614.8	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 964+54	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 60.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'Q'	CORE SIZE	: ---	WEATHER	: Clear
DEPTH	: 49.3 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 39.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.7											
		Granular Subbase, (crushed stone) 1.0	SS 1	7-5-5	67	12.0 15.0		>4.5 >4.5					
		Sandy Loam, medium stiff, moist, brown, A-2-7, Lab No. 31383											
610.0	5	6.0	SS 2	6-5-5	72	11.8 14.3		>4.5 3.0					
			SS 3	7-7-9	83	14.8		3.75					
605.0	10		SS 4	5-7-8	89	16.6		2.5					
		Clay Loam, stiff to very stiff, moist, brown, A-4, Lab No. 31008											
600.0	15		SS 5	5-8-9	67	17.6		>4.5					
595.0	20	22.0	SS 6	5-6-7	100	15.8		>4.5					
			SS 7	5-7-7	89	18.9		3.0					
590.0	25		SS 8	4-4-5	94	18.2		1.75					
		Clay, medium stiff to very stiff, moist, brown to gray below 30 ft, with silty clay loam seams below 27 ft, A-6, Lab No. 30853	SS 9	4-5-6	89	19.7 20.2		1.5					27.5, LOI = 3 percent
			SS 10	4-5-7	72	21.5		1.75					
585.0	30		SS 11	4-6-6	67	22.0		1.75					
			SS 12	7-7-10	67	19.0		1.75					
		33.0	SS 13	7-9-9	78	18.1		>4.5					
580.0	35	**Clay**, very stiff to hard, moist, gray, residual soil below 34 ft, A-7-6, Lab No. 31998	SS 14	11-16-32	89	12.7		>4.5					

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

LOG OF TEST BORING

BORING NO.: **CB-19**
SHEET 2 OF 2

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001593 STRUCTURE #: CV I65-072-26.20
PROJECT TYPE: Pipe Replacement, Trenchless

LATITUDE : 38.64094
LONGITUDE : -85.78359
DATUM : WGS 84

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
575.0	40		SS 15	12-18-38	83	10.6		>4.5					
		Clay, very stiff to hard, moist, gray, residual soil below 34 ft, A-7-6, Lab No. 31998											
570.0	45		SS 16	17-25-41	78	10.2		>4.5					
		49.0											
565.0	50	**Weathered Shale**, soft, gray 49.3	SS 17	32-50/3	83	2.3							
		Bottom of Boring at 49.3 ft											
		Sampler refusal near 49 ft											
560.0	55												
555.0	60												
550.0	65												
545.0	70												
540.0	75												
535.0	80												
530.0	85												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 1/14/22

Summary of Hand Auger Borings
I-65 Added Travel Lanes: Culverts Task
Clark and Scott Counties, IN
Des. Nos. 2001593, 2001594, 2001595, 2001596, 2001597, 2001598, and 2001599
Terracon Project No. CJ195480

Hand Auger Boring No.	Station	Offset Line	Elevation (ft)	Depth Interval (ft)	Description*	MC** (%)
HA-CB-01	500+97	104 ft Lt "PR-Q"	522	0 - ¼ ¼ - 3	Topsoil Silty Clay, soft to stiff near 3 ft, moist to wet below 1 ft, brown Hand auger refusal near 3 ft	45
HA-CB-02	501+50	87 ft Rt "PR-Q"	526	0 - ¼ ¼ - ½	Topsoil Silty Clay, soft, moist, brown Hand auger refusal near ½ ft on riprap	34
HA-CB-03	581+48	119 ft Rt "PR-Q"	519	0 - ¼ ¼ - 2	Topsoil Clay, soft to stiff below ½ ft, hard near 2 ft, moist, brown	15 - 20
HA-CB-05	582+52	111 ft Lt "PR-Q"	520	0 - ¼ ¼ - 3	Topsoil Clay, soft, moist, brown Hand auger refusal near 3 ft on riprap	21 - 31
HA-CB-06	725+02	136 ft Lt "Q"	599	0 - 2	Clay, soft to stiff below 1 ft, moist, brown Hand auger refusal near 2 ft on riprap	23
HA-CB-08	726+20	108 ft Rt "Q"	594	0 - 2	Silty Clay Loam, soft, moist, gray, with organic matter (LOI = 13%) Hand auger refusal near 2 ft on riprap	23
HA-CB-09	732+31	132 ft Rt "Q"	594	0 - 2½	Clay Loam, soft to stiff near 2½ ft, moist, gray, with organic matter (LOI = 4%) Hand auger refusal near 2½ ft on riprap	49
HA-CB-12	903+73	97 ft Lt "PR-Q"	588	0 - ¼ ¼ - 3 3 - 4	Topsoil Clay, soft to stiff below ½ ft, moist, brown Clay Loam, stiff to hard near 4 ft, moist, brown	9 - 21
HA-CB-14	904+10	98 ft Rt "PR-Q"	586	0 - ¼ ¼ - 2	Topsoil Silty Clay Loam, soft, moist, dark brown Hand auger refusal near 2 ft on riprap	71
HA-CB-15	944+06	116 ft Lt "Q"	586	0 - ¼ ¼ - 3	Topsoil Clay, soft to stiff below 1 ft, hard near 3 ft, moist, dark brown to brown below 1 ft	17 - 46
HA-CB-16	944+19	94 ft Rt "Q"	584	0 - ¼ ¼ - ½	Topsoil Loam, soft, moist, brown Hand auger refusal near ½ ft on riprap	45
HA-CB-17	964+35	128 ft Lt "Q"	587	0 - 1½ 1½ - 4	Clay Loam, soft to stiff below 1 ft, moist, brown Clay, stiff to hard near 4 ft, moist, brown	24 - 25
HA-CB-19	964+77	141 ft Rt "Q"	582	0 - 2	Sand and Gravel, loose, wet, brown Hand auger refusal near 2 ft on riprap	--

*Consistency description based on ability to advance ½-in. diameter steel rod probe
**MC = moisture content

I-65 Added Travel Lanes:
Culverts near RP 18+35 and 22+77

ROCK CORE PHOTOGRAPHS

BORINGS:

CB-01, CB-02 and CB-09

Attachment 11-9



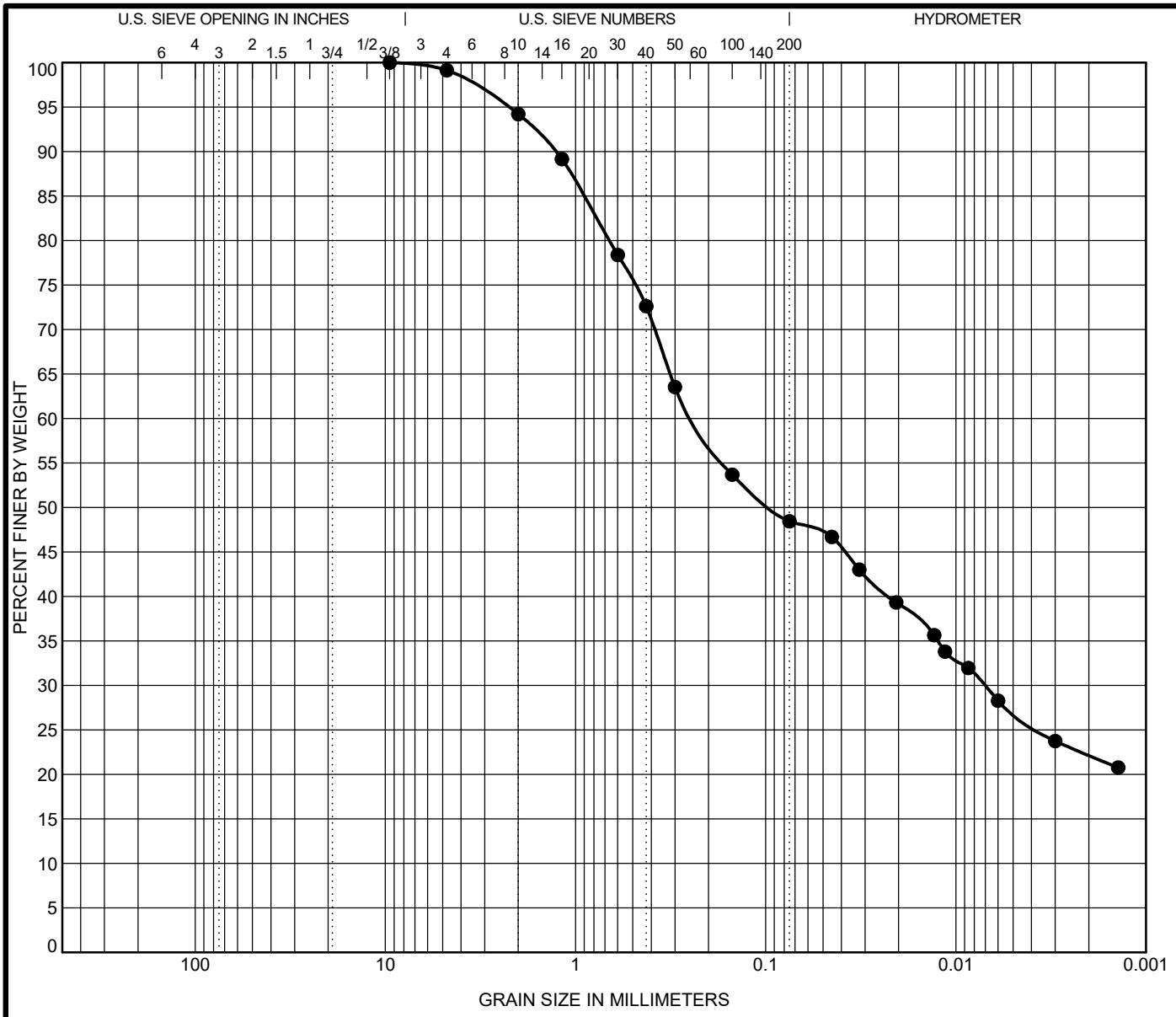
Project No. CJ195480, Boring No. CB-01, Rock Core No. RC-1, Depth: 15 – 20 ft



Project No. CJ195480, Boring No. CB-02, Rock Core No. RC-1, Depth: 14 – 19 ft



Project No. CJ195480, Boring No. CB-09, Rock Core No. RC-1, Depth: 35 – 40 ft



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-01	SS-3	6.0	31996	A-4 (1) SANDY CLAY LOAM	26.0	18.0	8.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-01	SS-3	6.0	0.234	0.007			7.5	5.8	45.8	26.3	22.2	2.62

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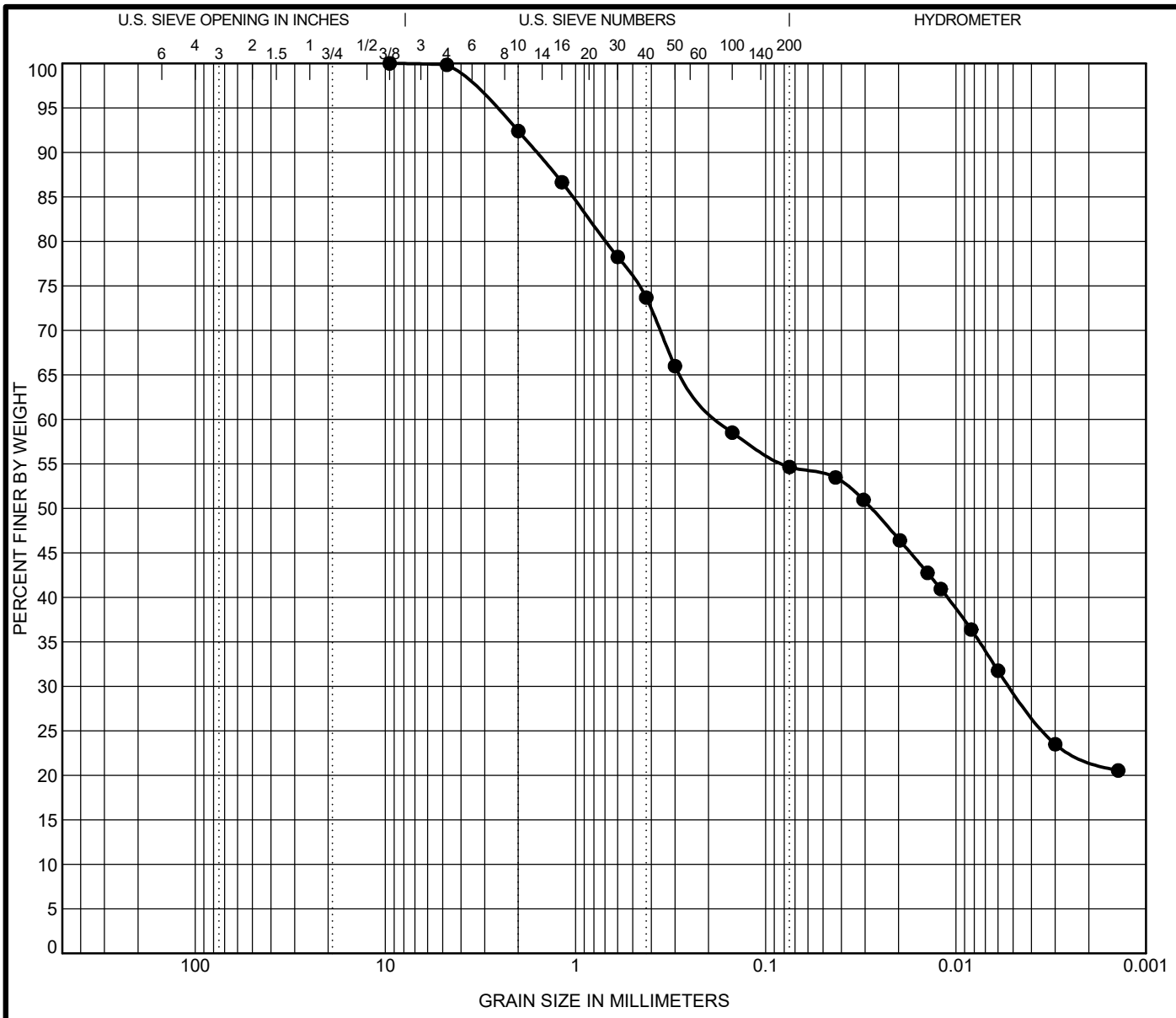
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001599 Structure #: CV I65-010-18.35
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 18+35

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001599.GPJ IN DOT1.GDT 12/30/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-04	SS-6	12.0	31997	A-4 (1) CLAY LOAM	29.0	23.0	6.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-04	SS-6	12.0	0.172	0.005			5.6	7.6	37.7	32.7	21.9	2.68

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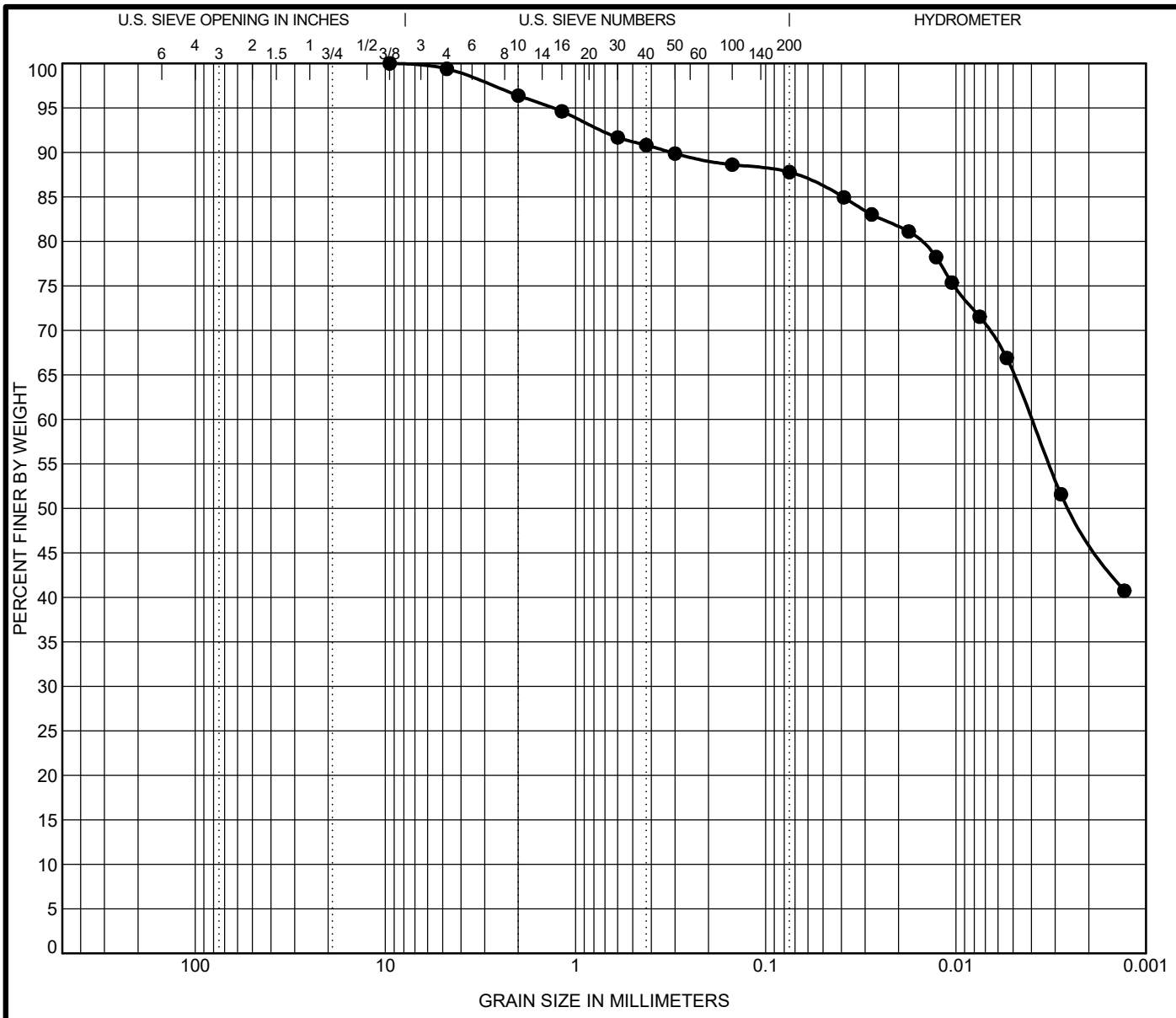
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001598 Structure #: CV I65-010-19.90
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 19+90

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001598.GPJ IN DOT1.GDT 12/30/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-08	SS-10	17.5	31998	A-7-6 (19) CLAY	43.0	23.0	20.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-08	SS-10	17.5	0.004				6.4	3.6	8.6	41.0	46.8	2.61

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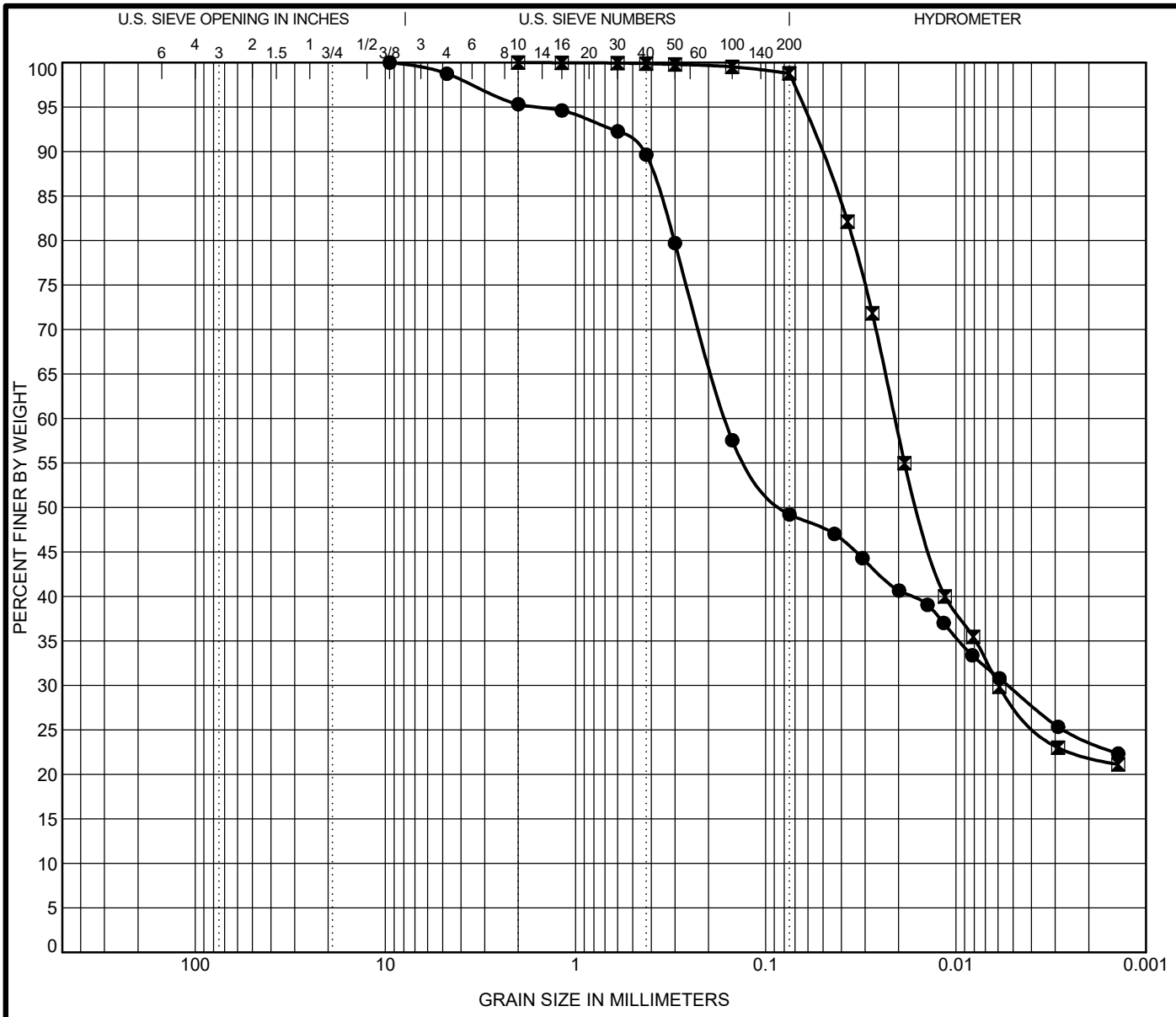
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN DOT1.GDT 12/30/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-12	SS-9	18.4	31999	A-4 (0) SANDY CLAY LOAM	21.0	15.0	6.0		
⊠	CB-13	SS-6	12.3	32000	A-4 (2) SILTY CLAY LOAM	28.0	26.0	2.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-12	SS-9	18.4	0.162	0.005			8.1	4.7	46.1	25.4	23.8	2.72
⊠	CB-13	SS-6	12.3	0.021	0.006			7.9	0.0	1.2	76.7	22.0	2.78

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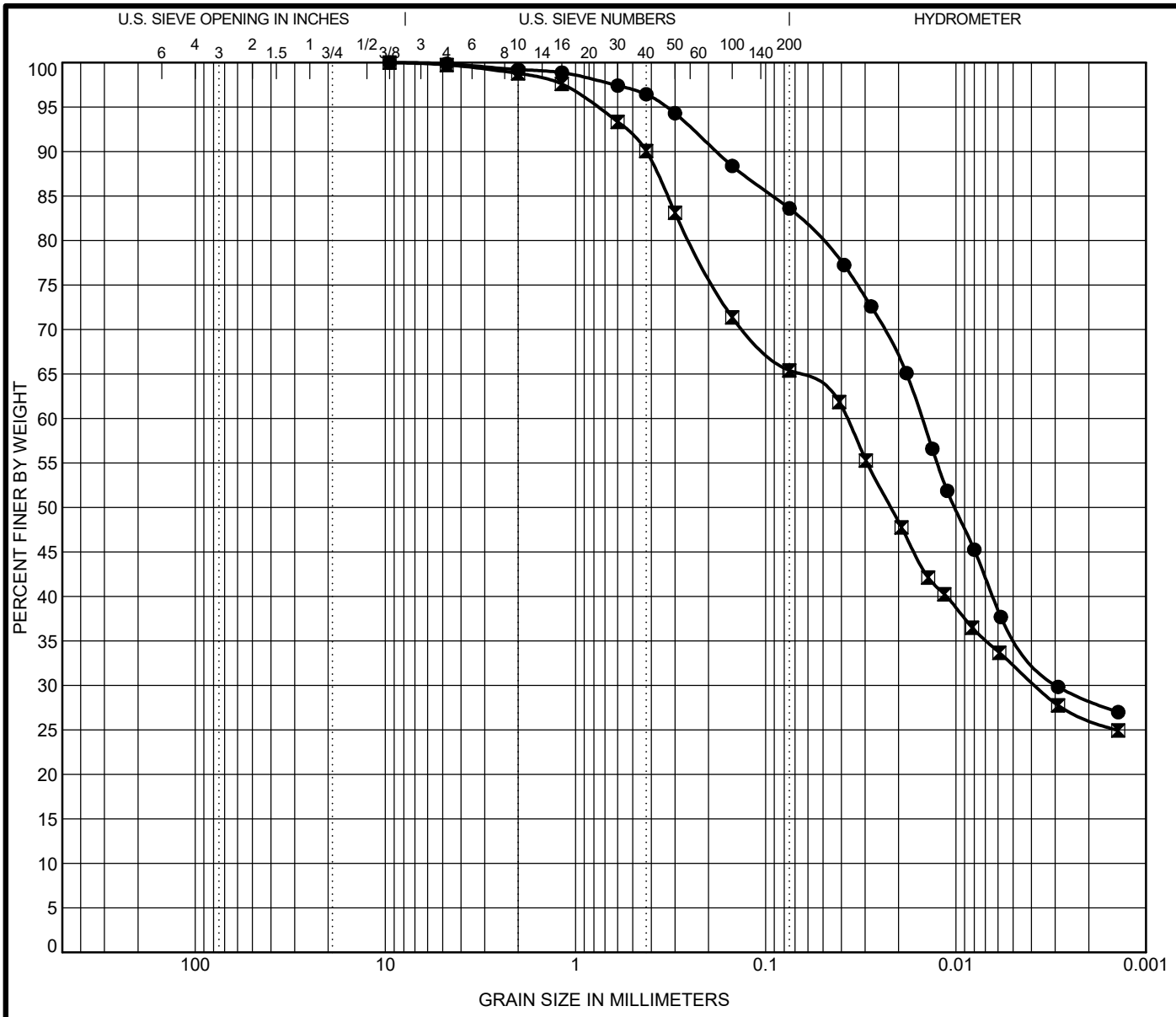
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001594 Structure #: CV I65-072-25.05
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+05

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001594.GPJ IN DOT1.GDT 12/30/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-15ST	ST-1	8.0	32001	A-4 (4) SILTY CLAY LOAM	26.0	19.0	7.0		
⊠	CB-16	SS-7	18.5	32002	A-4 (2) CLAY LOAM	23.0	16.0	7.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-15ST	ST-1	8.0	0.015	0.003			6.7	0.8	15.6	55.2	28.4	2.72
⊠	CB-16	SS-7	18.5	0.037	0.004			7.6	1.2	33.4	39.1	26.3	2.74

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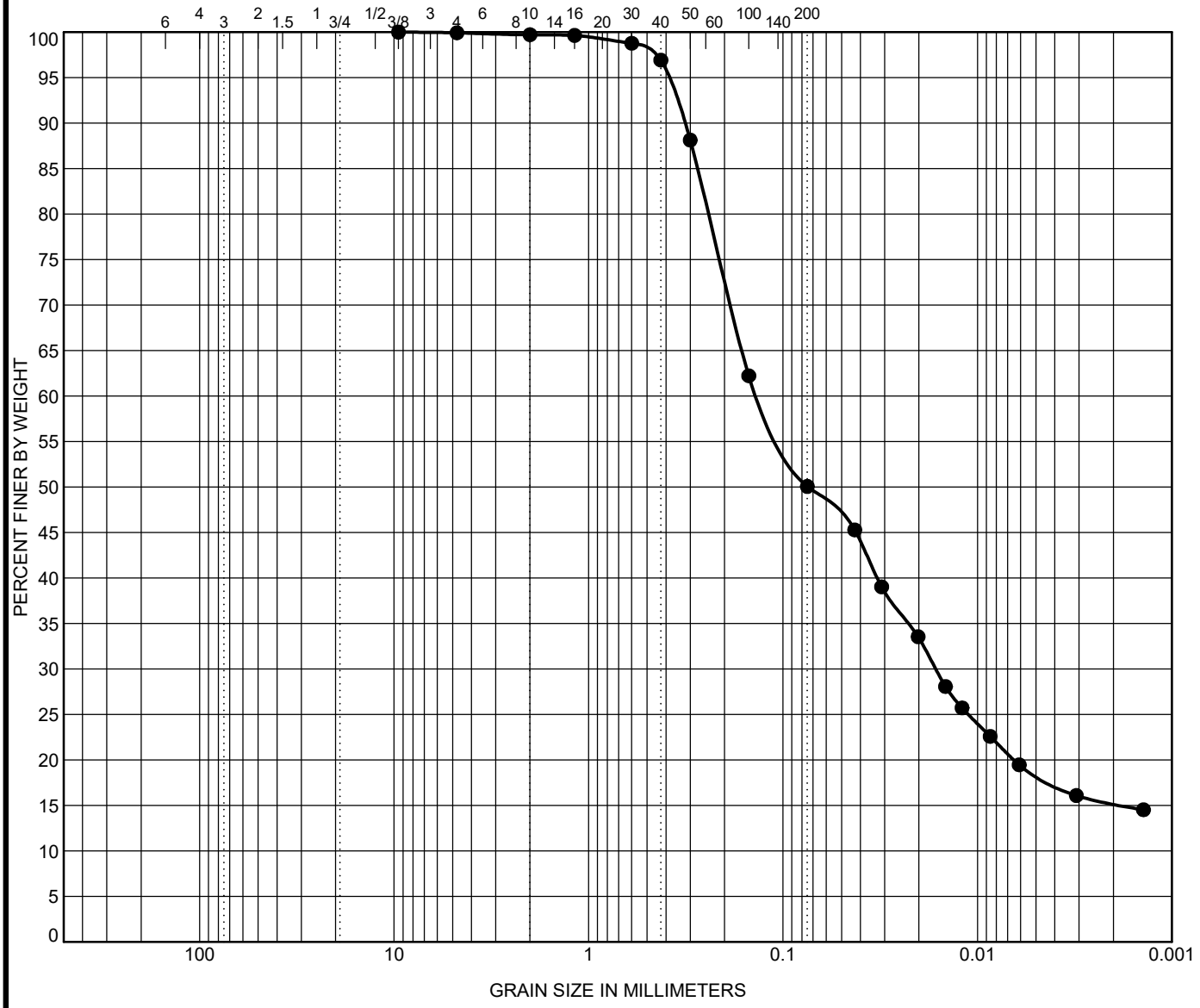
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001596 Structure #: CV I65-072-25.83
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+83

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001596.GPJ IN DOT1.GDT 12/30/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CB-17	SS-10	28.0	32003	A-4 (0) LOAM	17.0	15.0	2.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CB-17	SS-10	28.0	0.132	0.016			6.2	0.3	49.7	34.8	15.2	2.69

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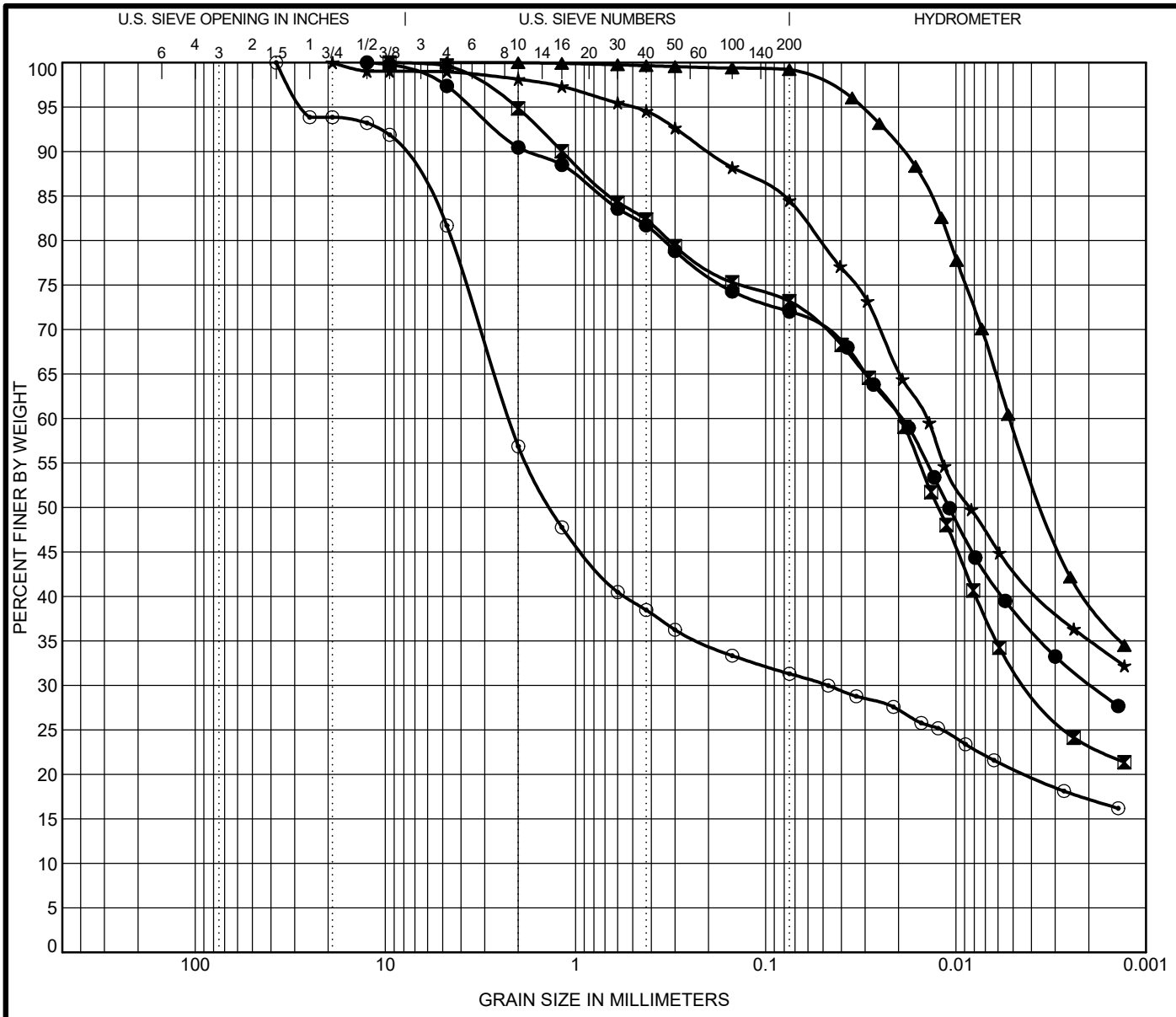
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001593 Structure #: CV I65-072-26.20
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 26+20

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001593.GPJ IN DOT1.GDT 12/30/21

Attachment 11-9



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-029A	ST-1	1.0	30850	A-6 (11) CLAY	37.0	19.0	18.0		
⊠	RB-085A	ST-1	1.0	31377	A-6 (6) CLAY LOAM	31.0	20.0	11.0		
▲	RB-161	SS-1	1.0	30932	A-6 (18) SILTY CLAY	39.0	23.0	16.0		
★	RB-234A	ST-1	1.0	31371	A-6 (14) CLAY	38.0	21.0	17.0		
⊙	RB-248A	ST-1	1.0	31383	A-2-7 (2) SANDY LOAM and GRAVEL	44.0	20.0	24.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-029A	ST-1	1.0	0.019	0.002			7.2	9.5	18.4	41.7	30.3	2.7
⊠	RB-085A	ST-1	1.0	0.02	0.004			7.8	5.1	21.7	49.9	23.3	2.82
▲	RB-161	SS-1	1.0	0.005				8.2	0.0	0.8	59.7	39.5	2.87
★	RB-234A	ST-1	1.0	0.014				8.5	1.9	13.6	49.4	35.1	2.7
⊙	RB-248A	ST-1	1.0	2.23	0.047			8	43.1	25.6	14.1	17.2	2.59

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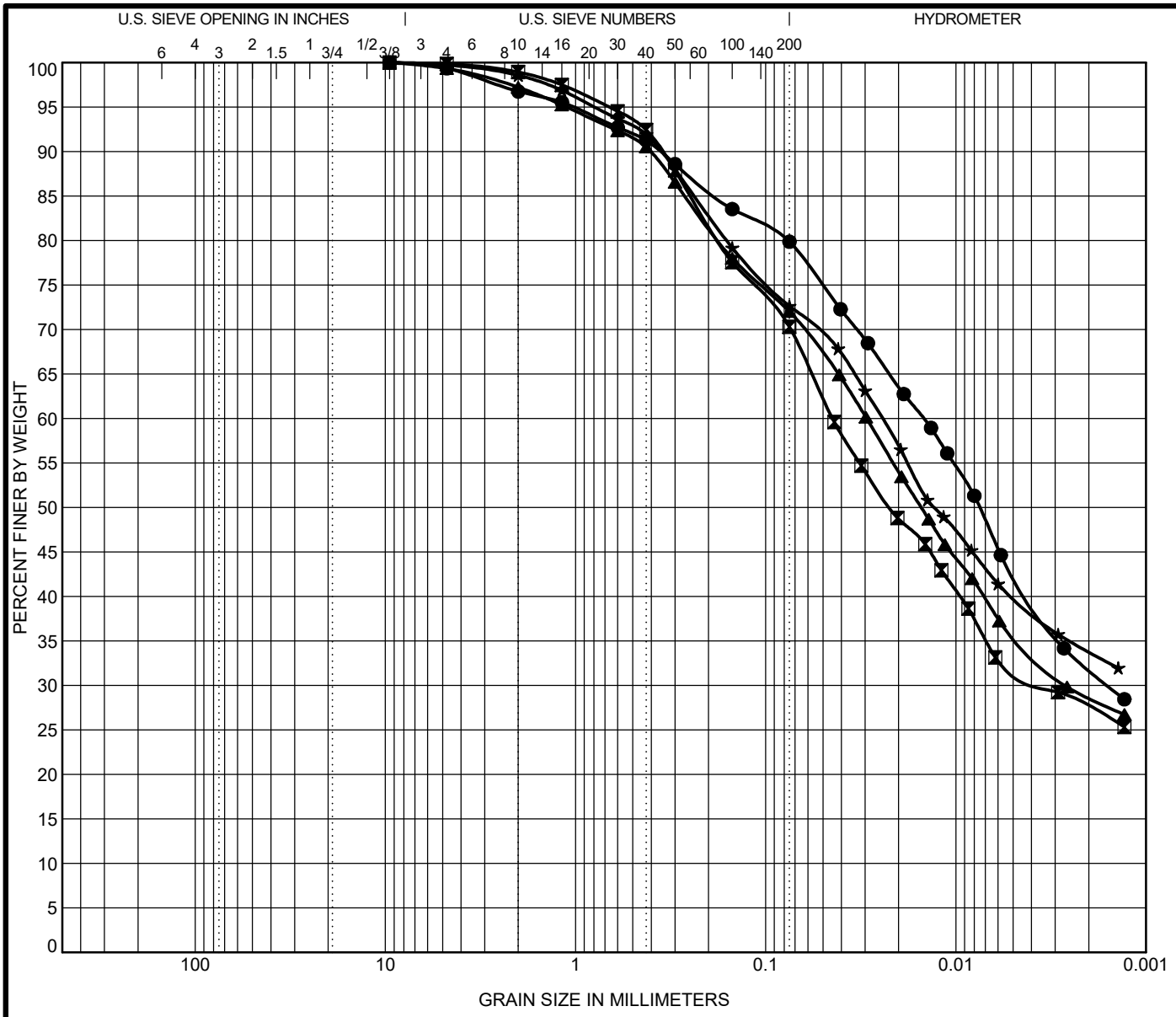
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 2/8/22



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RB-253	SS-2	2.8	31007	A-6 (12) CLAY	35.0	18.0	17.0		
⊠	RB-257	SS-1	1.3	31008	A-4 (4) CLAY LOAM	27.0	18.0	9.0		
▲	RB-262A	ST-1	1.0	31372	A-6 (8) CLAY LOAM	28.0	13.0	15.0		
★	RB-269A	ST-1	1.0	30853	A-6 (7) CLAY	32.0	20.0	12.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RB-253	SS-2	2.8	0.015	0.002			9	3.2	16.9	48.1	31.8	2.77
⊠	RB-257	SS-1	1.3	0.044	0.003			7.2	1.1	28.6	42.9	27.4	2.71
▲	RB-262A	ST-1	1.0	0.029	0.003			8.4	2.8	25.2	43.4	28.6	2.81
★	RB-269A	ST-1	1.0	0.024				7	1.4	25.9	38.8	33.8	2.72

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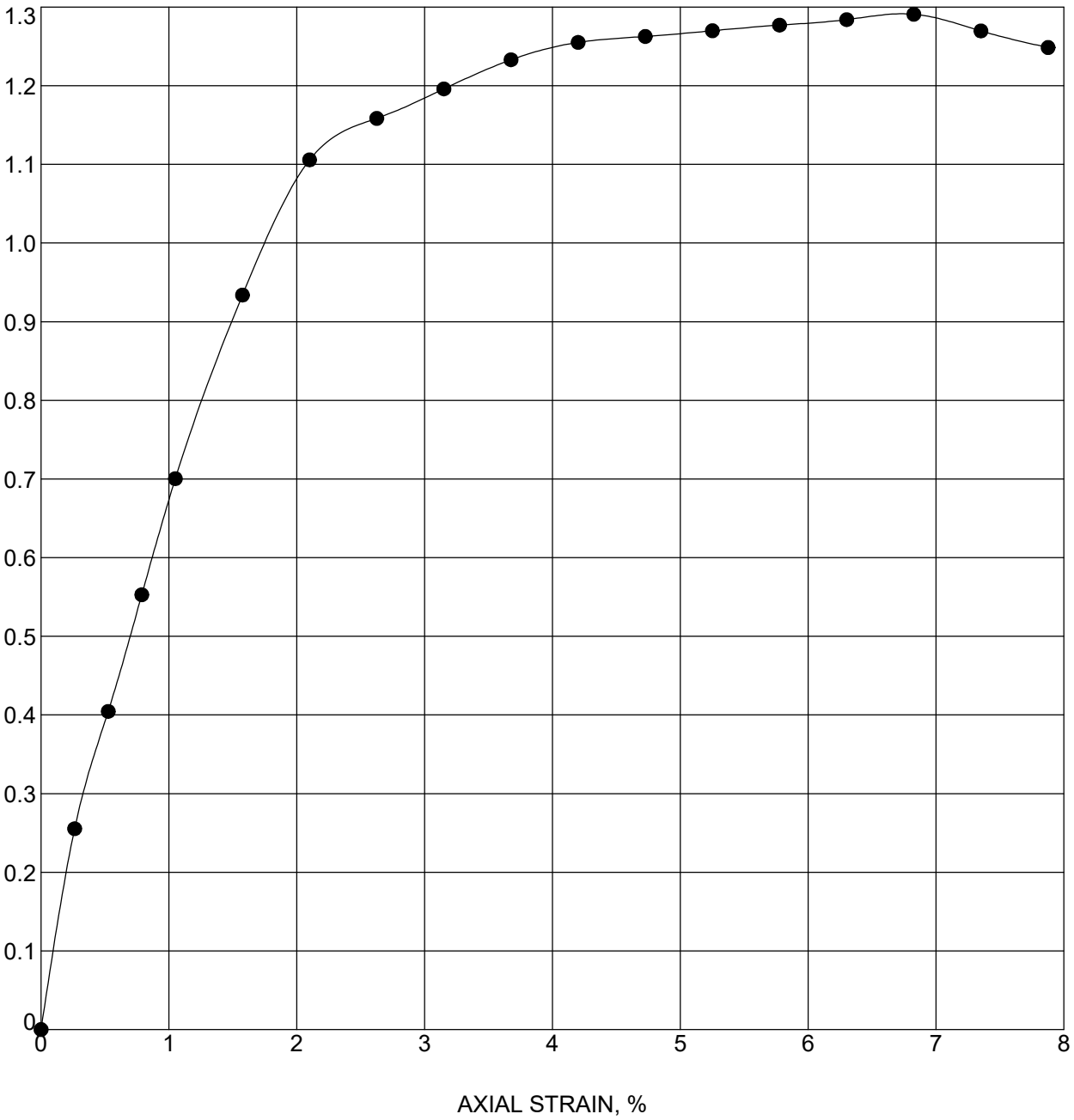
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1700135 Structure #:
Project #: CJ195480
County: Clark and Scott
Location: I-65 from RP 16+27 to 29+10

DOT GRAIN SIZE (EEI LOGO) CJ195480.GPJ IN DOT1.GDT 2/8/22



Boring	Sample	Depth	Classification
CB-01	SS-2B	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
24.7	120.3	96.5	1.29	1.0	6.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.65	88	0.759	35.15	67.72	1.9

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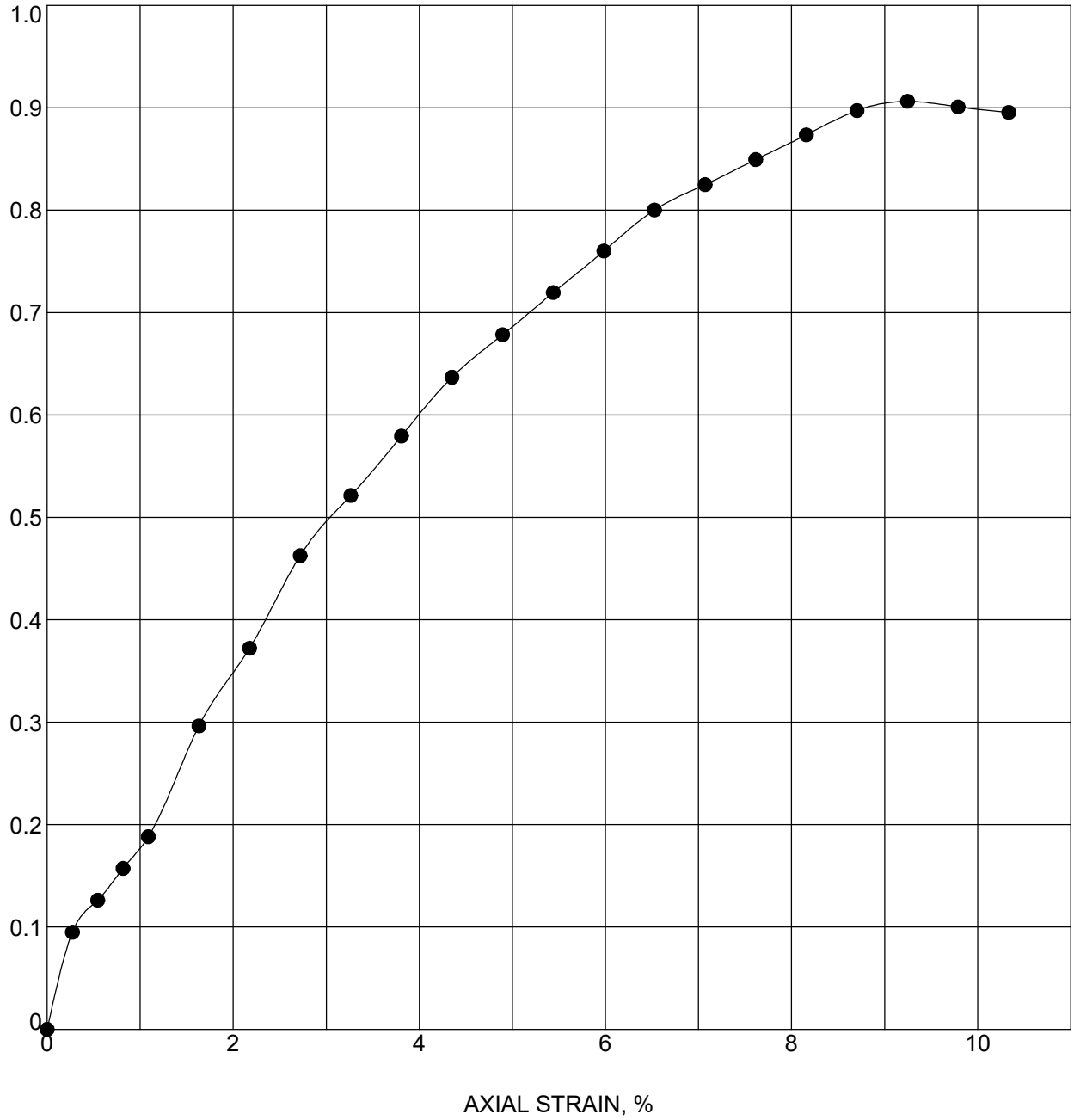
UNCONFINED COMPRESSION TEST

DES #: 2001599 Structure #: CV I65-010-18.35
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 18+35

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-02	SS-2T	3.5 - 5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	127.4	105.2	0.91	1.0	9.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.45	94	0.613	34.26	65.38	1.9

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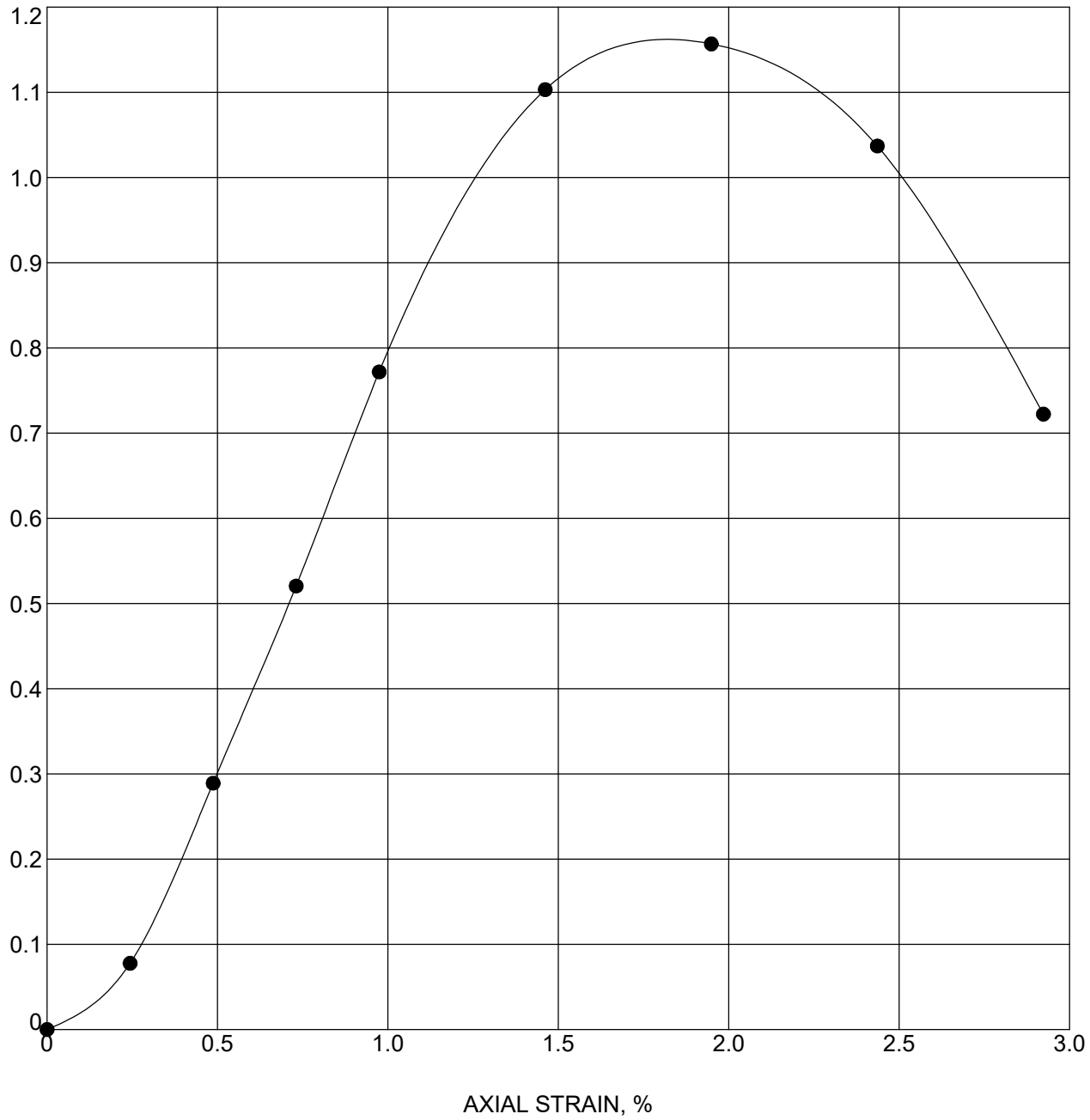
UNCONFINED COMPRESSION TEST

DES #: 2001599 Structure #: CV I65-010-18.35
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 18+35

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-02RC	ST-1	3.2 - 4.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.8	116.2	95.4	1.16	1.0	1.9
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.58	76	0.779	72.47	145.97	2.0

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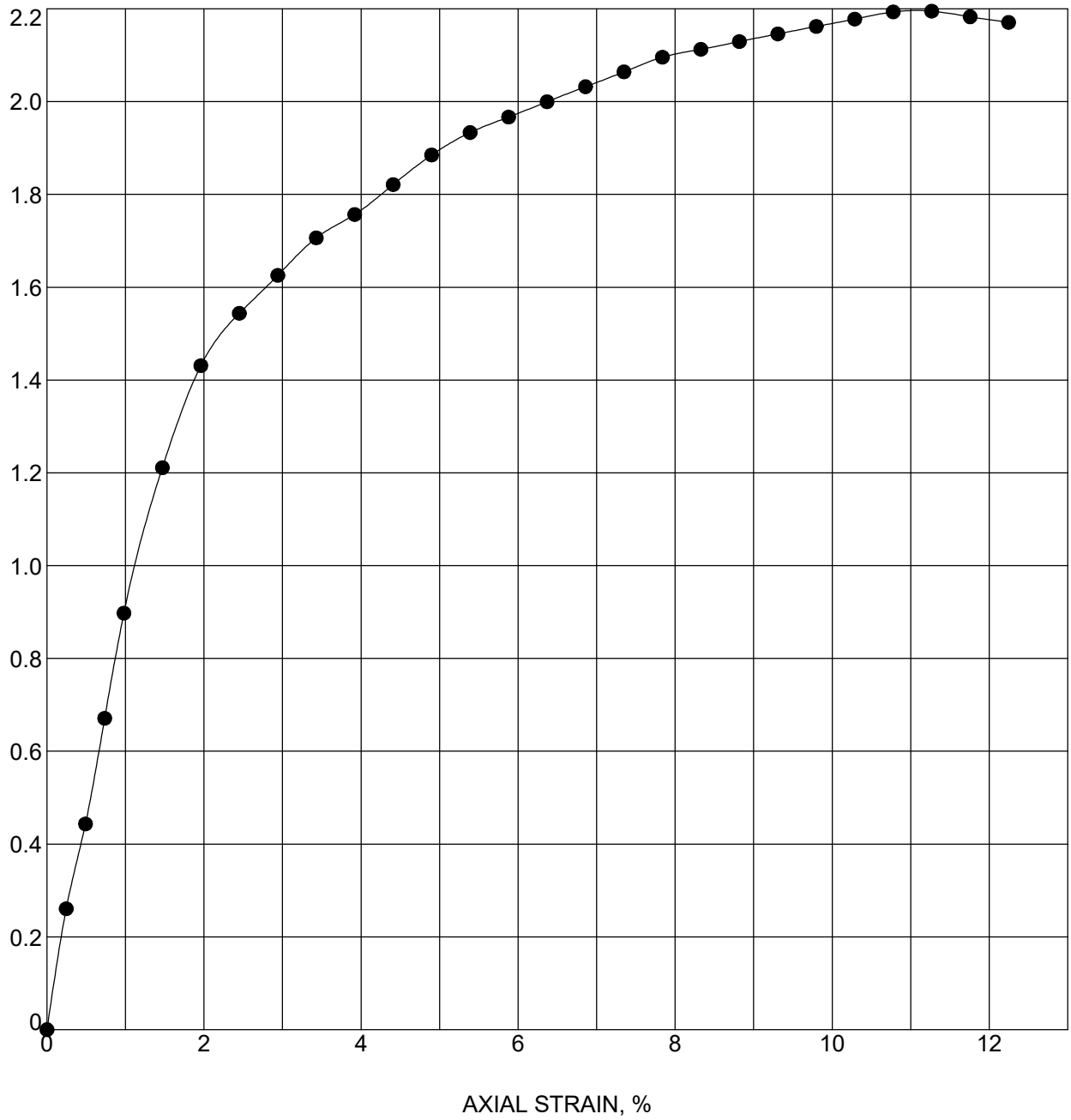
UNCONFINED COMPRESSION TEST

DES #: 2001599 Structure #: CV I65-010-18.35
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 18+35

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001599.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-03	SS-6T	12 - 14	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.9	127.4	106.3	2.19	1.0	11.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.10	91	0.597	34.8	72.59	2.1

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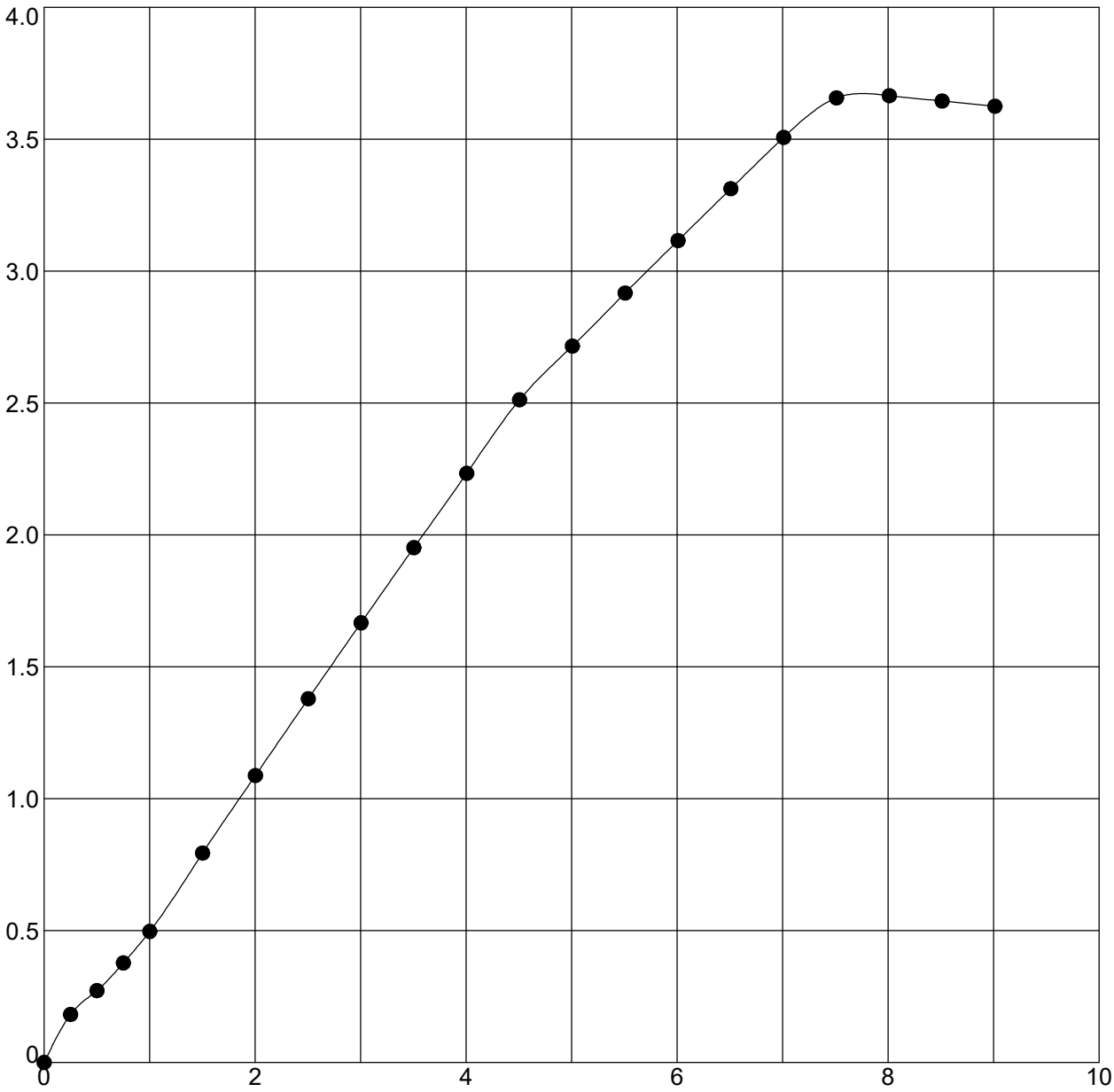
UNCONFINED COMPRESSION TEST

DES #: 2001598 Structure #: CV I65-010-19.90
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 19+90

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-04	SS-5B	10.5 - 12	CLAY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.6	133.0	113.1	3.66	1.0	8.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.83	96	0.500	34.98	71.02	2.0

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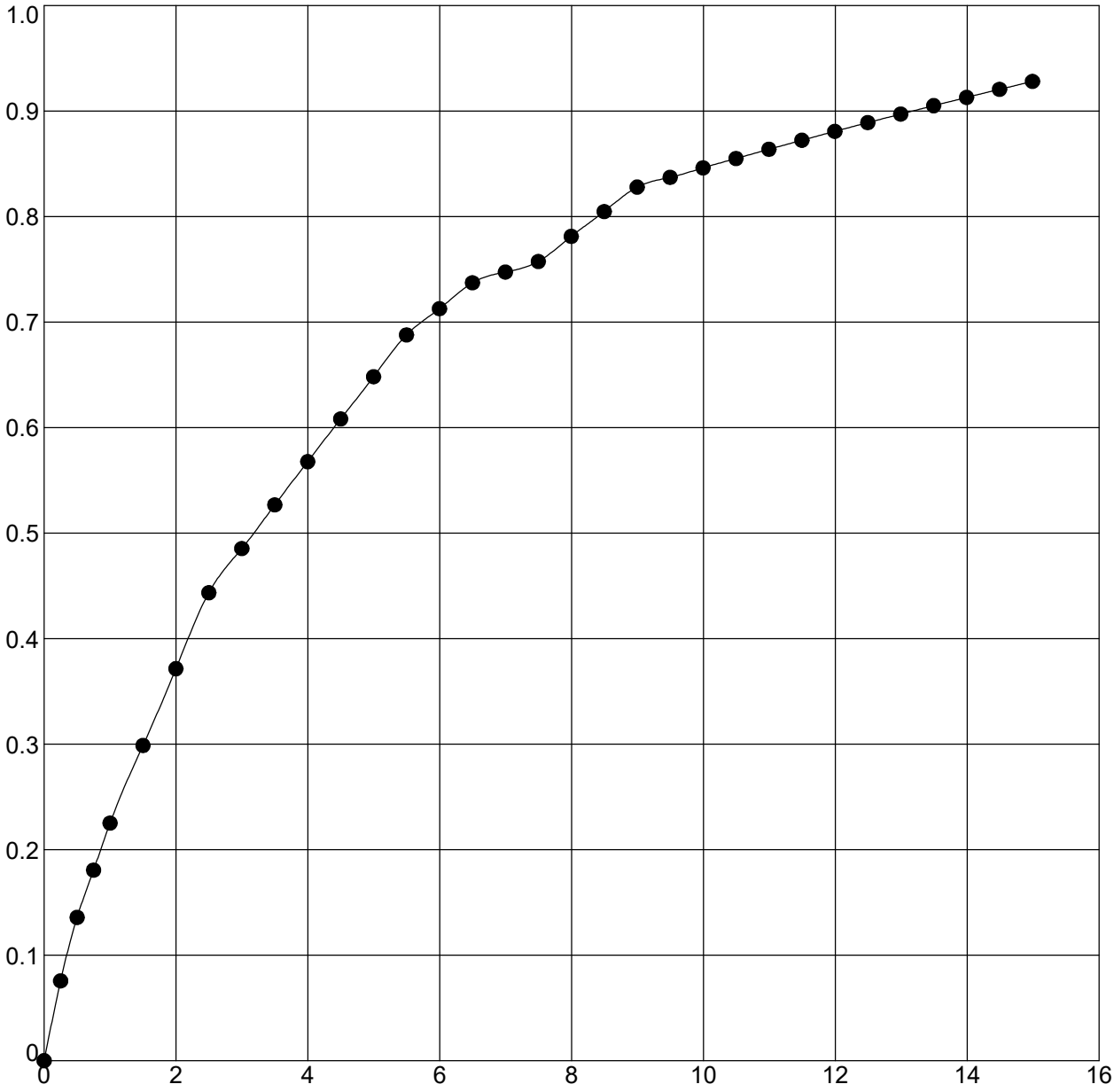
UNCONFINED COMPRESSION TEST

DES #: 2001598 Structure #: CV I65-010-19.90
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 19+90

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001598.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-06	SS-6B	11.5 - 13	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
25.8	124.7	99.2	0.93	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.46	99	0.712	35.03	71.17	2.0

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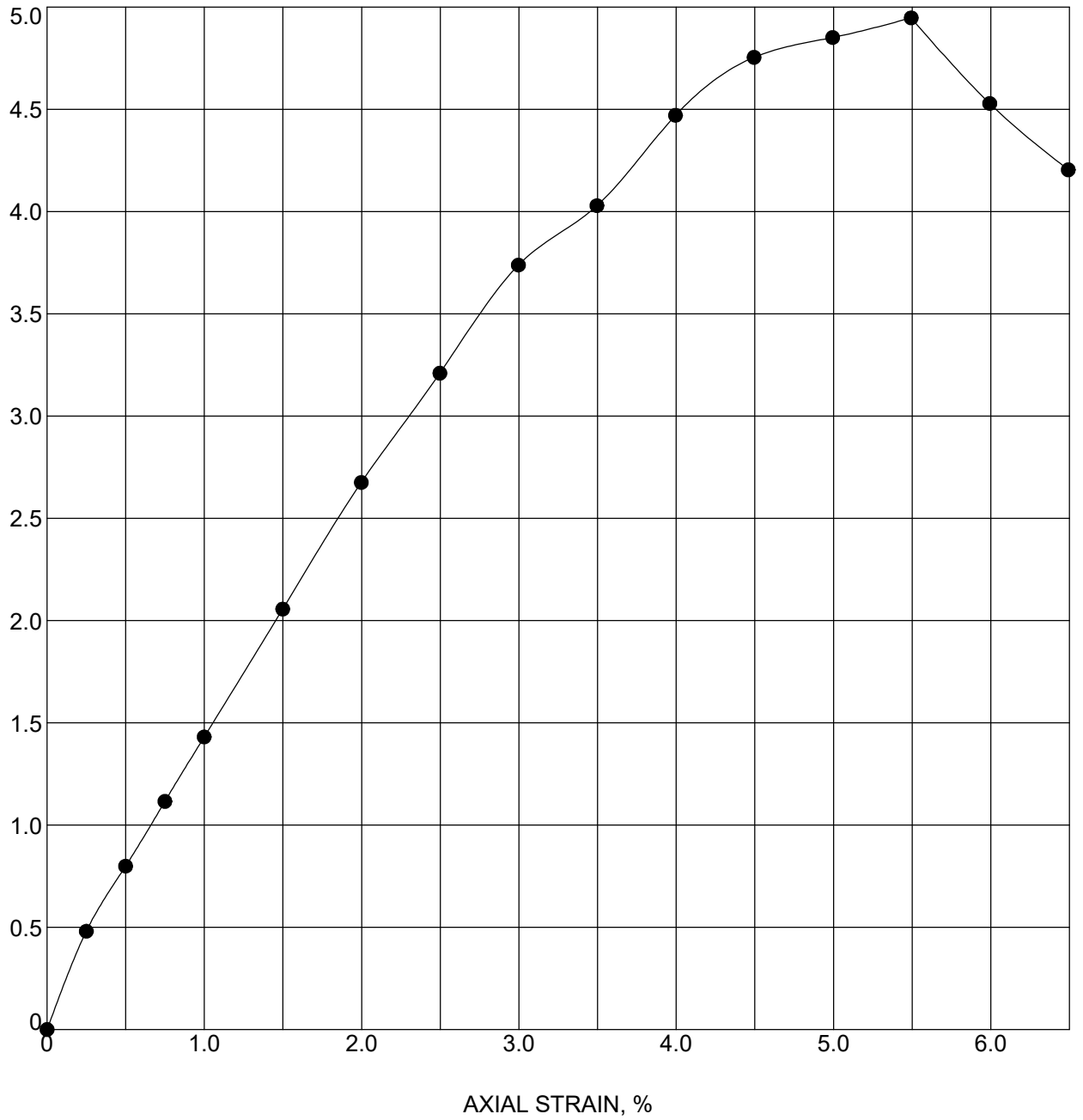
UNCONFINED COMPRESSION TEST

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-06	SS-10T	17.5 - 19	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
18.0	131.5	111.5	4.95	1.0	5.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.47	94	0.523	34.04	71.2	2.1

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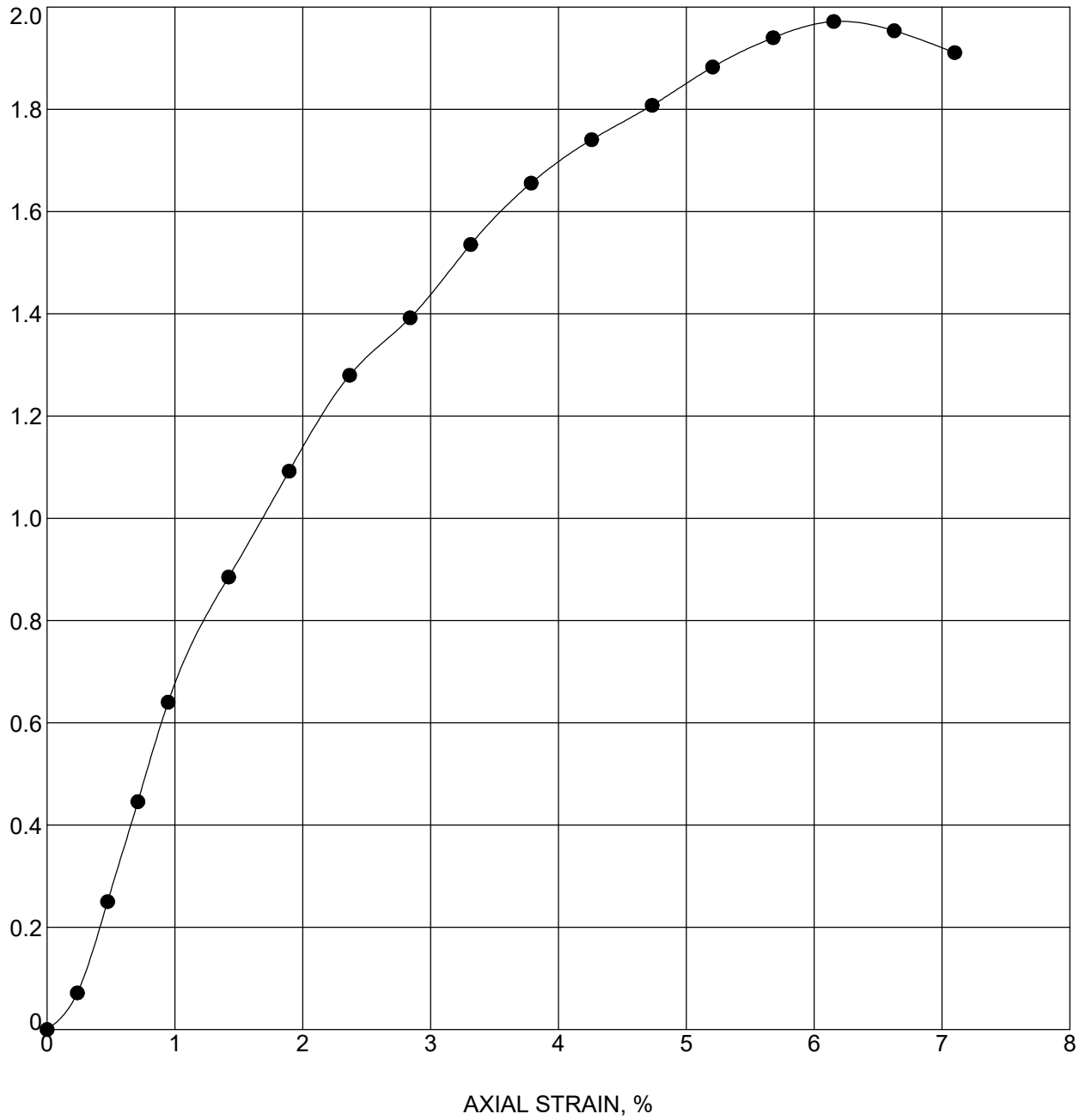
UNCONFINED COMPRESSION TEST

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-07ST	ST-1	10 - 12	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.9	122.9	101.7	1.97	0.9	6.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.99	85	0.669	71.98	150.27	2.1

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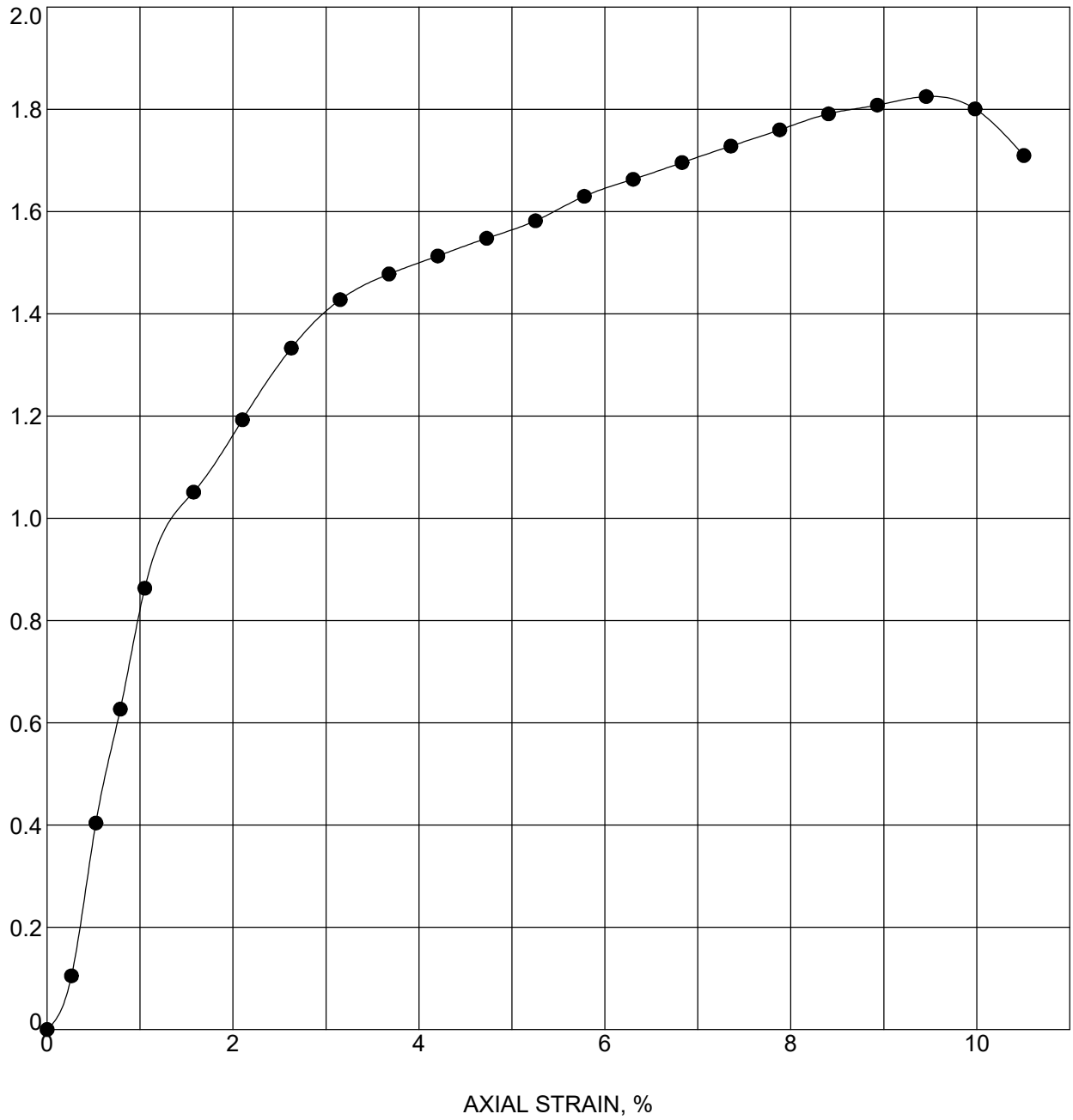
UNCONFINED COMPRESSION TEST

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-08	SS-10	17.5 - 19	CLAY A-7-6 (19)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.5	124.4	100.8	1.83	1.0	9.5
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.91	99	0.616	35.17	67.69	1.9

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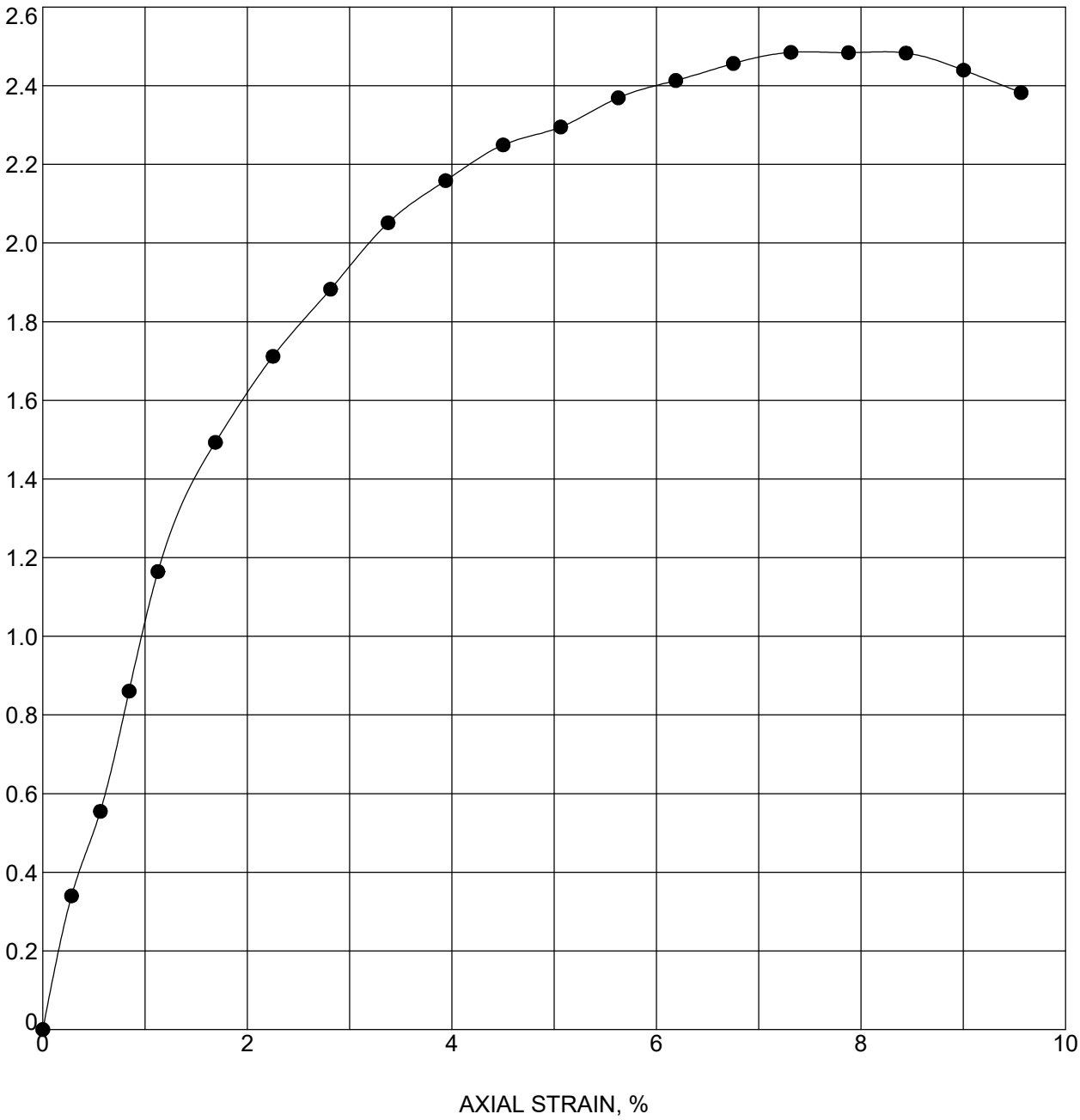
UNCONFINED COMPRESSION TEST

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-08	SS-12T	23.5 - 25	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.5	127.0	104.5	2.48	1.0	7.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.24	94	0.624	34.65	63.2	1.8

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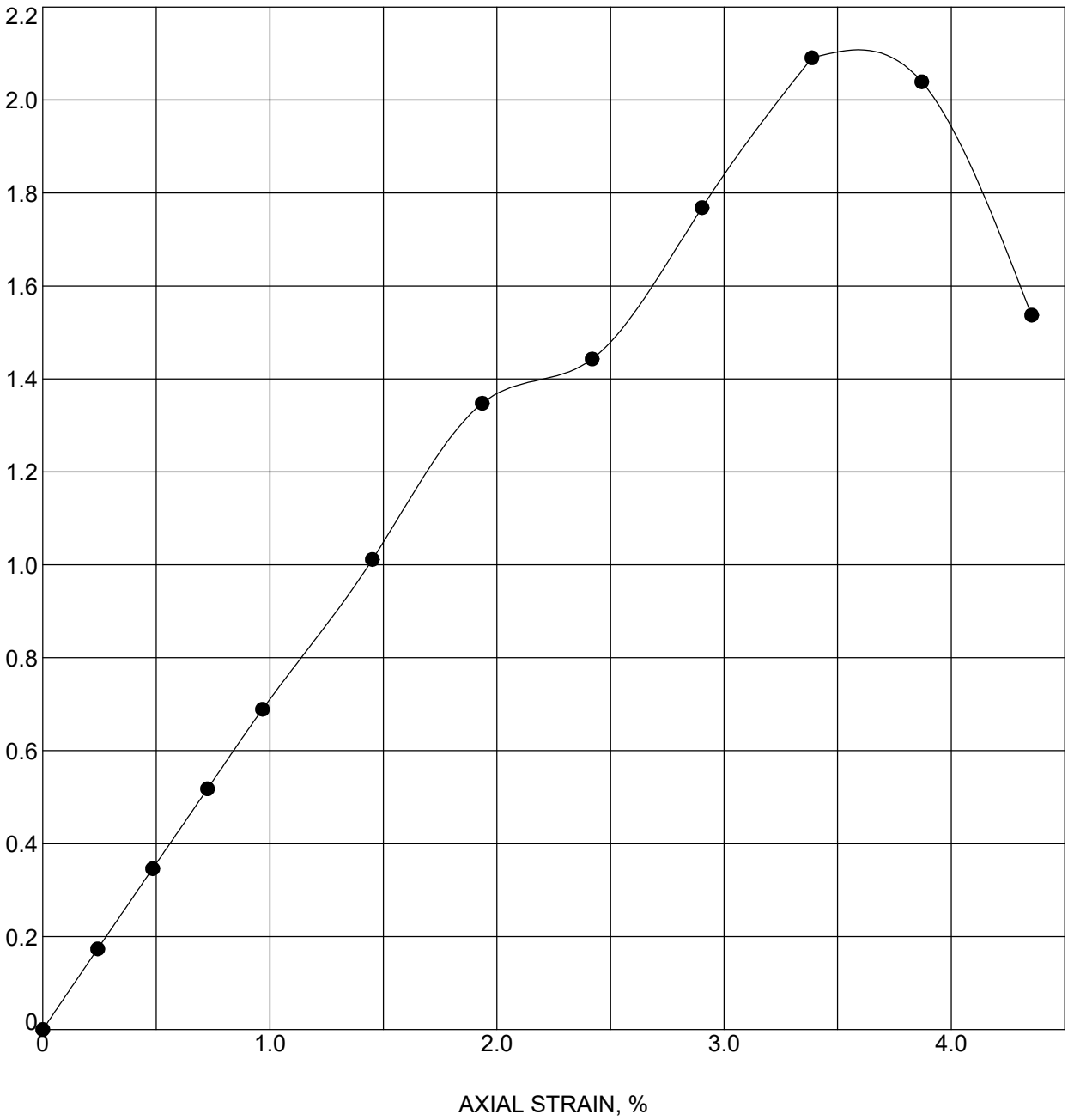
UNCONFINED COMPRESSION TEST

DES #: 2001597 Structure #: CV I65-010-22.65
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001597.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-10ST	ST-1	15 - 17	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.1	128.5	110.6	2.09	1.0	3.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.05	82	0.534	73.13	147	2.0

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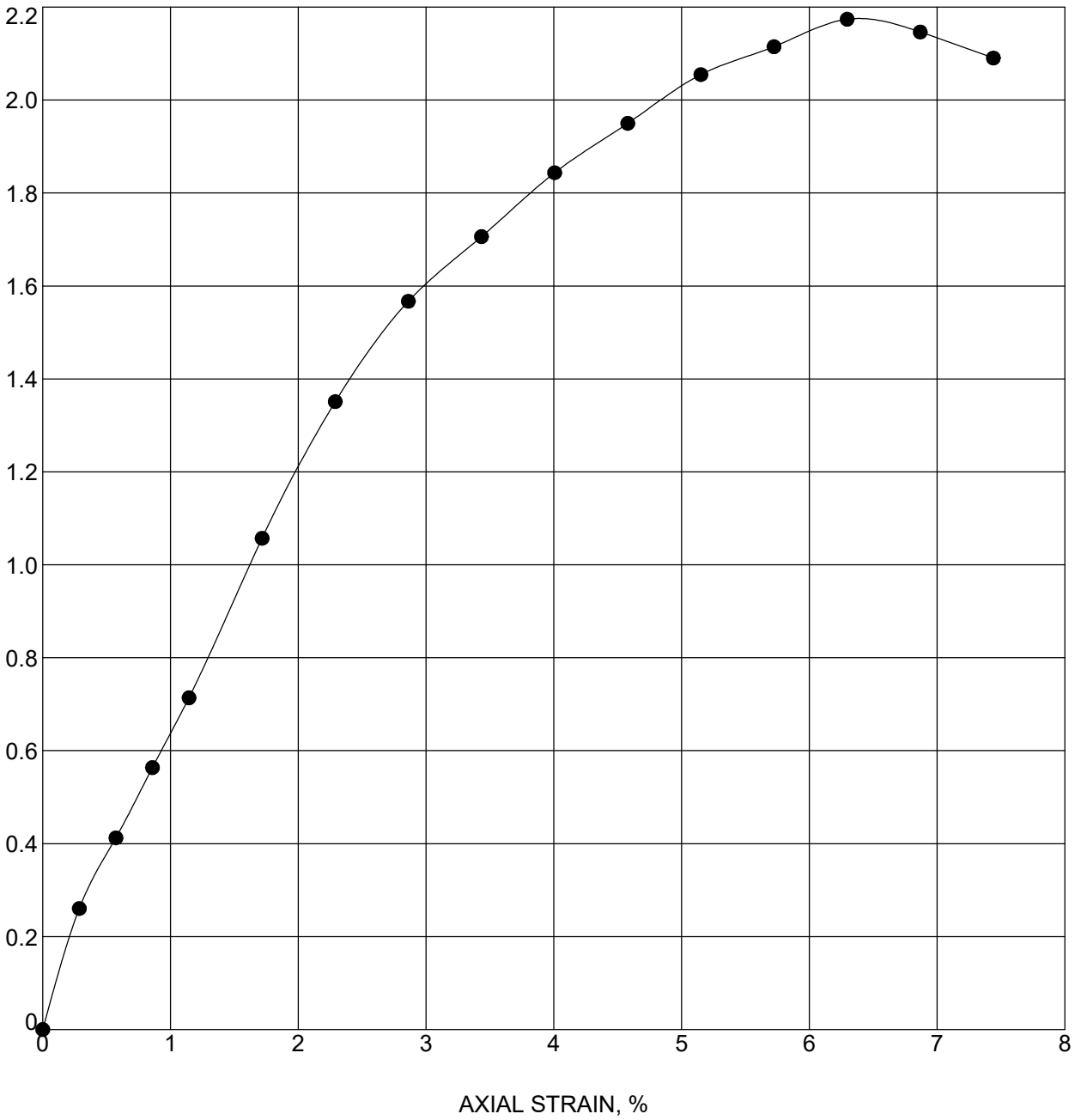
UNCONFINED COMPRESSION TEST

DES #: 2001595 Structure #: CV I65-010-22.77
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+77

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-11	SS-4B	8.5 - 10	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.7	129.0	106.0	2.17	1.1	6.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.09	98	0.601	34.8	62.13	1.8

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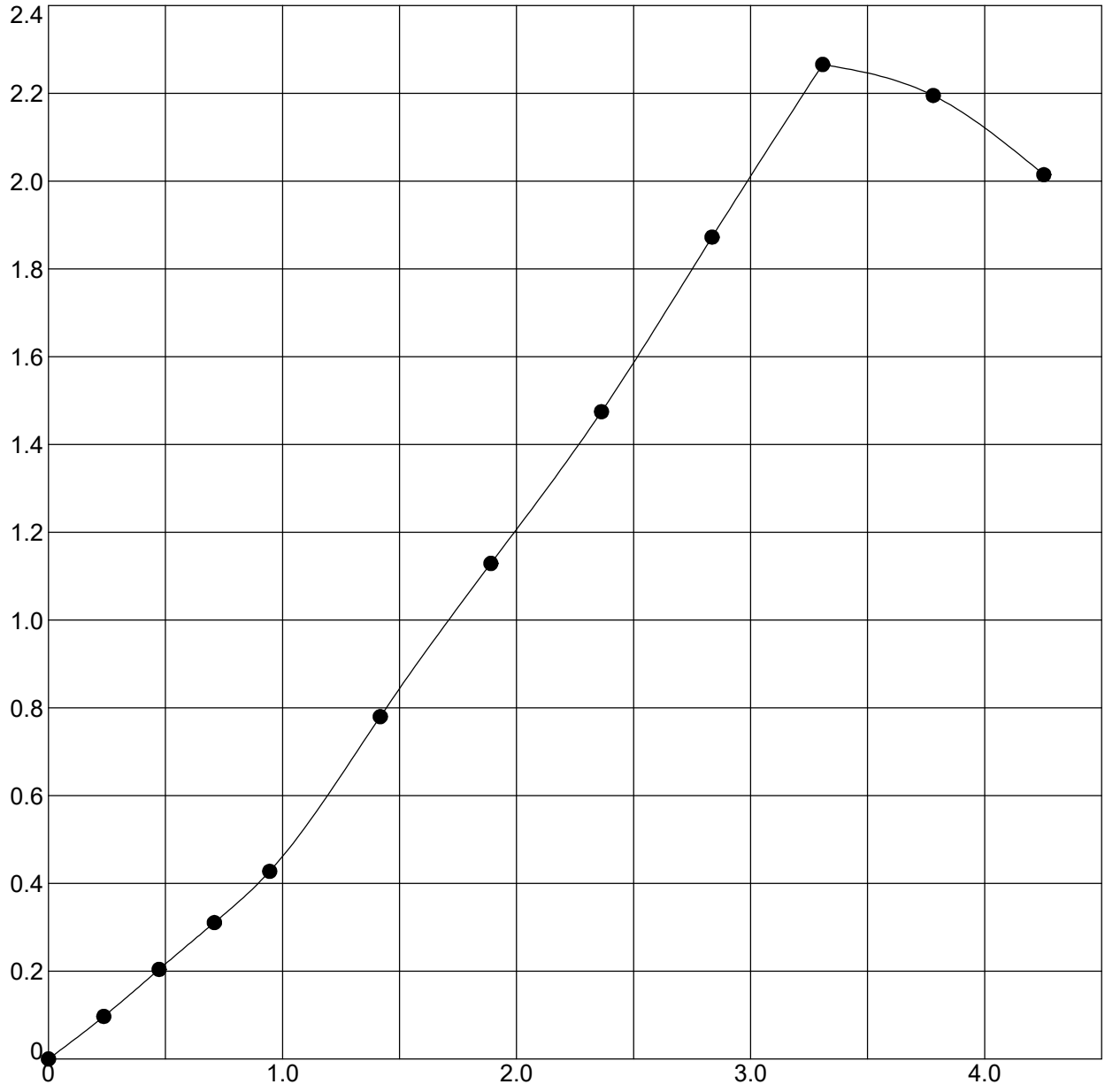
UNCONFINED COMPRESSION TEST

DES #: 2001595 Structure #: CV I65-010-22.77
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+77

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-11ST	ST-1	4 - 6	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.8	118.6	95.8	2.27	0.9	3.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.13	84	0.772	71.93	150.5	2.1

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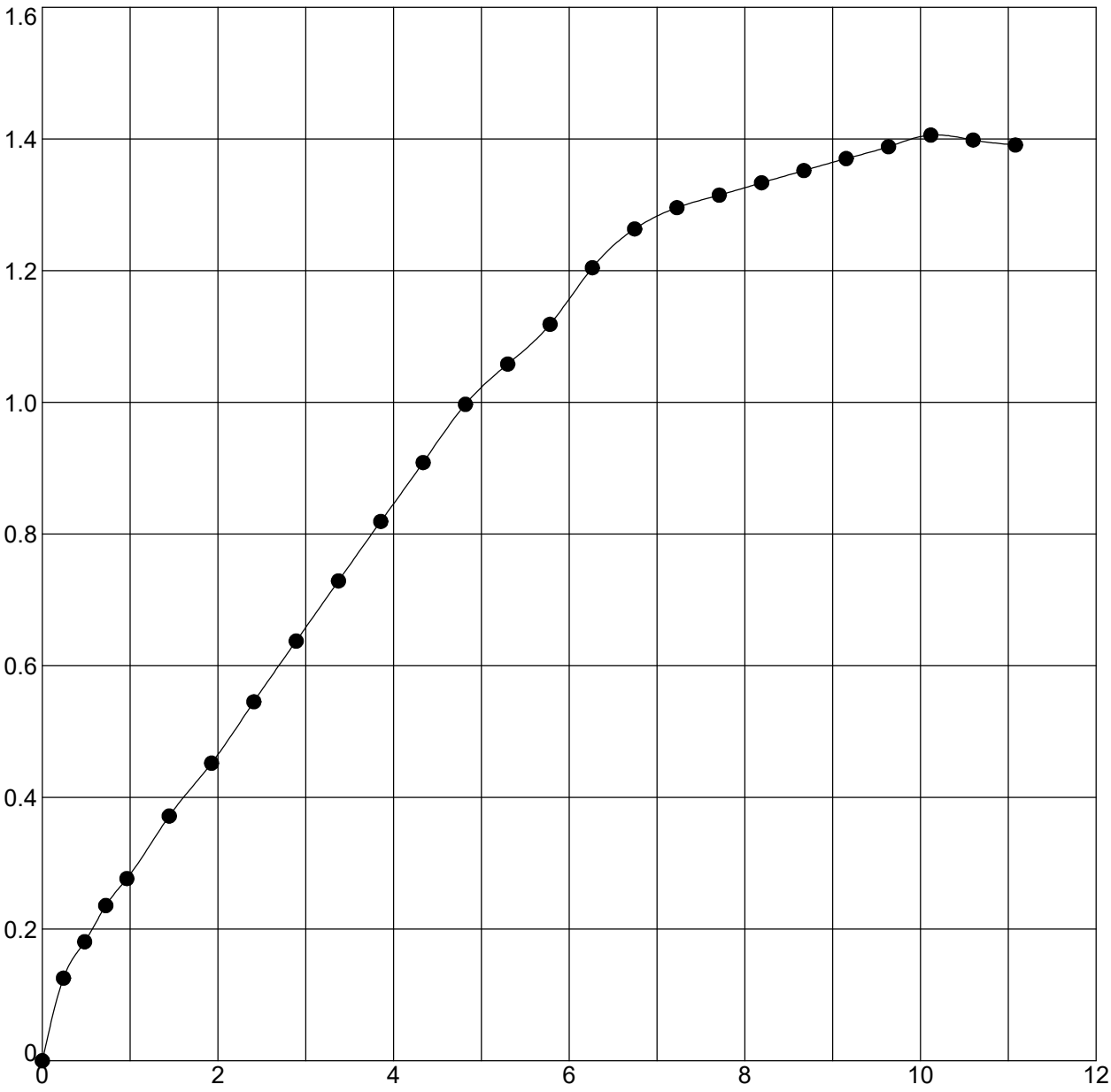
UNCONFINED COMPRESSION TEST

DES #: 2001595 Structure #: CV I65-010-22.77
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 22+77

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001595.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-12	SS-9	18.4 - 21.5	SANDY CLAY LOAM A-4 (0)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
14.7	137.7	120.0	1.41	1.0	10.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.70	97	0.414	36.5	73.81	2.0

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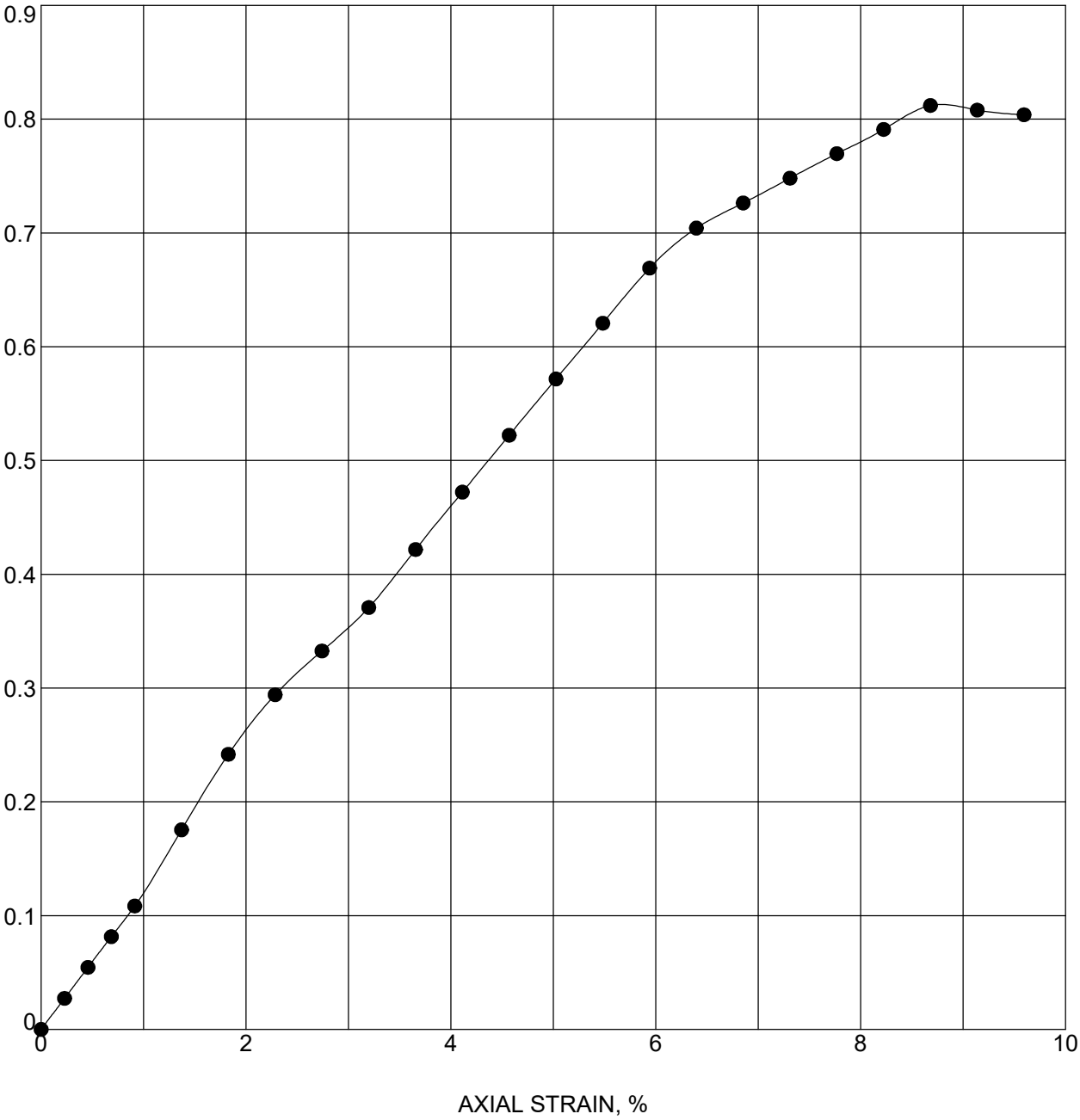
UNCONFINED COMPRESSION TEST

DES #: 2001594 Structure #: CV I65-072-25.05
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+05

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001594.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-14	SS-7T	14 - 16	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
28.3	123.2	96.0	0.81	0.9	8.7
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.41	100	0.767	36.88	77.83	2.1

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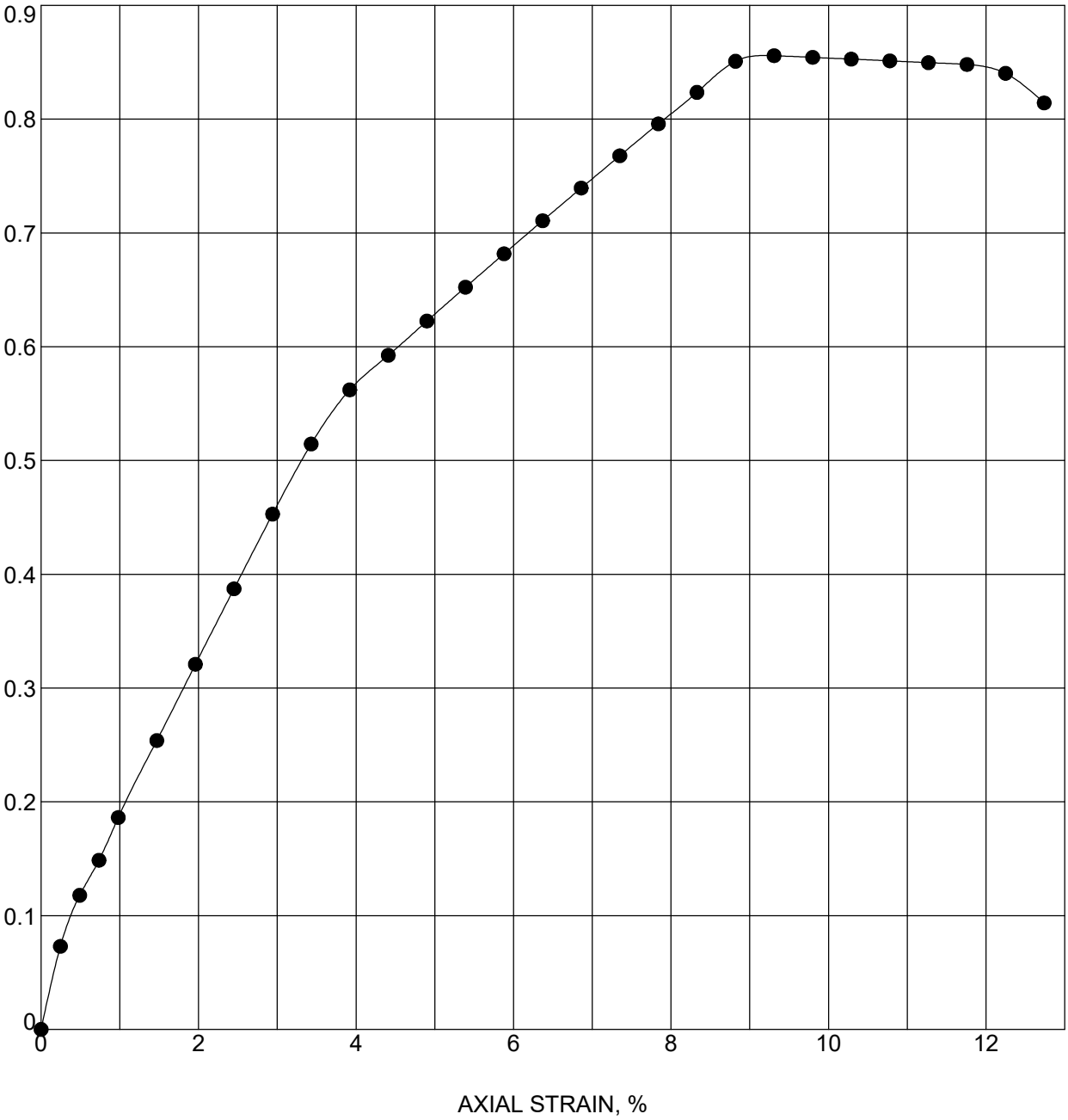
UNCONFINED COMPRESSION TEST

DES #: 2001594 Structure #: CV I65-072-25.05
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+05

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001594.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-15ST	ST-1	8 - 10	SILTY CLAY LOAM A-4 (4)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	125.0	103.6	0.86	1.0	9.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.43	88	0.638	73.1	145.16	2.0

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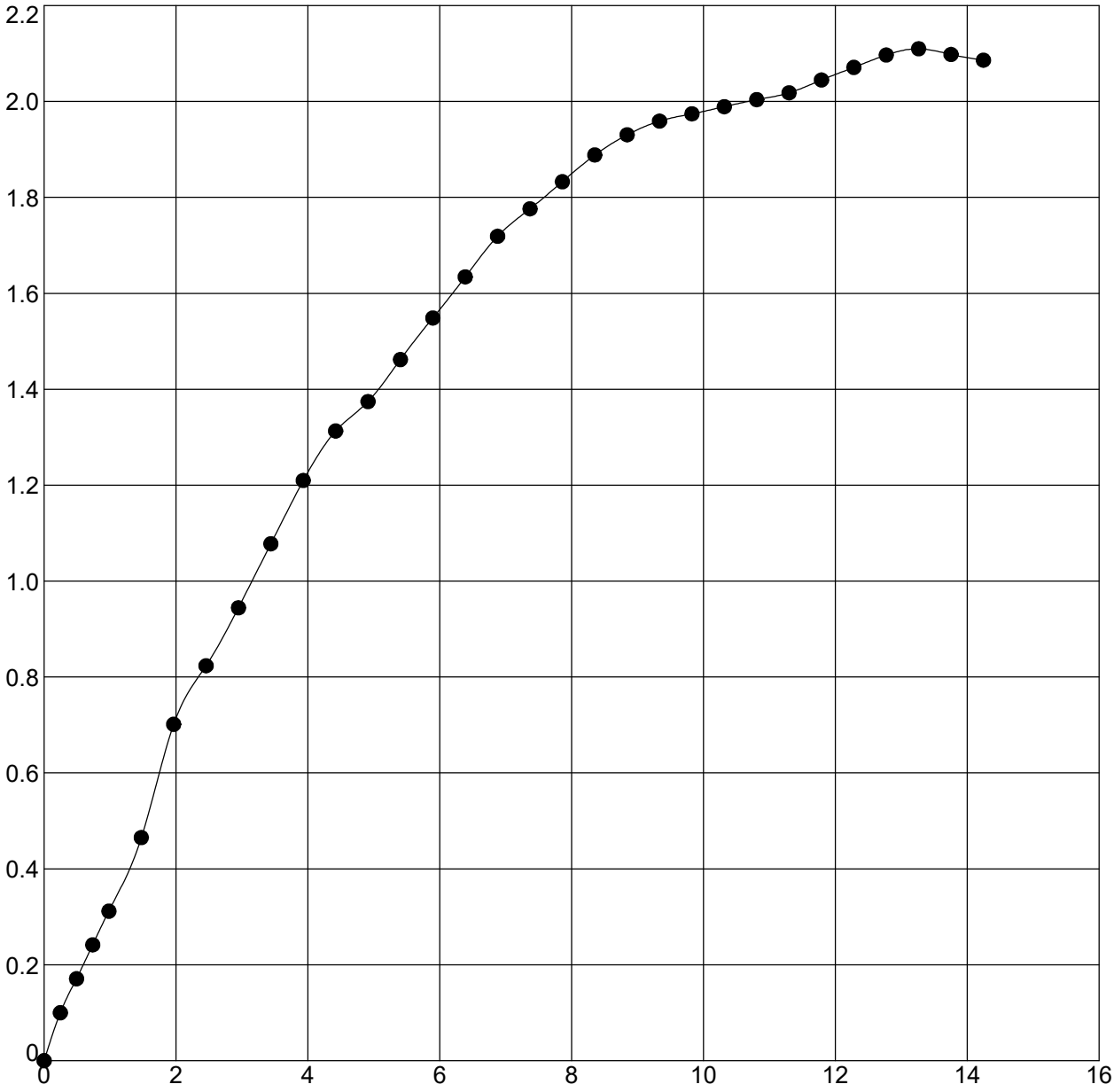
UNCONFINED COMPRESSION TEST

DES #: 2001596 Structure #: CV I65-072-25.83
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+83

DOT UNCONFINED TEST (EEI LOGO) CJ195480 DES NO. 2001596.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-16	SS-7	18.5 - 20	CLAY LOAM A-4 (2)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
17.9	135.0	114.5	2.11	1.0	13.3
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.05	99	0.494	36.06	72.39	2.0

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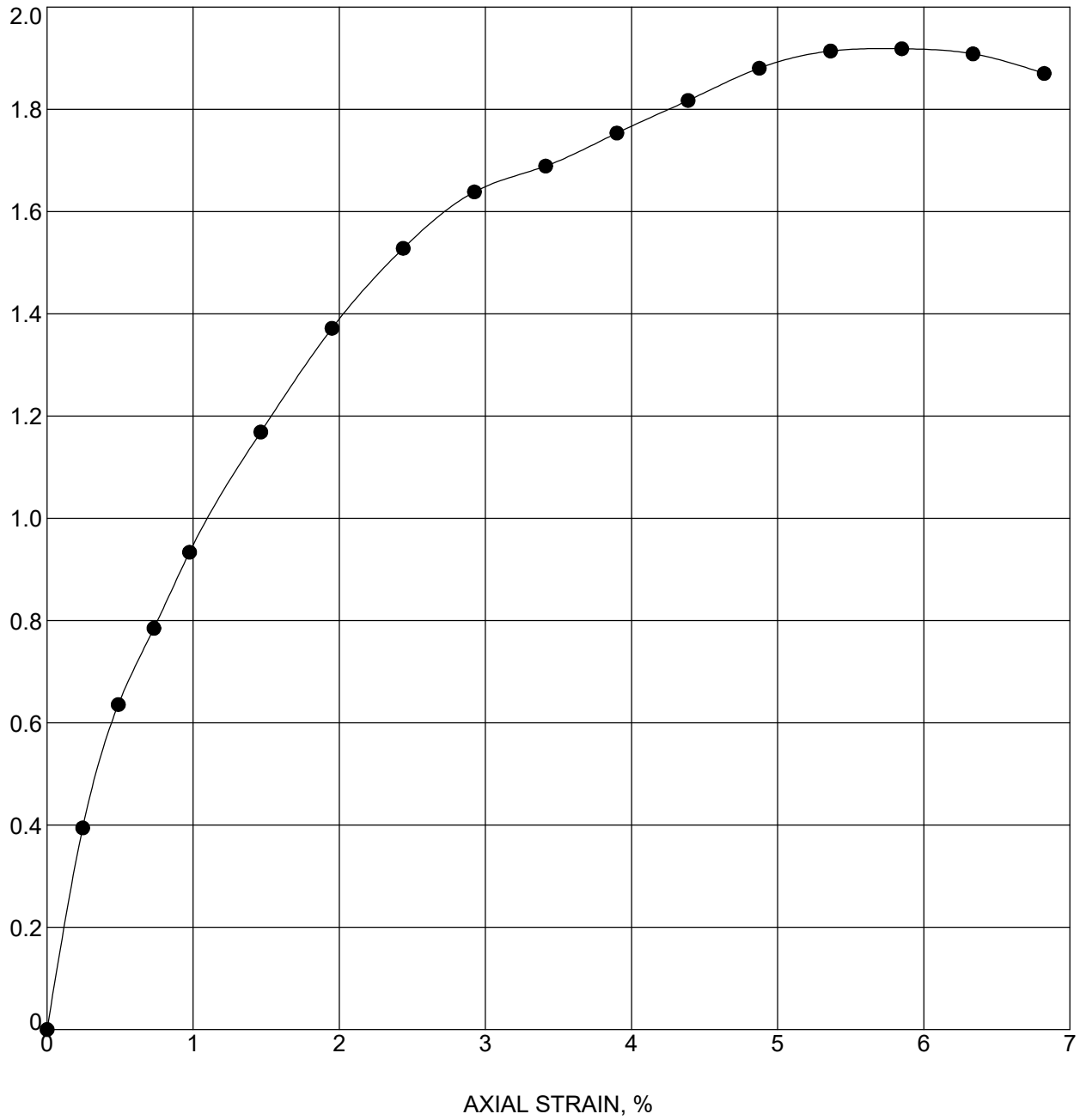
UNCONFINED COMPRESSION TEST

DES #: 2001596 Structure #: CV I65-072-25.83
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 25+83

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001596.GPJ IN_DOT1.GDT 12/30/21



Boring	Sample	Depth	Classification
CB-18	SS-9T	27 - 29	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
23.5	127.0	102.8	1.92	1.0	5.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.96	98	0.650	34.98	72.95	2.1

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UNCONFINED COMPRESSION TEST

DES #: 2001593 Structure #: CV I65-072-26.20
Project #: CJ195480
County: Clark and Scott
Location: I-65 near RP 26+20

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001593.GPJ IN_DOT1.GDT 12/30/21

Bearing Resistance Analysis Project Number: CJ195480 Date: 1/20/22
(AASHTO LRFD, 9th Edition)

Boring Numbers:	CB-01	Project Name:	I-65 near RP 18+35: I-65 Added Travel Lanes
Bearing Soil:	Sandy Clay Loam	Location:	Clark and Scott Counties, IN
Footing Elevation:	518 3/4		
N-Value:	50+ bpf		
Comments:	Des. No. 2001599		

Soil Parameters

Cohesion (c) =	4500	psf	4.500	ksf
Friction Angle (ϕ_f) =	0	degrees		
Unit Weight Above Footing (γ_q) =	120	pcf	0.120	kcf
Unit Weight Below Footing (γ_f) =	130	pcf	0.130	kcf
Groundwater Depth (D_w) =	0	ft		
Bearing Resistance Factor (φ_b) =	0.45			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	15	ft
Width (B) =	3	ft
Depth of Footing (D_f) =	2	ft

Calculations

$N_{cm} = N_c s_c$		N_{cm} = 5.346
		N_c = 5.14
$\phi_f = 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$	s_c = 1.040
$\phi_f > 0$	$s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$	$s_q = 1$	s_q = 1.000
$\phi_f > 0$	$s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	
	$d_q = 1 + 2\tan\phi_f\left(1-\sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q= 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$	$s_\gamma = 1$	s_γ = 1.000
$\phi_f > 0$	$s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	
$0 \le D_w \le D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$	C_{wq} = 0.50
$D_w > D_f$	$C_{wq} = 1$	
$D_w < D_f$	$C_{w\gamma} = 0.5$	$C_{w\gamma}$ = 0.50
$D_f \le D_w \le 1.5B + D_f$	$c_{w\gamma} = \frac{0.5\left(D_w - D_f\right)}{1.5B} + 0.5$	
$D_w > 1.5B + D_f$	$C_{w\gamma} = 1$	
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = 24.18 ksf

Results

Nominal Resistance (q_n)	**24.18 ksf**	**24,175 psf**
Factored Resistance (qR)	**10.88 ksf**	**10,879 psf**

Attachment 11-9

Bearing Resistance Analysis Project Number: CJ195480 Date: 1/20/22
(AASHTO LRFD, 9th Edition)

Boring Numbers:	CB-03	Project Name:	I-65 near RP 10+90: I-65 Added Travel Lanes
Bearing Soil:	Weathered Shale	Location:	Clark and Scott Counties, IN
Footing Elevation:	510		
N-Value:	50+ bpf		
Comments:	Des. No. 2001598, Analyzed as hard cohesive soil (conservative)		

Soil Parameters

Cohesion (c) =	4500	psf	4.500	ksf
Friction Angle (ϕ_f) =	0	degrees		
Unit Weight Above Footing (γ_q) =	120	pcf	0.120	kcf
Unit Weight Below Footing (γ_f) =	135	pcf	0.135	kcf
Groundwater Depth (D_w) =	0	ft		
Bearing Resistance Factor (φ_b) =	0.45			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	15	ft
Width (B) =	3	ft
Depth of Footing (D_f) =	2	ft

Calculations

$N_{cm} = N_c s_c$		N_{cm} = 5.346
		N_c = 5.14
$\phi_f = 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$	s_c = 1.040
$\phi_f > 0$	$s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$	$s_q = 1$	s_q = 1.000
$\phi_f > 0$	$s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	
	$d_q = 1 + 2\tan\phi_f\left(1-\sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q= 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$	$s_\gamma = 1$	s_γ = 1.000
$\phi_f > 0$	$s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	
$0 \le D_w \le D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$	C_{wq} = 0.50
$D_w > D_f$	$C_{wq} = 1$	
$D_w < D_f$	$C_{w\gamma} = 0.5$	$C_{w\gamma}$ = 0.50
$D_f \le D_w \le 1.5B + D_f$	$c_{w\gamma} = \frac{0.5\left(D_w - D_f\right)}{1.5B} + 0.5$	
$D_w > 1.5B + D_f$	$C_{w\gamma} = 1$	
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = 24.18 ksf

Results

Nominal Resistance (q_n)	**24.18 ksf**	**24,175 psf**
Factored Resistance (qR)	**10.88 ksf**	**10,879 psf**

Bearing Resistance Analysis Project Number: CJ195480 Date: 1/20/22
(AASHTO LRFD, 9th Edition)

Boring Numbers:	CB-16	Project Name:	I-65 near RP 25+83: I-65 Added Travel Lanes
Bearing Soil:	Clay Loam	Location:	Clark and Scott Counties, IN
Footing Elevation:	576 1/2		
N-Value:	23		
Comments:	Des. No. 2001596		

Soil Parameters

Cohesion (c) =	**2100**	psf	**2.100**	ksf
Friction Angle (ϕ_f) =	**0**	degrees		
Unit Weight Above Footing (γ_q) =	**120**	pcf	**0.120**	kcf
Unit Weight Below Footing (γ_f) =	**130**	pcf	**0.130**	kcf
Groundwater Depth (D_w) =	**0**	ft		
Bearing Resistance Factor (φ_b) =	**0.45**			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	**10**	ft
Width (B) =	**3**	ft
Depth of Footing (D_f) =	**2**	ft

Calculations

$N_{cm} = N_c s_c$		N_{cm} = 5.448
		N_c = 5.14
$\phi_f = 0$ $\phi_f > 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$ $s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	s_c = 1.060
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$ $\phi_f > 0$	$s_q = 1$ $s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	s_q = 1.000
	$d_q = 1 + 2\tan\phi_f\left(1-\sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q = 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$ $\phi_f > 0$	$s_\gamma = 1$ $s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	s_γ = 1.000
$0 \le D_w \le D_f$ $D_w > D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$ $C_{wq} = 1$	C_{wq} = 0.50
$D_w < D_f$ $D_f \le D_w \le 1.5B + D_f$ $D_w > 1.5B + D_f$	$C_{w\gamma} = 0.5$ $c_{w\gamma} = \frac{0.5(D_w - D_f)}{1.5B} + 0.5$ $C_{w\gamma} = 1$	$C_{w\gamma}$ = 0.50
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = **11.56 ksf**

Results

Nominal Resistance (q_n)	**11.56 ksf**	**11,562 psf**
Factored Resistance (qR)	**5.20 ksf**	**5,203 psf**

Attachment 11-9

Bearing Resistance Analysis (AASHTO LRFD, 9th Edition)

Project Number: CJ195480 Date: 1/20/22

Boring Numbers:	CB-17	Project Name:	I-65 near RP 26+20: I-65 Added Travel Lanes
Bearing Soil:	Clay	Location:	Clark and Scott Counties, IN
Footing Elevation:	577 1/4		
N-Value:	33		
Comments:	Des. No. 2001593		

Soil Parameters

Cohesion (c) =	4500	psf	4.500	ksf
Friction Angle (ϕ_f) =	0	degrees		
Unit Weight Above Footing (γ_q) =	120	pcf	0.120	kcf
Unit Weight Below Footing (γ_f) =	120	pcf	0.120	kcf
Groundwater Depth (D_w) =	0	ft		
Bearing Resistance Factor (φ_b) =	0.45			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	15	ft
Width (B) =	3	ft
Depth of Footing (D_f) =	2	ft

Calculations

$N_{cm} = N_c s_c$		N_{cm} = 5.346
		N_c = 5.14
$\phi_f = 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$	s_c = 1.040
$\phi_f > 0$	$s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$	$s_q = 1$	s_q = 1.000
$\phi_f > 0$	$s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	
	$d_q = 1 + 2\tan\phi_f\left(1 - \sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q= 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$	$s_\gamma = 1$	s_γ = 1.000
$\phi_f > 0$	$s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	
$0 \le D_w \le D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$	C_{wq} = 0.50
$D_w > D_f$	$C_{wq} = 1$	
$D_w < D_f$	$C_{w\gamma} = 0.5$	$C_{w\gamma}$ = 0.50
$D_f \le D_w \le 1.5B + D_f$	$c_{w\gamma} = \frac{0.5(D_w - D_f)}{1.5B} + 0.5$	
$D_w > 1.5B + D_f$	$C_{w\gamma} = 1$	
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = 24.18 ksf

Results

Nominal Resistance (q_n)	**24.18 ksf**	**24,175 psf**
Factored Resistance (qR)	**10.88 ksf**	**10,879 psf**

Bearing Resistance Analysis Project Number: CJ195480 Date: 1/20/22
(AASHTO LRFD, 9th Edition)

Boring Numbers:	CB-11	Project Name:	I-65 near RP 22+77: I-65 Added Travel Lanes
Bearing Soil:	Clay	Location:	Clark and Scott Counties, IN
Footing Elevation:	594		
N-Value:	5		
Comments:	Manhole Type F Foundation for Des. No. 2001595 per INDOT Standard Drawing E720 MHST		

Soil Parameters

Cohesion (c) =	**1750**	psf	**1.750**	ksf
Friction Angle (ϕ_f) =	**0**	degrees		
Unit Weight Above Footing (γ_q) =	**120**	pcf	**0.120**	kcf
Unit Weight Below Footing (γ_f) =	**120**	pcf	**0.120**	kcf
Groundwater Depth (D_w) =	**0**	ft		
Bearing Resistance Factor (φ_b) =	**0.45**			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	**11.5**	ft
Width (B) =	**8.5**	ft
Depth of Footing (D_f) =	**6**	ft

Calculations

$N_{cm} = N_c s_c$		N_{cm} = 5.900
		N_c = 5.14
$\phi_f = 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$	s_c = 1.148
$\phi_f > 0$	$s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$	$s_q = 1$	s_q = 1.000
$\phi_f > 0$	$s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	
	$d_q = 1 + 2\tan\phi_f\left(1-\sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q= 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$	$s_\gamma = 1$	s_γ = 1.000
$\phi_f > 0$	$s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	
$0 \le D_w \le D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$	C_{wq} = 0.50
$D_w > D_f$	$C_{wq} = 1$	
$D_w < D_f$	$C_{w\gamma} = 0.5$	$C_{w\gamma}$ = 0.50
$D_f \le D_w \le 1.5B + D_f$	$c_{w\gamma} = \frac{0.5\left(D_w - D_f\right)}{1.5B} + 0.5$	
$D_w > 1.5B + D_f$	$C_{w\gamma} = 1$	
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = **10.68 ksf**

Results

Nominal Resistance (q_n)	**10.68 ksf**	**10,685 psf**
Factored Resistance (qR)	**4.81 ksf**	**4,808 psf**

Attachment 11-9

November 16, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Addendum 1, Rev 1 –Culverts Task
Revised Summary of Smaller Culvert Wingwalls:
Segment 1 of I-65 Added Travel Lanes
Des No.: 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

We are providing this revised summary to support your efforts to continue with the preparation of the contract documents as it relates to the smaller culvert wingwalls planned as part of the referenced project. Based on our review of the culvert details sheets provided by BLN and our correspondence with ASI and BLN, we have prepared the attached Summary of Smaller Culverts – Segment 1.

[redacted]

We observed hand auger refusal within depths ranging from about 1 to 4 ft below the existing ground surface. Generally, the smaller culvert invert elevations are planned at or slightly below the existing ground surface, and the wingwalls are planned to be established at least 4 ft below the invert elevations. Given

[redacted]

TERRACON CONSULTANTS, INC.

[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

[redacted]

Michael S. Wigger, P.E.
Principal

Attachment –
Summary of Smaller Culverts – Segment 1

Summary of Smaller Culverts - Segment 1 I-65 Added Travel Lanes - Des. No. 1700135								
Structure No.	Station, Line "PR-Q"	Planned Structure Size and Type	Planned Wingwall Locations	Planned Downstream/ (Upstream) Invert (El.)	Nearest Borings	Anticipated Soil Conditions near Invert	Minimum Factored Bearing Resistance	Wingwall Foundation Soil Undercut Risk
41	412+21	54-in. Pipe	Dowstream offset Right and Upstream	475.73/ (477.14)	RB-012/ (RW-1)			
44	488+88	53-in. x 34-in. Elliptical Pipe	Dowstream offset Left and Upstream	512.80/ (513.96)	RB-049			
46	517+93	5-ft x 3-ft RC Box	Dowstream offset Right	541.62	NB-4			
47	535+17	36-in. Pipe	Downstream offset Left and Upstream	554.48/ (557.12)	IGDO-1			
53	609+48	36-in. Pipe	Downstream offset Right	578.63	RB-109			
54	621+56	36-in. Pipe	Downstream offset Right	576.72	RB-115			
55	628+46	36-in. Pipe	Downstream offset Right	559.58	RB-119			
56	659+20	36-in. Pipe	Downstream offset Right	603.08	RB-133, RB-134			
57	663+25	36-in. Pipe	Downstream offset Right	599.45	RB-136, RB-137			

December 8, 2021

Terracon

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Geotechnical Evaluation – Bridges Task
I-65 Added Travel Lanes
from RP 16+27 to 29+10
Des Nos.: 1600729 & 733, 2001604 & 605, 2001603, 2001607
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick:

This letter is being provided to support your efforts to continue with the design of the planned bridge rehabilitations and superstructure replacements. Two existing bridges are planned to be widened toward the I-65 median for the purposes of adding a travel lane to NB and SB I-65 crossing Caney Fork and Pigeon Roost Creek. Also, two existing superstructures are planned to be replaced for the bridges carrying County Line Road and Lake Road over NB and SB I-65. Based on review of the PFC Plans and our correspondence with American Structurepoint, Inc. (ASI) and Beam, Longest and Neff, LLC (BLN), a summary of the bridges is shown in Table 1.

Table 1: Summary of Bridges

Bridge	Des. No.	Improvement Type Planned	Planned End Bent and Pier Types	Approx. Existing Foundation El.
I-65 over Caney Fork	1600729 (NB) & 1600733 (SB)	Twin bridge rehabilitations and widenings (three-span)	Bents (semi-integral): widened with pre-cored H-Piles Piers: widened in-kind with spread foundations or with pre-cored H-Piles	Bents (Driving El.): 501, 497 Piers: 477, 476
I-65 over Pigeon Roost Creek	2001604 & 2001605			Bents (Driving El.): 585, 585 Piers: 566
County Line Road over I-65	2001603	Superstructure replacement and approach improvements	N/A	N/A
Lake Road over I-65	2001607			

We understand that the preferred foundation types for both rehabilitations are widening in-kind with spread footings at the interior piers and widening with pre-cored H-Piles at the end bents. An alternate option for pre-cored H-Piles at the interior piers for I-65 over Pigeon Roost Creek is also

being considered. We understand that MOT will consist of phased construction for the rehabilitations and full closure for the superstructure replacements. If temporary earth retention is utilized for the foundations at the rehabilitations, we anticipate that design will be the responsibility of the contractor. Refer to the attached Exploratory Location Plan (Drawing Nos. CJ195480.B71 - .B74) for the project locations and our exploratory locations. Note Borings TB-2, TB-4, TB-6, and TB-8 were advanced through the existing twin bridge decks at the rehabilitation locations. Pavement cores were collected at the borings associated with the superstructure replacements.

Surface and Subsurface Conditions

Surface conditions at the borings associated with the superstructure replacements typically consisted of about 5½ to 6½ in. of asphaltic concrete pavement on/near County Line Road and 4½ to 7 in. of asphaltic concrete pavement on Lake Road. The subbase at each superstructure replacement consisted of about 4 in. of granular soil described as crushed stone. Surface conditions at the borings for the rehabilitations typically consisted of about 4 to 6 in. of topsoil at the end bent borings and portland cement concrete at the pier borings where the borings were advanced through the bridge decks. The existing ground surface at the pier borings ranged from about 16 to 19 ft below the bridge decks.

The following description of the subsurface conditions is general in nature and does not include all details regarding the soil stratigraphy. Additional descriptions of the subsurface conditions are shown on the attached test boring logs and subsurface profiles (Drawing Nos. CJ195480.B75 - .B76).

Subsurface conditions were generally similar and typically consisted of cohesive soils over rock. The cohesive soils were classified as A-4 (clay), A-6 (loam and silty clay), and A-7-6 (clay). The consistency of the cohesive soils was typically described as soft to stiff based on SPT N-value criteria developed by INDOT. An exception was very soft cohesive soils observed at Boring TB-7 (near Bent No. 4 for I-65 over Pigeon Roost Creek) near a depth of 11 to 16 ft. Stiffer cohesive soils were typically observed at depths near the rock. The moisture content of the cohesive soils was typically about 15 to 24 percent, and hand penetrometer readings typically ranged from about 1¼ to 4 tons/sq ft (tsf).

The undrained shear strength (using a $\Phi = 0$ concept) of the cohesive soils was observed to range from about 1.8 to 5.2 kips/sq ft (ksf). The in-situ dry density of the cohesive soils was observed to range from about 105 to 117 lbs/cu ft (pcf). Atterberg limit determinations were performed on representative samples of the cohesive soils. Based on these results, the cohesive soils exhibit slight to medium plasticity based on a Plasticity Index (PI) ranging from 7 to 18. Additionally, the pH of the representative samples tested was determined to be in the range of 6.2 to 7.8, the specific gravity ranged from 2.69 to 2.77, and the water-soluble sulfate content did not exceed 400 parts per million (ppm).

Rock (i.e., typically weathered shale over shale) was observed at the planned rehabilitations near the depths and elevations shown in Table 2.

Table 2: Summary of Rock Observed at the Planned Rehabilitations

Location	Substructure Nos. and Boring Nos.	Station (Line "PR-Q")	Approx. Depth to Top of Rock* (ft)	Approx. Thickness of Weathered Rock (ft)
I-65 over Caney Fork	Bent No. 1: TB-1	449+12	15 (El. 491)	2
	Pier No. 2: TB-4	449+64	23 (El. 481)	not present
	Pier No. 3: TB-2	450+01	26 (El. 477)	not present
	Bent No. 4: TB-3	450+60	19 (El. 482)	3½
I-65 over Pigeon Roost Creek	Bent No. 1: TB-5	887+23	20 (El. 568)	½
	Pier No. 2: TB-8	887+64	20 (El. 570)	6
	Pier No. 3: TB-6	887+80	18 (El. 572)	7
	Bent No. 4: TB-7	888+23	17 (El. 572)	3½

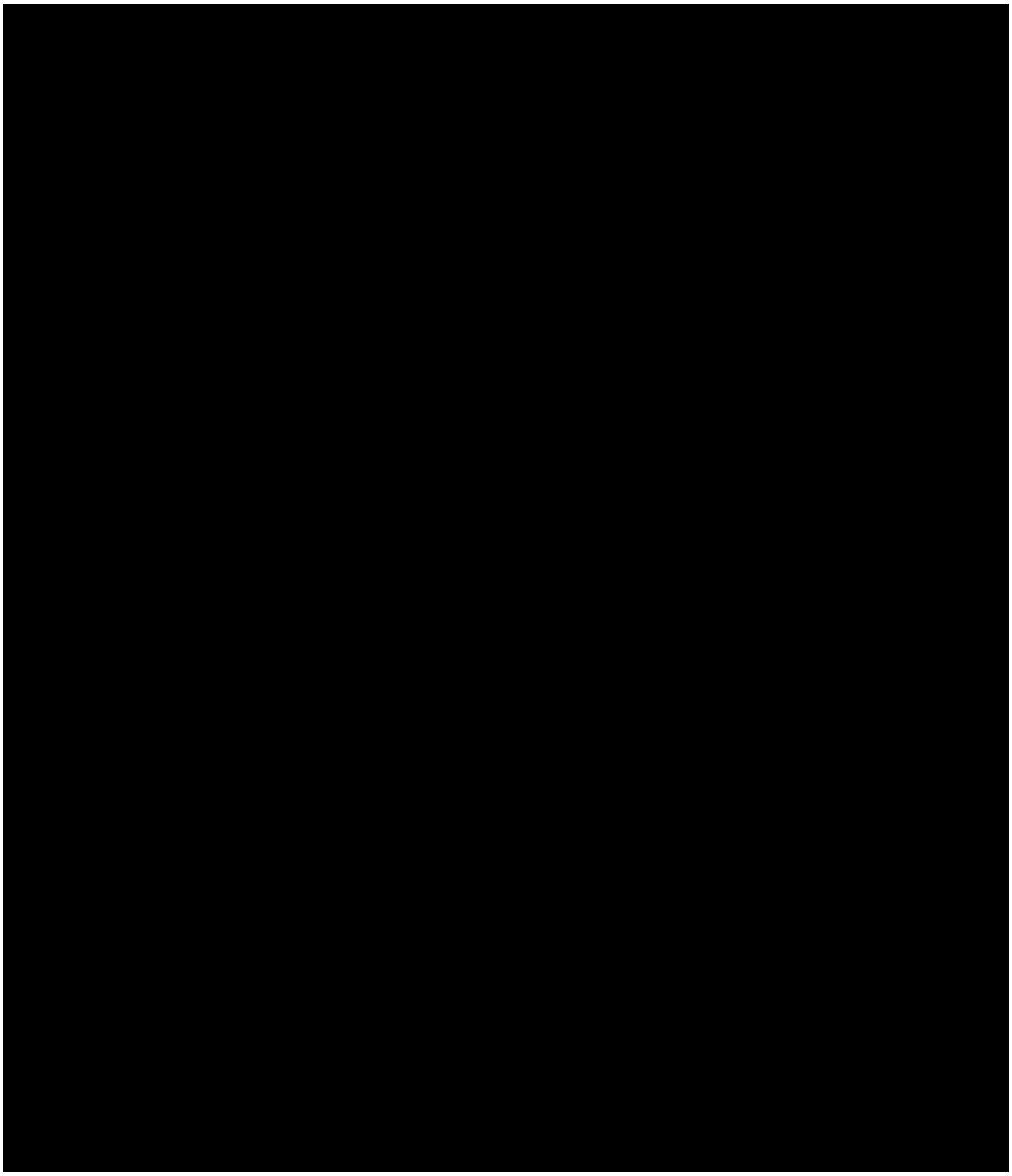
*including weathered rock

The rock core samples obtained at Caney Fork were typically described as moderately hard with observed unconfined compressive strengths ranging from about 26 to 544 tsf. The rock core samples obtained at Pigeon Roost Creek were typically described as very soft to moderately hard with observed unconfined compressive strengths ranging from about 7 to 96 tsf. Two to three slake durability tests were performed on selected samples of the rock at each boring associated with the rehabilitations. The results of these slake durability tests were used to evaluate the quality of the rock and to correlate the quality with the scour potential of the rock at varying depths. These Slake Durability Index 2 results ranged from about 96 to 99 percent at Caney Fork and from about 4 to 72 percent at Pigeon Roost Creek. Refer to the Summary of Slake Durability Test Results.

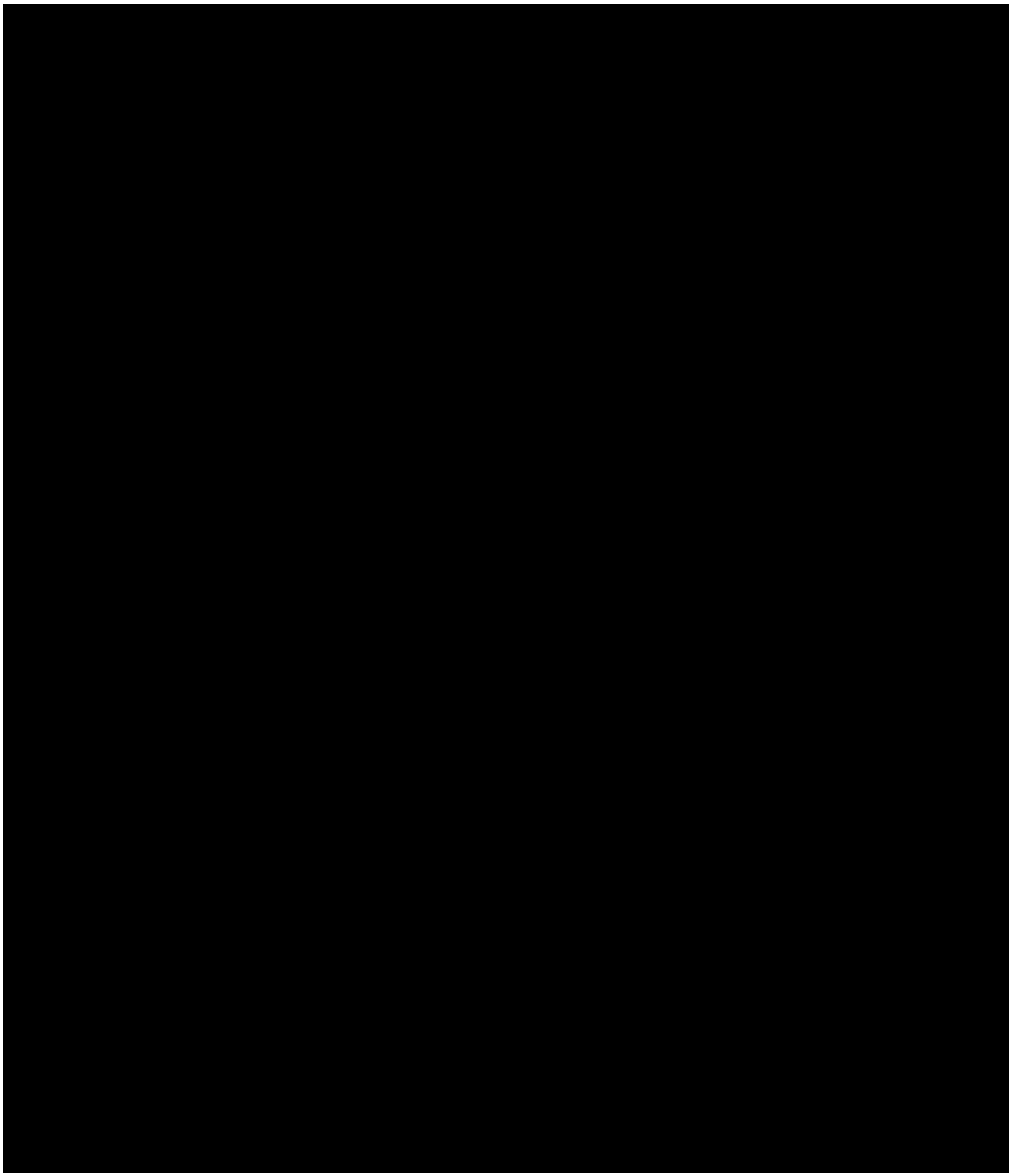
Rock was not observed at the borings associated with the superstructure replacements.

Rehabilitations – Foundation Considerations

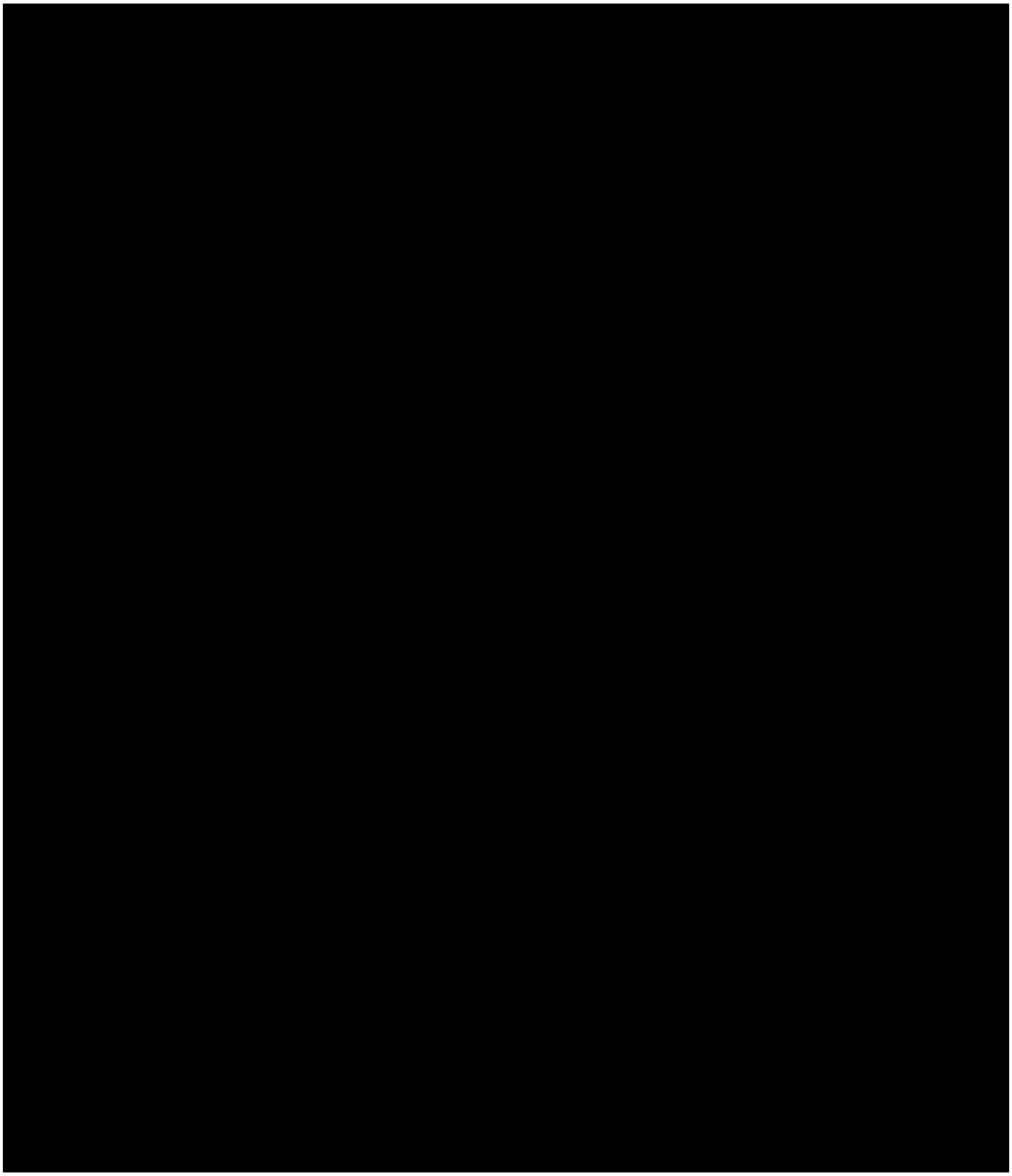
[redacted]



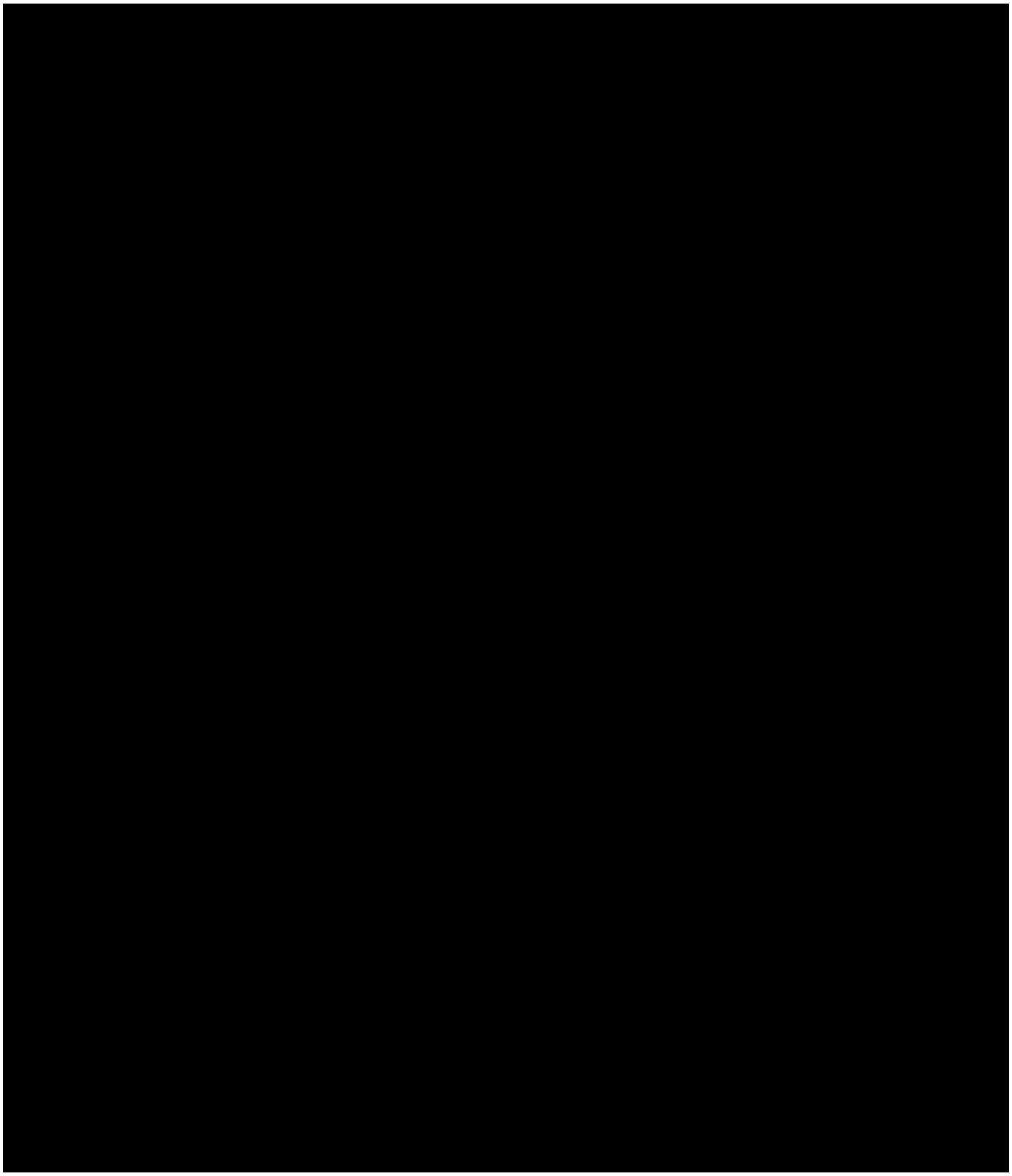
Attachment 11-11



Attachment 11-11



Attachment 11-11



Attachment 11-11

[redacted]

Seismic Considerations

[redacted]

Superstructure Replacements – Pavement Design Considerations

[redacted]

[redacted]

Excavation and Dewatering Considerations

[redacted]

Concluding Remarks

As mentioned, this letter is being provided to support your efforts to continue with the design of the bridge rehabilitations and superstructure replacements while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.

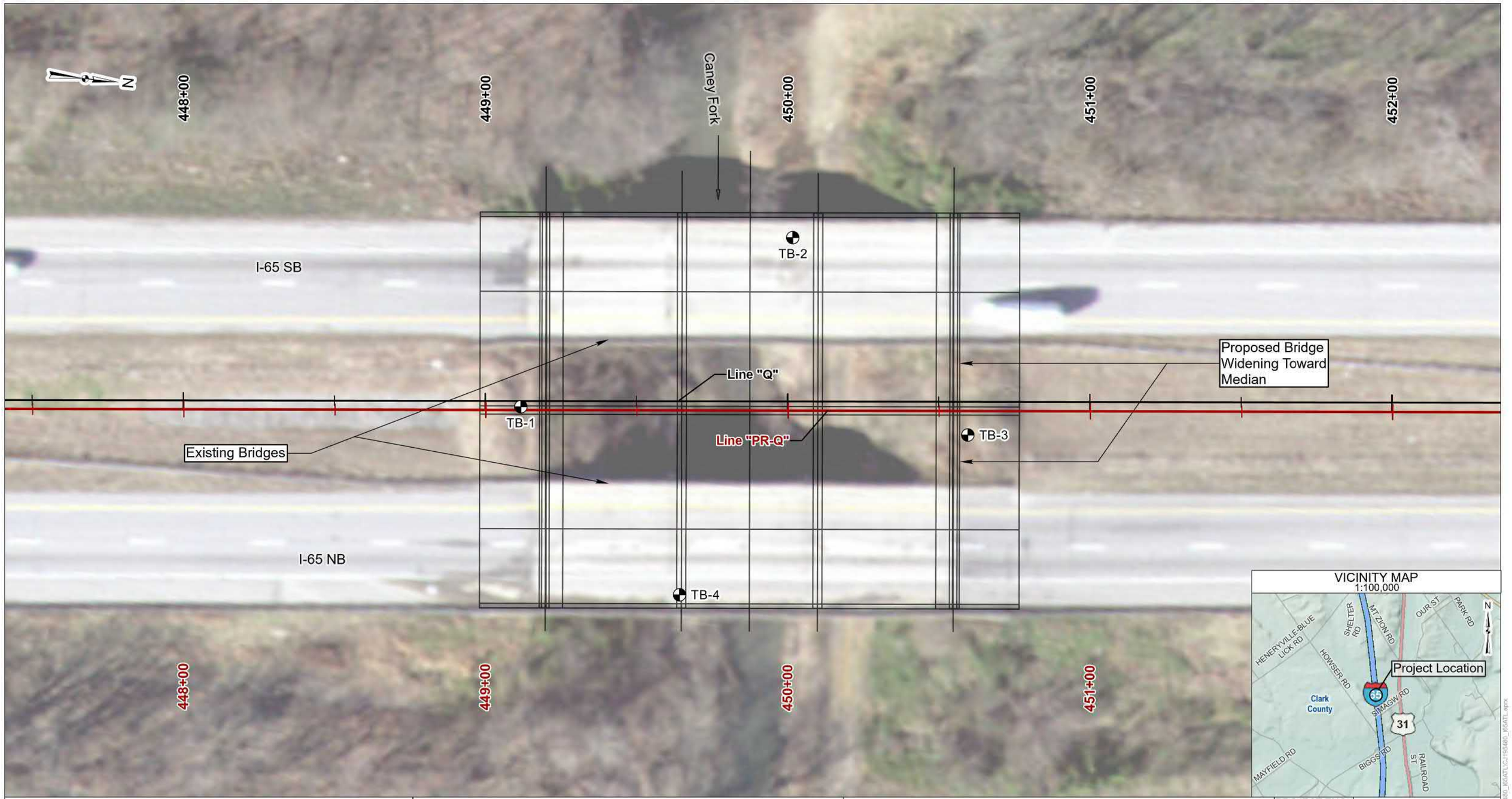
[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Travis J. Pickering, P.E.
Project Engineer

Attachments –
Exploratory Location Plan (Drawing Nos. CJ195480.B71 - .B74)
Log of Test Boring – General Notes
Log of Test Boring (13)
Rock Core Photographs
Summary of Pavement Cores (2)
Pavement Core Log (5)
Grain Size Distribution Test Report (4)
Unconfined Compression Test (7)
Summary of Slake Durability Test Results
Subsurface Profile at Bridge Structure (Drawing Nos. CJ195480.B75 - .B76)
Bearing Resistance Analysis (2)
USP – 207-R-687 Subgrade Treatment
USP – Geosynthetics



LEGEND

- Test Boring Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Ground surface elevations at exploratory locations interpolated to the nearest 1 ft.
6. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	I-65 over Caney Fork: I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	1600729 & 1600733
STRUCTURE NO.:	I65-017-04222 ENBL & ESBL
PROJECT NO.:	CJ195480
SCALE:	1" : 30'

Attachment 11-11

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B71

Terracon

C:\GIS\Projects\CJ195480_I65ATL\CJ195480_I65ATLCrawlerMaps\CJ195480_I65ATL.aprx

N

886+00

887+00

888+00

889+00

Pigeon Roost Creek

I-65 SB

I-65 NB

TB-5

TB-6

TB-7

TB-8

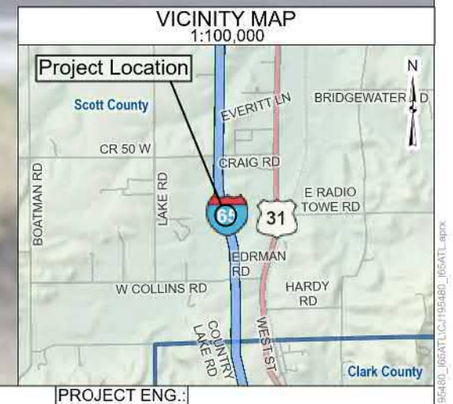
Existing Bridges

Line "Q"

Line "PR-Q"

Proposed Bridge Widening Toward Median

VICINITY MAP
1:100,000



LEGEND

- Test Boring Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Ground surface elevations at exploratory locations interpolated to the nearest 1 ft.
6. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

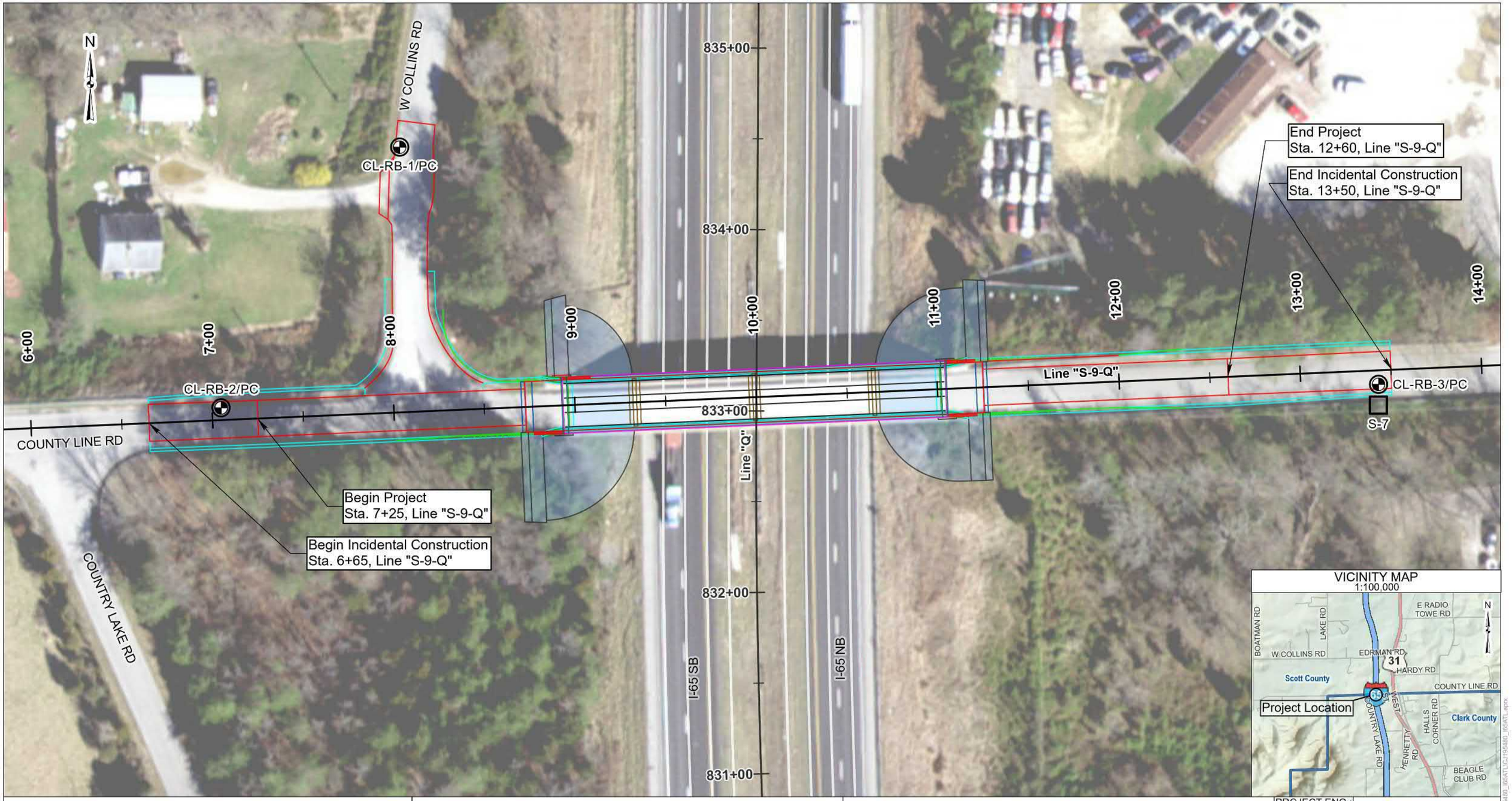
PROJECT:	I-65 over Pigeon Roost Creek: I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001604 & 2001605
STRUCTURE NO.:	I65-024-04229 CNBL & CSBL
PROJECT NO.:	CJ195480
SCALE:	1" : 30'

Attachment 11-11

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B72

Terracon

C:\GIS\Projects\CJ195480_I65ATT\Creator\Maps\CJ195480_I65ATT_CJ195480_I65A11.aprx



LEGEND

- Test Boring and Pavement Core Location and Designation
- Sounding Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Ground surface elevations at exploratory locations interpolated to the nearest 1 ft.
6. Exploratory locations are approximate.

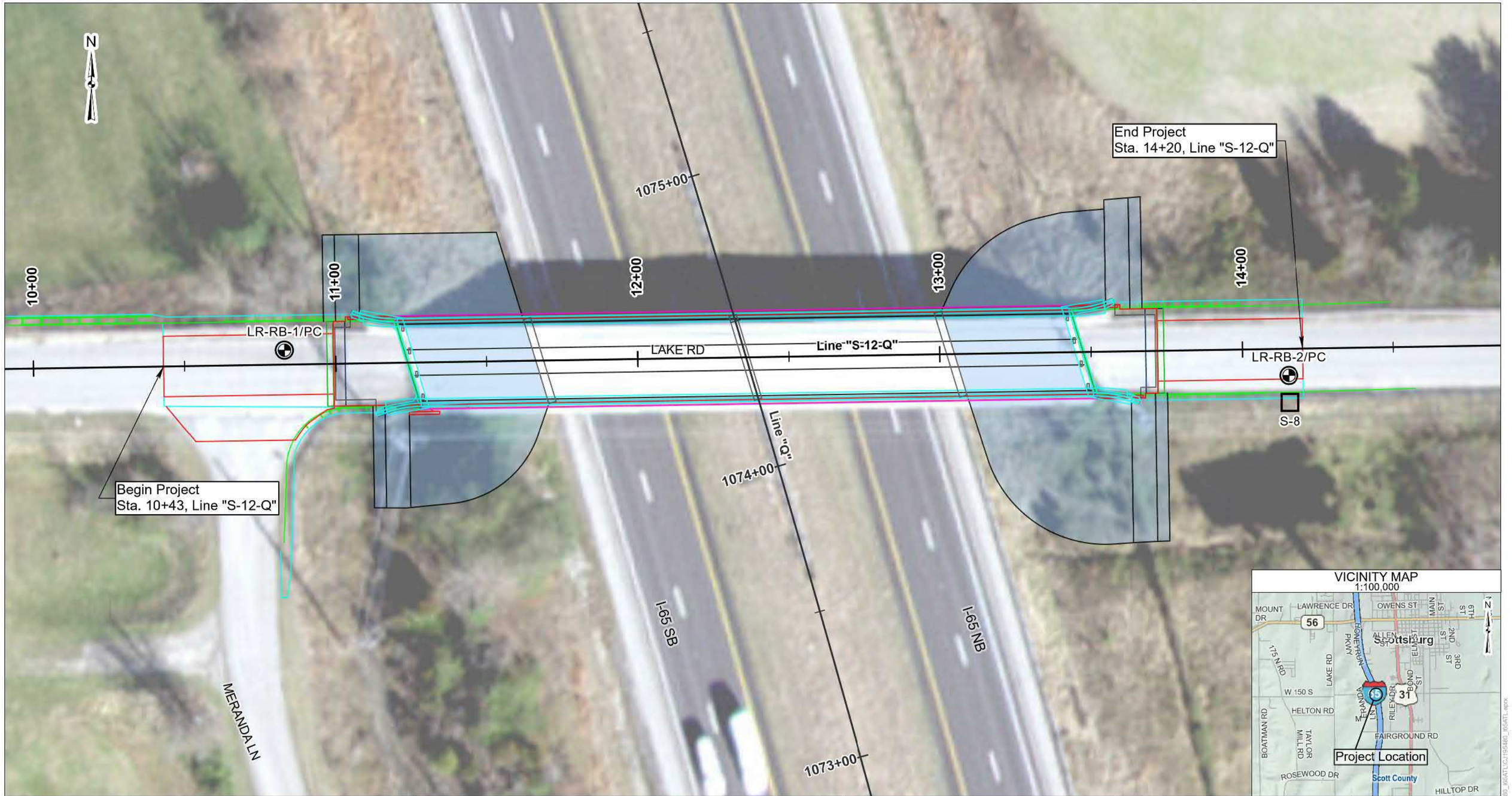
EXPLORATORY LOCATION PLAN

PROJECT:	County Line Road over I-65: I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001603
STRUCTURE NO.:	I65-023-04227B
PROJECT NO.:	CJ195480
SCALE:	1" : 50'

Attachment 11-11

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B73

Terracon



LEGEND

- Test Boring and Pavement Core Location and Designation
- Sounding Location and Designation

NOTES

1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions.
2. Line work provided by American Structurepoint, Inc.
3. Vicinity map generated using data from Indiana Geological and Water Survey and Esri.
4. Exploratory locations marked in the field by Terracon Consultants, Inc.
5. Ground surface elevations at exploratory locations interpolated to the nearest 1 ft.
6. Exploratory locations are approximate.

EXPLORATORY LOCATION PLAN

PROJECT:	Lake Road over I-65: I-65 Added Travel Lanes
LOCATION:	Clark and Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
DES. NO.:	2001607
STRUCTURE NO.:	I65-028-04232A
PROJECT NO.:	CJ195480
SCALE:	1" : 30'

Attachment 11-11

PROJECT ENG.:	ZAB
REVIEWED BY:	TJP
DRAWN BY:	GTG
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B74

Terracon

LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Coarse	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“N Value”
Very soft	0 - 3
Soft	4 - 5
Medium	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

LOG OF TEST BORING

BORING NO.: **TB-1**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Caney Fork
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51418
LONGITUDE : 38.51418
DATUM : -85.772276
DATE STARTED : 07-14-21
DATE COMPLETED : 07-14-21

ELEVATION : 506.0
STATION : 449+12
OFFSET : 1.0 ft Left
LINE : 'PR-Q'
DEPTH : 25.0 ft

BORING METHOD : Hollow Stem Auger
RIG TYPE : CME 750 ATV
CASING DIA. : ---
CORE SIZE : ---

HAMMER : Auto
DRILLER/INSP : B.N.
TEMPERATURE : 84 °F
WEATHER : Cloudy

GROUNDWATER: Encountered at NW At completion 3.0 ft 4.0 ft After 24 hr Caved in at 11.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
505.0	0.0	**Topsoil** 0.5											
	2.5	**Clay**, soft to very stiff, moist, brown, A-4(5), Lab No. 31800	SS 1	1-2-3	67	22.3 26.8		2.75 1.25					
	5.0		SS 2	3-3-3	67	22.2 18.5	115.0	3.5 2.75					
500.0	7.5		SS 3	5-6-9	89	18.7		2.75		33	26	7	7.0, pH = 6.8, SG = 2.77, soluble sulfate = 130 ppm
	10.0		SS 4	7-9-11	89	16.3 16.8	117.3	>4.5	5.15				
495.0	11.0												
	12.5	**Clay**, stiff to very stiff, moist, brown and gray, A-4(9), Lab No. 31801	SS 5	5-7-9	89	20.6 23.2	106.2	3.25	2.45				
	14.5		SS 6	6-6-7	89	20.8		3.0		39	29	10	14.5, pH = 6.5, SG = 2.77
490.0	15.0	**Weathered Shale**, soft, gray, no recovery below 15 ft											15.0, water introduced for rock coring
	16.5		RC 1 RQD= 52%		70								
	17.5												
	20.0	**Shale**, moderately hard, soft near 18.5 ft, gray, low bedding planes											
485.0	22.5		RC 2 RQD= 97%		100				215 544				
	25.0	25.0											
480.0	27.5	Bottom of Boring at 25.0 ft											
	30.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-2**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Caney Fork
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51440
LONGITUDE : 38.51440
DATUM : -85.772504
DATE STARTED : 07-14-21
DATE COMPLETED : 07-14-21

ELEVATION	: 503.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 450+01	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 57.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 56.0 ft				

GROUNDWATER: ▽ Encountered at 18.0 ft ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Portland Cement Concrete, (Bridge Deck) 0.6											
500.0	2.5												
	5.0												
495.0	7.5												
	10.0	Cored through bridge deck and extended casing to ground surface below bridge deck near 19 ft											
490.0	12.5												
	15.0												
485.0	17.5												
		19.0											
	20.0		SS 1	2-2-3	67	15.1		0.75 0.5		38	20	18	20.0, pH = 7.3, SG = 77, soluble sulfate = 300 ppm
	22.5	**Loam**, soft to hard below 21 ft, moist, gray, with weathered shale fragments below 20 ft, with clay loam seam near 24 ft, A-6(8), Lab No. 31802	SS 2	50/5	83	9.2							
480.0			SS 3	50/4	83	21.0							
	25.0												
		26.0											26.0, water introduced for rock coring
	27.5	**Shale**, moderately hard, gray to light gray, low bedding planes, with limestone partings, with silty bands	RC 1 RQD= 65%		97				315				
475.0	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **TB-2**
SHEET 2 OF 2
LATITUDE : 38.51440
LONGITUDE : 38.51440
DATUM : -85.772504

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
470.0	32.5		RC 2 RQD= 100%		100				228				
465.0	37.5		RC 3 RQD= 85%		95				145				
460.0	42.5	**Shale**, moderately hard, gray to light gray, low bedding planes, with limestone partings, with silty bands	RC 4 RQD= 88%		97				200				
455.0	47.5		RC 5 RQD= 97%		98				368				
450.0	52.5		RC 6 RQD= 93%		100				204				
	55.0	56.0											
445.0	57.5	Bottom of Boring at 56.0 ft Auger refusal at 26 ft											
440.0	60.0												
	62.5												
	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-3**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.51458

DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
LONGITUDE : 38.51458

PROJECT TYPE: Twin Bridge Rehabilitation and Widening
DATUM : -85.772299

LOCATION : I-65 over Caney Fork
DATE STARTED : 07-14-21

COUNTY : Clark and Scott
PROJECT NO.: CJ195480
DATE COMPLETED : 07-14-21

ELEVATION	: 501.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 450+60	RIG TYPE	: CME 750 ATV	DRILLER/INSP	: B.N.
OFFSET	: 8.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 30.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
500.0		**Topsoil** 0.5											
		Clay, medium stiff to stiff, moist, brown, with organic matter near 2 ft, with clay loam seams near 4 ft and 6 ft, A-4, Lab No. 31800	SS 1	3-3-5	89	45.1 35.8 28.1		0.75 2.25					2.0, LOI = 4 percent
	5		SS 2	4-6-8	89	18.6 17.7		>4.5 3.5					
495.0			SS 3	5-6-9	89	23.7 20.7	112.1	3.5					
			SS 4	6-5-8	89	25.1 19.9		3.25					
	10	11.0											
490.0		**Clay**, stiff, moist, brown, A-4, Lab No. 31801 13.5	SS 5	6-6-7	89	16.8 18.4	115.0	4.0					
		Loam, very stiff, moist, gray, A-6, Lab No. 31802 16.0	SS 6	6-9-11	89	19.7 23.8	109.5	3.0					
	15												
485.0		**Sand and Gravel**, loose, moist, brown, with weathered shale fragments, (visual) 18.5	SS 7	2-3-3	50								
	20	**Weathered Shale**, soft, gray, bituminous near 19 ft, no recovery below 20 ft 22.0	SS 8	5-7-50/2	71	26.3 57.1 50.9							19.0, LOI = 4 percent 20.0, water introduced for rock coring
480.0			RC 1 RQD= 40%		60								
	25	**Shale**, moderately hard, soft near 23 ft, gray to light gray, low bedding planes, with limestone partings, with silty bands							182 184				
475.0			RC 2 RQD= 78%		100				257				
	30	30.0											
470.0		Bottom of Boring at 30.0 ft Auger refusal at 20 ft											
465.0	35												
	40												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 12/7/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-4**
SHEET 1 OF 2

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Caney Fork
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.51434
LONGITUDE : 38.51434
DATUM : -85.77208
DATE STARTED : 07-14-21
DATE COMPLETED : 07-14-21

ELEVATION	: 504.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 449+64	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 84 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 53.0 ft				

GROUNDWATER: ▽ Encountered at 15.0 ft ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Portland Cement Concrete, (Bridge Deck) 0.9											
500.0	5												
		Cored through bridge deck and extended casing to ground surface below bridge deck near 16 ft											
495.0	10												
490.0	15	16.0											
		Loam, medium stiff to soft, moist, gray, A-6, Lab No. 31802	SS 1	3-4-3	17	18.1							
		19.0											
485.0	20	**Clay**, soft, moist, gray, A-4, Lab No. 31800	SS 2	2-2-2	17	16.5		0.5					
		21.0				21.1							
		Clay, hard, moist, gray, with rock fragments, A-4, Lab No. 31801 23.0	SS 3	50/3	67				398				23.0, water introduced for rock coring
480.0	25		RC 1 RQD= 88%		100								
475.0	30	**Shale**, moderately hard, gray to light gray, low bedding planes, with limestone partings, with silty bands, with pyrite nodules near 32 ft	RC 2 RQD= 92%		100				26				
470.0	35		RC 3 RQD= 97%		100				184				
									103				

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **TB-4**
SHEET 2 OF 2
LATITUDE : 38.51434
LONGITUDE : 38.51434
DATUM : -85.77208

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 1600729 & 1600733 STRUCTURE #: I65-017-04222 ENBL & ESBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
465.0	40		RC 4 RQD= 92%		98								
460.0	45	**Shale**, moderately hard, gray to light gray, low bedding planes, with limestone partings, with silty bands, with pyrite nodules near 32 ft	RC 5 RQD= 75%		90				186				
455.0	50		RC 6 RQD= 87%		95				347				
		53.0											
450.0	55	Bottom of Boring at 53.0 ft Auger refusal at 23 ft											
445.0	60												
440.0	65												
435.0	70												
430.0	75												
425.0	80												
420.0													

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-5**
SHEET 1 OF 2

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Pigeon Roost Creek
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61980
LONGITUDE : -85.78294
DATUM : WGS 84
DATE STARTED : 07-16-21
DATE COMPLETED : 07-16-21

ELEVATION	: 588.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 887+23	RIG TYPE	: CME 750 ATV	DRILLER/INSP	: B.N.
OFFSET	: 9.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 50.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 13.0 ft ▩ Caved in at 11.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
		Clay Loam, medium stiff, moist, brown, (visual) 2.0	SS 1	3-3-4	89	20.3		>4.5					
	2.5					20.2		1.5					
585.0		**Silty Clay**, medium stiff to stiff, moist, brown, A-6, Lab No. 31804 4.0	SS 2	3-5-6	89	18.5		>4.5		31	20	11	4.5, pH = 6.5, SG = 2.70, soluble sulfate = 400 ppm
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, with clay seam near 4 ft, A-6(10), Lab No. 31803						2.5					
		7.0	SS 3	3-3-5	89	20.7		3.0					
	7.5					20.8							
580.0			SS 4	3-4-4	89	20.2		2.5		33	20	13	9.5, pH = 6.2, SG = 2.73
	10.0												
			SS 5	3-2-3	78	23.7		2.0					
	12.5					27.9							
575.0		**Silty Clay**, soft to stiff, moist, gray, with silty loam seam near 15 ft, A-6(12), Lab No. 31804	SS 6	2-2-2	78	28.0		0.5					
	15.0					28.8							
			SS 7	6-5-6	89	18.0	107.8	0.75					
	17.5					19.5							
570.0		19.5	SS 8	7-8-50/5	30	16.2							
	20.0	**Weathered Shale**, soft, gray 20.0											20.0, water introduced for rock coring
			RC 1 RQD= 97%		100				10				
	22.5												
565.0		**Shale**, very soft to soft, gray, low bedding planes, no recovery near 39.5 to 40 ft and 45 to 46.5 ft											
	25.0												
			RC 2 RQD= 83%		100								
	27.5												
560.0													
	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **TB-5**
SHEET 2 OF 2
LATITUDE : 38.61980
LONGITUDE : -85.78294
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
555.0	32.5		RC 3 RQD= 92%		98								
	35.0								30				
550.0	37.5		RC 4 RQD= 63%		87								
	40.0	**Shale**, very soft to soft, gray, low bedding planes, no recovery near 39.5 to 40 ft and 45 to 46.5 ft							96				
545.0	42.5		RC 5 RQD= 62%		72								
	45.0												
540.0	47.5		RC 6 RQD= 67%		98								
	50.0	50.0											
		Bottom of Boring at 50.0 ft Auger refusal at 20 ft											
535.0	52.5												
	55.0												
530.0	57.5												
	60.0												
525.0	62.5												
	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-6**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Pigeon Roost Creek
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61991
LONGITUDE : -85.78317
DATUM : WGS 84
DATE STARTED :
DATE COMPLETED :

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 887+80	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 61.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 54.3 ft				

GROUNDWATER: ▽ Encountered at 17.0 ft ▼ At completion NW

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Portland Cement Concrete, (Bridge Deck) 0.6											
	2.5												
585.0	5.0												
	7.5												
		Cored through bridge deck and extended casing to ground surface below bridge deck near 18 ft											
580.0	10.0												
	12.5												
575.0	15.0												
	17.5												
		18.0	SS 1	11-13-13	67	17.4 18.4		>4.5 >4.5					
570.0	20.0	**Weathered Shale**, soft, gray, no recovery below about 24 ft	SS 2	11-42-50/5	83	16.5 10.5		>4.5 >4.5					
	22.5		SS 3	50/4	83	12.0		>4.5					
565.0	25.0	25.0											24.3, water introduced for rock coring
		Shale, soft to moderately hard, gray to light gray, with silty bands, no recovery to near 25 ft, 38 to 39 ft, and 52.3 to 54.3 ft	RC 1 RQD= 10%		60								
	27.5												
560.0	30.0												

Continued on next page

LOG OF TEST BORING

BORING NO.: **TB-6**
SHEET 2 OF 2
LATITUDE : 38.61991
LONGITUDE : -85.78317
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5		RC 2 RQD= 0%		68								
555.0	35.0												
	37.5		RC 3 RQD= 22%		78								
550.0	40.0												
	42.5	**Shale**, soft to moderately hard, gray to light gray, with silty bands, no recovery to near 25 ft, 38 to 39 ft, and 52.3 to 54.3 ft	RC 4 RQD= 65%		87				46				
545.0	45.0												
	47.5		RC 5 RQD= 77%		92								
540.0	50.0												
	52.5		RC 6 RQD= 47%		53								
		54.3											
535.0	55.0	Bottom of Boring at 54.3 ft Auger refusal at 24.3 ft											
	57.5												
530.0	60.0												
	62.5												
525.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-7**
SHEET 1 OF 2

Terracon CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Pigeon Roost Creek
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.62008
LONGITUDE : -85.78300
DATUM : WGS 84
DATE STARTED : 07-15-21
DATE COMPLETED : 07-15-21

ELEVATION	: 589.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 888+23	RIG TYPE	: CME 750 ATV	DRILLER/INSP	: B.N.
OFFSET	: 3.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 50.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion 12.5 ft ▼ 10.0 ft After 24 hr ▩ Caved in at 12.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Topsoil 0.3											
	2.5		SS 1	2-4-5	78	21.5 15.8		2.5 3.5					
585.0	5.0	**Silty Clay**, medium stiff, moist, brown, with clay loam seam near 2 ft, with silty loam seam near 4 ft, A-6, Lab No. 31803	SS 2	2-3-3	67	20.0 23.4		2.5 1.5					
	7.5		SS 3	3-4-6	89	21.4 18.5		2.75					
580.0	9.5		SS 4	3-4-4	89	24.3 21.4		0.5					
	10.0 ▼	**Sandy Loam**, very soft to medium stiff, moist, brown, (visual)	SS 5	1-2-1	89	29.7 25.6		0.5					
	12.5 ▩												
575.0	13.5	**Clay Loam**, very soft to stiff, moist, brown, (visual)	SS 6	2-2-1	89	25.7 26.4		0.75					
	15.0												
	16.5		SS 7	7-14-50/4	22	17.2							
	17.5	**Weathered Shale**, soft, gray											
570.0			SS 8	30-50/4	42	9.7							
	20.0								22				20.0, water introduced for rock coring
	22.5		RC 1 RQD= 87%		100								
565.0									16				
	25.0	**Shale**, very soft to soft, gray, low bedding planes, no recovery near 48 to 50 ft											
	27.5		RC 2 RQD= 82%		98								
560.0	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **TB-7**
SHEET 2 OF 2
LATITUDE : 38.62008
LONGITUDE : -85.78300
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5		RC 3 RQD= 78%		97				7				
555.0	35.0								18				
	37.5		RC 4 RQD= 98%		100				7				
550.0	40.0	**Shale**, very soft to soft, gray, low bedding planes, no recovery near 48 to 50 ft											
	42.5		RC 5 RQD= 83%		98				30				
545.0	45.0												
	47.5		RC 6 RQD= 38%		63								
540.0	50.0	50.0											
		Bottom of Boring at 50.0 ft											
		Auger refusal at 20 ft											
	52.5												
535.0	55.0												
	57.5												
530.0	60.0												
	62.5												
525.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **TB-8**
SHEET 1 OF 2

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening
LOCATION : I-65 over Pigeon Roost Creek
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.61997
LONGITUDE : -85.78276
DATUM : WGS 84
DATE STARTED : 07-11-21
DATE COMPLETED : 07-12-21

ELEVATION	: 590.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 887+64	RIG TYPE	: CME 55 Truck	DRILLER/INSP	: D.C.
OFFSET	: 57.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 90 °F
LINE	: 'PR-Q'	CORE SIZE	: ---	WEATHER	: Sunny
DEPTH	: 56.0 ft				

GROUNDWATER: ▽ Encountered at 20.0 ft ▼ At completion 18.5 ft ▩ Caved in at 22.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Portland Cement Concrete, (Bridge Deck) 0.6											
	2.5												
585.0	5.0												
	7.5												
		Cored through bridge deck and extended casing to ground surface below bridge deck near 18 ft											
580.0	10.0												
	12.5												
575.0	15.0												
	17.5	18.0											
		Silty Clay, stiff, moist, gray, A-6, Lab No. 31804	SS 1	2-5-8	67	16.8 13.0							
570.0	20.0	20.0											
			SS 2	38-50/4	94	13.4 9.6							
	22.5	**Weathered Shale**, soft, gray											
			SS 3	37-50/3	94	8.6 9.3							
565.0	25.0		SS 4	50/1	83	4.9							26.0, water introduced for rock coring
		26.0											
	27.5	**Shale**, soft to moderately hard, gray, low bedding planes, no recovery near 34 to 35 ft	RC 1 RQD= 80%		97								
560.0	30.0												

Continued on next page

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **TB-8**
SHEET 2 OF 2
LATITUDE : 38.61997
LONGITUDE : -85.78276
DATUM : WGS 84

Terracon
CLIENT : American Structurepoint, Inc.
DES NO. : 2001604 & 2001605 STRUCTURE #: I65-024-04229 CNBL & CSBL
PROJECT TYPE: Twin Bridge Rehabilitation and Widening

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
	32.5		RC 2 RQD= 67%		77								
555.0	35.0												
	37.5		RC 3 RQD= 83%		100								
550.0	40.0												
	42.5	**Shale**, soft to moderately hard, gray, low bedding planes, no recovery near 34 to 35 ft	RC 4 RQD= 62%		100								
545.0	45.0												
	47.5		RC 5 RQD= 75%		100								
540.0	50.0												
	52.5		RC 6 RQD= 65%		98								
535.0	55.0	56.0											
		Bottom of Boring at 56.0 ft											
	57.5	Auger refusal at 26 ft											
530.0	60.0												
	62.5												
525.0	65.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES 2001604 & 2001605.GPJ IN_DOT1.GDT 11/17/21

LOG OF TEST BORING

BORING NO.: **CL-RB-1/PC**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.60544
DES NO. : 2001603 STRUCTURE #: I65-023-04227B
LONGITUDE : -85.78218
PROJECT TYPE: Bridge Superstructure Replacement
DATUM : WGS 84
LOCATION : County Line Road over I-65
DATE STARTED : 08-10-21
COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-10-21

ELEVATION	: 647.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 8+09	RIG TYPE	: DR #548	DRILLER/INSP	: J.R.
OFFSET	: 146.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'S-9-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.5											
		Granular Subbase, (crushed stone) 0.8											
645.0	2.5		SS 1	2-3-4	89	20.3 17.6		3.0 3.25					
	5.0	**Clay**, soft to medium stiff, moist, brown, A-7-6(16), Lab No. 32023	SS 2	2-2-2	89	20.6 19.8	107.4	2.5 2.25	1.83	42	24	18	4.5, pH = 7.8, SG = 2.75
640.0	7.5		SS 3	3-4-5	100	17.2		3.75					
	10.0	10.0	SS 4	4-5-5	89	20.3		2.25					
		Bottom of Boring at 10.0 ft											
635.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **CL-RB-2/PC**
SHEET 1 OF 1

Terracon

CLIENT : American Structurepoint, Inc.
DES NO. : 2001603 STRUCTURE #: I65-023-04227B
PROJECT TYPE: Bridge Superstructure Replacement
LOCATION : County Line Road over I-65
COUNTY : Clark and Scott PROJECT NO.: CJ195480

LATITUDE : 38.60505
LONGITUDE : -85.78252
DATUM : WGS 84
DATE STARTED : 08-10-21
DATE COMPLETED : 08-10-21

ELEVATION	: 648.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 7+05	RIG TYPE	: DR #548	DRILLER/INSP	: J.R.
OFFSET	: 7.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'S-9-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 8.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.5											
		Granular Subbase, (crushed stone) 0.8											
			SS 1	2-2-3	89	20.7 19.1	110.2	2.25 2.5	3.46				
645.0	2.5												
			SS 2	2-3-5	67	21.2 24.9		2.5 2.25					
	5.0	**Clay**, soft to stiff, moist, brown and gray, A-7-6, Lab No. 32023											
			SS 3	3-5-7	89	17.3		2.5					
640.0 ▩	7.5												
			SS 4	4-5-4	89	18.8		1.75					
	10.0	10.0											
		Bottom of Boring at 10.0 ft											
635.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **CL-RB-3/PC**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.60509
DES NO. : 2001603 STRUCTURE #: I65-023-04227B
LONGITUDE : -85.78029
PROJECT TYPE: Bridge Superstructure Replacement
DATUM : WGS 84
LOCATION : County Line Road over I-65
DATE STARTED : 08-10-21
COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-10-21

ELEVATION	: 642.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 13+43	RIG TYPE	: DR #548	DRILLER/INSP	: J.R.
OFFSET	: 8.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'S-9-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ⊠ Caved in at 6.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.5											
		Granular Subbase, (crushed stone) 0.9											
640.0	2.5		SS 1	2-3-3	67	21.1 24.4	105.4	2.25 2.75	2.75				
	5.0	**Clay**, medium stiff, moist, brown, A-7-6, Lab No. 32023	SS 2	3-4-5	56	18.8 14.3		3.5 2.5					
635.0	7.5		SS 3	3-3-4	67	17.5		1.5					
	10.0	10.0	SS 4	3-5-5	78	21.3		2.25					
		Bottom of Boring at 10.0 ft Delayed groundwater level reading taken from offset sounding (S-7)											
630.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **LR-RB-1/PC**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.67095

DES NO. : 2001607 STRUCTURE #: I65-028-04232A
LONGITUDE : -85.78409

PROJECT TYPE: Bridge Superstructure Replacement
DATUM : WGS 84

LOCATION : Lake Road over I-65
DATE STARTED : 08-09-21

COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-09-21

ELEVATION	: 600.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 10+83	RIG TYPE	: DR #548	DRILLER/INSP	: J.R.
OFFSET	: 5.0 ft Left	CASING DIA.	: ---	TEMPERATURE	: 70 °F
LINE	: 'S-12-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▩ Caved in at 7.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.6											
		Granular Subbase, (crushed stone) 0.9											
			SS 1	2-3-5	100	19.6 19.0	105.9	3.25 >4.5	1.93	32	21	11	2.0, pH = 7.6, SG = 2.73
	2.5												
			SS 2	4-4-4	67	19.7 20.8		4.0 1.5					
595.0	5.0	**Silty Clay**, medium stiff to stiff, hard below 8 ft, moist, brown, with silty loam seams below 2 ft, A-6(9), Lab No. 32024											
			SS 3	4-5-7	100	20.9		>4.5					
	7.5												
			SS 4	11-15-27	89	20.8 10.7		3.0					
590.0	10.0	10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
585.0	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001607.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

LOG OF TEST BORING

BORING NO.: **LR-RB-2/PC**
SHEET 1 OF 1

Terracon CLIENT : American Structurepoint, Inc.
LATITUDE : 38.67093

DES NO. : 2001607 STRUCTURE #: I65-028-04232A
LONGITUDE : -85.78293

PROJECT TYPE: Bridge Superstructure Replacement
DATUM : WGS 84

LOCATION : Lake Road over I-65
DATE STARTED : 08-09-21

COUNTY : Clark and Scott PROJECT NO.: CJ195480
DATE COMPLETED : 08-09-21

ELEVATION	: 602.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: 14+15	RIG TYPE	: DR #548	DRILLER/INSP	: J.R.
OFFSET	: 9.0 ft Right	CASING DIA.	: ---	TEMPERATURE	: 80 °F
LINE	: 'S-12-Q'	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 10.0 ft				

GROUNDWATER: ▽ Encountered at NW ▼ At completion NW ▼ NW After 24 hr ▩ Caved in at 6.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.4											
		Granular Subbase, (crushed stone) 0.8											
600.0	2.5		SS 1	5-5-5	67	20.1 13.3	104.5	3.75 >4.5	2.50				
	5.0	**Silty Clay**, medium stiff to stiff, moist, brown, with clay loam seams below 5 ft, A-6, Lab No. 32024	SS 2	3-5-8	78	16.9 15.9		4.0 >4.5					
595.0	7.5		SS 3	5-6-7	89	19.9		3.75					
	10.0	10.0	SS 4	3-5-6	100	17.3		3.25					
		Bottom of Boring at 10.0 ft Delayed groundwater level reading taken from offset sounding (S-8)											
590.0	12.5												
	15.0												

EEI BORING LOG (INDOT FORMAT) LAT./LONG. CJ195480 DES NO. 2001607.GPJ IN_DOT1.GDT 11/17/21

Attachment 11-11

I-65 over Caney Fork:
I-65 Added Travel Lanes
Des. Nos. 1600729 & 1600733

ROCK CORE PHOTOGRAPHS

BORINGS:

TB-1, TB-2, TB-3, and TB-4

Attachment 11-11



Project No. CJ195480, Boring No. TB-1, Rock Core No. RC-1 & 2, Depth: 15’ – 25’



Project No. CJ195480, Boring No. TB-2, Rock Core No. RC-1 & 2, Depth: 26’ – 36’



Project No. CJ195480, Boring No. TB-2, Rock Core No. RC-3 & 4, Depth: 36’ – 46’



Project No. CJ195480, Boring No. TB-2, Rock Core No. RC-5 & 6, Depth: 46’ – 56’



Project No. CJ195480, Boring No. TB-3, Rock Core No. RC-1 & 2, Depth: 20’ – 30’



Project No. CJ195480, Boring No. TB-4, Rock Core No. RC-1 & 2, Depth: 23’ – 33’



Project No. CJ195480, Boring No. TB-4, Rock Core No. RC-3 & 4, Depth: 33' – 43



Project No. CJ195480, Boring No. TB-4, Rock Core No. RC-5 & 6, Depth: 43' – 53'

I-65 over Pigeon Roost Creek:
I-65 Added Travel Lanes
Des. Nos. 2001604 & 2001605

ROCK CORE PHOTOGRAPHS

BORINGS:

TB-5, TB-6, TB-7, and TB-8

Attachment 11-11



Project No. CJ195480, Boring No. TB-5, Rock Core No. RC-1 & 2, Depth: 20' – 30



Project No. CJ195480, Boring No. TB-5, Rock Core No. RC-3 & 4, Depth: 30' – 40'



Project No. CJ195480, Boring No. TB-5, Rock Core No. RC-5 & 6, Depth: 40’ – 50’



Project No. CJ195480, Boring No. TB-6, Rock Core No. RC-1 & 2, Depth: 24.3’ – 34.3’



Project No. CJ195480, Boring No. TB-6, Rock Core No. RC-3 & 4, Depth: 34.3' – 44.3'



Project No. CJ195480, Boring No. TB-6, Rock Core No. RC-5 & 6, Depth: 44.3' – 54.3'



Project No. CJ195480, Boring No. TB-7, Rock Core No. RC-1 & 2, Depth: 20' – 30'



Project No. CJ195480, Boring No. TB-7, Rock Core No. RC-3 & 4, Depth: 30' – 40'



Project No. CJ195480, Boring No. TB-7, Rock Core No. RC-5 & 6, Depth: 40’ – 50’



Project No. CJ195480, Boring No. TB-8, Rock Core No. RC-1 & 2, Depth: 26’ – 36’



Project No. CJ195480, Boring No. TB-8, Rock Core No. RC-3 & 4, Depth: 36’ – 46’



Project No. CJ195480, Boring No. TB-8, Rock Core No. RC-5 & 6, Depth: 46’ – 56’

Summary of Pavement Cores
County Line Road over I-65: I-65 Added Travel Lanes
Terracon Project No. CJ195480
Des. No. 2001603
Structure No. I65-023-04227B
Clark and Scott Counties, Indiana

Core	Latitude	Longitude	Direction	Lane	Date	Overall Thickness (in)	Overall Type	Layer 1 Thickness (in.)	Layer 1 Type	Subbase Type	Subbase Thickness (in.)
CL-RB-1/PC	38.60544	-85.78218	Southbound	Travel	9/25/21	5.5	HMA	5.5	HMA	Crushed Stone	4.0
CL-RB-2/PC	38.60505	-85.78252	Westbound	Travel	9/25/21	5.5	HMA	5.5	HMA	Crushed Stone	4.0
CL-RB-3/PC	38.60509	-85.78029	Eastbound	Travel	9/25/21	6.5	HMA	6.5	HMA	Crushed Stone	4.0

Note: While the measurements of layer and overall core thicknesses are reported to the nearest tenth of an inch, an inherent variation in the pavement thickness will occur due to the size of the aggregate. Depending on the aggregate size, the variation in measurements could be 1/2 to 3/4 in.

Summary of Pavement Cores
Lake Road over I-65: I-65 Added Travel Lanes
Terracon Project No. CJ195480
Des. No. 2001607
Structure No. I65-028-04232A
Clark and Scott Counties, Indiana

Core	Latitude	Longitude	Direction	Lane	Date	Overall Thickness (in)	Overall Type	Layer 1 Thickness (in.)	Layer 1 Type	Subbase Type	Subbase Thickness (in.)
LR-RB-1/PC	38.67095	-85.78409	Westbound	Travel	9/25/21	7.0	HMA	7.0	HMA	Crushed Stone	4.0
LR-RB-2/PC	38.67093	-85.78293	Eastbound	Travel	9/25/21	4.6	HMA	4.6	HMA	Crushed Stone	4.0

Note: While the measurements of layer and overall core thicknesses are reported to the nearest tenth of an inch, an inherent variation in the pavement thickness will occur due to the size of the aggregate. Depending on the aggregate size, the variation in measurements could be 1/2 to 3/4 in.

PAVEMENT CORE LOG NO. CL-RB-1/PC

PROJECT: County Line Road over I-65: I-65 Added Travel Lanes

SITE: W Collins Road
Clark and Scott Counties, IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 2001603

Latitude: 38.6054° Longitude: -85.7822° Station: 8+09 Offset: 146 ft Lt. Line "S-9-Q"

Direction: Southbound Lane: Travel

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	2.2		2
		HMA, 9.5mm intermediate, pitted	3
	3.2		
		HMA, 12.5mm intermediate, vertically cracked	4
			5
	5.5		
		Granular Subbase, crushed stone	6
			7
			8
			9
	9.5		
		Pavement Core terminated at 9.5 inches	







Attachment 11-11

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 9/25/2021	Coring Completed: 9/25/2021
Drill Rig: Core Machine	Driller: CB
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE CJ195480_PC_DES 2001603.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 11/16/21

PAVEMENT CORE LOG NO. CL-RB-2/PC

PROJECT: County Line Road over I-65: I-65 Added Travel Lanes

SITE: County Line Road
Clark and Scott Counties, IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 2001603

Latitude: 38.605° Longitude: -85.7825° Station: 7+05 Offset: 7 ft Lt. Line "S-9-Q"

Direction: Westbound Lane: Travel

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	1.7		
		HMA, 9.5mm intermediate, partially stripped, partially recovered	2
	3.1		3
		HMA, 12.5mm intermediate, completely fractured, partially recovered	4
			5
	5.5		
		Granular Subbase, crushed stone	6
			7
			8
	9.5		9
		Pavement Core terminated at 9.5 inches	







Attachment 11-11

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 9/25/2021	Coring Completed: 9/25/2021
Drill Rig: Core Machine	Driller: CB
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE CJ195480_PC_DES 2001603.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 11/16/21

PAVEMENT CORE LOG NO. CL-RB-3/PC

PROJECT: County Line Road over I-65: I-65 Added Travel Lanes

SITE: County Line Road
Clark and Scott Counties, IN

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

Des. No.: 2001603

Latitude: 38.6051° Longitude: -85.7803° Station: 13+43 Offset: 8 ft Rt. Line "S-9-Q"

Direction: Eastbound Lane: Travel

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	
	1.5		1
		HMA, 9.5mm surface, completely stripped below 2 in., partially recovered	2
	4.0		3
		HMA, 12.5mm intermediate, completely fractured, partially recovered	4
	6.5		5
		Granular Subbase, crushed stone	6
			7
			8
			9
	10.5		10
		Pavement Core terminated at 10.5 inches	







Attachment 11-11

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 9/25/2021	Coring Completed: 9/25/2021
Drill Rig: Core Machine	Driller: CB
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE CJ195480_PC_DES 2001603.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 11/16/21

PAVEMENT CORE LOG NO. LR-RB-1/PC

PROJECT: Lake Road over I-65: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: Lake Road
Clark and Scott Counties, IN

Des. No.: 2001607

Latitude: 38.671° Longitude: -85.7841° Station: 10+83 Offset: 5 ft Lt. Line "S-12-Q"

Direction: Westbound Lane: Travel

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	
	1.4		
	1.9	**HMA**, 9.5mm surface	
		HMA, 12.5mm intermediate, completely fractured, partially recovered	
	7.0		
		Granular Subbase, crushed stone	
	11.0		
		Pavement Core terminated at 11 inches	







Attachment 11-11

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 9/25/2021	Coring Completed: 9/25/2021
Drill Rig: Core Machine	Driller: CB
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE CJ195480 PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 11/16/21

PAVEMENT CORE LOG NO. LR-RB-2/PC

PROJECT: Lake Road over I-65: I-65 Added Travel Lanes

CLIENT: American Structurepoint, Inc.
Indianapolis, IN

SITE: Lake Road
Clark and Scott Counties, IN

Des. No.: 2001607

Latitude: 38.6709° Longitude: -85.7829° Station: 14+15 Offset: 9 ft Rt. Line "S-12-Q"

Direction: Eastbound Lane: Travel

GRAPHIC LOG	DEPTH		DEPTH (In.)
		HMA, 9.5mm surface	1
	1.6		
	1.9	**HMA**, 9.5mm surface, delaminated	2
		HMA, 12.5mm intermediate	3
			4
	4.6		
		Granular Subbase, crushed stone	5
			6
			7
			8
	8.6		
		Pavement Core terminated at 8.6 inches	





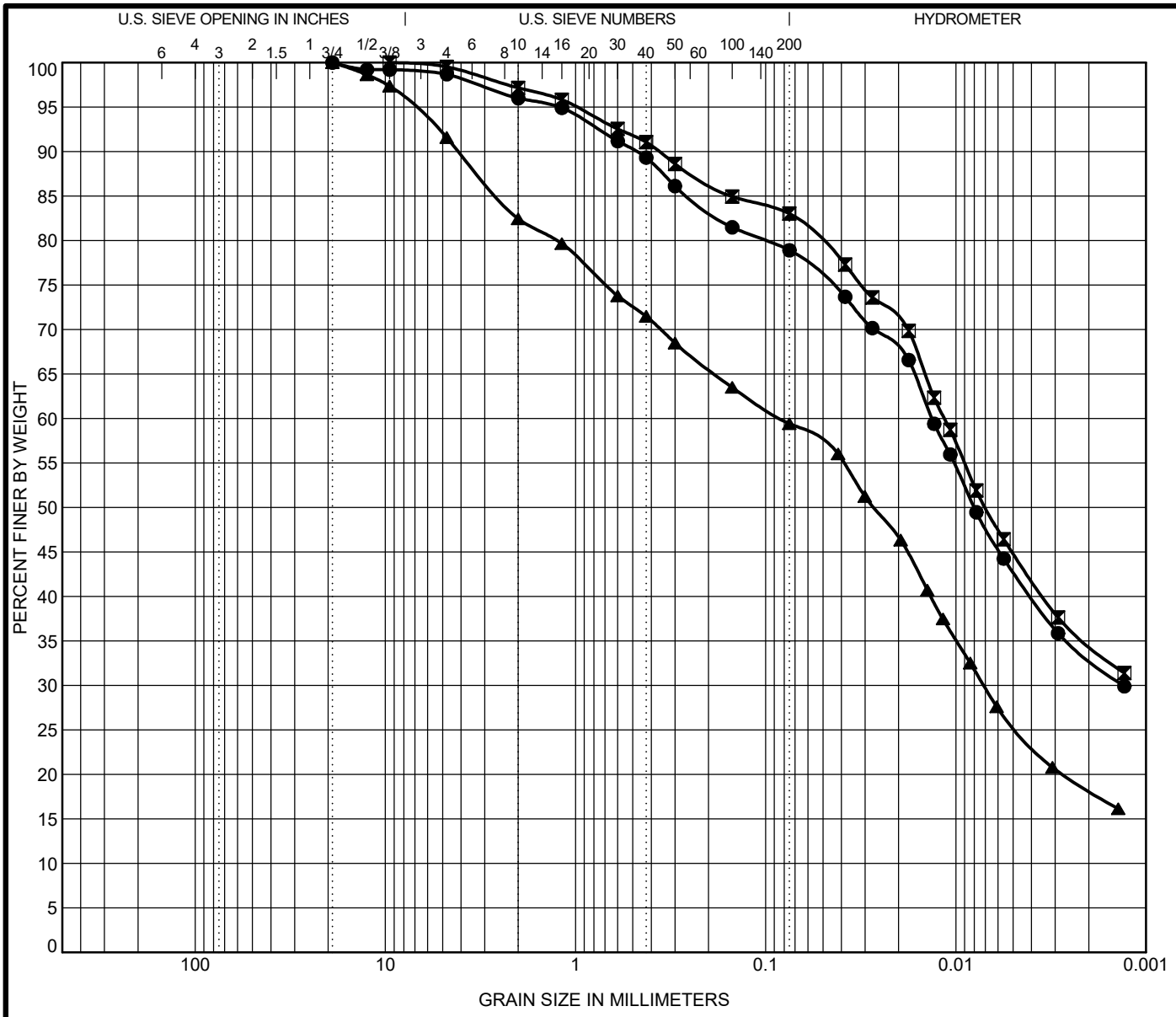


Attachment 11-11

Terracon
7770 W New York St
Indianapolis, IN

Coring Started: 9/25/2021	Coring Completed: 9/25/2021
Drill Rig: Core Machine	Driller: CB
Project No.: CJ195480	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. PAVEMENT_CORE CJ195480 PC.GPJ J6175238 CYPRESS CREEK - R_RECOVERED.GPJ 11/16/21



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	TB-1	SS-3	6.0	31800	A-4 (5) CLAY	33.0	26.0	7.0		
⊠	TB-1	SS-6	13.5	31801	A-4 (9) CLAY	39.0	29.0	10.0		
▲	TB-2	SS-1	19.0	31802	A-6 (8) LOAM	38.0	20.0	18.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	TB-1	SS-3	6.0	0.013	0.001			6.8	4.0	17.1	45.8	33.1	2.77
⊠	TB-1	SS-6	13.5	0.011				6.5	2.9	14.1	48.3	34.7	2.77
▲	TB-2	SS-1	19.0	0.083	0.007			7.3	17.6	23.0	41.2	18.2	2.69

Terracon Consultants, Inc.
7770 West New York Street
Indianapolis, IN 46214
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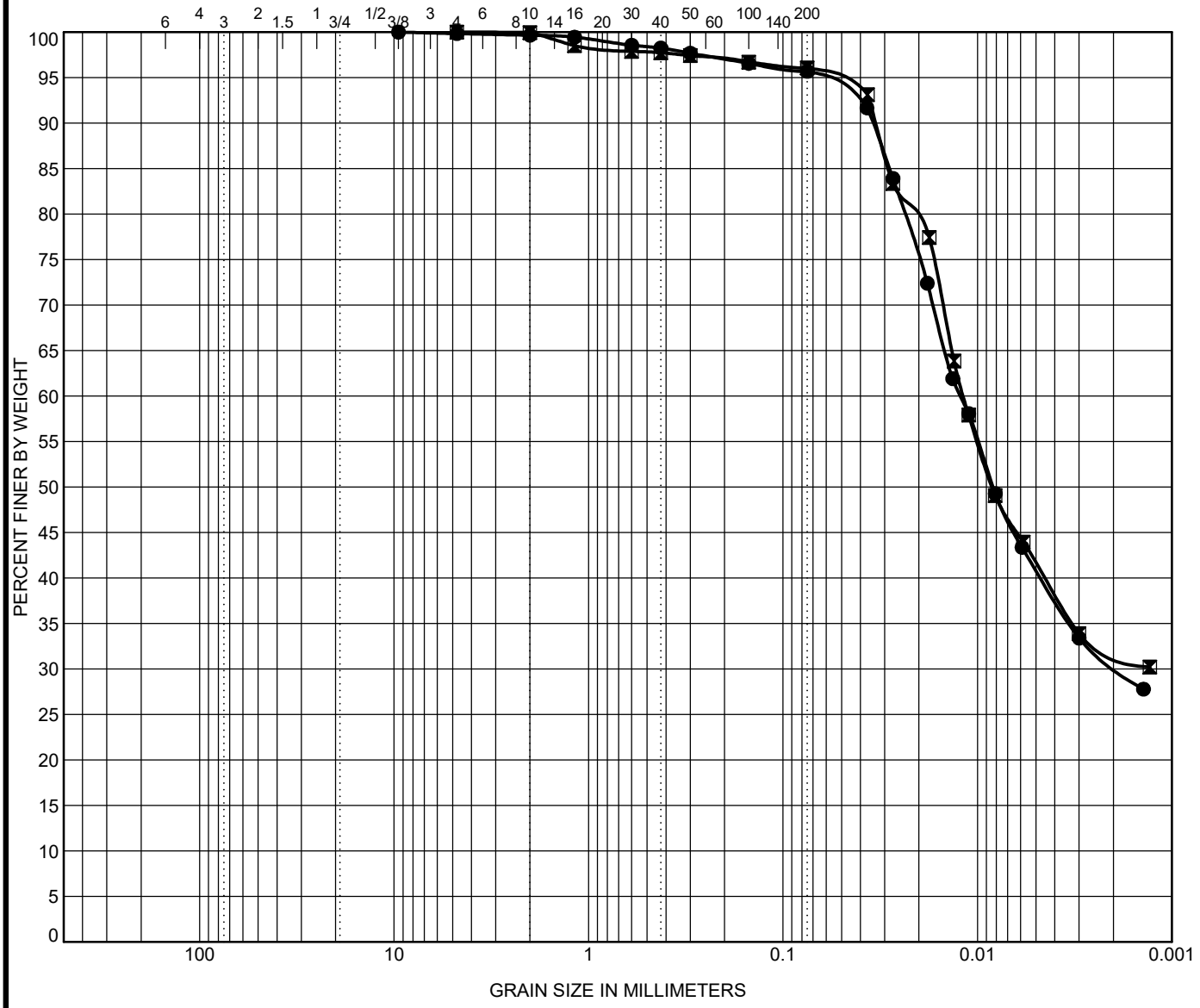
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1600729 & 1600733 Structure #: I65-017-04222
Project #: CJ195480 ENBL & ESBL
County: Clark and Scott
Location: I-65 over Caney Fork

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES 1600729 & 1600733.GPJ IN DOT1.GDT 11/17/21

Attachment 11-11



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	TB-5	SS-2	3.5	31803	A-6 (10) SILTY CLAY	31.0	20.0	11.0		
⊠	TB-5	SS-4	8.5	31804	A-6 (12) SILTY CLAY	33.0	20.0	13.0		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	TB-5	SS-2	3.5	0.012	0.002			6.5	0.3	4.0	65.3	30.4	2.7
⊠	TB-5	SS-4	8.5	0.012				6.2	0.1	3.9	64.0	32.1	2.73

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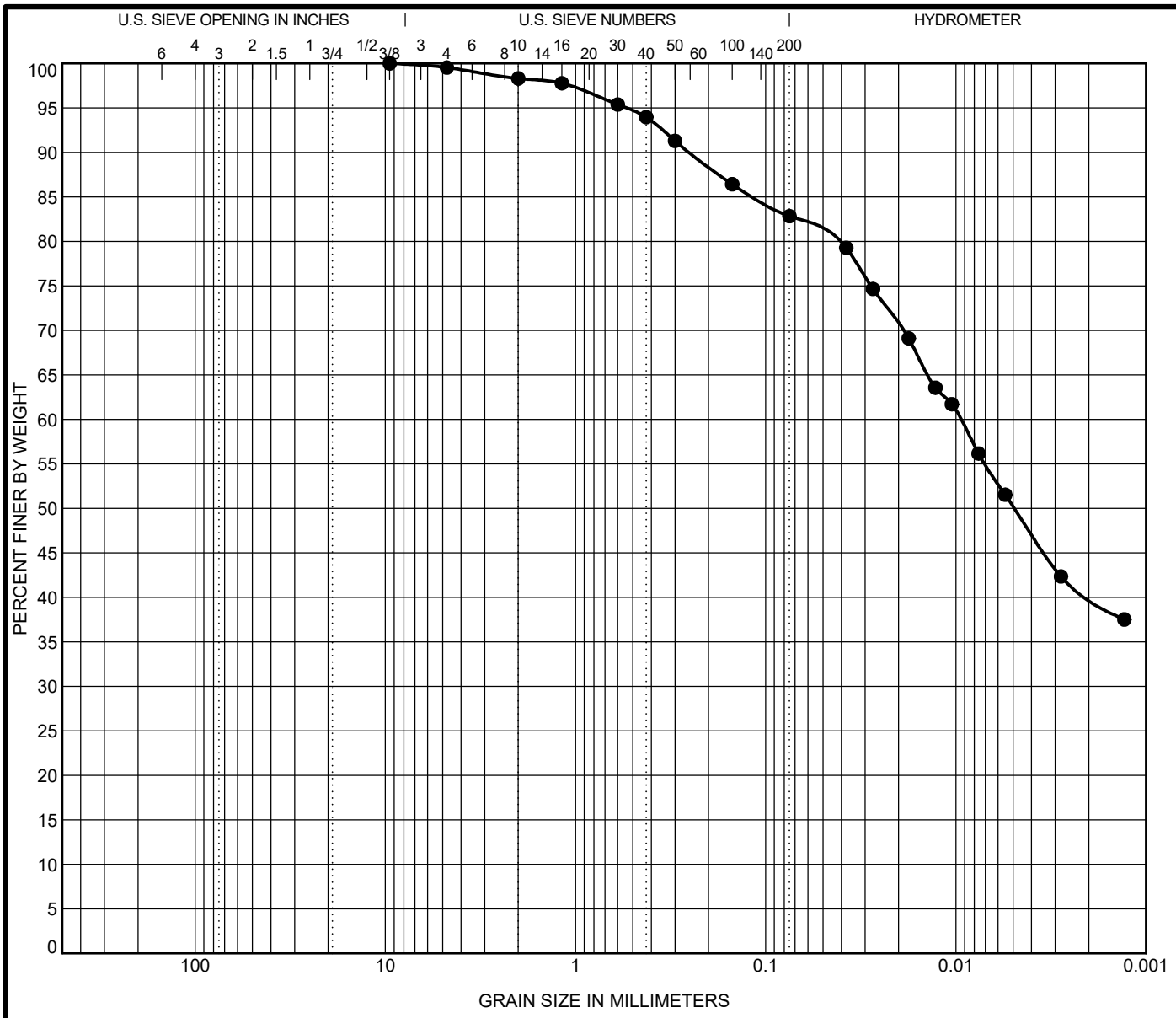
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001604 & 2001605 Structure #: I65-024-04229
Project #: CJ195480 CNBL & CSBL
County: Clark and Scott
Location: I-65 over Pigeon Roost Creek

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES 2001604 & 2001605.GPJ IN DOT1.GDT 11/17/21

Attachment 11-11



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification		Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	CL-RB-1/PC SS-2	3.5	32023	A-7-6 (16) CLAY	42.0	24.0	18.0		

	Specimen Identification		D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	CL-RB-1/PC SS-2	3.5	0.01				7.8	1.7	15.5	42.6	40.2	2.75

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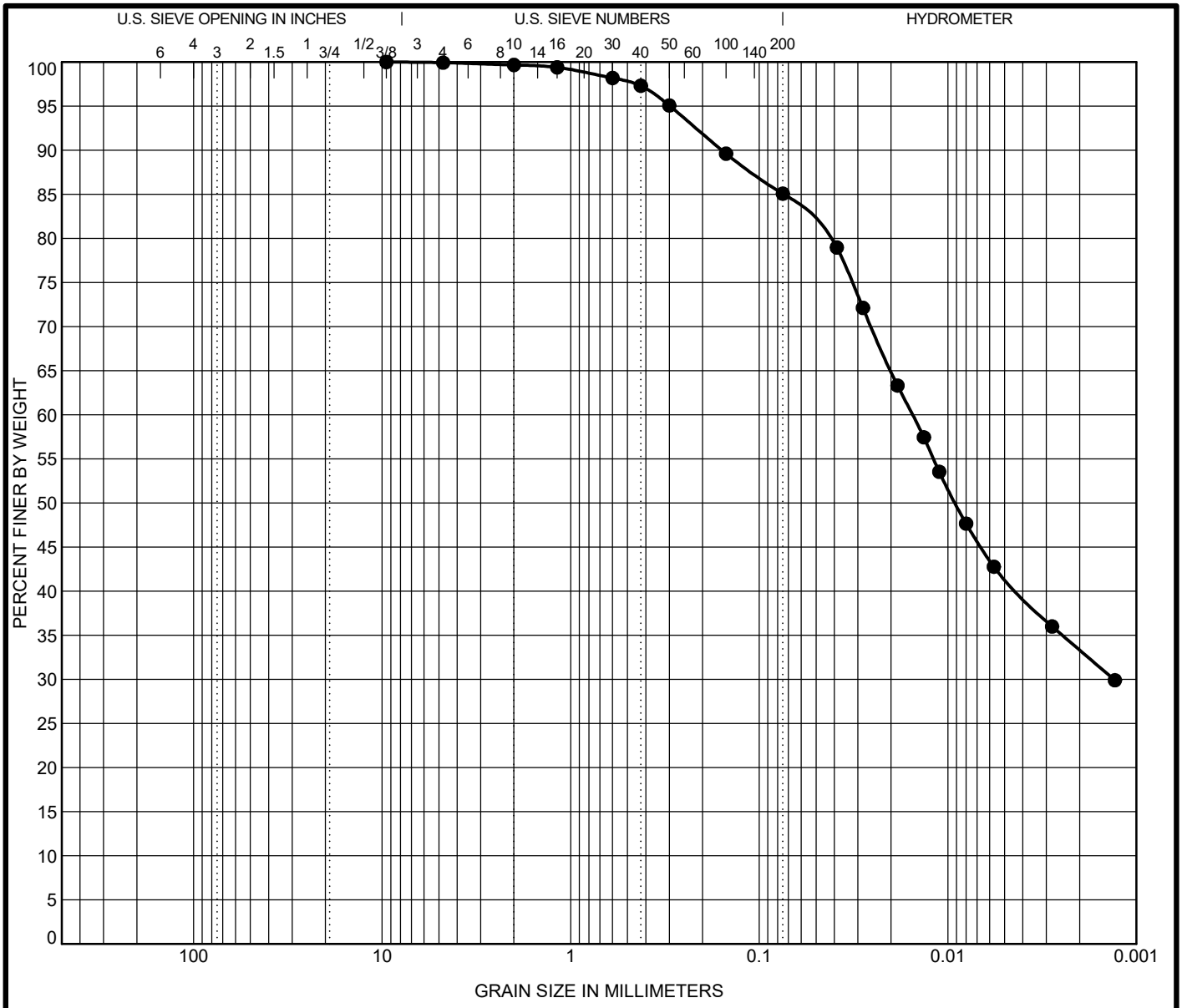
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001603 Structure #: I65-023-04227B
Project #: CJ195480
County: Clark and Scott
Location: County Line Road over I-65

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001603.GPJ IN DOT1.GDT 11/17/21

Attachment 11-11



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

	Specimen Identification		Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	LR-RB-1/PC SS-1	1.0	32024	A-6 (9) SILTY CLAY	32.0	21.0	11.0		

	Specimen Identification		D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	LR-RB-1/PC SS-1	1.0	0.015	0.001			7.6	0.3	14.6	51.7	33.3	2.73

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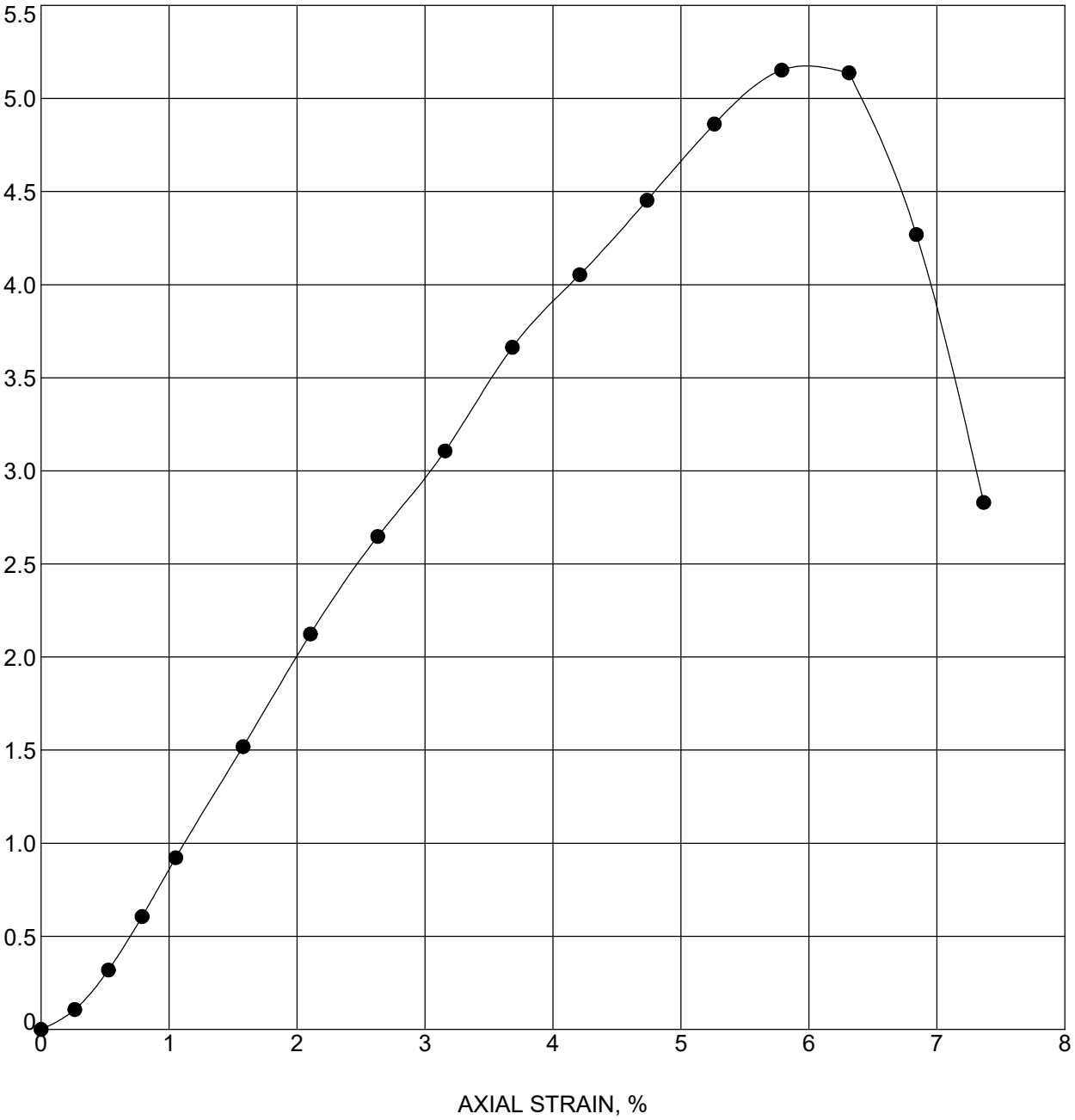
GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 2001607 Structure #: I65-028-04232A
Project #: CJ195480
County: Clark and Scott
Location: Lake Road over I-65

DOT GRAIN SIZE (EEI LOGO) CJ195480 DES NO. 2001607.GPJ IN DOT1.GDT 11/17/21

Attachment 11-11



Boring	Sample	Depth	Classification
TB-1	SS-4T	8.5 - 10	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
16.3	136.4	117.3	5.15	1.0	5.8
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
2.58	99	0.447	34.9	67.59	1.9

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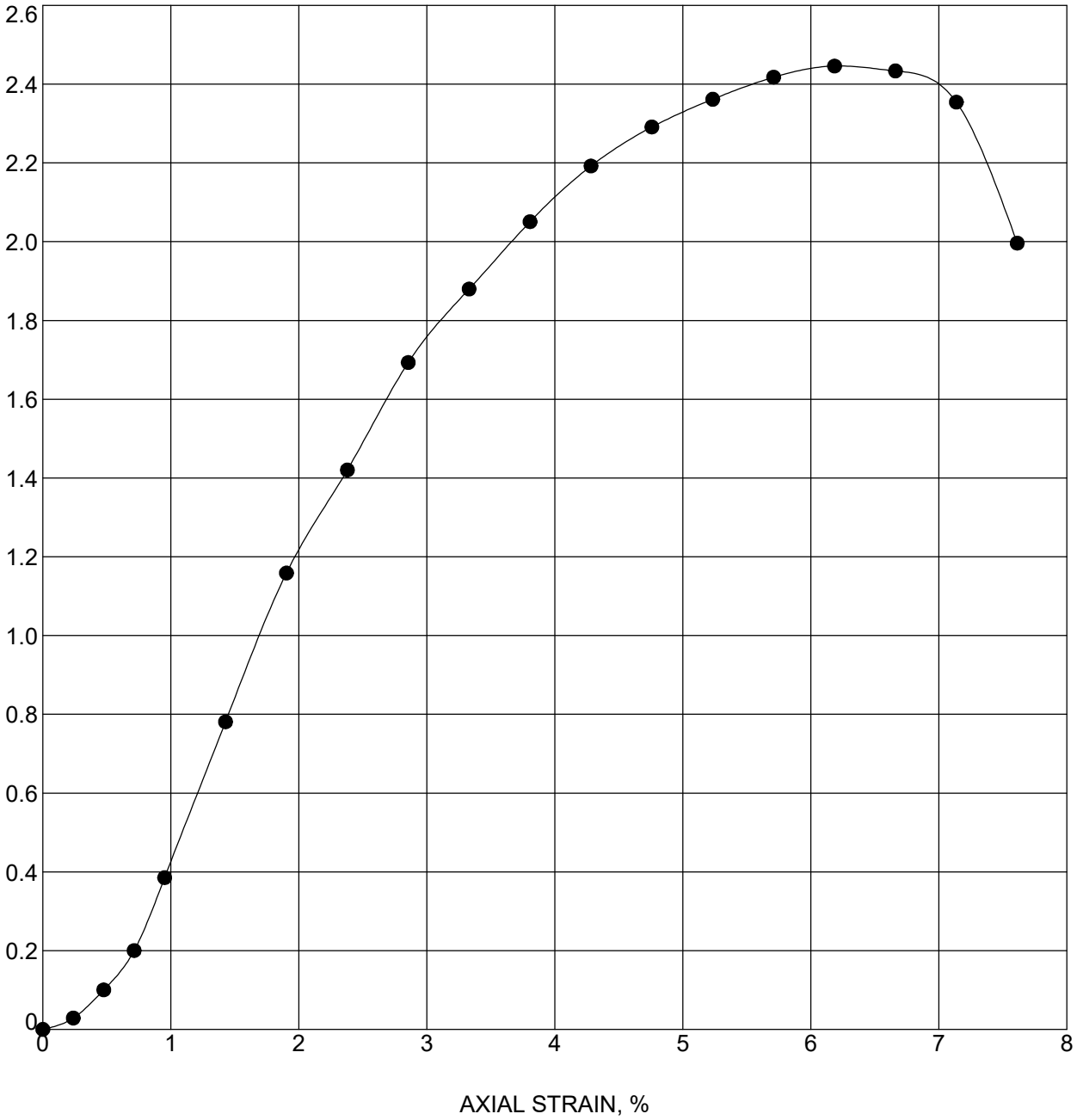
UNCONFINED COMPRESSION TEST

DES #: 1600729 & 1600733 Structure #: I65-017-04222
Project #: CJ195480 ENBL & ESBL
County: Clark and Scott
Location: I-65 over Caney Fork

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
TB-1	SS-5T	11 - 12.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.6	128.1	106.2	2.45	1.0	6.2
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.22	94	0.598	35.94	74.74	2.1

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UNCONFINED COMPRESSION TEST

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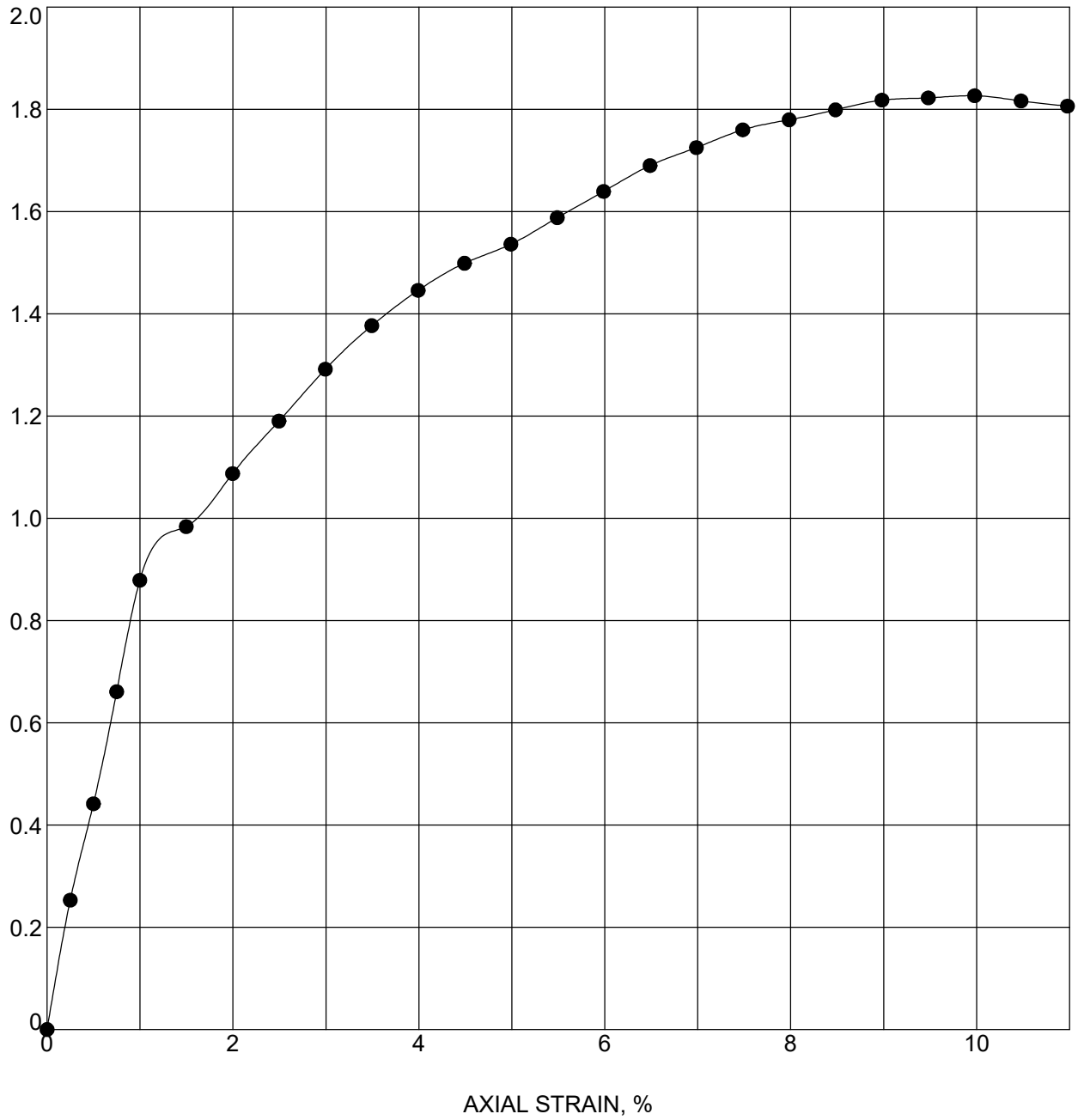
Project #: CJ195480 ENBL & ESBL
County: Clark and Scott
Location: I-65 over Caney Fork

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES 1600729 & 1600733.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
CL-RB-1/PC	SS-2	3.5 - 5	CLAY A-7-6 (16)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.8	128.6	107.4	1.83	1.0	10.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.91	91	0.598	34.26	71.27	2.1

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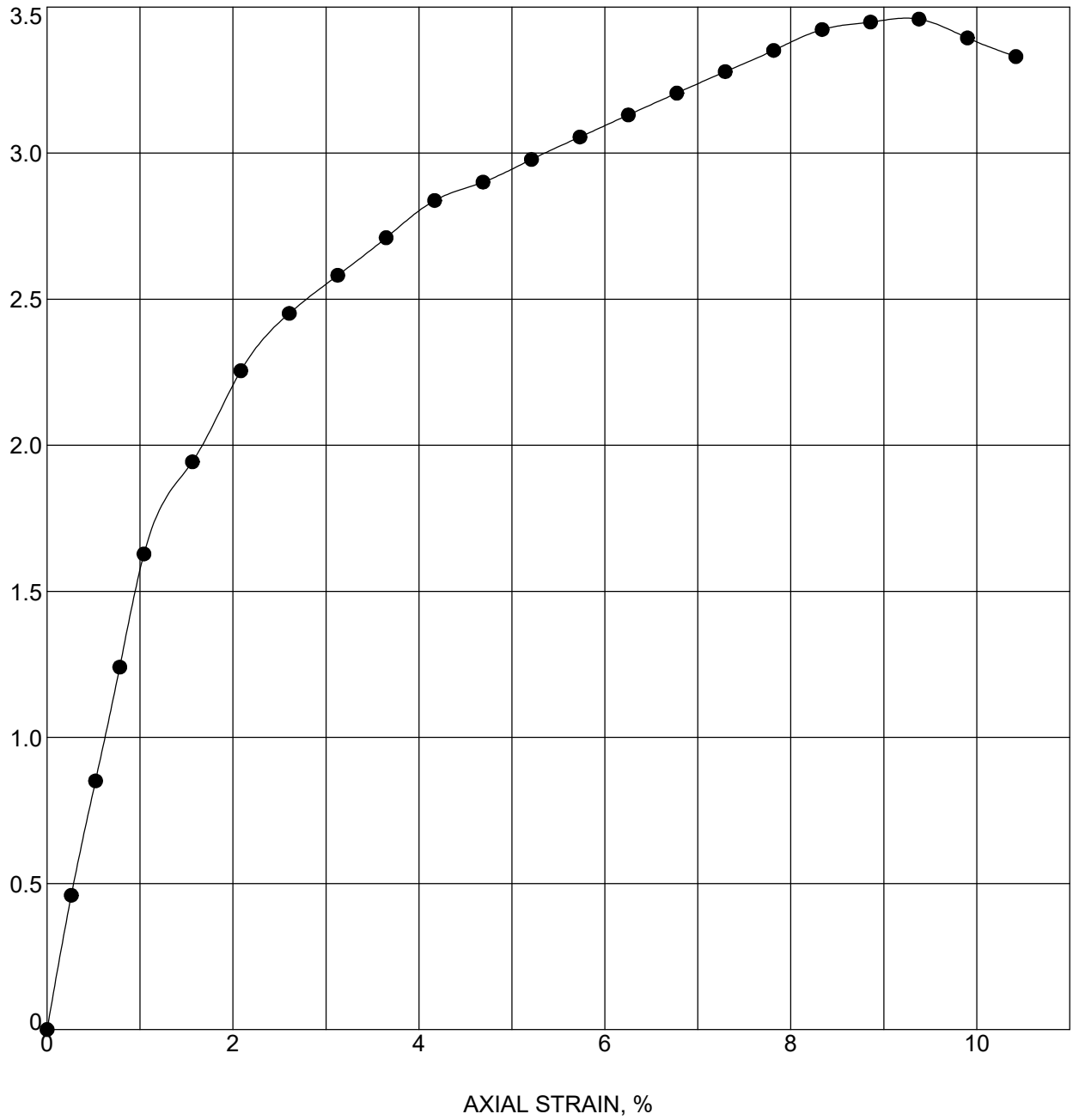
UNCONFINED COMPRESSION TEST

DES #: 2001603 Structure #: I65-023-04227B
Project #: CJ195480
County: Clark and Scott
Location: County Line Road over I-65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
CL-RB-2/PC	SS-1B	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.1	131.2	110.2	3.46	1.0	9.4
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.73	96	0.540	33.63	68.25	2.0

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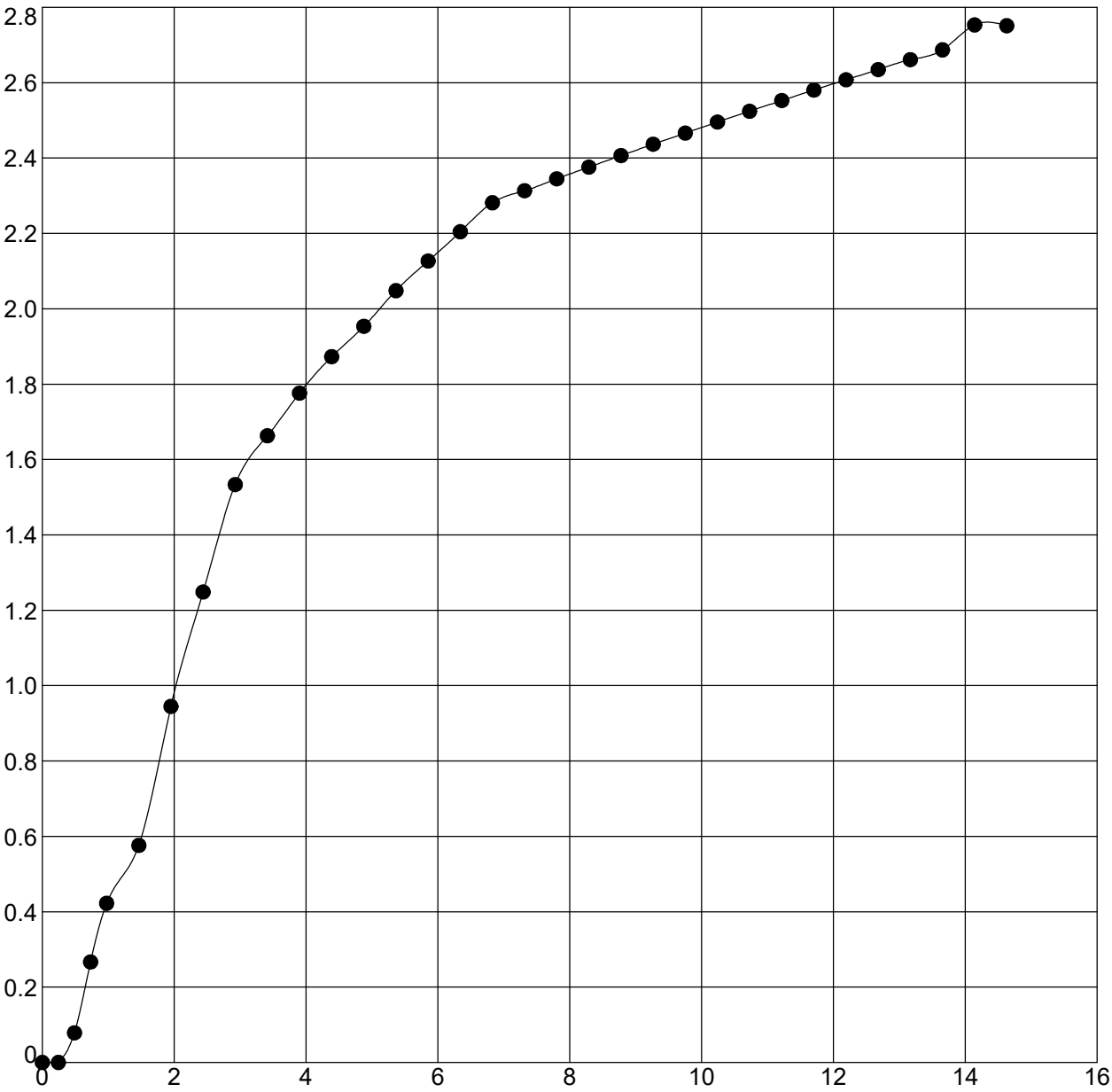
UNCONFINED COMPRESSION TEST

DES #: 2001603 Structure #: I65-023-04227B
Project #: CJ195480
County: Clark and Scott
Location: County Line Road over I-65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
CL-RB-3/PC	SS-1T	1 - 2.5	CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
21.1	127.7	105.4	2.75	1.0	14.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.38	94	0.610	34.32	72.92	2.1

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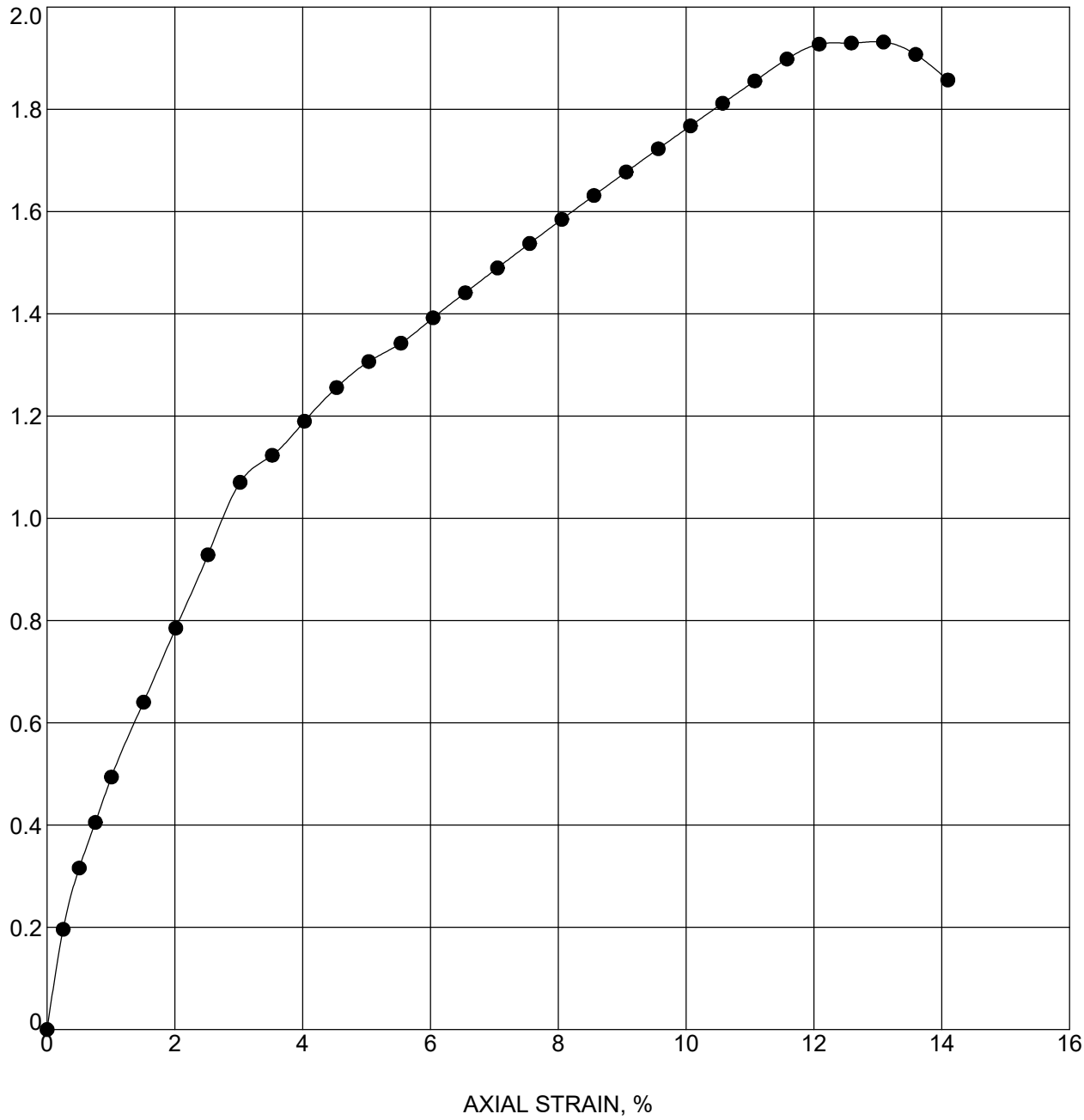
UNCONFINED COMPRESSION TEST

DES #: 2001603 Structure #: I65-023-04227B
Project #: CJ195480
County: Clark and Scott
Location: County Line Road over I-65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001603.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
LR-RB-1/PC	SS-1	1 - 2.5	SILTY CLAY A-6 (9)

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
19.0	126.0	105.9	1.93	1.0	13.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
0.97	85	0.609	35.08	70.64	2.0

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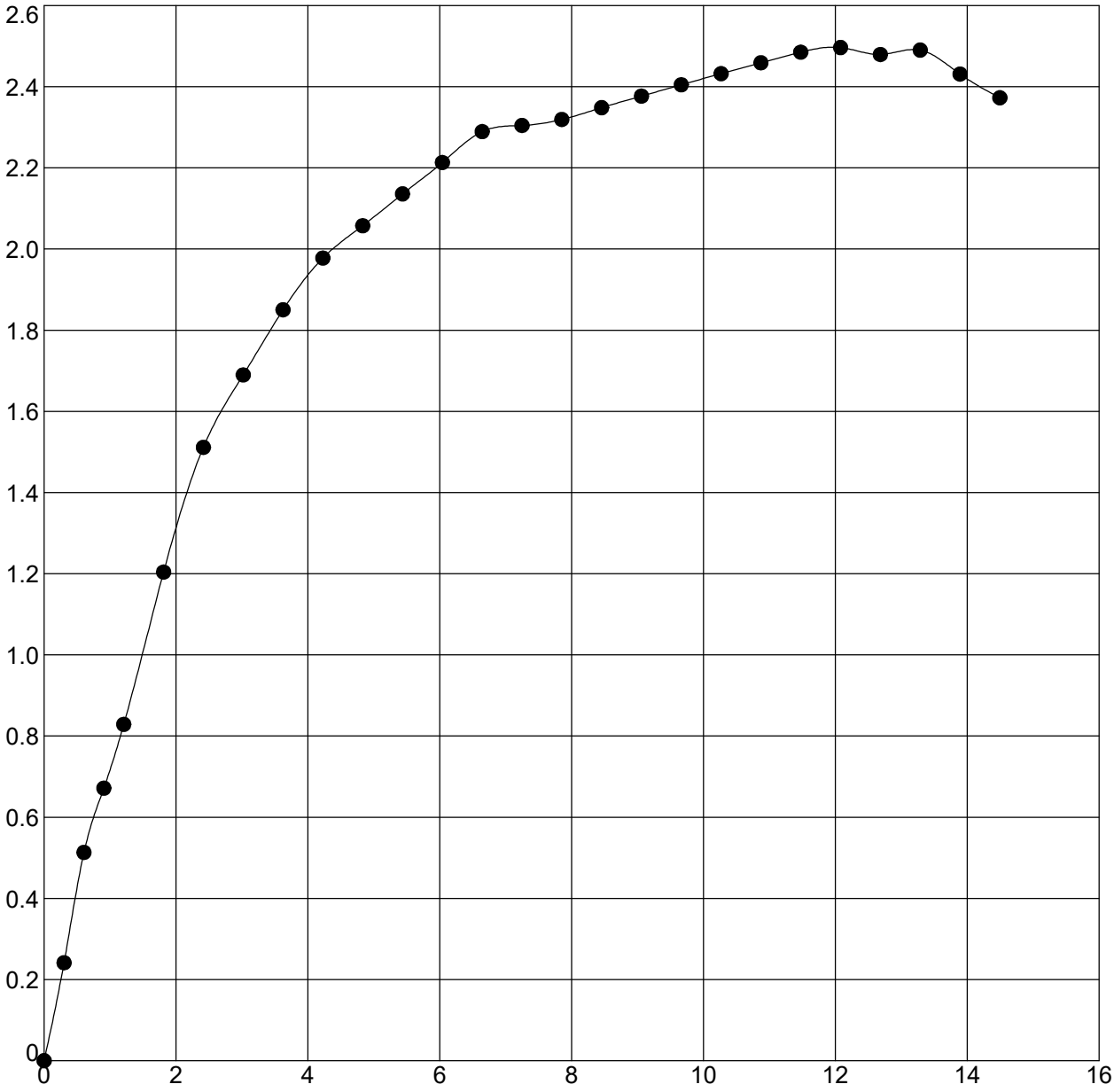
UNCONFINED COMPRESSION TEST

DES #: 2001607 Structure #: I65-028-04232A
Project #: CJ195480
County: Clark and Scott
Location: Lake Road over I-65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001607.GPJ IN_DOT1.GDT 11/17/21



Boring	Sample	Depth	Classification
LR-RB-2/PC	SS-1T	1 - 2.5	SILTY CLAY

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
20.1	125.5	104.5	2.50	1.2	12.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.25	88	0.624	33.96	58.88	1.7

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UNCONFINED COMPRESSION TEST

DES #: 2001607 Structure #: I65-028-04232A
Project #: CJ195480
County: Clark and Scott
Location: Lake Road over I-65

DOT_UNCONFINED_TEST (EEI LOGO) CJ195480 DES NO. 2001607.GPJ IN_DOT1.GDT 11/17/21

Project No.: CJ195480
Project: Bridges Task - I-65 Added Travel Lanes
Technician: TZ/MP

Terracon

Summary of Slake Durability Test Results

I-65 over Caney Fork				First Cycle					Second Cycle				
Boring No.	Sample Number	Sample Depth (ft)	MC	Index 1	Type*	Date	Start time	Stop time	Index 2	Type*	Date	Start time	Stop time
TB-1	RC-1	16.7-17.5	1.2%	99.3%	/	11/9/21	11:35 AM	11:45 AM	99.1%	/	11/16/21	10:40 AM	10:50 AM
TB-1	RC-1	19-20	1.1%	99.4%	/	11/9/21	11:53 AM	12:53 PM	99.1%	/	11/16/21	10:54 AM	11:04 AM
TB-2	RC-1	26-27	1.2%	99.0%	/	11/9/21	12:13 PM	12:23 PM	98.4%	/	11/16/21	11:11 AM	11:21 AM
TB-2	RC-1	28.2-29	1.3%	99.3%	/	11/9/21	12:31 PM	12:41 PM	98.7%	/	11/16/21	11:30 AM	11:40 AM
TB-3	RC-1	22-23	1.2%	98.2%	/	11/9/21	12:50 PM	1:00 PM	95.8%	/	11/16/21	11:48 AM	11:58 AM
TB-3	RC-1	23.5-24.5	1.3%	99.2%	/	11/9/21	1:07 PM	1:17 PM	98.7%	/	11/16/21	12:05 PM	12:15 PM
TB-4	RC-1	23-24	1.2%	98.6%	/	11/9/21	1:23 PM	1:33 PM	97.3%	/	11/16/21	12:59 PM	1:09 PM
TB-4	RC-1	25-26	1.3%	99.3%	/	11/9/21	1:38 PM	1:48 PM	98.3%	/	11/16/21	1:18 PM	1:28 PM
I-65 over Pigeon Roost Creek				**First Cycle**					**Second Cycle**				
TB-5	RC-1	20-21	4.8%	18.7%	///	11/9/21	1:56 PM	2:06 PM	10.1%	///	11/16/21	1:37 PM	1:47 PM
TB-5	RC-2	25-26	4.7%	24.9%	///	11/9/21	2:33 PM	2:43 PM	11.6%	///	11/16/21	1:58 PM	2:08 PM
TB-5	RC-2	28-29	3.9%	21.2%	///	11/9/21	2:55 PM	3:05 PM	11.0%	///	11/16/21	2:16 PM	2:26 PM
TB-6	RC-1	24.3-26	4.3%	33.1%	//	11/9/21	3:38 PM	3:48 PM	14.1%	//	11/16/21	2:38 PM	2:48 PM
TB-6	RC-2	29.3-30	3.1%	92.6%	//	11/9/21	3:53 PM	4:03 PM	71.6%	//	11/16/21	2:57 PM	3:07 PM
TB-6	RC-2	30.3-32	3.9%	38.7%	//	11/9/21	4:13 PM	4:23 PM	19.5%	///	11/16/21	3:20 PM	3:30 PM
TB-7	RC-1	20-21	2.6%	27.9%	//	11/9/21	4:31 PM	4:41 PM	19.9%	//	11/16/21	3:38 PM	3:48 PM
TB-7	RC-1	24-25	4.7%	18.9%	///	11/9/21	4:51 PM	5:01 PM	11.4%	///	11/16/21	3:52 PM	4:02 PM
TB-7	RC-2	29-30	2.9%	9.0%	///	11/9/21	5:13 PM	5:23 PM	4.3%	///	11/16/21	4:08 PM	4:18 PM
TB-8	RC-1	26-27	3.4%	78.2%	//	11/12/21	9:52 AM	10:02 PM	49.7%	//	11/17/21	8:53 AM	9:03 AM
TB-8	RC-1	27-28	3.8%	88.2%	//	11/15/21	11:32 AM	11:42 PM	70.5%	//	11/17/21	9:13 AM	9:23 AM
TB-8	RC-1	30-31	3.6%	88.0%	//	11/15/21	11:50 AM	12:00 PM	69.1%	//	11/17/21	9:31 AM	9:41 AM

Notes: MC = Moisture Content
From ASTM D4644 Standard Test Method for Slake Durability of Shales and Other Similar Weak Rocks

*Type	Standard Verbal Descriptions
/	Retained specimens remain virtually unchanged.
//	Retained specimens consist of large and small fragments.
///	Retained specimens are exclusively small fragments.
From Section 8.8, ASTM D4644	

Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-1
Sample Information	
Sample Depth	16.7-17.5’
Sample Number:	RC-1
Tare Number	C-16
Tare Weight	61.7
Moist Weight (sample + tare)	541.5
Dry Weight (sample + tare)	535.3
Moisture Content (%)	1.2



Cycle 1

Date	11/9
Start Time	11:35
End Time	11:45
Start Temp °C	21.0
End Temp °C	20.9
Initial Dry Weight + Tare (W_i)	535.3
Final Dry Weight + Tare ($W_{f,1}$)	532.1
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	10:40
End Time	10:50
Start Temp °C	21.1
End Temp °C	21.0
Initial Dry Weight + Tare (W_i)	532.1
Final Dry Weight + Tare ($W_{f,2}$)	531.0
Slake Durability Index 2 (I_{d2})	99%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-1
Sample Information	
Sample Depth	19-20’
Sample Number	RC-1
Tare Number	C-23
Tare Weight	61.7
Moist Weight (sample + tare)	578.4
Dry Weight (sample + tare)	572.3
Moisture Content (%)	1.1



Cycle 1

Date	11/9
Start Time	11:53
End Time	12:03
Start Temp °C	20.9
End Temp °C	20.8
Initial Dry Weight + Tare (W_i)	572.2
Final Dry Weight + Tare ($W_{f,1}$)	569.1
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	10:54
End Time	11:04
Start Temp °C	21.0
End Temp °C	20.9
Initial Dry Weight + Tare (W_i)	569.1
Final Dry Weight + Tare ($W_{f,2}$)	567.7
Slake Durability Index 2 (I_{d2})	99%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-2
Sample Information	
Sample Depth	26-27'
Sample Number	RC-1
Tare Number	C-7
Tare Weight	61.4
Moist Weight (sample + tare)	592.6
Dry Weight (sample + tare)	585.3
Moisture Content (%)	1.2



Cycle 1

Date	11/9
Start Time	12:13
End Time	12:23
Start Temp °C	20.8
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	585.3
Final Dry Weight + Tare ($W_{f,1}$)	580.3
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	11:11
End Time	11:21
Start Temp °C	20.9
End Temp °C	20.8
Initial Dry Weight + Tare (W_i)	580.3
Final Dry Weight + Tare ($W_{f,2}$)	576.9
Slake Durability Index 2 (I_{d2})	98%



Summary of Slake Durability Test Results

Terracon

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-2
Sample Information	
Sample Depth	28.2-29'
Sample Number	RC-1
Tare Number	C-29
Tare Weight	61.4
Moist Weight (sample + tare)	554.8
Dry Weight (sample + tare)	547.9
Moisture Content (%)	1.3



Cycle 1

Date	11/9
Start Time	12:31
End Time	12:41
Start Temp °C	20.7
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	547.9
Final Dry Weight + Tare ($W_{f,1}$)	544.4
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	11:30
End Time	11:40
Start Temp °C	20.8
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	544.4
Final Dry Weight + Tare ($W_{f,2}$)	541.4
Slake Durability Index 2 (I_{d2})	99%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-3
Sample Information	
Sample Depth	22-23'
Sample Number	RC-1
Tare Number	C-35
Tare Weight	61.4
Moist Weight (sample + tare)	585.4
Dry Weight (sample + tare)	578.2
Moisture Content (%)	1.2



Cycle 1

Date	11/9
Start Time	12:50
End Time	1:00
Start Temp °C	20.6
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	578.2
Final Dry Weight + Tare ($W_{f,1}$)	569.0
Slake Durability Index 1 (I_{d1})	98%



Cycle 2

Date	11/16
Start Time	11:48
End Time	11:58
Start Temp °C	20.7
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	569.0
Final Dry Weight + Tare ($W_{f,2}$)	556.5
Slake Durability Index 2 (I_{d2})	96%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-3
Sample Information	
Sample Depth	23.5-24.5’
Sample Number	RC-1
Tare Number	C-36
Tare Weight	61.6
Moist Weight (sample + tare)	591.0
Dry Weight (sample + tare)	583.5
Moisture Content (%)	1.3



Cycle 1

Date	11/9
Start Time	1:07
End Time	1:17
Start Temp °C	20.6
End Temp °C	20.5
Initial Dry Weight + Tare (W_i)	583.5
Final Dry Weight + Tare ($W_{f,1}$)	579.4
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	12:05
End Time	12:15
Start Temp °C	20.6
End Temp °C	20.5
Initial Dry Weight + Tare (W_i)	579.4
Final Dry Weight + Tare ($W_{f,2}$)	576.7
Slake Durability Index 2 (I_{d2})	99%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-4
Sample Information	
Sample Depth	23-24'
Sample Number	RC-1
Tare Number	C-31
Tare Weight	61.5
Moist Weight (sample + tare)	581.8
Dry Weight (sample + tare)	574.9
Moisture Content (%)	1.2



Cycle 1

Date	11/9
Start Time	1:23
End Time	1:33
Start Temp °C	20.5
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	574.9
Final Dry Weight + Tare ($W_{f,1}$)	567.7
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	12:59
End Time	1:09
Start Temp °C	20.5
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	567.7
Final Dry Weight + Tare ($W_{f,2}$)	560.8
Slake Durability Index 2 (I_{d2})	97%



Summary of Slake Durability Test Results

Location:	I-65 over Caney Fork
Project No.:	CJ195480
Boring No.:	TB-4
Sample Information	
Sample Depth	25-26’
Sample Number	RC-1
Tare Number	C-9
Tare Weight	62.0
Moist Weight (sample + tare)	576.5
Dry Weight (sample + tare)	569.0
Moisture Content (%)	1.3



Cycle 1

Date	11/9
Start Time	1:38
End Time	1:48
Start Temp °C	20.4
End Temp °C	20.3
Initial Dry Weight + Tare (W_i)	569.0
Final Dry Weight + Tare ($W_{f,1}$)	565.3
Slake Durability Index 1 (I_{d1})	99%



Cycle 2

Date	11/16
Start Time	1:18
End Time	1:28
Start Temp °C	20.4
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	565.3
Final Dry Weight + Tare ($W_{f,2}$)	560.5
Slake Durability Index 2 (I_{d2})	98%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-5
Sample Information	
Sample Depth	20-21'
Sample Number	RC-1
Tare Number	C-2
Tare Weight	61.6
Moist Weight (sample + tare)	582.7
Dry Weight (sample + tare)	556.2
Moisture Content (%)	4.8



Cycle 1

Date	11/9
Start Time	1:56
End Time	2:06
Start Temp °C	20.3
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	556.2
Final Dry Weight + Tare ($W_{f,1}$)	154.5
Slake Durability Index 1 (I_{d1})	19%



Cycle 2

Date	11/16
Start Time	1:37
End Time	1:47
Start Temp °C	20.4
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	154.5
Final Dry Weight + Tare ($W_{f,2}$)	111.5
Slake Durability Index 2 (I_{d2})	10%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-5
Sample Information	
Sample Depth	25-26'
Sample Number	RC-2
Tare Number	C-26
Tare Weight	61.6
Moist Weight (sample + tare)	565.1
Dry Weight (sample + tare)	539.8
Moisture Content (%)	4.7



Cycle 1

Date	11/9
Start Time	2:33
End Time	2:43
Start Temp °C	20.8
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	539.8
Final Dry Weight + Tare ($W_{f,1}$)	180.7
Slake Durability Index 1 (I_{d1})	25%



Cycle 2

Date	11/16
Start Time	1:58
End Time	2:08
Start Temp °C	20.4
End Temp °C	20.3
Initial Dry Weight + Tare (W_i)	180.7
Final Dry Weight + Tare ($W_{f,2}$)	116.9
Slake Durability Index 2 (I_{d2})	12%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-5
Sample Information	
Sample Depth	28-29'
Sample Number	RC-2
Tare Number	C-5
Tare Weight	61.7
Moist Weight (sample + tare)	553.0
Dry Weight (sample + tare)	532.3
Moisture Content (%)	3.9



Cycle 1

Date	11/9
Start Time	2:55
End Time	3:55
Start Temp °C	20.7
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	532.3
Final Dry Weight + Tare ($W_{f,1}$)	161.2
Slake Durability Index 1 (I_{d1})	21%



Cycle 2

Date	11/16
Start Time	2:16
End Time	2:26
Start Temp °C	20.7
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	161.2
Final Dry Weight + Tare ($W_{f,2}$)	113.6
Slake Durability Index 2 (I_{d2})	11%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-6
Sample Information	
Sample Depth	24.3-27'
Sample Number	RC-1
Tare Number	C-11
Tare Weight	61.3
Moist Weight (sample + tare)	611.7
Dry Weight (sample + tare)	586.6
Moisture Content (%)	4.3



Cycle 1

Date	11/9
Start Time	3:38
End Time	3:48
Start Temp °C	20.4
End Temp °C	20.3
Initial Dry Weight + Tare (W_i)	586.6
Final Dry Weight + Tare ($W_{f,1}$)	235.4
Slake Durability Index 1 (I_{d1})	33%



Cycle 2

Date	11/16
Start Time	2:38
End Time	2:48
Start Temp °C	20.6
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	235.4
Final Dry Weight + Tare ($W_{f,2}$)	135.1
Slake Durability Index 2 (I_{d2})	14%



Summary of Slake Durability Test Results

Terracon

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-6
Sample Information	
Sample Depth	29.3-30’
Sample Number	RC-2
Tare Number	C-24
Tare Weight	61.6
Moist Weight (sample + tare)	579.9
Dry Weight (sample + tare)	562.3
Moisture Content (%)	3.1



Cycle 1

Date	11/9
Start Time	3:53
End Time	4:03
Start Temp °C	20.8
End Temp °C	20.7
Initial Dry Weight + Tare (W_i)	562.3
Final Dry Weight + Tare ($W_{f,1}$)	525.5
Slake Durability Index 1 (I_{d1})	93%



Cycle 2

Date	11/16
Start Time	2:57
End Time	3:07
Start Temp °C	20.6
End Temp °C	20.5
Initial Dry Weight + Tare (W_i)	525.5
Final Dry Weight + Tare ($W_{f,2}$)	420.0
Slake Durability Index 2 (I_{d2})	72%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-6
Sample Information	
Sample Depth	30.3-32’
Sample Number	RC-1
Tare Number	C-18
Tare Weight	61.6
Moist Weight (sample + tare)	606.4
Dry Weight (sample + tare)	583.4
Moisture Content (%)	3.9



Cycle 1

Date	11/9
Start Time	4:13
End Time	4:23
Start Temp °C	20.7
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	583.4
Final Dry Weight + Tare ($W_{f,1}$)	263.4
Slake Durability Index 1 (I_{d1})	39%



Cycle 2

Date	11/16
Start Time	3:20
End Time	3:30
Start Temp °C	20.5
End Temp °C	20.4
Initial Dry Weight + Tare (W_i)	263.4
Final Dry Weight + Tare ($W_{f,2}$)	163.1
Slake Durability Index 2 (I_{d2})	20%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-7
Sample Information	
Sample Depth	20-21'
Sample Number	RC-1
Tare Number	C-8
Tare Weight	61.6
Moist Weight (sample + tare)	604.3
Dry Weight (sample + tare)	588.9
Moisture Content (%)	2.6



Cycle 1

Date	11/9
Start Time	4:31
End Time	4:41
Start Temp °C	20.6
End Temp °C	20.6
Initial Dry Weight + Tare (W_i)	588.9
Final Dry Weight + Tare ($W_{f,1}$)	208.5
Slake Durability Index 1 (I_{d1})	28%



Cycle 2

Date	11/16
Start Time	3:38
End Time	3:48
Start Temp °C	20.4
End Temp °C	20.3
Initial Dry Weight + Tare (W_i)	208.5
Final Dry Weight + Tare ($W_{f,2}$)	166.7
Slake Durability Index 2 (I_{d2})	20%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-7
Sample Information	
Sample Depth	24-25'
Sample Number	RC-1
Tare Number	C-21
Tare Weight	61.8
Moist Weight (sample + tare)	542.8
Dry Weight (sample + tare)	518.4
Moisture Content (%)	4.7



Cycle 1

Date	11/9
Start Time	4:51
End Time	5:01
Start Temp °C	21.0
End Temp °C	20.9
Initial Dry Weight + Tare (W_i)	518.4
Final Dry Weight + Tare ($W_{f,1}$)	148.3
Slake Durability Index 1 (I_{d1})	19%



Cycle 2

Date	11/16
Start Time	3:52
End Time	4:02
Start Temp °C	20.3
End Temp °C	20.2
Initial Dry Weight + Tare (W_i)	148.3
Final Dry Weight + Tare ($W_{f,2}$)	113.9
Slake Durability Index 2 (I_{d2})	11%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-7
Sample Information	
Sample Depth	29-30'
Sample Number	RC-2
Tare Number	C-3
Tare Weight	61.9
Moist Weight (sample + tare)	591.0
Dry Weight (sample + tare)	574.3
Moisture Content (%)	2.9



Cycle 1

Date	11/9
Start Time	5:13
End Time	5:23
Start Temp °C	21.0
End Temp °C	21.1
Initial Dry Weight + Tare (W_i)	574.3
Final Dry Weight + Tare ($W_{f,1}$)	107.9
Slake Durability Index 1 (I_{d1})	9%



Cycle 2

Date	11/16
Start Time	4:08
End Time	4:18
Start Temp °C	20.3
End Temp °C	20.2
Initial Dry Weight + Tare (W_i)	107.9
Final Dry Weight + Tare ($W_{f,2}$)	83.7
Slake Durability Index 2 (I_{d2})	4%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-8
Sample Information	
Sample Depth	26-27'
Sample Number	RC-1
Tare Number	C-19
Tare Weight	61.6
Moist Weight (sample + tare)	565.6
Dry Weight (sample + tare)	547.0
Moisture Content (%)	3.4



Cycle 1

Date	11/12
Start Time	9:52
End Time	10:02
Start Temp °C	19.7
End Temp °C	19.8
Initial Dry Weight + Tare (W_i)	547.0
Final Dry Weight + Tare ($W_{f,1}$)	441.1
Slake Durability Index 1 (I_{d1})	78%



Cycle 2

Date	11/17
Start Time	8:53
End Time	9:03
Start Temp °C	19.6
End Temp °C	19.7
Initial Dry Weight + Tare (W_i)	441.1
Final Dry Weight + Tare ($W_{f,2}$)	302.8
Slake Durability Index 2 (I_{d2})	50%



Summary of Slake Durability Test Results

Location:	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-8
Sample Information	
Sample Depth	27-28'
Sample Number	RC-1
Tare Number	C-28
Tare Weight	61.4
Moist Weight (sample + tare)	561.3
Dry Weight (sample + tare)	541.0
Moisture Content (%)	3.8



Cycle 1

Date	11/15
Start Time	11:32
End Time	11:42
Start Temp °C	19.7
End Temp °C	19.8
Initial Dry Weight + Tare (W_i)	541.0
Final Dry Weight + Tare ($W_{f,1}$)	484.3
Slake Durability Index 1 (I_{d1})	88%



Cycle 2

Date	11/17
Start Time	9:13
End Time	9:23
Start Temp °C	19.7
End Temp °C	19.8
Initial Dry Weight + Tare (W_i)	484.3
Final Dry Weight + Tare ($W_{f,2}$)	399.4
Slake Durability Index 2 (I_{d2})	71%



Summary of Slake Durability Test Results

Location	I-65 over Pigeon Roost Creek
Project No.:	CJ195480
Boring No.:	TB-8
Sample Information	
Sample Depth	30-31'
Sample Number	RC-1
Tare Number	C-27
Tare Weight	61.7
Moist Weight (sample + tare)	595.6
Dry Weight (sample + tare)	574.7
Moisture Content (%)	3.6



Cycle 1

Date	11/15
Start Time	11:50
End Time	12:00
Start Temp °C	19.6
End Temp °C	19.4
Initial Dry Weight + Tare (W_i)	574.7
Final Dry Weight + Tare ($W_{f,1}$)	513.0
Slake Durability Index 1 (I_{d1})	88%

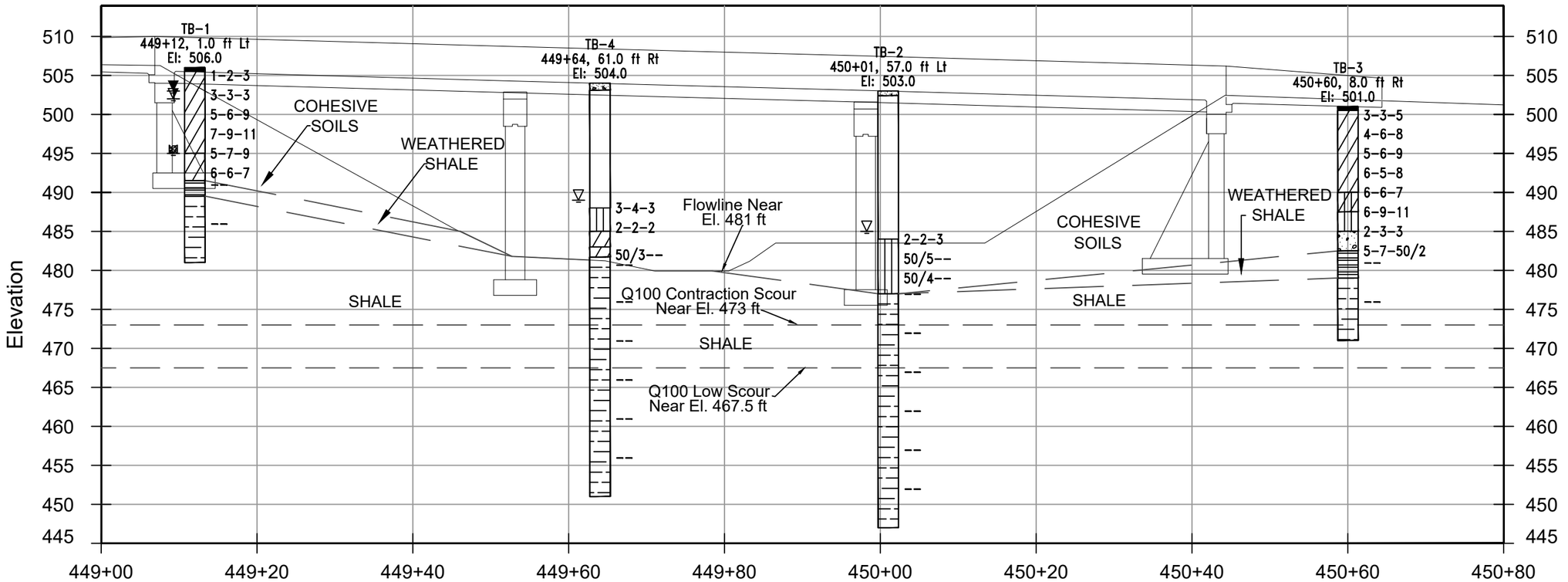


Cycle 2

Date	11/17
Start Time	9:31
End Time	9:41
Start Temp °C	19.8
End Temp °C	19.9
Initial Dry Weight + Tare (W_i)	574.7
Final Dry Weight + Tare ($W_{f,2}$)	513.0
Slake Durability Index 2 (I_{d2})	69%



I-65 over Caney Fork



LEGEND

A - B - C

A Blow Count per First 6-in. Increment
B Blow Count per Second 6-in. Increment
C Blow Count per Third 6-in. Increment

Initial Water Level
24-hr. Water Level
Completion Water Level

NOTES

1. Base map developed using plans provided by American Structurepoint, Inc.
2. Blow Counts refer to the number of blows required to drive a 2-in. O.D. split barrel sampler a distance of 6-in.,using a 140-lb. hammer with a free fall height of 30-in.
3. Refer to the test boring logs for additional subsurface information.
4. Stratigraphy lines are interpreted, actual stratigraphy may be different than what is presented.
5. Borings projected to centerline of "PR-Q".

SUBSURFACE PROFILE AT BRIDGE STRUCTURE

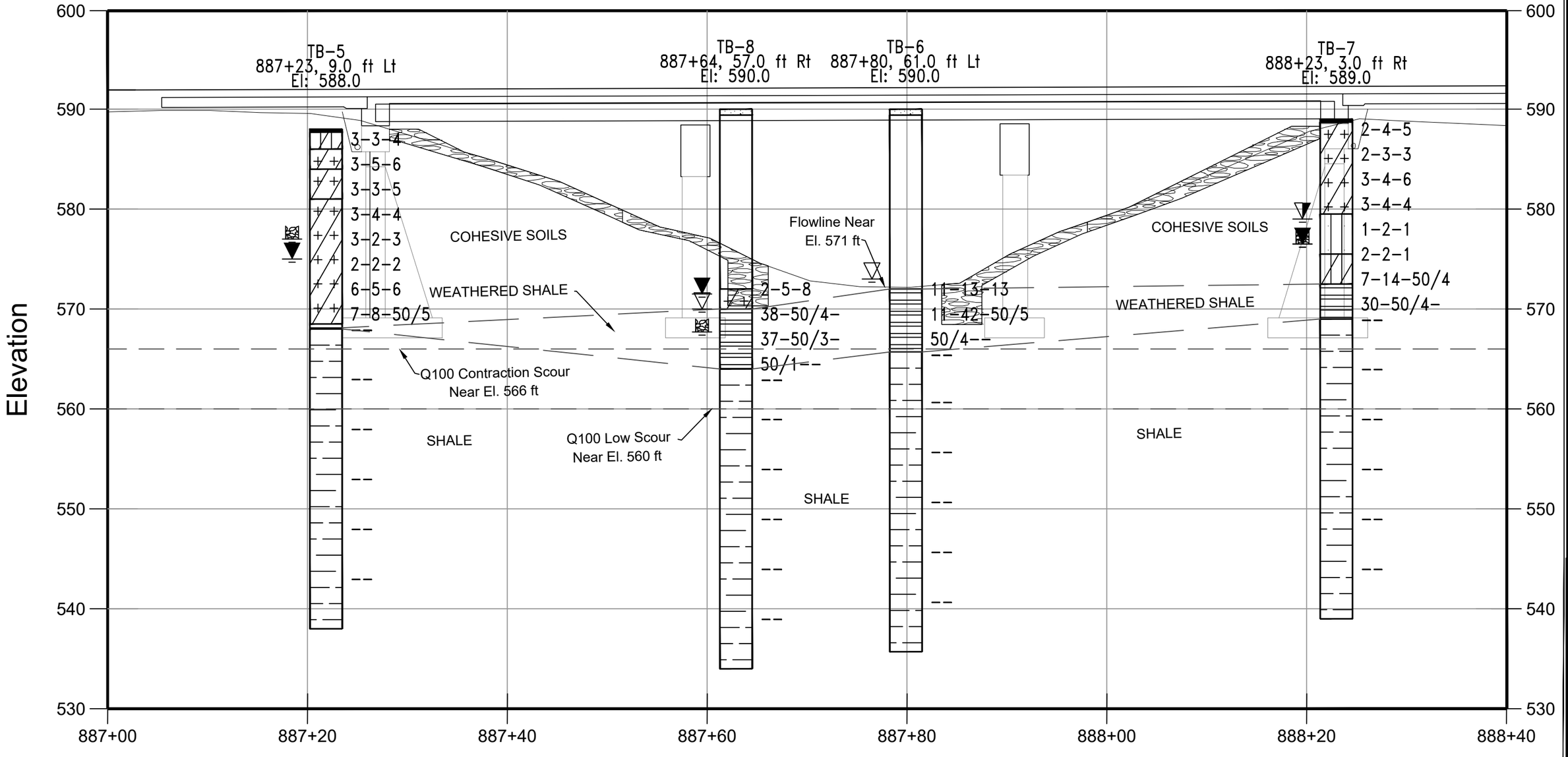
PROJECT:	I-65 over Caney Fork: I-65 Added Travel Lanes
LOCATION:	Clark And Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
STRUCTURE NO.:	I65-017-04222 ENBL & ESBL
DES NO.:	1600729 & 1600733
PROJ. NO.:	CJ195480
SCALE:	1"=15'

Attachment 11-11

PROJECT ENG:	ZAB
APPROVED BY:	TJP
DRAWN BY:	IAPB
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B75

Terracon

I-65 over Pigeon Roost Creek



LEGEND

A - B - C

A Blow Count per First 6-in. Increment
B Blow Count per Second 6-in. Increment
C Blow Count per Third 6-in. Increment

Initial Water Level
24-hr. Water Level
Completion Water Level

NOTES

1. Base map developed using plans provided by American Structurepoint, Inc.
2. Blow Counts refer to the number of blows required to drive a 2-in. O.D. split barrel sampler a distance of 6-in.,using a 140-lb. hammer with a free fall height of 30-in.
3. Refer to the test boring logs for additional subsurface information.
4. Stratigraphy lines are interpreted, actual stratigraphy may be different than what is presented.
5. Borings projected to centerline of "PR-Q".

SUBSURFACE PROFILE AT BRIDGE STRUCTURE

PROJECT:	I-65 over Pigeon Roost Creek: I-65 Added Travel Lanes
LOCATION:	Clark And Scott Counties, IN
CLIENT:	American Structurepoint, Inc.
STRUCTURE NO.:	I65-024-04229 CNBL & CSBL
DES NO.:	2001604 & 2001605
PROJ. NO.:	CJ195480
SCALE:	1" = 10'

Attachment 11-11

PROJECT ENG:	ZAB
APPROVED BY:	TJP
DRAWN BY:	IAPB
DATE:	11/16/2021
DRAWING NO.:	CJ195480.B76

Terracon

Bearing Resistance Analysis
I-65 over Caney Fork: I-65 Added Travel Lanes
Project No. CJ195480
Borings TB-2 and TB-4

Using the empirical correlation with the RMR system (AASHTO 2017 10.6.3.2.2):
Using the RMR system

$q_0 := 250\ tsf = 500\ ksf$

$RQD := 78\%$ (near the footings)

Spacing of Joints = 2 in. to 1 ft

Joint Condition = Soft joint wall rock

Groundwater = Water under Moderate Pressure

Orientation = Favorable

$Rating\_1 := 2$

$Rating\_2 := 17$

$Rating\_3 := 10$

$Rating\_4 := 12$

$Rating\_5 := 4$

$Rating\_6 := -2$

$RMR := Rating\_1 + Rating\_2 + Rating\_3 + Rating\_4 + Rating\_5 + Rating\_6$

$RMR = 43$

Class IV, Fair Rock

$m := 0.183$
$s := 0.00009$

$q_n := q_0 \cdot \left(\sqrt{s} + \sqrt{m \cdot \sqrt{s} + s}\right)$ $\quad q_n = 26.1\ ksf$

$\phi := 0.45$
$\phi \cdot q_n = 11.7\ ksf$

Due to high variance in determining the bearing capacity on rock, we recommend a factored bearing resistance of 10,000 psf.

Bearing Resistance Analysis Project Number: CJ195480 Date: 11/17/2021
(AASHTO LRFD, 9th Edition)

Boring Numbers:	TB-6 and TB-8	Project Name:	I-65 over Pigeon Roost Creek: I-65 ATL
Bearing Soil:	Weathered Shale	Location:	Clark and Scott Counties, IN
Footing Elevation:	567		
N-Value:	50+ bpf		
Comments:	Analyzed as hard cohesive soil (conservative)		

Soil Parameters

Cohesion (c) =	**4500**	psf	**4.500**	ksf
Friction Angle (ϕ_f) =	**0**	degrees		
Unit Weight Above Footing (γ_q) =	**120**	pcf	**0.120**	kcf
Unit Weight Below Footing (γ_f) =	**135**	pcf	**0.135**	kcf
Groundwater Depth (D_w) =	**0**	ft		
Bearing Resistance Factor (φ_b) =	**0.45**			

Punching Shear:	**No**

Depth Factor Applicable:	**No**
$32° \le \phi_f \le 42°$	No
$1 \le D_f/B \le 8$	No

Footing Parameters

Length (L) =	**23**	ft
Width (B) =	**6**	ft
Depth of Footing (D_f) =	**0.01**	ft

Calculations

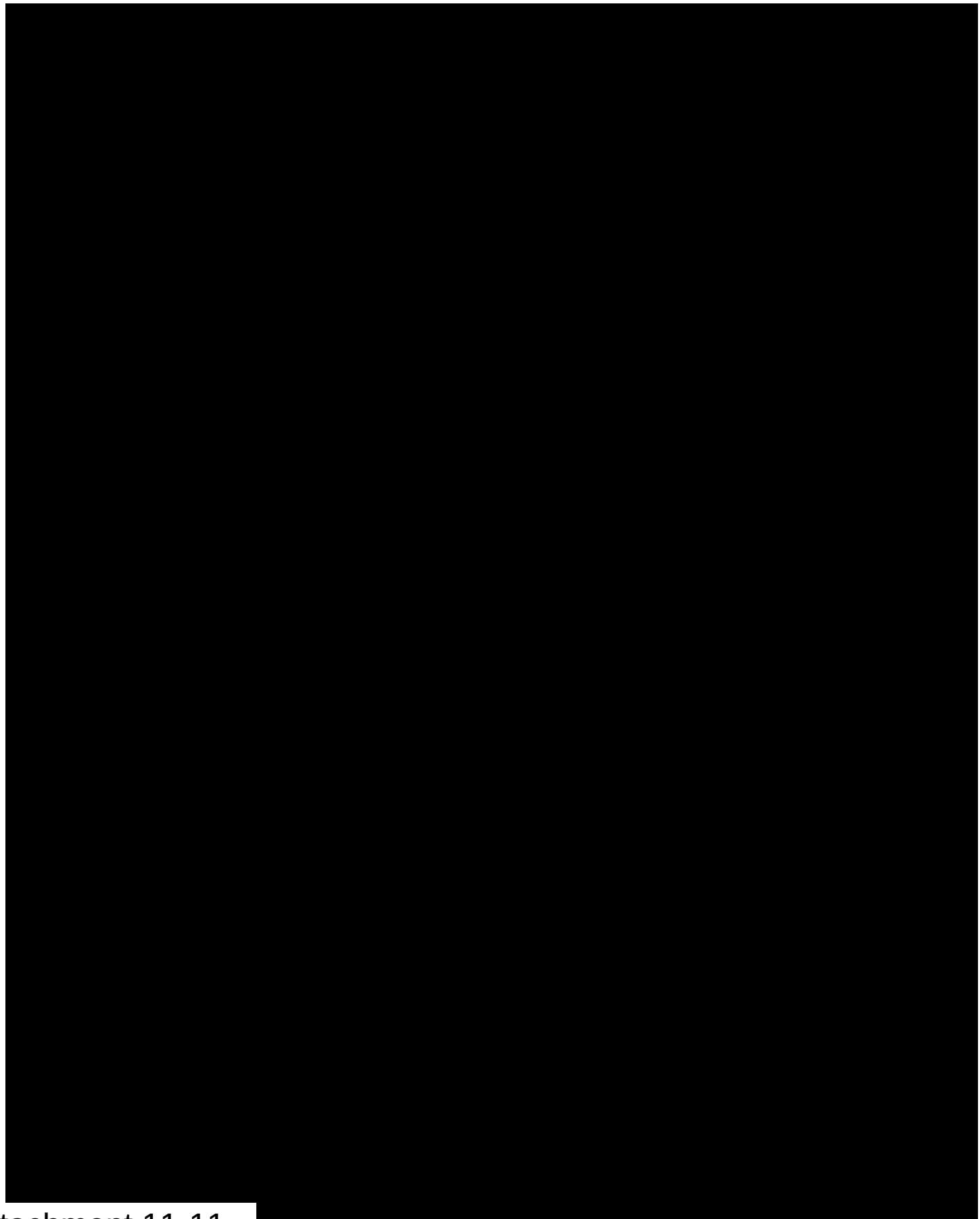
$N_{cm} = N_c s_c$		N_{cm} = 5.408
		N_c = 5.14
$\phi_f = 0$	$s_c = 1 + \left(\frac{B}{5L}\right)$	s_c = 1.052
$\phi_f > 0$	$s_c = 1 + \left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	
$N_{qm} = N_q s_q d_q$		N_{qm} = 1.000
		N_q = 1
$\phi_f = 0$	$s_q = 1$	s_q = 1.000
$\phi_f > 0$	$s_q = 1 + \left(\frac{B}{L}\tan\phi_f\right)$	
	$d_q = 1 + 2\tan\phi_f\left(1-\sin\phi_f\right)^2 \arctan\left(\frac{D_f}{B}\right)$	d_q= 1.000
$N_{\gamma m} = N_\gamma s_\gamma$		$N_{\gamma m}$ = 0.000
		N_γ = 0
$\phi_f = 0$	$s_\gamma = 1$	s_γ = 1.000
$\phi_f > 0$	$s_\gamma = 1 - 0.4\left(\frac{B}{L}\right)$	
$0 \le D_w \le D_f$	$c_{wq} = \frac{0.5D_w}{D_f} + 0.5$	C_{wq} = 0.50
$D_w > D_f$	$C_{wq} = 1$	
$D_w < D_f$	$C_{w\gamma} = 0.5$	$C_{w\gamma}$ = 0.50
$D_f \le D_w \le 1.5B + D_f$	$c_{w\gamma} = \frac{0.5\left(D_w - D_f\right)}{1.5B} + 0.5$	
$D_w > 1.5B + D_f$	$C_{w\gamma} = 1$	
$q_n = cN_{cm} + \gamma_q D_f N_{qm} C_{wq} + 0.5\gamma_f B N_{\gamma m} C_{w\gamma}$		q_n = 24.34 ksf

Results

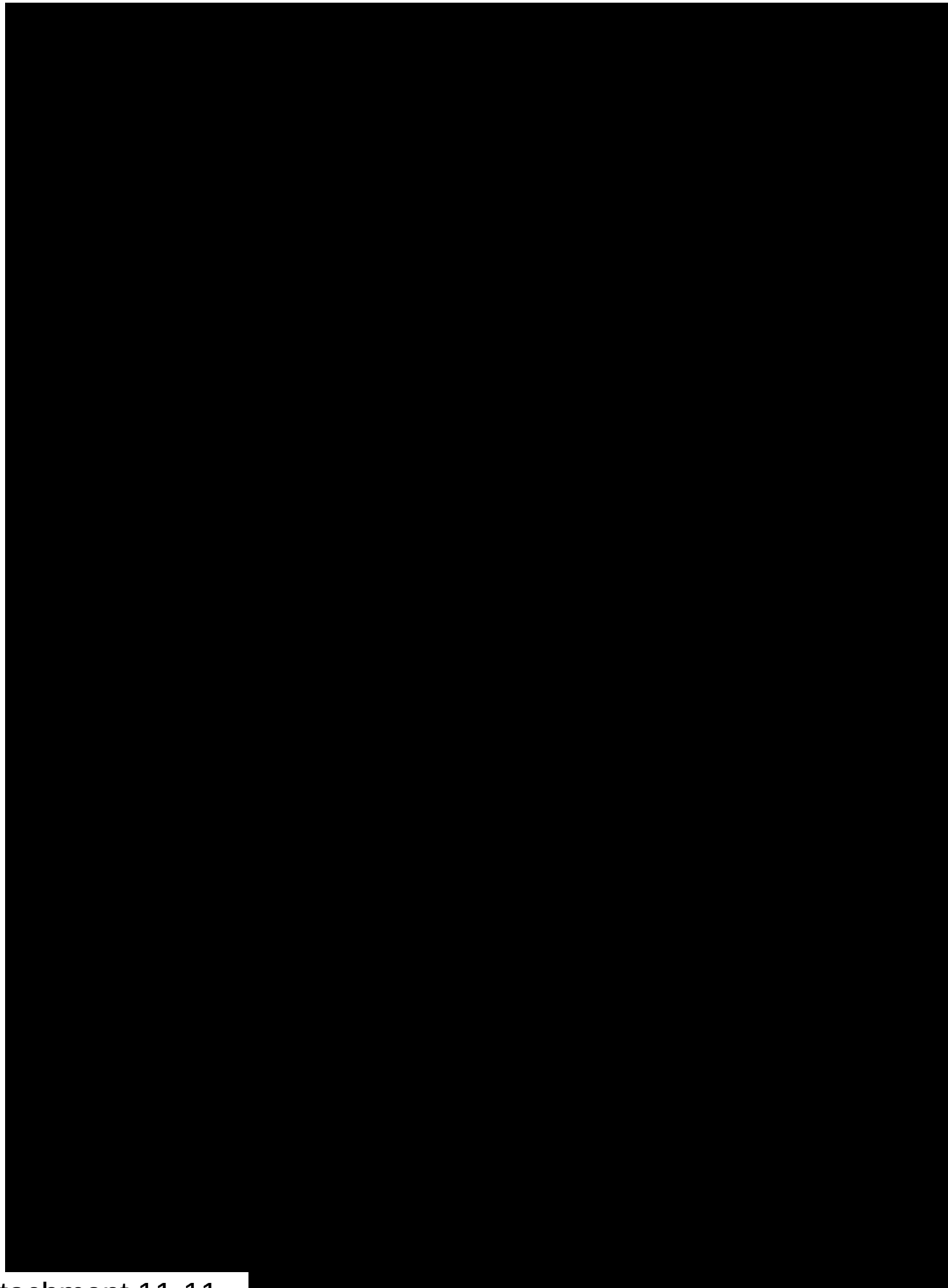
Nominal Resistance (q_n)	**24.34 ksf**	**24,337 psf**
Factored Resistance (qR)	**10.95 ksf**	**10,952 psf**

Attachment 11-11

207-R-687 SUBGRADE TREATMENT



Attachment 11-11



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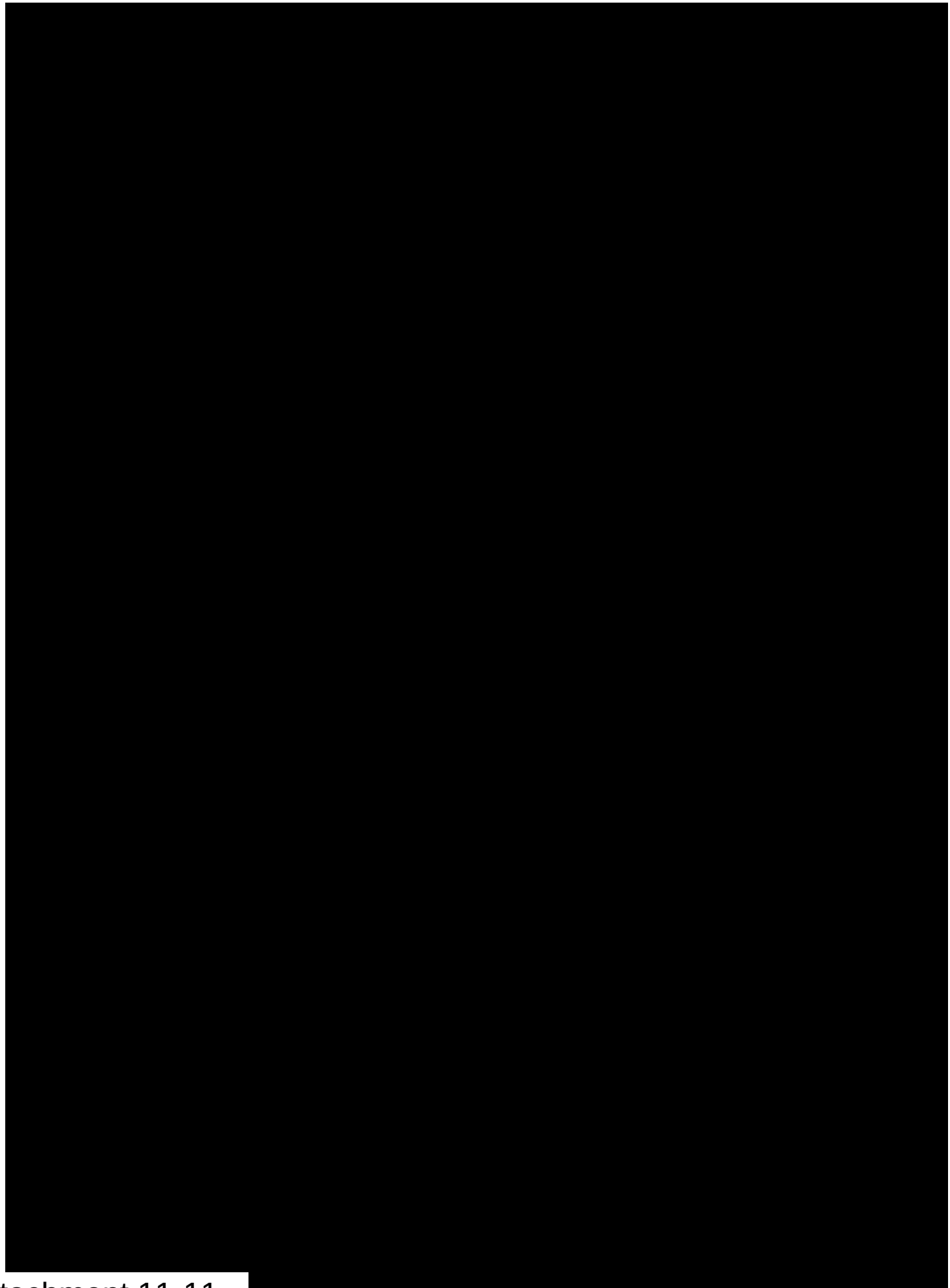

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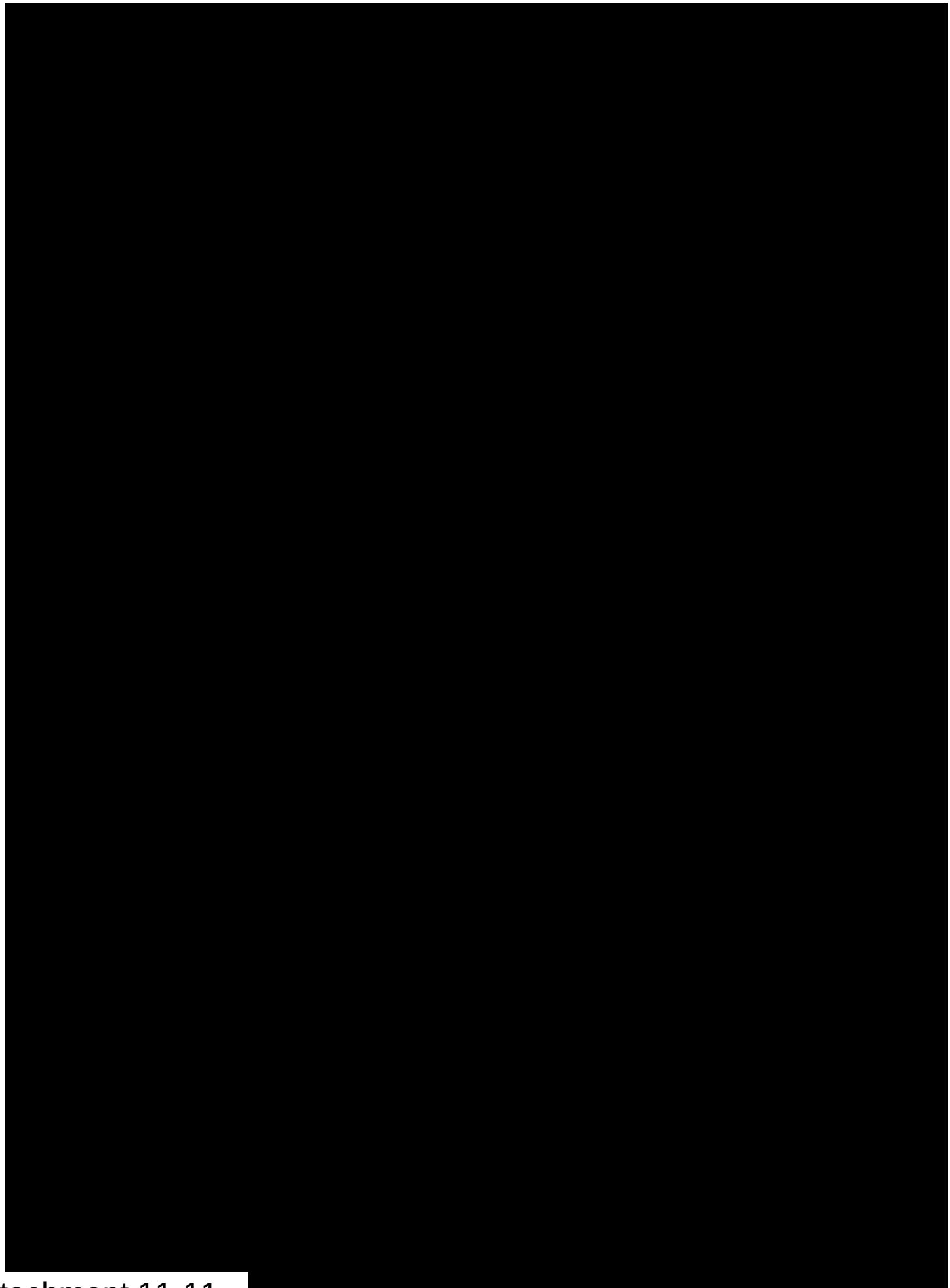
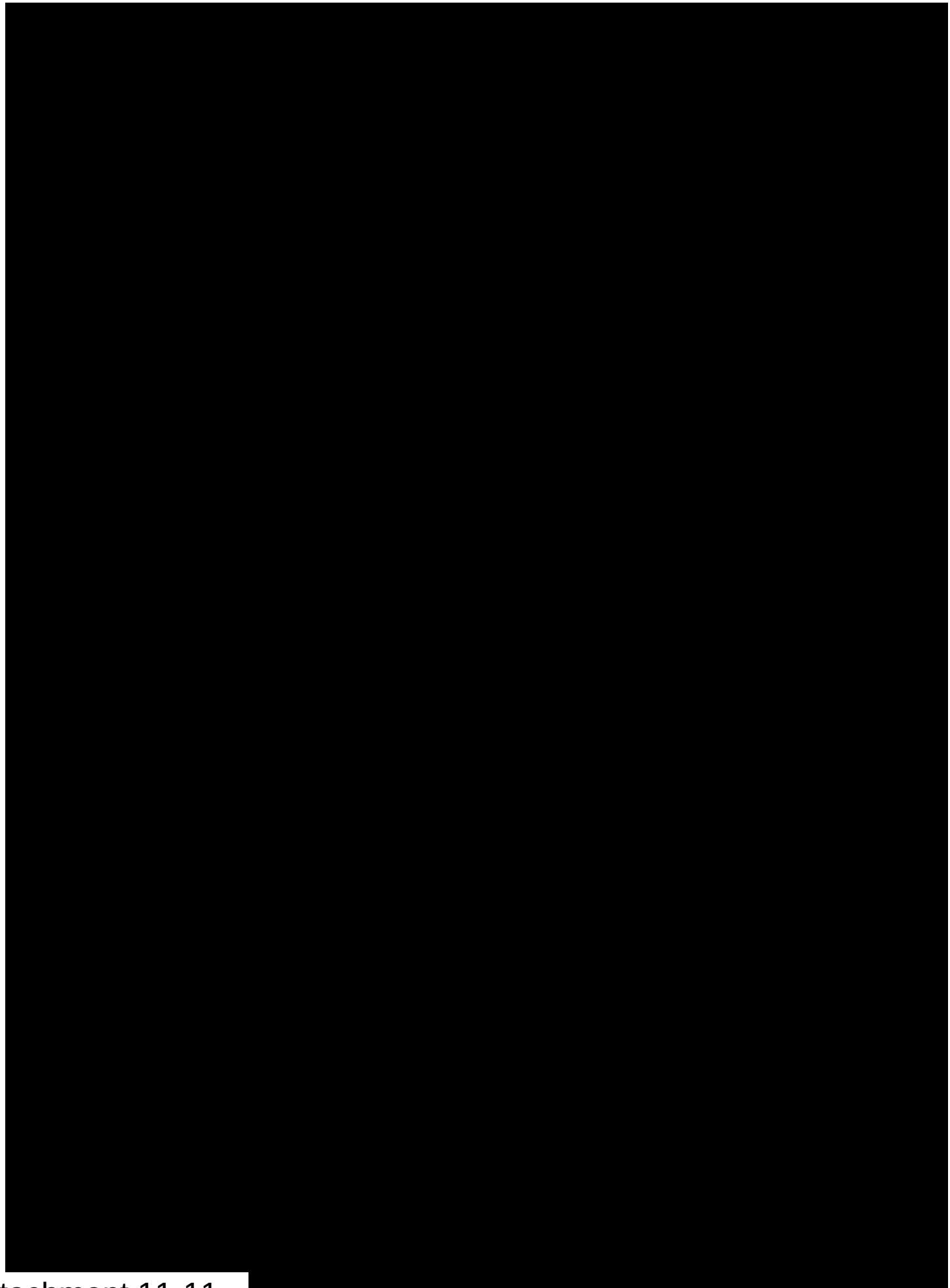


Attachment 11-11

SECTION 214 – GEOSYNTHETICS

[redacted]

Attachment 11-11



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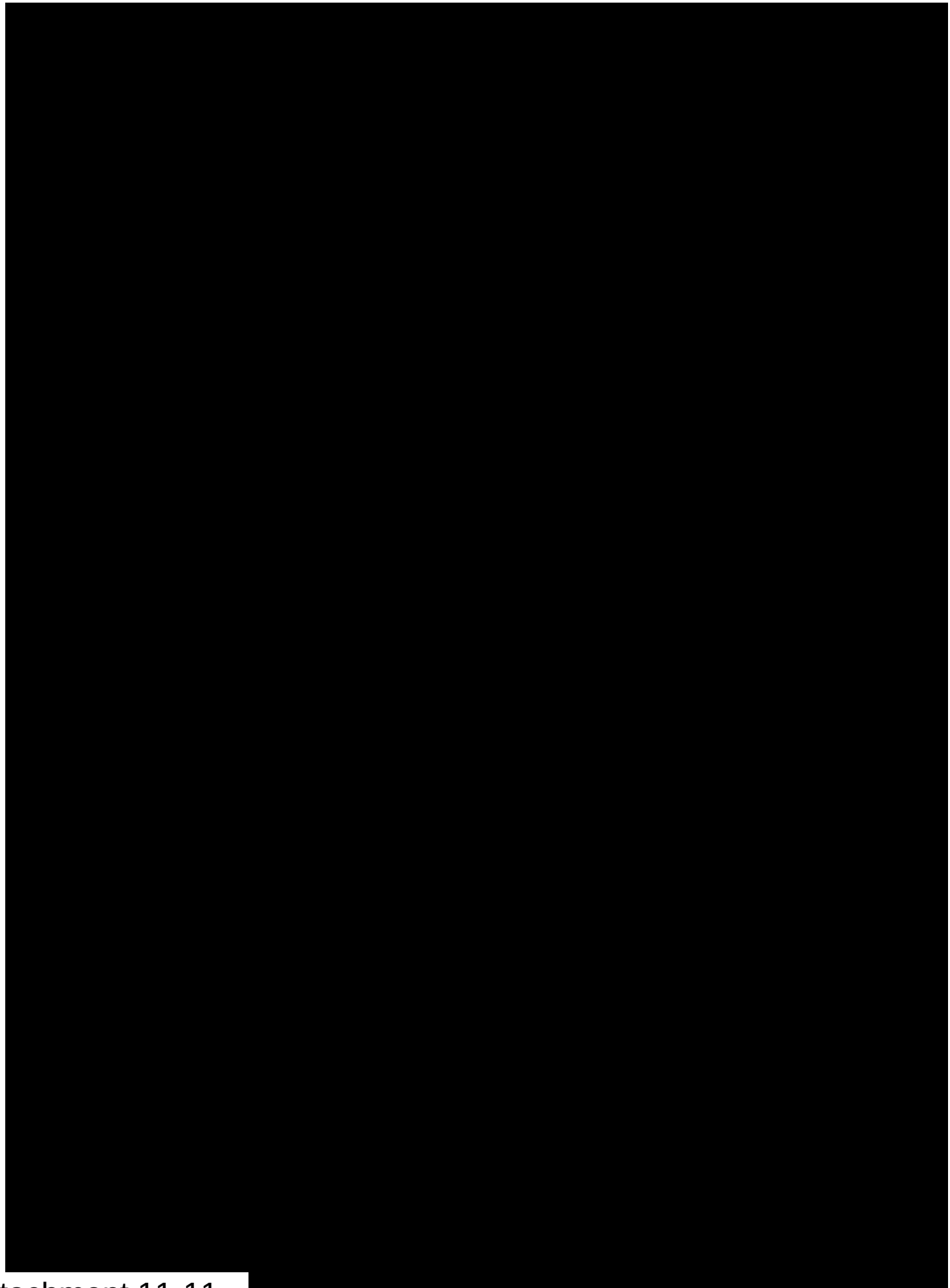

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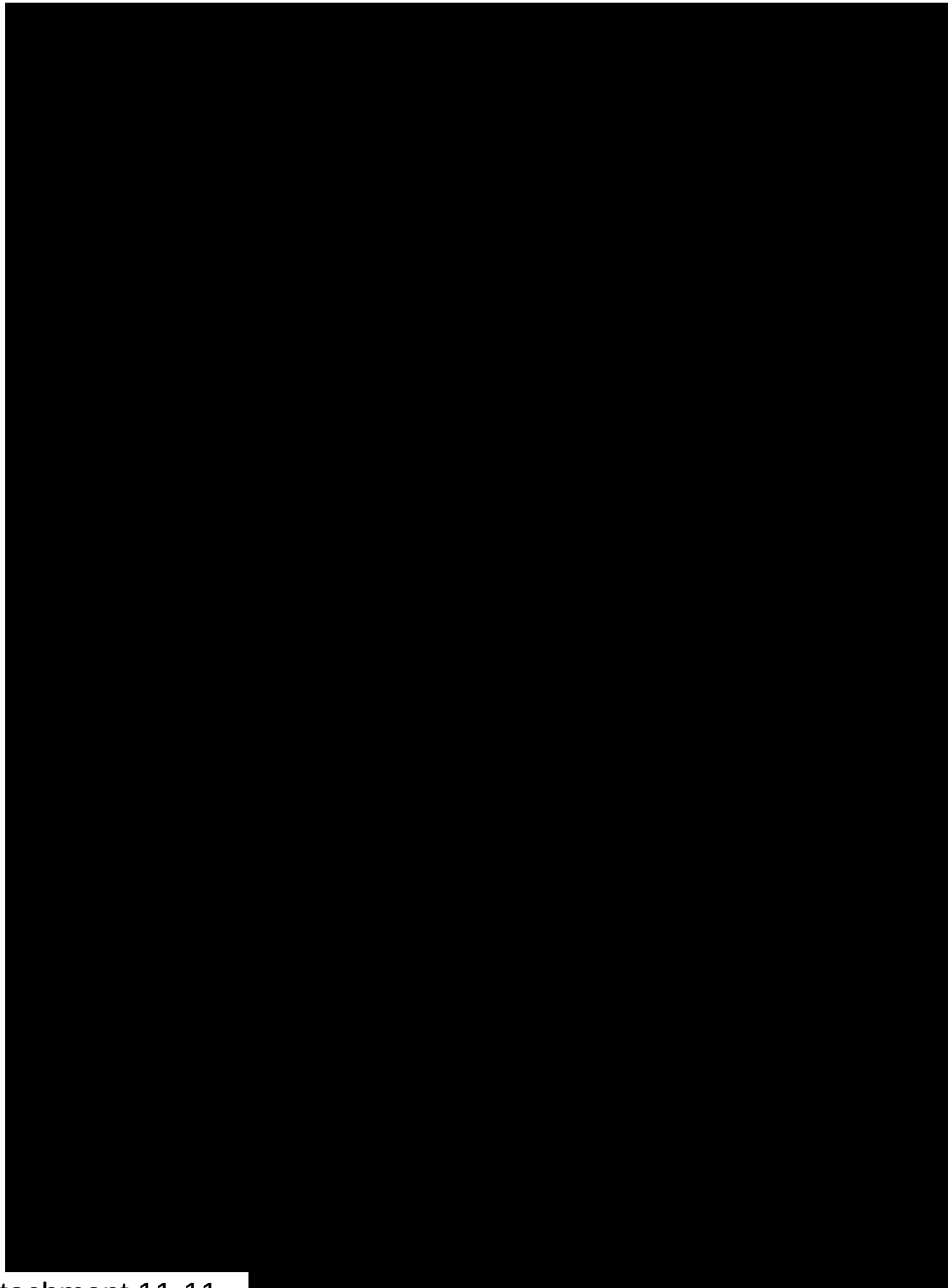

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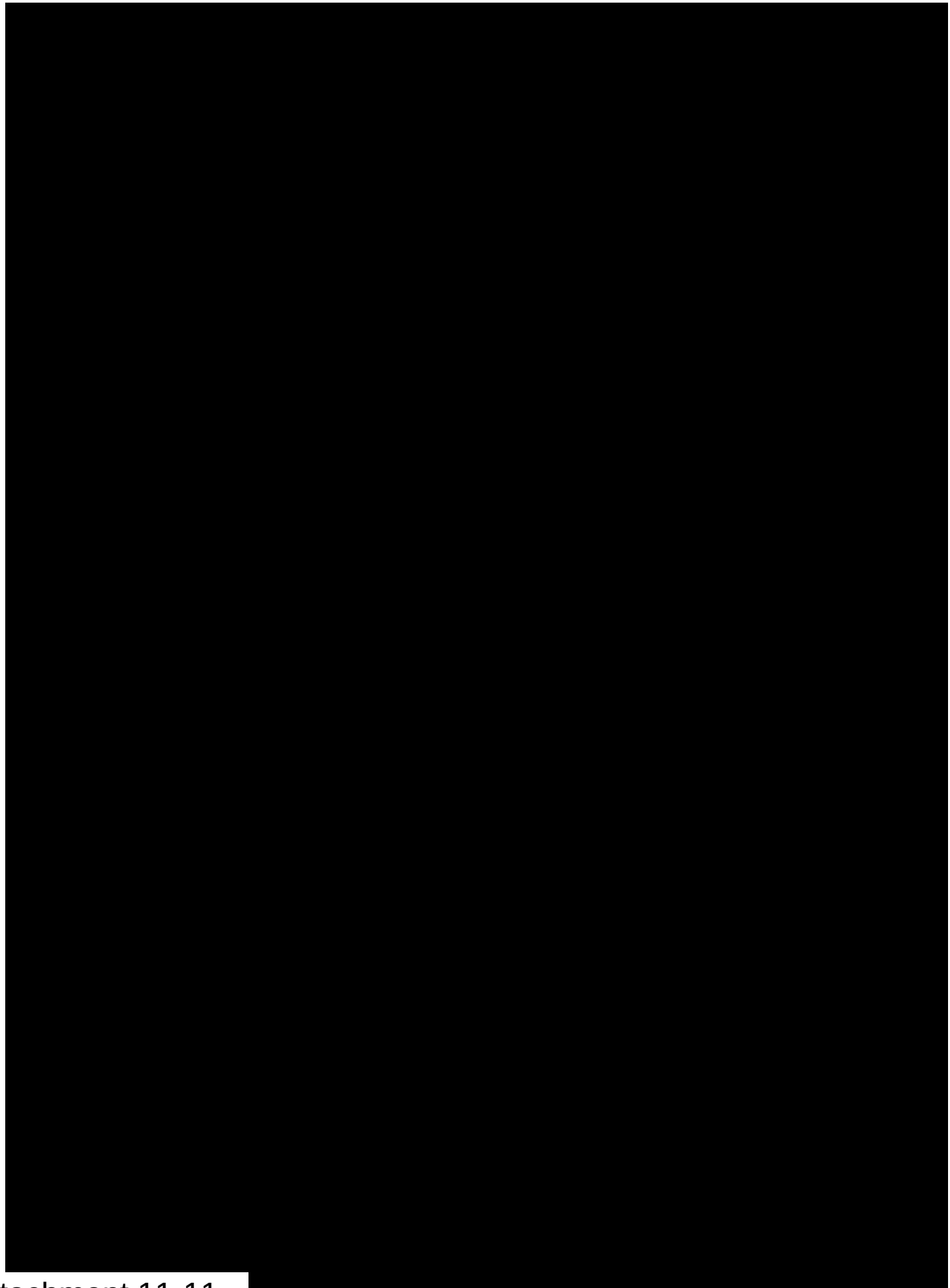


Attachment 11-11

September 27, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Addendum 1 – Bridges Task
I-65 over Caney Fork
I-65 Added Travel Lanes
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

We are providing this addendum to support BLN's efforts to continue with the bridge design for the referenced project. We evaluated the bearing resistance of the rock mass that we cored into at Caney Fork using an analytic method based on a failure mode described in Goodman (1989), which is referenced in AASHTO LRFD 10.6.3.2.3. This failure mode involves evaluating the strength envelope of fractured rock mass directly under the foundation, which is confined by the strength envelope of intact rock mass.

[redacted]

As mentioned, this addendum is being provided to support efforts to continue with the bridge design at Caney Fork while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.

[redacted]

Zack A. Brady, P.E.
Senior Staff Engineer

[redacted]

Michael S. Wigger, P.E.
Principal

Attachments –
Bearing Resistance of Rock

Bearing Resistance of Rock

Date: 8/15/2022

10.6.3.2.3 Analytic Method (AASHTO LRFD, 2020)

Terracon Project No.: CJ195480

Project Name: Addendum 1 - Bridges Task
I-65 over Caney Fork: I-65 Added Travel Lanes

Boring Numbers: TB-2 and TB-4

Location: Clark and Scott Counties, Indiana

By: ZAB

Checked: AN

			Relative Rating
Rock Type:	**Mudstone, siltstone, shale, or slate**		
Uniaxial Compressive Strength, qu (tsf):	**250**	(500 ksf)	2
RQD (%):	**78**		17
Spacing of Joints:	**1 to 3 ft**		20
Condition of Joints:	**Slightly rough surfaces with separation <0.05 in. Hard joint wall rock**		20
Groundwater Conditions:	**Water under moderate pressure**		4
Orientation of Joints:	**Favorable**		-2
Bearing Resistance Factor (φ_b): (Table 10.5.5.2.2-1)	**0.45**		

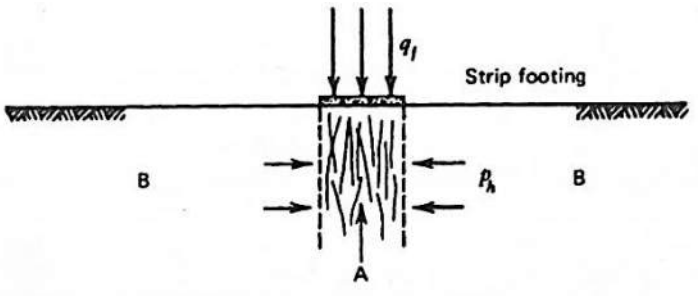
RMR Rating (Total)	61
Description	Good rock
m_1 =	0.821
s_1 =	0.00293
Parameters for Region A (lower bound)	
m_2 =	0.010
s_2 =	1.E-07

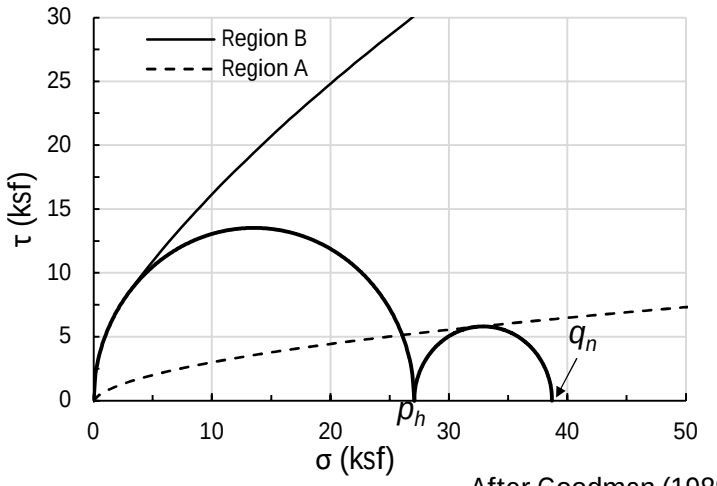
From Article 10.4.6.4 (AASHTO, 2010)

$q_u\sqrt{s_1} = p_h$ 27.1 ksf

$p_h + \sqrt{m_2 q_u p_h + s_2 q_u^2} = q_n$ 38.7 ksf

Factored Bearing Capacity $q_n\varphi_b$ = **17.4** **ksf**





After Goodman (1989)

September 27, 2022

Mr. Patrick Wooden, P.E.
American Structurepoint, Inc.
9025 River Road, Suite 200
Indianapolis, IN 46240

Re: Addendum 2 – Bridges Task
I-65 over Caney Fork
I-65 Added Travel Lanes
Des No. 1700135
Clark and Scott Counties, Indiana
Terracon Project No. CJ195480

Dear Patrick,

We are providing this addendum to support BLN's efforts to continue with the bridge design for the referenced project. Based on our correspondence with BLN, we understand the maximum factored pile load at the Caney Fork end bents is higher than was initially provided. As such, we have updated Table 3 from our Geotechnical Evaluation – Bridges Task dated December 8, 2021 for the referenced



As mentioned, this addendum is being provided to support efforts to continue with the bridge design at Caney Fork while geotechnical activities continue for other elements of the project. In the interim, feel free to contact our office if you have any questions.

Sincerely,
TERRACON CONSULTANTS, INC.



Zack A. Brady, P.E.
Senior Staff Engineer





Michael S. Wigger, P.E.
Principal