

FHWA-Indiana Environmental Document
CATEGORICAL EXCLUSION / ENVIRONMENTAL ASSESSMENT FORM
GENERAL PROJECT INFORMATION

Road No./County:	SR 18 / Benton County
Designation Number(s):	2002000
Project Description/Termini:	SR 18 Bridge Replacement at the East Crossing of Greenwood Ditch (Structure No. 018-04-01689 B), 6.84 Miles East of US 52, from 385 Feet West of Bridge Center to 368 Feet East of Bridge Center

X	Categorical Exclusion, Level 2 – Required Signatories: INDOT DE and/or INDOT ESD
	Categorical Exclusion, Level 3 – Required Signatories: INDOT ESD
	Categorical Exclusion, Level 4 – Required Signatories: INDOT ESD and FHWA
	Environmental Assessment (EA) – Required Signatories: INDOT ESD and FHWA
	Additional Investigation (AI) – The proposed action included a design change from the original approved environmental document. Required Signatories must include the appropriate environmental approval authority

Approval

_____	_____
INDOT DE Signature and Date	INDOT ESD Signature and Date

FHWA Signature and Date	

Release for Public Involvement

<i>rzk</i>	January 23, 2024
_____	_____
INDOT DE Initials and Date	INDOT ESD Initials and Date

Certification of Public Involvement

INDOT Consultant Services Signature and Date

INDOT DE/ESD Reviewer Signature and Date:

asadpour 01/23/2024

Name and Organization of CE/EA Preparer:

Brock N. Ervin, INDOT Crawfordsville District DE

Indiana Department of Transportation

County BentonRoute SR 18Des. No. 2002000

Note: Refer to the most current INDOT CE Manual, guidance language, and other ESD resources for further guidance regarding any section of this form.

Part I – Public Involvement

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. **The level of public involvement should be commensurate with the proposed action.**

Does the project have a historic bridge processed under the Historic Bridges PA*?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If No, then: Opportunity for a Public Hearing Required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*A public hearing is required for all historic bridges processed under the Historic Bridges Programmatic Agreement between INDOT, FHWA, SHPO, and the ACHP.

Discuss what public involvement activities (legal notices, letters to affected property owners and residents (i.e. notice of entry), meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Notice of Entry letters were mailed to potentially affected property owners near the project area on July 12, 2022, and April 24, 2023, notifying them about the project and that individuals responsible for land surveying and field activities may be seen in the area. Sample copies of the Notice of Entry letters are included in Appendices G1 to G4.

This project requires more than 0.5 acre of new permanent right-of-way. Therefore, the project meets the minimum requirements described in the current Indiana Department of Transportation (INDOT) Public Involvement Manual which requires the project sponsor to offer the public an opportunity to submit comment and/or request a public hearing. Therefore, a legal notice will appear in a local publication contingent upon the release of this document for public involvement. This document will be revised after the public involvement requirements are fulfilled.

Public Controversy on Environmental Grounds

Discuss public controversy concerning community and/or natural resource impacts, including what is being done during the project to minimize impacts.

At this time, there is no substantial public controversy concerning impacts to the community or to natural resources.

Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: Indiana Department of Transportation INDOT District: CrawfordsvilleLocal Name of the Facility: SR 18Funding Source (mark all that apply): Federal State Local Other*

*If other is selected, please identify the funding source: _____

This is page 2 of 24 Project name: SR 18 Bridge Replacement at Greenwood Ditch Date: January 23, 2024

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

PURPOSE AND NEED:

The need should describe the specific transportation problem or deficiency that the project will address. The purpose should describe the goal or objective of the project. The solution to the traffic problem should NOT be discussed in this section.

Need: The need for the project is due to the condition of the superstructure and substructure of the SR 18 bridge over Greenwood Ditch. The superstructure and substructure both exhibit cracking, efflorescence, and spalling that has exposed rebar reinforcement. In the bridge inspection from January 4, 2022 (Appendices I-2 to I-11), the bridge superstructure and substructure both received condition ratings of 5 (fair) out of 9, indicating that the bridge is in overall fair condition (an overall rating of 5).

Purpose: The purpose of this project is to perpetuate the SR 18 crossing of Greenwood Ditch with a structure that is in good or better condition (a condition rating 7 or higher).

PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):

County: Benton

Municipality: N/A (Rural, not in or near any incorporated limits)

Limits of Proposed Work: The incidental limits of the project extend from 385 Feet West of the bridge's center to 368 feet east of bridge's center.

Total Work Length: 0.143 Mile (753 feet)

Total Work Area: 1.94 Acre(s)

Is an Interstate Access Document (IAD)¹ required?

If yes, when did the FHWA provide a Determination of Engineering and Operational Acceptability?

¹If an IAD is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IAD.

Yes ¹	No
	X
Date:	

Describe location of project including township, range, city, county, roads, etc. Existing conditions should include current conditions, current deficiencies, roadway description, surrounding features, etc. Preferred alternative should include the scope of work, anticipated impacts, and how the project will meet the Purpose and Need. Logical termini and independent utility also need discussed.

Location:

The project is located in Benton County, 6.84 Miles East of US 52 and between County Roads 700 East and 850 East (INDOT Reference Post (RP) 18+99). The nearest town is the unincorporated town of Atkinson, 4.6 miles to the southwest, and the nearest incorporated area is the town of Fowler, 6.6 miles west. It is also located in Pine Civil Township and within the USGS 7.5-Minute Templeton Quadrangle. The GPS coordinates for the bridge are 40.605986° latitude and -87.176687° longitude. According to the Public Land Survey System, the project is located in Sections 14 and 23 of Township 25 North, Range 7 West.

Existing Conditions:

In vicinity of the project area, SR 18 is classified as a rural major collector, which is on the Federal-Aid Highway Program, but not on the National Highway System (NHS) or National Truck Network. It is an east-west corridor consisting of two travel lanes, one in each direction, with a posted speed limit of 55 MPH. Land use nearby is mainly for agricultural row crops. The Indiana Department of Natural Resources (IDNR) has property in the northwest quadrant of the project area, which serves as a wildlife area called the Greenwood Ditch Gamebird Habitat Area. The surrounding topography is generally flat to somewhat rolling.

Greenwood Ditch flows south through the project area and outfalls into Big Pine Creek approximately 0.8 stream-miles to the south of the project. The upstream drainage area of Greenwood Ditch at the project site is approximately 7.3 square miles. Benton County GIS identifies Greenwood Ditch as a legal drain.

The existing SR 18 bridge over Greenwood Ditch is identified as INDOT Structure No. 018-04-01689 B, NBI No. 4570. The original crossing was built in 1934, which underwent a superstructure replacement in 1963 and a deck replacement in 1981. The existing structure is a single-span concrete box beam bridge with a length of 54 feet (spanning 34 feet) and a width of 30 feet (27.5 feet

This is page 3 of 24 Project name: SR 18 Bridge Replacement at Greenwood Ditch Date: January 23, 2024

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

between the bridge rails). The Indiana Historic Bridge Information Database was checked, and it was not eligible for review in the Indiana Historic Bridge Inventory, as it was considered to be reconstructed after the bridge deck replacement in 1981.

The approach roads include two 11-foot travel lanes with two to three-foot shoulders. Guardrail protects the bridge approaches in each quadrant. Roadside ditches are shallow and grassy, with the ditch in the northwest quadrant exhibiting indications of higher flow volumes and more erosion than the others.

The historical plans used to construct the existing SR 18 roadway show right-of-way at 35 feet from the roadway centerline on both sides of SR 18. These right-of-way limits are supported by existing infrastructure in the project area, such as ditch lines and utility poles, and the plans for the project use an existing right-of-way of 35 feet from the centerline. However, due to deeds being untimely recorded, the existing legal right-of-way is considered to be the edge of pavement.

Preferred Alternative:

The preferred alternative is to replace the existing bridge with a precast, concrete, flat-topped, three-sided culvert-style bridge (new Structure No. 018-04-10730). Per the current design (Appendices B-12 to B-28), the new bridge will have the same 34-foot span as the existing bridge, but to meet design standards, it will be widened by approximately 16 feet, giving the bridge a total width of 46 feet. The grade along the road surface of the bridge will be raised by up to six inches, and it will be installed at a seven-degree skew in order to be better aligned with Greenwood Ditch. The bridge will have 11-foot lanes and four-foot shoulders. It will not have integrated railing but will instead have guardrail that is continuous with the approach road guardrail. At the bridge cones, 18-foot wingwalls will be extended from each quadrant and riprapped from the wingwalls to the stream bank. Beneath the bridge on each side of the creek, wildlife crossings will be incorporated by adding four-foot wide flat, level surfaces consisting of No. 53 graded stone on top of the riprap (Appendix B-20).

The approach roads at the bridge will be reconstructed with the same 11-foot lanes and two to three-foot shoulders. In the northeast and southwest quadrants, guardrail will be extended by approximately 50 feet. To accommodate the wider roadway, the roadside ditches will be realigned. Approximately 90 feet of milling and paving will be performed on each side of the project to transition it back into the existing roadway. There are two field entrances located within the project limits. The northeast field entrance will be reconstructed, but the entrance in the southwest quadrant will be abandoned due to design requirements. Relocation of the entrance, if necessary, will be handled by the property owner and addressed in the right-of-way acquisition documents. Utilities are located on both sides of the road and will require relocation during construction. Temporary lighting may be used if INDOT or the contractor determine to conduct nighttime construction operations.

Based on the current design plans, the total project length is approximately 750 feet (incidental to incidental). Approximately 0.652 acre of new right-of-way, 0.032 acre of temporary right-of-way, and 0.689 acre of reacquisition of apparent existing right-of-way will be required. Reacquisition will occur out to the 35-foot apparent existing right-of-way limits. North of the apparent existing right-of-way limits, new right-of-way will be expanded by 15 feet, placing the right-of-way limits at 50 feet from the roadway centerline. For constructability of the bridge and to reconstruct the field entrance in the northeast quadrant, two areas of temporary right-of-way are needed, which extend an additional 10 feet beyond the proposed permanent right-of-way. Typical right-of-way limits along the south side, will be expanded by 25 feet (60 feet from the roadway centerline), except near the creek, which will extend to 80 feet from the centerline. No new acquisition will be required from the IDNR gamebird habitat area, where the right-of-way will be maintained at 35 feet from the edge of pavement. See Appendix B-11 for a diagram of right-of-way limits.

Tree clearing in the woodlands to the north and south of the bridge is anticipated. (Note that current aerial imagery shows more trees in the southwest quadrant than were observed during the field investigation, which appears to have been cleared by the property owner.) Up to 0.15 acre of tree clearing may be required to construct the project as designed. Approximately 155 feet of Greenwood Ditch is located within the right-of-way footprint of the project, of which 120 feet are within the construction limits and 80 feet will be permanently impacted. No other streams or wetlands were observed in the project area.

During construction, SR 18 will be closed to traffic, which will be detoured around the project. The official detour will redirect traffic south of SR 18 using US 231 and US 52. The total detour length around (but not including) this segment of SR 18 is approximately 27 miles. Unofficial detours will likely be used by local traffic, such as using CR 850 E to CR 100 N to CR 700 E, which is a detour of approximately 3.2 miles. Construction is currently planned to begin in late 2024 or early 2025.

Purpose and Need Fulfillment:

The preferred alternative meets the purpose and need of the project, as the new structure will perpetuate the SR 18 crossing at Greenwood Ditch and is expected to have an overall condition rating of 9 (excellent).

Logical Termini/Independent Utility:

The project has independent utility, as the project has a purpose and need that is independent of any other project, and this work

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

does not depend on the construction of any other project. The project termini are logical because the limits are restricted to only what is necessary to satisfy the purpose and need, to meet current design standards, and to address environmental matters associated with the project.

OTHER ALTERNATIVES CONSIDERED:

Provide a header for each alternative. Describe all discarded alternatives, including the No Build Alternative. Explain why each discarded alternative was not selected. Make sure to state how each alternative meets or does not meet the Purpose and Need and why.

Due to the low condition rating of both the superstructure and the substructure, no other "build" alternatives were considered to address the purpose and need other than to replace the bridge. Besides the 34-foot span three-sided culvert described above, other replacement options considered during hydraulics analysis (Appendices I-12 to I-14) included:

- 34-foot span concrete slab top,
- 62-foot span spill-through bridge.

No-built/Do Nothing Alternative

This no-build alternative would do nothing to address the deteriorating superstructure and substructure of the bridge. This alternative would avoid any near-term construction costs and would not result in any environmental impacts. However, the bridge would continue to deteriorate over time, and the SR 18 crossing at Greenwood Ditch would become unusable, causing adverse impacts on travel times for commuters and the community, and it would neglect the adjacent resources already invested in the existing adjacent infrastructure. Therefore, this alternative does not address the purpose and need of the project, and it was dismissed from further consideration.

The No Build Alternative is not feasible, prudent or practicable because *(Mark all that apply)*

It would not correct existing capacity deficiencies;

It would not correct existing safety hazards;

It would not correct the existing roadway geometric deficiencies;

It would not correct existing deteriorated conditions and maintenance problems; or

It would result in serious impacts to the motoring public and general welfare of the economy.

Other (Describe):

X
X

ROADWAY CHARACTER:

If the proposed action includes multiple roadways, complete and duplicate for each roadway.

Name of Roadway	<u>SR 18</u>			
Functional Classification:	<u>Rural Major Collector</u>			
Current ADT:	<u>719</u>	VPD (2024)	Design Year ADT:	<u>847</u>
				VPD (2044)
Design Hour Volume (DHV):	<u>91</u>	Truck Percentage (%)	<u>20.00</u>	
Designed Speed (mph):	<u>55</u>	Legal Speed (mph):	<u>55</u>	

	Existing		Proposed	
Number of Lanes:	2		2	
Type of Lanes:	Driving/Through Lanes		Driving/Through Lanes	
Pavement Width:	11	ft.	11	ft.
Shoulder Width:	2 to 3	ft.	2 to 4	ft.
Median Width:	0	ft.	0	ft.
Sidewalk Width:	N/A	ft.	N/A	ft.

Setting:	<input type="checkbox"/>	Urban	<input type="checkbox"/>	Suburban	<input checked="" type="checkbox"/>	Rural
Topography:	<input checked="" type="checkbox"/>	Level	<input checked="" type="checkbox"/>	Rolling	<input type="checkbox"/>	Hilly

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

BRIDGES AND/OR SMALL STRUCTURE(S):

If the proposed action includes multiple structures, complete and duplicate for each bridge and/or small structure. Include both existing and proposed bridge(s) and/or small structure(s) in this section.

Structure/NBI Number(s): Str. No. 018-04-01689 B Sufficiency Rating: 76.9 per the January 4, 2022,
(Proposed Str. No. 018-04-10730) INDOT Inspection Report
(Rating, Source of Information)

	Existing		Proposed	
Bridge/Structure Type:	Precast Reinforced Concrete Flat-Topped Three-Sided Culvert		Precast Reinforced Concrete Flat-Topped Three-Sided Culvert	
Number of Spans:	1		1	
Weight Restrictions:	Not Posted	ton	Not Posted	ton
Height Restrictions:	None	ft.	None	ft.
Curb to Curb Width:	26	ft.	30	ft.
Outside to Outside Width:	30	ft.	46	ft.
Shoulder Width:	2	ft.	4	ft.

Describe impacts and work involving bridge(s), culvert(s), pipe(s), and small structure(s). Provide details for small structure(s): structure number, type, size (length and dia.), location and impacts to water. Use a table if the number of small structures becomes large. If the table exceeds a complete page, put it in the appendix and summarize the information below with a citation to the table.

The current bridge, Str. No. 018-04-01689 B (NBI No. 004570), is a single-span bridge over Greenwood Ditch with a 34-foot, 10-inch span and a 30-foot, 3-inch length. The structure has riprap along the abutments and bridge cones for scour protection. The bridge has a deteriorating superstructure and substructure, both with condition ratings of 5 (fair). This project will address the deterioration of the existing bridge. The preferred alternative is to replace it with a similar single-span structure with a span of 34 feet, 3 inches with wingwalls (Proposed Str. No. 018-04-10730). Removal and installation of the new structure would require the use of cofferdams and pump-around systems for dewatering. Approximately 120 feet of Greenwood Ditch is within the right-of-way footprint, of which approximately 80-feet of permanent impacts are anticipated.

MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:

	Yes	No
Is a temporary bridge proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is a temporary roadway proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project involve the use of a detour or require a ramp closure? (describe below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for access by local traffic and so posted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for through-traffic dependent businesses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made to accommodate any local special events or festivals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the proposed MOT substantially change the environmental consequences of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there substantial controversy associated with the proposed method for MOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project require a sidewalk, curb ramp, and/or bicycle lane closure? (describe below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provisions will be made for access by pedestrians and/or bicyclist and so posted (describe below).	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discuss closures, detours, and/or facilities (if any) that will be provided for maintenance of traffic. Any known impacts from these temporary measures should be quantified to the extent possible, particularly with respect to properties such as Section 4(f) resources and wetlands. Discuss any pedestrian/bicycle closures. Any local concerns about access and traffic flow should be detailed as well.

During construction, the SR 18 bridge will be closed to traffic and will be detoured. The official detour will direct traffic around the segment of SR 18 between US 231 and US 52. The additional travel distance driven by using US 231 and US 52 compared to the detoured segment of SR 18 is approximately 14.5 miles. Unofficial detours would likely be used by local traffic, such as using CR 850 E to CR 100 N to CR 700 E, which adds an additional travel distance of approximately two miles. Construction is currently

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

planned to begin in early 2025 and is expected to take approximately 6 months, and the detour is expected to last approximately four months.

Access to residences and businesses will be maintained at all times, travel to special events and festivals will not be hindered. The road closure will pose a temporary inconvenience to traveling motorists, including school buses and emergency services; however, no significant delays are anticipated, and all inconveniences and delays will cease upon project completion.

ESTIMATED PROJECT COST AND SCHEDULE:

Engineering: \$ 80,000 (2024) Right-of-Way: \$ 25,965 (2023/2024) Construction: \$ 2,039,066 (2025)

Anticipated Start Date of Construction: Spring 2025

RIGHT OF WAY:

Land Use Impacts	Amount (acres)		
	Permanent	Temporary	Reacquisition
Residential			
Commercial			
Agricultural	0.465	0.011	
Forest	0.12	0.014	
Wetlands			
Other: Apparent Existing Roadside Right-of-Way			0.689
Other: Stream	0.067	0.007	
TOTAL	0.652	0.032	0.689

Describe both Permanent and Temporary right-of-way and describe their current use. Typical and Maximum right-of-way widths (existing and proposed) should also be discussed. Any advance acquisition, reacquisition or easements, either known or suspected, and their impacts on the environmental analysis should be discussed.

Based on recorded property records, INDOT has no existing right-of-way along this segment of SR 18, so for planning purposes the existing right-of-way is considered the edge of pavement. However, as documented on the historical road plans for this segment of road, INDOT placed the right-of-way at 35 feet from the edge of pavement along both sides of SR 18. This area is currently in a transportation use for guardrail, roadside ditches, and other drainage conveyance structures, and utility poles are positioned along both sides of the road at approximately 35 feet from centerline. Therefore, for environmental purposes, INDOT's apparent existing right-of-way extends to 35 feet beyond the centerline, and this area will be reacquired at fair market value.

Based on the current design, 0.652 acre of new right-of-way, 0.032 acre of temporary right-of-way, and 0.689 acre of reacquisition of apparent existing right-of-way will be required. North of the apparent existing apparent right-of-way, the new right-of-way limits will be expanded by 15 feet, placing it at 50 feet from the roadway centerline. Along the south side, the typical right-of-way limits will be expanded by 25 feet at 60 feet from the roadway centerline, except near the creek, where it will be extended to 80 feet for utility relocations. Two areas of temporary right-of-way are needed along the north side for dewatering and to reconstruct the field entrance in the northeast quadrant. At these locations, the right-of-way will temporarily be extended an additional 10 feet. No new acquisition will be required from the IDNR Greenwood Ditch Gamebird Habitat Area, where acquisition will be limited to the apparent existing right-of-way. See Appendix B-11 for a diagram of proposed right-of-way limits.

If the scope of work or permanent or temporary right-of-way amounts change, the INDOT District Environmental (DE) will be contacted immediately.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Part III – Identification and Evaluation of Impacts of the Proposed Action

SECTION A - EARLY COORDINATION:

List the date(s) coordination was sent and all resource agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received.

Early coordination letters were sent on March 27, 2023 (Appendix C-1), except where otherwise noted below. During early stages of planning, coordination was also conducted with IDNR due to encroachment on the Greenwood Ditch Gamebird Habitat Area, a Section 4(f) resource. However, as documented in the email included below, the final plans did not cause a Section 4(f) use of the property, so this information is included as early coordination and in Appendix C.

Agency	Date Sent	Date of Response	Appendix and Comments
Federal Highway Administration (FHWA), Indiana Division	3/27/2023	No Response	
US Army Corps of Engineers (USACE), Louisville Office, Indianapolis Regulatory Field Office	3/27/2023	No Response	
US Coast Guard, 8th District	3/27/2023	No Response	
National Park Service, Midwest Regional Office	3/27/2023	No Response	
US Dept. of Housing and Urban Development, Chicago Regional Office	3/27/2023	No Response	
National Resources Conservation Service (NRCS), Indiana State Office	3/27/2023	3/29/2023	See Appendices C-7 to C-9: Impact rating was less than 160, and no other alternatives were considered.
Indiana Department of Natural Resources (IDNR), Division of Fish and Wildlife (DFW)	3/27/2023	4/26/2023	See Appendices C-4 to C-6.
IDNR, Willow Slough Fish & Wildlife Area (Greenwood Ditch Gamebird Habitat Area)	3/28/2023 8/31/2023	7/28/2023 8/31/2023	See Appendix C-45 to C-48: Section 4(f) coordination originated due to expected new right-of-way, but plans were revised to avoid new acquisition.
Indiana Department of Environmental Management (IDEM), Wetlands and Stormwater Programs	3/27/2023	No Response	
Indiana Geological & Water Survey (IGWS) (Online Submission Form)	3/27/2023 (Online Submission)	3/27/2023	See Appendix C-9: Forwarded automated response to designer on 3/28/2023.
Benton County Commissioners	3/27/2023	No Response	
Benton County Council	3/27/2023	No Response	
Benton County Highway Department	3/27/2023	No Response	
Benton County Surveyor	3/27/2023	No Response	See Appendix C-49: No response was received to ECL, but the Benton County Surveyor responded to EWPO indicating that no county permits were required.
US Fish and Wildlife Service (USFWS) (IPaC Online Coordination)	4/21/2023 (Online Submission)	4/21/2023	See Appendices C-14 to C-27: Automated IPaC Response was generated with a finding of "Not Likely to Adversely Affect" (NLAA) with Tree AMMs.
INDOT Project Designer Coordination for Aviation Airspace	3/27/2023	3/27/2023	See Appendix C-12: No impacts to airspace above 200 feet.

All applicable recommendations are included in the Environmental Commitments section of this CE document.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

SECTION B – ECOLOGICAL RESOURCES:

Streams, Rivers, Watercourses & Other Jurisdictional Features

- Federal Wild and Scenic Rivers
- State Natural, Scenic or Recreational Rivers
- Nationwide Rivers Inventory (NRI) listed
- Outstanding Rivers List for Indiana
- Navigable Waterways

Presence

X

Impacts

Yes	No
X	

Total stream(s) in project area: 155 Linear feet Total impacted stream(s): 120 Linear feet

Stream Name	Classification	Total Size in Project Area (linear feet)	Impacts Below OHWM (linear feet)	Comments (i.e. location, flow direction, likely Water of the US, appendix reference)
Greenwood Ditch	R2UBHx	155 ft.	80 ft. Permanent 40 ft. Temporary	The subject bridge for replacement crosses Greenwood Ditch, which is a likely water of the US. See the attached Waters of the US Report, Appendix F.

Describe all streams, rivers, watercourses and other jurisdictional features adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if the streams or rivers are listed on any federal or state lists for Indiana. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on the Red Flag Investigation (RFI) Report approved August 25, 2023 (Appendix E-8), there are four waterways identified by GIS (11 waterway segments) that may be potentially jurisdictional within the 0.5-mile search radius. One stream, Greenwood Ditch, is located within the project area.

A field investigation for surface water features was conducted on August 3, 2022. A Waters of the US (WOUS) Report (Appendix F) was prepared by INDOT Crawfordsville District Environmental (DE), and it was approved by the INDOT Ecology and Waterway Permitting Office (EWPO) on April 24, 2023. One likely jurisdictional stream, Greenwood Ditch, was identified within the project limits. One roadside ditch (RSD-1) was identified in the northwest quadrant of the project area, but it is not likely to be jurisdictional. The US Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

During the field investigation, Greenwood Ditch exhibited an ordinary high-water mark (OHWM) 24.6 feet wide and 20 inches deep. The channel is heavily incised, likely due to excavation, and has a bank-full depth of seven to ten feet. The USFWS National Wetland Inventory (NWI) classifies Greenwood Ditch as an excavated, permanently flooded, unconsolidated bottom, lower perennial riverine system (R2UBHx). It is surrounded by agricultural fields and, according to USGS StreamStats, it has an upstream drainage area from the project of 7.266 square miles. It has a wooded riparian corridor, and fish and mussels were observed in the stream. The WOUS Report concluded that it is an average quality stream.

Greenwood Ditch will be impacted during the removal and replacement of the SR 18 bridge. Along the length of Greenwood Ditch, the bridge will be extended by 16 feet, for a total out-to-out coping width of 46 feet. The new structure will have wingwalls in all four quadrants, and riprap will be installed for scour protection, permanently impacting approximately 80 feet of the stream below the OHWM. Four-foot wide wildlife crossings will be constructed on each side of the creek. The stream will be dewatered during construction using pump-arounds and cofferdams, causing approximately 40 feet of temporary impacts below the OHWM. Approximately 20 feet of tree clearing is also required along the south banks beyond the construction limits. While tree clearing will not occur below the OHWM, it will cause an adverse effect to the water quality due to loss of shade.

An early coordination response that addressed stream impacts was received from IDNR DFW on April 26, 2023 (Appendix C-4). IDNR provided recommendations to minimize impacts to fish and wildlife, including the incorporation of a wildlife passage beneath the bridge and above the OHWM, avoiding work in the stream during the fish spawning season (April 1 through June 30), incorporating native vegetation for streambank stabilization and erosion control, and limiting the use of riprap to the stream bank and below the OHWM where possible. See the IDNR DFW early coordination response letter for additional recommendations.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Benton County's GIS website identifies Greenwood Ditch as a legal drain. The INDOT EWPO coordinated with the County Surveyor, who responded on January 24, 2022, indicating that no county permits are required to perform the work (Appendix C-49).

No other early coordination responses were received regarding stream impacts. All applicable recommendations are included in the Environmental Commitments section of this CE document.

Open Water Feature(s)

- Reservoirs
- Lakes
- Farm Ponds
- Retention/Detention Basin
- Storm Water Management Facilities
- Other: _____

Presence

Impacts

Yes	No

Describe all open water feature(s) identified adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on topographic mapping and the RFI Report (Appendix E) approved August 25, 2023, there is one lake feature within the 0.5-mile search radius. This feature is shown as a small pond located immediately north of the northeast quadrant of the project area and is also represented on the USGS 7.5' topographic map (Appendix B-2).

A field investigation for surface water features was conducted on August 3, 2022. A WOUS Report (Appendix F) was prepared by INDOT Crawfordsville DE, and it was approved by the INDOT EWPO on April 24, 2023. The area indicated by the RFI and topographic map was reviewed. While the topography of the area consisted of a shallow depression, no ponding or evidence of ponding was present. No ponds or lakes will be impacted by this project. The US Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

Wetlands

Presence

Impacts

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

Total wetland area: N/A Acre(s) Total wetland area impacted: _____ Acre(s)

(If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland No.	Classification	Total Size (Acres)	Impacted Acres	Comments (i.e. location, likely Water of the US, appendix reference)
N/A				
N/A				

Wetlands (Mark all that apply)

- Wetland Determination
- Wetland Delineation
- USACE Isolated Waters Determination

Documentation

X

ESD Approval Dates

April 24, 2023

Indiana Department of Transportation

County Benton Route SR 18 Des. No. 2002000

Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain):

- Substantial adverse impacts to adjacent homes, business or other improved properties;
- Substantially increased project costs;
- Unique engineering, traffic, maintenance, or safety problems;
- Substantial adverse social, economic, or environmental impacts, or
- The project not meeting the identified needs.

Describe all wetlands identified adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on the RFI Report (Appendix E-8) approved August 25, 2023, there are four USFWS National Wetland Inventory (NWI) mapped wetlands within the 0.5-mile search radius. None are located in or near the project area.

A field investigation for surface water features was conducted on August 3, 2022. A WOUS Report (Appendix F) was prepared by INDOT Crawfordsville District Environmental (DE), and it was approved by the INDOT EWPO on April 24, 2023. Two determination points were investigated, but no wetlands were identified within the project area. The US Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

Terrestrial Habitat	Presence	Impacts	
	Yes	NO	
	X		

Total terrestrial habitat in project area: 1.31 Acre(s) Total tree clearing: 0.13 Acre(s)

Describe types of terrestrial habitat (i.e. forested, grassland, farmland, lawn, etc) adjacent or within the project area. Include whether or not impacts will occur to habitat identified. Include total terrestrial habitat impacted and total tree clearing that will occur. Discuss measure to avoid, minimize, and mitigate if impacts will occur.

Based on a desktop review of aerial imagery (Appendix B-3), and a site visit on August 3, 2022, by INDOT DE, terrestrial habitat was identified. Terrestrial habitat in and adjacent to the project area consists of the forested riparian corridor along Greenwood Ditch, maintained grassy right-of-way, adjacent agricultural fields, and the managed grassland associated with IDNR's Greenwood Ditch Gamebird Habitat Area.

Within the proposed right-of-way footprint, approximately 1.31 acre of terrestrial habitat present, including 0.69 acre of maintained grassy right-of-way, 0.13 acre of riparian forest, 0.43 acre of agricultural fields, and an additional 0.06 acre of grassy vegetation. Based on the construction limits, total ground disturbance beyond the existing paved areas will be approximately 0.54 acre.

Tree clearing is required to remove and replace the bridge. While the construction limits for replacing the bridge requires approximately 0.05 acre of tree clearing, coordination with utility providers using the right-of-way have determined that additional tree clearing is required due to relocations. Therefore, a total of up to 0.13 acre of tree clearing may be required.

An early coordination response that addressed impacts to terrestrial habitat was received from IDNR DFW on April 26, 2023 (Appendix C-4). IDNR provided recommendations to minimize impacts to habitat, including the incorporation of a wildlife passage beneath the bridge and above the OHWM, avoiding removal of trees suitable for bat use between April 1st and September 30th, using materials that limit the accidental entrapment of small animals, standard recommendations for controlling erosion and sediment movement, and revegetation of disturbed areas with native plant species. IDNR also stated that impacts to non-wetland forest of 0.10 acre or more in a rural or urban area should be mitigated at a minimum 1:1 ratio, based on the area of impact. See their early coordination response letter for additional recommendations.

Indiana Department of Transportation

County Benton Route SR 18 Des. No. 2002000

Protected Species

Federally Listed Bats

Information for Planning and Consultation (IPaC) determination key completed
 Section 7 informal consultation completed (IPaC cannot be completed)
 Section 7 formal consultation Biological Assessment (BA) required

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Determination Received for Listed Bats from USFWS: NE NLAA LAA

Other Species not included in IPaC

Additional federal species found in project area (based on IPaC species list)
 State species (not bird) found in project area (based upon consultation with IDNR)

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Migratory Birds

Known usage or presence of birds (i.e. nests)
 State bird species based upon coordination with IDNR

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discuss IDNR coordination and species identified. Describe USFWS Section 7 consultation and determination received for Indiana bat and northern long-eared bat impacts. Discuss if other federally listed species were identified. If so, include consultation that has occurred and the determination that was received. Discuss if migratory birds have been observed and any impacts.

Based on the RFI report (Appendix E) approved on August 25, 2023, the IDNR Benton County Endangered, Threatened, and Rare (ETR) Species List was checked, indicating the potential presence of protected species within the 0.5-mile radius. According to the IDNR DFW early coordination response letter dated April 26, 2023 (Appendix C-4), the Natural Heritage Program's Database was checked, and no protected plant or animal species were identified. IDNR noted the presence of the Greenwood Ditch Gamebird Habitat Area but noted that no impacts are expected if the work is confined to the bridge right-of-way.

INDOT DE conducted a review for documented sightings of bat species within 0.5-mile of the project area using the USFWS GIS database on April 21, 2023 (Appendix C-13). None were identified.

Project information was submitted through the USFWS's Information for Planning and Consultation (IPaC) portal, and an official species list was generated on April 20, 2023 (Appendices C-28). The project is within range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally endangered northern long-eared bat (NLEB, *Myotis septentrionalis*).

Three other species were identified by the official species list as potentially occurring in the project area. The project is in the range of the monarch butterfly (*Danaus plexippus*), which is a candidate species, but it is not considered a protected species. The project is in the range of the tricolored bat (*Perimyotis subflavus*), which is a proposed endangered species. This project will not jeopardize the continued existence of the tricolored bat, and no protected critical habitat has been identified for it; therefore, no further action is required. The project is in the range of a "non-essential experimental population" of the Whooping Crane (*Grus americana*), but this population is not covered by protections provided for the natural endangered population. No further coordination is required for these species.

The project qualifies for the Range-wide Programmatic Informal Consultation for the Indiana bat and NLEB, dated May 2016 (revised February 2018), between FHWA, Federal Railroad Administration (FRA), Federal Transit Administration (FTA), and USFWS. A bridge inspection for the presence or indication of bats was conducted on August 3, 2023, and a follow-up inspection was conducted on April 19, 2023, and neither inspection identified signs of bats using the bridge (see Appendix I-15). An effect determination key was completed on April 21, 2023, and based on the responses provided, IPaC generated a not likely to adversely affect (NLAA) finding for the Indiana bat and NLEB (Appendices C-14), which was submitted for USFWS review. No response was received within the 14-day review period; therefore, it was concluded that USFWS concurs with the finding. IPaC generated six avoidance and minimization measures (AMMs): General AMM 1, Lighting AMM 1, and Tee AMMs 1 through 4, which includes limiting tree removal and trimming activities to the time of year when bats are not likely to be present (October 1 through March 31). These AMMs are included as firm commitments in the Environmental Commitments section of this document.

Bird nests were not observed on the existing bridge, but bird habitat is present in and near the project area. Prior to commencing construction, the existing bridge should be inspected for the presence of bird nests, which may contain birds protected by the Migratory Bird Treaty Act (MBTA). Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the “Migratory Bird Protection” Recurring Special Provision (RSP). This firm commitment is included in the Environmental Commitments of this document.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act, as amended. If new information on endangered species at the site becomes available, or if project plans are changed, USFWS will be contacted for consultation.

Geological and Mineral Resources

- Project located within the Indiana Karst Region
- Karst features identified within or adjacent to the project area
- Oil/gas or exploration/abandoned wells identified in the project area

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Date Karst Evaluation reviewed by INDOT EWPO (if applicable): _____

Discuss if project is located in the Indiana Karst Region and if any karst features have been identified in the project area (from RFI). Discuss response received from IGWS coordination. Discuss if any mines, oil/gas, or exploration/abandoned wells were identified and if impacts will occur. Include discussion of karst study/report was completed and results. (Karst investigation must comply with the current Protection of Karst Features during Planning and Construction guidance and coordinated and reviewed by INDOT EWPO)

Based on a desktop review, the project is located outside the designated karst region of Indiana as outlined in INDOT’s July 15, 2021, Protection of Karst Features During Project Development and Construction guidance document. According to the topographic map of the project area (Appendix B-2) and the RFI Report (Appendix E-8), there are no karst features identified within or adjacent to the project area. In the automated early coordination response dated March 27, 2023, the IGWS did not indicate that karst features exist in the project area (Appendix C-9). IGWS noted that the project area had moderate liquefaction potential and a low to moderate potential for sand, gravel, and bedrock resources. Mineral resources will not be affected, because the project involves the reconstruction of an existing facility at its current location, and no extraction sites are located in or near the project area. No impacts are expected. The response from IGWS was communicated to the designer on March 28, 2023.

SECTION C – OTHER RESOURCES

Drinking Water Resources

- Wellhead Protection Area(s)
- Source Water Protection Area(s)
- Water Well(s)
- Urbanized Area Boundary
- Public Water System(s)

	<u>Impacts</u>	
	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Is the project located in the St. Joseph Sole Source Aquifer (SSA):
- If Yes, is the FHWA/EPA SSA MOU Applicable?
- If Yes, is a Groundwater Assessment Required?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Check the appropriate boxes and discuss each topic below. Provide details about impacts and summarize resource-specific coordination responses and any mitigation commitments. Reference responses in the Appendix.

Sole Source Aquifer

The project is located in Benton County, which is not located within the area of the St. Joseph Sole Source Aquifer, the only legally designated sole source aquifer in the state of Indiana. Therefore, the FHWA/EPA Sole Source Aquifer Memorandum of Understanding (MOU) is not applicable to this project, a detailed groundwater assessment is not needed, and no impacts to a sole source aquifer are expected.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Wellhead Protection and Source Water Areas

The Indiana Department of Environmental Management’s Wellhead Proximity Determinator website was accessed on March 27, 2023, by INDOT DE (<https://www.in.gov/idem/cleanwater/information-about/groundwater-monitoring-and-source-water-protection/wellhead-protection-program/source-water-proximity-determination-tool/>). This project is not located within a wellhead protection area (WHPA) or a source water area (SWA). No impacts to WHPAs or SWAs are expected.

Water Wells

The IDNR Water Well Record Database website (<https://www.in.gov/dnr/water/3595.htm>) was accessed on August 30, 2023, by INDOT DE. No mapped water wells are located in or near the project area. The closest well is approximately 0.5 mile northeast of the project. No developed properties are located near the project area; therefore, the accidental discovery of wells is not anticipated, and no impacts to water wells are expected.

Urban Area Boundary

Based on a desktop review of GIS mapping of urban areas by INDOT DE, this project is not located in an urban area boundary. IDEM’s Municipal Separate Storm Sewer System (MS4) Jurisdictional Boundaries map viewer was reviewed (<https://www.in.gov/idem/cleanwater/ms4s-boundaries-map-for-indiana/>). The project is not located within the boundaries of any MS4, other than INDOT’s. No impacts are expected.

Public Water System

Based on a desktop review of the IDNR Water Well Record Database, aerial imagery, and a site visit on August 3, 2022, by INDOT DE, no public water systems were identified. The project is in a rural area and the closest town is over four miles southwest of the project. Therefore, no impacts to any public water systems are expected.

Floodplains	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Project located within a regulated floodplain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Longitudinal encroachment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transverse encroachment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Homes located in floodplain within 1000’ up/downstream from project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If applicable, indicate the Floodplain Level?

Level 1 Level 2 Level 3 Level 4 Level 5

Use the IDNR Floodway Information Portal to help determine potential impacts. Include floodplain map in appendix. Discuss impacts according to the classification system. If encroachment on a flood plain will occur, coordinate with the Local Flood Plain Administrator during design to insure consistency with the local flood plain planning.

The IDNR Indiana Floodway Information Portal website was accessed on March 27, 2023, by INDOT DE, which showed that this project is located with the IDNR-delineated floodway of Greenwood Ditch (Appendix F-10). The USGS StreamStats online application determined that Greenwood Ditch has an upstream drainage area of 7.266 square miles from the project location (Appendix F-9).

INDOT conducted a hydraulics analysis on March 6, 2023, which assessed potential floodway impacts based on three alternatives, including the preferred alternative (Appendix I-12). Modeling determined that all three alternatives had negligible decreases in headwater elevation and backwater.

As this project involves replacing an existing drainage structure within an IDNR delineated floodplain, INDOT classifies this project as a Level 4 floodplain project. There are no homes located within the base floodplain within 1000 feet upstream or downstream of the project location. The proposed structure will have an effective capacity such that backwater surface elevations are not expected to substantially increase. As a result, there will be no substantial adverse impacts on natural and beneficial floodplain values; there will be no substantial change in flood risks; and there will be no substantial increase in potential for interruption or termination of emergency service or emergency evacuation routes; therefore, it has been determined that this encroachment is not substantial.

IDNR DFW responded to early coordination on April 26, 2023, stating that the project requires IDNR’s formal approval for construction in a floodway, unless it qualifies for a bridge exemption. This project is a bridge project on a rural public highway, and the upstream drainage area from the project site is less than 50 square miles. It is located over four miles from the nearest town and

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

approximately six miles from the nearest municipal incorporated limits, and there are no homes, businesses, or other buildings near the project. Therefore, per the Indiana Flood Control Act (IC 14-28-1), the project is expected to be exempt from IDNR Construction in a Floodway (CIF) permit requirements.

And IDNR Floodplain Analysis and Regulatory Assessment (FARA) was generated for this project, which did not identify a floodplain administrator for the project area. Early coordination letters were sent to Benton County Commissioners, Council, Highway Department, and Surveyor's Office. No responses were received.

Farmland	Presence	Impacts	
		Yes	No
Agricultural Lands	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prime Farmland (per NRCS)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Total Points (from Section VII of CPA-106/AD-1006*)		152	
<i>*If 160 or greater, see CE Manual for guidance.</i>			

Discuss existing farmland resources in the project area, impacts that will occur to farmland, and mitigation and minimization measures considered.

Based on a desktop review of aerial imagery and a site visit on August 3, 2022, by INDOT DE, farmland was identified in and near the project area. Approximately 0.465 acre of permanent right-of-way and 0.011 acre of temporary right-of-way will be acquired from areas that are currently being used for farmland. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey online application, the entire project area is located within soil units that are or could be considered prime farmland.

An early coordination letter was sent on March 27, 2023, to the Natural Resources Conservation Service (NRCS), and Farmland Conversion Impact Rating Form AD-1006 was completed for the project (Appendix C-8). Based on the AD-1006 Form, the project will convert 0.52 acre of farmland, as defined by the Farmland Protection Policy Act, and the analysis resulted in a score of 152 points out of a maximum 260. NRCS's threshold score for significant impacts to farmland that results in the consideration of other alternatives is 160. Since this project score is less than the threshold, no significant loss of prime, unique, statewide, or locally important farmland will result from this project. No alternatives other than those previously discussed in this document will be investigated without reevaluating impacts to prime farmland.

SECTION D – CULTURAL RESOURCES

	Category(ies) and Type(s)	INDOT Approval Date(s)	N/A
Minor Projects PA	<input type="text" value="Category B, Type 9"/>	<input type="text" value="Pending"/>	<input type="text"/>
Full 106 Effect Finding			
No Historic Properties Affected	<input type="checkbox"/>	No Adverse Effect	<input type="checkbox"/>
		Adverse Effect	<input type="checkbox"/>
Eligible and/or Listed Resources Present			
NRHP Building/Site/District(s)	<input type="checkbox"/>	Archaeology	<input type="checkbox"/>
		NRHP Bridge(s)	<input type="checkbox"/>

Indiana Department of Transportation

County Benton Route SR 18 Des. No. 2002000

Documentation Prepared (mark all that apply)

- APE, Eligibility and Effect Determination 800.11 Documentation
- Historic Properties Report or Short Report
- Archaeological Records Check and Assessment
- Archaeological Phase Ia Survey Report
- Archaeological Phase Ic Survey Report
- Other:

ESD Approval Date(s)

Pending

SHPO Approval Date(s)

N/A

MOA Signature Dates (List all signatories)

Memorandum of Agreement (MOA)

--

If the project falls under the MPPA, describe the category(ies) that the project falls under and any approval dates. If the project requires full Section 106, use the headings provided. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of the paper(s) and the comment period deadline. Include any further Section 106 work which must be completed at a later date, such as mitigation from a MOA or avoidance commitments.

The Indiana Historic Bridge Information Database was checked, and the SR 18 bridge (Structure No. 018-04-01689 B) was not eligible for review in the Indiana Historic Bridge Inventory, as it was considered to be reconstructed after the bridge deck replacement in 1981. A preliminary GIS-based review of the IDNR Division of Historic Preservation and Archaeology (DHPA) Indiana Historic Buildings, Bridges, and Cemeteries (IHBBC) data was conducted on April 3, 2023. No mapped historic resources were identified within at least 0.5 mile of the project area.

Section 106 clearance is currently pending final approval and review by the IN-SCOPE 30-day review period. A Minor Projects PA Project Submittal and Assessment Form was submitted to the INDOT Cultural Resources Office (CRO) on April 3, 2023. Coordination between INDOT DE and INDOT CRO occurred on January 19, 2024, to determine the status of the Section 106/MPPA review. The project is expected to fall within the guidelines of Category B, Type 12, under the Minor Projects Programmatic Agreement (MPPA B-12, Appendix D). MPPA B-12 projects include bridge replacement projects and replacement, widening, or raising the elevation of the superstructure of existing bridges, if the associated conditions are met. The project is expected to satisfy the archaeological requirements under Condition A(ii) for work in undisturbed soils, where an archaeological investigation, reviewed by INDOT CRO, determines that no National Register-listed or potentially eligible archaeological resources are present within the project area. An INDOT CRO archaeologist performed a Phase Ia field reconnaissance survey. One archaeological site was identified, and it was determined not to be eligible for the National Register of Historic Places (NRHP). The Archaeological Phase 1a report is pending review and approval. The project satisfies the above-ground requirements of the MPPA under Conditions B(i) and B(ii)(b). Condition B(i) is for projects where work will not occur adjacent to or within a National Register-listed or eligible resource or district. Condition B(ii)(b) is for bridge projects where the bridge is of a common type and was built after 1945.

Based on the status of the MPPA B-12 assessment, CRO agreed that the project can proceed to public involvement while the MPPA B-12 is pending final approval. This Categorical Exclusion (CE) document cannot be approved prior to approval of the MPPA. This section and Appendix D will be updated after certification of the public involvement requirements and approval of MPPA B-12 is received.

SECTION E – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES

	Presence	Use	
		Yes	No
Parks and Other Recreational Land			
Publicly owned park	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Publicly owned recreation area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (school, state/national forest, bikeway, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildlife and Waterfowl Refuges			
National Wildlife Refuge	X	<input type="checkbox"/>	X
National Natural Landmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State Wildlife Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State Nature Preserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic Properties			
Site eligible and/or listed on the NRHP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Evaluations Prepared

Programmatic Section 4(f)	
"De minimis" Impact	
Individual Section 4(f)	
Any exception included in 23 CFR 774.13	

Discuss Programmatic Section 4(f) and "de minimis" Section 4(f) impacts in the discussion below. Individual Section 4(f) documentation must be included in the appendix and summarized below. Discuss proposed alternatives that satisfy the requirements of Section 4(f). FHWA has identified various exceptions to the requirement for Section 4(f) approval. Refer to 23 CFR § 774.13 - Exceptions.

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. Lands subject to this law are considered Section 4(f) resources.

Based on a desktop review of GIS and aerial resources and the RFI report (Appendix E-7), there is one potential Section 4(f) resource within the 0.5-mile search radius, the IDNR Greenwood Ditch Gamebird Habitat Area, which abuts the project in the northwest quadrant of the crossing. The habitat area was confirmed to be present during the field investigation on August 3, 2022, and no other potential Section 4(f) properties were located in or near the project area. The IDNR DFW early coordination response from April 26, 2023, also identified the gamebird habitat area and stated, "As long work is confined to the bridge right-of-way, no impacts to the property are expected."

Greenwood Ditch Gamebird Habitat Area is a state-owned and operated property that is managed by IDNR's Willow Slough Fish and Wildlife Area. The Gamebird Habitat Program is a conservation program established by Indiana law, IC 14-20-8, for the development and preservation of gamebird habitat, and its purpose is to promote gamebird populations and make gamebird hunting more accessible to the public. The Greenwood Ditch Gamebird Habitat Area has been specifically managed for plant species that benefit pheasant, quail, and dove. Public access and use of the Greenwood Ditch Gamebird Habitat Area is restricted, requiring a written permit through coordination with IDNR. Because the primary purpose of this property is for conservation, restoration, and management of wildlife and waterfowl resources, the INDOT DE determined that the Greenwood Ditch Habitat Area qualifies for Section 4(f) protection as a wildlife and waterfowl refuge. While it is not generally accessible to the public, it is available for public use to the extent that it does not interfere with the primary purpose of the refuge.

Based on the current design plans, the project will not require the acquisition of any new permanent or temporary right-of-way. While approximately 0.14 acre of reacquisition of apparent existing right-of-way will be required, the area is currently in a transportation use and will not cause a conversion of land from the waterfowl refuge to a transportation use, nor will construction alter or impact the gamebird habitat area in a way that affects the features that qualify the property for protection under Section 4(f). The access drive to the habitat area is located approximately 130 feet west of the construction limits, and a firm commitment is included in the Environmental Commitments section requiring that access to the drive be maintained at all times. Therefore, this project will not cause a use of the Section 4(f) resource through permanent incorporation, temporary occupancy, or constructive use.

Note that the original design plans for the project would have required permanent acquisition of approximately 0.07 acre from the gamebird habitat area in order to relocate the utilities along the north side of the SR 18, which is necessary to align the ditch with the widened bridge. On March 28, 2023, preliminary communications were initiated with the official with jurisdiction of the Section 4(f) resource, the property manager of the Willow Slough Fish and Wildlife Area (Appendix C-48). Subsequently however, the design was modified in order to avoid impacting the gamebird habitat area by partially relocating the utilities to the south side of SR 18. On August 31, 2023, the official with jurisdiction was notified of the design change and that the project would no longer cause a use of the Section 4(f) resource (Appendix C-45).

The Greenwood Ditch Gamebird Habitat Area has been identified on the plans and marked "do not disturb". The Section 4(f) resource must not be disturbed and access to the property cannot be impaired. If the scope of work or right-of-way changes in any way that permanently or temporarily impacts the gamebird habitat area, coordination with the INDOT DE will be required to reassess the Section 4(f) determination. This firm commitment is included in the Environmental Commitments of this document.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Section 6(f) Involvement

Presence

Use

Section 6(f) Property

Yes

No

Discuss Section 6(f) resources present or not present. Discuss if any conversion would occur as a result of this project. If conversion will occur, discuss the conversion approval.

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased or funded with LWCF monies to a non-recreation use. Properties protected by the LWCF Act are identified as Section 6(f) properties.

A review of Section 6(f) properties on the INDOT Environmental Services Division (ESD) website revealed a total of three LWCF funded projects in Benton County, all of which were for the same property, the Fowler Park and Community Swimming Pool (Appendix I-1). This property is not located within or adjacent to the project area; therefore, there will be no impacts to Section 6(f) properties.

SECTION F – Air Quality

STIP/TIP and Conformity Status of the Project

- Is the project in the most current STIP/TIP?
- Is the project located in an MPO Area?
- Is the project in an air quality non-attainment or maintenance area?
- If Yes, then:
 - Is the project in the most current MPO TIP?
 - Is the project exempt from conformity?
- If No, then:
 - Is the project in the Transportation Plan (TP)?
 - Is a hot spot analysis required (CO/PM)?

Yes	No
X	
	X
	X

Location in STIP:

Name of MPO (if applicable):

Location in TIP (if applicable):

Level of MSAT Analysis required?

Level 1a Level 1b Level 2 Level 3 Level 4 Level 5

Page 5 of the FY 2024-2028 STIP, Print Date 8/28/2023

N/A

N/A

Describe if the project is listed in the STIP and if it is in a TIP. Describe the attainment status of the county(ies) where the project is located. Indicate whether the project is exempt from a conformity determination. If the project is not exempt, include information about the TP and TIP. Describe if a hot spot analysis is required and the MSAT Level.

STIP/TIP

This project is included in the Fiscal Year (FY) 2024-2028 Statewide Transportation Improvement Program (STIP) (Appendix H-3).

Attainment Status

This project is located in Benton County, which is currently in attainment for all criteria pollutants according to the Environmental Planning Agency's Green Book website (<https://www.epa.gov/green-book>). Therefore, the conformity procedures of 40 CFR Part 93 do not apply.

MSAT Level 1a Analysis

This project is of a type qualifying as a categorical exclusion (Group 1) under 23 CFR 771.117(c) or exempt under the Clean Air Act conformity rule under 40 CFR 93.126, and as such, a Mobile Source Air Toxics analysis is not required.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

SECTION G - NOISE

Noise

Yes No

Is a noise analysis required in accordance with FHWA regulations and INDOT's traffic noise policy?

Date Noise Analysis was approved/technically sufficient by INDOT ESD: _____

Describe if the project is a Type I or Type III project. If it is a Type I project, describe the studies completed to date and if noise impacts were identified. If noise impacts were identified, describe if abatement is feasible and reasonable and include a statement of likelihood.

This project is a Type III project by default because it does not meet the criteria for a Type I or Type II project. In accordance with 23 CFR 772 and the current Indiana Department of Transportation Traffic Noise Analysis Procedure, this action does not require a formal noise analysis.

SECTION H – COMMUNITY IMPACTS

Regional, Community & Neighborhood Factors

Yes No

Will the proposed action comply with the local/regional development patterns for the area?

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Will the proposed action result in substantial impacts to community cohesion?

Will the proposed action result in substantial impacts to local tax base or property values?

Will construction activities impact community events (festivals, fairs, etc.)?

Does the community have an approved transition plan?

If No, are steps being made to advance the community's transition plan?

Does the project comply with the transition plan? (explain in the discussion below)

Discuss how the project complies with the area's local/regional development patterns; whether the project will impact community cohesion; and impact community events. Discuss how the project conforms with the ADA Transition Plan.

The project will replace an existing bridge on the existing alignment; therefore, the project will not impact plans for development in the area, nor will it impact community cohesion. The project will require approximately 0.652 acre of permanent right-of-way acquisition, primarily from farmland. This will have a negligible impact on farmland production and property tax revenues.

An online review for fairs and festivals in Benton County identified two annual events, the 4-H County Fair in July and the Dan Patch Community Festival in September, both of which are located in Oxford, Indiana, 6.7 miles southwest of the project location. During construction, SR 18 will be closed to traffic, which will be detoured around the project using official and unofficial detours. The official detour would redirect traffic south of the project area using US 231 and US 52. Unofficial detours would likely be used by local traffic, such as using CR 850 E to CR 100 N to CR 700 E. Due to the availability of these detours, and as the official detour passes near Oxford, no substantial impacts on community events are anticipated.

The project is located in a rural part of Benton County, and there are no houses, commercial areas, sidewalks, or trails in or near project area, and the nearest town is 4.6 miles away; therefore, this project will have no involvement with sidewalks or other facilities regulated under the Americans with Disabilities (ADA) Act. Coordination with the Benton County ADA coordinator was conducted on September 12, 2023, who confirmed that Benton County has an approved transition plan and that the plan does not require any ADA-related improvements at the project location.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Public Facilities and Services

Discuss what public facilities and services are present in the project area and impacts (such as MOT) that will occur to them. Include how the impacts have been minimized and what coordination has occurred. Some examples of public facilities and services include health facilities, educational facilities, public and private utilities, emergency services, religious institutions, airports, transportation or public pedestrian and bicycle facilities.

Based on the RFI report (Appendix E) and the field investigation of August 3, 2022, there are no public facilities (health, educational, emergency response, religious, airport, pedestrian, bicycle, or other facilities) within 0.5 mile of the project area. One recreational facility and one managed lands site were identified within 0.5 mile of the project area, which were both associated with the Greenwood Ditch Gamebird Habitat Area, as discussed in the Section 4(f) section. There are no public facilities in or near the project area; therefore, no impacts are expected. Access to all properties will be maintained during construction.

Based on the approved RFI report, the project is not within 20,000 feet (3.8 miles) of a public airport. Coordination with the designer confirmed that no work or equipment will exceed 200 feet above the ground surface elevation. Therefore, no coordination or permits are needed for impacts to aviation airspace, and no coordination is required.

Overhead utilities are located on both sides of the road along the back of the apparent existing right-of-way. Coordination was conducted with the designer and utility providers throughout the project development process. Relocation of utilities is required and impacts for the relocations are reflected by the analysis of impacts described in this document.

Early coordination letters were sent to Benton County Commissioners, Council, Highway Department, and Surveyor's Office. No responses were received.

It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access.

Environmental Justice (EJ) (Presidential EO 12898)

During the development of the project were EJ issues identified?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Does the project require an EJ analysis?

If YES, then:

Are any EJ populations located within the project area?

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Will the project result in adversely high and disproportionate impacts to EJ populations?

Indicate if EJ issues were identified during project development. If an EJ analysis was not required, discuss why. If an EJ analysis was required, describe how the EJ population was identified. Include if the project has a disproportionately high or adverse effect on EJ populations and explain your reasoning. If yes, describe actions to avoid, minimize and mitigate these effects.

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. The project will not require any relocations, but based on the current plans, 0.652 acre of new permanent right-of-way will be acquired. Therefore, an EJ Analysis is required.

Potential EJ impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of EJ concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Benton County. The community that overlaps the project area is called the affected community (AC). In this project, the AC is Pine Civil Township, which is the smallest geographic area containing the project for which census data was available. An AC has a population of concern for EJ if the population is more than 50% minority or low-income or if the low-income or minority population is at least 125% of the COC's respective population. Data from the 2021 US Census Bureau's American Community Survey 5-Year Estimates were obtained on August 31, 2023. The data collected for minority and low-income populations within the AC are summarized in the below table.

Minority and Low-Income Data (US Census Bureau, 2021 American Community Survey 5-Year Estimate)

	COC – Benton County	AC – Pine Civil Township
Percent Minority	8.66%	0.00%
125% of COC	10.82%	AC < 125% of COC
AC > 50% Minority		No
EJ Population of Concern		No

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Percent Low-Income	16.71%	7.02%
125% of COC	20.89%	AC < 125% of COC
AC > 50% Low-Income		No
EJ Population of Concern		No

The AC, Pine Civil Township, has a percent minority population of 0.00%, which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain a minority population of EJ concern.

The AC, Pine Civil Township, has a percent low-income population of 7.02%, which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain a low-income population of EJ concern.

The census data sheets and map can be found in Appendices I-16 to I-21. No EJ populations were identified in or near the project area through the US Census Bureau's data or through agency coordination or field investigations; therefore, no further environmental justice analysis is warranted.

Relocation of People, Businesses or Farms

Will the proposed action result in the relocation of people, businesses or farms?
Is a BIS or CSRS required?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Number of relocations: Residences: 0 Businesses: 0 Farms: 0 Other: 0

Discuss any relocations that will occur due to the project. If a BIS or CSRS is required, discuss the results in the discussion below.

No relocations of people, businesses, or farms will take place as a result of this project.

SECTION I – HAZARDOUS MATERIALS & REGULATED SUBSTANCES

Hazardous Materials & Regulated Substances (Mark all that apply)

Documentation

- Red Flag Investigation (RFI)
- Phase I Environmental Site Assessment (Phase I ESA)
- Phase II Environmental Site Assessment (Phase II ESA)
- Design/Specifications for Remediation required?

X

Date RFI concurrence by INDOT SAM (if applicable): August 25, 2023

Include a summary of the potential hazardous material concerns found during review. Discuss in depth sites found within, directly adjacent to, or ones that could impact the project area. Refer to current INDOT SAM guidance. If additional documentation (special provisions, pay quantities, etc.) will be needed, include in discussion. Include applicable commitments.

Based on a review of GIS and available public records, an RFI was prepared by INDOT DE, and INDOT SAM concurred with the analysis on August 25, 2023 (Appendix E). No sites with hazardous material concerns (hazmat sites) or sites involved with regulated substances were identified in or within 0.5 mile of the project area. Further investigation for hazardous material concerns or regulated substances is not required at this time.

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

Part IV – Permits and Commitments

PERMITS CHECKLIST

Permits (mark all that apply)

Likely Required

Army Corps of Engineers (404/Section10 Permit)

Nationwide Permit (NWP)	X
Regional General Permit (RGP)	
Individual Permit (IP)	
Other	

IN Department of Environmental Management (401/Rule 5)

Nationwide Permit (NWP)	X
Regional General Permit (RGP)	
Individual Permit (IP)	
Isolated Wetlands	
Construction Stormwater General Permit (CSGP)	
Other	

IN Department of Natural Resources

Construction in a Floodway	
Navigable Waterway Permit	
Other	

Mitigation Required

US Coast Guard Section 9 Bridge Permit

Others (Please discuss in the discussion below)

List the permits likely required for the project and summarize why the permits are needed, including permits designated as "Other."

The project will have permanent and temporary impacts on Greenwood Ditch, a likely water of the US regulated under Sections 404 and 401 of the Clean Water Act, and permits from USACE and IDEM are anticipated. As permanent impacts to the stream are below the 300-foot and 0.1-acre thresholds, the project is anticipated to qualify for the NWP, and no stream mitigation is anticipated.

Based on the current plans and coordination with the designer, the construction limits cover an area of approximately 1.12 acre, of which approximately 0.93 acre will be disturbed during construction, which is under the one-acre threshold requiring an IDEM Construction Stormwater General Permit (CSGP). As shown on the Temporary Erosion and Sediment Control Detail Sheet (Appendix B-18), appropriate erosion and sediment control measures will be incorporated to minimize the off-site movement of sediment, as required by law.

While the project will impact the floodway of Greenwood Ditch, a CIF permit is not anticipated, as it satisfies the criteria for the rural bridge exemption. Therefore, per the Indiana Flood Control Act (IC 14-28-1), the project is expected to be exempt from IDNR permit requirements for impacts to the floodway.

Benton County's GIS website identifies Greenwood Ditch as a legal drain. The INDOT Ecology and Waterway Permitting Office coordinated with the County Surveyor, who responded on January 24, 2022, indicating that no county permits are required to perform the work (Appendix C-49).

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

ENVIRONMENTAL COMMITMENTS

List all commitments and include the name of agency/organization requesting/requiring the commitment(s). Listed commitments should be numbered.

Firm:

1. Greenwood Ditch Gamebird Habitat Area, located in the northwest quadrant of the project area, is a Section 4(f) resource. Impacts to this property must be avoided. The access drive to the Greenwood Ditch Gamebird Habitat Area must remain accessible at all times. If the scope of work or right-of-way changes in any way that permanently or temporary impacts the gamebird habitat area, coordination with INDOT DE will be required to reassess the Section 4(f) determination. (INDOT DE)
2. If the scope of work or permanent or temporary right-of-way amounts change, INDOT DE will be contacted immediately. (INDOT DE)
3. It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction activity that would block or limit access. (INDOT DE)
4. The SR 18 bridge over Greenwood Ditch (Structure No. 018-04-01689 B) may show evidence of use (i.e. nests) by bird species protected under the Migratory Bird Treaty Act (MBTA). Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. If present, nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Migratory Bird Protection RSP". (INDOT DE)
5. USFWS Bridge/Structure Assessment shall take place no earlier than two (2) years prior to the start of construction. If construction will begin after April 19, 2025, an inspection of the structure by a qualified individual, must be performed. Inspection of the structure should check for presence of bats/bat indicators. The results of the inspection must indicate no signs of bats. If signs of bats are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. (INDOT DE)
6. General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs. (USFWS, IPaC)
7. Lighting AMM 1: Direct temporary lighting away from suitable habitat during the active season. (USFWS, IPaC)
8. Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal. (USFWS, IPaC)
9. Tree Removal AMM 2: Apply time of year restrictions for tree removal when bats are not likely to be present (October 1 through March 31), or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. (USFWS, IPaC and IDNR DFW)
10. Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits). (USFWS, IPaC)
11. Tree Removal AMM 4: Do not remove documented Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or documented foraging habitat any time of year. (USFWS, IPaC)

For Further Consideration:

12. Stream crossings need to consider the ability of fish and wildlife to pass through the structure. Crossings must not create conditions that are less favorable for passage through the area compared to pre-disturbance conditions. To ensure fish passage is not obstructed, material should not be placed on the streambed above the existing flowline. (IDNR DFW)
13. The banklines must be maintained or restored under the replacement structure to allow for wildlife passage above the OHWM. All wildlife passage designs must include a smooth level pathway a minimum of 1-3 feet in width composed of natural substrate (soil, sand, gravel, etc.) or compacted aggregate fill over riprap (#2, #53, #73, etc.) tied into existing elevations both upstream and downstream. (IDNR DFW)
14. Combining vegetation with any of the following bank stabilization methods is recommended to provide additional bank protection while not compromising benefits to fish, wildlife, and botanical resources: geotextiles (erosion control blankets and/or turf reinforcement mats that are heavy-duty, biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles), vegetated geogrids or soil lifts, fiber rolls, glacial stone, or riprap. (IDNR DFW)
15. Riprap or other hard bank stabilization materials should be used only at the toe of the side slopes up to the ordinary high-water mark (OHWM) with the exception of areas directly under bridges for instance. The banks above the OHWM should be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees

Indiana Department of Transportation

County Benton

Route SR 18

Des. No. 2002000

native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. (IDNR DFW)

16. Impacts to non-wetland forest under one (1) acre but at least 0.10 acre in a rural or urban area should be mitigated at a minimum 1:1 ratio based on area of impact. If floodway impacts to forested wetland and non-wetland habitat areas combine to be 0.10 acres or more, mitigation should be done and coordinated with the biologist, as needed. (IDNR DFW)
17. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds. (IDNR DFW)
18. Use minimum average 6-inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (IDNR DFW)
19. Do not deposit or allow construction/demolition materials or debris to fall or otherwise enter the waterway. Any incidental fallen material or debris in the waterway must be removed within 24 hours using best management practices, particularly lifting material out of the waterway and not dragging it across the streambed whenever possible. (IDNR DFW)

APPENDICES

Appendix A: CE Level Thresholds Chart

Appendix B: Graphics

Project Location Map B-1
USGS 1:24k Topographic Map B-2
Indiana State Aerial Imagery B-3
Jurisdictional Surface Waters Map B-4
Ground Level Photography B-5 – B-10
Photo Orientation Map B-5
On-Site Photography B-6 – B-10
Right-of-Way Acquisition Diagram B-11
Design Plan B-12 – B-28

Appendix C: Early Coordination

Sample Early Coordination Letter C-1 – C-3
IDNR-DFW Response C-4 – C-6
NRCS Response C-7 – C-8
IGWS Response C-9 – C-11
Designer Coordination for Aviation Airspace C-12
INDOT Half-Mile Bat Check C-13
USFWS-IPaC NLAA Concurrence Verification Letter C-14 – C-27
USFWS-IPaC List of Threatened and Endangered Species C-28 – C-44
IDNR Greenwood Ditch Habitat Area (Section 4(f)) C-45 – C-48
Benton County Surveyor’s Office (County Drain Permits) C-49

Appendix D: Section 106 Documentation

Coordination for Advancement to Public Involvement D-1
Minor Projects Programmatic Agreement Documentation Pending
Minor Projects PA Programmatic Submittal and Assessment Form Pending
Supporting Documentation Pending

Appendix E: Red Flag Investigation

Red Flag Investigation E-1 – E-8
RFI Site Location Map E-6
RFI Infrastructure Map E-7
RFI Water Resources Map E-8

Appendix F: Waters of the US Report

Waters of the US Report and Supporting Documentation F-1 – F-31
Waters of the US Report Text F-1 – F-5
USGS NHD Map F-6
NRCS Soils Map F-7

DES: 2002000

SR 18 Bridge Replacement at the East Crossing of Greenwood Ditch, Benton County

GIS-Based Water Resources Map.....	F-8
USGS StreamStats Reports	F-9
IDNR Floodplain Analysis & Regulatory Assessment	F-10
Field-Identified Resources Maps.....	F11
WOUS Ground Level Photography	F-12 – F-21
WOUS Photo Orientation Map	F-12 – F-13
WOUS On-Site Photography	F-14 – F-21
Wetland Determination Data Forms.....	F-22 – F-27
Preliminary Jurisdictional Determination Form.....	F-28 – F-31

Appendix G: Public Involvement

Sampling Notice of Entry Letter (7/12/2022).....	G-1 – G-2
Sampling Notice of Entry Letter (4/24/2023).....	G-3 – G-4
Public Notice of Planned Improvement.....	Pending
Public Notice Publishers Affidavit.....	Pending

Appendix H: Air Quality

FY2024-2028 STIP Approval Letter.....	H-1 – H-2
FY2024-2028 STIP Project Listing.....	H-3

Appendix I: Additional Studies and Information

LWCF Benton County Section 6(f) Property List.....	I-1
INDOT Bridge Inspection Report	I-2 – I-11
INDOT Hydraulic Letter for Bridges	I-12 – I-14
INDOT Bridge/Small Structure Bat Inspection Data Sheet	I-15
EJ Analysis Supporting Information	I-16 – I-21
EJ Analysis Map.....	I-16
US Census Data: Hispanic or Latino Origin by Race	I-17 – I-18
US Census Data: Poverty Status in the Past 12 Months.....	I-19 – I-21

DES: 2002000

SR 18 Bridge Replacement at the East Crossing of Greenwood Ditch, Benton County

Appendix A: CE Level Thresholds Chart

Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4 ¹
Section 106	Falls within guidelines of Minor Projects PA	“No Historic Properties Affected”	“No Adverse Effect”	-	“Adverse Effect” Or Historic Bridge involvement ²
Stream Impacts³	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	USACE Individual 404 Permit ⁴
Wetland Impacts³	No adverse impacts to wetlands	< 0.1 acre	-	< 1.0 acre	≥ 1.0 acre
Right-of-way⁵	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
Relocations⁶	None	-	-	< 5	≥ 5
Threatened/Endangered Species (Species Specific Programmatic for Indiana bat & northern long eared bat)*	“No Effect”, “Not likely to Adversely Affect” (With select AMMs ⁷)	“Not likely to Adversely Affect” (With any AMMs or commitments)	-	“Likely to Adversely Affect”	Project does not fall under Species Specific Programmatic ⁸
Threatened/Endangered Species (Any other species)*	Falls within guidelines of USFWS 2013 Interim Policy or “No Effect”	“Not likely to Adversely Affect”	-	-	“Likely to Adversely Affect”
Environmental Justice	No disproportionately high and adverse impacts	-	-	-	Potential ⁹
Sole Source Aquifer	No Detailed Groundwater Assessment	-	-	-	Detailed Groundwater Assessment
Floodplain	No Substantial Impacts	-	-	-	Substantial Impacts
Section 4(f) Impacts	None	-	-	-	Any ¹⁰
Section 6(f) Impacts	None	-	-	-	Any
Permanent Traffic Alteration	None	-	-	-	Any
Noise Analysis Required	No	-	-	-	Yes
Air Quality Analysis Required	No	-	-	-	Yes ¹¹
Approval Level					
<ul style="list-style-type: none"> • District Env. (DE) • Env. Serv. Div. (ESD) • FHWA 	Concurrence by DE or ESD	DE or ESD	DE or ESD	DE and/or ESD	DE and/or ESD; and FHWA

¹ Coordinate with INDOT Environmental Services Division. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.

² Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.

³ Total permanent impacts to streams (linear feet) and wetlands (acres).

⁴ US Army Corps of Engineers Individual 404 Permit

⁵ Total permanent and temporary right-of-way. This does not include reacquisition of existing apparent right-of-way.

⁶ If any relocations are within an area with a known or suspected Environmental Justice (EJ) or disadvantaged population, or has greater than 5 relocations, a conversation with FHWA, through INDOT ESD, is needed to confirm NEPA classification and outreach plan for the project.

⁷ Avoidance and Mitigation Measures (AMMs) determined by the IPAC determination key to be required that are not tree AMMs, bridge AMMs, or structure AMMs.

⁸ Projects that do not fall under a Species Specific Programmatic and results in a “Likely to Adversely Affect”. Other findings can be processed as a lower-level CE.

⁹ Potential for causing a disproportionately high and adverse impact.

¹⁰ Section 4(f) use resulting in an Individual, Programmatic, or *de minimis* evaluation. The only exception is a *de minimis* evaluation for historic properties (Effective January 2, 2020). If a historic property *de minimis* and no other use, mark the *None* column.

¹¹ Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.

* Includes the threatened/endangered species critical habitat

Note: Substantial public or agency controversy may require a higher-level NEPA document.

Appendix B: Graphics

Project Location Map B-1

USGS 1:24k Topographic Map B-2

Indiana State Aerial Imagery B-3

Jurisdictional Surface Waters Map B-4

Ground Level Photography B-5 – B-10

 Photo Orientation Map B-5

 On-Site Photography B-6 – B-10

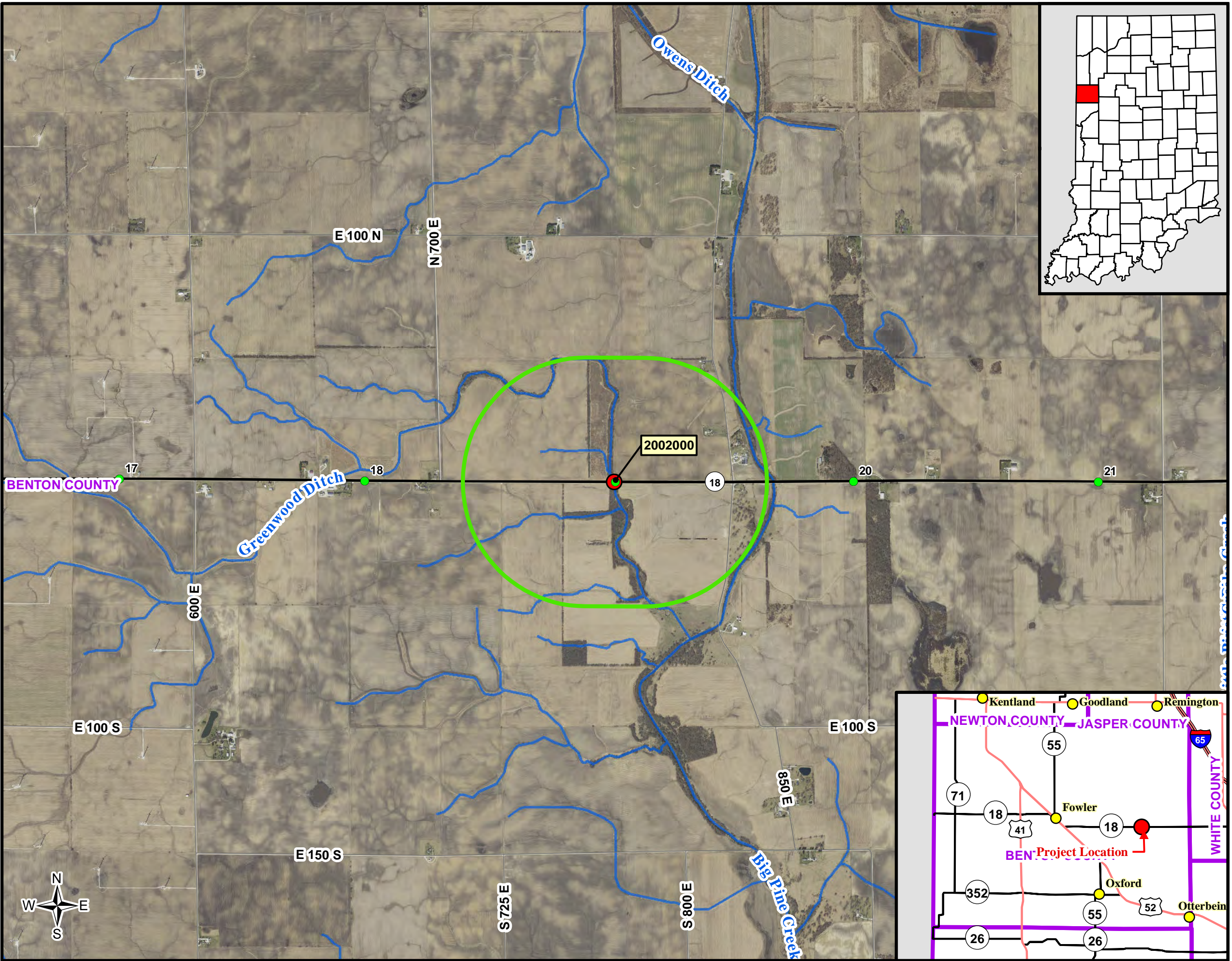
Right-of-Way Acquisition Diagram B-11

Design Plan B-12 – B-28

Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Replacement
6.84 Miles East of US 52
Benton County

Project Location Map

- Project Location
- Cities and Towns
- Road Reference Posts (RPs)
- Project Half-Mile Radius
- County Line
- Rivers and Streams
- State Highways
- US Highways
- Interstates
- Toll Roads
- Local Roads

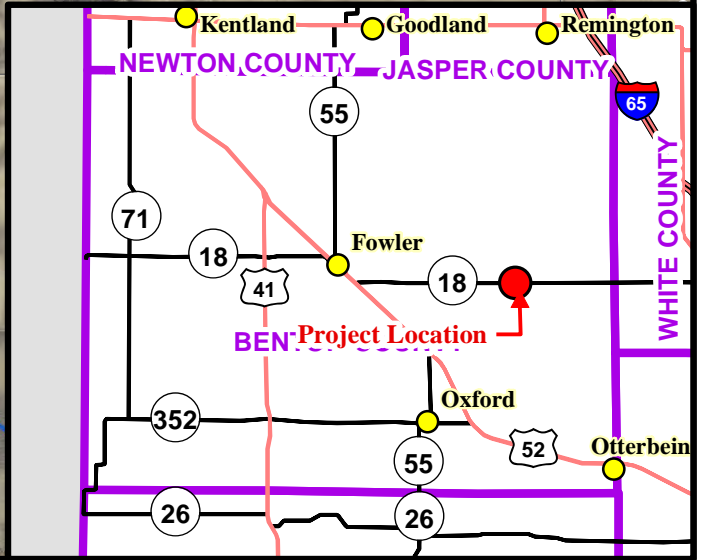


*Right-of-Way limits are estimated based on IndianaMap "Reference /Land Parcels County IGIO" layer; data provided by Indiana Geographic Information Office. Where parcels overlap sidewalk or road, the back of the sidewalk was assumed to be apparent existing right-of-way. Actual right-of-way to be determined by design.

0 1,400 2,800 4,200 5,600
 Feet

Absolute Scale: 1:24,000

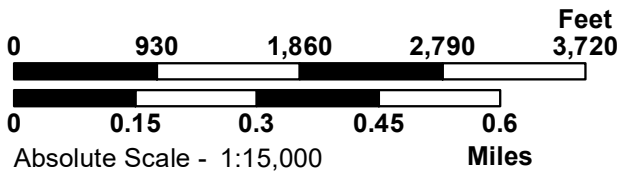
Sources:
Non Orthophotography Data -
 Obtained from the State of Indiana
 Geographical Information Office Library
Orthophotography - Obtained from Indiana
 Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83



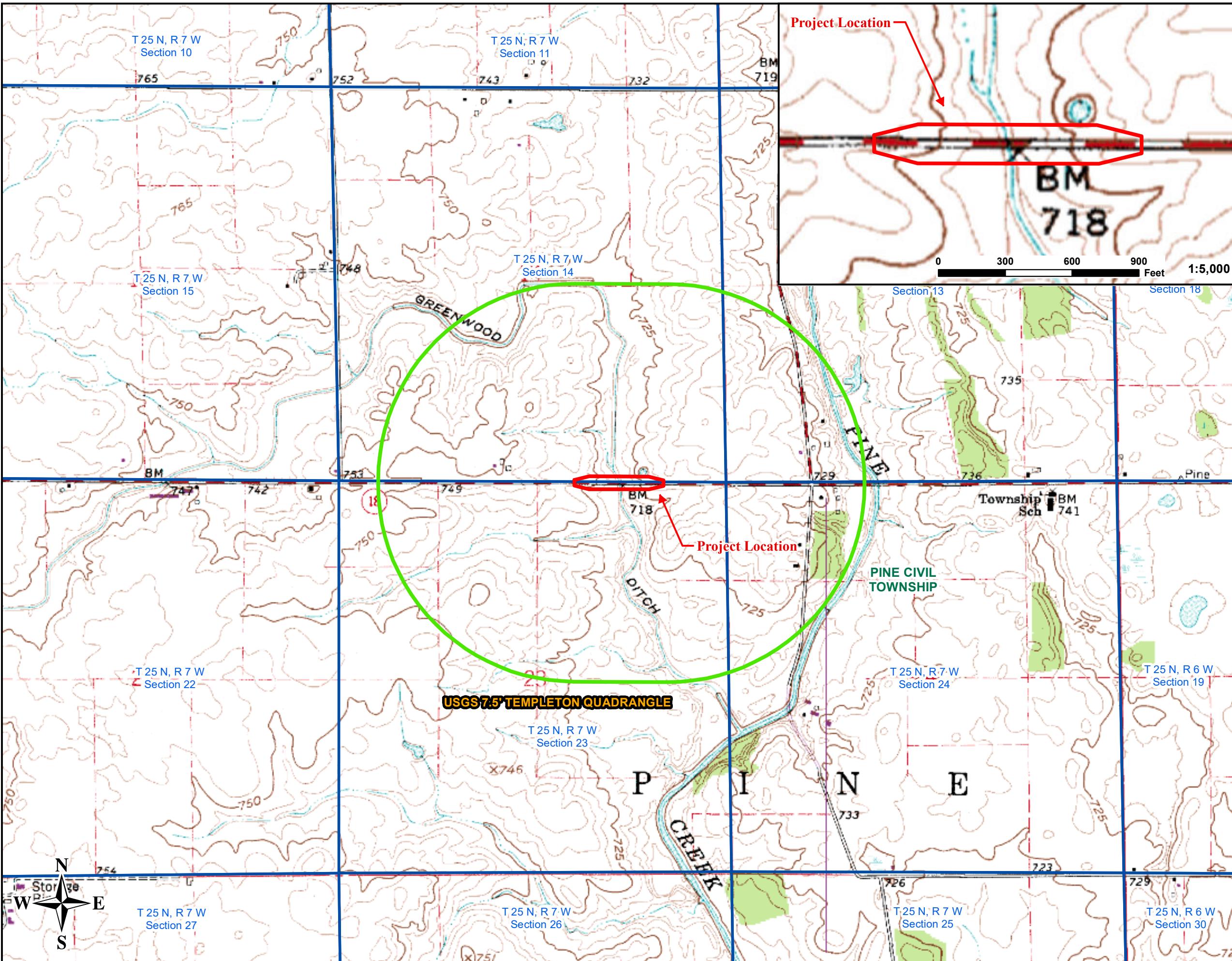
Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Replacement
6.84 Miles East of US 52
Benton County

USGS 1:24k Topographic Map

- Project Location
- Half-Mile Radius
- USGS 7.5' Quadrangle Boundary
- Public Land Survey System Boundary
- Civil Township Boundary



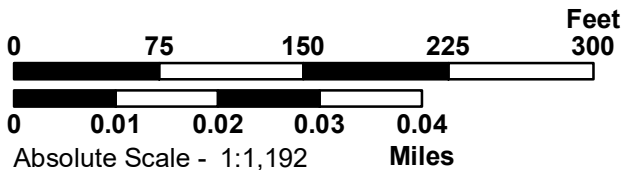
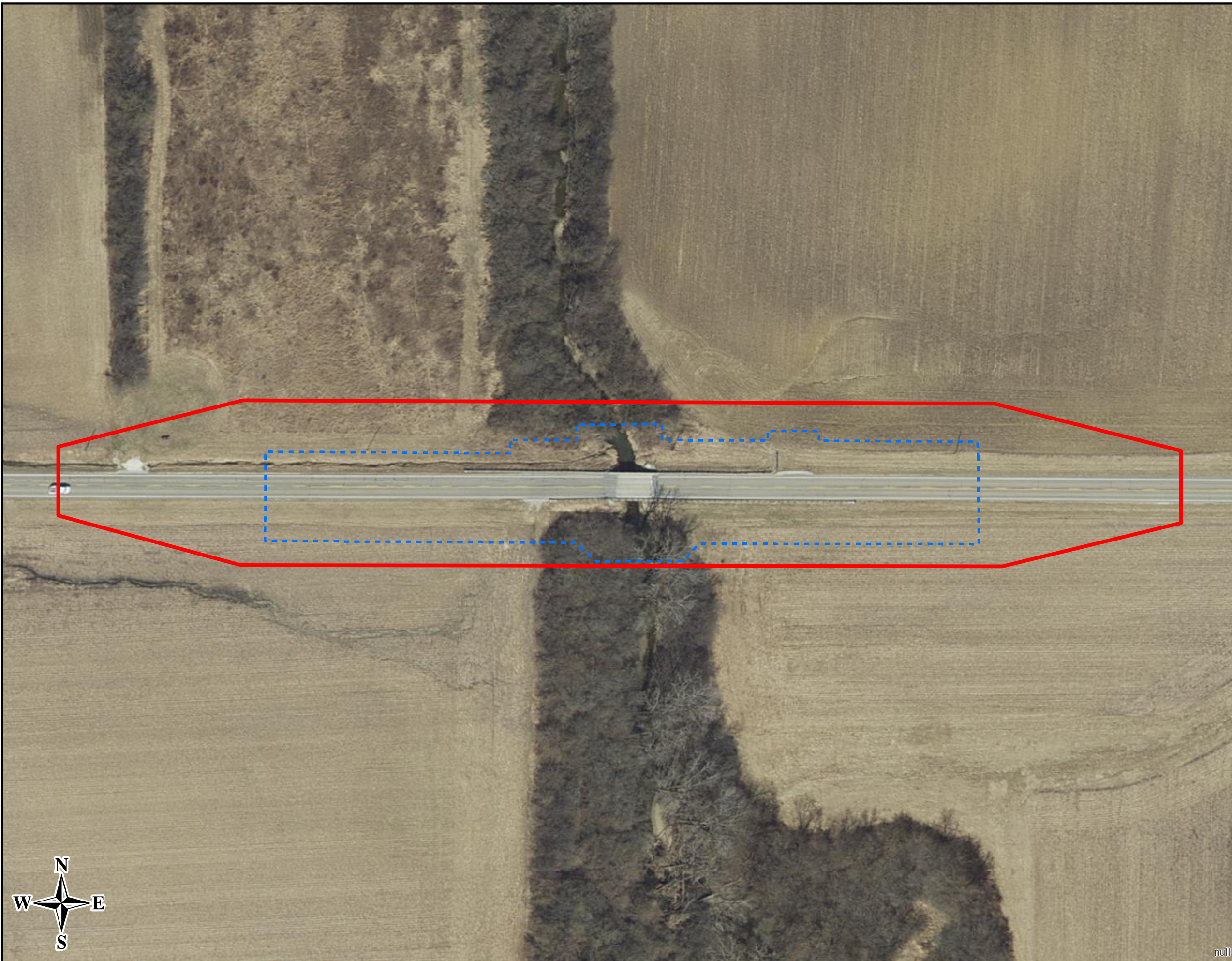
Sources:
Non Orthophotography Data -
 Obtained from the State of Indiana
 Geographical Information Office Library
Orthophotography - Obtained from Indiana
 Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83



Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Replacement
6.84 Miles East of US 52
Benton County

Indiana State Aerial Imagery

-  **Project Location**
-  **Proposed Right-of-Way Footprint**
-  **State Highways**
-  **US Highways**
-  **Interstates**
-  **Toll Roads**
-  **Local Roads**






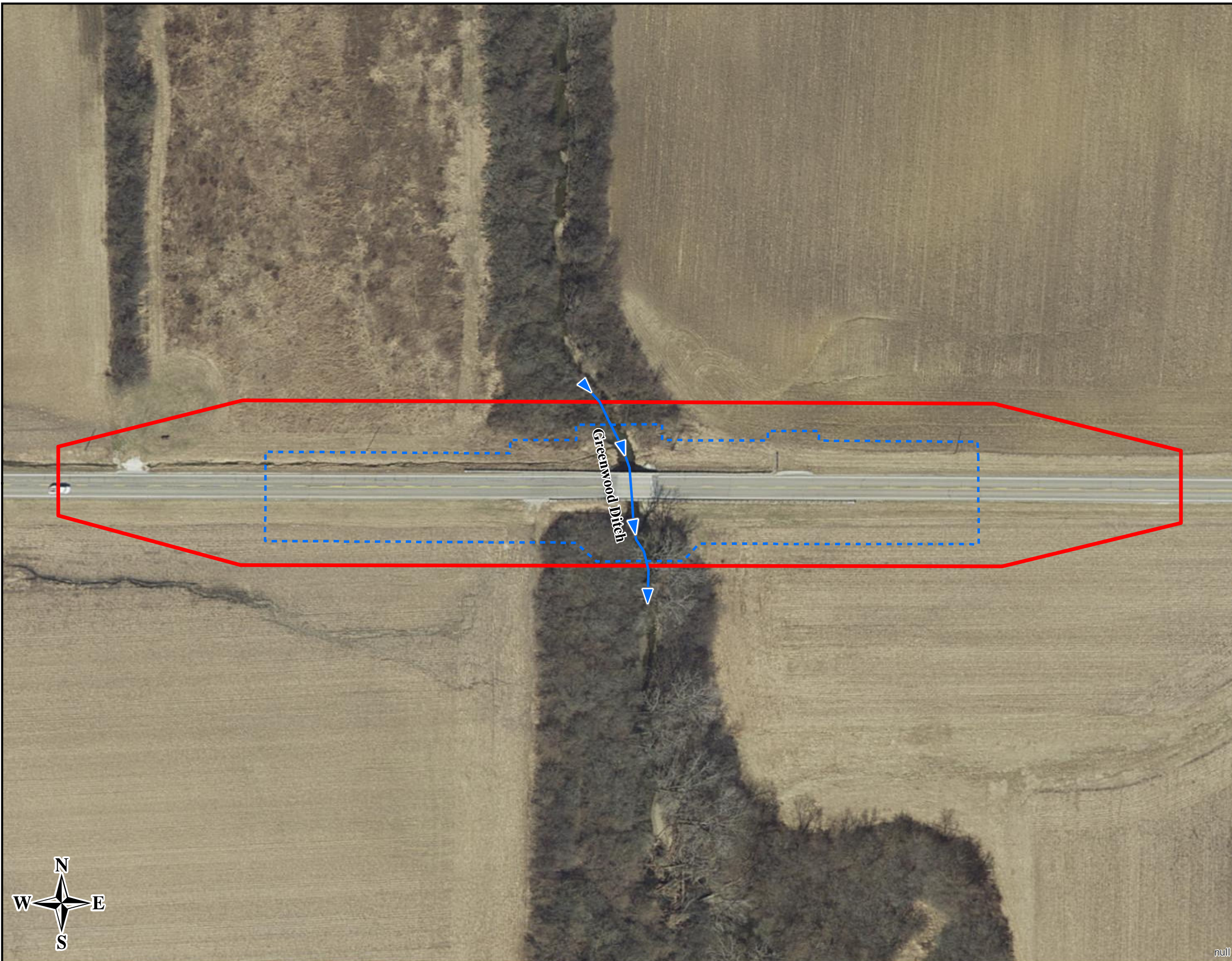
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Geographical Information Office Library
Orthophotography - Obtained from Indiana
Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83



Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Replacement
6.84 Miles East of US 52
Benton County

Jurisdictional Surface Waters Map

-  **Project Location**
-  **Proposed Right-of-Way Footprint**
-  **Likely Jurisdictional Streams**







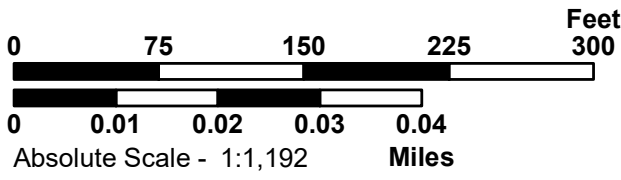
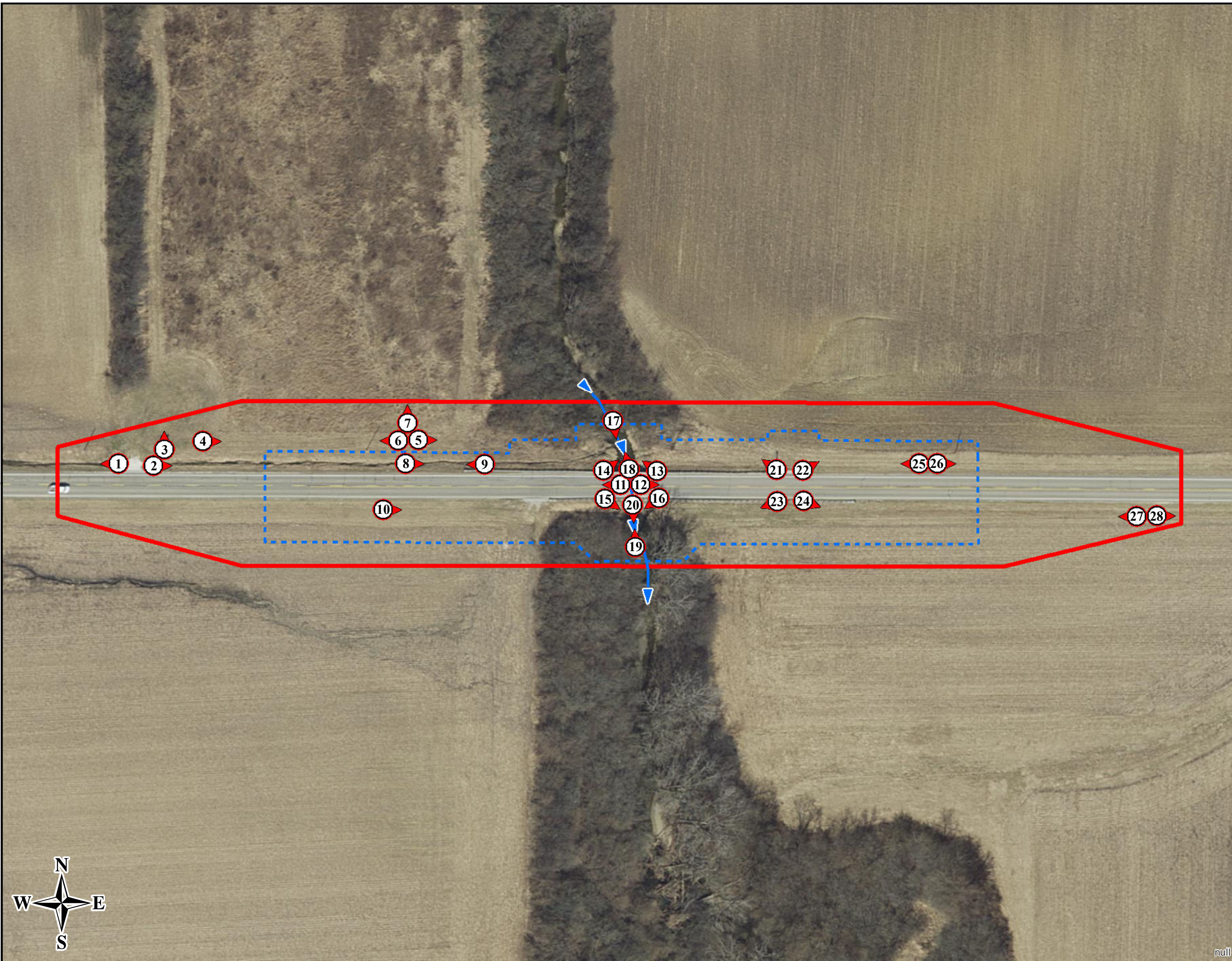
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Absolute Scale - 1:1,192

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Obtained from the State of Indiana
Geographical Information Office Library
Orthophotography - Obtained from Indiana
Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83

Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Replacement
6.84 Miles East of US 52
Benton County

Photo Orientation Map

-  Project Location
-  Proposed Right-of-Way
-  Photo Orientation Arrow
-  Likely Jurisdictional Streams



Sources:
Non Orthophotography Data -
 Obtained from the State of Indiana
 Geographical Information Office Library
Orthophotography - Obtained from Indiana
 Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
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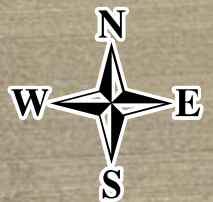




Photo 1 – Northwest Roadside Ditch: Facing west and away from the project area, from beyond the project limits, and along a roadside ditch of SR 18.



Photo 2 – Northwest Roadside Ditch: Facing east from beyond and toward the project area along the roadside ditch in the northwest quadrant. INDR's Green-wood Ditch Gamebird Habitat Area is located in northwest quadrant.



Photo 3 – Section 4(f) Resource: Facing north toward Greenwood Ditch Gamebird Habitat Area sign near access drive located west of project limits.



Photo 4 – Section 4(f) Resource: Facing east along vegetated path at southern border of Greenwood Ditch Gamebird Habitat Area from beyond project limits.



Photo 5 – Section 4(f) Resource: Facing east along vegetated path at southern border of Greenwood Ditch Gamebird Habitat Area. Proposed INDOT Right-of-Way would be located near center of path.



Photo 6 – Section 4(f) Resource: Facing west along vegetated path at southern border of Greenwood Ditch Gamebird Habitat Area. Proposed INDOT Right-of-Way would be located near center of path. Utility relocations possible, and could be relocated to within path.



Photo 7 – Section 4(f) Resource: Facing north toward Greenwood Ditch Gamebird Habitat Area from northern limits of proposed INDOT Right-of-Way.



Photo 8 – Northwest Roadside Ditch: Facing east along roadside ditch in northwest quadrant of project area. Plans propose relocating ditch away from the road.



Photo 9 – Northwest Roadside Ditch: Facing west along roadside ditch in northwest quadrant of project area. Plans propose relocating ditch away from the road and extending guardrail.



Photo 10 – Southwest Quadrant: Facing east along poorly defined roadside ditch and field access in southwest quadrant. Plans propose installing short ditch beneath field access, extending guardrail, and moving out right-of-way.



Photo 11 – Greenwood Ditch Bridge: Facing east along SR 18 from top of subject bridge that crosses Greenwood Ditch. The proposed preferred alternative is to replace the bridge with a 34-foot span 3-sided box culvert.



Photo 12 – Greenwood Ditch Bridge: Facing west along SR 18 from top of subject bridge that crosses Greenwood Ditch. Total bridge width to be widened by approximately six feet.



Photo 13 – Greenwood Ditch Crossing: Facing northwest quadrant of bridge and outfall of roadside ditch. Wingwalls and riprap to be installed. Wetland determination point along woods beyond ditch was non-wetland.



Photo 14 – Greenwood Ditch Crossing: Facing northeast quadrant of bridge and outfall of roadside ditch. Wingwalls and riprap to be installed. Vegetation surveyed in this quadrant were not indicative of wetlands.



Photo 15 – Greenwood Ditch Crossing: Facing southeast quadrant of bridge and outfall of roadside ditch. Wingwalls and riprap to be installed. Wetland determination point along woods was non-wetland.



Photo 16 – Greenwood Ditch Crossing: Facing southwest quadrant of bridge and outfall of roadside ditch. Wingwalls and riprap to be installed. Per aeriels, woodlands were recently reduced and overhead utilities installed.



Photo 17 – Greenwood Ditch Bridge: Facing downstream to the south along Greenwood Ditch toward SR 18 bridge (from the north). OHWM measured approximately 24.5 feet wide by 20 inches deep.



Photo 18 – Greenwood Ditch: Facing upstream to the north along Greenwood Ditch from immediately north of the bridge. Living mussels and mussel remains were present in ditch.



Photo 19 – Greenwood Ditch Bridge: Facing upstream to the north along Greenwood Ditch toward SR 18 bridge (from the south).



Photo 20 – Greenwood Ditch: Facing downstream to the south along Greenwood Ditch from immediately south of the bridge.



Photo 21 – Northeast Roadside Ditch: At field entrance, facing northwest toward poorly defined roadside ditch in northeast quadrant of project area. Plans propose relocating ditch away from the road.



Photo 22 – Northeast Roadside Ditch: At field entrance, facing northeast along roadside ditch in northeast quadrant of project area. Proposed plans would move right-of-way and utilities into ag field.



Photo 23 – Southeast Roadside Ditch: Facing southwest toward poorly defined roadside ditch in southeast quadrant of project area. Plans propose relocating ditch away from the road. Per aerials, overhead utilities were recently installed.



Photo 24 – Southeast Roadside Ditch: Facing southeast toward roadside ditch in southeast quadrant of project area. Proposed plans would move right-of-way and utilities into ag field.



Photo 25 – Northeast Roadside Ditch: Facing west along roadside ditch in northeast quadrant of project area. Proposed plans would move right-of-way and utilities into ag field.



Photo 26 – Northeast Roadside Ditch: Facing east along roadside ditch in northeast quadrant of project area toward western project terminus.

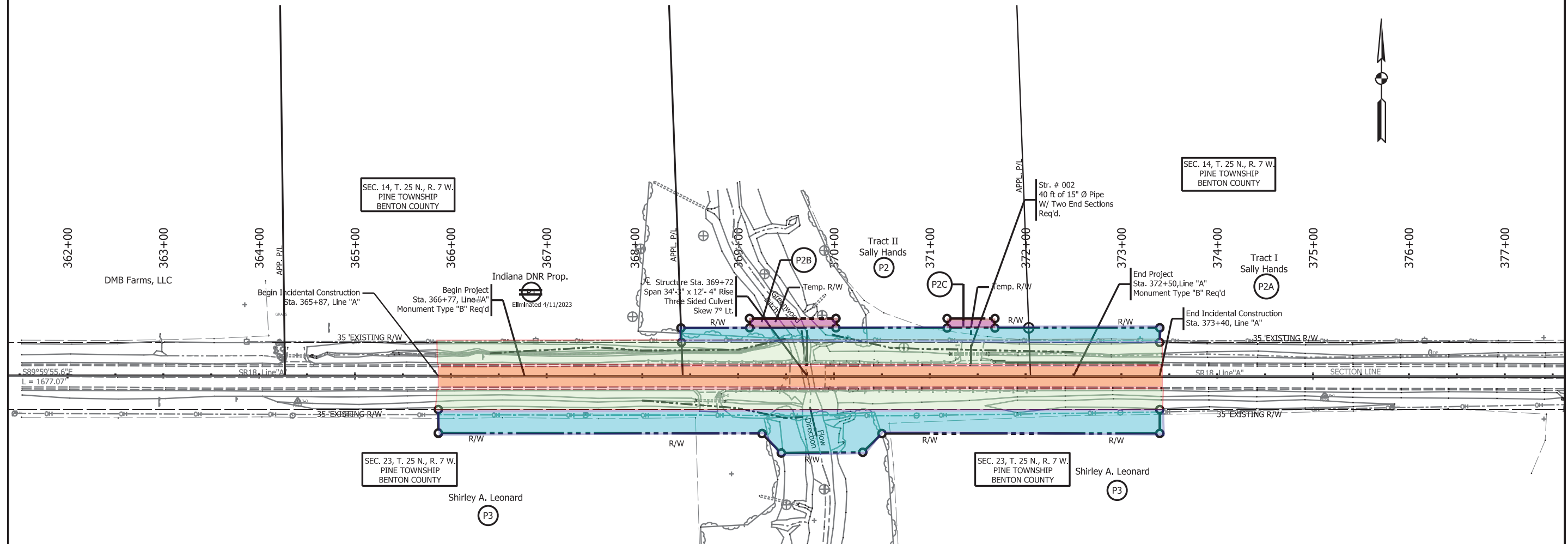


Photo 27 – Southeast Roadside Ditch: Facing west from beyond and towards the project limits. along roadside ditch toward the project area and the SR 18 bridge, from beyond project limits.



Photo 28 – Southeast Roadside Ditch: Facing east and away from the project area, from beyond the project limits, and along a roadside ditch of SR 18.

Right-of-Way Acquisition Diagram



All R/W and Existing Topo Described from Line "A" Line "A" to be Constructed.

	New Right-of-Way Acquisition: 0.652 acre
	Reqacquisition at Fair-Market Value: 0.689 acre
	Reqacquisition Under Pavement (\$1)
	Temporary Right-of-Way: 0.032 acre

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DATE	REVISION													

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PROJECT	DESIGNATION
2002000	2002000
CONTRACT	BRIDGE FILE
B-43453	018-04-10730

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
018-04-10730	Precast Reinforced Concrete Three-Sided Flat Top Culvert	34'-3" Span 12'-4" Rise 7° Lt. Skew	Greenwood Ditch	369+72 Line "A"

INDIANA DEPARTMENT OF TRANSPORTATION



BRIDGE PLANS

FOR SPANS OVER 20 FEET

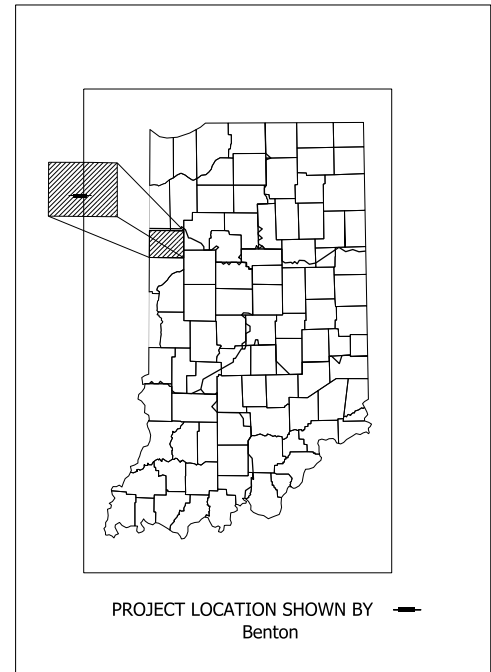
ROUTE: SR 18

PROJECT NO. 2002000 P.E.
2002000 R/W
2002000 CONST.

Bridge Replacement on SR18 over Greenwood Ditch
Located 6.84 Miles East of US 52,
Section 14 & 23, T-25-N, R-7-W, Pine Township, Benton County, Indiana

TRAFFIC DATA	
A.A.D.T. (2024)	719 V.P.D.
A.A.D.T. (2044)	847 V.P.D.
D.H.V (2044)	91 V.P.H.
DIRECTIONAL DISTRIBUTION	46.47 %
TRUCKS	20.00 % A.A.D.T. 23.91 % D.H.V.

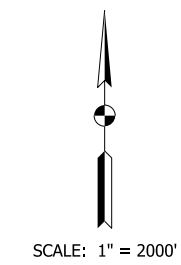
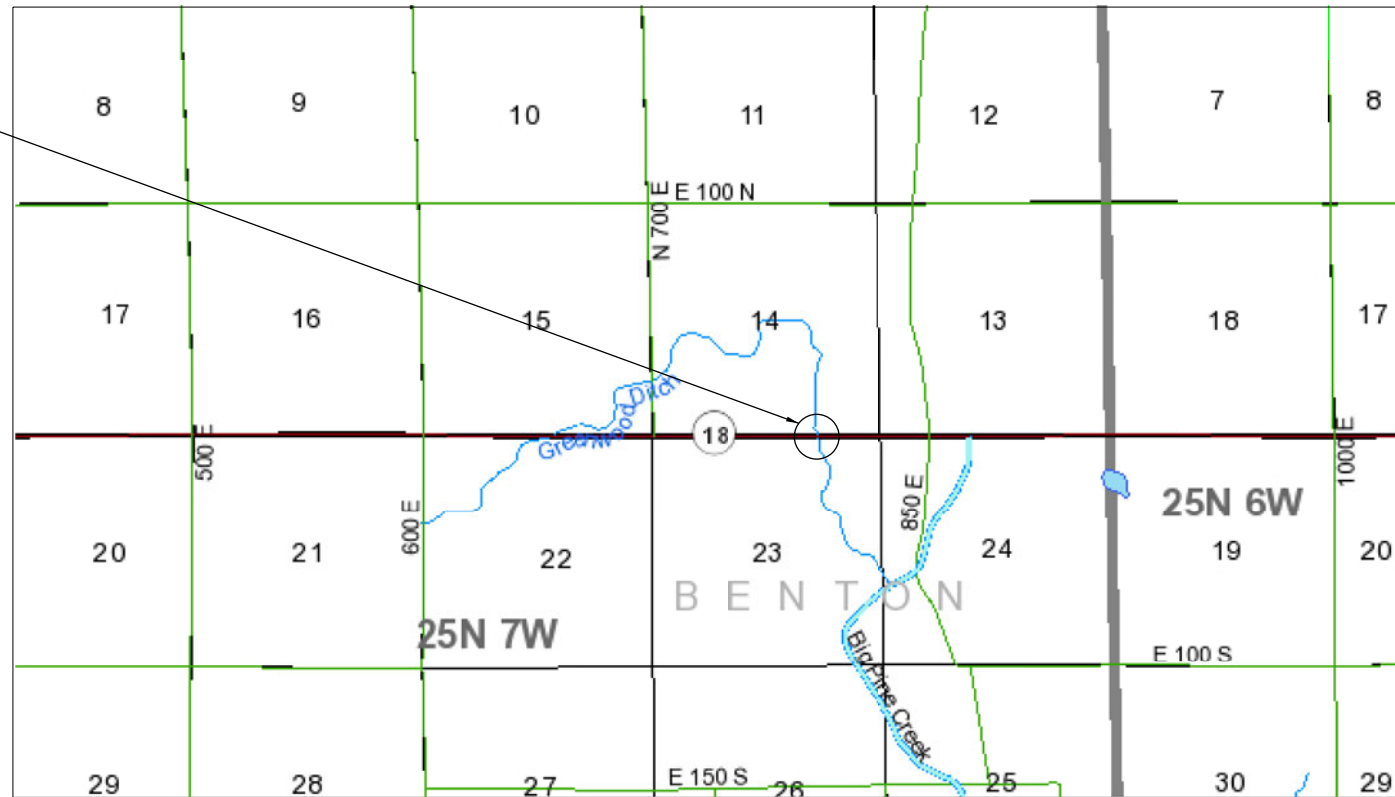
DESIGN DATA	
DESIGN SPEED	55 M.P.H.
PROJECT DESIGN CRITERIA	3R (NON-FREEWAY)
FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR
RURAL/URBAN	RURAL
TERRAIN	LEVEL
ACCESS CONTROL	NONE



LATITUDE: N 40°36'22" LONGITUDE: W 87°10'36"

BRIDGE LENGTH:	0.007	MI.
ROADWAY LENGTH:	0.102	MI.
TOTAL LENGTH:	0.109	MI.
MAX. GRADE:	3.31	%

Project Location
Bridge File No. 018-04-10730
Begin Project Sta. 366+77, Line "A"
End Project Sta. 372+50, Line "A"



INDIANA DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS DATED 2024
TO BE USED WITH THESE PLANS.

PLANS PREPARED BY: Martha Chernet, P.E. (317) 233-2067
PHONE NUMBER

CERTIFIED BY: _____ DATE _____

RECOMMENDED FOR LETTING: _____ DATE _____

INDIANA DEPARTMENT OF TRANSPORTATION

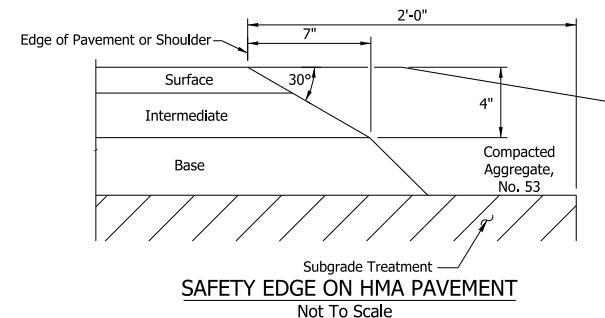
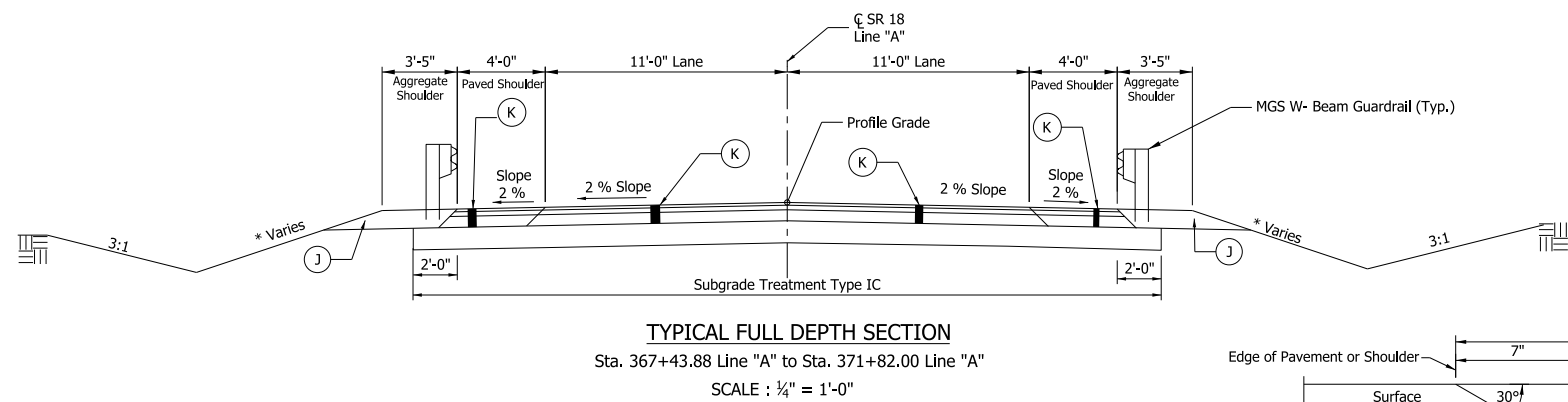
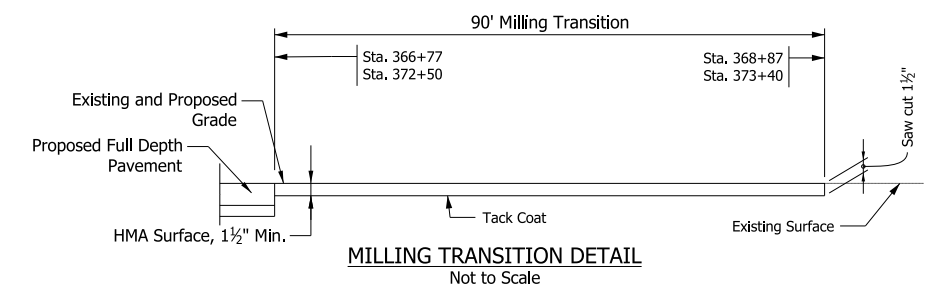
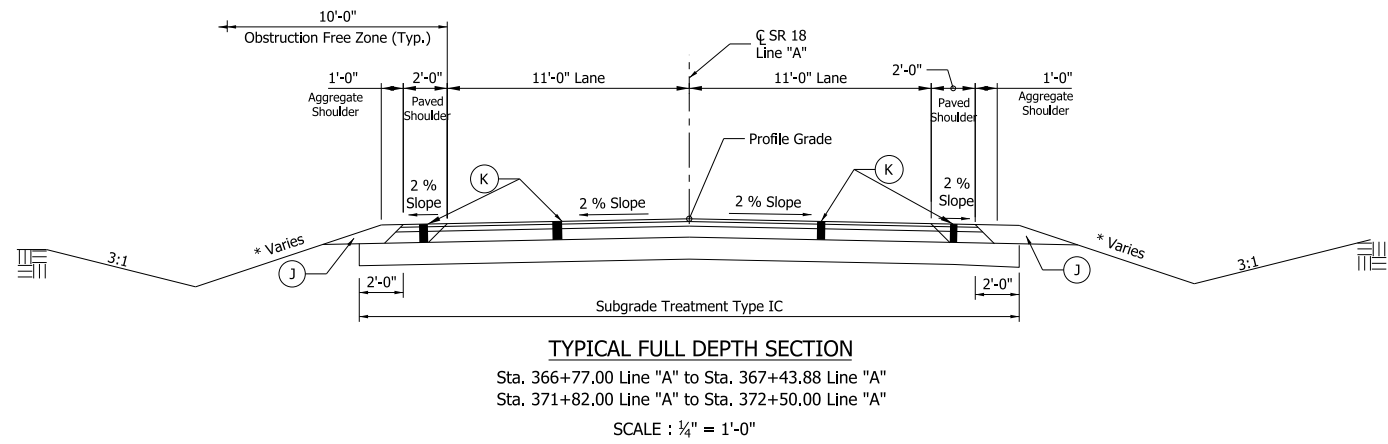
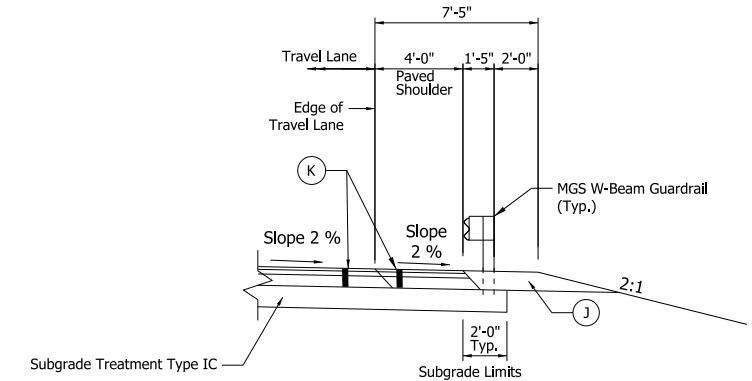
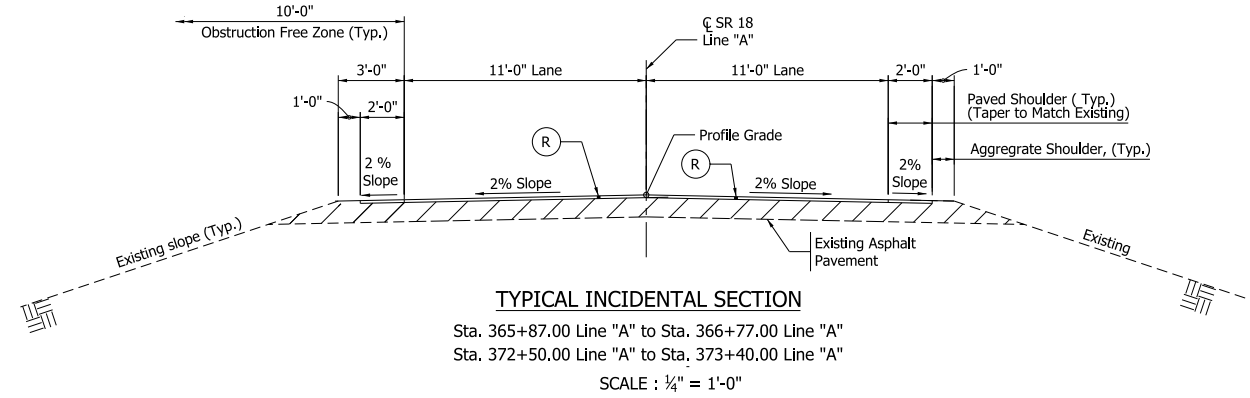
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018-04-10730	
DESIGNATION	
2002000	
SURVEY BOOK	
ELECTRONIC	1 of 19 SHEETS
CONTRACT	
PROJECT	
B-43453	2002000

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LEGEND:

- (K) 165 lb/sys QC/QA - HMA, 3, 64, Surface, 9.5 mm, on 275 lb/sys QC/QA - HMA, 3, 64, Intermediate, 19 mm on 660 lb/sys QC/QA - HMA, 3, 64, Base, 25 mm, on Subgrade Treatment Type IC on Geotextile for Pavement Type 2B
- (J) Variable Depth Compacted Aggregate, size # 53
- (R) 165 lbs/sys QC/QA - HMA, 3, 64, Surface, 9.5 mm on tack coat.



Note
 For Guardrail Limits, See Plan and Profile Sheet No. 6 and Approach Detail sheet No. 7
 For additional information on ditches and embankment slopes, see Cross-Section Sheets No. 12 - 18

* Embankment Slopes Varies

Left	Right
Slope 3:1 from Sta. 366+77.00 to Sta. 367+43.38	Slope 4:1 from Sta. 366+77 to Sta. 367+45.00
Slope Sta. 3:1 to 2:1 from 367+43.38 to Sta. 367+93.88	Slope 4:1 to 2:1 from Sta. 367+45.00 to Sta. 367+95.00
Slope 2:1 from Sta. 367+93.38 to Sta. 371+41.00	Slope 2:1 from Sta. 367+95.00 to Sta. 371+31.38
Slope 2:1 to 4:1 from Sta. 371+41.00 to Sta. 371+91.00	Slope 2:1 to 4:1 from Sta. 371+31.38 to Sta. 371+81.38
Slope 3:1 from Sta. 371+91.00 to Sta. 372+50	Slope 4:1 from Sta. 371+81.38 to Sta. 372+50.00

DATE	REVISION

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
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CHECKED: MH	12/2022	CHECKED: MTC

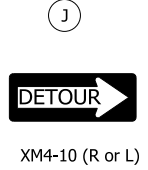
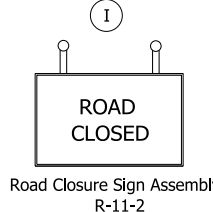
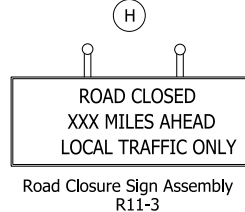
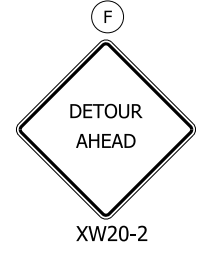
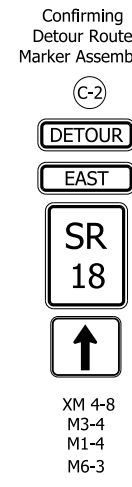
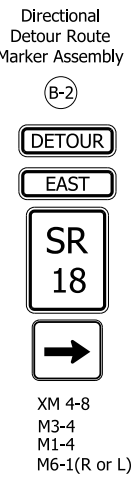
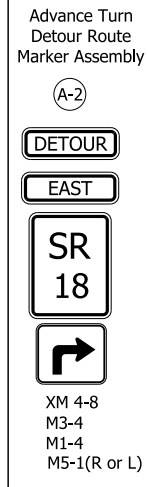
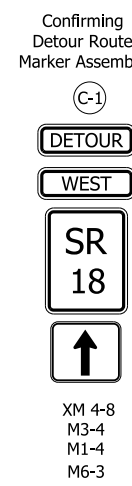
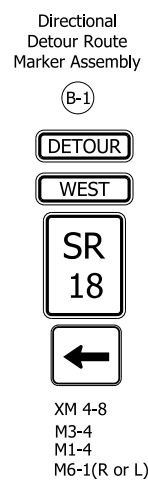
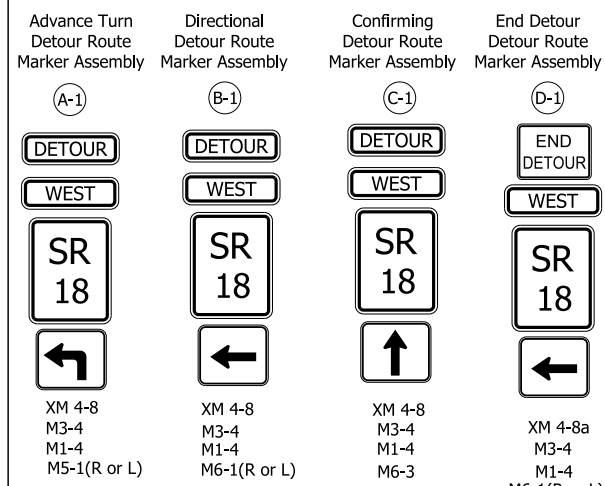
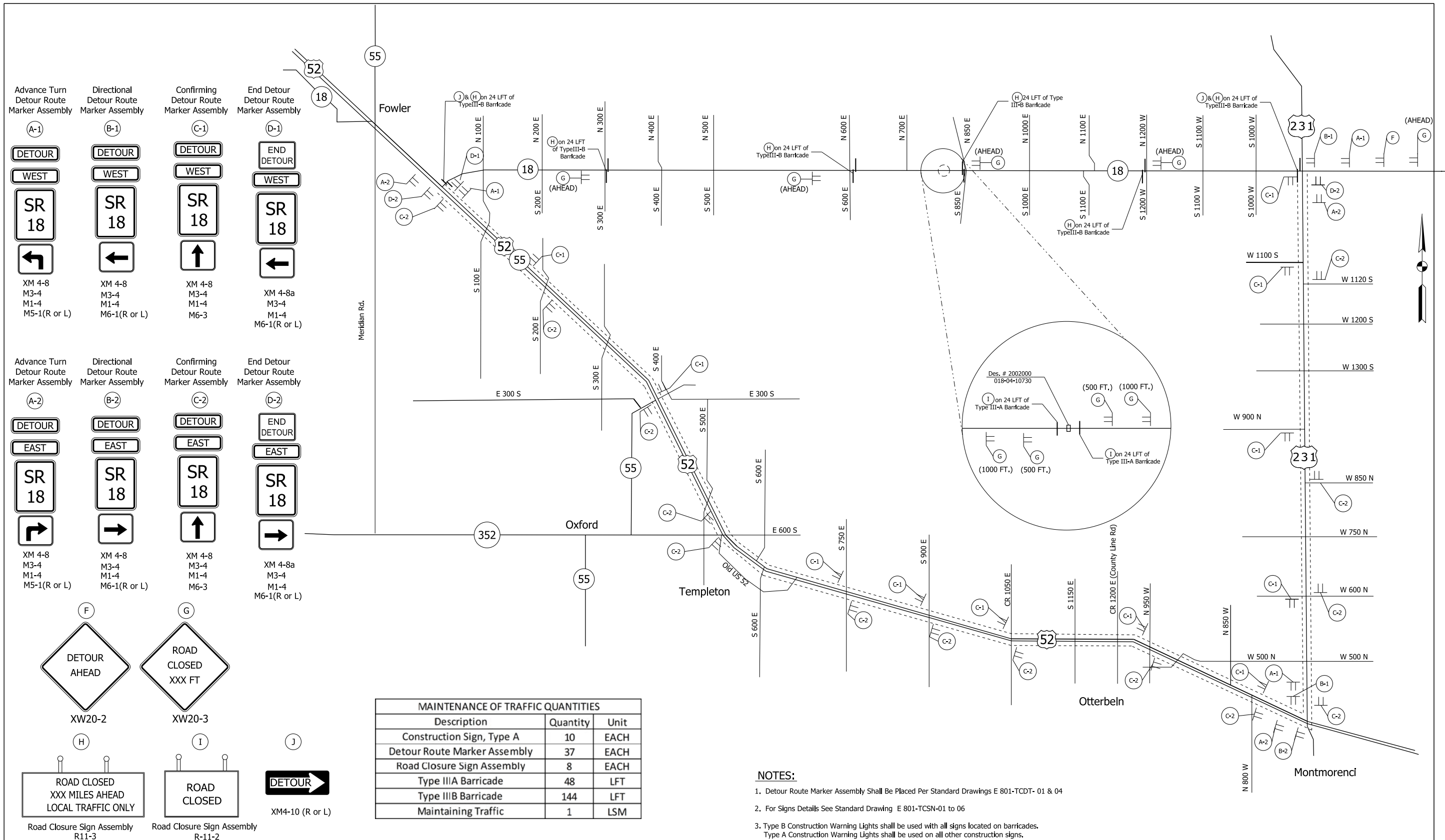
INDIANA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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DESIGNATION	2002000
SURVEY BOOK	SHEETS
ELECTRONIC	3 of 19
CONTRACT	PROJECT
B-43453	2002000

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 Model: BR_Detail Sheet



MAINTENANCE OF TRAFFIC QUANTITIES		
Description	Quantity	Unit
Construction Sign, Type A	10	EACH
Detour Route Marker Assembly	37	EACH
Road Closure Sign Assembly	8	EACH
Type IIIA Barricade	48	LFT
Type IIIB Barricade	144	LFT
Maintaining Traffic	1	LSM

- NOTES:**
1. Detour Route Marker Assembly Shall Be Placed Per Standard Drawings E 801-TCDT- 01 & 04
 2. For Signs Details See Standard Drawing E 801-TCSN-01 to 06
 3. Type B Construction Warning Lights shall be used with all signs located on barricades. Type A Construction Warning Lights shall be used on all other construction signs.

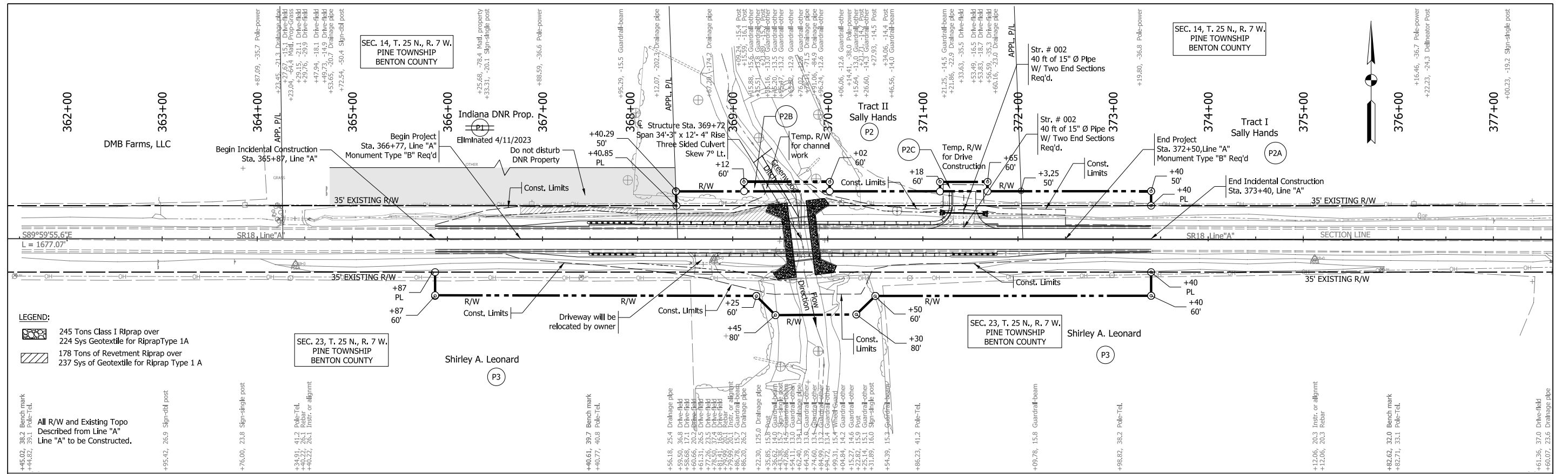
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CHECKED: MH	4/2022	CHECKED: MTC
		4/2022

INDIANA DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	

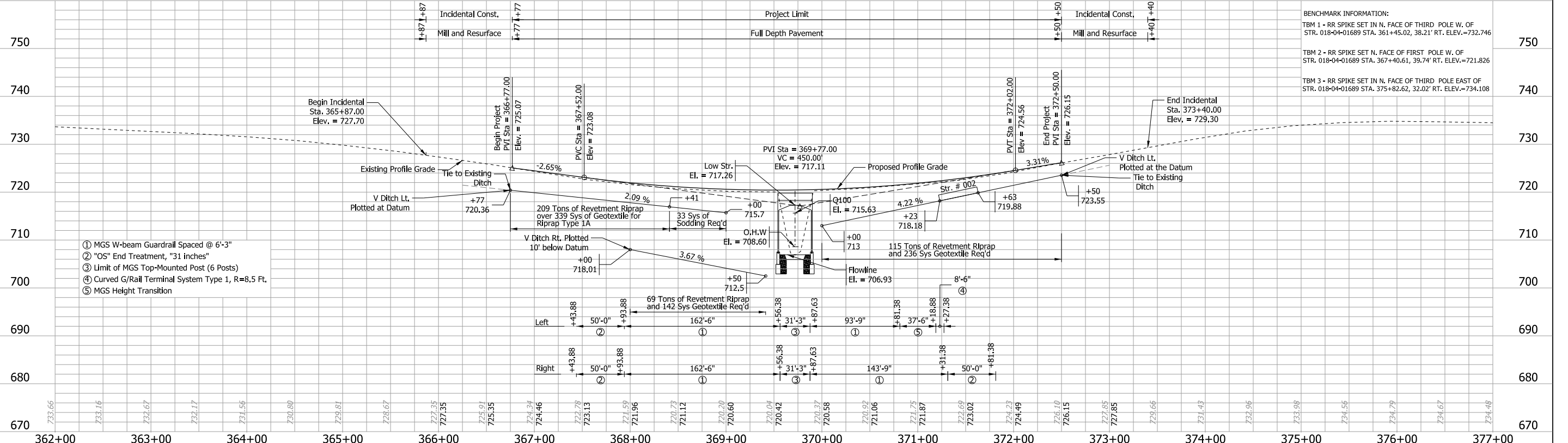
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CONTRACT	PROJECT
B-43453	2002000

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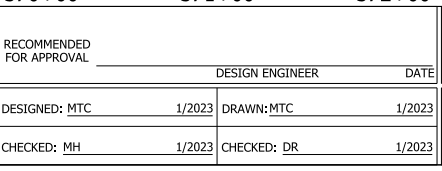
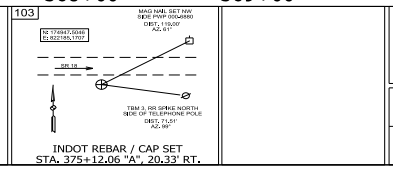
- LEGEND:**
- 245 Tons Class I Riprap over 224 Sys Geotextile for Riprap Type 1A
 - 178 Tons of Revetment Riprap over 237 Sys of Geotextile for Riprap Type 1A

All R/W and Existing Topo Described from Line "A" Line "A" to be Constructed.



- ① MGS W-beam Guardrail Spaced @ 6'-3"
- ② "OS" End Treatment, "31 inches"
- ③ Limit of MGS Top-Mounted Post (6 Posts)
- ④ Curved G/Rail Terminal System Type 1, R=8.5 Ft.
- ⑤ MGS Height Transition

DATE	REVISION



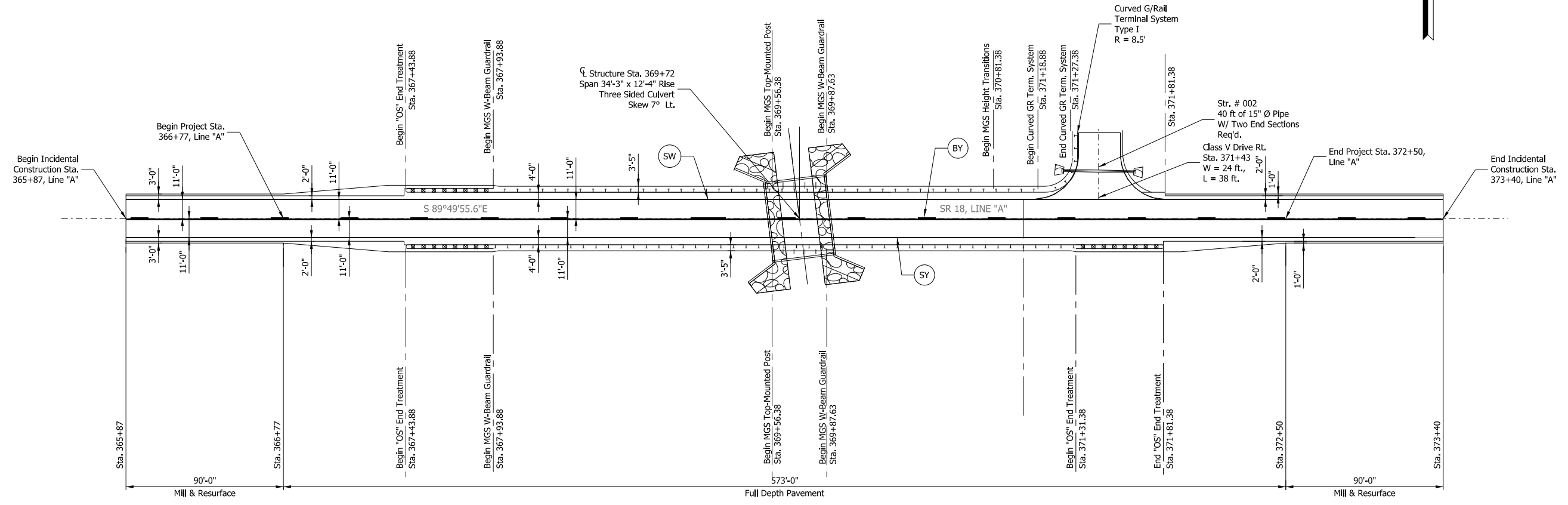
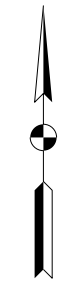
INDIANA DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE Line "A"

DESIGNED: MTC	1/2023	DRAWN: MTC	1/2023
CHECKED: MH	1/2023	CHECKED: DR	1/2023

SCALE	BRIDGE FILE
Horz. 1" = 50'	018-04-10730
Vert. 1" = 10'	DESIGNATION
	2002000
SURVEY BOOK	SHEETS
ELECTRONIC	6 of 19
CONTRACT	PROJECT
B-43453	2002000

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ROADWAY AND GUARDRAIL LAYOUT
Scale: 1" = 30'-0"

LEGEND

- SW Solid White, 1506 LFT
- SY Solid Yellow Line, 753 LFT
- BY Broken Yellow Line, 188 LFT

DATE	REVISION

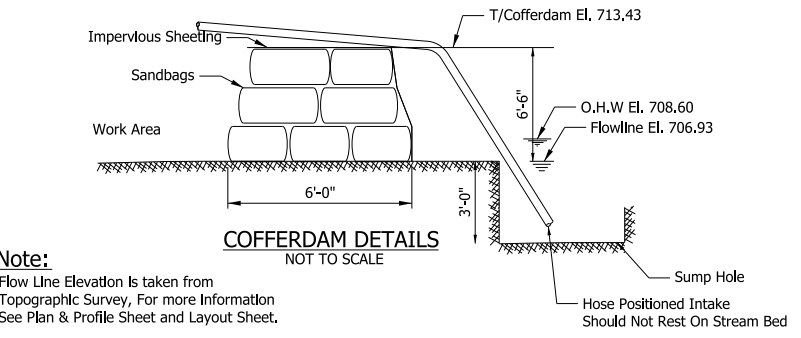
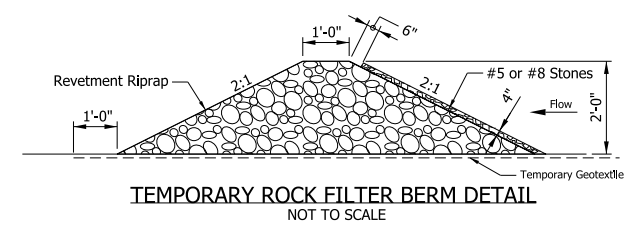
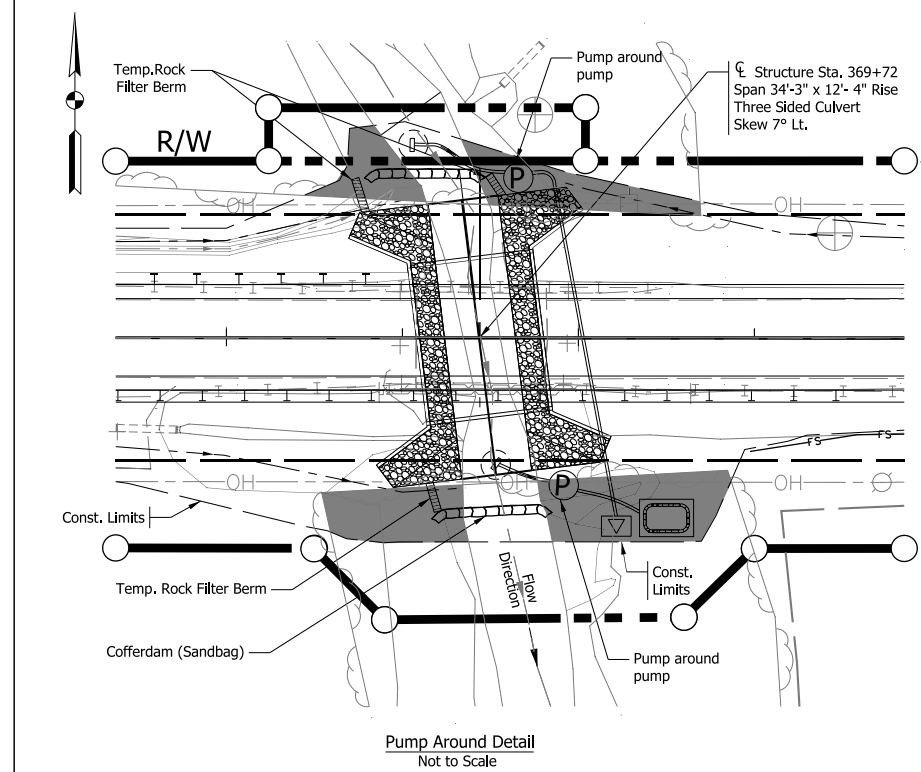
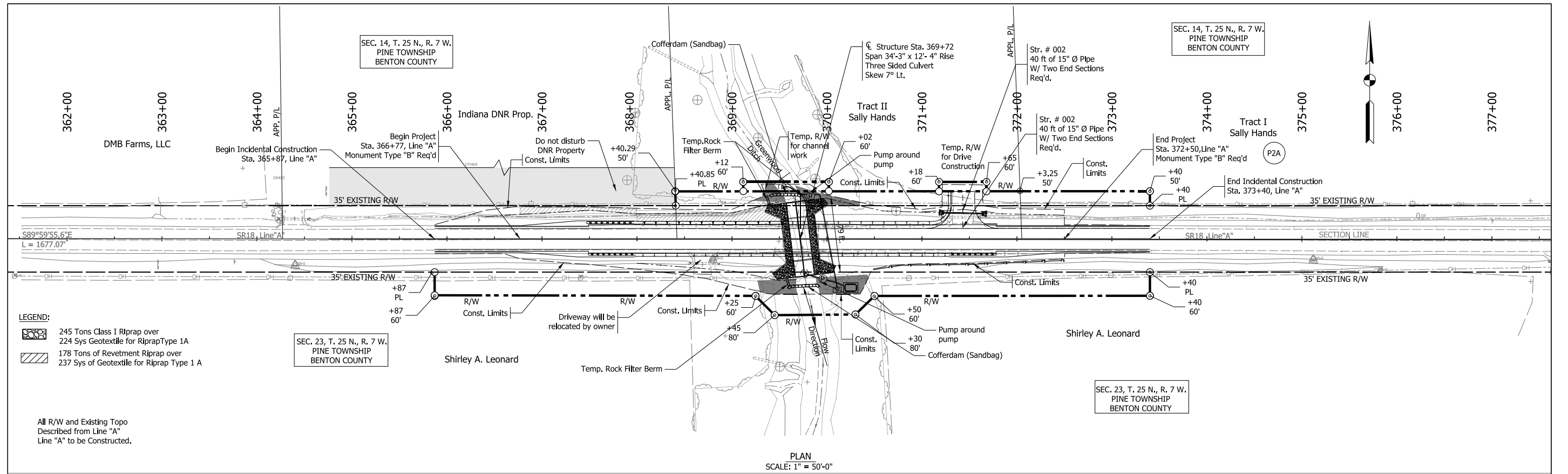
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1/2023	CHECKED: MH	1/2023
1/2023	CHECKED: MTC	1/2023

INDIANA DEPARTMENT OF TRANSPORTATION	
APPROACH DETAIL	

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AS NOTED	018-04-10730
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	SHEETS
	7 of 19
CONTRACT	PROJECT
B-43453	2002000

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Note:
Flow Line Elevation Is taken from Topographic Survey, For more Information See Plan & Profile Sheet and Layout Sheet.

Estimated Quantity For Temporary Sand Bags Below OHW (Temporary Cofferdam) is 0.008 acre.

- LEGEND**
- Temporary Check Dam
 - Temporary Filter Sock
 - Temporary Rock Filter Berm
 - Pump Around
 - Filter Bags on #5 or #8 Stone
 - Temporary Sandbag Cofferdam
 - Temporary Sump Hole
 - Temporary Diffuser (Energy Dissipator), (Riprap)
 - Hose Intake
 - Tree Clearing (0.055 ac. Total.)

NOTES:

Temporary seeding shall be applied at the end of the day to any disturbed soils due to construction operations, and due to any loose or moist soils where additional work is not scheduled for at least 7 days and as directed by the engineer.

For Temporary Check Dams See Std Dwg E-205-TECD-06, 07, & 08
For Filter Sock placement See Std Dwg E-205-TECP- 10

DATE	REVISION

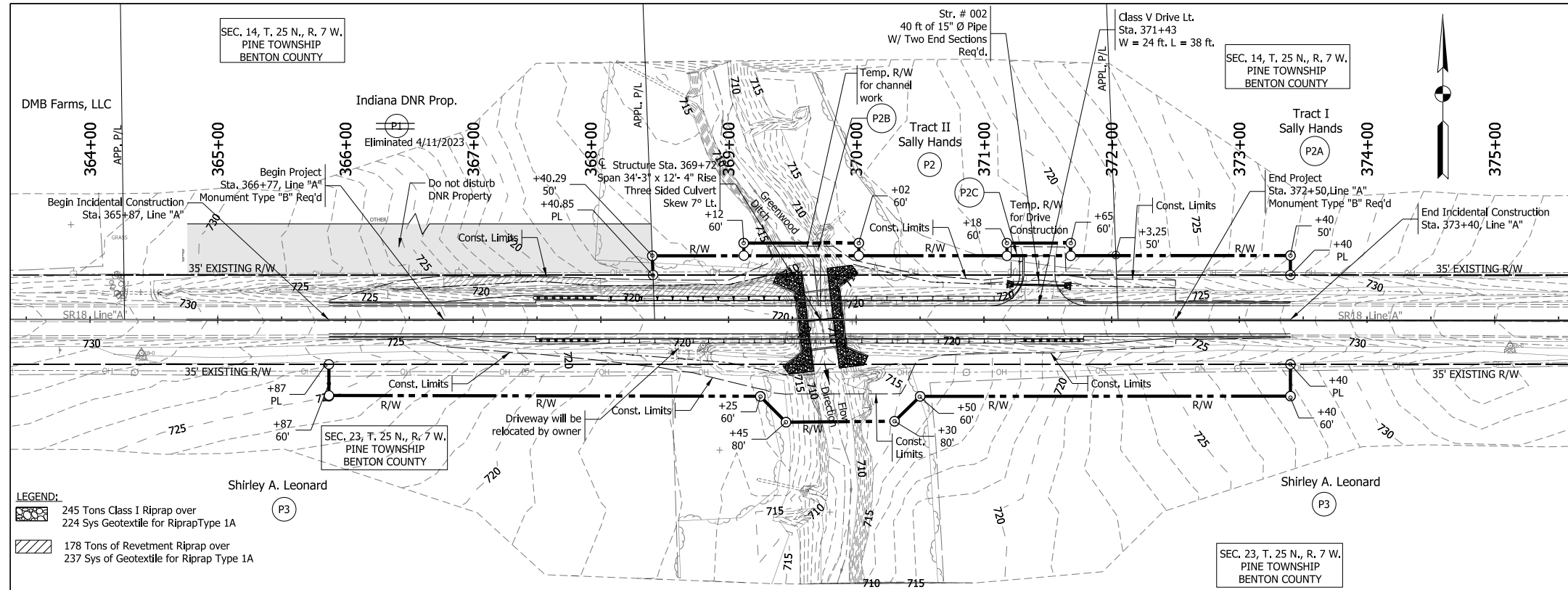
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INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND SEDIMENT CONTROL DETAIL SHEET

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Vert. 1" = 10'	DESIGNATION
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SURVEY BOOK	SHEETS
ELECTRONIC	8 of 19
CONTRACT	PROJECT
B-43453	2002000

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PRESENT STRUCTURE

Single Span Prestressed Concrete Box Beam Bridge, Span Length 34 ft, Skew 0° (To be Removed)

HYDRAULIC DATA

Waterway Opening Required	195.42 Sq. ft.
Waterway Opening Provided	195.42 Sq. ft.
Drainage Area	7.26 Sq. mi.
Design Discharge, Q100	1860 Cfs.
Velocity	7.96 Fps.
Q100 Elev.	715.63 MSL
Backwater at Q100	1.33 ft.
Existing Waterway Opening	178.42 Sq. ft.
Existing Backwater	1.35 ft.
Proposed Low Structure Elev.	717.23 ft.
Existing Low Structure Elev.	717.23 ft.

HYDRAULIC SCOUR DATA

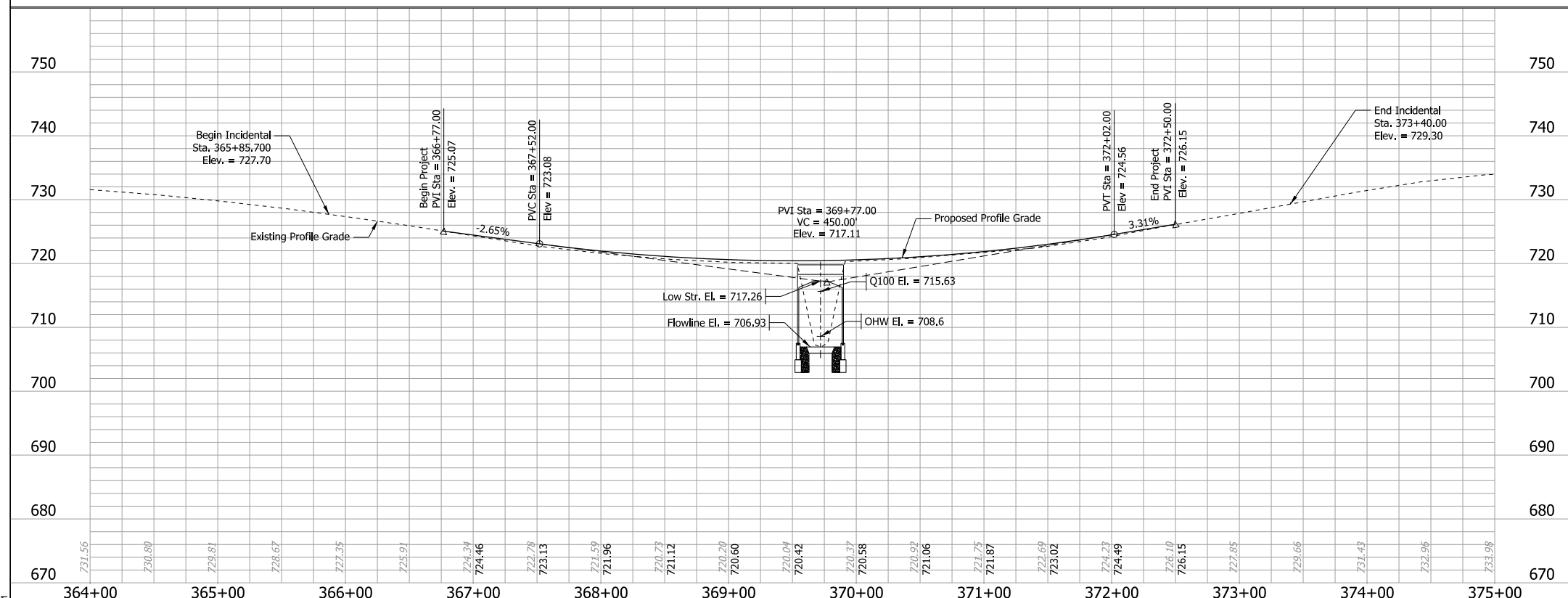
Scour Depth Q100 (Contraction)	= 0.00 ft.
Scour Depth Q100 (Total)	= 0.00 ft.
Low Scour Elev. Q100	= 706.93 ft.
Scour Depth Q500 (Contraction)	= 0.00 ft.
Scour Depth Q500 (Total)	= 0.00 ft.
Low Scour Elev. Q500	= 706.93 ft.

EARTHWORK TABULATION

Fill + 20%	823 Cys.
Common Excavation	303 Cys.
Usable Waterway Excavation (70%)	500 Cys.
Surplus Foundation Excavation	0 Cys.
Waste (Borrow)	20 Cys.
Total Waterway Excavation	715 Cys.
Benching (Estimated)	341 Cys.

No direct payment. Benching will not be paid for as Common Excavation.

PRECAST REINFORCED CONCRETE
FLAT TOPPED THREE - SIDED CULVERT
34'-3" SPAN X 12'-4" RISE, 7° Lt. SKEW
30'-0" CLEAR ROADWAY
OVER GREENWOOD DITCH ON SR 18,
IN BENTON COUNTY, INDIANA



Pkt: 8/28/2023 9:21 AM

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: MTC	1/2023	DRAWN: MTC
CHECKED: MH	1/2023	CHECKED: DR
		1/2023

INDIANA
DEPARTMENT OF TRANSPORTATION

LAYOUT
Line "A"

SCALE	BRIDGE FILE
Horz. 1" = 50'	018-04-10730
Vert. 1" = 10'	DESIGNATION
	2002000
SURVEY BOOK	SHEETS
ELECTRONIC	9 of 19
CONTRACT	PROJECT
B-43453	2002000

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