

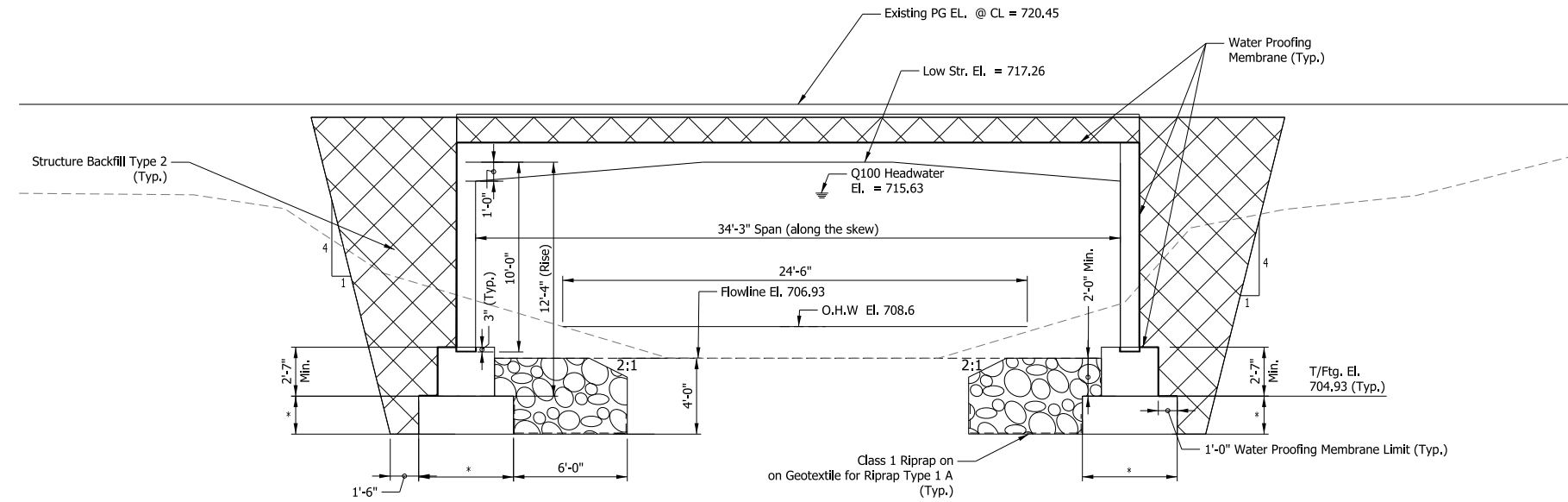
Note:
* Dimensions to be determined by precast manufacturer
For General Notes and Design Data, See General Plan Sheet No. 2
For Section A-A See, See General Plan Sheet No. 2
For MGS W-Beam System, See Standard D E 601-MGSA-1 to10

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

DATE	REVISION	DESIGNED: MTC	6/2022	DRAWN: TLA	6/2022	INDIANA DEPARTMENT OF TRANSPORTATION	SCALE	BRIDGE FILE
		CHECKED: MH	6/2022	CHECKED: MTC	6/2022		As Noted	018-04-10730
								DESIGNATION 2002000
						GENERAL PLAN SHEET NO. 1	SURVEY BOOK	SHEETS
							ELECTRONIC	10 of 19
							CONTRACT	PROJECT
							B-43453	2002000

Pkt: 8/28/2023 9:21 AM

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Model: Sht General Plan 01

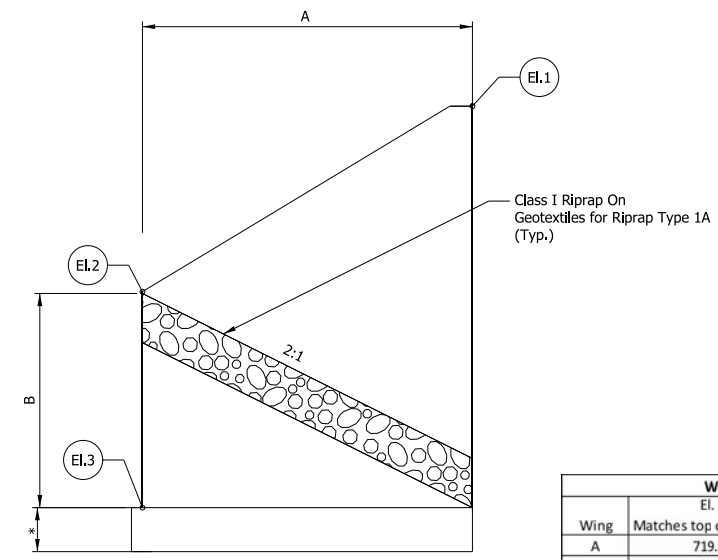


SECTION A-A
Scale: 1/4" = 1'-0"

- GENERAL NOTES:**
1. All exposed faces of the Headwall and wingwalls shall receive Surface Seal.
 2. A Three - Sided Arch Topped or True Arch Structure will not be permitted at this location.
 3. For guardrail MGS assembly details see Standard Drawing E 601-MGSA-10 & E 601-MGSA-12
 4. Bottom of Footing Elevation for Three - Sided Culvert should be at least 4 ft below flow line elevation.
 5. Contractor Shall Verify the existing flow line elevation to set the appropriate proposed flow line

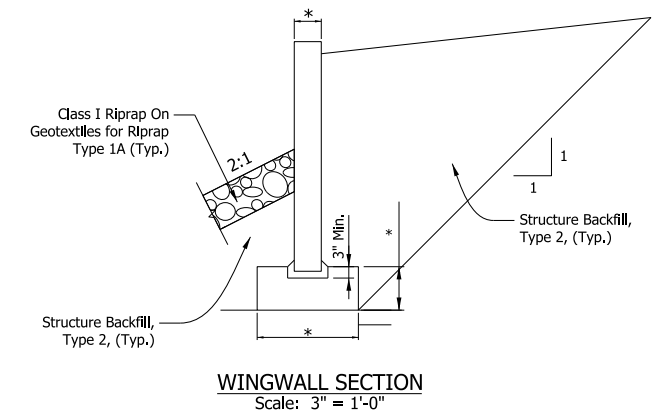
DESIGN DATA:
Live Load Designed for HL-93 Loading in Accordance with AASHTO LRFD Bridge Design Specifications 9th Edition, 2020 (LRFD 9)
Dead load increased 35 psf for future wearing surface.

Note:
* Dimensions to be determined by precast manufacturer



WINGWALL ELEVATION
Scale: 1/4" = 1'-0"

WINGWALL DIMENSION TABLE					
EI. 1					
Wing	Matches top of headwall	EI. 2	EI. 3	A	B
A	719.93	715.27	703.94	18'-0"	10'-4"
B	719.93	715.45	703.94	18'-0"	11'-6"
C	719.93	715.45	703.94	18'-0"	11'-6"
D	719.93	715.27	703.94	18'-0"	10'-4"



WINGWALL SECTION
Scale: 3" = 1'-0"

PRECAST REINFORCED CONCRETE
FLAT TOPPED THREE - SIDED CULVERT
34'-3" SPAN X 12'-4" RISE, SKEW 7° Lt.
30'-0" CLEAR ROADWAY
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DATE	REVISION

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: MTC	6/2022	6/2022
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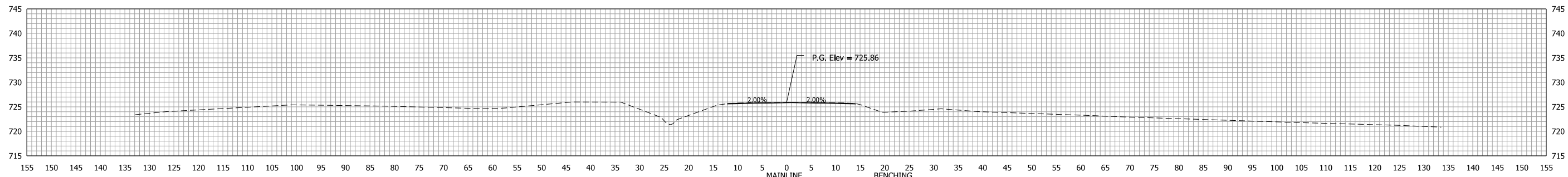
INDIANA
DEPARTMENT OF TRANSPORTATION

**GENERAL PLAN
SHEET NO. 2**

SCALE	BRIDGE FILE
As Noted	018-04-10730
DESIGNATION	2002000
SURVEY BOOK	SHEETS
ELECTRONIC	11 of 19
CONTRACT	PROJECT
B-43453	2002000

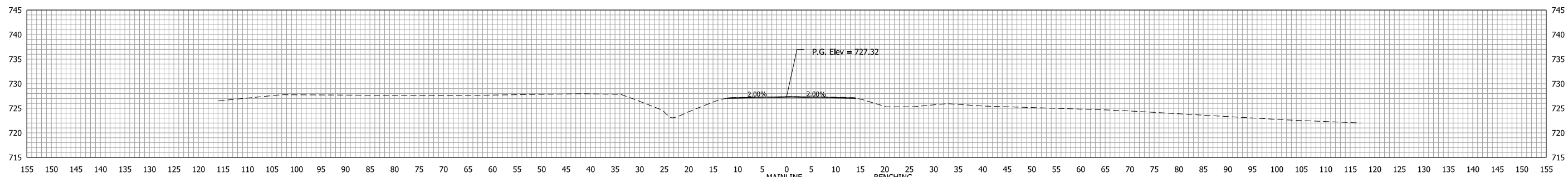
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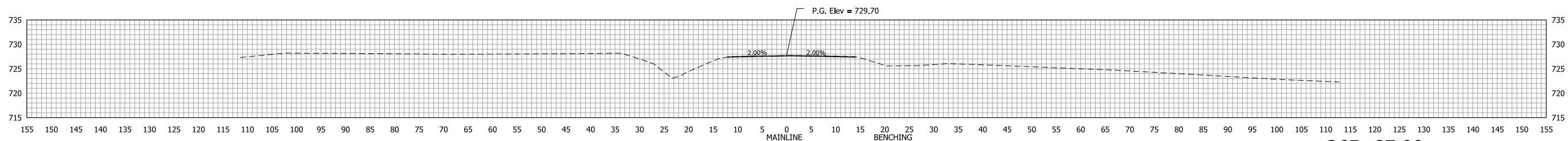
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366+50.00



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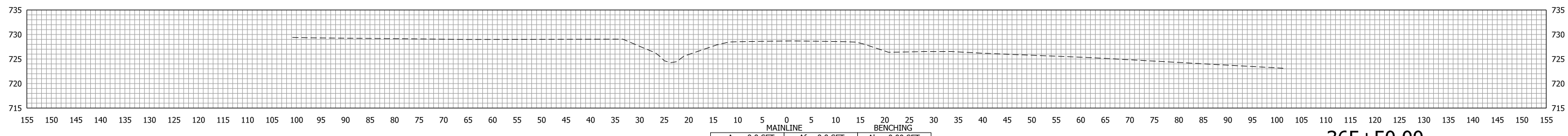
366+00.00



MAINLINE			BENCHING		
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Begin Incidental Sta. 365+87, Line "A"

365+87.00



MAINLINE			BENCHING		
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365+50.00

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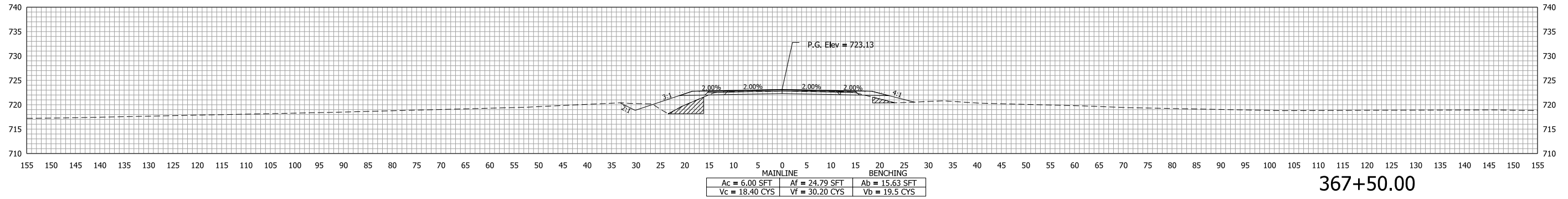
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DESIGNED: MTC	1/2023	DRAWN: MTC
CHECKED: DR	1/2023	CHECKED: DR

INDIANA
DEPARTMENT OF TRANSPORTATION

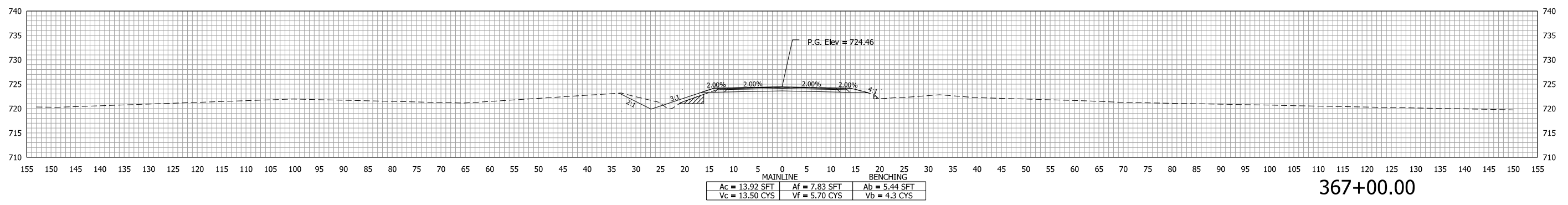
CROSS SECTIONS
LINE "A"

SCALE 1"=10'	BRIDGE FILE 018-04-10730
	DESIGNATION 2002000
SURVEY BOOK ELECTRONIC	SHEETS 13 of 19
CONTRACT B-43453	PROJECT 2002000

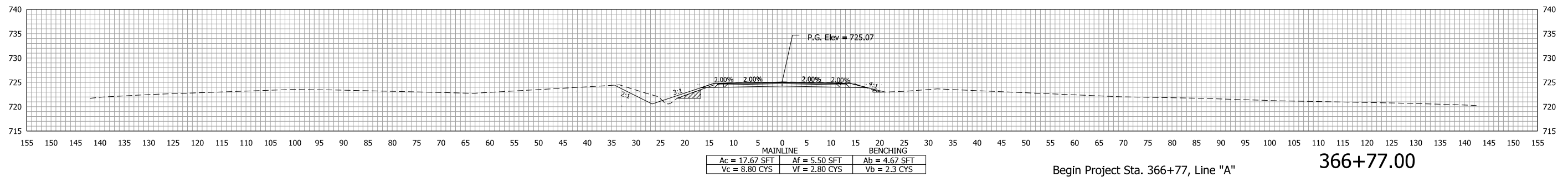
STA. 365+50.00 TO STA. 366+50.00



367+50.00



367+00.00



Begin Project Sta. 366+77, Line "A"

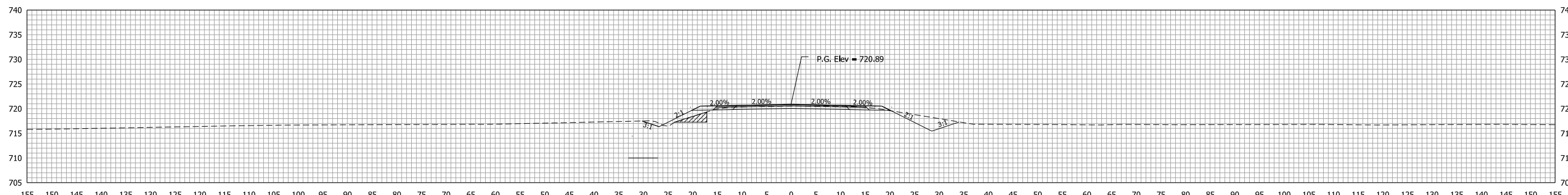
366+77.00

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	DESIGNED: MTC 1/2023 DRAWN: MTC 1/2023 CHECKED: DR 1/2023 CHECKED: DR 1/2023		SURVEY BOOK ELECTRONIC 14 of 19 CONTRACT B-43453	SHEETS PROJECT 2002000

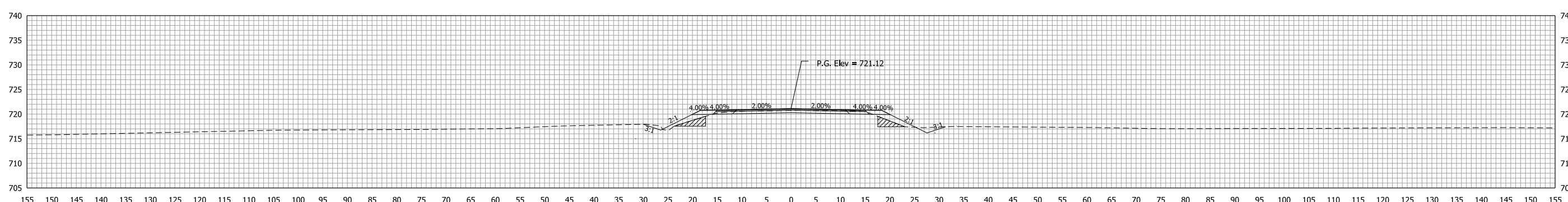
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STA. 366+77.00 TO STA. 367+50.00



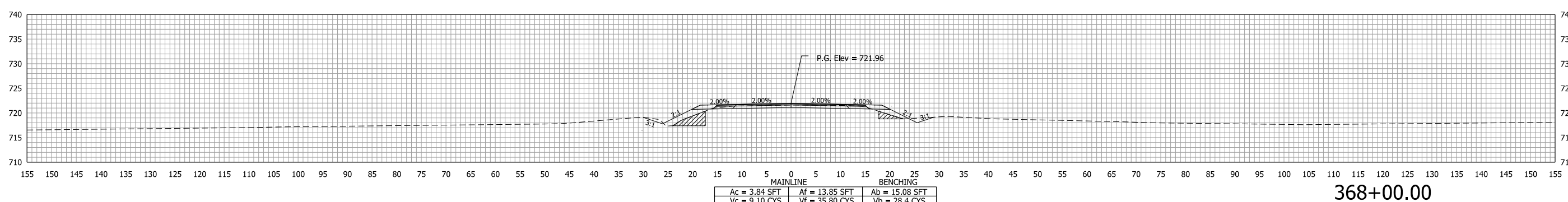
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Vc = 2.50 CYS	Vf = 27.30 CYS	Vb = 6.7 CYS			

368+69.00



MAINLINE			BENCHING		
Ac = 5.07 SFT	Af = 13.90 SFT	Ab = 12.28 SFT			
Vc = 8.30 CYS	Vf = 25.70 CYS	Vb = 25.3 CYS			

368+50.00



MAINLINE			BENCHING		
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Vc = 9.10 CYS	Vf = 35.80 CYS	Vb = 28.4 CYS			

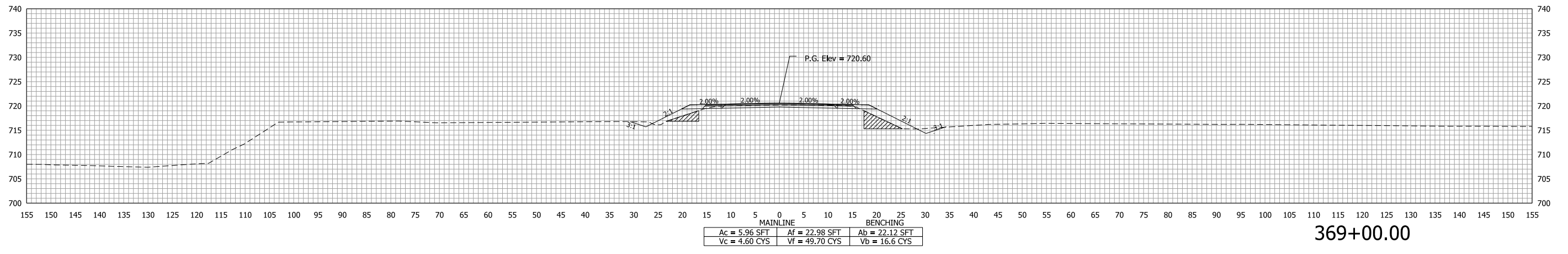
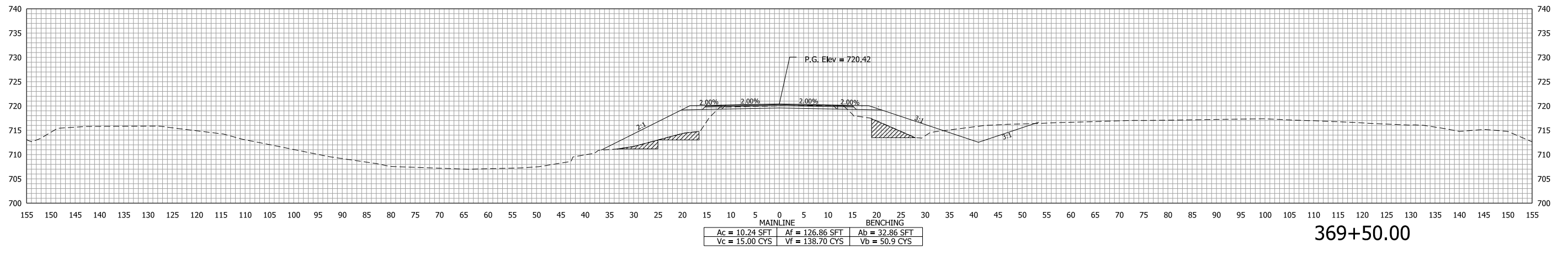
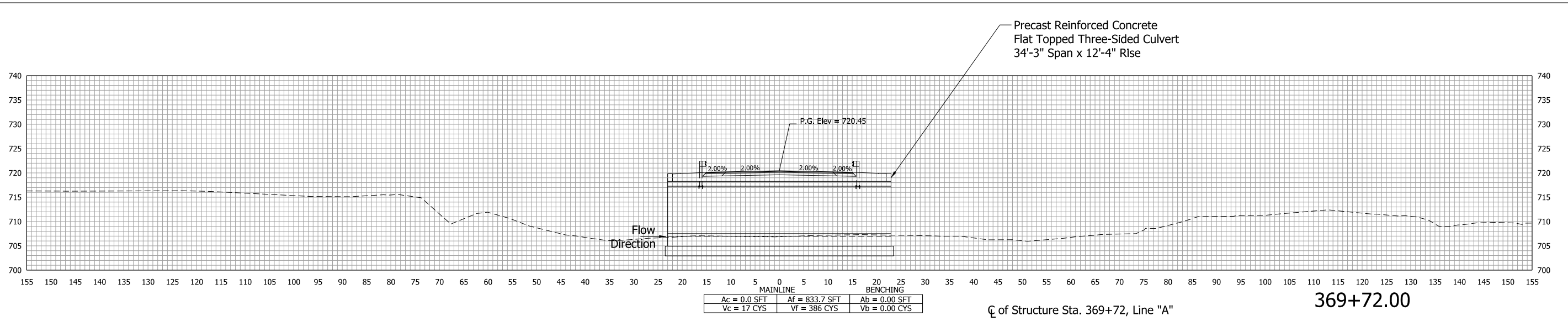
368+00.00

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		CHECKED: DR 1/2023	CHECKED: DR 1/2023
		SURVEY BOOK ELECTRONIC	SHEETS 15 of 19
		CONTRACT B-43453	PROJECT 2002000

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STA. 368+00.00 TO STA. 368+69.00



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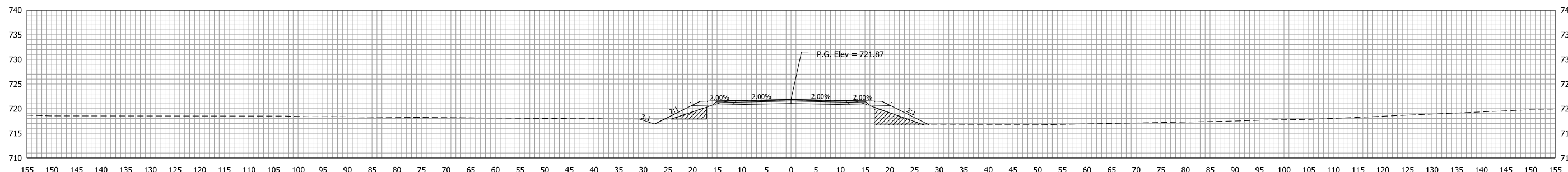
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DESIGNED: MTC	1/2023	DRAWN: MTC
CHECKED: DR	1/2023	CHECKED: DR

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
LINE "A"

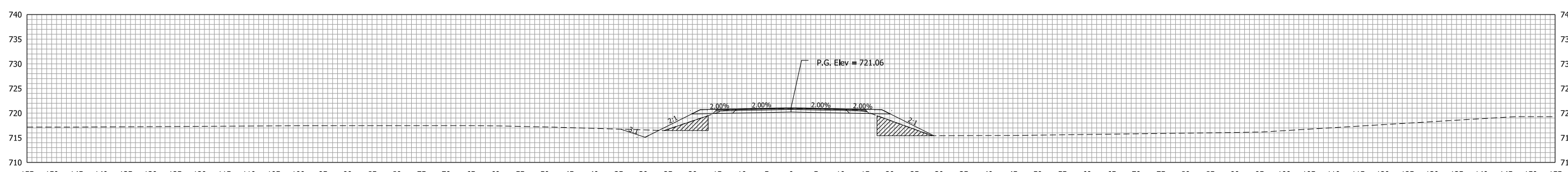
SCALE 1"=10'	BRIDGE FILE 018-04-10730
	DESIGNATION 2002000
SURVEY BOOK ELECTRONIC	SHEETS 16 of 19
CONTRACT B-43453	PROJECT 2002000

STA. 369+00.00 TO STA. 369+72.00



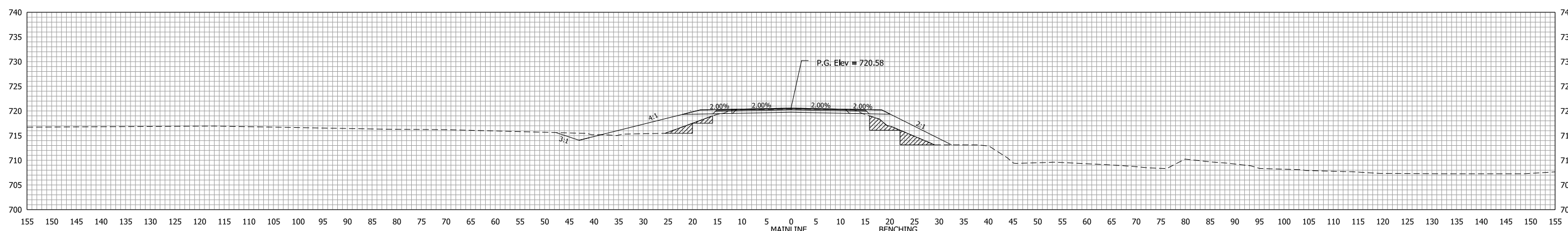
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Vc = 7.70 CYS	Vf = 34.00 CYS	Vb = 58.6 CYS			

371+00.00



MAINLINE			BENCHING		
Ac = 5.81 SFT	Af = 18.31 SFT	Ab = 36.14 SFT			
Vc = 11.40 CYS	Vf = 77.50 CYS	Vb = 59.5 CYS			

370+50.00



MAINLINE			BENCHING		
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Vc = 3.30 CYS	Vf = 33.90 CYS	Vb = 14.6 CYS			

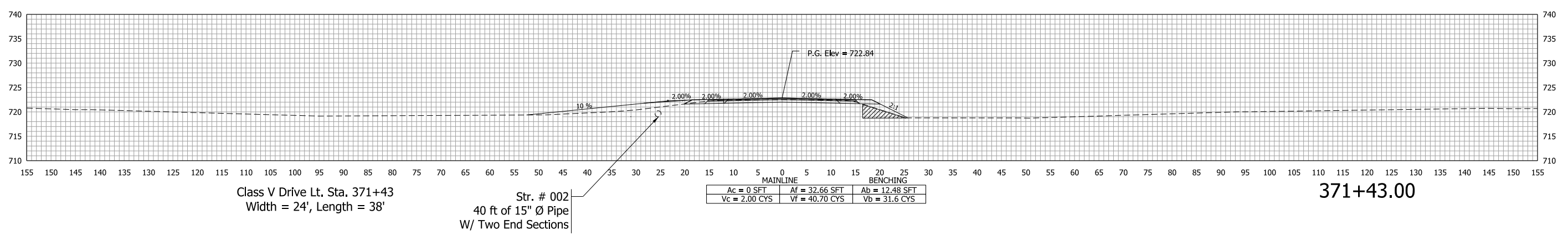
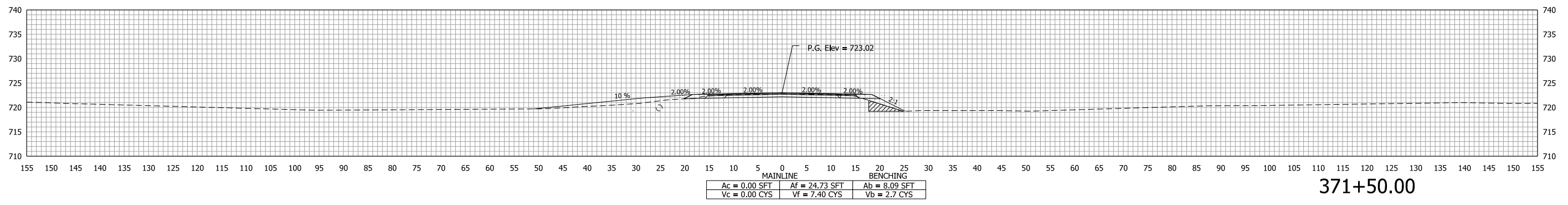
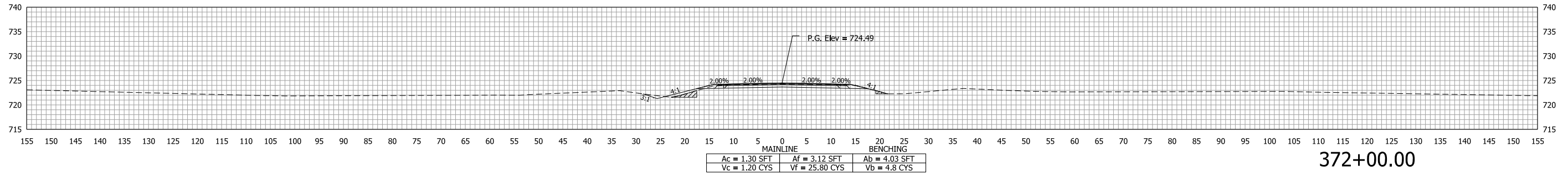
370+00.00

Pkt: 8/28/2023 9:22 AM

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____	INDIANA DEPARTMENT OF TRANSPORTATION CROSS SECTIONS LINE "A"		SCALE 1"=10'	BRIDGE FILE 018-04-10730
			DESIGNATION 2002000	
			SURVEY BOOK ELECTRONIC	SHEETS 17 of 19
DESIGNED: MTC 1/2023	DRAWN: MTC 1/2023	CONTRACT B-43453		PROJECT 2002000
CHECKED: DR 1/2023	CHECKED: DR 1/2023			

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STA. 370+00.00 TO STA. 371+00.00



RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____ DATE _____
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CHECKED: DR 1/2023	CHECKED: DR 1/2023

INDIANA
DEPARTMENT OF TRANSPORTATION

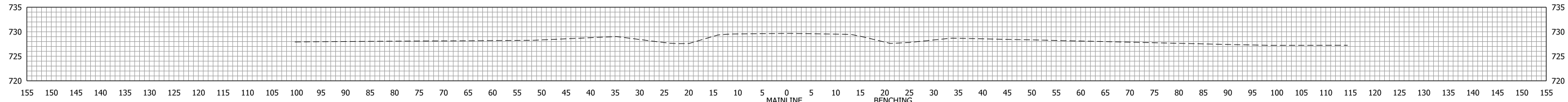
CROSS SECTIONS
LINE "A"

SCALE 1"=10'	BRIDGE FILE 018-04-10730
	DESIGNATION 2002000
SURVEY BOOK ELECTRONIC	SHEETS 18 of 19
CONTRACT B-43453	PROJECT 2002000

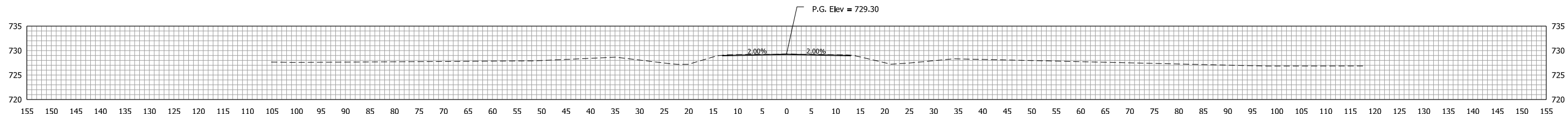
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STA. 371+43.00 TO STA. 372+00.00

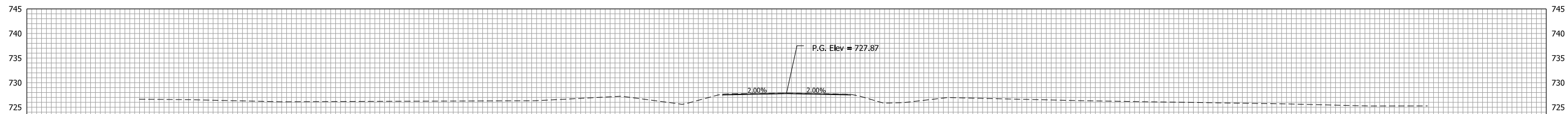


373+50.00

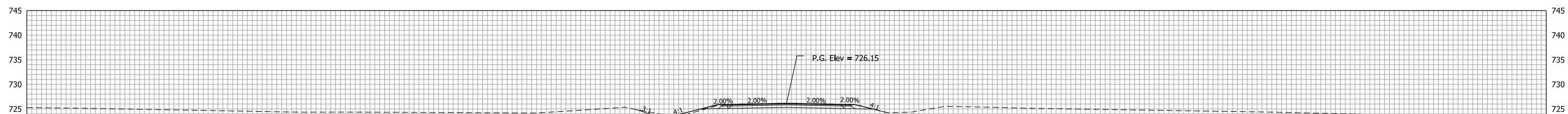


373+40.00

End Incidental Construction Sta. 373+44, Line "A"



373+00.00



372+50.00

End Project Sta. 372+50, Line "A"

Pkt: 8/28/2023 9:23 AM

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

INDIANA DEPARTMENT OF TRANSPORTATION	
CROSS SECTIONS LINE "A"	

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

STA. 372+50.00 TO STA. 373+50.00

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



INDIANA DEPARTMENT OF TRANSPORTATION

Crawfordsville District
41 W 300 N
Crawfordsville, IN 47933

PHONE: (765) 361-5200

Eric Holcomb, Governor
Michael Smith, Commissioner

March 27, 2023

«Prefix» «Contact_First» «Contact_Last_or_office»
«Title_or_Office»
«Agency»
«Address_1»
«Address_2»
«City», «State» «Zip»

**Re: Des. No.: 2002000 Early Coordination
SR 18 Bridge Project at East Crossing of Greenwood Ditch, 6.84 Miles East of US 52, Benton County**

Dear «Prefix» «Contact_Last_or_office»,

The Indiana Department of Transportation (INDOT) intends to proceed with a bridge project on SR 18 in Benton County and is expected to be funded, in part, by the Federal Highway Administration (FHWA). This letter is part of the early coordination phase of the environmental review process. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above designation numbers and description in your reply. We will incorporate your comments into a study of the project’s environmental impacts.

INDOT, Crawfordsville District, has programmed Des. No. 2002000 to address deficiencies on the SR 18 bridge over the east crossing of Greenwood Ditch. The project is located at INDOT Reference Post (RP) 18+99 in Benton County, 6.84 Miles East of US 52 and between County Roads 700 East and 850 East. The nearest town is Atkinson, 4.6 miles to the southwest, with the nearest incorporated area being 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.

Draft Purpose and Need:

The primary need for the project is due to the condition of the superstructure and substructure. During the bridge inspection from January 4, 2022, 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). The purpose of this project is to perpetuate SR 18 at Greenwood Ditch by establishing a crossing that is in good or better condition (a condition rating 7 or higher).

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 has property in the northwest quadrant of the project area, the Greenwood Ditch Gamebird Habitat Area. The surrounding topography is generally flat to 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 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 10-foot travel lanes with very narrow 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.

Based on existing infrastructure, such as ditch lines and utility poles, and based on older plan sets, the apparent existing right-of-way limits are 35 feet north and south from the roadway centerline and are consistent through the project limits, for a total apparent right-of-way width of 70 feet. However, deeded property may not be valid, and the actual existing right-of-way may be considered edge of pavement. Overhead utilities are located along both sides of the road along the back of existing right-of-way.

Preferred Alternative:

The preferred alternative is to replace the existing bridge with a precast, concrete, flat-topped, three-sided culvert structure, which would still be classified as a bridge (new Structure No. 018-04-10730). Per the current design, the new bridge would have the same 34-foot span as the existing bridge, but to meet design standards, it would be widened by approximately 16 feet, giving the bridge a total width of 46 feet. The bridge would be installed at a seven-degree skew in order to be better aligned with Greenwood Ditch. The bridge would have 12-foot lanes and five-foot shoulders. The bridge would not have integrated railing, but would instead have guardrail that is continuous with the approach road guardrail. At the bridge cones, 18-foot wingwalls would be extended from each quadrant and riprapped from the wingwalls to the stream bank. Beneath the bridge, a four-foot layer of riprap would be installed along the culvert footers and leveled out at the normal flowline elevation.

The approach roads at the bridge would be reconstructed with the same 12-foot lanes and five-foot shoulders. In the northwest and southeast quadrants, guardrail would be extended compared to existing by approximately 50 feet, and in the southeast quadrant, guardrail would be added around the field entrance. To accommodate the wider roadway, the roadside ditches would be realigned. Two field entrances are located within the project limits, which would be reconstructed. Approximately 90 feet of milling and paving would be performed on each side of the project to transition it back into the existing roadway. Based on the current design plans, the total project length is approximately 750 feet (incidental to incidental)

Utilities are located on both sides of the road, but relocation requirements have not yet been determined. Temporary lighting may be used if INDOT or the contractor determine to conduct nighttime construction operations.

Permanent right-of-way acquisition will depend on applicability of the apparent existing right-of-way. Based on the current design and apparent existing right-of-way limits of 35 feet from centerline, approximately 0.519 acre of new permanent right-of-way would be required. Right-of-way would be expanded by 15 feet along each side of the road, extending it to 50 feet from the road centerline. However, pending further review, existing right-of-way may be considered the edge of pavement, in which case a total of 1.349 acre of permanent right-of-way acquisition would be required. Temporary right-of-way is anticipated north of the bridge for access and stream work, and also for reconstructing the two field entrances. Total proposed temporary right-of-way is 0.043 acre.

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. Up to 0.1 acre of tree clearing may be required. Between 80 to 120 feet of impacts to Greenwood Ditch are expected due to installation of riprap and for access. No other streams were observed in the project area. Three wetland determination points were taken in or near the project area, and no wetlands were identified. A live mussel and several mussel remains were observed in the waterway, and a large school of small fish was observed. No bats or indications of bats were observed. One swallow nest of indeterminate age was noted attached to the bottom side of the bridge.

During construction, SR 18 will be closed to traffic and detoured around the project. The official detour would redirect traffic south of SR 18 using US 231 and US 52. The total detour length around this segment of SR 18 is approximately 27 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 is a detour of approximately 3.2 miles. Construction is currently planned to begin in late 2024 or early 2025.

The INDOT Crawfordsville District Environmental Section will perform a waters and wetlands investigation and a biological assessment to identify any ecological resources that may be present. The project is anticipated to qualify for the Range-wide Programmatic Agreement for the Indiana bat and northern long-eared bat by completing the Information for Planning and Consultation (IPaC) process, and no other federally listed species were identified in or near the project area. This project will be assessed for applicability of the Minor Projects Programmatic Agreement, pending review by the INDOT Cultural Resources Office.

Please provide your response within thirty (30) calendar days from the date of this letter. However, should you find that an extension to the response time is necessary, a reasonable amount may be granted upon request. If you have any questions regarding this matter, please feel free to contact Brock Ervin, INDOT Environmental Manager, by the means listed below, or Chaila Jordan, INDOT Project Manager, CJordan2@indot.IN.gov, 765-361-5226. Thank you in advance for your input.

Sincerely,



Brock N. Ervin
Environmental Manager
Indiana Department of Transportation
Crawfordsville District
(765) 361-5669
bervin@indot.in.gov

Attachments:

Maps (Location Map, Topographic Map, and Aerial Map)
Project Site Photographs and Photo Orientation Maps
Preliminary Plans (excerpts)

Cc List:

Federal Highway Administration, Indiana Division
USACE, Louisville Office (Indianapolis Regulatory Field Office)
US Coast Guard, 8th District
National Park Service, Midwest Regional Office
US Dept. of Housing and Urban Development, Chicago Regional Office
National Resources Conservation Service, Indiana State Office
Indiana Department of Natural Resources, Division of Fish and Wildlife
Indiana Department of Environmental Management, Wetlands and Stormwater Programs
Indiana Geological & Water Survey (online submission form)
Indiana Department of Environmental Management, Groundwater Division (online database review)
Benton County Commissioners
Benton County Council
Benton County Highway Department
Benton County Surveyor (DES Engineering, LLC)
Indiana Department of Natural Resources, Willow Slough Fish & Wildlife Area (ECL Sent 3/28/23)

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

DNR#: ER-25499

Request Received: March 27, 2023

Requestor:

Brock Ervin
Indiana Department of Transportation
41 West 300 North
Crawfordsville, IN 47933

Project:

SR 18 bridge (#018-04-01689 B / NBI 4570) replacement over Greenwood Ditch, 6.84 miles east of US 52; Des #2002000

County/Site Info: Benton

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment:

This proposal will require the formal approval of our agency for construction in a floodway pursuant to the Flood Control Act (IC 14-28-1), unless it qualifies for a bridge exemption (see enclosure). Please include a copy of this letter with the permit application if the project does not meet the bridge exemption criteria.

Natural Heritage Database:

The Natural Heritage Program's data have been checked. The Greenwood Ditch Gamebird Habitat Area is within 0.5 miles of the project area. As long work is confined to the bridge right-of-way, no impacts to the property are expected.

Fish and Wildlife Comments:

Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

A) Wildlife Passage:

Information Bulletin #17 (<https://www.in.gov/nrc/files/IB-17.pdf>) details that all 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. Wildlife passage typically requires retention of a dry, flat area free of riprap and other material incompatible with wildlife movement all the way through the structure and designed to promote the passage of deer when possible.

The submitted site level photos and draft plan sheets clearly show banklines that extend above the ordinary high water mark (OHWM) that are vegetated and allow for wildlife passage along both banks under the existing

structure. 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. The width and location of the wildlife pathway is dependent on the existing conditions and the wildlife species using the area. There are a number of techniques and materials for incorporating wildlife passage into the design of a crossing structure if maintaining or restoring banklines is not possible. Coordination with a Regional Environmental Biologist to address wildlife passage issues before submitting a permit application (if required) is encouraged to avoid delays in the permitting process. The following links are good resources to consider in the design of stream crossing structures to maintain fish and wildlife passage:

<https://www.fs.usda.gov/wildlifecrossings/library/index.php>,
https://www.fhwa.dot.gov/clas/ctip/wildlife_crossing_structures/,
<https://www.fhwa.dot.gov/engineering/hydraulics/pubs/11008/hif11008.pdf>,
<https://www.fs.usda.gov/ccrc/tool/fishxing-fish-passage-learning-systems>.

B) Streambank / Streambed Stabilization:

Some form of bank and/or streambed stabilization is almost always needed with the construction, repair, replacement, or modification of a stream channel or crossing structure. For streambank stabilization and erosion control, regrading to a stable slope (2:1 or shallower) and establishing native vegetation along the banks are typically the most effective techniques. A variety of methods to accomplish this include: planting plugs, whips, container stock, seeding, and live stakes. In addition to vegetation establishment, some additional level of bioengineered bank stabilization may be needed under certain circumstances (inability to regrade to a stable slope, flow velocities that exceed the limits of vegetation alone, etc.). Combining vegetation with any of the following bank stabilization methods can 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. Information about bioengineering techniques can be found at the following link to a USDA/NRCS document that outlines many different bioengineering techniques for streambank stabilization: https://efotg.sc.egov.usda.gov/references/public/IA/Chapter-16_Streambank_and_Shoreline_Protection.pdf.

Riprap or other hard bank stabilization materials should be used only at the toe of the sideslopes 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 native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. For streambed stabilization or scour protection, riprap or other stabilization materials should not be placed in the active stream channel above the existing streambed or flowline elevation unless specifically designed and installed for grade control and aquatic organism passage. This is to prevent obstructions to the movement of aquatic organisms upstream and downstream.

C) Riparian Habitat:

The Division of Fish and Wildlife recommends a mitigation plan be developed (and submitted with the permit application, if required) for any unavoidable habitat impacts that will occur. The DNR's Habitat Mitigation Guidelines (and plant lists) can be found online at: <https://www.in.gov/nrc/files/IB-17.pdf>.

Impacts to non-wetland forest of one (1) acre or more in a rural or urban area should be mitigated at a minimum 2:1 ratio based on area of impact. 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. Impacts under 0.10 acre in a rural area typically do not require mitigation or additional plantings beyond seeding and stabilizing disturbed areas, though there are exceptions for high quality habitat sites. Impacts under 0.10 acre in an urban area should be mitigated by replacing trees that are 10" diameter-at-breast height (dbh) or greater by planting five trees, 1" to 2" in dbh, for each tree which is removed that is 10" dbh or greater. Seeding and stabilizing disturbed areas is required regardless of the impact amount and location. 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.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:

1. Revegetate all bare and disturbed areas that are not currently mowed and maintained with a mixture of grasses, sedges, and wildflowers native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion; turf-type grasses (including low-endophyte, friendly endophyte, and endophyte free tall fescue but excluding all other varieties of tall fescue) may be used in currently mowed areas only. A native herbaceous seed mixture must include at least 5 species of grasses and sedges and 5 species of wildflowers.
2. Minimize and contain within the project limits in-channel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana Bat or Northern Long-eared Bat roosting (greater than 5 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30.
5. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds.
6. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
7. Do not use broken concrete as riprap.
8. Underlay the riprap with a bedding layer of well graded aggregate or a geotextile to prevent piping of soil underneath the riprap.
9. Minimize the movement of resuspended bottom sediment from the immediate project area.
10. 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.
11. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the waterbody or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
12. Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets 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 (follow manufacturer's recommendations for selection and installation). If erosion control blankets are used in other areas, they shall be of the same type to minimize impacts to wildlife. Seed and apply mulch on all other disturbed areas.

Contact Staff:

Our agency appreciates this opportunity to be of service. Please contact me at mbuffington@dnr.in.gov or (317) 233-4666 if we can be of further assistance.

Matt Buffington
Matt Buffington
Environmental Unit Supervisor
Division of Fish and Wildlife

Date: April 26, 2023

March 29, 2023

Brock Ervin
Crawfordsville District, INDOT
41 West 300 North
Crawfordsville, Indiana 47933

Dear Mr. Brock:

The proposed SR 18 Bridge Project at East Crossing of Greenwood Ditch, 6.84 Miles East of US 52 in Benton County, Indiana (Des. No. 2002000), as referred to in your letter received on March 27, 2023, will cause a conversion of prime farmland.

The attached packet of information is for your use competing Parts VI and VII of the AD-1006. After completion, the federal funding agency needs to forward one copy to NRCS for our records.

If you need additional information, please contact John Allen at 317-295-5859 or john.allen@usda.gov.

Sincerely,

JOHN ALLEN

Digitally signed by JOHN ALLEN
Date: 2023.03.29 12:11:59 -04'00'

JOHN ALLEN
State Soil Scientist

Enclosers

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 3/27/2023			
Name of Project Des. 2002000: SR 18 Greenwood Ditch		Federal Agency Involved FHWA			
Proposed Land Use Transportation		County and State Benton County, Indiana			
PART II (To be completed by NRCS)		Date Request Received By NRCS		Person Completing Form: JRA	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size 701 ac
Major Crop(s) Corn	Farmable Land In Govt. Jurisdiction Acres: 256012 % 98	Amount of Farmland As Defined in FPPA Acres: 25232 % 97			
Name of Land Evaluation System Used LESA	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 3/28/23			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		0.519			
B. Total Acres To Be Converted Indirectly		0.0			
C. Total Acres In Site		0.519			
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		0.52			
B. Total Acres Statewide Important or Local Important Farmland		0.00			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		<0.001			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		71			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)		81			
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)	15		
2. Perimeter In Non-urban Use		(10)	10		
3. Percent Of Site Being Farmed		(20)	5		
4. Protection Provided By State and Local Government		(20)	0		
5. Distance From Urban Built-up Area		(15)	15		
6. Distance To Urban Support Services		(15)	15		
7. Size Of Present Farm Unit Compared To Average		(10)	10		
8. Creation Of Non-farmable Farmland		(10)	0		
9. Availability Of Farm Support Services		(5)	1		
10. On-Farm Investments		(20)	0		
11. Effects Of Conversion On Farm Support Services		(10)	0		
12. Compatibility With Existing Agricultural Use		(10)	0		
TOTAL SITE ASSESSMENT POINTS		160	71	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	81	0	0
Total Site Assessment (From Part VI above or local site assessment)		160	71	0	0
TOTAL POINTS (Total of above 2 lines)		260	152	0	0
Site Selected: Site A		Date Of Selection March 31, 2023		Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
Reason For Selection: As the purpose of this project is to perpetuate an existing crossing of Greenwood Ditch, and as the current preferred alternative is to replace the bridge due to it's current condition, no other site selections were reviewed.					
Name of Federal agency representative completing this form: INDOT, Brock Ervin					Date: 3/31/2023

(See Instructions on reverse side)

Form AD-1006 (03-02)



INDIANA GEOLOGICAL & WATER SURVEY

INDIANA UNIVERSITY

Organization and Project Information

Project ID:

Des. ID: Des. No. 2002000

Project Title: SR 18 Bridge Project at East Crossing of Greenwood Ditch, 6.84 Miles East of US 52, Benton

Name of Organization: Indiana Department of Transportation

Requested by: Brock Ervin

Environmental Assessment Report

1. Geological Hazards:

- Moderate liquefaction potential

2. Mineral Resources:

- Bedrock Resource: Moderate Potential
- Sand and Gravel Resource: Low Potential

3. Active or abandoned mineral resources extraction sites:

- None documented in the area

*All map layers from Indiana Map (maps.indiana.edu)

DISCLAIMER:

This document was compiled by Indiana University, Indiana Geological Survey, using data believed to be accurate; however, a degree of error is inherent in all data. This product is distributed "AS-IS" without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability to a particular purpose or use. No attempt has been made in either the design or production of these data and document to define the limits or jurisdiction of any federal, state, or local government. The data used to assemble this document are intended for use only at the published scale of the source data or smaller (see the metadata links below) and are for reference purposes only. They are not to be construed as a legal document or survey instrument. A detailed on-the-ground survey and historical analysis of a single site may differ from these data and this document.

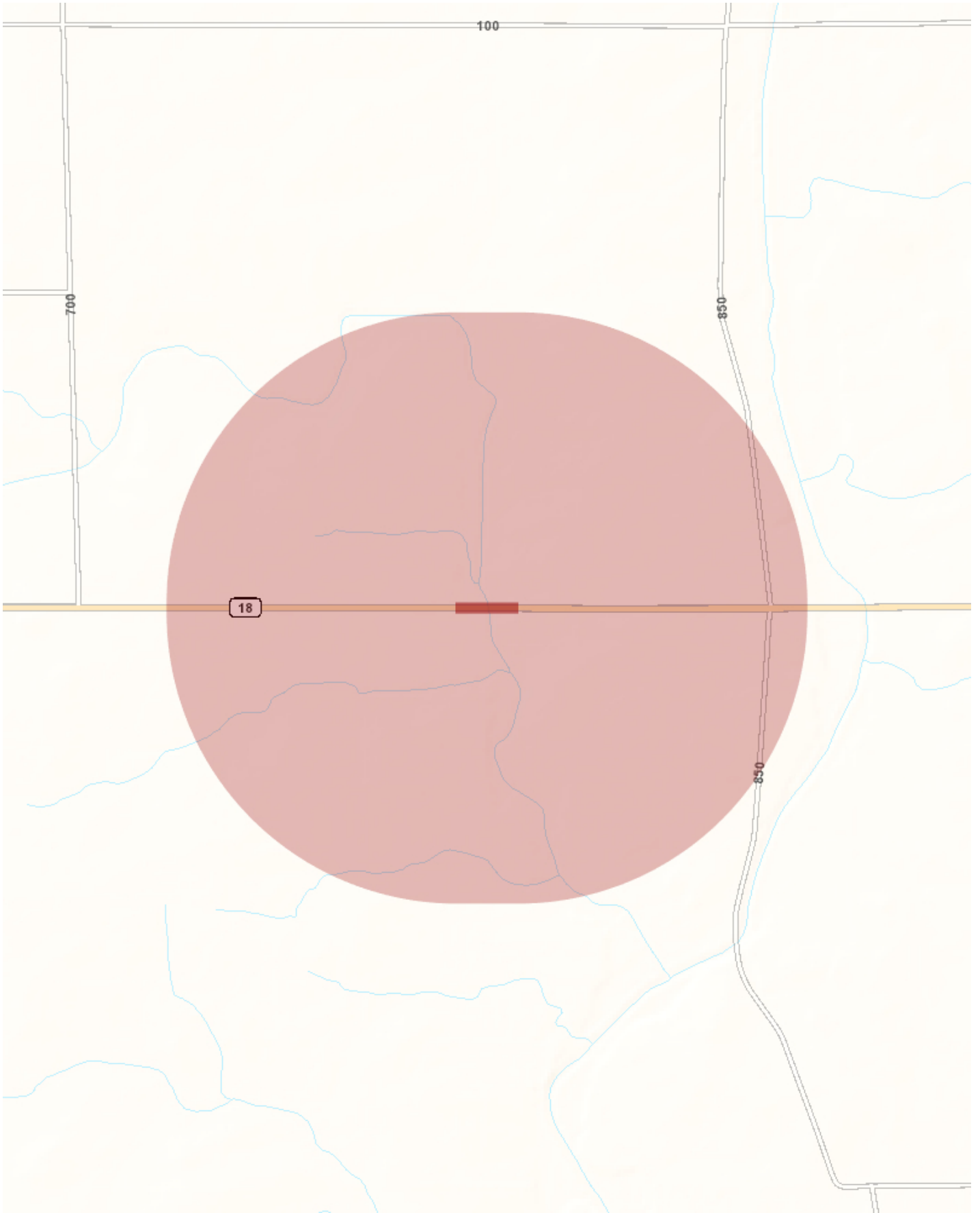
This information was furnished by Indiana Geological Survey

Address: 1001 E. 10th St., Bloomington, IN 47405

Email: IGSEnvir@indiana.edu

Phone: 812 855-7428

Date: March 27, 2023



Metadata:

- https://maps.indiana.edu/metadata/Geology/Seismic_Earthquake_Liquefaction_Potential.html
- https://maps.indiana.edu/metadata/Geology/Industrial_Minerals_Sand_Gravel_Resources.html
- https://maps.indiana.edu/metadata/Geology/Bedrock_Geology.html

Ervin, Brock

From: Chernet, Martha
Sent: Monday, March 27, 2023 12:53 PM
To: Ervin, Brock
Subject: RE: Des 2002000 - INDOT Aviation Coordination

Good afternoon, Brock,

I do not anticipate any equipment will be used exceeding 200 feet in height.

Thank you.

Martha T. Chernet, PE

Senior Bridge Design Engineer

100 North Senate Ave., Room N758 - BRD
Indianapolis, IN 46204

Office: (317) 233-2067

Email: mchernet@indot.in.gov



From: Ervin, Brock <BErvin@indot.IN.gov>
Sent: Monday, March 27, 2023 12:30 PM
To: Chernet, Martha <MCHERNET@indot.IN.gov>
Subject: Des 2002000 - INDOT Aviation Coordination

Hi, Martha.

I am preparing to send out early coordination letters and need to determine if INDOT Aviation should be included. There are no public airports within 20,000 feet. The other determining factor is the height of equipment being used. Do you anticipate any equipment being used that would exceed 200 feet in height?

Thank you.

Brock Ervin > He/Him/His

Environmental Manager

Capital Program Management Division

Crawfordsville District, INDOT

41 West 300 North
Crawfordsville, IN 47933

Office: (765)361-5669

Email: bervin@indot.in.gov



Ervin, Brock

From: Neild, Benjamin
Sent: Friday, April 21, 2023 9:13 AM
To: Ervin, Brock
Subject: RE: Des. 2002000 - SR 18 Bridge Greenwood Ditch - 0.5-Mile Back Check

Hey Brock, Still no bat.

A review of the USFWS GIS database for Indiana bat and Northern long-eared bat roosting, hibernacula, and capture sites was conducted for Des No. 2002000 on 4/21/2023. There are no documented sites within a half mile of the project area. The USFWS Information for Planning and Conservation (IPaC) website must be consulted and a new project created to obtain an official species list and complete the project questionnaire to determine the programmatic consultation's applicability. The IPaC-generated documents must be forwarded to the USFWS for verification if needed.

Benjamin Neild

Environmental Manager 2, Capital Program Management Division

41 West 300 North
Crawfordsville, IN 47933

Phone: (765) 361-5259

Email: bneild@indot.in.gov



From: Ervin, Brock <BErvin@indot.IN.gov>
Sent: Thursday, April 20, 2023 10:09 AM
To: Neild, Benjamin <BNeild@indot.IN.gov>
Subject: FW: Des. 2002000 - SR 18 Bridge Greenwood Ditch - 0.5-Mile Back Check

Hi, Ben.

Could you please recheck the 0.5-mile bat review for this project. It was done a year and a half ago, and I need to do IPaC. Thanks again. SR 18 in Benton County.

Location: Latitude: 40.605985°, Longitude: -87.176662°

See attached location map.

Project area looks like this:



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

In Reply Refer To:

April 21, 2023

Project code: 2023-0071788

Project Name: Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch, Benton County

Subject: Concurrence verification letter for the 'Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch, Benton County' project under the amended February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion (dated March 23, 2023) for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (NLEB).

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated April 21, 2023 to verify that the **Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch, Benton County** (Proposed Action) may rely on the concurrence provided in the amended February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion (dated March 23, 2023) for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the endangered northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to section 7(a)(2) of ESA (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances,

Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities: If your initial bridge/culvert or structure assessment documented signs of bat use or occupancy, or an assessment failed to detect Indiana bats and/or NLEBs, yet are later detected prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of any potential take. In these instances, potential incidental take of Indiana bats and/or NLEBs is covered under the Incidental Take Statement in the 2018 FHWA, FRA, FTA PBO (provided that the take is reported to the Service).

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:

If your initial bridge/culvert or structure assessments failed to detect Indiana bats and/or NLEB use or occupancy, yet bats are later detected prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of the incident. In these instances, potential incidental take of Indiana bats and/or NLEBs may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Candidate
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

NAME

Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch, Benton County

DESCRIPTION

INDOT, Crawfordsville District, has programmed Des. No. 2002000, with funding from FHWA, to address deficiencies on the SR 18 bridge over the east crossing of Greenwood Ditch. The project is located at INDOT Reference Post (RP) 18+99 in Benton County, 6.84 Miles East of US 52 and between County Roads 700 East and 850 East. The nearest town is Atkinson, 4.6 miles to the southwest, with the nearest incorporated area being Fowler, 6.6 miles west.

The primary need for the project is due to the condition of the superstructure and substructure. During the bridge inspection from January 4, 2022, 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). The purpose of this project is to perpetuate SR 18 at Greenwood Ditch by establishing a crossing that is in good or better condition (a condition rating 7 or higher).

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. 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 between the bridge rails).

Based on existing infrastructure, such as ditch lines and utility poles, and based on older plan sets, the apparent existing right-of-way limits are 35 feet north and south from the roadway centerline and are consistent through the project limits. This area is currently in a transportation use.

The preferred alternative is to replace the existing bridge with a precast, concrete, flat-topped, three-sided culvert structure, which would still be classified as a bridge (new Structure No. 018-04-10730). Per the current design, the new bridge would have the same 34-foot span as the existing bridge, but to meet design standards, it would be widened by approximately 16 feet, giving the bridge a total width of 46 feet. Utilities are located on both sides of the road, and relocations will be required. Temporary lighting may be used if INDOT or the contractor determine to conduct nighttime construction operations.

Based on the current design and apparent existing right-of-way limits of 35 feet from centerline, approximately 0.682 acre of new permanent right-of-way would be required. Right-of-way would be expanded by 15 feet along the north side out to 50 feet from the road centerline and by 25 feet along the south side out to 60 feet. To accommodate utilities at the south side of the bridge, right-of-way would be extended by an additional 20 feet (80 feet from centerline) for tree clearing. Total temporary proposed right-of-way is 0.032 acre for construction access and field entrance work.

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. Up to 0.15 acre of tree clearing may be required. Up to 160 feet of impacts to Greenwood Ditch are expected due to installation of riprap, access, and tree clearing.

The rural forested corridor along Greenwood Ditch provide suitable summer bat habitat for roosting and foraging in the project area. On April 21, 2023, INDOT reviewed the USFWS database for documented endangered bat sightings within 0.5 mile of the project, and none were identified. The most recent bat inspection of the bridge was conducted April 19, 2023, by INDOT environmental staff, and no bats or signs of bats were observed.

DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the endangered northern long-eared bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the amended February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion (dated March 23, 2023) for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

QUALIFICATION INTERVIEW

1. Is the project within the range of the Indiana bat^[1]?

[1] See [Indiana bat species profile](#)

Automatically answered

Yes

2. Is the project within the range of the northern long-eared bat^[1]?

[1] See [northern long-eared bat species profile](#)

Automatically answered

Yes

3. Which Federal Agency is the lead for the action?

A) *Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction^[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces^[1]?

[1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum^[1]?

[1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

No

7. Is the project located **within** a karst area?

No

8. Is there *any* suitable^[1] summer habitat for Indiana Bat or NLEB **within** the project action area^[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the [User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat](#).

Yes

9. Will the project remove *any* suitable summer habitat^[1] and/or remove/trim any existing trees **within** suitable summer habitat?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

No

11. Have presence/probable absence (P/A) summer surveys^{[1][2]} been conducted^{[3][4]} **within** the suitable habitat located within your project action area?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the [summer survey guidance](#) are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

No

12. Does the project include activities **within documented Indiana bat habitat**^{[1][2]}?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

13. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors?

Yes

14. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors occur^[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

B) During the inactive season

15. Does the project include activities **within documented NLEB habitat**^{[1][2]}?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

16. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

Yes

17. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

B) During the inactive season

18. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

Yes

19. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

No

20. Are *all* trees that are being removed clearly demarcated?
Yes
21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?
No
22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?
No
23. Does the project include slash pile burning?
No
24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?
Yes
25. Is there *any* suitable habitat^[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's current [summer survey guidance](#) for our current definitions of suitable habitat.

Yes

26. Has a bridge assessment^[1] been conducted **within** the last 24 months^[2] to determine if the bridge is being used by bats?

[1] See [User Guide Appendix D](#) for bridge/structure assessment guidance

[2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

Yes

SUBMITTED DOCUMENTS

- 2002000 INDOT Bat Inspection Form 4-19-23 print.pdf <https://ipac.ecosphere.fws.gov/project/U7FJYCKCJBEPJAN5N4XB6G3WRU/projectDocuments/125358905>

27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)^[1]?

[1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

No

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

No

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

No

30. Will the project involve the use of **temporary** lighting *during* the active season?

Yes

31. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting will be used?

Yes

32. Will the project install new or replace existing **permanent** lighting?

No

33. Does the project include percussives or other activities (**not including tree removal/trimming or bridge/structure work**) that will increase noise levels above existing traffic/background levels?

No

34. Are *all* project activities that are **not associated with** habitat removal, tree removal/trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

Examples: lining roadways, unlighted signage, rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

Yes

35. Will the project raise the road profile **above the tree canopy**?

No

36. Are the project activities that are not associated with habitat removal, tree removal/trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives consistent with a No Effect determination in this key?

Automatically answered

Yes, other project activities are limited to actions that DO NOT cause any additional stressors to the bat species as described in the BA/BO

37. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the tree removal/trimming that occurs outside of the Indiana bat's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

38. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the tree removal/trimming that occurs outside of the NLEB's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

39. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

40. **General AMM 1**

Will the project 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 Avoidance and Minimization Measures?

Yes

41. **Tree Removal AMM 1**

Can *all* phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal^[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word “trees” as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS’ current summer survey guidance for our latest definitions of suitable habitat.

Yes

42. **Tree Removal AMM 3**

Can tree removal be 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)?

Yes

43. **Tree Removal AMM 4**

Can the project avoid cutting down/removal of *all* (1) **documented**^[1] Indiana bat or NLEB roosts^[2] (that are still suitable for roosting), (2) trees **within** 0.25 miles of roosts, and (3) documented foraging habitat any time of year?

[1] The word documented means habitat where bats have actually been captured and/or tracked.

[2] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

Yes

44. **Lighting AMM 1**

Will *all* **temporary** lighting be directed away from suitable habitat during the active season?

Yes

PROJECT QUESTIONNAIRE

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

N/A

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

N/A

3. How many acres^[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

[1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0.15

4. Please describe the proposed bridge work:

Bridge Replacement

5. Please state the timing of all proposed bridge work:

Winter 2024 through Summer 2025

6. Please enter the date of the bridge assessment:

4/19/2023

AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the commitment to implement the following Avoidance and Minimization Measures (AMMs):

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).

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.

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.

TREE REMOVAL AMM 1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal.

LIGHTING AMM 1

Direct temporary lighting away from suitable habitat during the active season.

TREE REMOVAL AMM 2

Apply time of year restrictions for tree removal when bats are not likely to be present, 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.

DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING NLEB OR INDIANA BAT

This key was last updated in IPaC on April 13, 2023. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the endangered **northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

IPAC USER CONTACT INFORMATION

Agency: Indiana Department of Transportation
Name: Brock Ervin
Address: 41 W 300 N
Address Line 2: INDOT Crawfordsville District
City: Crawfordsville
State: IN
Zip: 47933
Email: bervin@indot.in.gov
Phone: 7653615669

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

In Reply Refer To:

April 20, 2023

Project Code: 2023-0071788

Project Name: Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch,
Benton County

Subject: List of threatened and endangered species that may occur in your proposed project
location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - <http://www.fws.gov/midwest/endangered/section7/>

[s7process/index.html](#). This website contains step-by-step instructions which will help you determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process. For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of

Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Indiana Ecological Services Field Office

620 South Walker Street

Bloomington, IN 47403-2121

(812) 334-4261

PROJECT SUMMARY

Project Code: 2023-0071788
Project Name: Des. 2002000 - SR 18 Bridge Project at East Crossing of Greenwood Ditch, Benton County
Project Type: Bridge - Replacement
Project Description: INDOT, Crawfordsville District, has programmed Des. No. 2002000, with funding from FHWA, to address deficiencies on the SR 18 bridge over the east crossing of Greenwood Ditch. The project is located at INDOT Reference Post (RP) 18+99 in Benton County, 6.84 Miles East of US 52 and between County Roads 700 East and 850 East. The nearest town is Atkinson, 4.6 miles to the southwest, with the nearest incorporated area being Fowler, 6.6 miles west.

The primary need for the project is due to the condition of the superstructure and substructure. During the bridge inspection from January 4, 2022, 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). The purpose of this project is to perpetuate SR 18 at Greenwood Ditch by establishing a crossing that is in good or better condition (a condition rating 7 or higher).

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. 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 between the bridge rails).

Based on existing infrastructure, such as ditch lines and utility poles, and based on older plan sets, the apparent existing right-of-way limits are 35 feet north and south from the roadway centerline and are consistent through the project limits. This area is currently in a transportation use.

The preferred alternative is to replace the existing bridge with a precast, concrete, flat-topped, three-sided culvert structure, which would still be classified as a bridge (new Structure No. 018-04-10730). Per the current design, the new bridge would have the same 34-foot span as the existing bridge, but to meet design standards, it would be widened by approximately 16 feet, giving the bridge a total width of 46 feet. Utilities are located on both sides of the road, and relocations will be required.

Temporary lighting may be used if INDOT or the contractor determine to conduct nighttime construction operations.

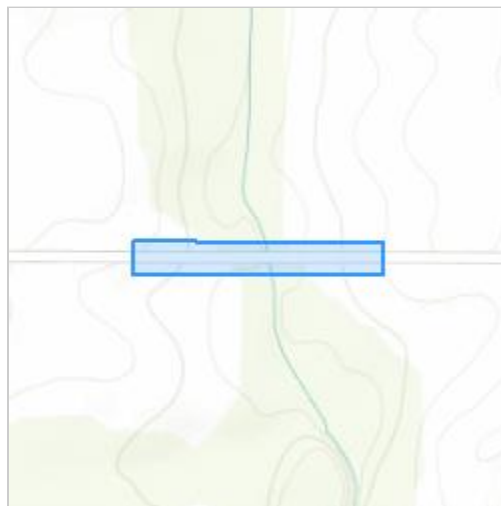
Based on the current design and apparent existing right-of-way limits of 35 feet from centerline, approximately 0.682 acre of new permanent right-of-way would be required. Right-of-way would be expanded by 15 feet along the north side out to 50 feet from the road centerline and by 25 feet along the south side out to 60 feet. To accommodate utilities at the south side of the bridge, right-of-way would be extended by an additional 20 feet (80 feet from centerline) for tree clearing. Total temporary proposed right-of-way is 0.032 acre for construction access and field entrance work.

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. Up to 0.15 acre of tree clearing may be required. Up to 160 feet of impacts to Greenwood Ditch are expected due to installation of riprap, access, and tree clearing.

Due to the rural forested corridor along Greenwood Ditch, suitable summer bat habitat for roosting and foraging is present in the project area. On April 20, 2023, INDOT reviewed the USFWS database for documented endangered bat sightings within 0.5 mile of the project, and none were identified. The most recent bat inspection of the bridge was conducted April 19, 2023, by INDOT environmental staff, and no bats or signs of bats were observed.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.6059806,-87.1768341871057,14z>



Counties: Benton County, Indiana

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non- Essential

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

NAME	BREEDING SEASON
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Henslow's Sparrow <i>Ammodramus henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Hudsonian Godwit <i>Limosa haemastica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

NAME	BREEDING SEASON
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

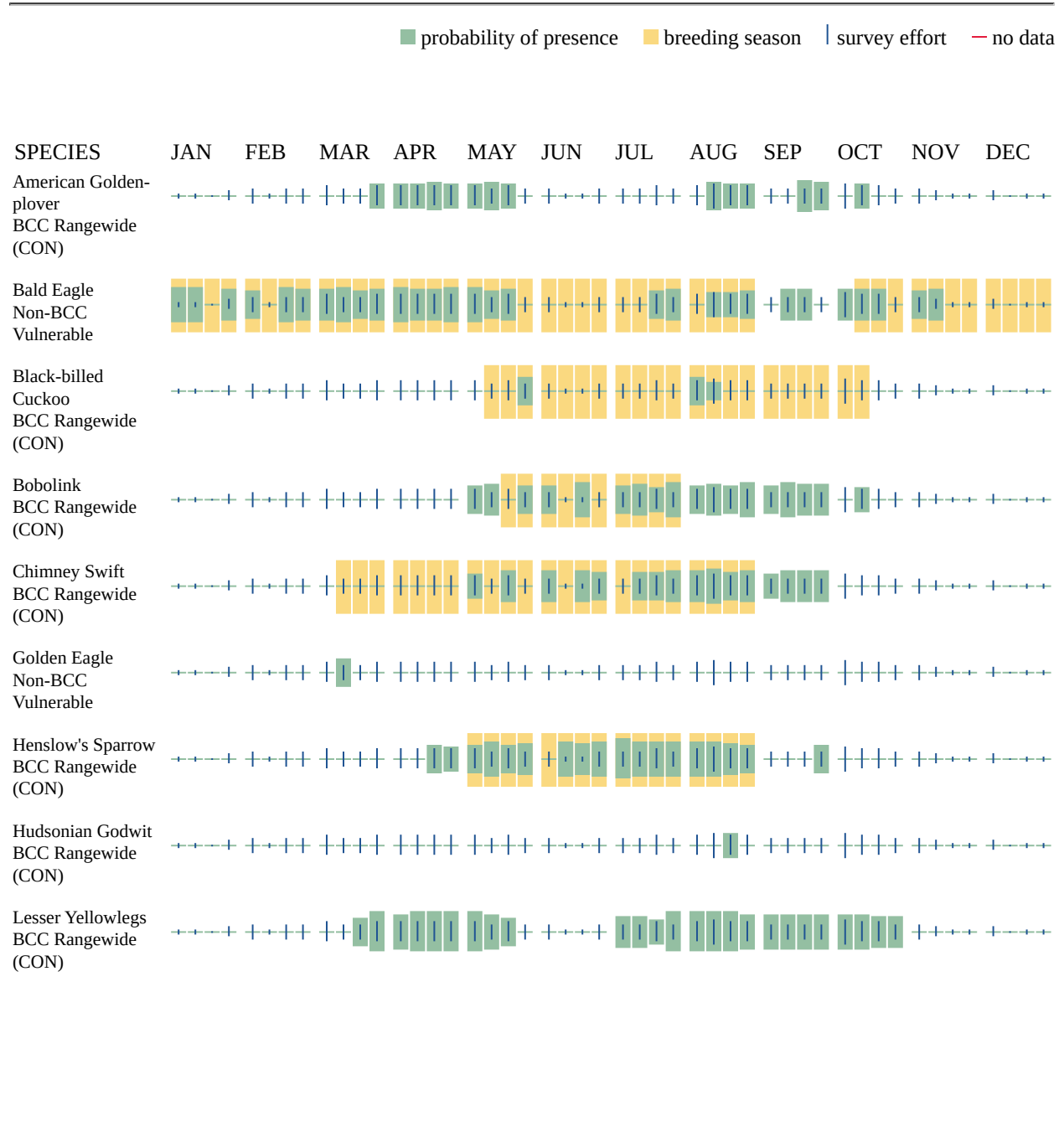
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

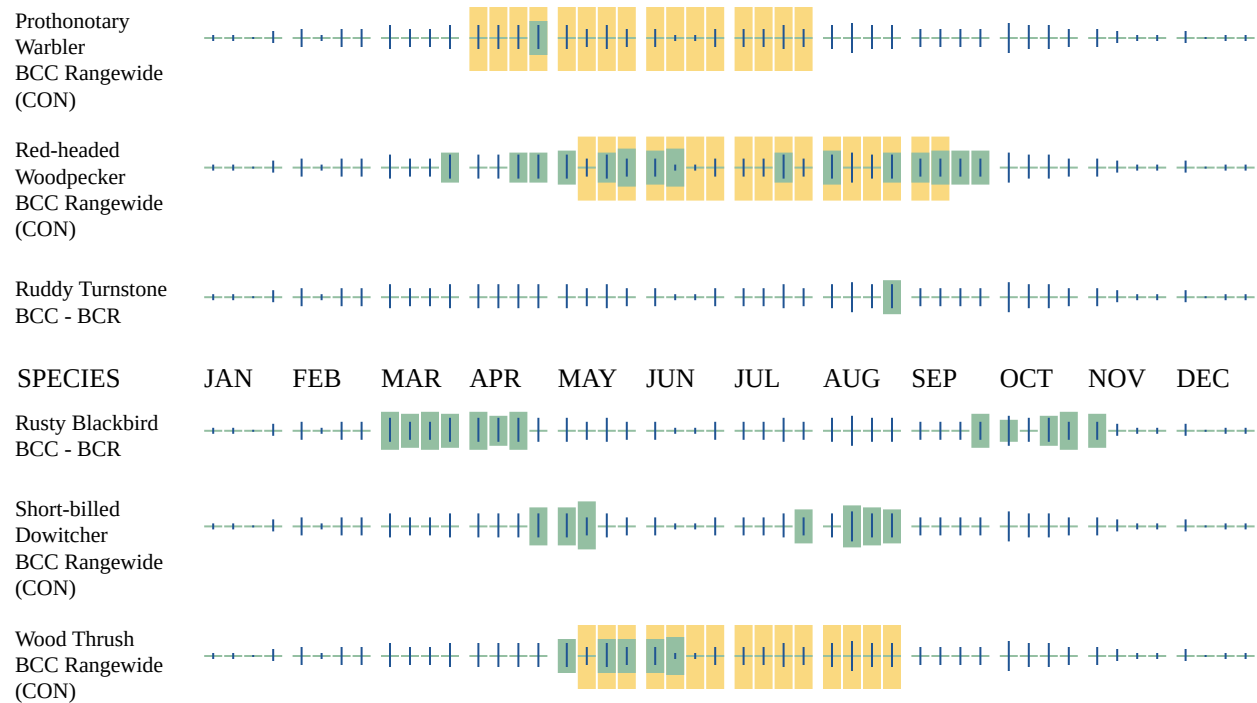
No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R2UBHx](#)

IPAC USER CONTACT INFORMATION

Agency: Indiana Department of Transportation
Name: Brock Ervin
Address: 41 W 300 N
Address Line 2: INDOT Crawfordsville District
City: Crawfordsville
State: IN
Zip: 47933
Email: bervin@indot.in.gov
Phone: 7653615669

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

Ervin, Brock

From: Schoof, Mike
Sent: Thursday, August 31, 2023 12:52 PM
To: Ervin, Brock
Subject: RE: INDOT Des. No. 2002000: Greenwood Ditch Habitat Area - Preliminary Section 4(f) Coordination

Sounds good. Thanks for the follow up.

Michael Schoof
Property Manager
Willow Slough FWA and Gamebird Habitat Areas
6312 West 100 North
Morocco, IN 47963
(219) 285-2704
www.dnr.IN.gov

** Please let us know about the quality of our service by taking this [brief customer survey](#).*

From: Ervin, Brock <BErvin@indot.IN.gov>
Sent: Thursday, August 31, 2023 11:49 AM
To: Schoof, Mike <MSchoof@dnr.IN.gov>
Cc: Jordan, Chaila <CJordan2@indot.IN.gov>; Kurtz, Randy <RKurtz@indot.IN.gov>; Connell, John (DNR) <JConnell1@dnr.IN.gov>; Carmany-George, Karstin (FHWA) <k.carmanygeorge@dot.gov>
Subject: RE: INDOT Des. No. 2002000: Greenwood Ditch Habitat Area - Preliminary Section 4(f) Coordination

Hi, Mike.

Thanks for your patience with us on this SR 18 bridge project at Greenwood Ditch. I want to close the loop on the Section 4(f) coordination that I initiated with you back in March.

The designers have worked with the utility companies, and they were able to find a way to avoid relocating the utility poles and guy wire beyond the current apparent existing right-of-way, which is at 35 feet from the roadway centerline (roughly located near the top of the backslope of the ditch). As such, INDOT will not need to acquire any new permanent or temporary right-of-way from the habitat area. INDOT still plans to reacquire the area between the edge of pavement and the 35-foot apparent existing right-of-way line at fair market value. Though the 35-foot right-of-way was established on historical construction plans for SR 18 at the project location, this land was apparently not recorded timely or otherwise not properly documented on the legal descriptions, and INDOT prefers to correct these issues during such projects. Please see the attached "Right-of-Way Acquisition Diagram".

With regard to the Section 4(f) use of the IDNR property, as the area of reacquisition is currently in a transportation use (guardrail, ditch lines, utility poles, etc.), the project will not cause a change of land use, nor should it have any impact on the property that would be considered a Section 4(f) use. So, per INDOT and FHWA policy, this project will not have a Section 4(f) impact.

Our real estate folks will work with the appropriate IDNR personnel for the acquisition of the apparent existing right-of-way, but this should conclude our coordination for Section 4(f) and the environmental document. Please let me know if you have any questions about any of this.

Best regards,

Brock Ervin > He/Him/His
Environmental Manager
Capital Program Management Division
Crawfordsville District, INDOT
41 West 300 North
Crawfordsville, IN 47933
Office: (765)361-5669
Email: bervin@indot.in.gov



From: Ervin, Brock
Sent: Friday, July 28, 2023 10:30 AM
To: Schoof, Mike <MSchoof@dnr.IN.gov>
Cc: Jordan, Chaila <CJordan2@indot.IN.gov>; Kurtz, Randy <RKurtz@indot.IN.gov>; Connell, John (DNR) <JConnell1@dnr.IN.gov>
Subject: RE: INDOT Des. No. 2002000: Greenwood Ditch Habitat Area - Preliminary Section 4(f) Coordination

Good morning, Mike.

Thanks for the response. Good to know it shouldn't be an issue. We are still looking at ways of avoiding the property entirely. We should know more after our Monday morning meeting with REMC. We'll be in touch either way to let you know how things fall out.

Enjoy your weekend.

Brock Ervin > He/Him/His
Environmental Manager
Capital Program Management Division
Crawfordsville District, INDOT
41 West 300 North
Crawfordsville, IN 47933
Office: (765)361-5669
Email: bervin@indot.in.gov



From: Schoof, Mike <MSchoof@dnr.IN.gov>
Sent: Friday, July 28, 2023 10:26 AM
To: Ervin, Brock <BErvin@indot.IN.gov>
Cc: Jordan, Chaila <CJordan2@indot.IN.gov>; Kurtz, Randy <RKurtz@indot.IN.gov>; Connell, John (DNR) <JConnell1@dnr.IN.gov>
Subject: Re: INDOT Des. No. 2002000: Greenwood Ditch Habitat Area - Preliminary Section 4(f) Coordination

I am out until Monday. I don't foresee it as an issue from a management stand point, but if an easement is required, then you'll need to work with our land acquisition guy. John is cc'ed on to this email chain now. He can likely tell you the feasibility of getting a small easement.

Michael Schoof
Property Manager
Willow Slough FWA

On Jul 27, 2023, at 3:16 PM, Ervin, Brock <BErvin@indot.in.gov> wrote:

Hello again, Mr. Schoof.

I'm writing regarding the SR 18 bridge project adjacent to the Greenwood Ditch Habitat Area that I have emailed you about previously (see below). I had planned on contacting you long ago, but we thought that we were going to be able to avoid your property entirely. Unfortunately, that is back in question.

The problem we are encountering is with the utility pole and the guy wire for stabilization, and it seems all options are putting either the poles or the guy wires on IDNR property, which would require buying (or getting a permanent easement for) a bit of DNR land. I'd like to have an informal discussion with you just to see where we stand and to see if you agree that these impacts would be considered minimal "de minimis" impacts. We have a meeting planned with the project designer and the utility company on Monday to see if there any options that keep us out of the habitat area, but I'd like to have a sense of whether or not you think this would be a de minimis impact, so that during Monday's meeting we know if options that put us on DNR land are viable, considering our timeline. Doing so would also help us avoid removing a few big trees across the road by the creek.

The meeting is early on Monday, so if we could talk tomorrow over Teams, that would be best. I'll be free all day. Or if you get this soon enough. Feel free to reach out this evening. If my green light is on, I'll be here to talk.

Thanks very much.

Brock Ervin > He/Him/His
Environmental Manager
Capital Program Management Division
Crawfordsville District, INDOT

41 West 300 North
Crawfordsville, IN 47933

Office: (765)361-5669

Email: bervin@indot.in.gov

<[image001.png](#)>

<[image002.png](#)>

<[image003.png](#)>

<[image004.jpg](#)>

<[image005.png](#)>

From: Ervin, Brock

Sent: Tuesday, March 28, 2023 12:34 PM

To: Schoof, Mike <MSchoof@dnr.IN.gov>

Cc: Kurtz, Randy <RKurtz@indot.IN.gov>; Jordan, Chaila <CJordan2@indot.IN.gov>; Chernet, Martha

[<MCHERNET@indot.IN.gov>](mailto:MCHERNET@indot.IN.gov)

Subject: Greenwood Ditch Habitat Area - Section 4(f) Coordination

Hello, Mr. Schoof.

INDOT is planning a bridge project that, as currently designed, would have minor right-of-way impacts to the Greenwood Ditch Gamebird Habitat Area in Benton County. I've reached out to Matt Buffington during our normal course of early coordination, and he informed me that you are the manager for the Greenwood Ditch property. Under the Federal Highway Act, this property qualifies as a Section 4(f) resource, which requires additional coordination in order for FHWA to determine the type of Section 4(f) use and approve the project.

INDOT will be reaching out to you in the near future, I anticipate in the next week or two, in order to discuss with you the project impacts and fulfill our obligations under Section 4(f). In the meantime, I'm providing you with the early coordination materials that I provided to IDNR's Environmental Coordinators so that you have time to review and consider what INDOT is currently proposing.

No response is required at this time. I'll be in touch. Best regards.

Brock Ervin > He/Him/His
Environmental Manager
Capital Program Management Division
Crawfordsville District, INDOT

41 West 300 North
Crawfordsville, IN 47933

Office: (765)361-5669

Email: bervin@indot.in.gov

[<image001.png>](#)

[<image002.png>](#)

[<image003.png>](#)

[<image004.jpg>](#)

[<image005.png>](#)

From: [Dave Fisher](#)
To: [Samra, Preeti](#)
Subject: RE: INDOT New Legal Drain Guidance Policy- Benton County
Date: Monday, January 24, 2022 10:54:57 AM
Attachments: [image001.png](#)

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Preeti

I/We (Benton Co. Drainage Board) do not require it. I have faith that INDOT will engineer any projects in our drainage areas correctly. We have never had a problem to date.

Thanks

Dave

From: Samra, Preeti <PSamra@indot.IN.gov>
Sent: Thursday, January 20, 2022 4:35 PM
To: Dave Fisher <dfisher@bentoncounty.in.gov>
Cc: McGill, Justus <JMcgill@indot.IN.gov>
Subject: INDOT New Legal Drain Guidance Policy- Benton County

Hello,

Our office oversees permits for all state funded transportation projects. With that being said, we are trying to create a new guidance policy regarding coordination between our department and the Drainage Boards in different counties throughout Indiana.

1. Does your county require coordination based on state funded roadway projects that are within/adjacent to any county regulated drains?
2. If yes, what would you like this coordination to include? Are there any specific forms/procedures/or people we should coordinate with?

Please let us know any materials you would like to receive from us and if we need to discuss this further. We would be happy to set up a meeting for further discussion if needed. Thank you in advance!

Best,

Preeti Samra

Ecology and Waterway Permitting Specialist

Indiana Department of Transportation | Central Office

100 N Senate N758-ES

Phone: 317-504-9352 | **Email:** PSamra@indot.IN.gov

 Go Green, There is no Planet B

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

Ervin, Brock

From: Coon, Matthew
Sent: Friday, January 19, 2024 11:03 AM
To: Ervin, Brock; Blum, Kaylee
Cc: Jordan, Chaila; Kurtz, Randy
Subject: RE: Des 2002000 MPPA B-9 Submission - Bridge Project; SR 18 at East Crossing of Greenwood Ditch

Hi Brock,

The MPPA will apply to this project, but I'm hesitant to formally approve it ahead of the archaeology report just on the off chance that one of the tribes has any concerns or objections. What you propose sounds OK to me.

Thanks,

Matt Coon

Manager, Cultural Resources Office

Interim Archaeology Team Lead

Acting Tribal Liaison

Indiana Department of Transportation

Central Office

Cell: 317-697-9752

Email: mcoon@indot.in.gov

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From: Ervin, Brock <BErvin@indot.IN.gov>
Sent: Friday, January 19, 2024 10:30 AM
To: Blum, Kaylee <KBlum@indot.IN.gov>; Coon, Matthew <mcoon@indot.IN.gov>
Cc: Jordan, Chaila <CJordan2@indot.IN.gov>; Kurtz, Randy <RKurtz@indot.IN.gov>
Subject: RE: Des 2002000 MPPA B-9 Submission - Bridge Project; SR 18 at East Crossing of Greenwood Ditch

Thanks for the update, Kaylee.

As CRO's investigation has not identified any NR concerns and there are no other environmental concerns, we'd like to advance the project to public involvement. It'll just be a 15-day notice of opportunity for comment, but no comments are anticipated based on current involvement with property owners. If CRO agrees to this approach, I would make appropriate comments in the "CE released for PI". I'd note the status of the B-9, the lack of any NR-listed or eligible properties, and your concurrence to advance, and a note that the final B-9 approval will be required prior to final approval NEPA document.

That's how we intend to proceed. Please let me know if you or Matt have concerns with this.

Thanks very much.

Brock Ervin > He/Him/His

Environmental Manager

Capital Program Management Division

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



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758-ES
Indianapolis, Indiana 46204

PHONE: (855) 463-6848
(855) INDOT4U

Eric Holcomb, Governor
Michael Smith, Commissioner

Date: August 24, 2023

To: Site Assessment & Management (SAM)
Environmental Policy Office - Environmental Services Division (ESD)
Indiana Department of Transportation (INDOT)
100 N Senate Avenue, Room N758-ES
Indianapolis, IN 46204

From: Brock Ervin
INDOT Crawfordsville DE
41 West 300 North
Crawfordsville, Indiana
bervin@indot.in.gov

Re: RED FLAG INVESTIGATION
DES # 2002000, State Project
Bridge Replacement
SR 18 over Greenwood Ditch, 6.84 Miles East of US 52
Benton County, Indiana

PROJECT DESCRIPTION:

INDOT has programmed a bridge replacement project to correct deficiencies on the SR 18 bridge (ID # 018-04-01689 B). The existing bridge will be replaced by a pre-cast concrete flat-topped, three-sided culvert structure.

Bridge Work Included in Project: Yes No Structure #(s) 018-04-01689 B

If this is a bridge project, is the bridge Historical? Yes No , Select Non-Select

(Note: If the project involves a historical bridge, please include the bridge information in the Recommendations Section of the report).

Culvert Work Included in Project: Yes No Structure #(s) _____

Proposed right of way: Temporary # Acres .043 Permanent # Acres .519, Not Applicable

Type and proposed depth of excavation: Excavation depth will vary depending on location. All excavation will occur in the current INDOT right-of-way and in previously disturbed soils.

Maintenance of traffic (MOT): SR 18 will be closed during construction. The official detour would redirect traffic south of SR 18 using US 231 and US 52.

Work in waterway: Yes No Below ordinary high water mark: Yes No

State Project: LPA:

Any other factors influencing recommendations: 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. Up to 0.1 acres of tree clearing may be required.

INFRASTRUCTURE TABLE AND SUMMARY

Infrastructure			
Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Religious Facilities	N/A	Recreational Facilities	1
Airports ¹	N/A	Pipelines	N/A
Cemeteries	N/A	Railroads	N/A
Hospitals	N/A	Trails	N/A
Schools	N/A	Managed Lands	1

¹In order to complete the required airport review, a review of public-use airports within 3.8 miles (20,000 feet) is required.

Explanation:

Recreational Facilities: One (1) recreational facility is located within the 0.50-mile search radius. The nearest facility, the Greenwood Ditch Gamebird Habitat Area, is located adjacent to the project area. Coordination with IDNR Fish and Wildlife will occur.

Managed Lands: One (1) managed land is located within the 0.50-mile search radius. Greenwood Ditch Gamebird Habitat Areas is located adjacent to the project area. Coordination with IDNR Fish and Wildlife will occur.

WATER RESOURCES TABLE AND SUMMARY

Water Resources			
Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
NWI - Points	N/A	Canal Routes - Historic	N/A
Karst Springs	N/A	NWI - Wetlands	3
Canal Structures – Historic	N/A	Lakes	1
NPS NRI Listed	N/A	Floodplain - DFIRM	1
NWI-Lines	1	Cave Entrance Density	
IDEM 303d Listed Streams and Lakes (Impaired)	N/A	Sinkhole Areas	N/A
Rivers and Streams	11	Sinking-Stream Basins	N/A

If unmapped water features are identified that might impact the project area, direct coordination with INDOT ESD Ecology and Waterway Permitting will occur.

Explanation:

NWI-Lines: Two (2) NWI-lines are located within the 0.50-mile search radius. One (1) NWI Line, Greenwood Ditch, is located within the project area. A Waters of the US Report is recommended based on mapped features, and coordination with INDOT ESD Ecology and Waterway Permitting will occur.

Rivers and Streams: Eleven (11) river or stream segments are located within the 0.50-mile search radius. One (1) river or stream segment, Greenwood Ditch, is located within the project area. A Waters of the US Report is recommended based on mapped features, and coordination with INDOT ESD Ecology and Waterway Permitting will occur.

NWI – Wetlands: Three (3) wetlands are located within the 0.50-mile search radius. One (1) wetland is located 0.26 mile south of the project area. No impact is expected.

Lakes: One (1) lake is located within the 0.5-mile search radius. The lake is located adjacent to the project area. A Waters of the US Report is recommended based on mapped features, and coordination with INDOT ESD Ecology and Waterway Permitting.

Floodplain – DFIRM: One (1) floodplain polygon is located within the 0.50-mile search radius. The nearest floodplain polygon is located approximately 0.45 mile east of the project area. No impact is expected.

MINING AND MINERAL EXPLORATION TABLE AND SUMMARY

Mining/Mineral Exploration			
Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Petroleum Wells	N/A	Mineral Resources	N/A
Mines – Surface	N/A	Mines – Underground	N/A

Explanation:

No mining/mineral exploration resources were identified within the 0.5-mile search radius.

HAZARDOUS MATERIAL CONCERNS TABLE AND SUMMARY

Hazardous Material Concerns			
Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Superfund	N/A	Manufactured Gas Plant Sites	N/A
RCRA Generator/ TSD	N/A	Open Dump Waste Sites	N/A
RCRA Corrective Action Sites	N/A	Restricted Waste Sites	N/A
State Cleanup Sites	N/A	Waste Transfer Stations	N/A
Septage Waste Sites	N/A	Tire Waste Sites	N/A
Underground Storage Tank (UST) Sites	N/A	Confined Feeding Operations (CFO)	N/A
Voluntary Remediation Program	N/A	Brownfields	N/A
Construction Demolition Waste	N/A	Institutional Controls	N/A
Solid Waste Landfill	N/A	NPDES Facilities	N/A
Infectious/Medical Waste Sites	N/A	NPDES Pipe Locations	N/A
Leaking Underground Storage (LUST) Sites	N/A	Notice of Contamination Sites	N/A

Unless otherwise noted, site specific details presented in this section were obtained from documents reviewed on the Indiana Department of Environmental Management (IDEM) Virtual File Cabinet (VFC).

Explanation: No hazardous material concerns were identified within the 0.5-mile search radius.

ECOLOGICAL INFORMATION SUMMARY

The Benton County listing of the Indiana Natural Heritage Data Center information on endangered, threatened, or rare (ETR) species and high-quality natural communities is provided https://www.in.gov/dnr/nature-preserves/files/np_benton.pdf. A preliminary review of the Indiana Natural Heritage Database by INDOT ESD did indicate the presence of ETR species within the 0.5-mile search radius. Coordination with USFWS and IDNR will occur.

A review of the USFWS database did not indicate the presence of endangered bat species in or within 0.5 miles of the project area. The project area is located in a rural area surrounded by farm fields. The January 4, 2022, inspection report for Bridge #018-04-01689 B states that no evidence of bats was seen or heard under the bridge. An additional investigation to confirm the presence or absence of bats in (or on) the bridge will be necessary. The rangewide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects."

RECOMMENDATIONS SECTION

Include recommendations from each section. If there are no recommendations, please indicate N/A:

INFRASTRUCTURE:

Recreational Facility: One (1) recreational facility is located adjacent to the project area. Coordination with IDNR Fish and Wildlife will Occur.

Managed Lands: One (1) managed land is located adjacent to the project area. Coordination with IDNR Fish and Wildlife will occur.

WATER RESOURCES:

A Waters of the US Report is recommended based on the presence of mapped features, and coordination with INDOT ESD Ecology and Waterway Permitting will occur for the following features:

- One (1) river and stream segment, Greenwood Ditch, is located within the project area.
- One (1) lake is located adjacent to the project area.

MINING/MINERAL EXPLORATION: N/A

HAZARDOUS MATERIAL CONCERNS: N/A

ECOLOGICAL INFORMATION:

Coordination with USFWS and IDNR will occur. The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects."

INDOT ESD concurrence: Nicole Fohey Breting (Signature)

Digitally signed by
Nicole Fohey-Breting
Date: 2023.08.25
09:39:36 -04'00'

Prepared by:
Brock Ervin
Environmental Manager 2
INDOT Crawfordsville DE

Graphics:

A map for each report section with a 0.5-mile search radius buffer around all project area(s) showing all items identified as possible items of concern is attached. If there is not a section map included, please change the YES to N/A:

SITE LOCATION: YES

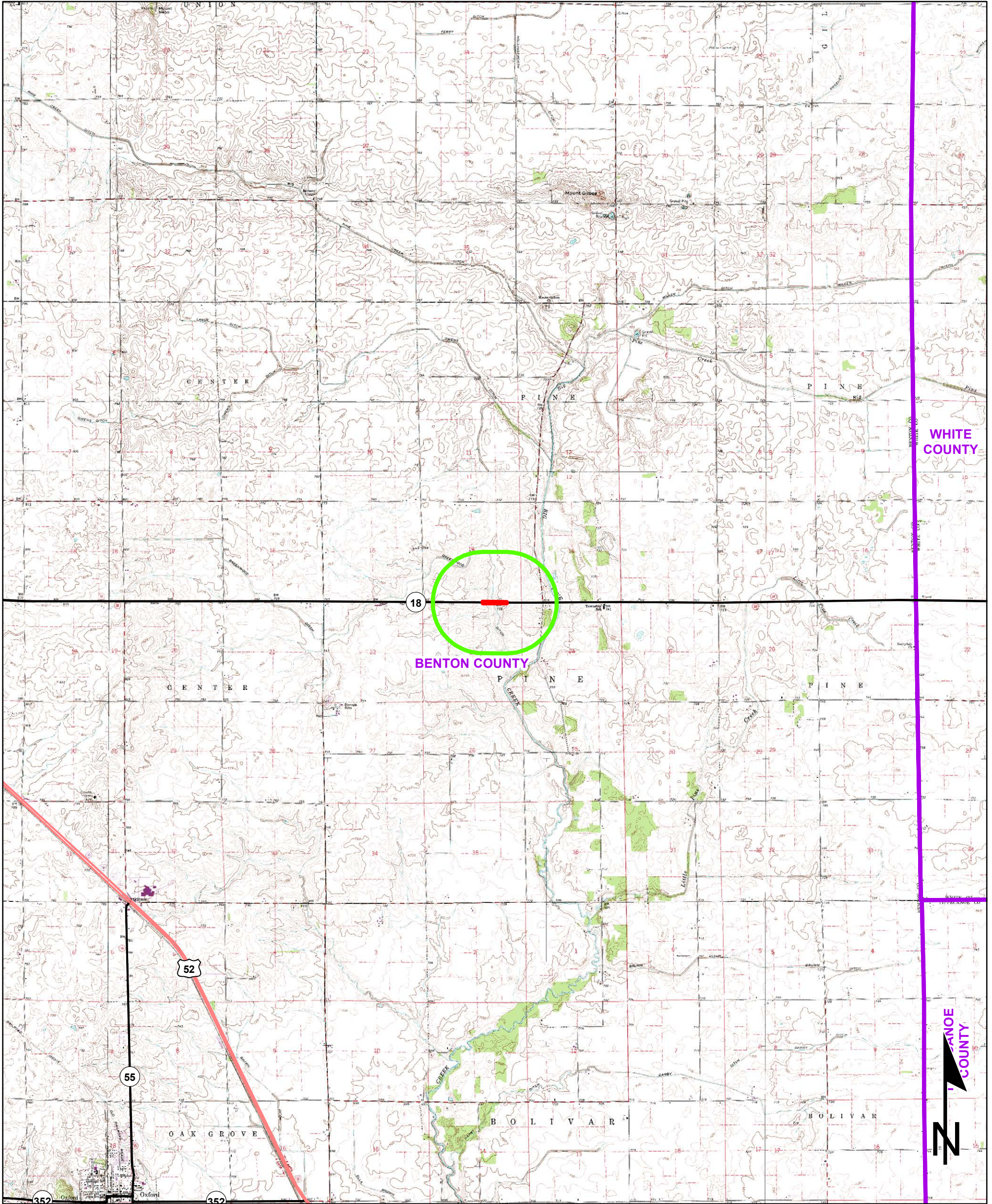
INFRASTRUCTURE: YES

WATER RESOURCES: YES

MINING/MINERAL EXPLORATION: N/A

HAZARDOUS MATERIAL CONCERNS: N/A

Red Flag Investigation - Site Location
 SR 18 over Greenwood Ditch, 6.84 Miles East of US 52
 Des. No. 2002000, Bridge Replacement
 Benton County, Indiana



Sources: 1 0.5 0 1 Miles
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
 This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

**TEMPLETON QUADRANGLE
 INDIANA
 7.5 MINUTE SERIES
 (TOPOGRAPHIC)**

Red Flag Investigation - Infrastructure

SR 18 over Greenwood Ditch, 6.84 Miles East of US 52

Des. No. 2002000, Bridge Replacement

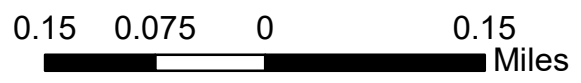
Benton County, Indiana



State of Indiana

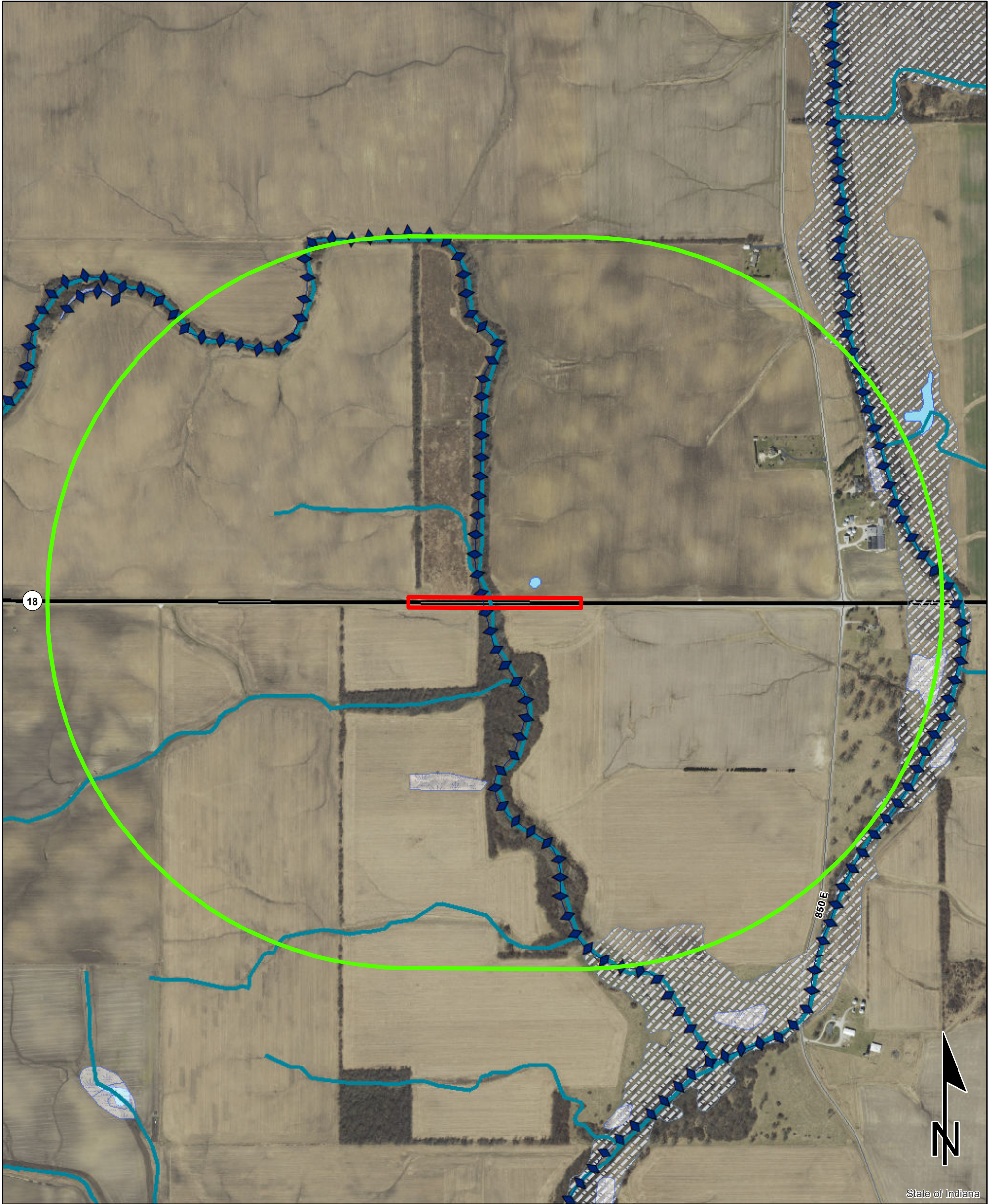
Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.



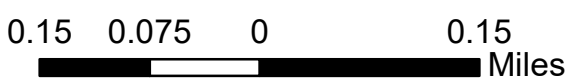
	Religious Facility		Recreation Facility		Project Area
	Airport		Pipeline		Half Mile Radius
	Cemeteries		Railroad		Toll
	Hospital		Trails		Interstate
	School		Managed Lands		State Route
			County Boundary		US Route
					Local Road

Red Flag Investigation - Water Resources
 SR 18 over Greenwood Ditch, 6.84 Miles East of US 52
 Des. No. 2002000, Bridge Replacement
 Benton County, Indiana



State of Indiana

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



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

NWI - Point	Wetlands	Project Area
Karst Spring	Lake	Half Mile Radius
NWI - Line	Floodplain - DFIRM	Toll
Impaired_Stream_Lake	Cave Entrance Density	Interstate
NPS NRI listed	Sinkhole Area	State Route
River	Sinking-Stream Basin	US Route
Canal Structure - Historic	County Boundary	Local Road
Canal Route - Historic		

Appendix F: Waters of the U.S. 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
GIS-Based Water Resources Map.....	F-8
USGS StreamStats Reports	F-9
IDNR Floodplain Analysis & Regulatory Assessment	F-10
Field-Identified Resources Maps.....	F-11
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

WATERS OF THE US REPORT
SR 18 Bridge Replacement Project at
Greenwood Ditch 6.84 Miles East of US 52
Benton County
Designation Number: 2002000

APPROVED

Justus McMill
4/24/23

Prepared by: Brock N. Ervin
INDOT, Crawfordsville District
765-361-5669, bervin@indot.in.gov

Report Date: April 14, 2023

I: PROJECT INFORMATION

Date(s) of Field Reconnaissance: August 3, 2022

This waters report is valid for five years from the first day that fieldwork was conducted. It expires August 3, 2027.

Project Location (see pages 6 to 7):

SR 18 at the East Crossing of Greenwood Ditch
Between CR 700 E and CR 850 E in Benton County, Indiana
6.84 Miles East of US 52 at INDOT Reference Post (RP) 18+99
Sections 14 and 23 of Township 25 North, Range 7 West
USGS 7.5' Templeton Quadrangle
Latitude: 40.605985°, Longitude: -87.176662°

Project Description:

INDOT, Crawfordsville District, with funding from FHWA, has programmed Des. No. 2002000 to address the deteriorating condition of the superstructure and substructure of the bridge at the east crossing of SR 18 over Greenwood Ditch in Benton County.

The existing bridge is INDOT Structure No. 018-04-01689 B (NBI No. 4570), which 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 between the bridge rails). The approach roads include two 10-foot travel lanes with very narrow shoulders. The preferred alternative is to replace the bridge.

II: DESKTOP RECONNAISSANCE

Desktop Methodology:

The area of investigation (AOI) for water resources was determined in consultation with the project designer. A GIS-based desktop review of numerous source materials was conducted to identify potential water resources in or near the AOI, which was used to inform the field investigation.

USGS Mapping and Aerial Imagery:

The United States Geological Survey (USGS) 7.5-minute topographic map identifies one blue-line feature within the AOI, Greenwood Ditch, which is mapped as a perennial stream (see page 7). The topographic map also identifies an area of ponding in the northeast quadrant, immediately outside of the AOI. USGS National Hydrography Dataset (NHD) mapping identifies Greenwood Ditch as the only water feature within the AOI (see page 9). Aerial imagery was reviewed for indications of surface water resources within or near the AOI (see page 8). In addition to Greenwood Ditch, the northwest roadside ditch shows indications of saturation along its length. The aerial imagery does not show indications of ponding in the northeast quadrant, though erosional features are present.

NWI Wetland Mapping:

The US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping identifies Greenwood Ditch as a riverine wetland (R2UBHX, see page 11). The nearest NWI-mapped non-riverine wetland is approximately 1150 feet south of the AOI.

Floodplain Mapping and Drainage Area:

The AOI is located within the Owens Ditch-Big Pine Creek USGS 12-Digit Watershed (051201080404). Federal Emergency Management Agency (FEMA) and Indiana Department of Natural Resources (IDNR) was reviewed. FEMA-floodplain mapping shows that this segment of Greenwood Ditch is not in the delineated 100-year floodplain (see page 11), which does not start for 0.53 mile downstream of the project. However, The IDNR Floodplain Information Portal was accessed to generate a Floodplain Analysis & Regulatory Assessment (FARA) Report, and the project area is located within the IDNR-mapped floodway (see page 13). The USGS StreamStats website was reviewed, which identified Greenwood Ditch as the only drainage feature passing through the AOI. The StreamStats upstream drainage area was calculated to be 7.266 square miles (see page 12).

NRCS Mapped Soil Units:

According to mapping for Benton County, Indiana, from the Soil Survey Geographic Database (SSURGO) compiled by the National Resources Conservation Service (NRCS), the following soil units are located within the AOI.

Table 1: NRCS SSURGO Mapped Soil Units (see page 10)

Soil Unit Name	Symbol	NRCS Flooding Frequency	NRCS Drainage Class	NRCS Hydric Soil Category	SSURGO Hydric Rating
Odell silt loam, 2 to 4 percent slopes, eroded	OIB2	None	Somewhat Poorly Drained	Hydric	7% Hydric
Montmorenci silt loam, 2 to 6 percent slopes, eroded	MxB2	None	Moderately Well Drained	Hydric	5% Hydric
Selma silty clay loam, till substratum	Sh	None	Poorly Drained	Hydric	100% Hydric

III: FIELD RECONNAISSANCE

Field Methodology:

The entire AOI was reviewed for water resources via a walking survey. Potential water resources identified during desktop review were investigated. Waterways exhibiting a distinct ordinary high-water mark (OHWM) and a defined bed and bank were assumed to be jurisdictional streams. Wetlands meeting USACE wetland criteria were assumed to be jurisdictional. The ordinary high-water mark of any identified streams was obtained using a measuring tape when conditions were safe to do so; otherwise, aerial imagery and USGS stream gage data were used.

Streams:

A field investigation of the AOI for stream resources was conducted on August 3, 2022, which confirmed the presence of Greenwood Ditch as the only stream in or abutting the project area.

Table 2: Stream Summary Table

Name	Photo Numbers	Latitude/ Longitude	OHWM Width and Depth	USGS Blue-Line	Flow Type	Riffles/ Pools	Typical Substrate Type	Quality	Likely Water of US
Greenwood Ditch	26 to 35	40.605985°/ -87.176662°	24.5 ft. wide 20 in. deep	Yes	Perennial	No	Silt/Sand/ Gravel/ Cobble	Average	Yes

Greenwood Ditch

Greenwood Ditch is a perennial blue-line stream that flows south through the AOI beneath the SR 18 bridge that is proposed for replacement. The stream is surrounded by a narrow, wooded riparian corridor for much of its length upstream and downstream but is otherwise situated in a dominantly agricultural setting. During the field investigation on August 3, 2022, water was present in the channel, but it was generally stagnant. Along the reviewed area, water depth varied from approximately 6 to 15 inches, with localized holes as deep as 2.5 feet. Beyond the influence of the existing bridge, Greenwood Ditch exhibited an OHWM of 24.5 feet wide by 20 inches deep (see photo 32). The channel was incised and had a bank-full depth of between seven and ten feet, with outer bends being substantially undercut. Riprap was present at the bridge cones in each quadrant but was largely overrun by vegetation (see photos 20 to 24). Riprap is also present in the channel along the abutments (see photos 26 to 27).

Per USGS StreamStats, Greenwood Ditch has an upstream drainage area of 7.266 square miles from the project location. A school of approximately 30 small fish was observed in the channel. Mussel remains and one living mussel were also observed (see photo 29). With consideration of the wildlife and wooded riparian of the stream, as well as its setting within an overall agricultural area, Greenwood Ditch was considered to have average quality compared to similar sized waterways.

Approximately 185 linear feet of Greenwood Ditch is located within the AOI. Greenwood Ditch is a tributary of Big Pine Creek, which is a tributary of the Wabash River, which is a navigable water of the US. Therefore, Greenwood Ditch is likely a water of the US under the jurisdiction of the USACE.

Wetlands:

A field investigation for potential wetlands within the AOI was conducted on August 3, 2022. The topography along the length of SR 18 within the AOI was shaped in a wide, shallow depression with Greenwood Ditch at the bottom. Nearly all the area beyond the roadside was vegetated or forested, though much of this was in agricultural use. The walking survey identified no areas exhibiting standing water, saturated soils, or large areas of strongly hydrophytic vegetation.

Areas that exhibited a mixed or higher percentage of hydrophytic vegetation, local topography that could be conducive to wetland formation, or where the desk top review identified areas of potential water resources were reviewed in more detail. Three wetland determination points were taken.

Data point A-OUT (page 25) was taken within the roadside ditch at the west side of the AOI. Vegetation in this part of the ditch consisted solely of *Phalaris arundinacea* (reed canary grass, FACW), so hydrophytic vegetation was present. Based on its location and vegetation, the point exhibited the two secondary hydrology indicators of geomorphic position and the FAC-neutral test, so wetland hydrology was present. However, no depleted soils or soils darker than 3/1 were present, and no hydric soil indicators were observed. Therefore, data point A-OUT was determined not to be within a wetland.

Data point B-OUT (page 27) was taken in the northwest quadrant at the SR 18 bridge over Greenwood Ditch. Soils in this area were mapped by NRCS as 100% hydric. The area was largely dominated by *Lonicera Maackii* (amur honeysuckle, UPL), *Setaria faberi* (Japanese Bristle Grass, FACU), *Phalaris arundinacea* (Reed Canary Grass, FACW), and *Populus deltoides* (eastern cottonwood, FAC). Hydrophytic vegetation was determined not to be present, and no hydrology or hydric soil indicators were present. Therefore, data point B-OUT was determined not to be within a wetland.

Data point C-OUT (page 29) was taken in the southeast quadrant at the SR 18 bridge over Greenwood Ditch. Soils in this area were mapped by NRCS as 100% hydric. While the herb stratum was predominantly *Phalaris arundinacea* (reed canary grass, FACW), the tree and shrub strata were dominantly *Lonicera Maackii* (amur honeysuckle, UPL) and *Morus rubra* (red mulberry, FACU). Hydrophytic vegetation was determined not to be present, and no hydrology or hydric soil indicators were present. Therefore, data point C-OUT was determined not to be within a wetland.

Table 3: Wetland Data Point Summary Table

Data Point	Photo Numbers	NWI Mapped Wetlands	SSURGO Hydric Rating	NRCS Flooding	Hydrophytic Vegetation Present	Hydric Soils Present	Wetland Hydrology Present	Wetland
A-OUT (Page 25)	2 to 4	No	7% Hydric	None	Yes • Rapid Test • Dominance Test	No	Yes • Geomorphic Position • FAC-Neutral	No
B-OUT (Page 27)	17 to 19	No	100% Hydric	None	No	No	No	No
C-OUT (Page 29)	36 to 39	No	100% Hydric	None	No	No	No	No

Other Features:

One man-made roadside ditch (RSD-1) was present in the northwest quadrant of the project area, which carries field drainage to Greenwood Ditch. The ditch was heavily vegetated and did not exhibit a well-defined, continuous OHWM (see photos 1, 3 to 4, and 10 to 12). RSD-1 is excavated in and drains only dry land and does not carry a relatively permanent flow of water. In accordance with the current guidelines for man-made roadside ditches, RSD-1 was not considered to be a water of the US. RSD-1 was the only well-defined roadside ditch within the AOI, and drainage along the other three quadrants was conveyed along poorly defined grassy roadside swales.

The area in the northeast quadrant where ponding was indicated by the USGS topographic and GIS-based mapping was reviewed, and no evidence of ponding, saturation, or stunted plant growth was observed (see photo 44).

Wildlife Evidence and Concerns:

As indicated above, Greenwood Ditch was observed to be inhabited by mussels and schools of small fish. No bats or indications of bats were observed, though roosting and foraging habitat were present. The wooded riparian corridor offers nesting habitat for birds, though no nests or specific bird species were noted. One swallow nest of indeterminate age was noted attached to the bottom side of the bridge. Riprap along the bridge abutments provides access for wildlife crossing, but its functionality is limited due to the material and the steep slope of its configuration. No other terrestrial or aquatic animal species, or indications of their presence, were noted within the AOI during the field investigation.

IV: CONCLUSIONS

The area of investigation for Des. No. 2002000, a bridge project on SR 18 at Greenwood Ditch in Benton County, was reviewed for surface water resources on August 3, 2022. Greenwood Ditch was the only water resource within or abutting the area of investigation. Approximately 185 linear feet of Greenwood Ditch is located within the area of investigation. Greenwood ditch is likely to be considered a jurisdictional water of the US by the USACE.

Every effort should be taken to avoid impacts to waters of the US. If impacts will occur, waterway permits will be required, and mitigation may be necessary as a condition of the permits. Impacts must be minimized before mitigation can be considered. INDOT’s Ecology and Waterway Permitting Office (EWPO) staff should be contacted immediately if impacts will occur.

The conclusions presented in this report are the best judgment of the author and are based on the guidelines set forth by USACE, which is ultimately responsible for the final determination of the presence of Waters of the US, as regulated by the Clean Water Act.

Acknowledgement:

This waters determination has been prepared based on the best available information, interpreted in light of the investigator's training, experience, and professional judgement and in conformance with the 1987 Corps of Engineers Wetlands Delineation Manual, the appropriate regional supplement, the USACE Jurisdictional Determination Form Instructional Guidebook, and other appropriate agency guidelines.

The definition of waters of the US and preliminary determinations of jurisdiction observed for this report were based on the *Revised Definition of "Waters of the United States"* final rule issued by the USACE and the Environmental Protection Agency (EPA) in the Federal Register on January 18, 2023, the *USACE Jurisdictional Determination Form Instructional Guidebook* (May 30, 2007), *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* (December 2, 2008), and *USACE Regulatory Guidance Letter No. 05-05* (December 7, 2005). USACE Louisville District's *Public Notice No. LRL-2012-5-6* was used to identify navigable waters, as well as waters subject to USACE jurisdiction under Sections 9 and 10 of the Rivers and Harbors Act. Wetland data was gathered in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010). Wetland indicator statuses for plants were obtained from *The National Wetland Plant List* (USACE, 2020).

Preparer: Brock N. Ervin, INDOT Crawfordsville District Environmental

Signature:













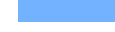



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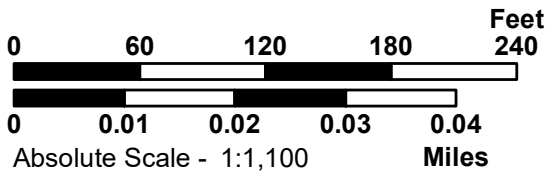
Supporting Documentation:

Page 6: Project Location Map
Page 7: USGS 1:24k Topographic Map with PLSS Mapping
Page 8: Indiana State Aerial Imagery (Best Available 2017 – 2019)
Page 9: USGS NHD Map
Page 10: NRCS Soils Map
Page 11: GIS-Based Water Resources Map
Page 12: USGS StreamStats Report Excerpt
Page 13: IDNR Floodplain Analysis & Regulatory Assessment Excerpt
Page 14: Field-Identified Resources Map
Pages 15 to 16: Photo Orientation Map
Pages 17 to 24: Site Photography
Pages 25 to 30: Wetland Determination Data Forms
Pages 31 to 34: Preliminary Jurisdictional Determination Form

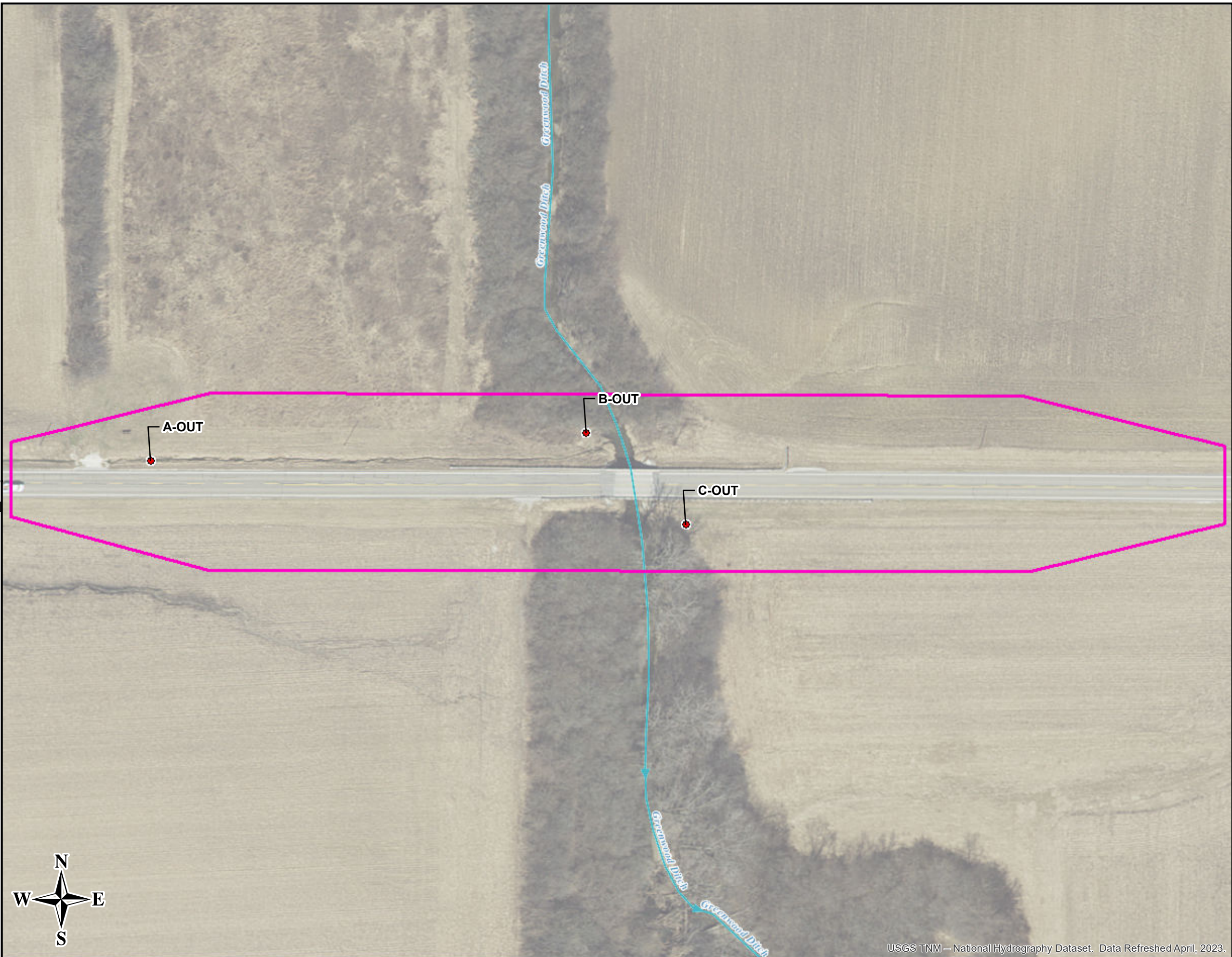
Des. No. 2002000
SR 18 at East Crossing of
Greenwood Ditch
Bridge Project
6.84 Miles East of US 52
Benton County

USGS NHD Map

-  **Area of Investigation**
-  **USGS NHD Flowline: Perennial**
-  **USGS NHD Flowline: Intermittent**
-  **USGS NHD Flowline: Ephemeral**
-  **USGS NHD Flowline: Artificial**
-  **USGS NHD Flowline: Canal/Ditch**
-  **USGS NHD Flowline: Connector**
-  **USGS NHD Flowline: Pipeline**
-  **USGS NHD Flowline: UG Conduit**
-  **USGS NHD Waterbody: Lake/Pond**
-  **USGS NHD Waterbody: Wetland**
-  **USGS NHD Waterbody: Reservoir**
-  **Wetland Data Point**
-  **Non-Wetland Data Point**



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

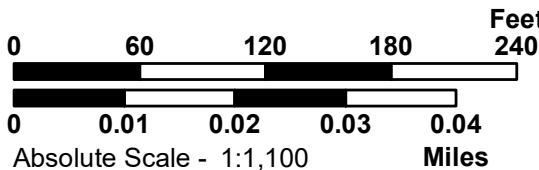
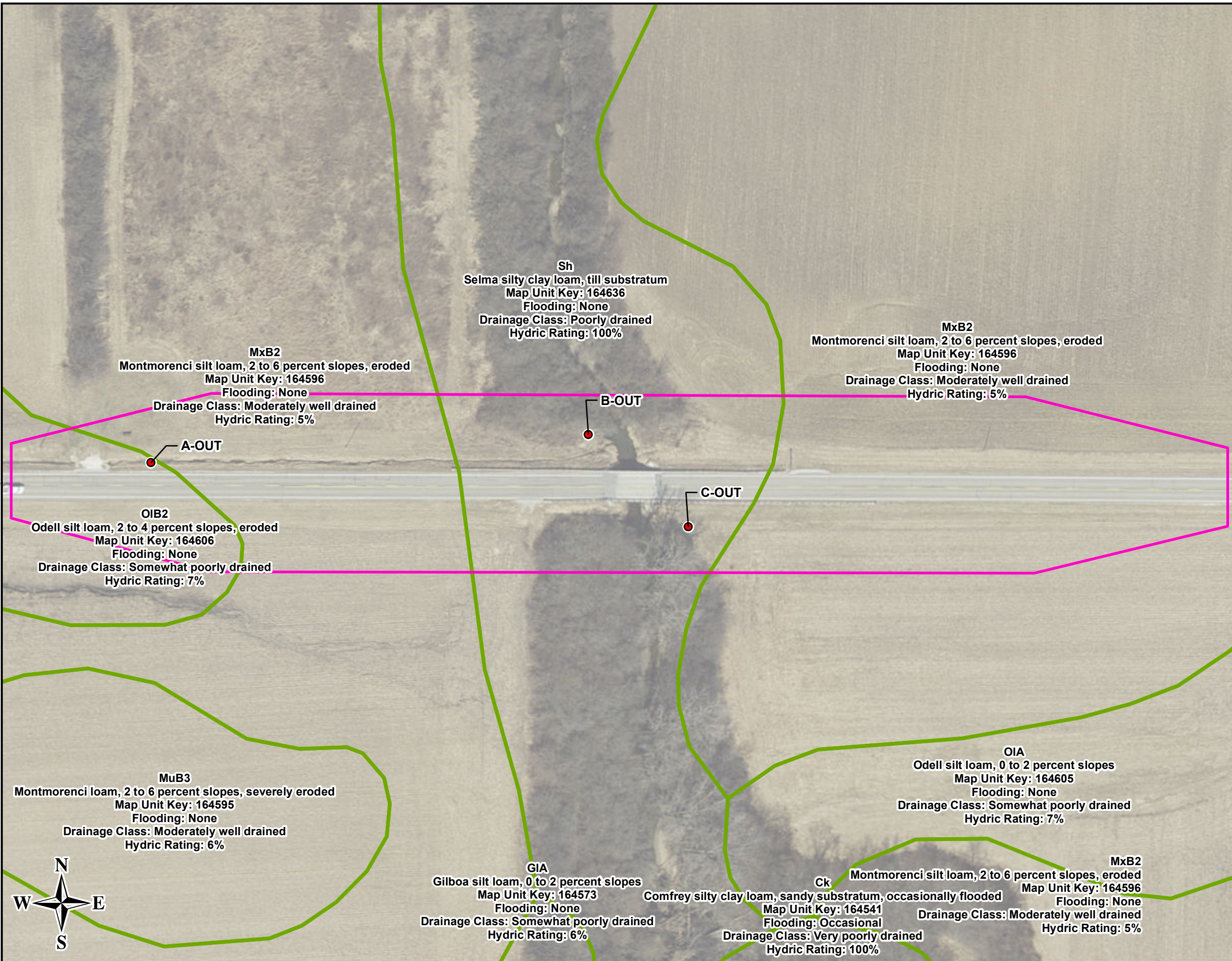


USGS TNM – National Hydrography Dataset. Data Refreshed April, 2023.

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

NRCS Soils Map

- Area of Investigation
- NRCS SSURGO Soil Units
- Wetland Data Point
- Non-Wetland Data Point









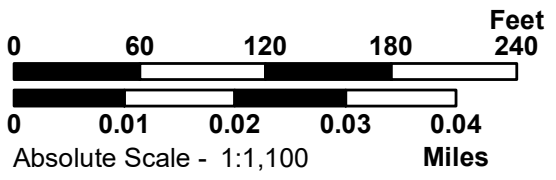
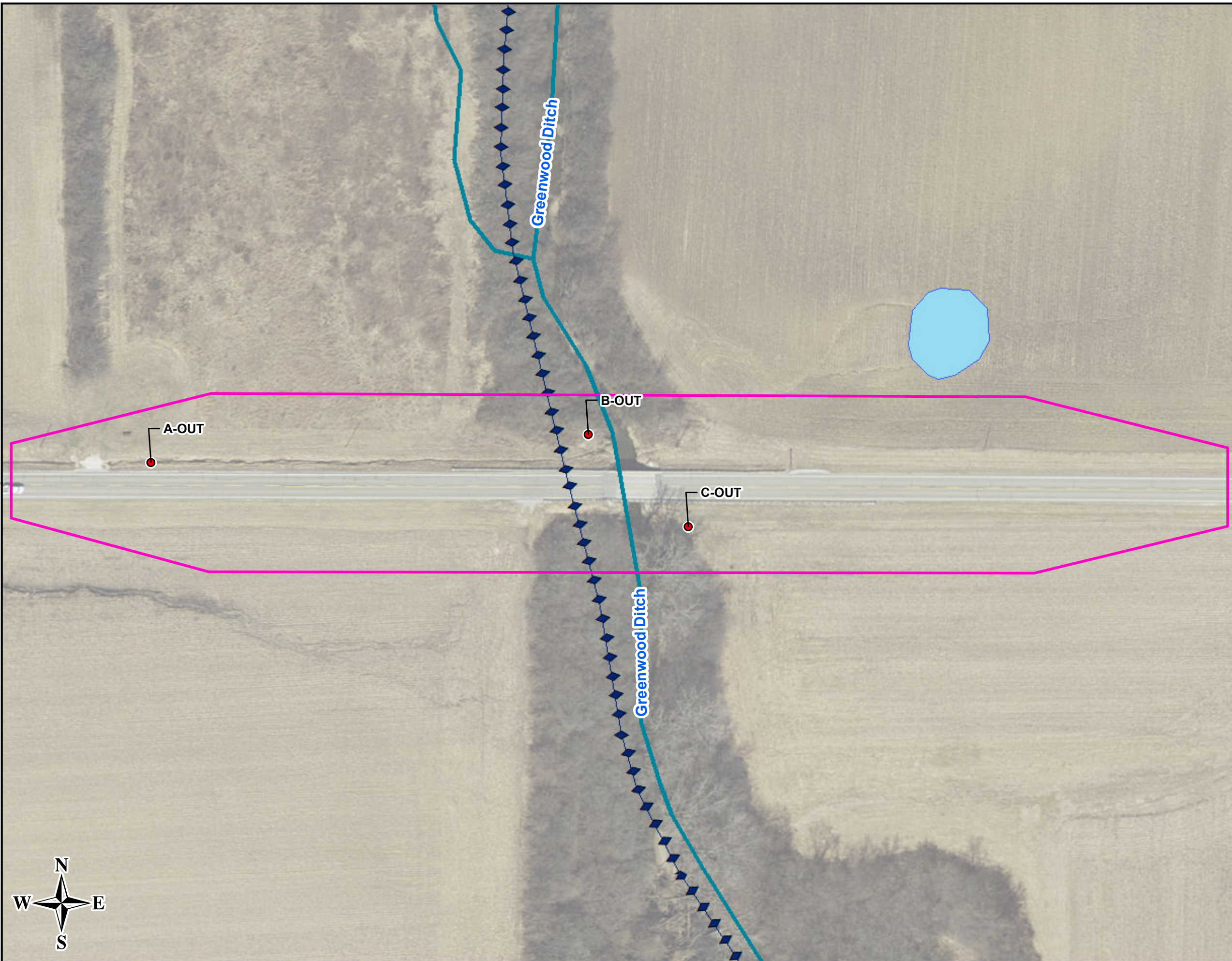
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Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83



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

GIS-Based Water Resources Map

-  Area of Investigation
-  River
-  Wetlands
-  Lake
-  Floodplain - DFIRM
-  NWI- Line
-  NWI - Point
-  Karst Spring
-  NPS NRI listed
-  Wetland Data Point
-  Non-Wetland Data Point



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

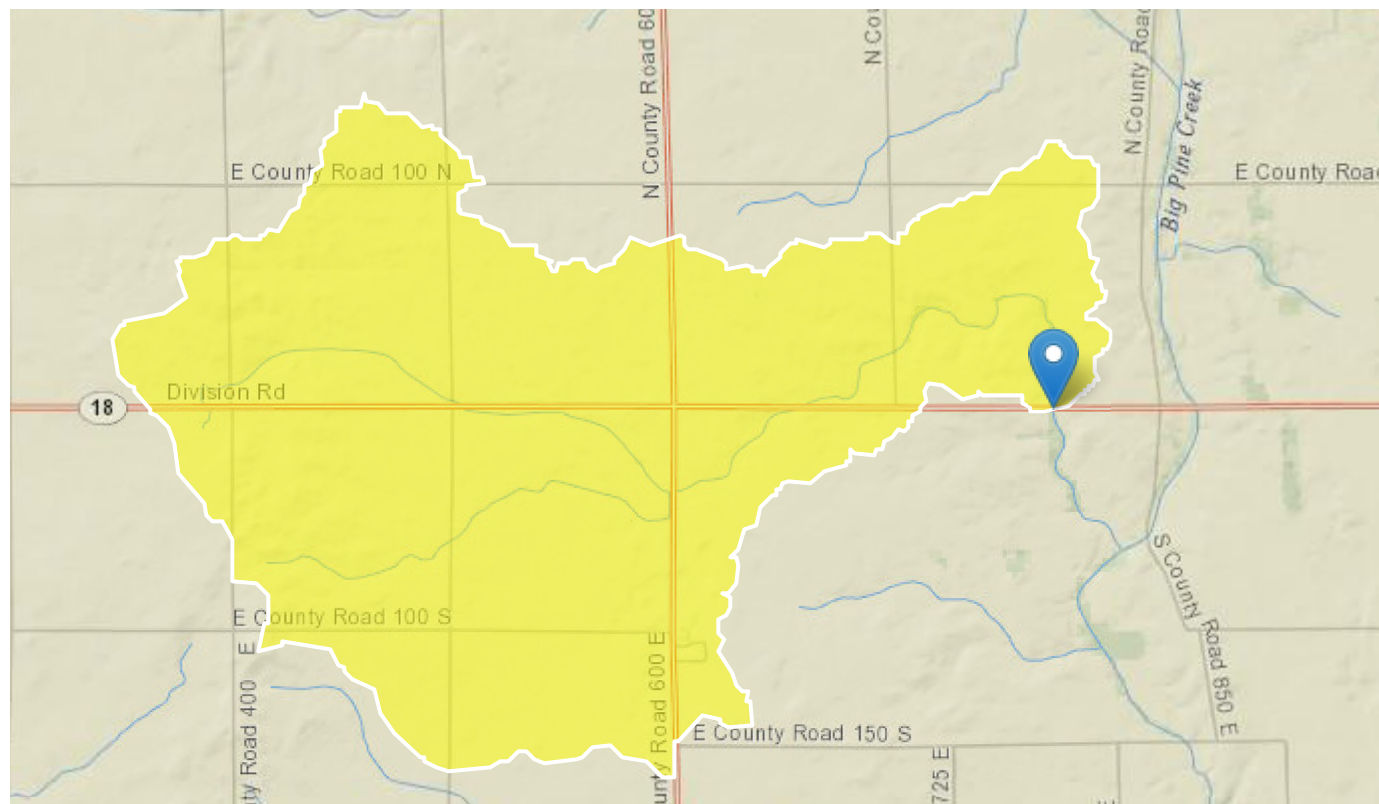
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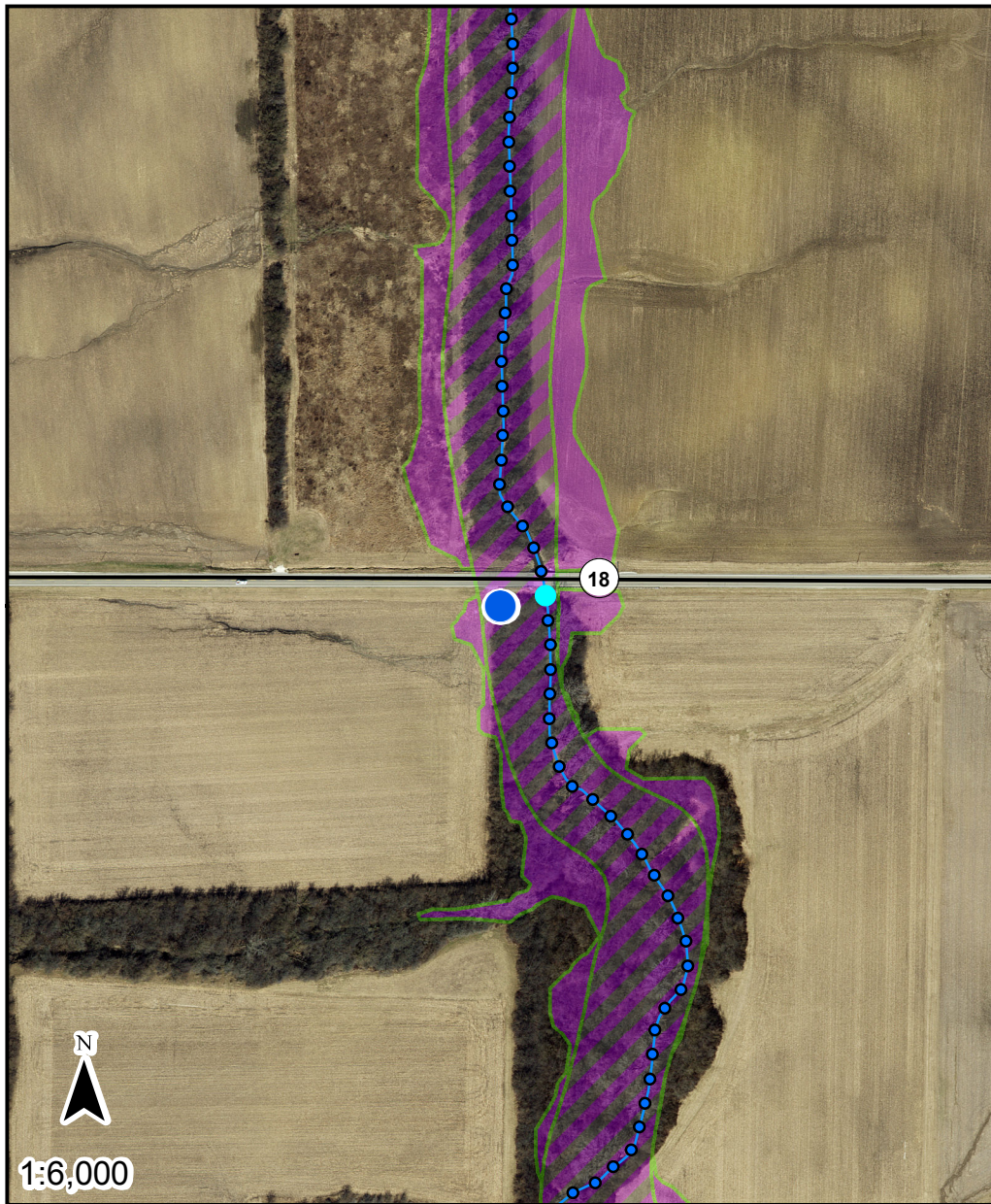
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Time: 2021-09-28 16:50:48 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.266	square miles
K2INDNR	Average hydraulic conductivity (ft/d) for the full depth of unconsolidated deposits from InDNR well database.	16	ft per day
QSSPERMTHK	Index of the permeability of surficial Quaternary sediments computed as in SIR 2014-5177	67.98	dimensionless
LOWREG	Low Flow Region Number	1729	dimensionless
T2INDNR	Average transmissivity (ft ² /d) for the full depth of unconsolidated deposits from InDNR well database.	964	square feet per day



- Point of Interest
- Base Flood Elevation Point
- Flood Elevation Points**
 - STUDIED STREAM
- Rivers and Streams at least 1 square mile**
- Drainage Area (sq. miles)**
 - 1 - 10
- DNR Approximate Floodway
- DNR Approximate Fringe

Point of Interest Coordinates (WGS84)
 Long: **-87.1769771526**
 Lat: **40.605852769**

The information provided below is based on the point of interest shown in the map above.

County: **Benton**

Approximate Ground Elevation: **716.4 feet (NAVD88)**

Stream Name:

Base Flood Elevation: **718.0 feet (NAVD88)**

Greenwood Ditch

Drainage Area: **Not available**

Best Available Flood Hazard Zone: **DNR Approximate Floodway**

National Flood Hazard Zone: **Not Mapped**

Is a Flood Control Act permit from the DNR needed for this location? **yes**

Is a local floodplain permit needed for this location? **yes-**

Floodplain Administrator: **No Floodplain Administrator Name Available**

Community Jurisdiction: **Benton County, County proper**

Phone: **No Phone Number Available**

Email: **No Email Address Available**