TOWN OF NEW WHITELAND, INDIANA

DESIGN & CONSTRUCTION STANDARDS

New Whiteland
Established 1954

JUNE 2020

TOWN OF NEW WHITELAND, INDIANA

DESIGN AND CONSTRUCTION STANDARDS

STANDARD DETAILS

RS - Roadway Sections

TR - Transportation

TECHNICAL SPECIFICATIONS

REFERENCE STANDARDS

Codes, specifications, and standards referred to by number or title shall form a part of this specification to the extent required by the reference thereto. Except as specifically modified in this specification, all design and construction shall comply with the most current revisions of applicable sections of the latest version of the Indiana Department of Transportation Design Manual (IDM) and Standard Specifications (INDOTSS).

SECTION 1 – STANDARDS OF ROADWAY GEOMETRIC DESIGN

PART 1 - GENERAL

1.01 Construction Plans shall conform to the following requirements and standards:

A. Minimum Pavement Width

1. Minimum pavement widths, to be installed at the developer's expense, shall comply with the roadway sections as shown in Details RS-01 through RS-06 for the following:

   a. Minor Arterials
   b. Major Collectors
   c. Minor Collectors
   d. Local Streets
   e. Multi-Use Trail

B. Developers shall provide curbs with gutters on each side of the street in a proposed development. Curb & gutter sections placed on Arterials or Collectors shall be of the barrier type, unless prohibited by design speed and otherwise approved. Rolled curb & gutter sections will be permitted for Local Streets.

C. Cul-de-sac design

1. A cul-de-sac should not exceed eight hundred (800) feet in length, measured from the entrance to the center of the turnaround, and if more than one hundred fifty (150) feet in length, shall be provided with a turnaround having radii as depicted in Standard Detail TR-10 for residential applications. For non-residential (commercial, business, and industrial) cul-de-sacs, the turnaround radius at the property line shall be increased as shown in Standard Detail TR-11. The entire turnaround of the cul-de-sac shall be paved.
2. There shall be no obstructions within the radius of a residential cul-de-sac unless specifically approved by the Town. Neither shall the radius of any non-residential cul-de-sac be obstructed, except for the placement of "no parking" signs which shall be required along all commercial and industrial streets within business parks, in accordance with the Municipal Code, as amended.
3. Mailbox assemblies shall be installed per the United States Postal Service requirements.
4. Roadways terminated for future extension and development shall conform to the following requirements and standards:
   a. Temporary Cul-de-Sac
      1) Developers shall be responsible for constructing a temporary cul-de-sac on all streets with temporary termination as determined by the local fire department, the school corporation and the Town street department.
      2) Temporary cul-de-sacs must provide appropriate drainage to prevent ponding. Street underdrains shall be extended the full length of temporary cul-de-sac.
   b. Stubbed Streets

1) Streets stubbed out within 100 feet of an intersection may be provided with an approved standard barricade system in lieu of a temporary cul-de-sac.
2) With approval of the Town, developer may provide end of roadway signage in accordance with the IMUTCD in lieu of a standard barricade.

D. Street Grades, Curves, and Sight Distances

1. All streets shall be designated and posted for the speed limit defined by Town Ordinance. in Urban areas and 50 mph in Rural areas, as defined by State Law. All unposted streets shall be designated and posted for a minimum 30 mph speed limit in Urban areas and 50 mph in Rural areas, as defined by State Law.
2. The minimum vertical grade for all streets shall be 0.5%.
3. Maximum Vertical Grades
   a. The maximum vertical grade for Principal Arterials shall be 5.0% and Minor Arterials shall be 7.0%.
   b. The maximum vertical grade for Collectors shall be 7.5%.
   c. The maximum vertical grade for Local Streets shall be 10.0%.
   d. Where adjacent sidewalks are going to be installed, the maximum vertical grade shall be 5.0%.
4. Vertical curves shall be designed to meet or exceed INDOT Standards for sag and crest vertical curves.
   a. Local Streets shall have a design speed of 25 mph.
   b. Collectors shall have a design speed of 30 mph.
   c. Principal Arterials and Minor Arterials shall have a minimum design speed of 40 mph or the posted speed limit, whichever is less.
5. Horizontal centerline curve radius shall correspond to the following:
   a. Local Streets shall have a 200-foot minimum centerline radius.
   b. Collectors shall have a 333-foot minimum centerline radius.
   c. Principal Arterials and Minor Arterials shall have a 762-foot minimum centerline radius.
   d. Tangent distance between reverse curves shall be 100 feet.
6. Multi-use trails shall be constructed with a maximum grade of 5%. Trails shall be constructed with an ADA compliant surface, either asphalt or concrete.

E. Intersections

1. Street curbs shall be rounded by radii of sufficient length to permit the smooth flow of traffic, but in no case shall curb radii be less than twenty-five (25) feet for local or cul-de-sac streets, or twenty-five (25) feet for collector streets, or forty (40) feet for nonresidential streets. Minimum radii for arterials shall be as approved by the Town.
2. Street intersections shall be as nearly at right angles as is possible, and no intersection shall be at an angle of less than sixty degrees (60º).
3. Street intersections shall be designed to avoid the simultaneous intersection or more than two (2) streets carrying traffic from more than four (4) directions.
4. Street intersections shall not be closer than one hundred eighty-five (185) feet from centerline to centerline.
5. Sight distance at intersections. The following paragraphs shall be required as a provision of the covenants of all secondary plats:
   a. No fence, wall, hedge, tree, shrub, planting or other similar item which

obstructs sight lines at elevation between two and one-half (2½) and nine (9) feet above the crown of a street shall be permitted to remain on any corner lot within the triangular area formed by the street right-of-way lines and a line connecting points twenty-five (25) feet from the intersection of the street right-of way lines; or in the case of a rounded property corner, from the intersection of the street right-of-way lines extended.

b. The same sight line limitations shall apply to any lot within ten (10) feet from the intersection of a street right-of-way line with the edge of a driveway pavement or alley line. For corner lots, no driveway shall be located within seventy (70) feet of the intersection of two (2) street centerlines.

6. At the intersection of any proposed Local Street with a Principal Arterial, Minor Arterial, or Collector, acceleration and deceleration lanes, passing blisters or left turn lanes shall be provided on the Principal Arterial, Minor Arterial, or Collector.

F. Easements

1. Where alleys are not provided, easements for utilities shall be provided. Such easements shall have minimum widths of 15 feet, and where located along lot lines, one-half the width shall be taken from each lot as determined by the Town.
2. Whenever possible, easements for poles or underground conduits for electrical power, or telephone lines shall be provided along rear lot lines.
3. Where a subdivision is traversed by a watercourse, drainage ditch, channel, or stream, adequate areas for storm water or drainage easements shall be allocated for the purpose of widening, deepening, sloping, improving or protecting said watercourses in accordance with the requirements of the Johnson County Drainage Board and/or the Town.
4. The developer shall be encouraged to design for the placement of utility lines underground, following the required standards and specifications established by each utility company. The location of each underground utility system shall be shown by appropriate easement lines on the proposed plat.

G. Clear Zone (New Roadways and streets)

1. See INDOT Indiana Design Manual (IDM) Chapter 49

H. Obstruction Free Zones (Existing Roads)

1. The obstruction free zone (OFZ) is defined as the roadside area next to the travelway which should be free from hazards and obstructions. Obstacles within the obstruction free zone limits should be removed, made breakaway, or shielded with guardrail. The obstruction free zone values given below are minimums and should be extended where accident experience indicates a wider zone would further enhance safety. The following obstruction free zones apply to roadway projects:
2. Arterial Streets with Shoulders. Where the design speed is 50 mph or greater and the design ADT is over 1500, the minimum obstruction free zone is 20 feet from the edge of the through traffic lanes or to the right-of-way line, whichever is less. For roadways where the design speed is less than 50 mph, and the design ADT is less than 1500, the minimum obstruction free zone from the edge of through traffic lanes is 10 feet plus the usable shoulder width provided, or to the right-of-way line, whichever is less.

3. Collector Streets with Shoulders. Where the design speed is 50 mph or greater and the design ADT is over 1500, the minimum obstruction free zone from the edge of the through traffic lanes is 10 feet plus the usable shoulder width provided, or to the right-of-way line, whichever is less. For roadways where the design speed is less than 50 mph and design ADT is less than 1500, the minimum obstruction free zone from the edge of through traffic lanes is 6.5 feet, plus the usable shoulder width provided, or to the right-of- way line, whichever is less.
4. Local Streets with Shoulders. The minimum obstruction free zone from the edge of the through traffic lane is 6.5 feet plus the usable shoulder width provided, or to the right-of-way line, whichever is less.
5. Usable Shoulder Width. As defined by IDM Chapter 55.
6. Curbed Roadways. Where the posted speed limit is less than 45 mph, the minimum obstruction free zone from the face of the curb should be 6.5 feet except for mail boxes, street lighting, and street signs. However, for traffic signal supports the minimum obstruction free zone should be 2.5 feet. Where the curbs are less than 6 inches in height or the posted speed limit is 50 mph or greater regardless of curb height, the minimum obstruction free zone will be the same as defined in Items 2, 3, or 4 above.
7. Appurtenance-Free Area. Roadways for all functional classifications should have a 6.5 feet appurtenance-free area from the face of curb or from the edge of the travel lane if there is no curb. For traffic signal supports, a 2.5 feet clearance should be provided. The appurtenance free area is defined as a space in which nothing, including breakaway safety appurtenances, should protrude above the paved or earth surface. The objective is to provide a clear area adjacent to the roadway in which nothing will interfere with extended side- mirrors on trucks, with the opening of vehicular doors, etc.
8. On-Street Parking. The following obstruction-free zone requirements will apply to facilities with on-street parking.
    a. Continuous 24-Hour Parking. No obstruction-free zone is required on facilities where there is continuous 24-hour parking, except that the appurtenance-free area should be provided from the face of the curb or edge of the parking lane if there is no curb.
    b. Parking Lane Used as a Travel Lane. The obstruction free zone should be determined assuming the edge of the parking lane as the right edge of the farthest right travel lane.
9. Application
    a. The designer should eliminate or modify the following hazards, according to the above treatments, if they are within the obstruction free zone:
        1) Tree Removal. Trees shall not be allowed in any and all public right-of-way.
        2) Obstructions. Obstructions within the obstruction free zone, such as rough rock cuts, boulders, headwalls, foundations, etc., with projections that extend more than 4 inches above the ground line should be removed, relocated, made breakaway or shielded with guardrail as appropriate. A rough rock cut is one that presents a potential vehicular snagging problem.
        3) Sign and Light Supports. Sign posts and light poles to remain within the obstruction free zone will be made breakaway. In urban areas where pedestrian traffic is prevalent, breakaway light supports should not be used. However, these supports should, as a minimum, be offset beyond the obstruction free zone or desirably behind the sidewalk. In other areas

where pedestrian traffic is prevalent, the use of breakaway supports will be considered on a case-by-case basis by the Town.

4) Traffic Signals. Traffic signal supports should be placed to provide the obstruction-free zone through the area where the traffic signal supports are located. However, the following exceptions will apply:
5) Channelized Islands. Installation of signal supports in channelizing islands should be avoided, if practical. However, if a signal support must be located in a channelizing island, a minimum clearance of 30 feet should be provided from all travel lanes (including turn lanes) in rural areas and in urban areas where the posted speed is greater than 45 mph. In urban areas where the island is bordered by a barrier curb and the posted speed is 45 mph or less, a minimum clearance of 10 feet should be provided from all travel lanes (including turn lanes).
6) Non-Curbed Facilities (Posted Speeds ≥ 50 mph and ADT > 1500). Where conflicts exist such that the placement of the signal supports outside of the obstruction-free zone is impractical (e.g., conflicts with buried or utility cables), the signal supports should be located at least 10 feet beyond the outside edge of the shoulder.
7) Non-Curbed Facilities (Posted Speeds < 50 mph or ADT ≤ 1500). Where conflicts exist such that the placement of the signal supports outside of the obstruction-free zone is impractical (e.g., conflicts with buried or utility cables), the signal supports should be located at least 6.5 feet beyond the outside edge of the shoulder.
8) Ditches. Traversable ditches shall be required within the OFZ. A ditch is considered to be within the OFZ if the toe of the foreslope is within the OFZ. Traversable slopes are considered to be 4:1 or flatter.
9) Culverts. Culvert ends are considered to be within the OFZ if the point at which the top of the culvert protrudes from the slope is within the OFZ. Culvert end protection shall comply with INDOT IDM standards.
10) Transverse Slopes on Side Roads and Private Drives. Steep transverse slopes on side roads and private entrances should be considered for flattening, if practical. Desirably these slopes should be 6:1 or flatter, but in no case should they be steeper than 4:1. Transverse slopes on median crossovers will be 10:1 or flatter.
11) Curbs. Curbs should generally be removed on rural highways where posted speeds are greater than 45 mph. The proper placement of traffic control devices must be considered in reviewing the removal of corner island curbs where such devices are located. This item is not intended to cover divisional (channelizing) islands separating two-way traffic or curbs at the edge of shoulder for drainage. In the latter two cases, sloping curbs should be used on highways with posted speeds greater than 45 mph. Curbs higher than 4 inches should not be used in conjunction with guardrail. The face of curbs, used in conjunction with guardrail, should desirably be behind the face of the rail. If this cannot be achieved, the face of the curb may be located flush with the face of the rail.
12) Utility Poles. Utility poles within the obstruction free zone which are not owned by the Town or INDOT often constitute a significant hazard and should be removed or relocated. Utility companies should be requested to relocate utility poles that are located in high vulnerability areas such as channelizing islands, or where the accident history indicates there has

been a utility pole accident problem. The Town, based on their judgment, will determine where such work is warranted.

13) Non-Traversable Hazards. Fill slopes steeper than 2:1 with a height greater than 2 feet within the obstruction free zone should be flattened to the extent practical. If any part of a drainage ditch appears within the obstruction-free zone, it should be relocated.
14) Guardrail. An engineer registered in the State of Indiana shall determine if a crash tested system is required and designed appropriately for proposed locations.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 1

SECTION 2 – STANDARDS OF ROADWAY CONSTRUCTION

PART 1 - GENERAL

1.01 Related Sections: Related Work Specified in the following Section

A. Section 4 – Subgrade Treatment

1.02 Road construction shall conform to the following requirements and standards:

A. Streets, General

1. Streets and alleys shall be graded, surfaced, and improved to the dimensions required by the cross-sections and the work shall be performed in the manner prescribed herein and the Indiana Department of Transportation (INDOT) Standard Specifications. Whenever a conflict between the two specifications arises, the greater standard shall apply.
2. Prior to placing the street and alley surfaces, adequate subsurface drainage (underdrains) for the street shall be provided by the developer.
3. Before any bond covering a street installation is released, the Town or duly authorized representative may request that core borings of the street be provided, at the developer's expense, for thickness and/or compaction determination.
4. Prior to the acceptance of asphalt streets, the developer shall employ and pay for the services of an independent testing laboratory to take cores at selected locations and perform Marshall stability, flow and density test, and percent of compaction determination on completed asphalt work if so directed by the Town or duly authorized representative.
5. Prior to acceptance of concrete streets, the developer must provide satisfactory test results from an independent testing laboratory to the Town or duly authorized representative.
6. The developer shall be required to submit a separate performance bond to cover the cost of the installation of the surface layer of asphalt and curbing.
7. All traffic control devices shall comply with guidelines and requirements of the current edition of the Indiana Manual on Uniform Traffic Control Devices.

B. Pavement Section - Typical pavement sections shall conform to the cross section shown in the Standard Details. The use of alternative cross sections shall be approved by the Town.

1. Unless otherwise shown on the drawings, the minimum concrete section shall be: 6 inches of 4,000 psi concrete, over 6 inches of compacted aggregate No. 53, over treated subgrade.
2. Unless otherwise shown on the drawings, aggregate pavement shall be replaced with 6 inches of compacted aggregate No. 53.

C. Curbs and Gutters

8. Curb & gutter sections shall comply with the Standard Details. As an alternate, curb sections which comply with INDOT Standard Details will be permitted upon approval the Town.

D. Sidewalks and Multi-Use Trails

9. Pedestrian facilities shall be constructed in accordance with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG).
10. Sidewalks in public right-of-way shall be at least 5 feet wide at all locations. Expansion joints shall be located every 50 feet and control joints every 5feet.
11. Curb ramps shall comply with the most current INDOT and ADA requirements. Refer to the INDOT Standard Drawings for general curb ramp types and configurations.
12. Multi-Use Trails, other than sidewalks, shall conform to sidewalk standards. Asphalt trails shall comply with the section as shown in the Standard Details.
13. All Multi-Use Trails shall be placed on properly prepared and compacted subgrades.
14. When sidewalks or trails cross major street intersections within or adjacent to a subdivision, necessary traffic control devices such as painted crosswalks and signs shall be installed at the developer's expense at the discretion of the Town.
15. When bike lanes are located on streets, they should be constructed to the same standards as the roadway on which they are located.
16. If not located within the public right-of-way, easements shall be provided for sidewalks and trails.

E. Plans - Construction plans for improvements to be installed shall be furnished in accordance with the specifications of the Town and/or, when appropriate, to the Johnson County Highway Department. Such plans must receive all appropriate approvals before improvements are installed. Upon completion of street and alley improvements, as-built plans shall be filed with the Town and when appropriate, to the proper governing body of Johnson County. All construction plans shall include the following:

17. Horizontal geometry of each proposed street, with centerline and curb radii shown.
18. The profile of each proposed street, with grades indicated, and lengths of vertical curves.
19. The cross-section of each proposed street, showing the width of pavement, the location and width of sidewalks, and the location and size of utility mains.

F. Inspection - Prior to starting any construction, arrangements shall be made for inspection of work to ensure compliance with plans and specifications approved by the Town or, when appropriate, the Johnson County Highway Department.

G. All construction must be approved by the Town and notice of construction must be given to the Town or duly authorized representative, two working days (not including holidays or weekends) prior to beginning work.

H. Allowable Modifications - Where unusual or exceptional factors or conditions exist, the Town may allow minor modifications of any provision of this Section. When such modifications are allowed, a detailed written statement of the reasons for such modifications shall be attached to all copies of construction plans.

1.03 Definitions

A. Subgrade: The prepared and compacted soil immediately below the pavement or sidewalk system and extending to such depth as will affect the structural design.

B. Subbase: The layer of specified or selected material of designed thickness placed on a subgrade to support a base course and surface course.

C. Base Course: The layer of specified or selected material of designed thickness placed on a subbase to support an intermediate course or surface course.

D. Intermediate Course: The layer of specified or selected material of designed thickness placed on a subbase or base course to support a surface course.

E. Surface Course: The layer of specified or selected material of designed thickness placed on a subbase, base course or intermediate course to support the traffic load.

1.04 Quality Assurance and Tolerances

A. The Developer/Contractor shall employ and pay for the services of an independent testing laboratory to perform specific services and necessary field density tests in accordance with the requirements herein. The Developer/Contractor shall demonstrate to the Town or designee that proper compaction has been obtained and proper asphalt and concrete mix designs are in compliance with the specifications.

B. Mixing Plant: Prior to placing any hot mix asphalt (HMA) pavement or Portland cement concrete pavement (PCCP), the Contractor shall provide the Town or designee the name and location of the HMA or concrete mixing plant and the type and composition of mixes the Contractor proposes to use in the work.

C. Paving and surfacing shall comply with the tolerances specified in INDOTSS 402 and 502.

20. Subgrade and subbase shall be within 1/2 inch of dimensions indicated on drawings.
21. HMA base shall not vary more than 1/4 inch from a 10-foot straightedge. HMA and PCCP surfaces shall not vary more than 1/8 inch from a 10-foot straightedge.
22. Finished surface shall be within 1/4 inch of dimensions indicated on drawings.

1.05 Project Conditions and Weather Limitations

A. Paving and surfacing materials shall not be placed on a wet surface, pumping subbase or when weather conditions would prevent the proper construction of paving and surfacing.

B. Aggregates shall not be placed on frozen subgrade or subbase. Aggregates shall not be placed when ambient air temperature is below 32°F.

C. Asphalt materials shall not be placed when the ambient air temperature is below 40°F.

D. Paving and surfacing materials shall not be placed when natural light is not sufficient to properly observe work or operations.

E. Asphalt materials are to be placed in accordance with INDOTSS 402 and 406.05.

1.06 Grade Adjustments of Existing Structures

A. When paving over existing manhole frames, covers, gratings, valve boxes, etc., temporarily place 1/8" inch thick material over casting prior to paving over.

1.07 Contractor's Organization

A. The Contractor shall be a firm whose prime business is HMA or PCCP paving. HMA and PCC pavement shall be installed by a contractor whose prime business is HMA or PCCP paving.
B. The Contractor shall have a competent supervisor on the site during the progress of the work, acting for the Contractor in all matters concerning the work. He shall have the authority to receive directions and act upon them for the Town or designee.

C. The Contractor shall keep a set of approved Plans and Specifications available on the site and in good condition.

1.08 Traffic Control

A. The Developer's Engineer shall plan construction operations so that existing local traffic access can be maintained. During the construction, the Contractor will also maintain appropriate use of barricades, lights, flagmen and other protective devices, whether specified for the project or required by the local governing authority. Traffic control devices used for maintenance of traffic shall comply with the latest version of the Indiana Manual on Uniform Traffic Control Devices.

PART 2 - PRODUCTS

2.01 All materials shall comply with the current version of the INDOT Standard Specifications.

2.02 Asphalt Materials

A. Asphalt materials for binder shall consist of:

1. PG Binder, minimum grade PG 64-22.
2. Materials shall conform to INDOTSS 902.01.

B. Asphalt materials for tack coat shall consist of:

1. Asphalt emulsion - AE-T.
2. Materials shall conform to INDOTSS 902.01.

C. At a minimum, HMA Type B shall be utilized for all Local and Collector roadways, and HMA Type C shall be utilized for all Arterials, unless a higher category type is required per INDOTSS 402.04, or otherwise determined by an approved pavement design.

PART 3 - EXECUTION

3.01 General

A. The Contractor is responsible to provide equipment, workmanship and materials required to achieve a finished product that meets these specifications.

B. Use compaction equipment suitable to the material being placed. Compacting equipment shall include at least one piece of equipment capable of providing a smooth even surface on the pavement surface course.

C. Prior to placing paving and surfacing materials, shape subgrade as required to produce finished pavement grades and cross-sections shown on drawings.

D. Do not place paving and surfacing material before subgrade is reviewed (proof roll) and accepted by the Town or designee. Do not place paving and surfacing materials on a frozen or muddy subgrade.

E. Compact the top 6 inches of the subgrade to not less than 100% of its maximum density as determined in accordance with AASHTO T99.

F. Provide adequate drainage at all times to prevent water from standing on subgrade, pavement or sidewalks.

G. The Owner or Contractor shall provide the Town core samples of the existing pavement section prior to the design and construction of a connection to an existing public roadway with the exception of a residential private drive. This information will be used by the Town to determine additional paving requirements.

H. Additional improvements may be required depending on field conditions and as determined by the Town.

3.02 Subgrade

A. The subgrade material and testing shall comply with INDOTSS 207, before placement of subbase.

B. Subgrade Preparation

3. After all earth work is substantially complete and all drains installed, the subgrade shall be brought to the lines and grades shown on the plans.
4. Unless otherwise provided, the upper six (6) inches of all subgrade shall be uniformly compacted to at least 95 percent standard density as determined by the provisions of AASHTO, T99, "Compaction and Density of Soils". During subgrade preparation and after its completion, adequate drainage shall be provided at all times to prevent water from standing on the subgrade. Subgrades shall be so constructed that it will have uniform density throughout. Proof rolling shall be performed with a triaxle loaded with a minimum of 20 tons of stone with load ticket verification. Proof rolling shall be from curb line to curb line. Correct any and all roller marks, irregularities, and failures.
5. For areas not accessible to the roller, the required compaction shall be obtained

by using mechanical tampers.

6. All soft yielding or otherwise unsuitable material which will not compact properly shall be removed. All rock encountered shall either be removed or broken off to conform with required cross sections. Any holes or depressions resulting from the removal of such unsuitable material shall be filled with approved material and compacted to conform with the surrounding subgrade surface. No placement of pavement shall be permitted on uninspected or unapproved subgrade and, at no time, when the subgrade is frozen or muddy. No hauling shall be done nor equipment moved over the subgrade when its condition is such that undue distortion results. If these conditions are present, the subgrade shall be protected with adequate plank runways, mats, or other satisfactory means if hauling is to be done thereon.
7. The subgrade shall be prepared sufficiently in advance to facilitate proper inspection of final elevations and compactions by the Town or duly authorized representative.
8. All utility and drainage excavations under pavement shall be backfilled with compacted granular backfill and/or flowable fill. These locations shall be illustrated on construction drawings submitted to the Town.

3.03 Subbase Preparation

A. Provide crushed aggregate subbase in locations where pavement is to be placed on a material other than Structure Backfill. Subbase shall meet the requirements of INDOTSS 302. Pea gravel, or rounded aggregate is not an approved material for subbase or base material.

3.04 Aggregate Base, Surface or Shoulders

A. Aggregate base, surface, or shoulders shall consist of crushed aggregate. The aggregate type shall be suitable for the area in which the project is located. The aggregate thickness shall be as shown on the drawings and as specified herein.

B. If the required thickness of the aggregate exceeds 4 inches, the material shall be placed and compacted in separate lifts, no more than 6 inches of compacted depth.

C. If spreading devices are used which will ensure proper depth and alignment, forms will not be required; otherwise, forms shall be required. Forms shall be of wood or steel, adequate in depth, straight, of uniform dimensions and equipped with positive means for holding the form ends rigidly together and in line. Segregation of material shall be avoided by any spreading method used. No payment will be made for aggregate placed beyond the dimensions shown on the drawings.

D. Compact material in each lift after material is spread and shaped. Compact material to not less than 100% of maximum dry density as determined by AASHTO T99. Use construction procedures, including sufficient wetting and number of passes, to ensure specified density is attained.

E. The Contractor shall employ an independent testing laboratory to perform field density tests to demonstrate proper compaction of aggregate.

3.05 Asphalt Milling

A. Milling shall produce the line and grade necessary to provide a uniform platform and required elevation for subsequent HMA courses. Prior to milling, areas for patching shall be marked and repaired to within 2 inches of the new surface elevation.

3.06 Hot Mix Asphalt (HMA)

A. This work shall consist of constructing one or more courses of HMA base, intermediate, wedge leveling, and/or surface mixtures on a prepared foundation in accordance with these specifications and in reasonably close conformance with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Town.

9. If the required finished depth of any course is to exceed four times the top size of the aggregate used as shown by actual screen analysis, the course shall be constructed in multiple lifts, as directed.
10. Mix type shall be as indicated on the drawings, without exception, unless otherwise approved in writing by the Town.
    a. Job mix formulas shall be prepared and submitted for approval in accordance with INDOTSS 402. The job mix formula shall include standard asphalt mixture information including, but not limited to, aggregate gradation, binder content, maximum specific gravity, and air voids.
11. Materials and construction requirements shall comply with the requirements of INDOTSS 402.

B. Placement and compaction of HMA shall conform to INDOTSS 402.

C. HMA Surface shall be 9.5mm surface mix unless approved in writing by the Town.

D. Place and spread HMA with proper paving equipment. In areas inaccessible to a paving machine, place and spread HMA by other acceptable mechanical or hand methods.

E. Tack coat shall be placed on ALL horizontal and vertical existing asphalt or concrete surfaces before a new lift of HMA material is added. Apply tack coat uniformly at a rate of 0.06 gallon per square yard (0.000252 ton per square yard), resulting in a minimum of 90% coverage. If spray bar does not provide complete coverage, the tack coat operation shall be stopped until the equipment can produce the required coverage. If the equipment cannot produce the required coverage in a single pass, a second pass may be allowed or required, at the discretion of the Town. The tack coat shall be allowed to cure over approximately 90% of the surface area before paving operations can begin.

12. Patch and clean existing surface. The surface shall be free of irregularities and provide a reasonably smooth and uniform surface to receive the tack coat. Remove and replace unstable corrugated areas with suitable patching materials.
13. Tack coat shall be placed in accordance with INDOTSS 406.

F. Place HMA used for wedging or leveling, approaches, and/or feathering by mechanical methods or acceptable hand methods for placing and spreading in accordance with INDOTSS 610.

3.07 Portland Cement Concrete Pavement

A. Portland cement concrete pavement shall consist of a coarse aggregate base and a reinforced or unreinforced Portland cement concrete pavement, as shown on the drawings.

14. Compacted aggregate No. 53 shall be used for subbase, unless otherwise shown or specified.
15. Pavement cross-section shall be as shown on drawings.

B. Portland cement concrete pavement operations and materials shall comply with INDOTSS 502 unless otherwise specified by the Town.

3.08 Sidewalks

A. Sidewalks shall consist of a minimum 4 inch thick concrete pavement on compacted subgrade. Concrete shall be Class "A", 4,000 psi concrete conforming to INDOTSS 702.

B. Concrete for sidewalk crossing driveways shall be the same thickness of the adjacent concrete drive, a thickness equivalent to the existing HMA drive, or 6 inches thick, whichever is greater and shall be placed on a minimum 4 inch compacted aggregate base.

C. Compact base to not less than 95% of maximum dry density, as determined in accordance with AASHTO T99.

D. Proportion, mix, and place concrete as specified in INDOTSS 604 and 702. Sidewalk surfaces shall have a coarse broom finish. Edge all outside edges of sidewalk with a ¼ inch radius.

E. Unless otherwise shown on the drawings, sidewalks shall be divided into sections not more than six feet in length by grooved joints formed by a jointing tool with a ¼ inch radius.

F. Form construction joints around all abutting structures and appurtenances such as manhole, utility poles, hatches, and hydrants. Install ½ inch preformed expansion joint filler in construction joints. Expansion joint material shall extend for the full depth of the sidewalk.

G. If existing sidewalk is to be removed and replaced with new sidewalk or new sidewalk extended from existing sidewalk, the existing sidewalk shall be saw-cut full depth and removed at the nearest joint of suitable quality or as directed by the Town.

H. Ramps shall meet the requirements of INDOT standard drawings and Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG).

3.10 Curbs

A. The construction of curbs, combination curb & gutter, and integral curb & gutter shall

be in accordance with these specifications and as shown on the plans and shall be in conformance with the lines and grades shown on the plans.

B. Excavation for curbs shall be made to the required depth and the subgrade or base upon which the curb is constructed shall be compacted to a firm, even surface to not less than 95% of maximum dry density as determined in accordance with AASHTO T99.

C. Concrete for curbs shall be Class A, 4,000 psi conforming to INDOTSS 702.

D. The curbs shall be constructed by the use of wood or metal forms; or the curb may be constructed using a curb slipform machine. Forms, if used, shall be straight, free from warped or bent sections, and shall extend for the entire depth of the curb and shall be securely held in place so that no deviation from alignment and grade will occur during placement of concrete. The concrete shall be consolidated by vibration or other acceptable methods. The top of the curb shall be floated smooth and the top outer corner rounded to a ¼ inch radius.

E. The face, top, and gutter of curbs shall not have deviations or irregularities of more than ¼ inch when checked with a 10-foot straightedge. Curb inlets shall be placed ¼ inch lower than the adjacent gutter elevation.

F. Joints shall be placed at 10-foot intervals, unless otherwise shown or directed by the Town. The joint shall be saw cut with uniform width, and to a depth of approximately 2.5 inches. Expansion joints shall be formed with ¼ inch preformed joint material. Expansion joints shall be filled with joint sealant. Expansion joints shall be formed around all abutting structures such as inlets.

G. If existing curb is to be removed and replaced with new curb or new curb extended from existing curb, the existing curb shall be saw-cut full depth and removed to the nearest joint. New curb shall be doweled to the existing using an approved doweling system.

H. During the placement of new concrete curb, utility marking shall be embossed into the top of the curb. The marking shall be a 2” high letter stamped into the concrete before the concrete sets up. The letters shall be located perpendicular from the utility feature that is being marked.

1. The letters shall be as follows:
   G = Gas
   SS = Sewer Service Lateral
   W = Water
   ST = Storm

3.11 Lane Striping

A. Lane striping is to be in accordance with all applicable standards of the current Indiana Manual of Uniform Traffic Control Devices (I.M.U.T.C.D.) and INDOTSS 808 and the construction plans.

B. Material for pavement markings shall be standard on HMA pavement or multi-

component on Concrete pavement.

C. Contractor will clean the new pavement surface to remove all dust, dirt, mud and debris prior to striping.

3.12 Signage

A. Uniform traffic signage is required throughout the Town. All traffic signage in the Town shall conform to current Indiana Manual of Uniform Traffic Control Devices (I.M.U.T.C.D.) and INDOTSS 802.

B. Posting of one speed limit sign shall be required within 200 feet of each entrance into a subdivision, with a supplemental plaque R2-5bP “Neighborhood” included.

C. Street signage within the right-of-way that is to be owned and maintained by the developer, HOA or other entity, if approved, shall comply with the IMUTCD.

3.13 Testing for Hot Mix Asphalt (HMA)

A. The Developer/Contractor shall employ and pay for the services of a competent independent testing laboratory to take cores at selected locations and perform described tests. Compaction requirements for HMA mixtures placed in accordance with INDOTSS 402 shall be controlled by in place density determined from cores cut from the compacted pavement. A minimum of two cores per section shall be cut for each course of each material or as directed by the Town. Sections are defined as a maximum of 1041 tons of HMA base or intermediate or 624 Tons of HMA surface. The transverse core location shall be located so that the edge of the core will be no closer than 3 inches from a confined edge or 6 inches from a non-confined edge of the course being placed.

B. For compaction of HMA mixtures with quantities less than 104 tons per day, acceptance may be visual as determined by the Town.

C. The Contractor along with their independent testing lab representative shall obtain cores in the presence of the Town with a device that shall produce a uniform 6 inches in diameter pavement sample. Each HMA course shall be cored within one workday of placement. Damaged core(s) shall be discarded and replaced with a core from a nearby location as selected by the Town.

D. The Contractor, in the presence of the Town, shall mark the core to define the course to be tested. If the defined area is less than 1.5 times the maximum particle size, the core will be discarded and a core from a new random location will be selected for testing as determined by the Town. Within one work day of coring operations the Contractor shall clean, dry, refill and compact the core holes with suitable material approved by the Town.

E. The Contractor’s testing lab representative shall take immediate possession of the cores. If the cores are subsequently damaged, additional coring within the specific section(s) will be required at locations to be determined by the Town.

F. Each core shall be tested within one work day of coring operation to determine

thickness, bulk specific gravity, aggregate gradation and binder content. Test results shall then be transmitted either verbally or by other means to both the Contractor and the Town for verification before each subsequent HMA lift is placed.

1. Average thickness of the cores shall not vary from the plan thickness more than 0.5 inches for HMA base and intermediate course(s) and 0.25 inches for HMA surface course(s) for acceptance in accordance with INDOTSS 105.03.
2. The bulk specific gravity shall be determined in accordance with AASHTO T166 or AASHTO T 275. The in place density of a section for a mixture shall be expressed as:

   Density % = (BSG/MSG) * 100

   Where:
   BSG = bulk specific gravity as determined from independent testing laboratory
   MSG = maximum specific gravity as reported on job mix formula.

3. The calculated density of the cores shall not be less than 90% nor more than 96% as set out above. Test results which are outside stated limits shall be considered and adjudicated as a failed material in accordance with INDOTSS 105.03.

G. The Contractor's independent testing laboratory representative shall determine the aggregate gradation and binder content of the core samples in accordance with ITM 571. Aggregate gradation shall be within tolerances set forth in INDOTSS 402.04 and binder content shall be within ±0.5 percent from the job mix formula. Test results which are outside the stated limits shall be considered and adjudicated as a failed material in accordance with INDOTSS 105.03.

H. A copy of all core test results shall be submitted to the Town for verification of specification compliance within one calendar week of core testing.

3.14 Testing for Concrete

A. The Contractor shall make the following tests at their cost and they shall be as specified in this Article. Perform tests in accordance with the following ASTM Specifications:

Test	ASTM Specification
Slump	C143
Air Content	C173
Test Cylinders	C31 or C513
Core Samples	C42

1. Measure slump each time test beams or cylinders are to be made and at any other time requested by the Town. The slump shall be as specified in INDOTSS 502, or as otherwise specified herein, unless specifically excepted by the Town.
2. Measure air content each time test beams or cylinders are to be made and at any other time requested by the Town. The field test may be omitted if the air content is known prior to taking samples. The field test may not be omitted if fly ash is used in the mix.

3. Concrete paving mixes shall comply with guidelines of INDOTSS 502 and shall meet the testing requirements of INDOTSS 502. However, in lieu of forming test beams as described in INDOTSS 502, the Contractor may substitute cylinder tests as follows:
   a. Make test cylinders in sets of four. Field cure one cylinder and break at seven days. Laboratory cure the remaining three cylinders and break at 28 days. The Contractor shall be responsible for handling and transportation of cylinders.
   b. If fly ash is used in the mix, a total set of seven cylinders shall be taken. The additional three cylinders shall be laboratory cured and broken at 56 days, if the 28-day strength does not meet specifications.
   c. Make one set of test cylinders for each 100 cubic yards, or fraction of 100 cubic yards, of concrete placed; or at other times requested by the Town.
   d. Unless otherwise specified, concrete shall have a 28-day compressive strength of 4,000 psi, as demonstrated by laboratory tests of cylinders.

3.15 Protection

A. Maintain compacted aggregate base and surface true to line and grade and required density. Maintain base until pavement is placed. Maintain surface until job is complete.

B. Do not permit vehicular traffic of any kind on any HMA course until the HMA has hardened sufficiently not to be distorted beyond specified tolerances. Remove any foreign material which is on the surface of any course before the course is rolled or any subsequent course is placed.

C. Do not permit traffic on concrete pavement or walks until concrete has developed sufficient strength not to be marked or damaged. Do not permit vehicular traffic on concrete for at least 3 days.

D. Repair or replace damaged pavement and walks to the satisfaction of the Town or designee.

3.16 Cleanup

A. Clean up the job site following pavement and surfacing restoration. Remove all rubbish, excess materials, temporary structures, and equipment. Leave the work in a neat and presentable condition.

END OF SECTION 2

SECTION 3 – ADJACENT ROADWAY IMPROVEMENTS

PART 1 - GENERAL

1.01 Developers shall be responsible for improvements to the existing roadway(s) that front their property. Roadways adjacent to proposed developments shall conform to the following requirements and standards and the improvements shall include, but are not limited to, the following items:

A. Construction of acceleration lanes, deceleration lanes, and passing blisters for each entrance or street intersection as indicated in the Standard Details.

B. In order to construct adequate acceleration lanes, deceleration lanes, and passing blisters, right-of-way shall be obtained which has a width consistent with the most current accepted Thoroughfare Plan.

C. Construction of aggregate shoulders, fore-slopes, ditches, back-slopes and other drainage improvements in accordance with the Standards of Roadway Geometric Design and the Standard Details. These improvements are required along the full frontage length of all sides of the development site that front along public streets.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 3

SECTION 4 – SUBGRADE TREATMENT

PART 1 - GENERAL

1.01 General Items

A. This specification applies to all pavement types receiving subgrade treatment, including, but not limited to, roads, drives, trails, paths, sidewalks, parking areas, or any other facility designed to carry pedestrian or vehicular traffic.

B. Codes, specifications, and standards referred to by number or title shall form a part of this specification to the extent required by the reference thereto. Except as specifically modified in this specification, operations, materials and testing will comply with the most current revisions of applicable sections per the latest version of the Indiana Department of Transportation Standard Specifications (INDOTSS).

C. Soils must be tested to determine suitability for subgrade treatment, and if suitable, the method for treating the subgrade. Soils containing greater than 3% by dry weight calcium, magnesium carbonate or organic material, or with a maximum dry density of less than 100 lb/cu ft, or with liquid limit of greater than 50, will not be permitted within the specified thickness of the subgrade treatment in cut sections and will not be permitted within 24 in. of the finished subgrade elevation in fill sections. Density shall be determined in accordance with AASHTO T 99 and loss of ignition shall be determined in accordance with AASHTO T 267. Liquid limits shall be determined in accordance with AASHTO T89.

D. All rock greater than 6 in. shall be removed or broken off at least 6 in. below the subgrade surface. Holes or depressions resulting from the removal of unsuitable material shall be filled with an acceptable material and compacted to conform with the surrounding subgrade.

E. The subgrade shall be maintained in a well drained condition at all times during construction.

F. Even though the subgrade has been previously accepted, the condition of the subgrade at the time paving material is placed shall be in accordance with INDOTSS 105.03 and 207.04. Just prior to placing the base course on the subgrade, proofrolling in accordance with INDOTSS 203.26 shall be completed. If limits of the work make mechanical preparation of the subgrade impractical, appropriate hand methods may be used.

G. The subgrade treatment type shall be as specified on the plans and approved by the Town in accordance with the following:

1. Type I - 24 in. of soil compacted to density and moisture requirements

2. Type IB - 14 in. chemical soil modification.

3. Type IC - 12 in. of the subgrade excavated and replaced with coarse aggregate No. 53

4. Type II - 6 in. of subgrade excavated and replaced with coarse aggregate No. 53
5. Type IIA - 8 in. chemical soil modification
6. Type III - 6 in. of soil compacted to the density and moisture requirements
7. Type IV - 12 in. of the subgrade excavated and replaced with coarse aggregate No. 53 on geogrid (type as approved by the Town)

H. If soils different than used for the design are encountered, a third party testing laboratory shall be engaged at the Contractor's expense to test the soils encountered and specify the treatment type necessary to comply with the design.

I. Chemical soil modification materials and methods shall be specified by an independent testing laboratory, as designed, or at the contractor's expense.

J. Where the density and moisture control option is used, compaction of embankment areas shall be in accordance with INDOTSS 203.23. In cut and transition areas, the top lifts shall be removed, and the bottom 6 in. compacted in-place to comply with the specified density and moisture requirements. The excavated material shall then be replaced and compacted in 6 in. lifts to comply with the specified density and moisture requirements. Removal of the lifts may be waived and only the upper 6 in. treated in accordance with INDOTSS 207.03 when it is determined, through testing in accordance with INDOTSS 203.24, that the lower lifts comply with the specified density and moisture requirements.

K. Any areas not passing a proofroll after stabilization shall be repaired by methods acceptable to the Town, at the contractor's expense, until it passes a proofroll immediately prior to paving.

L. The subgrade condition must be approved by the Town before any stone base or pavement is placed. The final subgrade and stone base shall pass a proofroll test as directed by the Town.

END OF SECTION 4

SECTION 5 – UNDERDRAIN

PART 1 - GENERAL

1.01 Indiana Department of Transportation (INDOT) Standard Specifications, latest edition Section 715 - Pipe Culverts, and Storm and Sanitary Sewers and Section 904 – Aggregates shall apply.

A. Underdrain Pipe

1. Provide perforated corrugated polyethylene drainage pipe (PCPP) and fittings in accordance with AASHTO M252 (for 3 to 10-inch diameter) or AASHTO M294 (for 12 to 36-inch diameter).
2. For areas receiving sub-surface drainage only, provide minimum 6-inch diameter underdrain pipe.
3. For areas receiving surface and sub-surface drainage, provide minimum 12-inch diameter underdrain pipe.
4. Provide cleanout or riser structure at a maximum spacing of 500 feet.

B. Concrete Collar

1. Provide ready-mixed concrete which meets the requirements of ASTM C94. Each cubic yard of concrete shall contain the following:

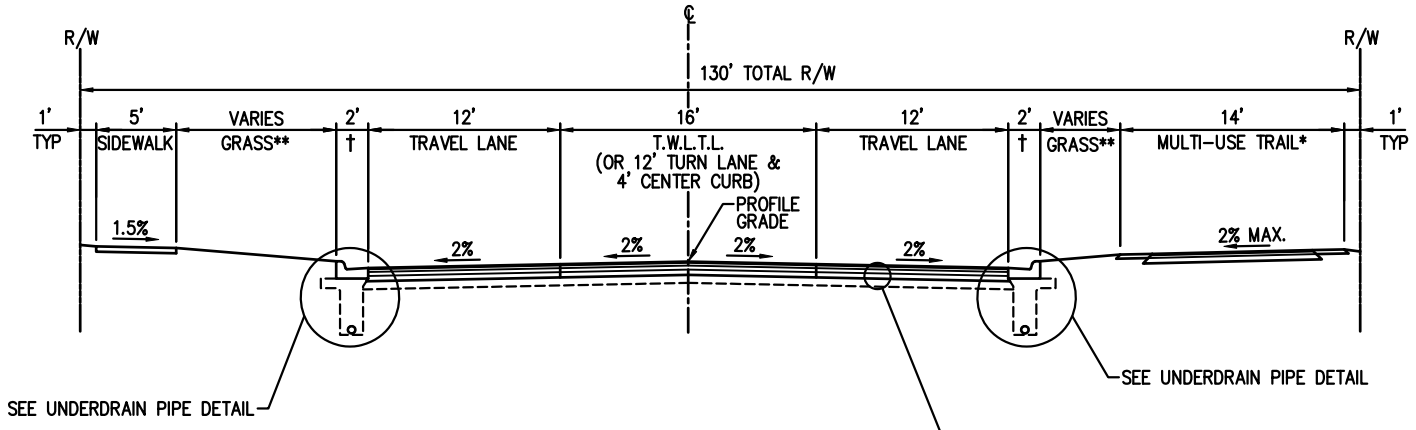
    - Cement: 6 bag minimum
    - Air content: 5 to 7 percent
    - Coarse aggregate size: 1-1/2 inches maximum
    - Slump: 3 to 5 inches
    - Compressive strength: 4,000 psi

2. Where required by the Drawings or where directed in the field, furnish and construct stub-tee connections in accordance with INDOT Standard Specification Section 715.
3. Provide cleanout or riser structure at a maximum spacing of 500 feet.

END OF SECTION 5

STANDARD DETAILS

TOWN OF NEW WHITELAND, INDIANA



MINOR ARTERIAL

NO SCALE

T.W.L.T.L. – TWO WAY LEFT TURN LANE AS DETERMINED BY TRAFFIC STUDY

* CONSTRUCT MULTI-USE TRAIL ON ONE SIDE OF ROADWAY AS DETERMINED BY THE TOWN OF NEW WHITELAND. OTHERWISE, CONSTRUCT SIDEWALK ON BOTH SIDES.

** WIDTH TO BE COORDINATED WITH TOWN.

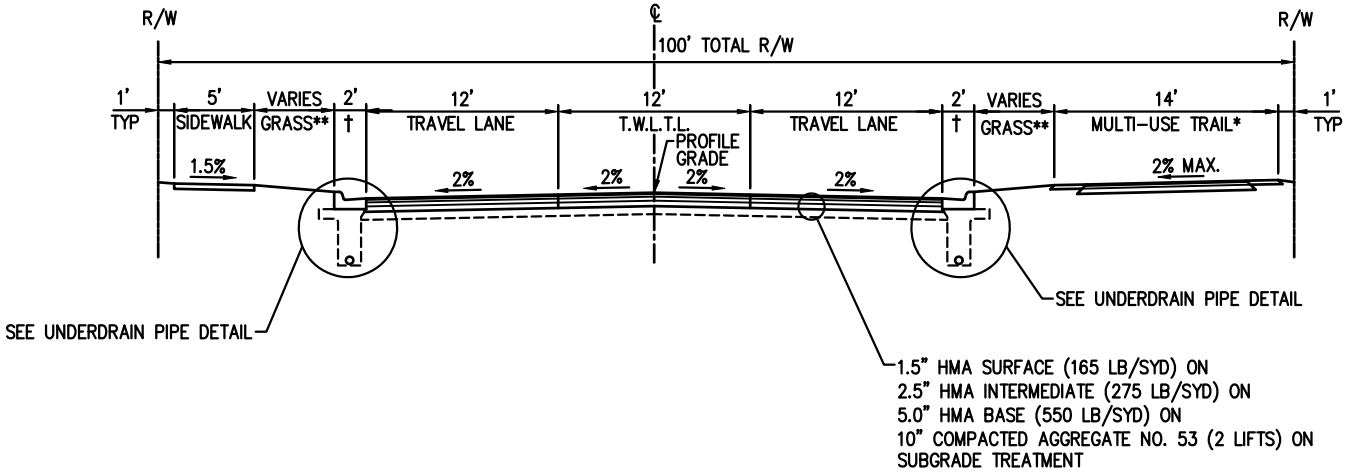
† CURB & GUTTER (SEE CONCRETE CHAIR BACK CURB & GUTTER DETAIL) ALTERNATIVELY, ROLLED CURB MAY BE APPROVED, AS DETERMINED BY THE TOWN.

NOTE: MODIFICATIONS MAY BE ALLOWED TO ACCOMMODATE ALTERNATIVE STORMWATER TREATMENTS PER THE STORMWATER ORDINANCE.

STONE SHOULDER MAY BE SUBSTITUTED FOR CURB & GUTTER ON A CASE-BY-CASE BASIS, IF APPROVED BY THE TOWN. REFER TO STANDARD DETAIL FOR LOCAL STREET WITH SHOULDERS.

DETAIL NO. RS-01
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA



MAJOR COLLECTOR

NO SCALE

T.W.L.T.L. – TWO WAY LEFT TURN LANE AS DETERMINED BY TRAFFIC STUDY

* CONSTRUCT MULTI-USE TRAIL ON ONE SIDE OF ROADWAY AS DETERMINED BY THE TOWN OF NEW WHITELAND. OTHERWISE, CONSTRUCT SIDEWALK ON BOTH SIDES.

** WIDTH TO BE COORDINATED WITH TOWN.

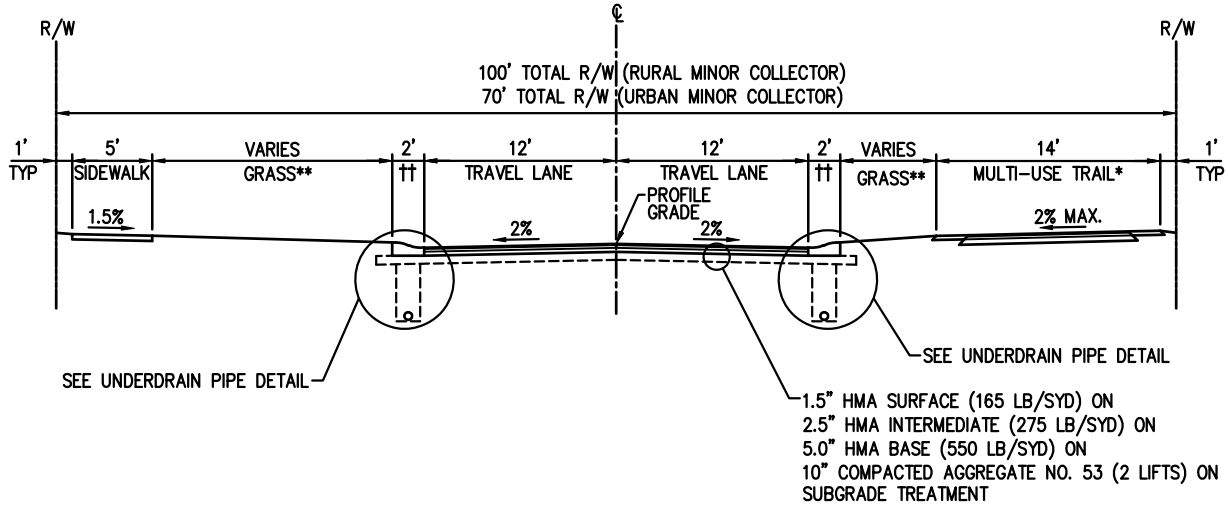
† CURB & GUTTER (SEE CONCRETE CHAIR BACK CURB & GUTTER DETAIL) ALTERNATIVELY, ROLLED CURB MAY BE APPROVED, AS DETERMINED BY THE TOWN.

NOTE: MODIFICATIONS MAY BE ALLOWED TO ACCOMMODATE ALTERNATIVE STORMWATER TREATMENTS PER THE STORMWATER ORDINANCE.

STONE SHOULDER MAY BE SUBSTITUTED FOR CURB & GUTTER ON A CASE-BY-CASE BASIS, IF APPROVED BY THE TOWN. REFER TO STANDARD DETAIL FOR LOCAL STREET WITH SHOULDERS.

DETAIL NO. RS-02
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA



MINOR COLLECTOR

NO SCALE

* CONSTRUCT MULTI-USE TRAIL ON ONE SIDE OF ROADWAY AS DETERMINED BY THE TOWN OF NEW WHITELAND. OTHERWISE, CONSTRUCT SIDEWALK ON BOTH SIDES.

** WIDTH TO BE COORDINATED WITH TOWN.

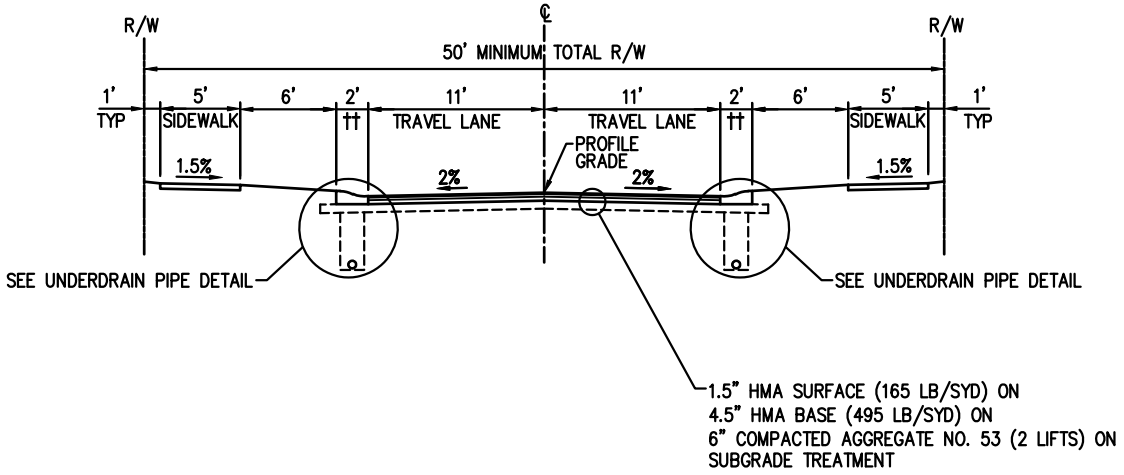
†† CURB & GUTTER (SEE CONCRETE ROLL CURB & GUTTER DETAIL)

NOTE: MODIFICATIONS MAY BE ALLOWED TO ACCOMMODATE ALTERNATIVE STORMWATER TREATMENTS PER THE STORMWATER MANAGEMENT ORDINANCE.

STONE SHOULDER MAY BE SUBSTITUTED FOR CURB & GUTTER ON A CASE-BY-CASE BASIS, IF APPROVED BY THE TOWN. REFER TO STANDARD DETAIL FOR LOCAL STREET WITH SHOULDERS.

DETAIL NO. RS-03
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA



LOCAL STREET

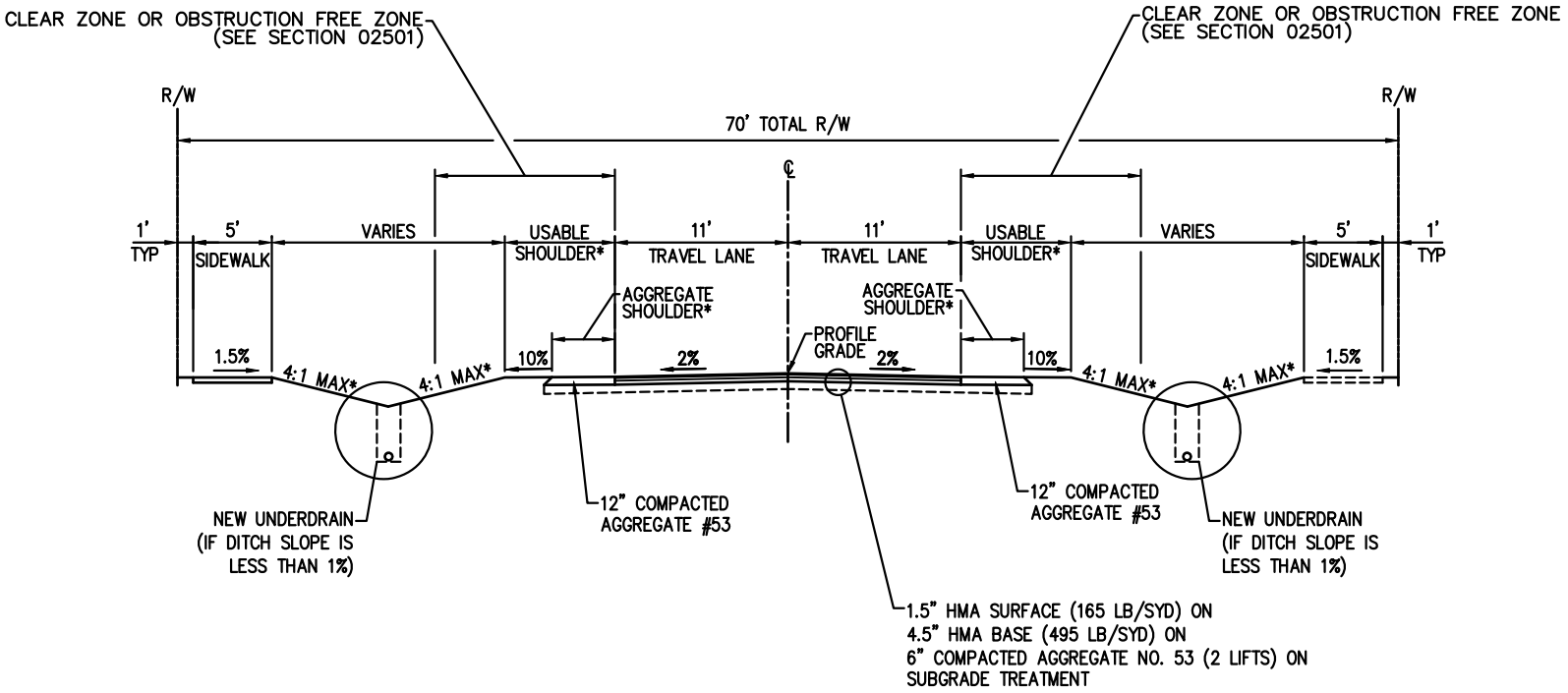
NO SCALE

†† CURB & GUTTER (SEE CONCRETE ROLL CURB & GUTTER DETAIL)

NOTE: MODIFICATIONS MAY BE ALLOWED TO ACCOMMODATE ALTERNATIVE STORMWATER TREATMENTS PER THE STORMWATER MANAGEMENT ORDINANCE.

DETAIL NO. RS-04
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA



LOCAL STREET WITH SHOULDERS

NO SCALE

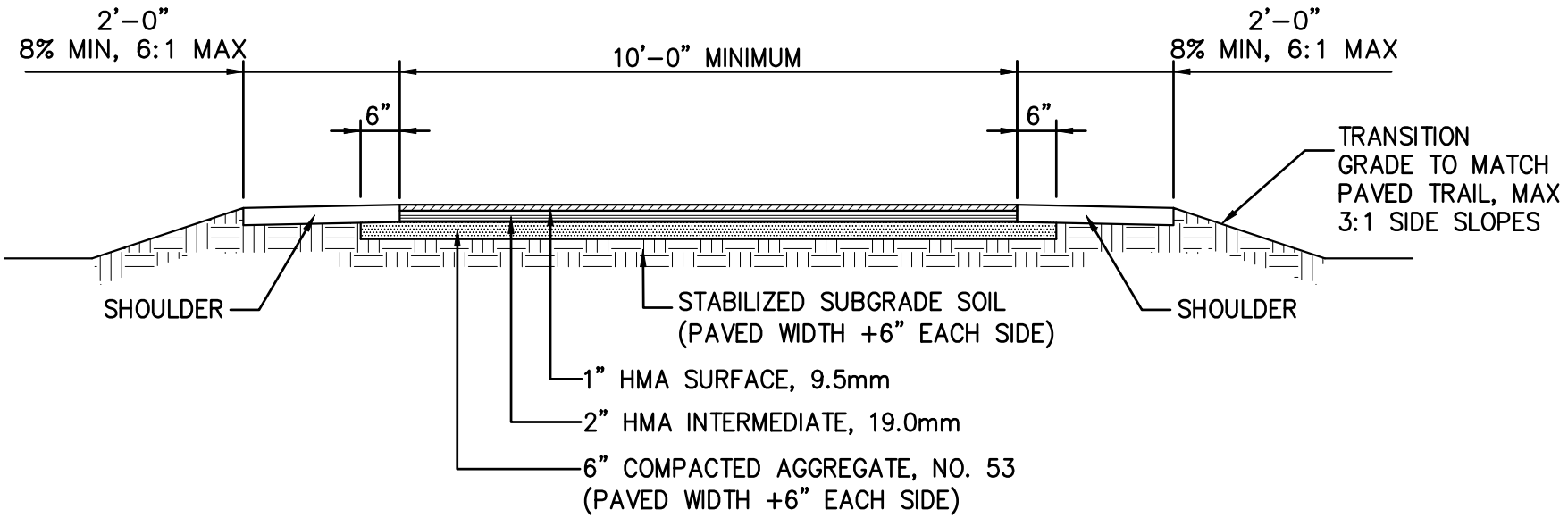
* SEE DETAIL TR-14

NOTES:

1. 5' SIDEWALK REQUIRED ON ONE SIDE, MINIMUM. TO BE DETERMINED BY THE TOWN.
2. THIS DETAIL SHALL BE UTILIZED ONLY IN SPECIAL UNIQUE CIRCUMSTANCES AND ONLY IF APPROVED BY THE TOWN.

DETAIL NO. RS-05
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA

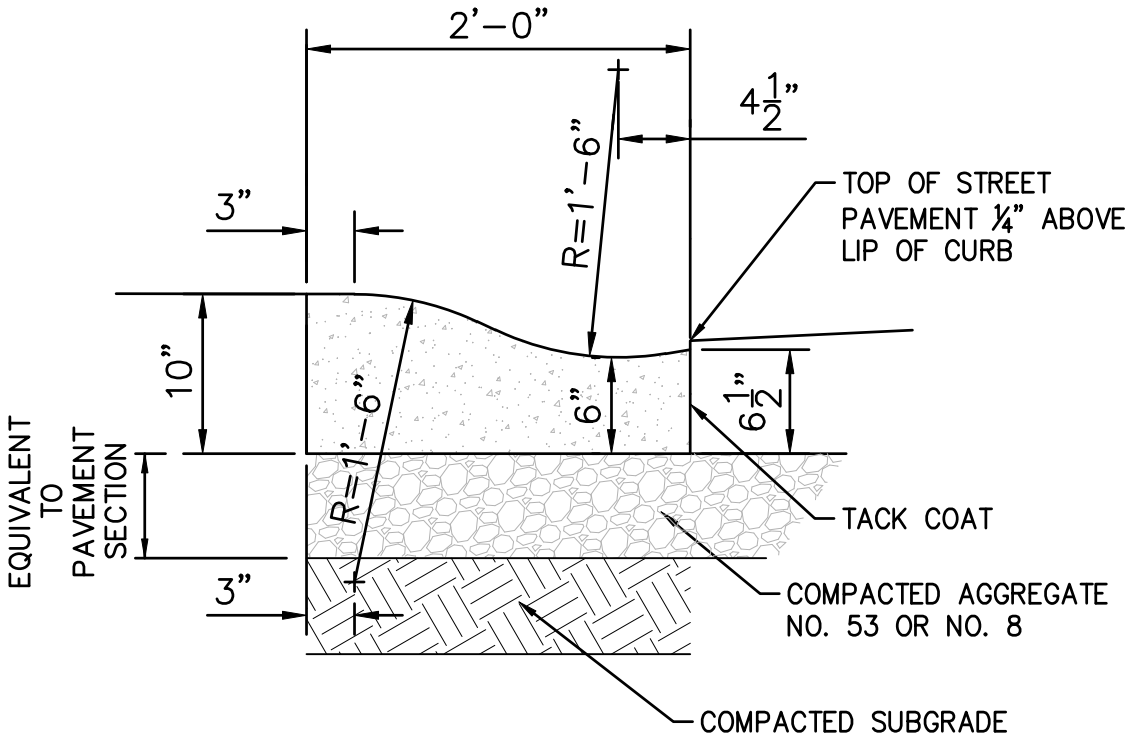


NOTE: CROSS SLOPE SHALL BE 1% TO 2%

TYPICAL TRAIL CROSS SECTION

SCALE: NONE

DETAIL NO. RS-06
DATE: JUNE 2020
REV DATE: –



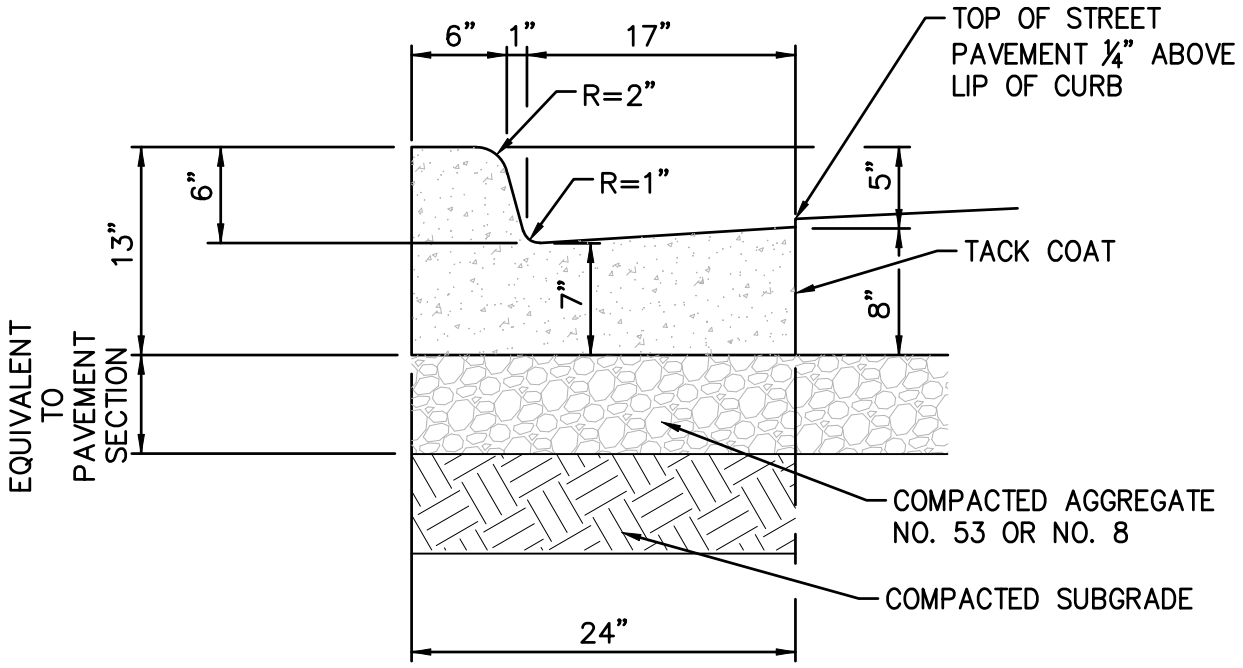
CONCRETE CURBS SHALL BE STAMPED TO INDICATE UTILITY LOCATIONS AS FOLLOWS:

- G = GAS
- C = CONDUIT
- SS = SEWER SERVICE LATERAL
- MH = MANHOLE BEHIND CURB
- W = WATER
- V = WATER VALVE
- ST = STORM

CONCRETE ROLL CURB & GUTTER

SCALE: NONE

DETAIL NO. TR–01
DATE: JUNE 2020
REV DATE: –



CONCRETE CURBS SHALL BE STAMPED TO INDICATE
UTILITY LOCATIONS AS FOLLOWS:

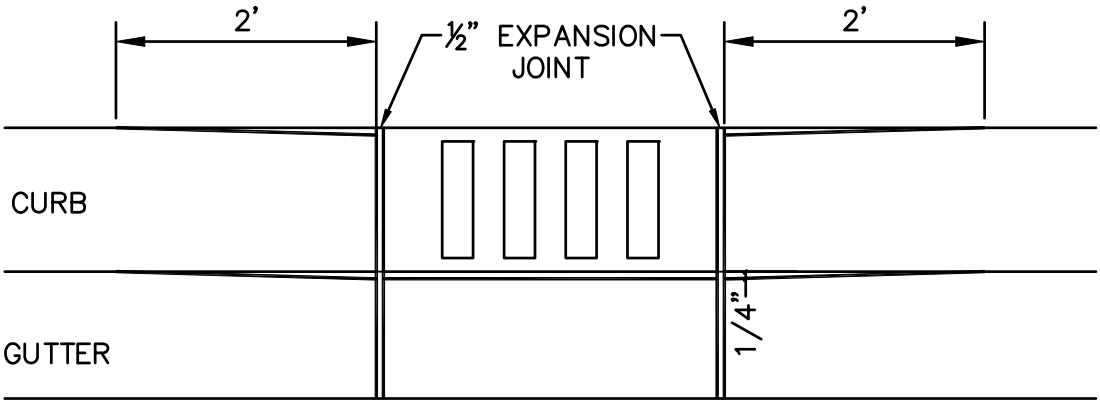
G = GAS
C = CONDUIT
SS = SEWER SERVICE LATERAL
MH = MANHOLE BEHIND CURB
W = WATER
V = WATER VALVE
ST = STORM

CONCRETE CHAIR BACK CURB & GUTTER

SCALE: NONE

DETAIL NO. TR-02
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA



NOTE:

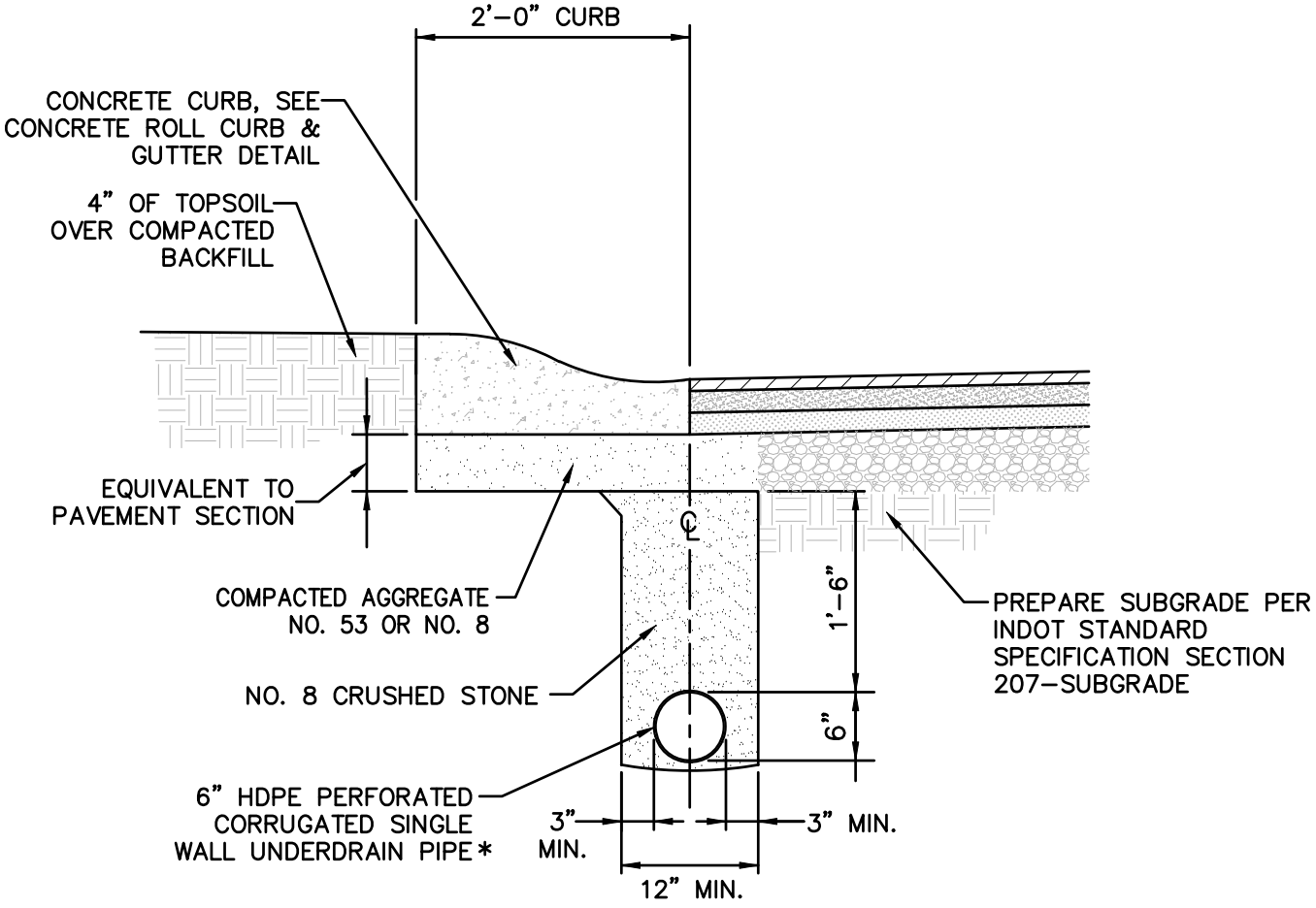
INLET FLOW LINE SHALL BE INSTALLED 1/4 IN. BELOW ADJACENT GUTTER FLOWLINES.

CURB INLET DETAIL

SCALE: NONE

DETAIL NO. TR-03
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA



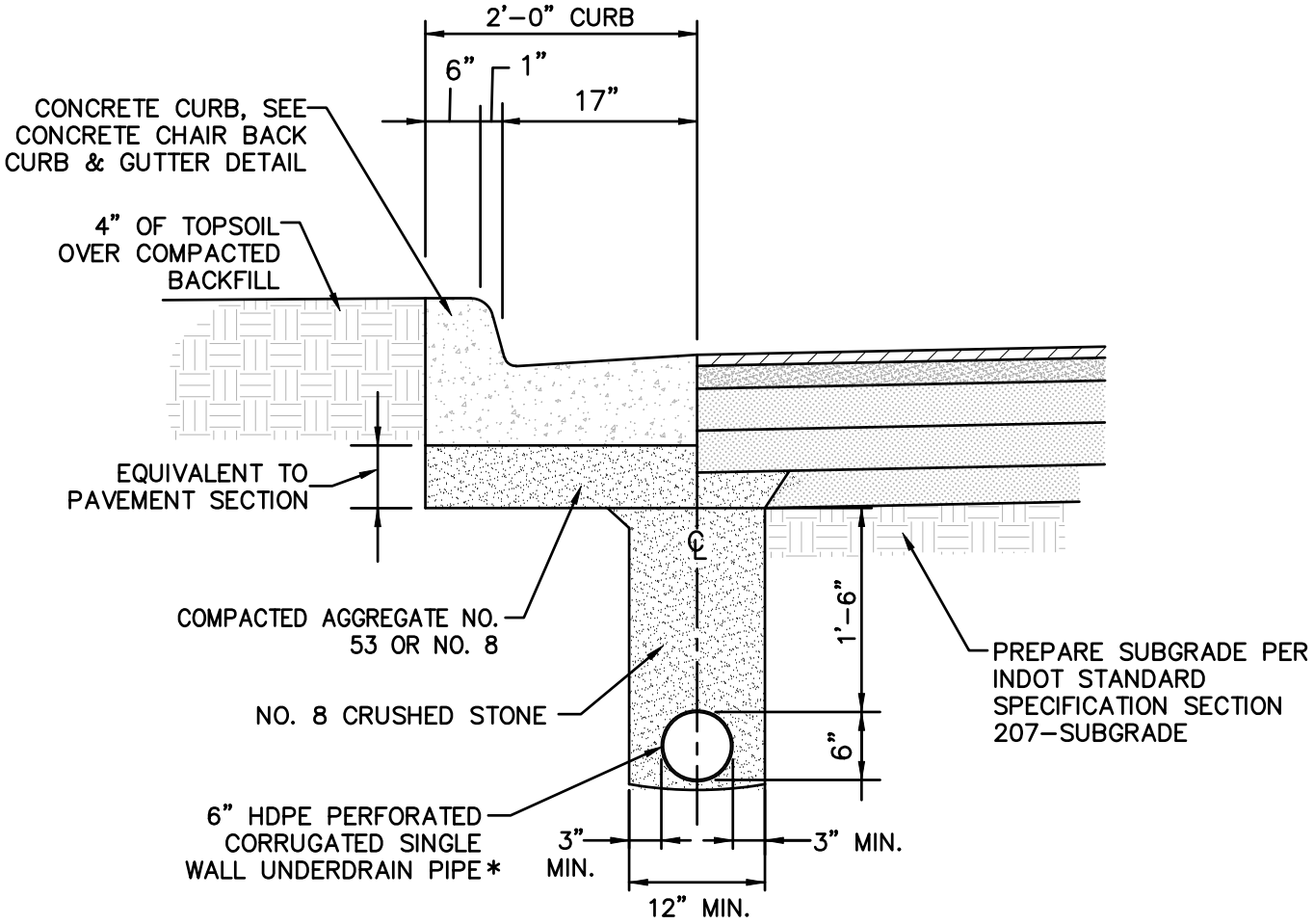
* UNDERDRAIN CANNOT BE INSTALLED UNTIL AFTER THE ROADWAY SUBGRADE HAS BEEN APPROVED.

UNDERDRAIN PIPE DETAIL ROLL CURB

SCALE: NONE

DETAIL NO. TR–04
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA



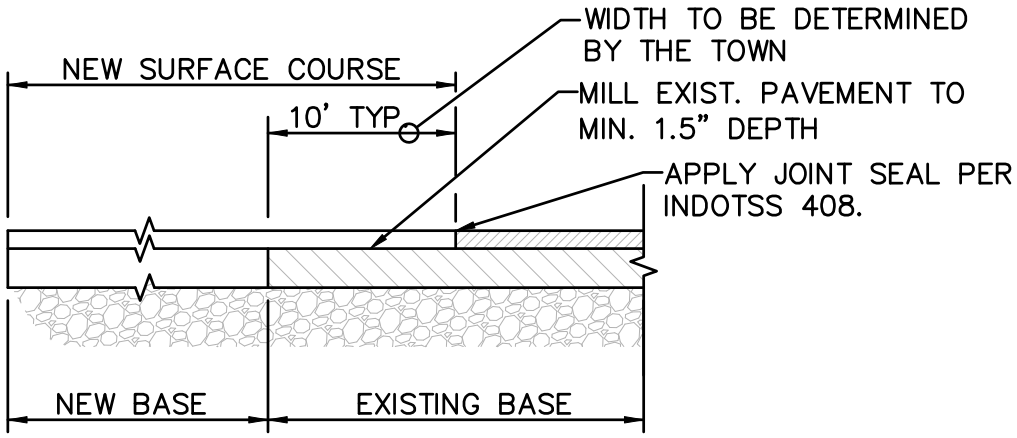
* UNDERDRAIN CANNOT BE INSTALLED UNTIL AFTER THE ROADWAY SUBGRADE HAS BEEN APPROVED.

UNDERDRAIN PIPE DETAIL CHAIR BACK CURB

SCALE: NONE

DETAIL NO. TR–05
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA



NOTE:

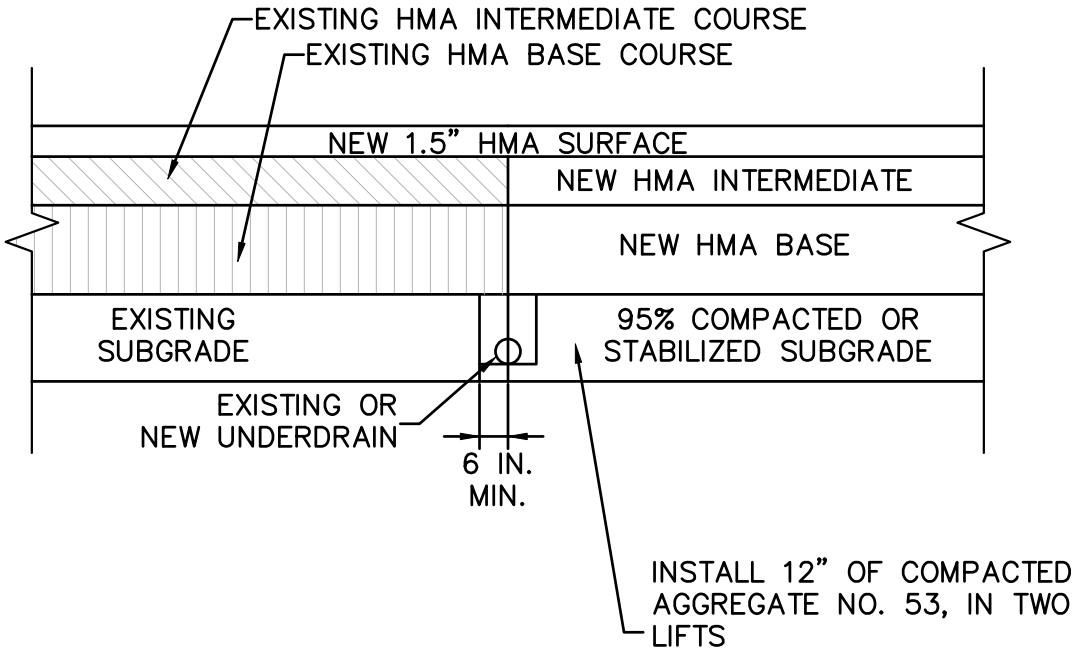
THIS DETAIL SHALL BE USED FOR CONNECTING TO THE END OF AN EXISTING STREET.

EXISTING PAVEMENT SHALL BE SAW CUT, FULL DEPTH, AT A UNIFORM LOCATION INSIDE OF THE EXISTING EDGE OF PAVEMENT, WHERE THE PAVEMENT IS IN GOOD CONDITION AND WILL PROVIDE AN INTERFACE WITH THE FULL PAVEMENT SECTION LINE AND GRADE, FREE FROM LOOSE, DAMAGED, DETERIORATED OR OTHERWISE COMPROMISED MATERIAL; A MINIMUM OF SIX (6) INCHES FROM THE EXISTING EDGE OF PAVEMENT FOR THE FULL WIDTH OF THE EXISTING PAVEMENT; LOCATION OF SAW-CUT TO BE DETERMINED BY THE TOWN. THE ENTIRE AREA OF THE PROPOSED INTERFACE SHALL BE EXCAVATED TO THE PROPOSED SUBGRADE ELEVATION. THE SUBGRADE SHALL BE STABILIZED IN ACCORDANCE WITH TOWN OF NEW WHITELAND STANDARDS AND SPECIFICATIONS. AFTER THE SUBGRADE HAS BEEN STABILIZED AND APPROVED, EXISTING HMA PAVEMENT WILL BE SURFACE MILLED 10 FEET ALONG THE NEW SAW-CUT END OF PAVEMENT TO PROVIDE A WATER STOP AND SMOOTH TRANSITION TO THE NEW PAVEMENT WHEN THE SURFACE MIX IS APPLIED. THE NEW PAVEMENT SECTION SHALL BE INSTALLED IN ACCORDANCE WITH TOWN STANDARDS AND SPECIFICATIONS.

CONNECTION TO EXISTING STREETS

SCALE: NONE

DETAIL NO. TR-06
DATE: JUNE 2020
REV DATE: -



NOTE:

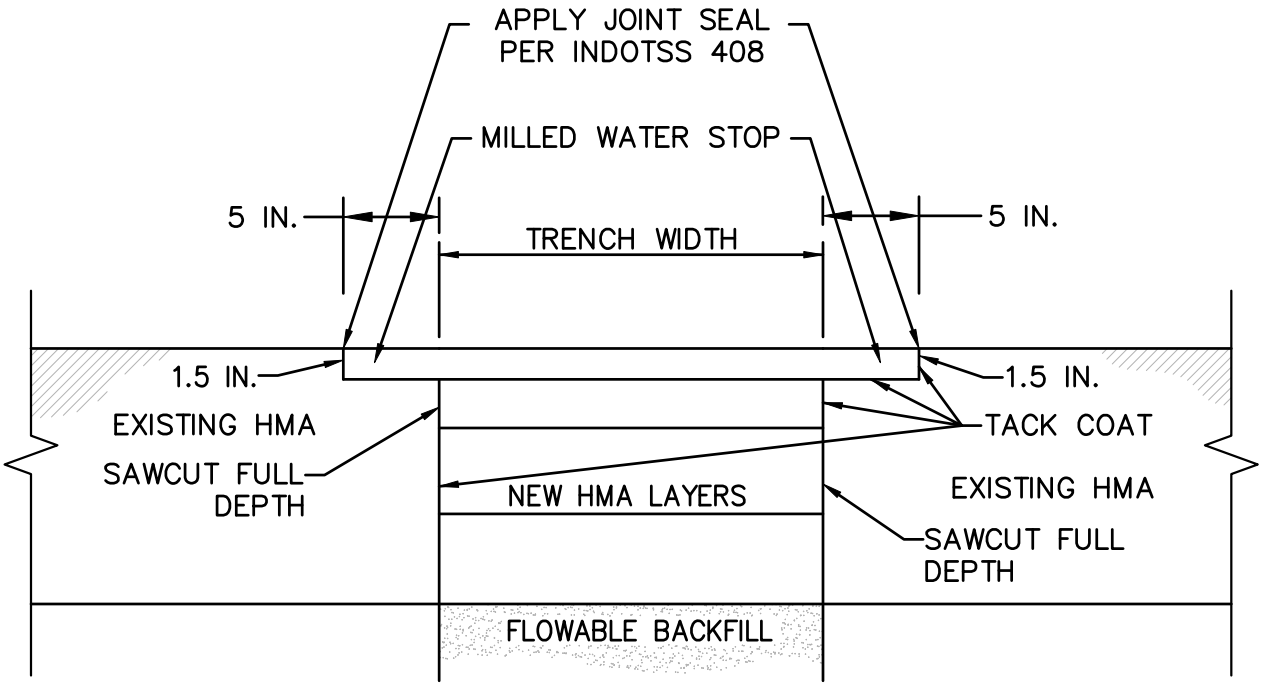
THIS DETAIL SHALL BE USED FOR ADDING PAVEMENT ADJACENT TO EXISTING PAVEMENT, INCLUDING WIDENING, ADDING PASSING BLISTERS, ACCELERATION AND DECELERATION LANES, AND FOR NEW ROAD APPROACHES. SEE ROAD CLASSIFICATION DETAILS IN THE TOWN STANDARDS AND SPECIFICATIONS FOR THE SPECIFIC PAVEMENT SECTION FOR THE ROADWAY CLASSIFICATION AS DESIGNATED IN THE COMPREHENSIVE PLAN.

EXISTING PAVEMENT SHALL BE SAW CUT, FULL DEPTH, AT A UNIFORM LOCATION ON THE EXISTING PAVEMENT, WHERE THE PAVEMENT IS IN GOOD CONDITION AND WILL PROVIDE AN INTERFACE WITH THE FULL PAVEMENT SECTION LINE AND GRADE, FREE FROM LOOSE, DAMAGED, DETERIORATED OR OTHERWISE COMPROMISED MATERIAL: A MINIMUM OF SIX (6) INCHES FROM EXISTING EDGE OF PAVEMENT FOR THE FULL LENGTH OF THE PROPOSED WIDENING; LOCATION OF SAWCUT TO BE DETERMINED BY THE TOWN. THE ENTIRE AREA OF THE PROPOSED WIDENING SHALL BE EXCAVATED TO THE PROPOSED SUBGRADE ELEVATION. THE SUBGRADE SHALL BE STABILIZED IN ACCORDANCE WITH TOWN OF NEW WHITELAND STANDARDS AND SPECIFICATIONS. AFTER THE SUBGRADE HAS BEEN STABILIZED AND APPROVED, A SIX (6) INCH UNDERDRAIN SHALL BE INSTALLED IN THE SUBGRADE ADJACENT TO THE NEW EDGE OF EXISTING PAVEMENT SECTION, IF ONE DOES NOT ALREADY EXIST. THE NEW UNDERDRAIN SHALL OUTLET INTO AN EXISTING DITCH OR STORM DRAIN, AS APPROVED BY THE TOWN. IF THERE IS AN EXISTING UNDERDRAIN, IT SHALL BE PROTECTED DURING OPERATIONS AND THE STONE FOR THE TRENCH EXTENDED TO THE BOTTOM OF THE NEW PAVEMENT SECTION. EXISTING HMA PAVEMENT WILL BE SURFACE MILLED FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT (FULL WIDTH) FOR THE ENTIRE LENGTH OF THE WIDENING. WEDGING AS NECESSARY AND SURFACE MIX SHALL BE INSTALLED OVER THE ENTIRE AREA. THE NEW PAVEMENT SECTION SHALL BE INSTALLED IN ACCORDANCE WITH TOWN STANDARDS AND SPECIFICATIONS.

WIDENING DETAIL

SCALE: NONE

DETAIL NO. TR–07
DATE: JUNE 2020
REV DATE: –



NOTE:

TRENCH SHALL BE SAW-CUT FULL DEPTH THROUGH PAVEMENT SECTION FOR THE ENTIRE LENGTH OF THE TRENCH, ON ALL SIDES WITHIN THE PAVEMENT. IF EDGES OF THE EXISTING PAVEMENT ARE CHIPPED OR DAMAGED AS A RESULT OF THE TRENCH PROJECT, GREATER THAN THE WATER STOP MILLED AREA, THE DAMAGED PAVEMENT SHALL BE MILLED OR FULL DEPTH SAW-CUT AND REMOVED BEYOND THE DAMAGED EDGE FOR THE ENTIRE LENGTH OF THE TRENCH, TO THE SATISFACTION OF THE TOWN OR THE TOWN'S ENGINEER.

FLOWABLE BACKFILL, PER THE TOWN'S SPECIFICATION, SHALL BE USED TO BACKFILL THE TRENCH TO THE BOTTOM OF THE PAVEMENT SECTION. 5 INCHES ON ALL SIDES OF THE TRENCH SHALL BE SURFACE MILLED 1.5 INCHES DEEP TO CREATE A WATER STOP. ALL SURFACES TO RECEIVE HMA SHALL BE TACK COATED. A PAVEMENT SECTION APPROVED BY THE TOWN SHALL BE INSTALLED TO TOWN STANDARDS AND SPECIFICATIONS.

HMA PAVEMENT TRENCH REPAIR DETAIL

SCALE: NONE

DETAIL NO. TR-08
DATE: JUNE 2020
REV DATE: -

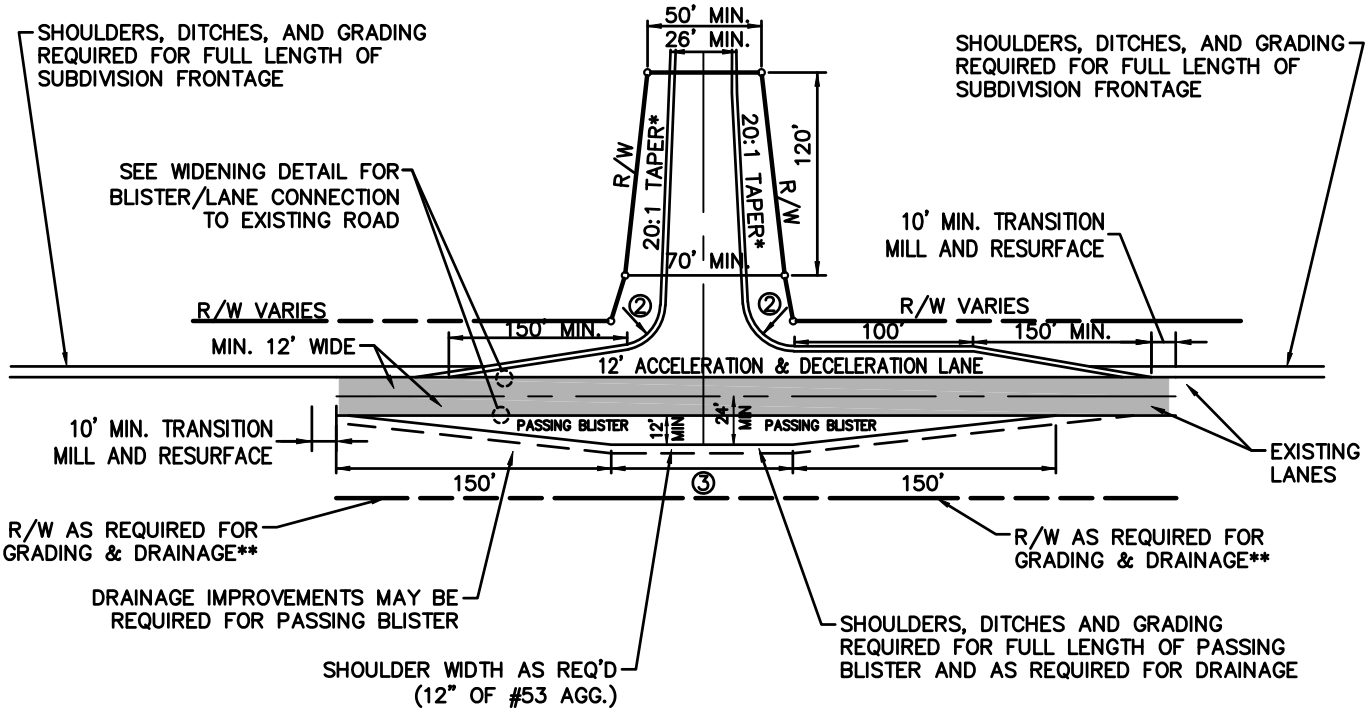
① PASSING BLISTER SHALL BE REQUIRED. IF INSUFFICIENT RIGHT-OF-WAY CAN NOT BE ACQUIRED THE TOWN MAY AT ITS DISCRETION MODIFY THE PASSING BLISTER.

② MINIMUM ENTRANCE RADIUS REQUIREMENTS:
RESIDENTIAL = 40'
COMMERCIAL/INDUSTRIAL,
ARTERIAL, COLLECTOR = 50'

③ MINIMUM PASSING BLISTER LENGTH REQUIREMENTS:
RESIDENTIAL = 100'
COMMERCIAL/INDUSTRIAL,
ARTERIAL, COLLECTOR = 150'

NOTE:
THIS DRAWING REPRESENTS THE MINIMUM STANDARDS FOR AN ENTRANCE. LARGER AND/OR LONGER ACCELERATION AND DECELERATION LANES SHALL BE REQUIRED BASED UPON THE ROADWAY CLASSIFICATION AND POSTED SPEED LIMIT TO ADEQUATELY SERVE THE ANTICIPATED TYPES AND VOLUMES OF TRAFFIC GENERATED BY SPECIFIC DEVELOPMENTS. LENGTH OF ACCELERATION AND DECELERATION LANES MAY BE MODIFIED WHEN WARRANTED AT THE DISCRETION OF THE TOWN COUNCIL.

* TAPER AS NEEDED FOR DESIGN VEHICLE
** DEVELOPER REQUIRED TO PROVIDE ADEQUATE RIGHT-OF-WAY FOR PASSING BLISTER & DRAINAGE IMPROVEMENTS



ROADWAY IMPROVEMENT REQUIREMENTS:

A) THE MAIN ROAD SHALL BE RECONSTRUCTED FOR THE ENTIRE LENGTH OF THE PASSING BLISTER AND ACCEL/DECEL LANE IMPROVEMENTS. ALTERNATIVELY, DEPENDENT UPON THE EXISTING PAVEMENT THICKNESS, WIDTH AND CONDITION, AS DETERMINED BY A GEOTECHNICAL INVESTIGATION, PAVEMENT IMPROVEMENT RECOMMENDATIONS FROM A REGISTERED P.E. EXPERIENCED IN PAVEMENT DESIGN MAY BE CONSIDERED FOR APPROVAL. SAW CUT EXISTING ASPHALT PAVEMENT AT THE LIMITS OF CONSTRUCTION OF THE ACCEL/DECEL LANES AND PASSING BLISTER. ALL EXISTING ASPHALT PAVEMENT SHALL BE REMOVED THROUGH THE LENGTH OF WIDENING. IF THE EXISTING PAVEMENT DOES NOT MEET THE MINIMUM PAVEMENT SECTIONS FOR THE ROADWAY CLASSIFICATION DESIGNATED IN THE COMPREHENSIVE PLAN THE GEOTECHNICAL ENGINEER MAY RECOMMEND A MODIFICATION TO THE EXISTING PAVEMENT TO MEET THIS EQUIVALENT ROADWAY CLASSIFICATION. PREPARE SUBGRADE FOR NEW PASSING BLISTER, ACCELERATION & DECELERATION LANES, AND MAIN ROADWAY ACCORDING TO THE REQUIREMENTS OF THE TOWN OF NEW WHITELAND STANDARD DETAILS. ASPHALT PAVING OF THE PASSING BLISTER AND ACCELERATION AND DECELERATION LANES SHALL MEET THE MINIMUM REQUIREMENTS OF THE TOWN OF NEW WHITELAND. ASPHALT THICKNESS OF THE MAIN ROAD LANES SHALL MEET THE MINIMUM REQUIREMENTS OF THE TOWN OF NEW WHITELAND, OR MATCH THE DEPTH OF EXISTING ASPHALT, WHICHEVER IS GREATER. MILL EXISTING ROAD 1.5" DEEP A MINIMUM OF 10' BEYOND THE ROADWAY REPLACEMENT LIMITS AT EACH END. CONTINUE 1.5" HMA SURFACE PAVING OVER THE MILLED AREA TO PROVIDE A SMOOTH TRANSITION BETWEEN NEW AND EXISTING ASPHALT PAVEMENT. CURBING OR A MINIMUM TWO (2) FOOT STONE SHOULDER (12" DEPTH #53 STONE) SHALL BE EXTENDED THE ENTIRE LENGTH OF THE ACCELERATION AND DECELERATION LANES. IMPROVEMENTS SHALL BE MADE AS NECESSARY TO PROVIDE APPROPRIATE DRAINAGE WHERE THE PASSING BLISTER IS CONSTRUCTED. ADDITIONAL RIGHT-OF-WAY SHALL BE ACQUIRED AS NECESSARY TO CONSTRUCT PROPER DRAINAGE IMPROVEMENTS AT PASSING BLISTER.

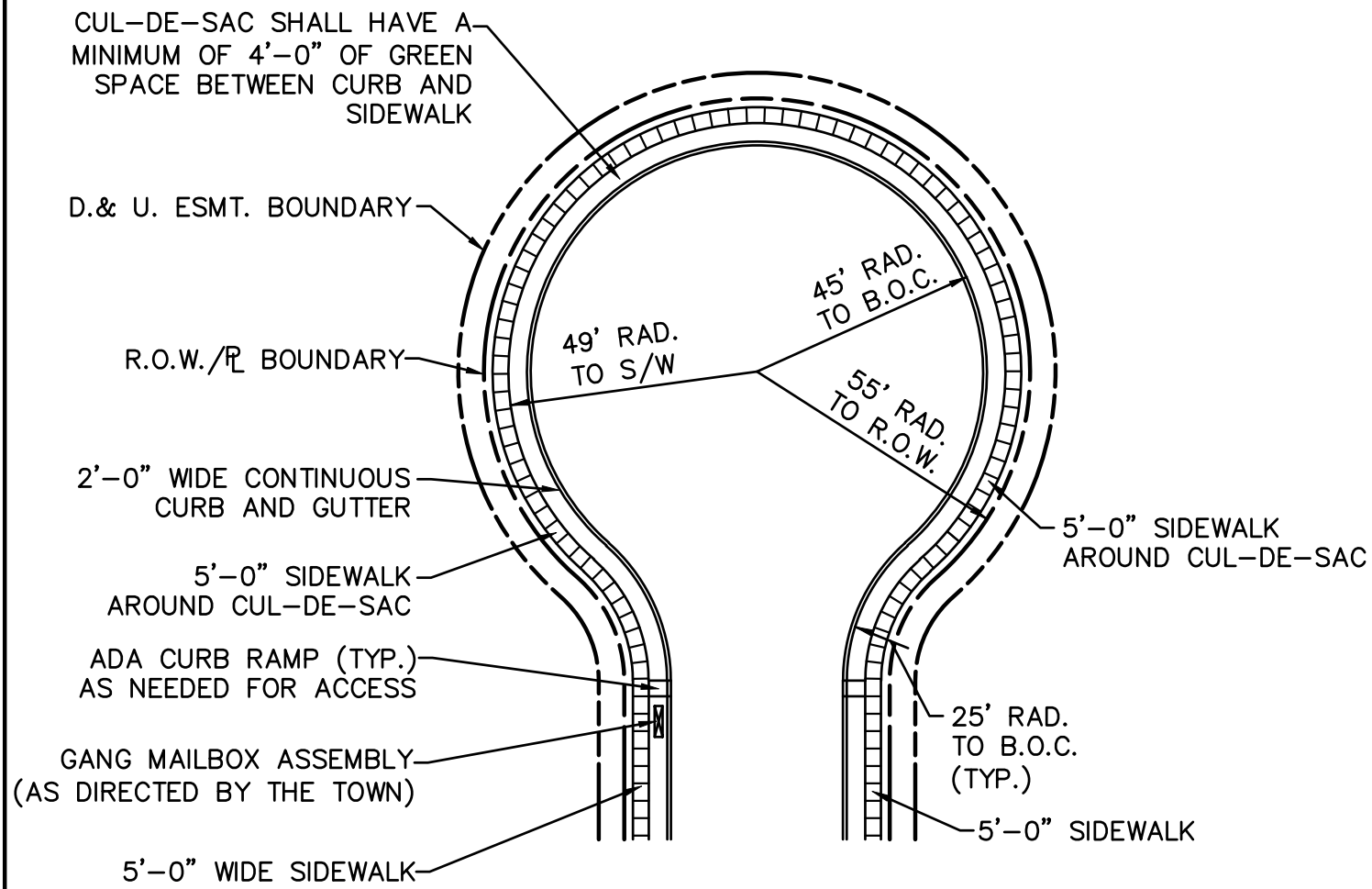
B) THE MAIN ROAD FRONTAGE OUTSIDE THE ENTRANCE ACCELERATION/DECELERATION LANES SHALL HAVE A MINIMUM TWO (2) FOOT STONE SHOULDER INSTALLED THE ENTIRE LENGTH OF THE DEVELOPMENT.

MAJOR COMMERCIAL AND SUBDIVISION ENTRANCE REQUIREMENTS

SCALE: NONE

DETAIL NO. TR-09
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA

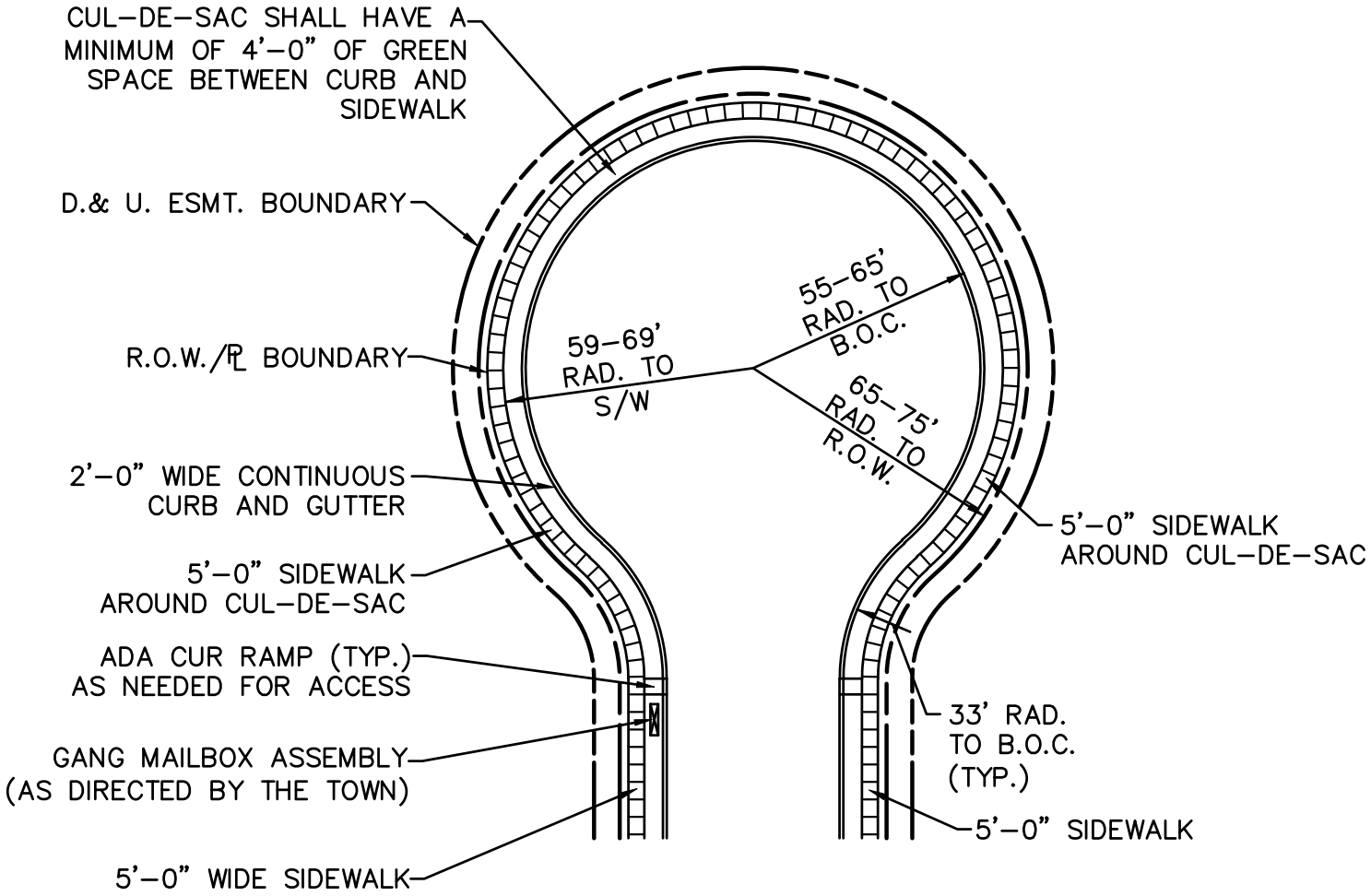


LOCAL STREET CUL–DE–SAC

SCALE: NONE

DETAIL NO. TR–10
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA

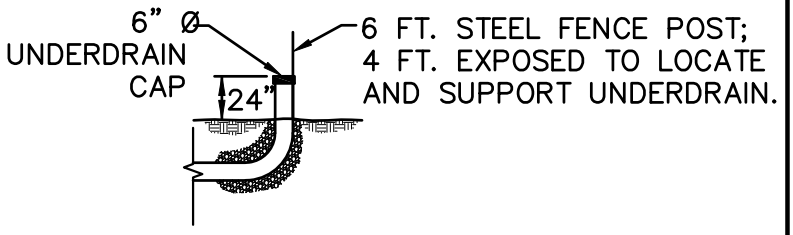


NOTE:
ALTERNATIVES TO THE RADII SHOWN MAY BE CONSIDERED BY THE TOWN ON A CASE–BY–CASE BASIS DEPENDENT UPON DESIGN VEHICLE, WITH INPUT FROM THE FIRE DEPARTMENT AND THE SCHOOL SYSTEM.

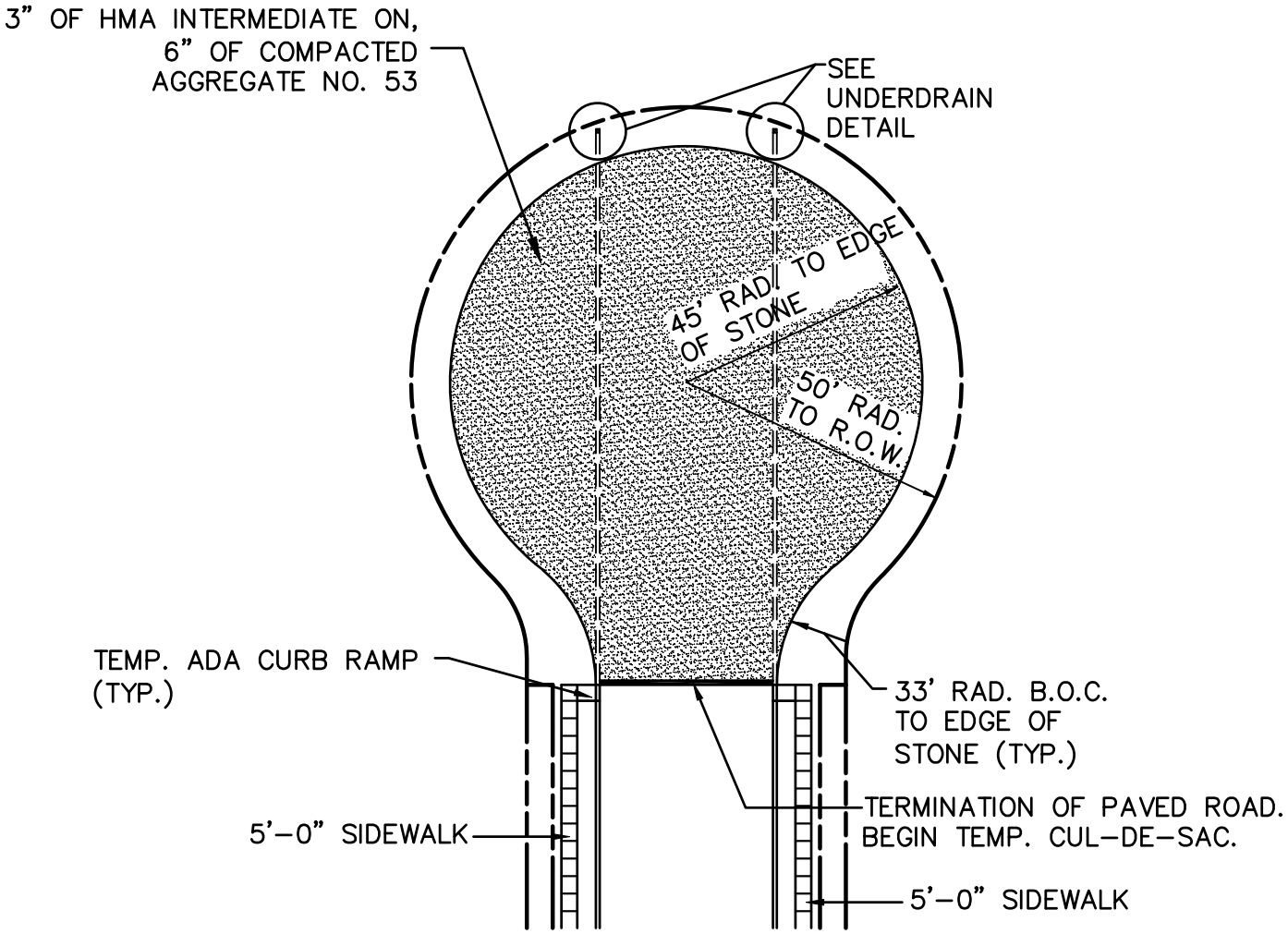
COMMERCIAL & INDUSTRIAL CUL–DE–SAC

SCALE: NONE

DETAIL NO. TR–11
DATE: JUNE 2020
REV DATE: –



6" Ø UNDERDRAIN DETAIL



NOTE:

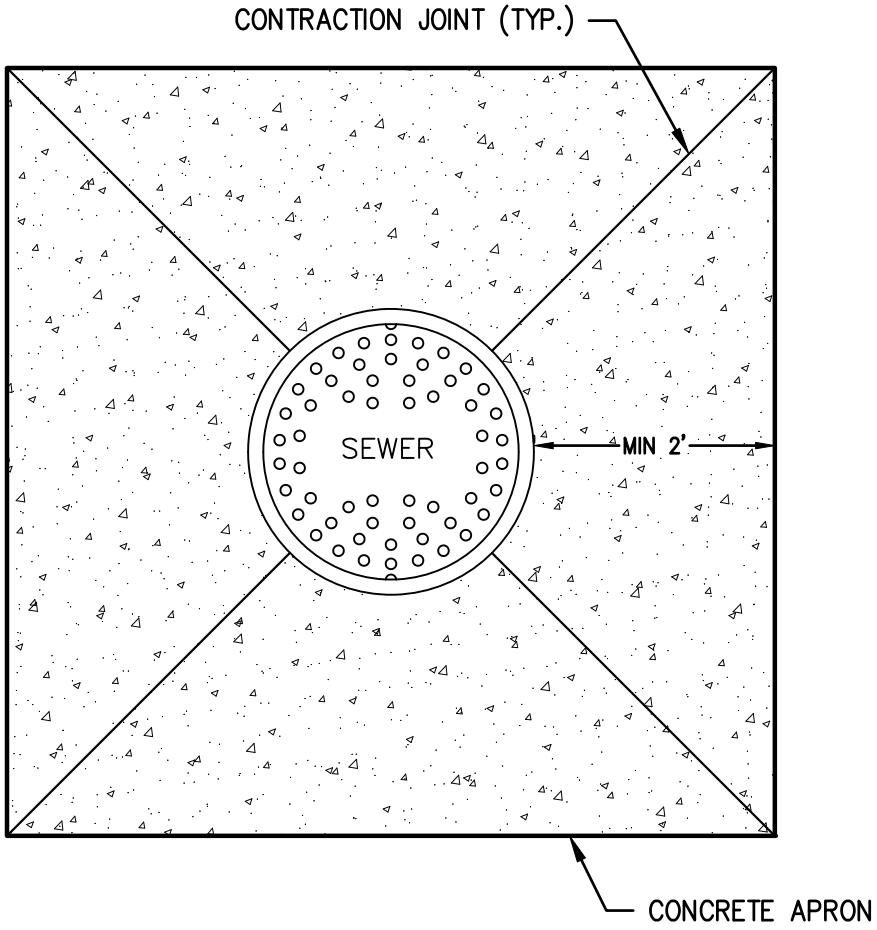
DESIGN AND CONSTRUCTION OF TEMPORARY CUL-DE-SAC MUST PROVIDE APPROPRIATE DRAINAGE TO PREVENT PONDING.

TEMPORARY CUL-DE-SAC

SCALE: NONE

DETAIL NO. TR-12
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA



NOTE:

1. PCCP JOINTS SHALL BE IN ACCORDANCE WITH INDOTSS 503.

2. APPLY JOINT SEAL PER INDOTSS 408 TO ALL PERIMETER AND PER INDOTSS 503.05 FOR PCCP JOINTS.

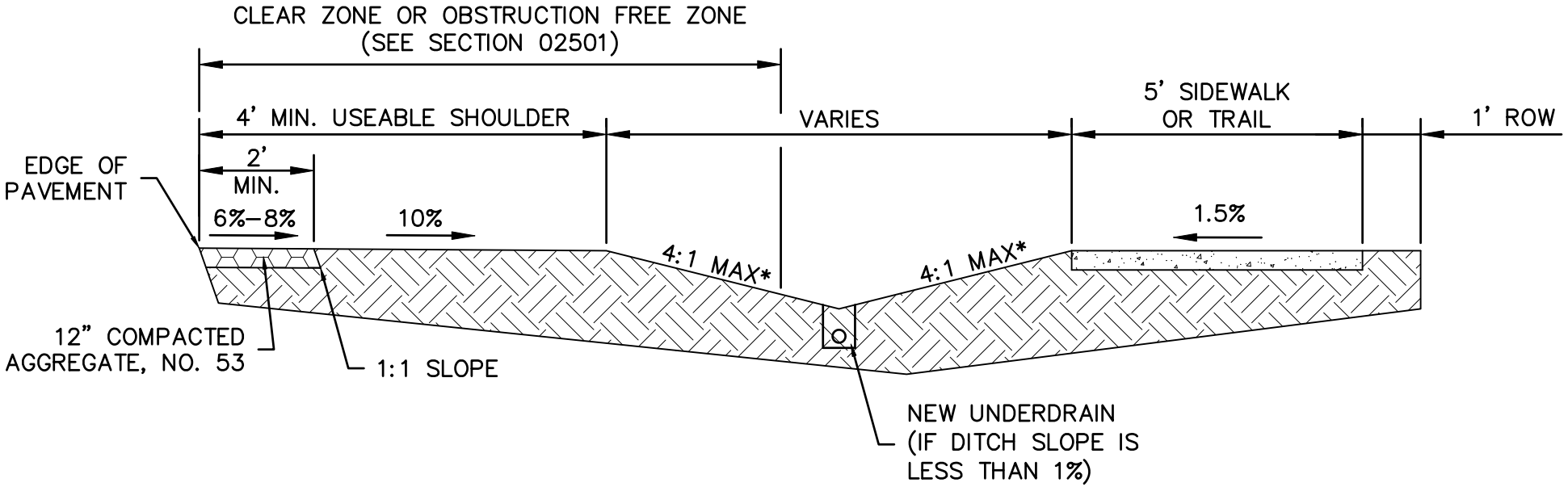
CONCRETE APRON AT SEWER STRUCTURES

SCALE: NONE

DETAIL NO. TR–13
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA

TOWN OF NEW WHITELAND, INDIANA



*3:1 MAX IS ALLOWABLE OUTSIDE THE CLEAR ZONE OR OBSTRUCTION FREE ZONE.

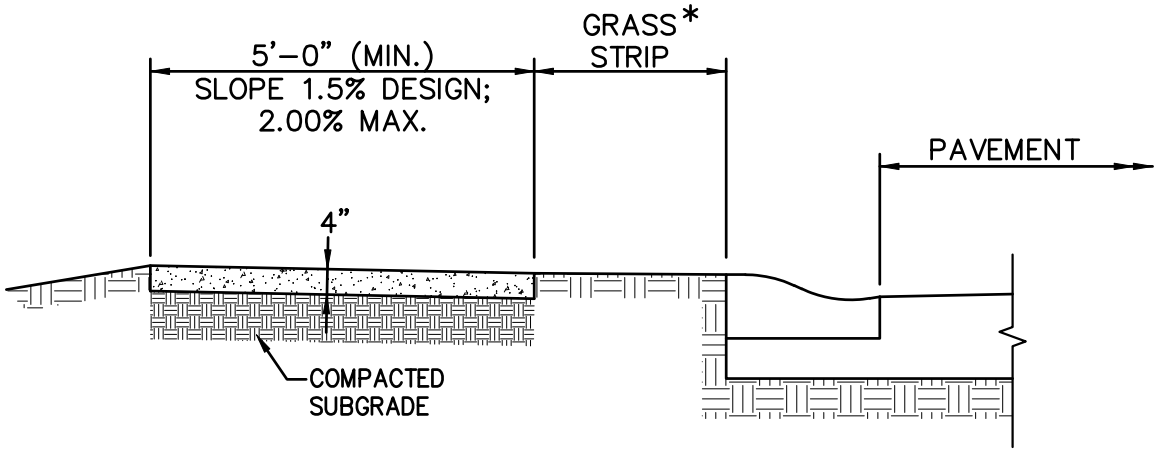
NOTE:

1. SHOULDERS, DITCHES, GRADING AND SIDEWALK (OR TRAIL) ARE REQUIRED FOR THE FULL LENGTH OF ALL SUBDIVISION FRONTAGES.
2. SHOULDER AND OBSTRUCTION FREE ZONE OR CLEAR ZONE SHALL BE DESIGNED BASED ON THE ROAD FUNCTIONAL CLASSIFICATION, AADT AND SPEED LIMIT.

ROADSIDE DITCH SECTION

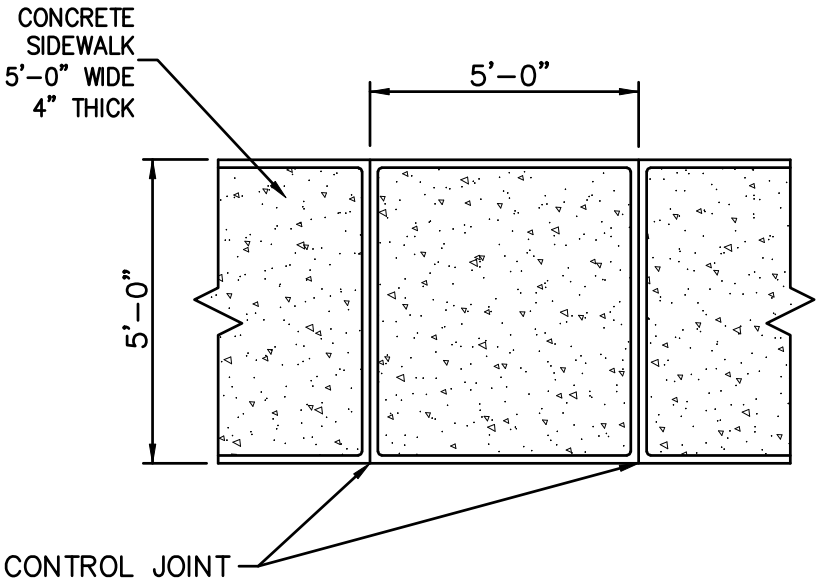
SCALE: NONE

DETAIL NO. TR-14
DATE: JUNE 2020
REV DATE: –



SIDEWALK WITH UTILITY STRIP

*GRASS STRIP WIDTH SHALL COMPLY WITH THE CURRENT TOWN STANDARDS.



TYPICAL SIDEWALK

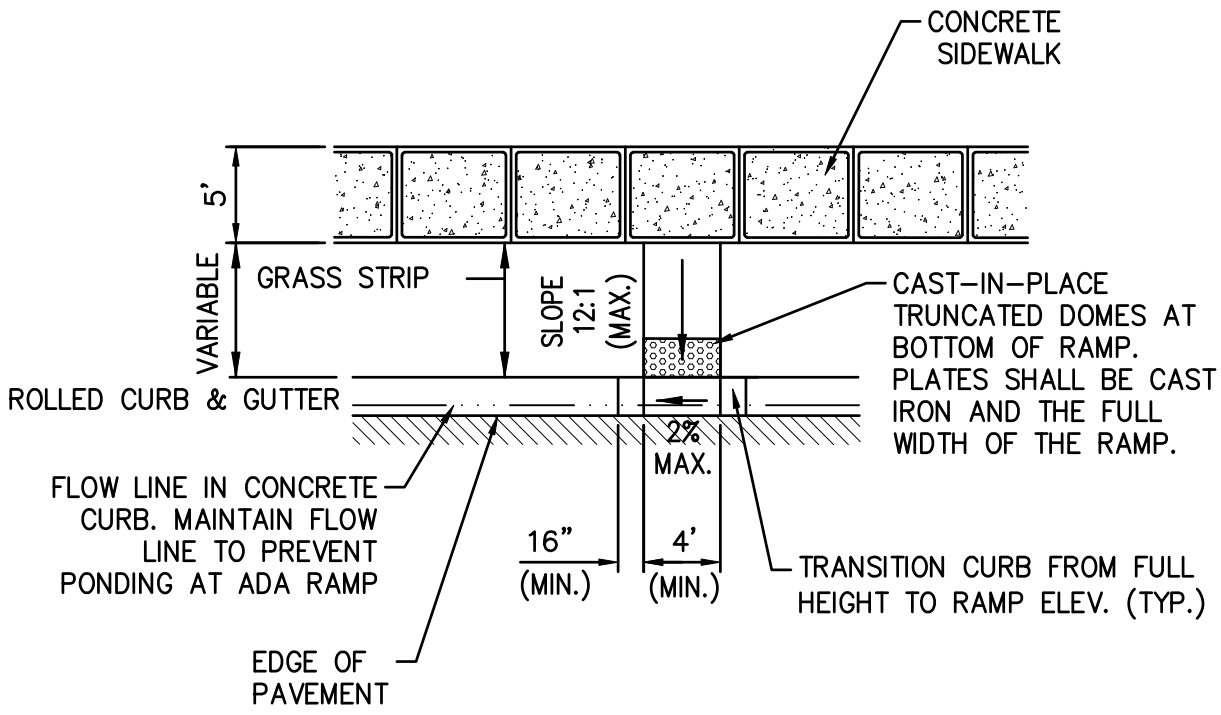
SEE REQUIRED NOTES ON DETAIL TR-17

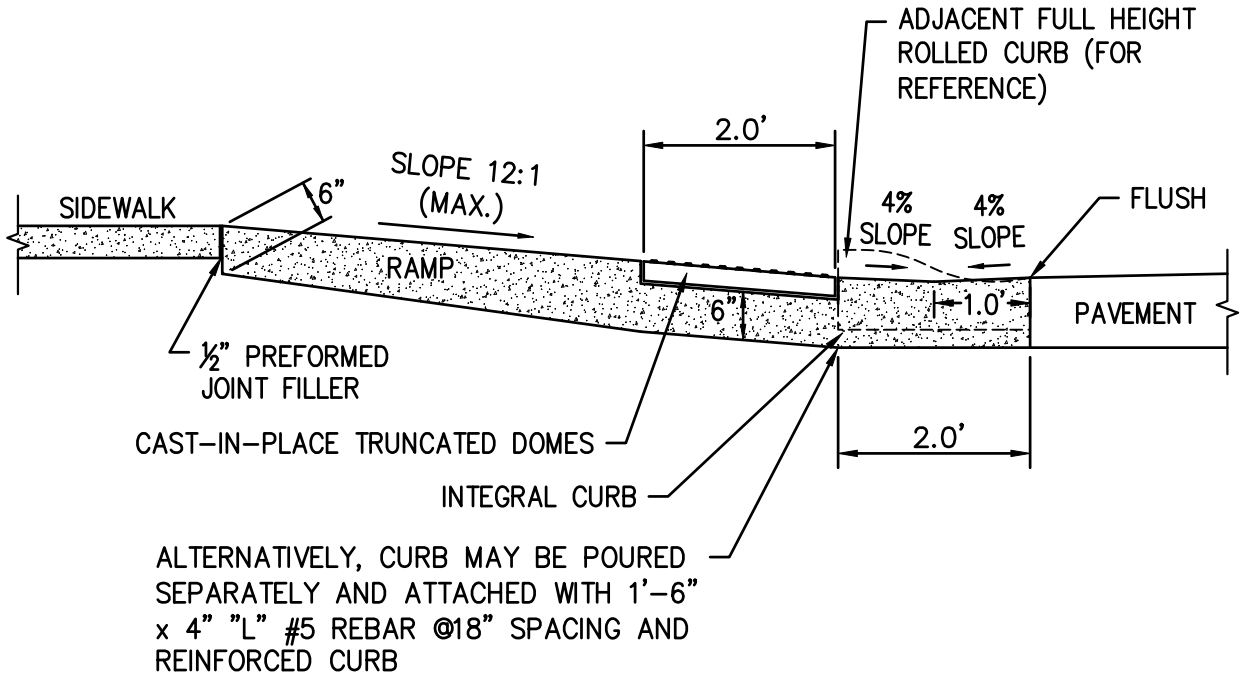
CONCRETE SIDEWALK DETAIL

SCALE: NONE

DETAIL NO. TR-15
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA





RAMPS SHALL COMPLY WITH REQUIRED NOTES GIVEN ON DETAIL TR-17

ROLLED CURB RAMP DETAIL

SCALE: NONE

DETAIL NO. TR-16
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA

SIDEWALK & CURB RAMP REQUIREMENTS:

1. CONCRETE FOR SIDEWALKS SHALL MEET THE FOLLOWING SPECIFICATIONS:
   A) 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
   B) 564 LBS. CEMENT PER CUBIC YARD CONCRETE
   C) MAXIMUM WATER CEMENT RATIO: 0.40
   D) AIR CONTENT: 5%–7%
   E) WATER REDUCING ADMIXTURE REQUIRED

2. CONCRETE SIDEWALK SHALL BE INSTALLED ON STABLE SUBGRADE, ESTABLISHED BY PROOFROLL.

3. SIDEWALKS SHALL HAVE A BROOM FINISH WITH TOOLED EDGES AND TOOLED CONTROL JOINTS.

4. CURING COMPOUND EQUAL TO "HYDROCIDE CURING COMPOUND" AS MANUFACTURED BY SONNEBORN, SHALL BE APPLIED TO FINISHED CONCRETE.

5. EXPANSION/CONTRACTION JOINTS SHALL BE INSTALLED AT MAXIMUM OF 20' INTERVALS, AND WHERE CONCRETE WILL ABUT EXISTING WALKS, CURBING, DRIVES, OR OTHER CONCRETE.

6. EXPANSION/CONTRACTION JOINT SHALL BE INSTALLED WITH THREE SMOOTH DOWEL BARS, EACH 12" LONG. DOWEL BARS SHALL HAVE A FULL END CAP ON ONE END. EXPANSION/CONTRACTION JOINT SHALL BE FILLED WITH EXPANSION JOINT FILLER. CONNECTION TO EXISTING WALKS OR SLABS SHALL REQUIRE DRILLING TO INSTALL DOWELS. EPOXY SHALL BE USED TO SET DOWELS IN EXISTING CONCRETE.

7. INSTALL SIDEWALK TRANSITIONS AT DRIVEWAYS AS REQUIRED. SEE INDOT STANDARD DRAWINGS E–604–SDWK.

8. SIDEWALK THICKNESS THROUGH DRIVEWAYS SHALL BE SIX INCHES (6") MINIMUM ON A MINIMUM OF FOUR INCHES (4") OF COMPACTED AGGREGATE NO. 53.

9. SIDEWALK AND CURB RAMPS SHALL COMPLY WITH INDOT STANDARD DRAWINGS, THE CURRENT AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS AND THE PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT–OF–WAY (PROWAG) STANDARDS.

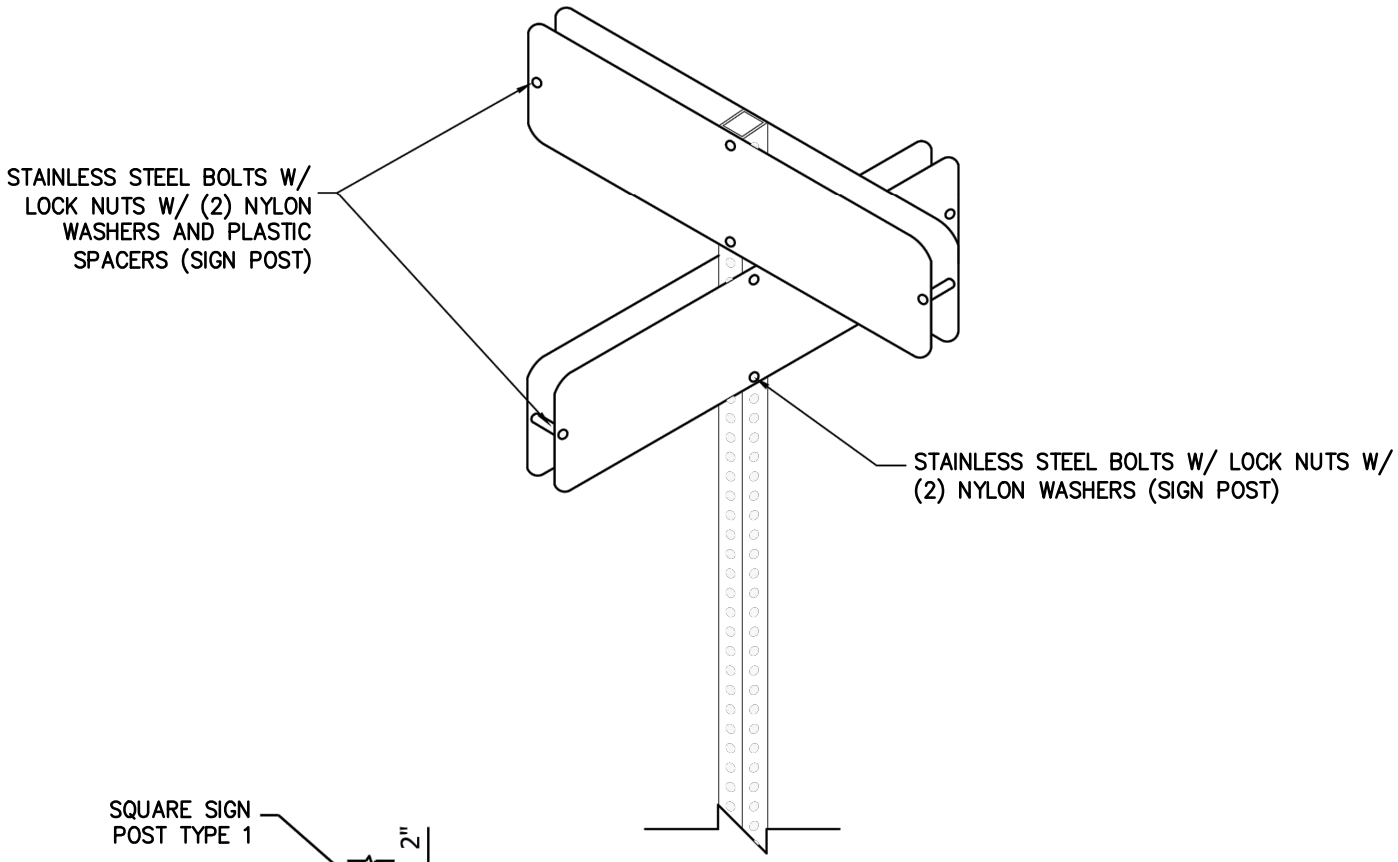
10. REFER TO INDOT STANDARD DRAWINGS E 604–SWCR FOR FURTHER CURB RAMP DETAILS AND OTHER ADA CURB RAMP TYPES AND CONFIGURATIONS.

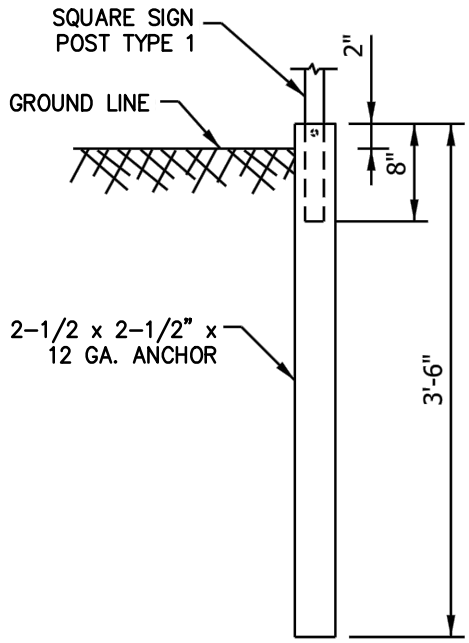
SIDEWALK AND CURB RAMP NOTES

SCALE: NONE

DETAIL NO. TR–17
DATE: JUNE 2020
REV DATE: –

TOWN OF NEW WHITELAND, INDIANA





NOTES:

1. SIGNS SHALL COMPLY WITH IMUTCD.
2. STREET NAME SIGN COLORS SHALL BE WHITE LETTERING AND BORDER ON BLUE BACKGROUND.
3. THE TYPE 1 POST SHALL BE 2 1/4 IN. X 2 1/4 IN. X 12 GA. WALL THICKNESS AND SHALL BE BREAKAWAY OR YIELDING PER IMUTCD.

STREET NAME SIGN & SIGN POST

SCALE: NONE

DETAIL NO. TR-18
DATE: JUNE 2020
REV DATE: -

TOWN OF NEW WHITELAND, INDIANA