DES 1900321

Appendix F

Water Resources

LiKang 01-08-2021

Waters Report
Des 1900321
SR 58 Small Structure Replacement
Jackson County, Indiana
Small Structure Project
CV 058-036-096.15

Report Completed on: January 8, 2021

Prepared for:
USI Consultants

Prepared By:

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TABLE OF CONTENTS

Site Location:
Section 14, Township 6 N, Range 2 E
Norman 1:24,000 Quadrangle
Jackson County, Indiana
Tipton Creek-South Fork Salt Creek, 12-Digit HUC: 051202080403
Latitude: 38.9586622°N Longitude: -86.2646748°W

Field Investigation Date: August 26, 2020

Project Description

The purpose of the project is to address the structural deficiencies of the existing small structure (CV- 058-36-096.15) that carries an unnamed tributary (UNT) under SR 58. SR 58 roadway consists of two 9 foot lanes with a 3 foot usable shoulder in each direction. SR 58 is a rural major collector with a posted speed limit of 45 mile per hour (MPH). The current structure is a 5.7-foot by 2.7-foot reinforced concrete box with a length of 40 feet. The proposed alternative is to replace the structure with a four-sided 7-foot by 4-foot Reinforced Concrete Box with a length of 49 feet and a 6-inch sump. Headwalls and wingwalls will are anticipated to be placed at the inlet and out of the new structure due to eroding soil conditions located west of the structure. Riprap will be placed at the inlet and outlet of the new structure. A paved ditch is proposed for the north side of the roadway to reinforce the roadside ditch and to prevent erosion and undermining of the roadway. The existing guardrail will be updated and replaced through the project limits.

Methodology

The delineation of wetlands and other "waters of the U.S." on the site was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Environmental Laboratory, 2012)* as required by current U.S. Army Corps of Engineers (USACE) policy.

Prior to the field work, background information, including U.S. Geological Survey's (USGS) topographic maps, aerial photographs, the USGS National Hydrography Dataset (NHD) layer on the Indiana Geological Society's (IGS) Indiana Map website, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and the Natural Resources Conservation Service (NRCS) Web Soil Survey for Jackson County were reviewed to establish the probability and potential location of water resources on the site. Next, a general reconnaissance of the project area was conducted to determine site conditions. Sample points were established at locations within the project area to inspect for any possible wetland areas and to document soil characteristics, evidence of hydrology, and dominant vegetation. Soils were examined to a depth of at least 16-20 inches, when no restrictive layer was encountered, to assess soil characteristics and site hydrology.

Results/Discussion

Site Description and Conditions

- **Topography**: The topography around the project sloped due to SR 58 and surrounding hills.
- **Existing Land-Use**: Adjacent land use is mostly wooded area, with residential areas and agricultural fields to the west.
- **Plant Communities**: Vegetation within the investigated area primarily consisted of plants commonly found along wooded roadsides, with upland plants along the hillslopes.
- **NHD-Flowline:** No NHD-Flowlines were located within the investigated area.
- **Soils**: According to the Jackson County Soil Survey, soils mapped within the investigated area include:

Table 1. **Soil Types Within the Investigated Area**

Soil abbreviation	Soil Unit Name	Hydric Rating
KxvD2	*Saranac silty clay loam, sandy substratum, frequently flooded*	Not Hydric (0%)
BvmG	*Brownstown channery silt loam, 25 to 75 percent slopes*	Not Hydric (0%)

- **Hydrology**: According to the Federal Emergency Management Agency (FEMA) Flood Rate Insurance Map (FIRM) dataset (see attached Floodplain Map), the project area is not mapped within any floodways. Hydrology in the area is influenced by runoff from SR 58 and surrounding hills.
- **NWI Data**: According to the NWI map, the following wetlands are mapped with 0.25 mile of the project area:

Table 2. **NWI Wetlands Within 0.15 Mile of the Project Area**

Classification	Distance Away from Project Area
PUBGh	0.24 Mile Northeast
R4SBC	0.09 Mile Northeast

- **Site Conditions**: Site conditions were typical for mid-summer, with 0.60 inch of precipitation occurring on August 18 (WeatherUnderground.com). Temperatures were in the high-eighties (° F).

Findings

Soil Sample Points (SP)

Table 3. Sample Point Summary Table

Data Point	Photos	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Wetland	Date
1	1-4	Yes	Yes	Yes	Yes	08.07.2020
2	5-8	No	No	No	No	08.07.2020

Site Analysis

The investigated area included roadside right-of-way and slopes around SR 58. Hydrology within the project area is influenced and roadway runoff and surrounding hills and field runoff. The project area is located within the Tipton Creek-South Fork Salt Creek watershed. During the site visit, two streams, UNT 1 to Tipton Creek and UNT 2 to Tipton Creek, were found within investigated area during the site visit. **UNT 1 to Tipton Creek** does not show up as a solid blue-line water feature on the USGS Topographic Map

Note to reader: UNT 1 flows northeast under SR 58, not northwest as stated below; refer to water resources map in Appendix F-18. Also, UNT 2 is erroneously referred to as UNT 1 below. *Acer Saccharum* is the scientific name for Sugar Maple, not Slippery Elm as stated below. Review of file site photos verified that the correct tree identified for this report is Sugar Maple. These errors are highlighted for reference.

or NWI map within the investigated area. Based upon observation in the field, it appears that UNT 1 to Tipton Creek is an intermittent stream throughout the investigated area. The upstream drainage area of UNT 1 to Tipton Creek is 0.036 square miles (USGS Stream Stats, Version 4.0), from where it crosses SR 58. Approximately 370 linear feet of this tributary is within the investigated area. The stream measurements were taken outside the influence of the structure. The stream has a bank full width of approximately 7 feet and is characterized by silt substate on the southside of SR 58 and riprap substrate on the northside of SR 58, with low flow at time of investigation, and an ordinary high water mark (OHWM) of 6 ft wide and approximately 2 inches deep. The stream has heavy in-stream cover and vegetation, but shows characteristics of flow. The stream has moderate sinuosity and contains no riffle/run complexes. The quality of the stream is rated average due to the to the lack of riffles/runs, moderate floodplain habitat, moderate sinuosity, high in-stream cover, and intermittent flow conditions. UNT 1 to Tipton Creek receives drainage from the runoff from SR 58 and surrounding hills. The stream runs northwest under SR 58, and then eventually northeast towards Tipton Creek. Tipton Creek eventually connects to East Fork White River. East Fork White River is approximately 14 miles southwest of the project area. East Fork White River is a navigable waterway and jurisdictional under the USACE. Due to the presence of an OHWM and eventual connectivity to the East Fork White River, UNT 1 to Tipton Creek is likely a Waters of the U.S.

UNT 2 to Tipton Creek does not show up as a solid blue-line water feature on the USGS Topographic Map or NWI map within the investigated area. Based upon observation in the field, it appears that UNT 2 to Tipton Creek is an ephemeral stream throughout the investigated area. The upstream drainage area of UNT 2 to Tipton Creek is 0.004 square miles (USGS Stream Stats, Version 4.0), from where it connects to UNT 1 to Tipton Creek. Approximately 100 linear feet of this tributary is within the investigated area. The stream measurements were taken outside the influence of the structure. The stream has a bank full width of approximately 5 ft and is characterized by silt substrate and rock, with no flow at time of investigation, and an ordinary high water mark (OHWM) of 3 ft wide and approximately 2 inches deep. The stream has no sinuosity and contains no riffle/run complexes. The quality of the stream is rated poor due to the to the lack of riffles/runs, low floodplain habitat, low in-stream cover, and ephemeral flow conditions. UNT 2 to Tipton Creek receives drainage from the runoff from the surrounding hills. The stream runs northwest to connect to UNT 1 to Tipton Creek, and then eventually northeast towards Tipton Creek. Tipton Creek eventually connects to East Fork White River. East Fork White River is approximately 14 miles southwest of the project area. UNT 1 to Tipton Creek is not likely a jurisdictional water feature because it exhibits ephemeral flow conditions. INDOT asks that USACE take jurisdiction over this feature since impacts will not likely necessitate mitigation.

Sample Point 1 (SP 1) was taken within the bankful of UNT 1 to Tipton Creek. SP 1 was dominated in the herb stratum by jewelweed, *Impatiens capensis* (FACW), and subarctic ladyfern, *Athyrium filix-femina* (FAC), and slippery elm, *Acer saccharum* (FACU) in the tree stratum. This community did not pass the rapid test for hydrophytic vegetation, but it passed the dominance test and prevalence index. The soil did meet the indicator for depleted matrix with a layer of 10 YR 3/2 matrix (100%) from 0-6 inches, and a layer of 10 YR 4/1 (92%) with concentrations in the pore lining of 2.5 YR 4/8 (8%). The soil had a texture of silty loam. Wetland hydrology was present at the sample point with a water table at 11 inches and saturation at 5 inches. Wetland hydrology met the indicators of water table, saturation, oxidized rhizospheres on living roots, and geomorphic position. Hydrophytic vegetation, hydric soil, and wetland hydrology was present at the sample point. Therefore, SP 1 is within a wetland, **Wetland 1.** Within the investigated area, Wetland 1 is 0.07 acre forested wetland and is poor quality. Wetland 1 is likely jurisdictional due to connectivity to UNT 1 to Tipton Creek.

Sample Point 2 (SP 2) was outside UNT 1 to Tipton Creek and Wetland 1. SP 2 was dominated in the herb stratum by Christmas fern, *Polystichum acrostichoides* (FACU), and wild yam, *Dioscorea villosa* (FAC), spicebush, *Lindera benzoin* (FAC), and American beech, *Fagus grandifolia* (FACU) in the tree stratum. This community did not pass the rapid test for hydrophytic vegetation, dominance test, or prevalence index. The soil did not meet any indicators for hydric soil with a layer of 10 YR 5/3 matrix (100%) from 0-10 inches, and a layer of 10 YR 5/3 (99%) with concentrations in the matrix of 10 YR 4/6 (1%). The soil had a texture of silty clay loam. Wetland hydrology was not present at the sample point. Hydrophytic vegetation, hydric soil, and wetland hydrology were not present at the sample point. Therefore, SP 2 is not within a wetland.

The project area was reviewed for the presence of other water features such as open water, areas that do not have an OHWM but have concentrated flow, all roadside ditches, historic drainage, and unusual circumstances. No open water or other water features were identified in the review area.

Aquatic Resources

Table 4. Stream Summary Table

Stream Name	Photos	Lat/Long	OHWM Width (ft)	OHWM Depth (in)	USGS Blue-line?	Riffles? Pools?	Stream Type	Substrate	Quality	Likely Water of U.S.?
UNT 1 to Tipton Creek	3-4, 11-18	38.958573°N, -86.264697°W	6	2	No	No	Intermittent	Silt	Average	Yes
UNT 2 to Tipton Creek	19-22	38.9584887°N, -86.2646550°W	3	2	No	No	Ephemeral	Silt and Rock	Poor	No*

*INDOT asks that USACE take jurisdiction over this feature since impacts will not likely necessitate mitigation.

Table 5. Wetland Summary Table

Wetland Name	Photos	Lat/Long	Type	Total Area (acres)	Quality	Likely Water of U.S.?
Wetland 1	3-6, 10-12	38.958553°N, -86.264765°W	Forested	0.07	Poor	Yes

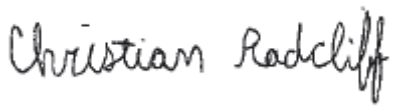
Conclusions

Vegetation within the investigated area primarily consisted of plants commonly found along wooded roadsides, with upland plants along the hillslopes. No roadside ditches were within the investigated area. The project area was sloped due to SR 58 and nearby hills, and appears to drain quickly, preventing the development of hydric soils, except at the toe of slope which contains UNT 1 to Tipton Creek and Wetland 1. UNT 1 to Tipton Creek and UNT 2 to Tipton Creek flow through the project area. Due to the presence of an OHWM and eventual connectivity to the East Fork White River, UNT 1 to Tipton Creek is likely a Waters of the U.S. UNT 1 to Tipton Creek exhibits ephemeral flow and is likely not a Waters of the US.; however, INDOT asks that USACE take jurisdiction over this feature since impacts will not likely necessitate mitigation. Within the investigated area, Wetland 1 is 0.07 acre Forested wetland and is poor quality. Wetland 1 is likely jurisdictional due to connectivity to UNT 1 to Tipton Creek. No open water or other water features were identified in the review area.

Every effort should be taken to avoid and minimize impacts to these water features. If impacts are necessary, then mitigation may be required. The United States Army Corps of Engineers (USACE) should be contacted immediately if impacts occur. The final determination of jurisdictional waters is ultimately made by the appropriate regulatory staff of the USACE. This report is our best judgment based on the guidelines set forth by the Corps.

Acknowledgement
This waters determination has been prepared based on the best available information, interpreted in the light of the investigator's training, experience and professional judgement 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.

Christian Radcliff

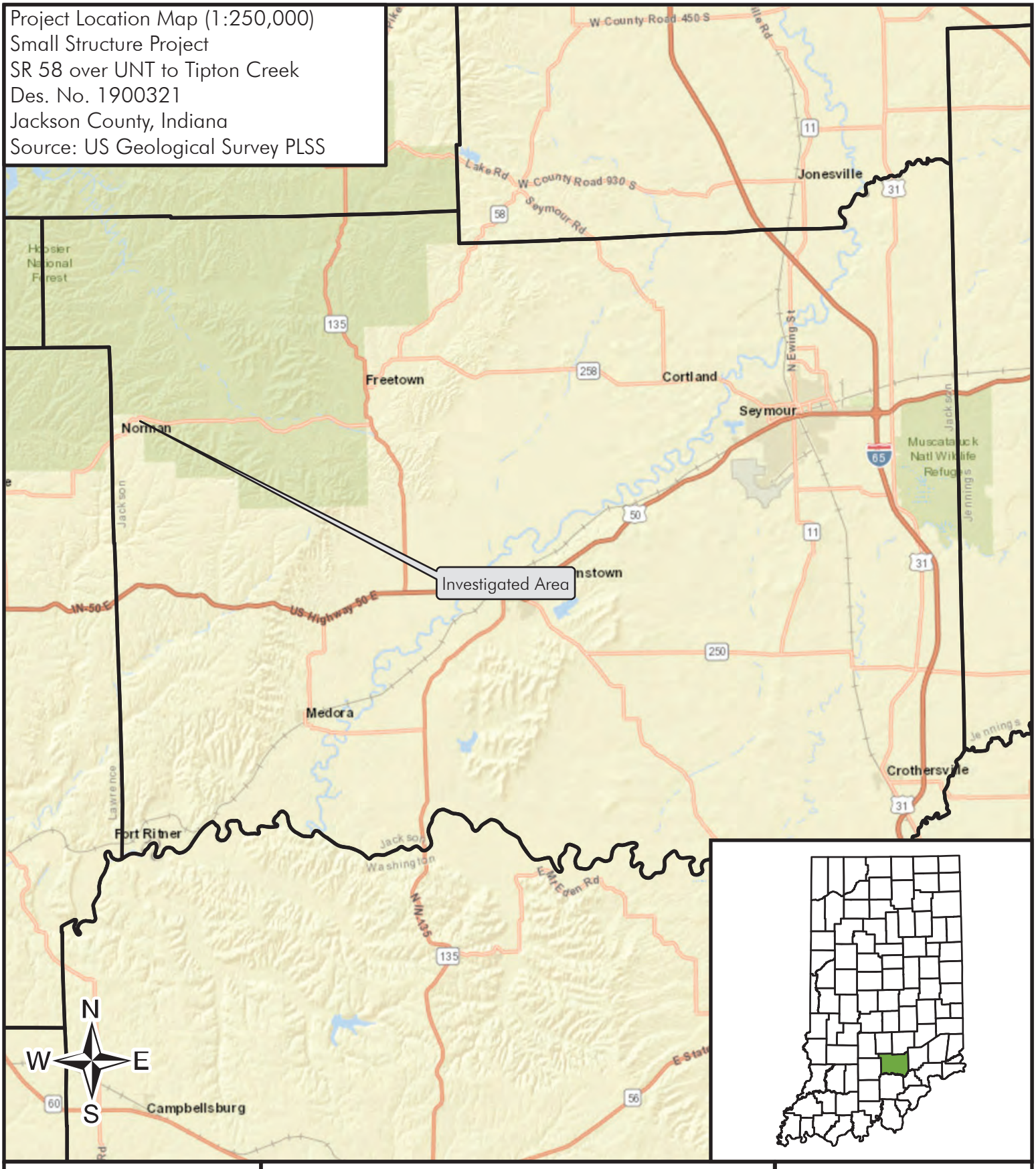


Ecologist
SJCA Inc
Date: January 8, 2021

Supporting Documentation

- Site Location Map
- USGS Topographic Map
- FEMA Floodplain Map
- LiDAR Map
- USFWS NWI Map
- NRCS Hydric Soil Map
- Water Resources Map
- Photograph Location Map
- Site Photographs
- Sample Point Data Sheets
- Preliminary Jurisdictional Determination Form

Project Location Map (1:250,000)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: US Geological Survey PLSS



11/23/2020

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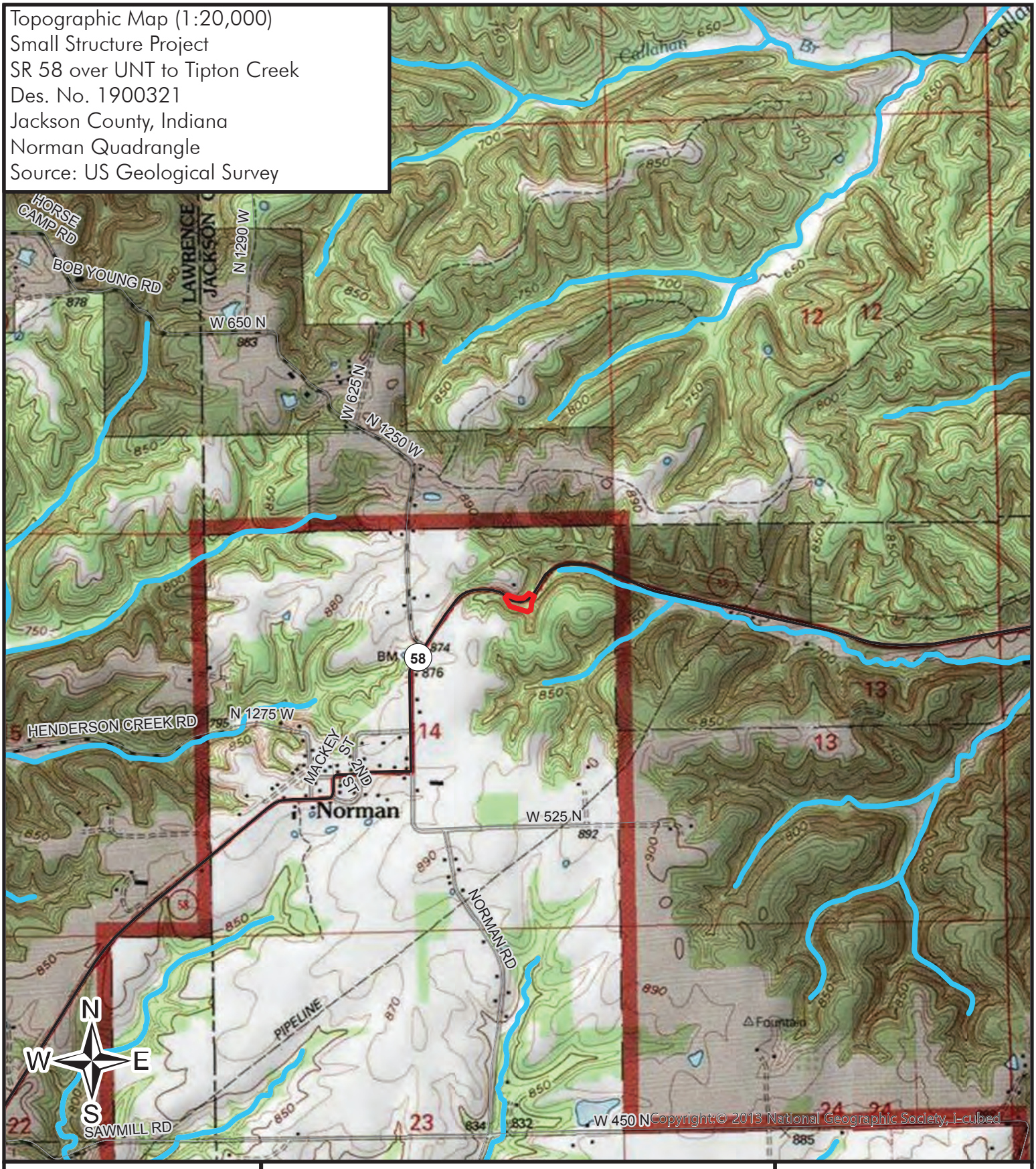
Topographic Map (1:20,000)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Norman Quadrangle
Source: US Geological Survey

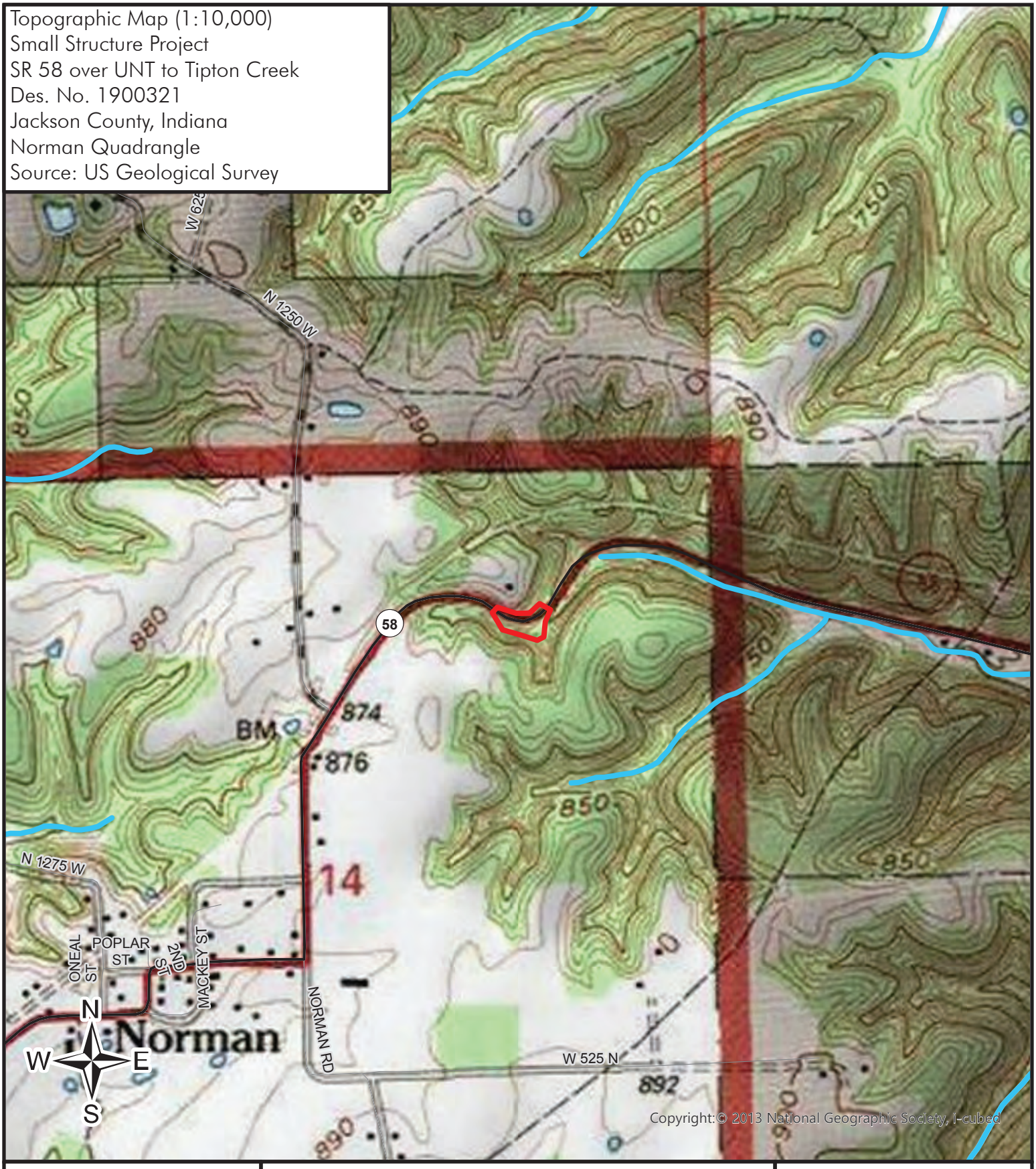


Investigated Area
NHD Flowline

11/23/2020

SJCA

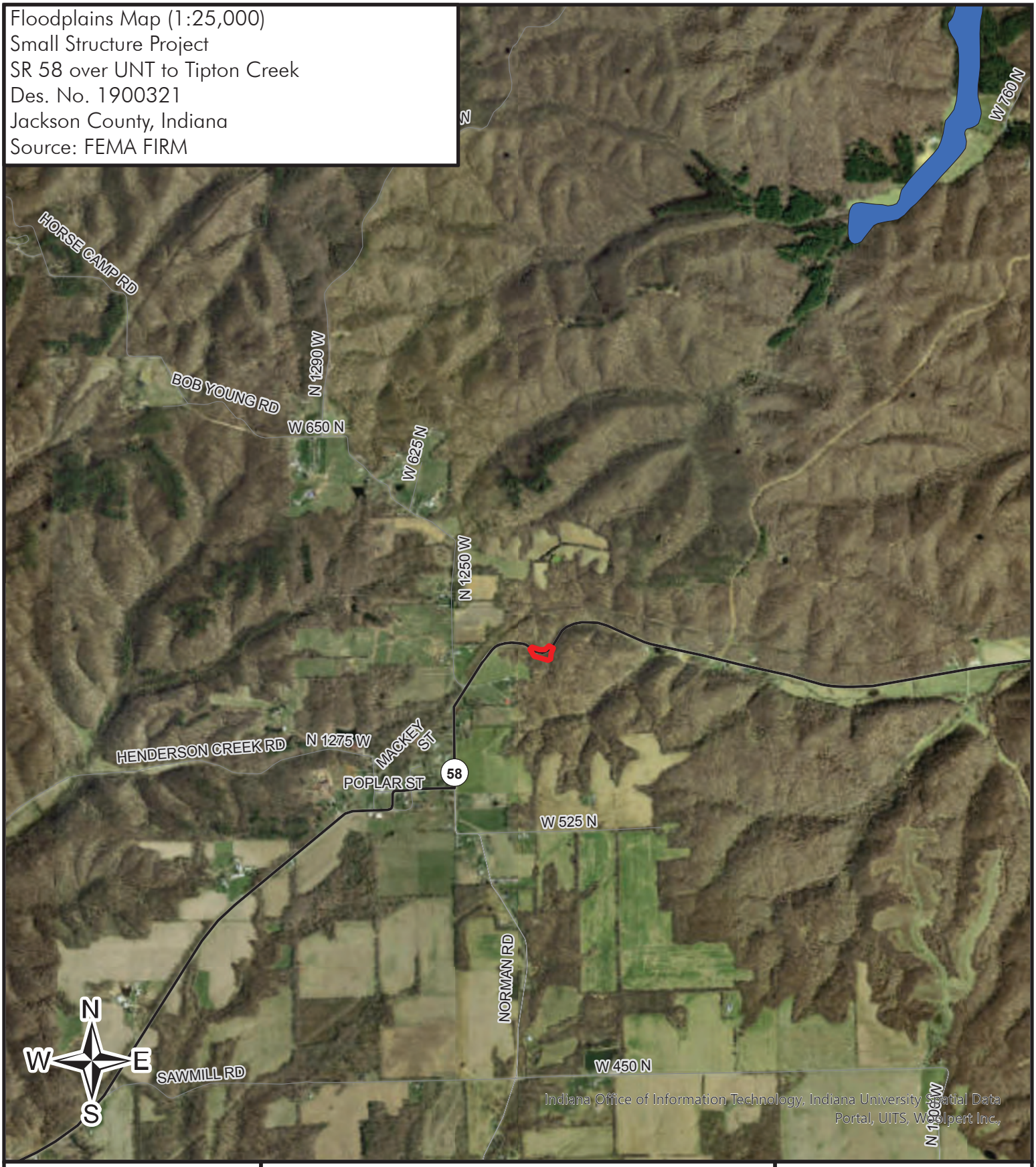
Topographic Map (1:10,000)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Norman Quadrangle
Source: US Geological Survey



11/23/2020

SJCA

Floodplains Map (1:25,000)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: FEMA FIRM

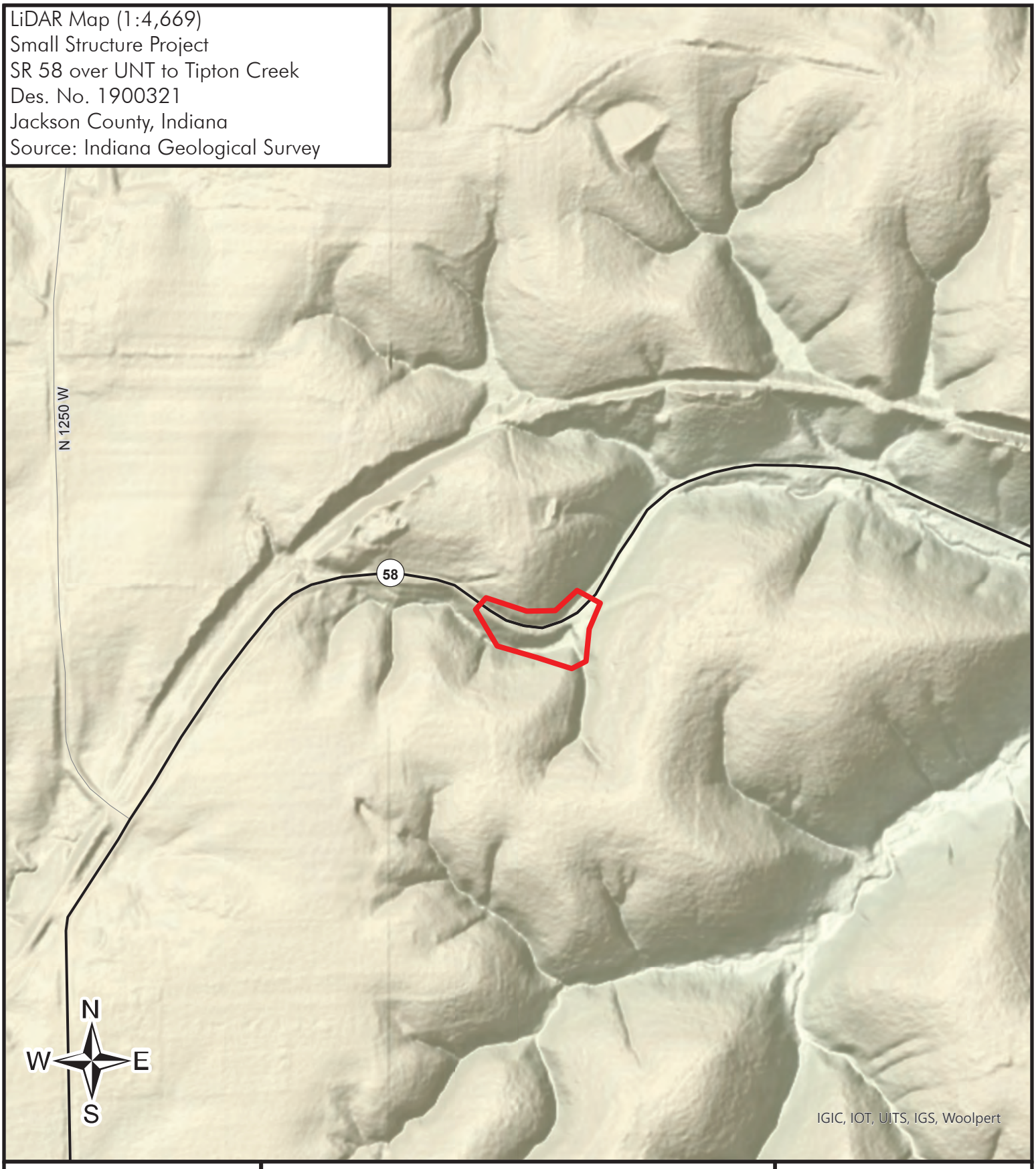


0 1,250 2,500 Feet

Investigated Area
1% Annual Chance Flood Hazard

11/23/2020

SJCA


LiDAR Map (1:4,669)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: Indiana Geological Survey
N 1250 W
58
N
W
E
S
IGIC, IOT, UITS, IGS, Woolpert
0
275
550
Feet
Investigated Area
11/23/2020
SJCA

National Wetlands Inventory Map (1:4,669)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: USFWS National Wetlands Inventory

0 275 550 Feet

Investigated Area
NWI Wetlands

11/23/2020

SJCA

Watershed Map (1:13,000)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: Indiana Department of Environmental Management

0 0.13 0.25 Miles

Investigated Area
HUC - 12

11/23/2020

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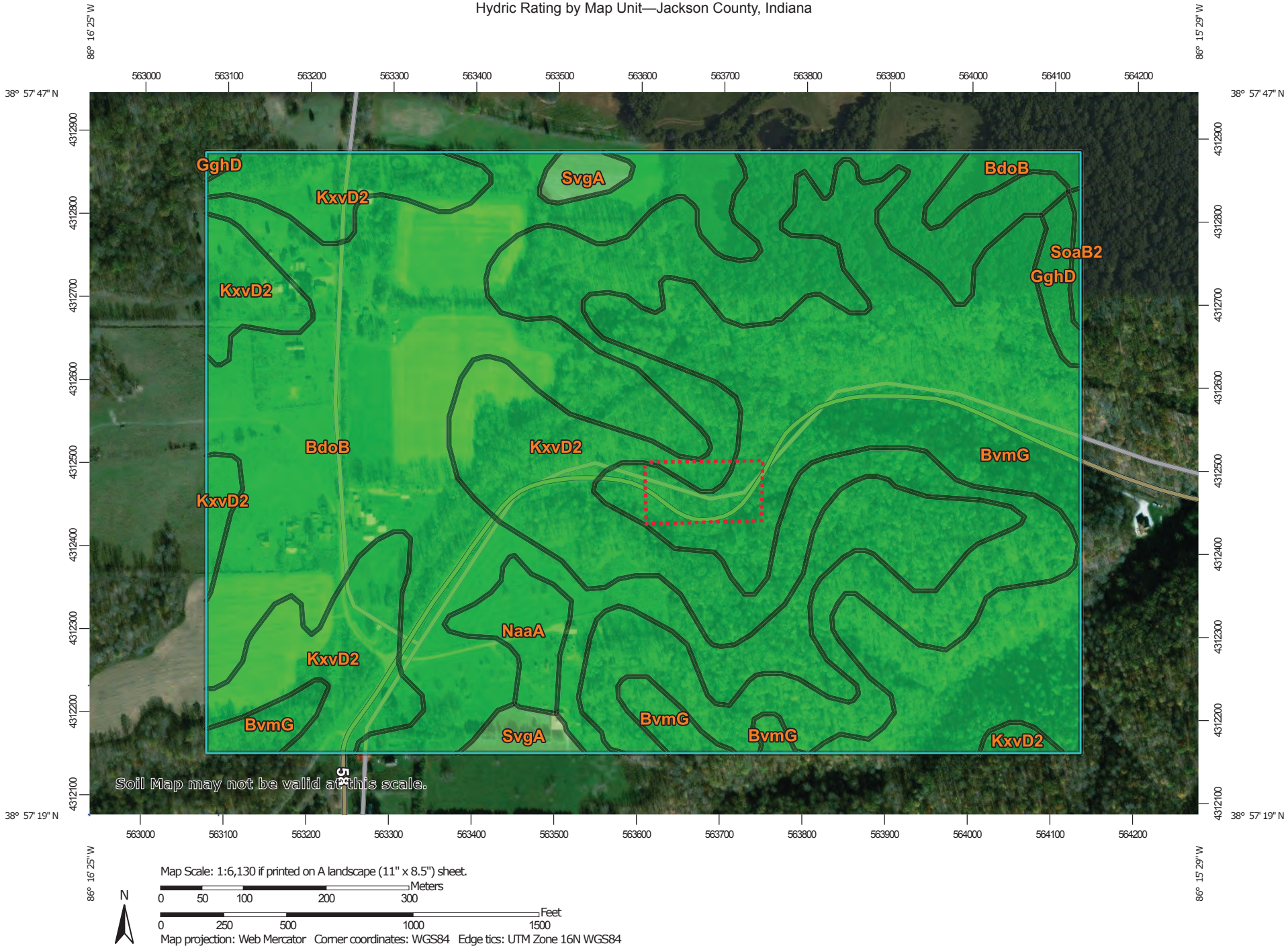

86° 16' 25" W
86° 15' 29" W
38° 57' 47" N
38° 57' 19" N
563000
563100
563200
563300
563400
563500
563600
563700
563800
563900
564000
564100
564200
4312900
4312800
4312700
4312600
4312500
4312400
4312300
4312200
4312100
GghD
KxvD2
SvgA
BdoB
SoaB2
GghD
KxvD2
BdoB
KxvD2
BvmG
KxvD2
NaaA
KxvD2
BvmG
SvgA
BvmG
BvmG
KxvD2
Soil Map may not be valid at this scale.
Map Scale: 1:6,130 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography
- Investigated Area

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson County, Indiana
Survey Area Data: Version 26, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

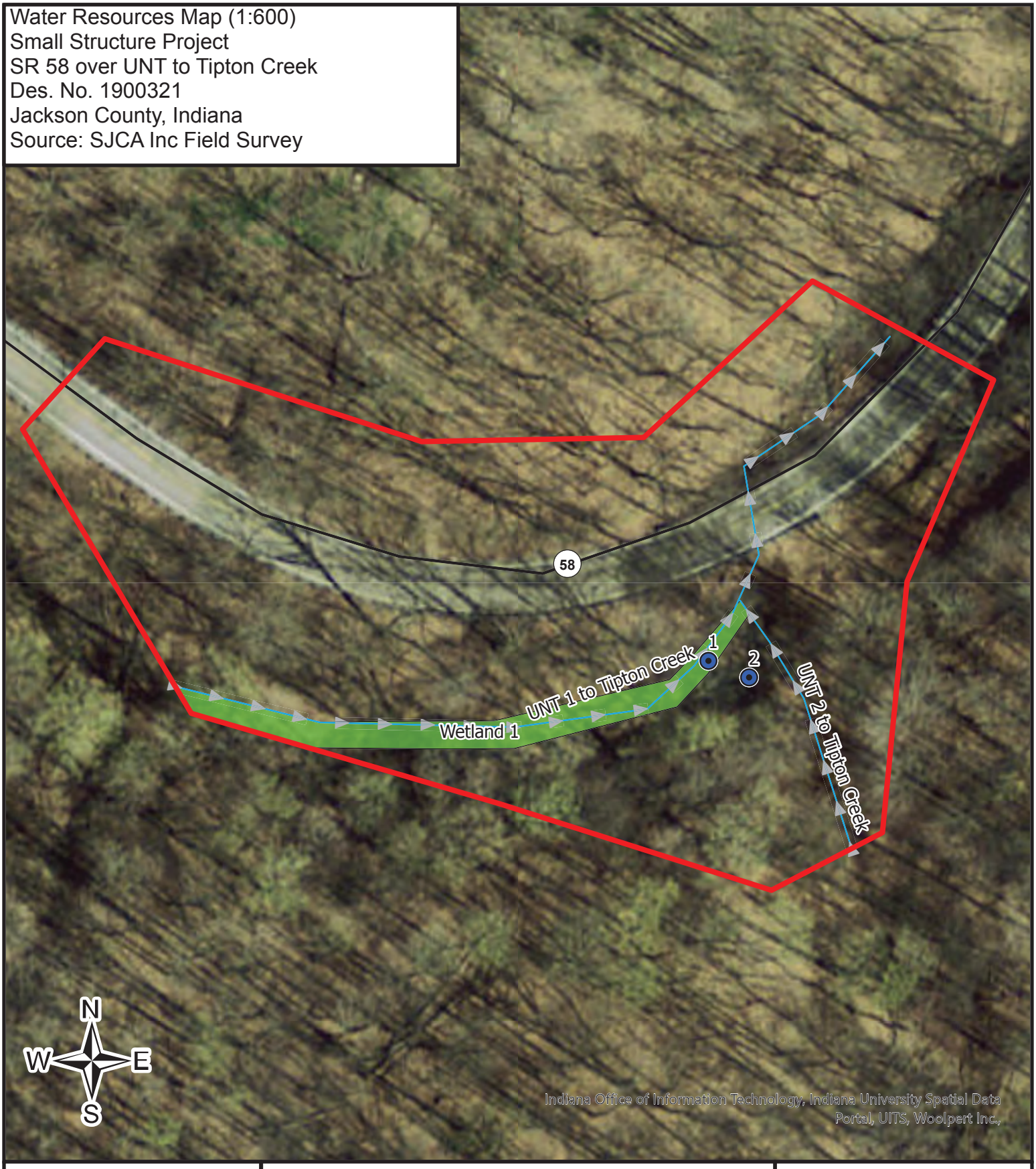
Date(s) aerial images were photographed: Sep 24, 2014—Sep 26, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BdoB	Bedford silt loam, 2 to 6 percent slopes	0	64.4	33.9%
BvmG	Brownstown channery silt loam, 25 to 75 percent slopes	0	48.6	25.6%
GghD	Gilwood-Wrays silt loams, 10 to 25 percent slopes	0	1.9	1.0%
KxvD2	Knobcreek-Crider-Gilwood silt loams, 6 to 18 percent slopes, eroded	0	68.4	36.0%
NaaA	Nabb silt loam, 0 to 2 percent slopes	0	3.4	1.8%
SoaB2	Spickert silt loam, 2 to 6 percent slopes, eroded	0	0.4	0.2%
SvgA	Stoy silt loam, 0 to 2 percent slopes	3	2.7	1.4%
Totals for Area of Interest			**189.8**	**100.0%**

Water Resources Map (1:600)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: SJCA Inc Field Survey

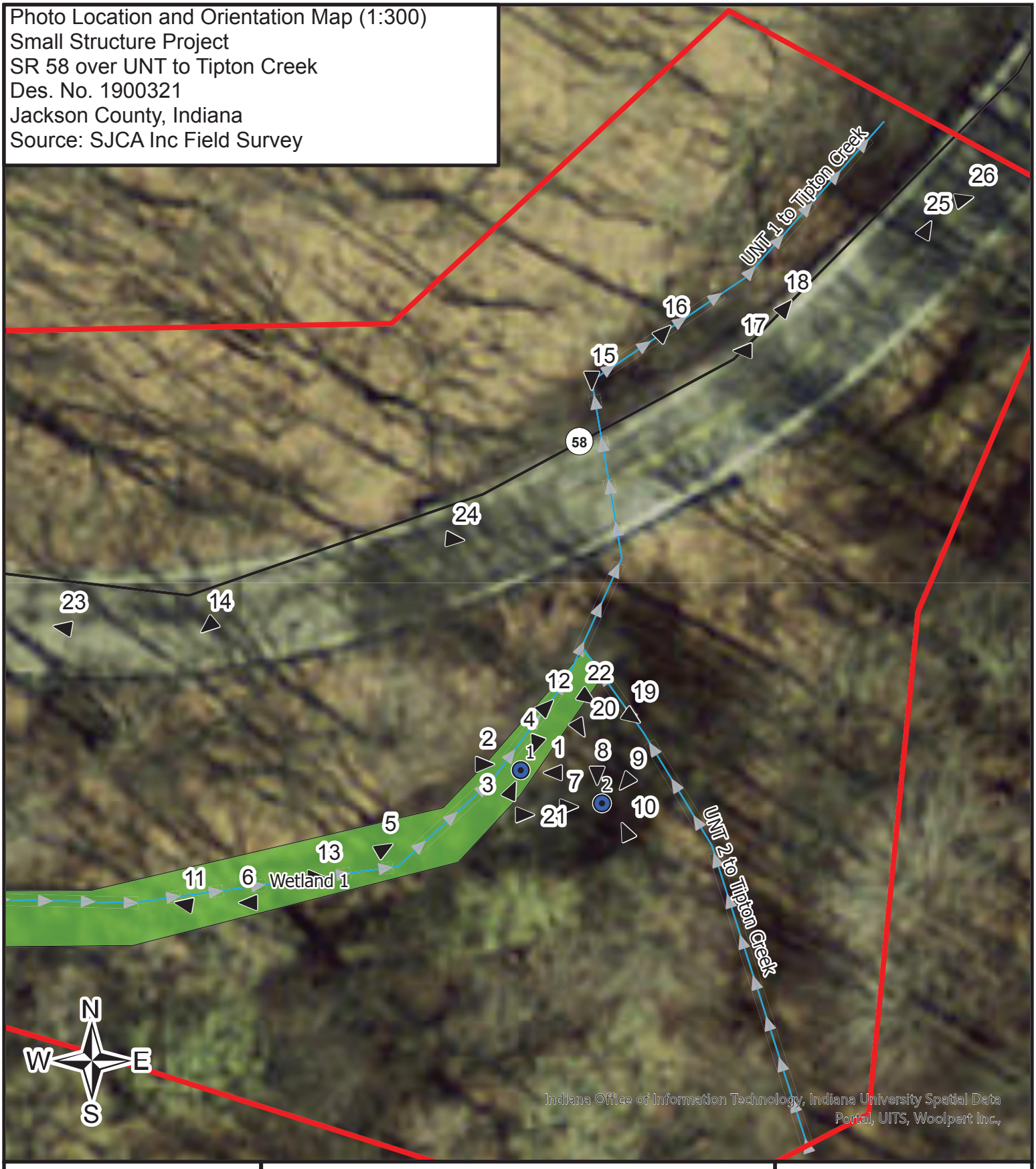


0 30 60 Feet

Investigated Area
Stream
Sample Point
Forested
2011 Orthophotos (State boundary)
1/7/2021

SJCA

Photo Location and Orientation Map (1:300)
Small Structure Project
SR 58 over UNT to Tipton Creek
Des. No. 1900321
Jackson County, Indiana
Source: SJCA Inc Field Survey



0 15 30 Feet

Investigated Area
Forested
Stream
Sample Point
Photo Location

1/7/2021

SJCA

Photo 1: SP 1 Soil

Photo 2: SP 1 Pit

Photo 3: SP 1/Wetland 1 Facing Northeast Towards UNT 1 to Tipton Creek and Structure

Photo 4: SP 1/Wetland 1 Facing Southwest Towards UNT 1 to Tipton Creek

Photo 5: Wetland 1 Facing Northeast

Photo 6: Wetland 1 Facing West

Photo 7: SP2 Soil

Photo 8: SP2 Pit

Photo 9: SP 2 Facing Southwest Towards Hillside

Photo 10: SP 2 Facing Northwest to UNT 1 to Tipton Creek and Wetland 1

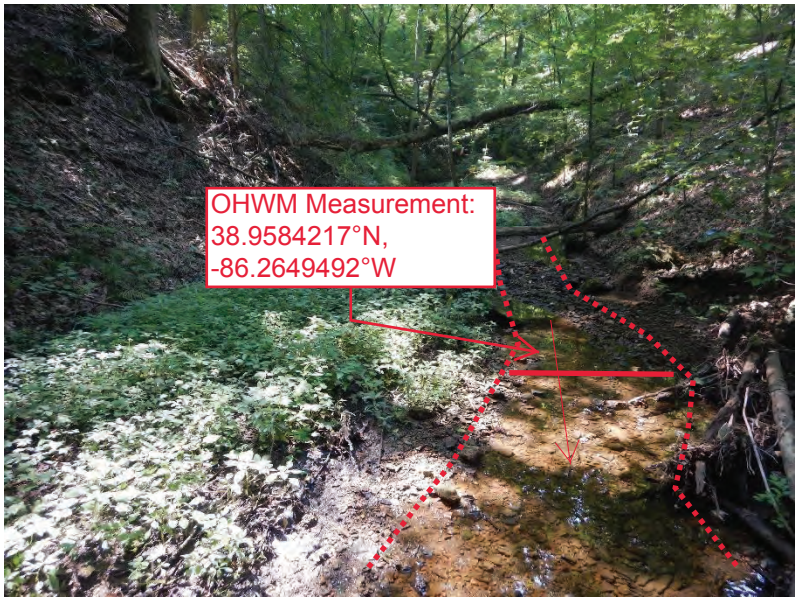


Photo 11: Within UNT 1/Wetland 1 to Tipton Creek Facing Southwest On Southside of SR 58

Photo 12: Within UNT 1/Wetland 1 to Tipton Creek Facing Northeast Towards Structure on Southside of SR 58

Photo 13: Within UNT 1 to Tipton Creek Facing East Towards UNT 2 to Tipton Creek

Photo 14: Facing Southwest Toward UNT 1 to Tipton Creek from SR 58 On Southside of SR 58

Photo 15: Within UNT 1 to Tipton Creek Facing South Towards Structure on Northside of SR 58

Photo 16: Within UNT 1 to Tipton Creek On Northside of SR 58 Facing Northeast

Photo 17: Facing Northwest Towards UNT 1 to Tipton Creek From SR 58

Photo 18: Facing Northeast Towards UNT 1 to Tipton Creek From SR 58

Photo 19: Facing Southeast Towards UNT 2 to Tipton Creek

Photo 20: Facing Southeast Towards UNT 2 to Tipton Creek from UNT 1 to Tipton Creek/Wetland 1

Photo 21: Facing East to UNT 2 to Tipton Creek from SP 2

Photo 22: Facing Southeast to UNT 2 to Tipton Creek from SP 2

Photo 23: Facing Northwest Along SR 58 Towards Western Termini

Photo 24: Facing Southeast Towards Structure

Photo 25: Facing Northeast Along SR 58 Towards Eastern Termini

Photo 26: Facing Northeast Along SR 58 ROW

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Des 1900321 SR 58 over UNT City/County: Jackson Sampling Date: 08.26.2020
Applicant/Owner: Indiana Department of Transportation State: IN Sampling Point: 1
Investigator(s): Christian Radcliff, Laney Walstra Section, Township, Range: Section 14, Township 6 N, Range 2 E
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR or MLRA): LRR: East and Central Framing Lat: 38.9584457°N Long: -86.2647202°W Datum: WGS 84
Soil Map Unit Name: BvmG: Brownstown channery silt loam, 25 to 75 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Sample point taken next to UNT 1 to Tipton Creek.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):
Water Table Present?	Yes ☑	No ☐	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 5

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology present at sample point.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	80	X	FACU
2. *Ulmus rubra*	10		FAC
3. *Carya laciniosa*	5		FAC
4.			
5.			
6.			
	95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Sapling Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 5 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5 ft)			
1. *Impatiens capensis*	60	X	FACW
2. *Athyrium filix-femina*	15	X	FAC
3. *Pilea fontana*	10		FACW
4. *Elymus submuticus*	5		FAC
5. *Sanguinaria canadensis*	5		UPL
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Woody Vine Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	35	x 3 =	105
FACU species	80	x 4 =	320
UPL species	5	x 5 =	25
Column Totals:	190 (A)		590 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation present at sample point.

SOIL Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					Silt Loam	2%-3% Organic Matter
6-16	10 YR 4/1	92	2.5 YR 4/8	8	C	PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Hydric soil present at sample point.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Des 1900321 SR 58 over UNT City/County: Jackson Sampling Date: 08.26.2020
Applicant/Owner: Indiana Department of Transportation State: IN Sampling Point: 2
Investigator(s): Christian Radcliff, Laney Walstra Section, Township, Range: Section 14, Township 6 N, Range 2 E
Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR or MLRA): LRR: East and Central Framing Lat: 38.9583147°N Long: -86.2646699°W Datum: WGS 84
Soil Map Unit Name: BvmG: Brownstown channery silt loam, 25 to 75 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
Sample point taken outside of UNT 1 to Tipton Creek.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____
Water Table Present? Yes ☐ No ☑ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology was not present at sample point.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 2

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	X	FACU
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Sapling Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 5 ft)			
1. Lindera benzoin	10	X	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 10 20% of total cover: 2

Herb Stratum (Plot size: 5 ft)			
1. *Polystichum acrostichoides*	5	X	FACU
2. *Dioscorea villosa*	2	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7 = Total Cover		

50% of total cover: 3.5 20% of total cover: 1.4

Woody Vine Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	12	x 3 =	36
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	47 (A)		176 (B)

Prevalence Index = B/A = 4.38

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation not present at sample point.

SOIL Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 5/3	100					SiCL	
10-16	10 YR 5/3	99	10 YR 4/6	1	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

Hydric soil not present at sample point.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 01/08/2021

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Christian Radcliff, 1104 Prospect Street, Indianapolis, Indiana 46203

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The purpose of the project is to address the structural deficiencies of the existing small structure (CV- 058-36-096.15) that carries a UNT under SR 58. The current structure is a 5.7-foot by 2.7-foot reinforced concrete box with a length of 40 feet. The proposed alternative is to replace the structure with a 7-foot by 4-foot Reinforced Concrete Box with a length of 49 feet and a 6-inch sump. Headwalls and wingwalls will are anticipated to be placed at the inlet and out of the new structure due to eroding soil conditions located west of the structure. Riprap will be placed east and west of the inlet, at the inlet, and at the outlet of the new structure to protect against erosion. A paved ditch is proposed for the north side of the roadway to reinforce the roadside ditch and to prevent erosion and undermining of the roadway. The existing guardrail will be updated and replaced through the project limits.

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Indiana County/parish/borough: Jackson City: Norman

Center coordinates of site (lat/long in degree decimal format):

Lat.: 38.9586622°N Long.: -86.2646748°W

Universal Transverse Mercator: 16 T

Name of nearest waterbody: Tipton Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
UNT 1 to Tipton Creek	38.958573°N	-86.264697°W	370 linear feet, .05 acre	Non-Wetland Waters	Section 404
UNT 2 to Tipton Creek	38.9584887°N	-86.2646550°W	100 linear feet, .01 acre	Non-Wetland Waters	Section 404
Wetland 1	38.958553°N	-86.264765°W	0.07 acre	Wetland	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: See Attached Maps.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: NHD map and HUC 12 watershed map.
  - [x] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 - Norman Quadrangle.
- [x] Natural Resources Conservation Service Soil Survey. Citation: Jackson County (websoilsurvey.sc.egov.usda.gov).
- [x] National wetlands inventory map(s). Cite name: 2014 NWI Data.
- [ ] State/local wetland inventory map(s): _____.
- [x] FEMA/FIRM maps: 2018 Floodplain Data.
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): fws.gov/wetlands/data/mapper.html, 2016 ESRI World Imagery.
  or [x] Other (Name & Date): Site photos: August 26, 2020.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	Christian Radcliff 01/08/2020
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

DES 1900321

Appendix G

Public Involvement

Note to Reader: This Appendix will be updated once Public Involvement is complete.

INDIANA DEPARTMENT OF TRANSPORTATION
Driving Indiana's Economic Growth

Land & Aerial Survey Office
Division of Materials & Tests Building
120 South Shortridge Road
Indianapolis, Indiana 46219-6705

PHONE: (317) 610-7251
FAX: (317) 3569351

Eric J. Holcomb, Governor
Joe McGuinness, Commissioner

Note to reader, this is a sample letter sent to property owners

12/5/2019

[redacted]

NOTICE OF SURVEY

Dear Property Owner:

The Indiana Department of Transportation (INDOT) has selected USI Consultants Inc., to perform a survey for the proposed Small Structure Replacement project on S.R. 58, Des No. 1900321 in Jackson County, Indiana. A portion of this survey work may be performed on your property in order to provide design engineers information for project design. The survey work will include mapping the location of features such as trees, buildings, fences, drives, ground elevations, etc. The survey is needed for the proper planning and design of this highway project.

At this stage we generally do not know what effect, if any, our project may eventually have on your property. If we determine later that your property is involved, we will contact you with additional information.

Indiana Code 8-23-7-26 allows the USI Consultants Inc., as the authorized employees of INDOT, *Right of Entry* to the project site (including private property) upon proper notification. A copy of a Notice of Survey discussion sheet, as found on INDOT's website (http://www.in.gov/indot/2888.htm), is attached to this letter. Pursuant to Indiana Code 8-23-7-27, this letter serves as written notification that we will be performing the above noted survey in the vicinity of your property after 12/5/2019.

USI Consultants will show you their identification, if you are available, before coming onto your property.

If you own but are not the tenant of this property (i.e. rental, sharecrop), please inform us so that we may also contact the actual tenant of the property prior to commencement of our work. If you have any questions or concerns regarding our proposed survey work or schedule, please contact the Survey Operations Manager. This contact information is as follows:

Mark Schepers, PLS
Survey Operations Manager
8415 E. 56th St. Suite A
Indianapolis, IN 46216
mschepers@usiconsultants.com
317-522-2486

INDIANA DEPARTMENT OF TRANSPORTATION
Driving Indiana's Economic Growth

Land & Aerial Survey Office
Division of Materials & Tests Building
120 South Shortridge Road
Indianapolis, Indiana 46219-6705

PHONE: (317) 610-7251
FAX: (317) 356-9351

Eric J. Holcomb, Governor
Joe McGuinness, Commissioner

Under Indiana Code 8-23-7-28, you have a right to compensation for any damage that occurs to your land or water as a result of the entry or work performed during the entry. To obtain such compensation, you should contact the Seymour District Real Estate Manager. The District Real Estate Manager can provide you with a form to request compensation for damages. Once you fill out this form, you can return it to the District Real Estate Manager for consideration. If you are not satisfied with the compensation that INDOT determines is owed to you, Indiana Code 8-23-7-28 provides the following:

> The amount of damages shall be assessed by the county agricultural extension educator of the county in which the land or water is located and two (2) disinterested residents of the county, one (1) appointed by the aggrieved party and one (1) appointed by the department. A written report of the assessment of damages shall be mailed to the aggrieved party and the department by first class United States mail. If either the department or the aggrieved party is not satisfied with the assessment of damages, either or both may file a petition, not later than fifteen (15) days after receiving the report, in the circuit or superior court of the county in which the land or water is located.

If you have questions regarding the rights and procedures outlined in this letter, please contact the Seymour Real Estate Manager.

Thank you in advance for your cooperation in this matter.

Sincerely,

Mark Schepers, PLS
Survey Operations Manager

DES 1900321

Appendix H

Air Quality

SPONSOR	CONTRACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Total Cost of Project*	PROGRAM	PHASE	FEDERAL	MATCH	2020	2021	2022	2023	2024
Indiana Department of Transportation	42294 / 1802992	A 04	SR 250	Small Structure Replacement	0.90 mile E of SR 39	Seymour	0	STBG	$387,000.00	Bridge ROW	RW	$8,000.00	$2,000.00			$10,000.00		
Performance Measure Impacted: Bridge Condition																		
Comments:Amend PE phase in 2020, RW in 2022, and CN in FY 2024 to current STIP. No MPO. ~~AQ completed. Project determined AQ exempt. Project included in ICG consultation request dated 8-13-19 and closing 8-21-19~~																		
Indiana Department of Transportation	42313 / 1900321	A 04	SR 58	Small Structure Replacement	7.09 miles E of SR 446	Seymour	0	STBG	$1,018,006.00	Bridge Consulting	PE	$300,000.00	$75,000.00	$375,000.00				
										Bridge ROW	RW	$40,000.00	$10,000.00			$50,000.00		
										Bridge Construction	CN	$474,404.80	$118,601.20					$593,006.00
Performance Measure Impacted: Bridge Condition																		
Comments:Amend PE phase in FY 2020, RW phase in FY 2022, and CN phase in FY 2024. : AQ completed. Project determined AQ exempt. Project included in ICG consultation request dated 8-13-19 and closing 8-21-19. No MPO.																		
Indiana Department of Transportation	42407 / 1802972	A 07	SR 11	Bridge Deck Overlay	01.49 mile S of I-65 over E Fk White River Overflow	Seymour	0	Multiple	$6,000,000.00	Bridge Construction	CN	$4,059,093.60	$1,014,773.40					$5,073,867.00
										Bridge Consulting	PE	$568,000.00	$142,000.00	$600,000.00				$110,000.00
										Bridge ROW	RW	$52,800.00	$13,200.00			$66,000.00		
Performance Measure Impacted: Bridge Condition																		
Comments:No MPO. PE in 2020 for $600,000 and RW in 2020 for 66,000. Jackson County Air Quality Requirements Completed																		
Indiana Department of Transportation	42532 / 1700164	A 07	US 31	Truck/Auxillary Lane Construction	At the intersection of CR 275 N/ Farmington Rd, Jackson County	Seymour	0	Multiple	$385,000.00	Mobility Consulting	PE	$80,000.00	$20,000.00	$100,000.00				
Comments: Jackson County Air Quality Requirements Completed. No MPO. PE 2020 $100,000.																		
Indiana Department of Transportation	42556 / 1701511	A 17	SR 256	Bridge Replacement, Concrete	01.40 mile W of I-65 at Muscatatuck River	Seymour	0	STBG	$2,689,370.00	Bridge Construction	CN	-$1,731,976.00	-$432,994.00			($4,854,340.00)	$2,689,370.00	
Comments:No MPO. Move CN phase from 2022 to 2023. Decrease CN from $4,854,340 in 2022 to $2,689,370 in 2023. (45%) phase cost change. Conformity																		
Indiana Department of Transportation	42556 / 1701511	A 18	SR 256	Bridge Replacement, Concrete	01.40 mile W of I-65 at Muscatatuck River	Seymour	0	STBG	$3,602,609.00	Bridge Construction	CN	-$1,549,238.40	-$387,309.60			($4,854,340.00)	$2,917,792.00	
Comments:No MPO. Move CN phase from 2022 to 2023. Decrease CN from $4,584,340 in 2022 to $2,917,792 in 2023. (40% change) Scope change from Replace Superstructure to Bridge Replacement, Concrete. AQ completed. Project determined AQ exempt. Project included in ICG Coordination request dated 2-25-20 and closing 3-3-2020.																		
Indiana Department of Transportation	42556 / 1701511	M 08	SR 256	Bridge Replacement, Concrete	01.40 mile W of I-65 at Muscatatuck River	Seymour	0	STBG	$0.00	Bridge Construction	CN	-$2,151,496.00	-$537,874.00				($2,689,370.00)	
Comments:No MPO. Remove CN of $2,689,370 from the STIP. This project was submitted under 20-17 and 20-18. (Duplicate) AQC-reviewed under 20-18.																		

*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

DES 1900321

Appendix I

Additional Studies and Information

Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated July 2020)

ProjectNumber	SubProjectCode	County	Property
1800171	1800171BB	Jackson	Starve Hollow
1800230	1800230	Jackson	Jackson-Washington State Forest and Starve Hollow
1800305	1800305C	Jackson	Starve Hollow State Recreation Area
1800327	1800327J	Jackson	Starve Hollow State Recreation Area
1800363	1800363EE	Jackson	Starve Hollow State Recreation Area
1800447	1800447	Jackson	Starve Hollow State Recreation Area

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.

Abbreviated Engineering Assessment

SR 58 Small Structure Replacement

Jackson County, Indiana

Des. No. 1900321

Kinned to this project is:

Des. No. 1802993, SR 258 Small Structure Replacement

Prepared by: Wyatt Huber, EI

Reviewed by: Greg R. Wendling, PE

March 27th, 2020

USI consultants

ABBREVIATED ENGINEER'S REPORT

ROADWAY PROJECTS:
Small Structure Replacement along State Road 58
Small Structure Replacement along State Road 258

DES. NUMBER / ROUTE IDENTIFICATION:

1900321	SR 58, RP 96+15, 7.09 Miles East of SR 446 EXISTING STRUCTURE ID: CV 058-36-96.15
1802993	SR 258, RP 1+59, 1.59 Miles East of SR 58 EXISTING STRUCTURE ID: CV 258-036-1.59

Jackson County, Indiana

March 27, 2020

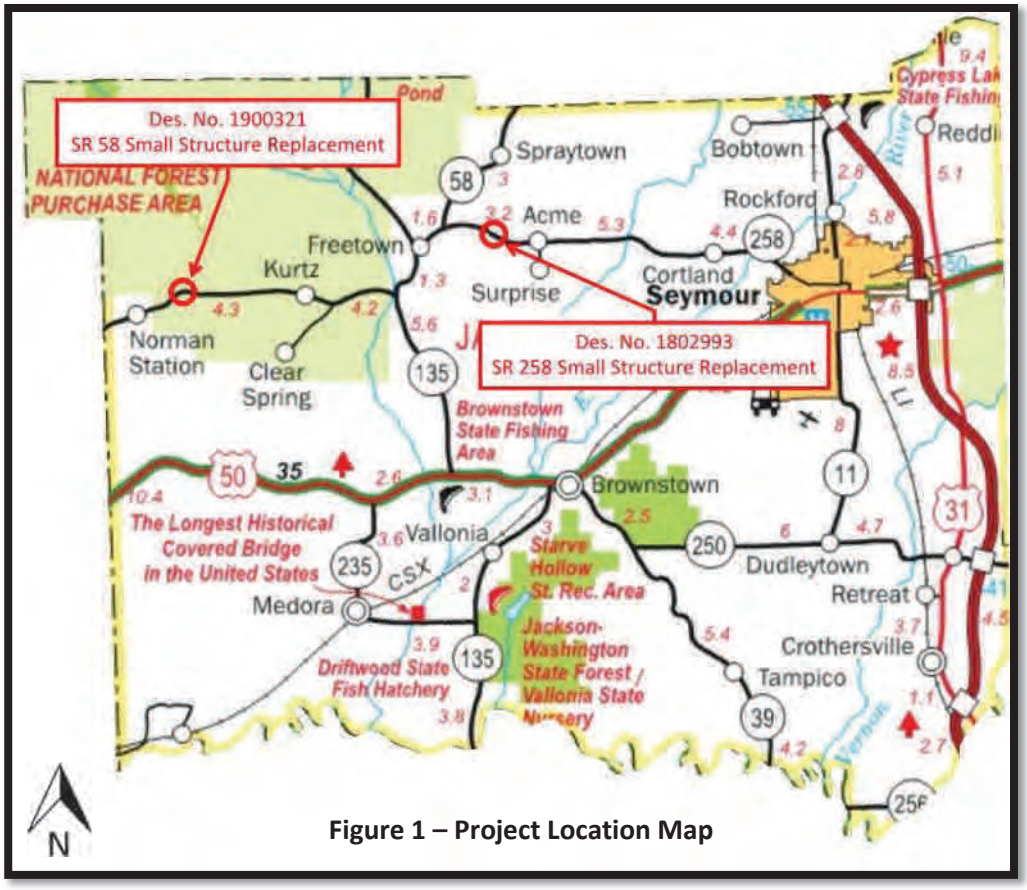


Figure 1 – Project Location Map

A detailed project location map is available for each structure location in Appendix A.

Purpose of Report >>

The purpose of this report is to document the engineering assessment phase of project development, including all coordination that has been completed in preparation for these roadway projects. This document outlines each proposal and is intended to serve as a guide for subsequent survey, design, environmental, right of way and other project activities leading to construction. The preferred proposals identified in this document are considered predecisional, pending the outcome of environmental studies.

Project Location >>

This report encompasses two small structure replacements located within Jackson County, Indiana. Locations for each project are summarized in the following table:

TABLE 1 – Project Location Summary Table

Des. No.	*Route*	*Location Description*	*Lat./Long.*
1900321	SR 58	7.09 Miles E of SR 446, RP 96+15	38° 57' 30.96" N 86° 15' 53.35" W
1802993	SR 258	1.59 Miles E of SR 58, RP 1+59	38° 58' 54.41" N 86° 05' 09.20" W

Project Purpose and Need >>

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

The purpose of this project is to restore structural and hydraulic functionality to the culvert structure. The need for this project is driven by the poor rating of the existing structure (Culvert Rating: 4), due to failed headwalls, spalling and cracking in the abutments, and scour along the channel bank.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

The purpose of this project is to restore structural and hydraulic functionality to the culvert structure. The need for this project is driven by the poor rating of the existing structure (Culvert Rating: 4), due to heavy corrosion with perforations along the invert, minor section loss, and settlement of the roadway around the structure.

Project History >>

The latest available culvert inspection report for the existing SR 58 structure was completed in August 2019, and in May 2019 for the existing SR 258 structure. Each have been included in Appendix B for reference. Hydraulic analysis was performed on each of the existing structures by INDOT Hydraulics personnel. A final approved hydraulic memo was provided for use with the design of each of these projects, and have been included in Appendix C for reference.

Existing Facility >>

The table on the following page summarizes the existing facility at each location.

TABLE 2 – Summary of Existing Facility Characteristics					
Project No.	***Functional Classification***	***Design Speed***	***Typical Cross Section***	***Existing Structure***	***Notable Structure Deficiencies****
Des. No. 1900321 SR 58, RP 96+15	Rural Major Collector	45 MPH	(2) 9' travel lanes; 3' usable shoulders	5.7' x 2.7' RCB (Condition Rating: 4)	Failed headwalls, spalling and cracking at abutments; slab is sagging at both ends of structure
Des. No. 1802993 SR 258, RP 1+59	Rural Major Collector	45 MPH	(2) 10.5' travel lanes; 1' usable shoulder	57" x 38" CMPA w/ headwall (Condition Rating: 4)	Heavy corrosion with perforations along invert. 2' of section loss on north end

*Culvert inspection reports detailing all noted deficiencies for each structure are included in Appendix B.

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

The existing 40'-long, 5.7' x 2.7' reinforced concrete box is at a significant skew, and located within a tight horizontal curve (radius ~180') and is within a superelevated pavement section. The structure is bordered on either side by heavily wooded or forested land. Guardrail exists on both sides of the structure. Very minimal ditching exists on the north side of the roadway through the curve, which has begun to cause erosion and deterioration of the roadway edge near the structure.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

The existing 27'-long, 57" x 38" corrugated metal pipe arch with headwall is located within a very flat horizontal curve (radius ~2100'). The structure is bordered on either side by agricultural land. No guardrail currently exists at the project location. There is an existing 24" steel pipe directly north of the structure that appears to outfall into the structure. There is established ditching along the north side of SR 258 feeding the structure, with sideslopes of 2:1 or steeper in some areas. Additionally, there is an established ditch line to the south side of SR 258 that outlets into the downstream channel, with sideslopes of 2:1 or steeper in some areas.

Traffic Data >>

Official traffic projections have been received for each project included within this report, and are summarized within the table below. Full versions of the official projection reports have been included in Appendix D.

TABLE 3 – Traffic Data Summary Table					
Project Location	***Projection***		***DHV***	***Commercial Vehicles***	***Growth Rate***
	Year	***AADT***			
Des No. 1900321	2023	365	10.69%	4.93% of AADT	0.0% Yearly
SR 58, RP 96+15	2043	365			
Des No. 1802993	2023	1,388	10.88%	6.04% of AADT	0.69% Yearly
SR 258, RP 1+59	2043	1,573			

Crash Data & Analysis >>

Crash data over the past years of 2016 – 2019 was analyzed for this report. No collisions within 1000 feet of the existing structure at each location were identified after review. Therefore, it was determined that neither the structure geometrics nor condition at each location pose a safety concern.

Identification of Alternatives >>

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

Alternative A – Do Nothing

This alternative allows the existing structure to remain in place with no improvements. This alternative will result in continued deterioration of the structure, which could allow development of unsafe travel conditions and likely increase costs of repair at a later date. This alternative does not meet the need nor achieves the purpose of the project and will not be considered further.

Alternative B – Small Structure Replacement

This option proposes to replace the existing small structure with a new structure that meets the necessary structural and hydraulic requirements. This option meets the need and purpose of the project and is the preferred alternative. The following table details four replacement options, as identified by INDOT Hydraulics:

TABLE 4a – Small Structure Replacement Alternatives

Proposal 1		***Proposal 2***		***Proposal 3***		***Proposal 4***	
83" x 57" CMPA w/ Headwall (6" Sump)		91" x 58" RCEP (6" Sump)		78" ID RCP (6" Sump)		7' x 4' RCB (6" Sump)	
Est. Structure Cost	$600.00 per LF	Est. Structure Cost	$500.00 per LF	Est. Structure Cost	$350.00 per LF	Est. Structure Cost	$600.00 per LF

All proposals above are anticipated to be equivalent in length. The price per linear foot of Proposal 1 has been adjusted to reflect the cost of the headwall. Due to steep upstream conditions and the possibility of debris impacting the structure, it was determined that the use of a reinforced concrete elliptical pipe, reinforced concrete circular pipe, or reinforced concrete box structure would be preferable. Additionally, headwalls are recommended due to the eroding soil conditions located west of the structure on the north side of the roadway. Therefore, Proposal 4, replacement with a 49'-long, 7' x 4' Reinforced Concrete Box Structure is the preferred alternative. The structure will be sumped 6" to allow for a natural channel bottom to silt in.

In conjunction with this project, a paved side ditch, type B, is proposed along the north side of the roadway to reinforce the roadside ditch and protect the roadway from erosion or undermining.

A Revetment Riprap apron will be required at the outlet, and should be installed via IDM Figure 203-2J where right of way allows. An apron of Class I Riprap shall be installed at the inlet of the structure per the plans.

The anticipated project length is 310', with full depth pavement reconstruction anticipated for 60' at the structure location. Roadwork for this project proposes to maintain the existing travel lane width, with proposed shoulder widening and additional ditch work to accommodate the paved side ditch. The anticipated typical section will include 9' travel lanes, a 2-3' paved shoulder, and a 2-4' aggregate/earthen shoulder. All roadwork will match horizontal and vertical curvature, with proposed adjustments to the roadway superelevation to be further detailed in the plan set. Guardrail will be updated and replaced through the project limits. Additional grading was proposed to establish the paved side ditch with 2:1 sideslopes outside of the Obstruction Free Zone requirements.

Reconstruction of the SR 58 corridor to meet all 3R design criteria is not recommended at this location as there are no plans for corridor expansion or development, and reviewed crash data does not indicate a safety hazard at this location. Therefore, a Level 1 Design Exception Request will be prepared, with anticipated exceptions for lane width, horizontal curvature, superelevation transition length, horizontal stopping sight distance, vertical stopping sight distance, and maximum grade.

TABLE 4b – Anticipated Design Exceptions

Minimum Design Criteria:	*Design Criteria Reference:*	*Existing Condition:*	*Proposed Condition:*
Lane Width: 10 FT	IDM Figure 55-3B	9 FT	Maintain 9 FT
Horz. Curvature: 587 FT	IDM Figure 43-3A(3)	177 FT	Maintain Existing
Super. Trans. Len.: 0.54%	IDM Figure 43-3E	0.35% low, 0.12% high	0.48% low, 0.59% high*
Super. Rate: 8.0%	IDM Figure 43-3A(3)	11% low, 2.7% high	8% low, 2% high*
HSSD: 360 FT	IDM Figure 55-3B	< 360 FT	Maintain Existing
VSSD: 360 FT	IDM Figure 55-3B	< 360 FT	Maintain Existing
Max. Grade: 9.0%	IDM Figure 55-3B	11.0%	Maintain Existing

*Superelevation Rate and Superelevation Transition Rate have been designed to meet or exceed 30-mph speed limit where possible; Warning signing will be installed, and a design exception will be requested.

A preliminary plan and profile sheet for this project location is available in Appendix E for reference.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

Alternative A – Do Nothing

This alternative allows the existing structure to remain in place with no improvements. This alternative will result in continued deterioration of the structure, which could allow development of unsafe travel conditions and likely increase costs of repair at a later date. This alternative does not meet the need nor achieves the purpose of the project and will not be considered further.

Alternative B – Small Structure Replacement

This option proposes to replace the existing small structure with a new structure that meets the necessary structural and hydraulic requirements. This option meets the need and purpose of the project and is the preferred alternative. The following table details three replacement options, as identified by INDOT Hydraulics:

TABLE 4c – Small Structure Replacement Alternatives

Proposal 1		*Proposal 2*		*Proposal 3*	
CIPP with Beveled Edge Headwall		5" Paved Invert w/ Jack & Bore 1.75' ID		6' x 4' Coated RCB (6" Sump)	
Est. Structure Cost	$700.00 per LF	Est. Structure Cost	$725.00 per LF	Est. Structure Cost	$1,000.00 per LF

All proposals above are anticipated to be equivalent in length. Due to the low cover situation and poor condition of the existing structure, it is recommended to replace the structure with Proposal 3, a 37'-long, 6' x 4' coated Reinforced Concrete Box Structure. Please note that this length does not satisfy the required Obstruction Free

Zone requirements, as consideration was taken to minimize impacts to the existing fill slope to the north of the project location and the established ditch lines on both the north and south of the existing structure.

The structure will be sumped 6" to allow for a natural channel bottom to silt in.

A Class 2 Riprap apron will be required at the outlet, and should be installed via IDM Figure 203-2J where right of way allows. An apron of Class I Riprap shall be installed at the inlet of the structure per the plans.

The anticipated project length is 90', with full depth pavement reconstruction anticipated for 50' at the structure location. Roadwork for this project proposes to maintain the existing travel lane width, with proposed shoulder widening for additional paved and useable shoulder. The anticipated typical section will include 10' travel lanes, a 2' paved shoulder, and a 1' aggregate shoulder. All roadwork will match horizontal and vertical curvature, with proposed adjustments to the roadway superelevation to be further detailed in the plan set.

Reconstruction of the SR 258 corridor to meet all 3R design criteria is not recommended at this location as there are no plans for corridor expansion or development, and reviewed crash data does not indicate a safety hazard at this location. Therefore, a Level 1 Design Exception Request will be prepared, with anticipated exceptions for lane width, and vertical stopping sight distance. Additionally, a Level 2 Design Exception will be prepared for obstruction free zone and guardrail.

TABLE 4d – Anticipated Design Exceptions

Level 1 Design Exceptions			
Minimum Design Criteria:	***Design Criteria Reference:***	***Existing Condition:***	***Proposed Condition:***
Lane Width: 11 FT	IDM Figure 55-3B	10 FT	Maintain 10 FT
VSSD: 360 FT	IDM Figure 55-3B	< 360 FT	Maintain Existing
Level 2 Design Exceptions			
Minimum Design Criteria:	***Design Criteria Reference:***	***Existing Condition:***	***Proposed Condition:***
Obs. Free Zone: 8 FT	IDM CH. 55-5.02	< 8 FT	6 FT
Guardrail at Location: Y	O.F.Z. Not Met	NONE	NONE

A preliminary plan and profile sheet for this project location is available in Appendix E for reference.

Geotechnical Recommendations >>

Each of the projects detailed within this report and below will require geotechnical investigation. Geotechnical work will be pursued by the designer after submission of Stage 1 plans and design materials.

Utility Impacts >>

Utility coordination efforts are underway for each of the projects covered in this report. Initial notice has been sent to the identified utilities within each project area, and the following section summaries the anticipated facilities at each structure:

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

An initial 811 utility design ticket was pulled for this project location. However, no utilities were identified per this preliminary check. USI field personnel also noted that there were no apparent utilities present at or adjacent to the existing structure when performing field work. Therefore, utility involvement is not anticipated for this project at this time.

Utility coordination will be revisited as design progresses to ensure that no utilities or other facilities are overlooked.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

- Frontier: Initial notice response was received on December 12th, 2019. Underground fiber optic facilities were identified on the north side of SR 258 within the right of way.
- Jackson County REMC: Initial notice response was received on December 13th, 2019. No facilities were identified within the project limits.
- Jackson County Water Utility: Initial notice response was received on February 11th, 2020. A 3" PVC line was identified on the south side of SR 258 within the right of way.

Utility verification plans will be developed in tandem with the Stage 1 plan submittal, and provided to the utilities listed above. Utility coordination efforts will be continued throughout the project to further investigate any potential impacts.

Environmental Considerations >>

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

TABLE 4a – Anticipated Environmental Impacts		
	Description	***Notes***
☒	Tree Clearing	Minor tree clearing may be necessary to facilitate the installation of the structure and needed scour protection. In consideration of the Indiana Bat nesting season, tree clearing shall not be permissible from April 1st – September 30th without prior written approval.
☐	Fish	No fish are anticipated to be disturbed during the course of this project.
☒	Migratory Birds	Per the USFWS IPaC site: the Indiana Bat (Myotis sodalis), and the Northern Long-eared Bat (Myotis septentrionalis) have a potential to be affected by activities at the project location. However, IPaC also states there are no critical habitats at this location. Therefore, the project will likely be found to "have no adverse effect". Effects will be confirmed during Section 7 Consultation as part of the environmental document preparation process.
☐	Historical	Per review of the IDNR SHAARD, no potentially historic structures are known to be located within one mile of the project limits. Therefore, it is anticipated that the project will be found to "have no adverse effect." Cultural resources will be further investigated during preparation of the Environmental Document. Section 106 coordination with the Indiana Department of Natural Resources Division of Historic Preservation and Archeology shall be included in the Environmental Document.
CE-1	CE Type	The District or the District's consultant will prepare an environmental document in accordance with the National Environmental Policy Act, National Historic Preservation Act, and other relevant laws.

TABLE 4b – Anticipated Permits		
	Description	***Notes***
☒	USACE 404	Per the Norman, IN USGS quadrangle map, no delineation of a channel at the project location is provided. However, field personnel have identified a defined channel and Ordinary High-Water Mark. Therefore, a USACE 404 is anticipated as the channel would be considered a Waters of the U.S.
☒	IDEM 401	Per the Norman, IN USGS quadrangle map, no delineation of a channel at the project location is provided. However, field personnel have identified a defined channel and Ordinary High-Water Mark. Therefore, an IDEM 401 is anticipated as the channel would be considered a Waters of the U.S.
☐	IDNR CIF	The project is located within Zone X according to FEMA FIRM Map 18071C0150D. Therefore, this project will not require a CIF permit.
1	Storm Water Quality Manager Level	Storm Water Quality Manager Level 1 will be required.

This project is near the Hoosier National Forest, but not located within the park limits. It is not anticipated that any right of way will be needed from the Hoosier National Forest, therefore a Section 4(f) analysis is not anticipated as part of the environmental documentation process.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

TABLE 5a – Anticipated Environmental Impacts		
	Description	***Notes***
☒	Tree Clearing	Minor tree clearing may be necessary to facilitate the installation of the structure and needed scour protection. In consideration of the Indiana Bat nesting season, tree clearing shall not be permissible from April 1st – September 30th without prior written approval.
☐	Fish	No fish are anticipated to be disturbed during the course of this project.
☒	Migratory Birds	Per the USFWS IPaC site: the Indiana Bat (Myotis sodalis), and the Northern Long-eared Bat (Myotis septentrionalis) have a potential to be affected by activities at the project location. However, IPaC also states there are no critical habitats at this location. Therefore, the project will likely be found to "have no adverse effect". Effects will be confirmed during Section 7 Consultation as part of the environmental document preparation process.
☐	Historical	Per review of the IDNR SHAARD, no potentially historic structures are known to be located within one mile of the project limits. Therefore, it is anticipated that the project will be found to "have no adverse effect." Cultural resources will be further investigated during preparation of the Environmental Document. Section 106 coordination with the Indiana Department of Natural Resources Division of Historic Preservation and Archeology shall be included in the Environmental Document.
CE-1	CE Type	The District or the District's consultant will prepare an environmental document in accordance with the National Environmental Policy Act, National Historic Preservation Act, and other relevant laws.

TABLE 5b – Anticipated Permits		
	Description	***Notes***
☒	USACE 404	Per the Brownstown, IN USGS quadrangle map, a delineation of a channel at the project location is provided. Therefore, a USACE 404 is anticipated as the channel would be considered a Waters of the U.S.
☒	IDEM 401	Per the Brownstown, IN USGS quadrangle map, a delineation of a channel at the project location is provided. Therefore, an IDEM 401 is anticipated as the channel would be considered a Waters of the U.S.
☐	IDNR CIF	The project is located within Zone X according to FEMA FIRM Map 18071C0180D. Therefore, this project will not require a CIF permit.
1	Storm Water Quality Manager Level	Storm Water Quality Manager Level 1 will be required.

No publicly owned parks, recreational areas or historic sites considered as Section 4(f) properties were identified within the project limits. A Section 4(f) analysis will not be necessary as part of the environmental documentation prepared for the project.

NOTE A summary table of the expected Categorical Exclusion Level Thresholds for each project has been included in Appendix F for reference.

Right of Way Impacts >>

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

Right of way review, verification, and certification are underway on this project. Preliminary review of available GIS information indicates a 30-foot right of way on either side of the project location. Further investigation will be necessary to determine if any purchase of temporary or permanent right of way will be necessary. Impacts to right of way will continue to be refined through the design process.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

Right of way review, verification, and certification are underway on this project. Preliminary review of available GIS information indicates a 40-foot right of way on either side of the project location. Further investigation will be necessary to determine if any purchase of temporary or permanent right of way will be necessary. Impacts to right of way will continue to be refined through the design process.

Maintenance of Traffic During Construction >>

Des. No. 1900321 – Existing 5.7' x 2.7' Reinforced Concrete Box under SR 58:

Due to the narrow and heavily wooded corridor at the project location, a short-term closure for the structure replacement is recommended for this project. A state detour route will be designed through coordination with Damon Brown, INDOT Seymour District Traffic Engineer, and is anticipated to utilize SR 135, US 50, and SR 446. A hard closure with all necessary signing indicating the work shall be established far in advance of the project location to limit traffic flow near each project site.

Des. No. 1802993 – Existing 57" x 38" Corrugated Metal Pipe Arch with Headwall under SR 258:

Due to the narrow and heavily wooded corridor at the project location, a short-term closure for the structure replacement is recommended for this project. A state detour route will be designed through coordination with Damon Brown, INDOT Seymour District Traffic Engineer, and is anticipated to utilitze SR 135 and US 50. A hard closure with all necessary signing indicating the work shall be established far in advance of the project location to limit traffic flow near each project site.

Cost Estimate >>

Preliminary cost estimates for each project have been created, and a summary is provided in the table below:

TABLE 6 – Cost Estimate Summary Table

Phase	*Des. No. 1900321*	*Des. No. 1802993*
Preliminary Engineering	$102,885	$99,950
Construction Cost	$300,000	$161,000
R/W Costs*	$20,000	$12,500
Estimate Total:	**$422,885**	**$273,450**

*R/W Costs includes right of way services and acquisition costs

A detailed, itemized estimate for each project has been provided in Appendix G for reference.

Changes to the Proposal >>

The Project Manager shall be consulted if deviation from the proposal is determined to be necessary during later phases of project development. The person initiating the change shall send a memo to the Project Manager for concurrence. The designer shall route the memo through the Project Manager. The memo shall include justification for the change and the estimated cost difference.

Concurrence >>

Terry M. Summers — 05/07/2020

Terry Summers, Project Manager — Date

INDOT Seymour District

Robert F. Tally Jr. — 05/06/2020

Robert F. Tally Jr., P.E., Systems Assessment Manager — Date

INDOT Seymour District

Structure Number: *CV 058-036-096.15* **Inspector:** Miller, Melanie

Large Culvert Inspection Report

(8) Asset Code:	*93005879*	(27) Year Built:	*0000*
Asset Name:	*CV 058-036-096.15*	(90) Inspection Date:	*08/14/2019*
OLD Culvert ID:	*58-36-96.15*	(91) Inspection Frequency:	*12*
Team Assignment:	*05*	Additional Treatment Exists	

Identification

(2) Highway Agency District:	*05*	(3) County Code:	*036*
Sub District:	*5300*	Ramp ID:	
(42B) Type of Service (Under):	*5*	Adjacent to Roadway	

(7) Facility Carried: *SR 58* (6) Features Intersected:

(9) Location: *SR 58 7.09 E SR 446* (9.01) Location Additional Description:

(11) Milepoint: *1.23* (16) Latitude: *38.95860* (17) Longitude: *-86.26482*

Classification:

(104) Highway System of the Inventory Route: *0* (26) Functional Classification of Inventory Route: *02*

Geometric Data

Culvert: Kind of Material: Culvert: Type of Structure: Min Est Fill Cover (ft): *10.00*

Culvert: Max. Horizontal Opening (ft.): Culvert: Max. Vertical Opening (ft.): (34) Skew:

Barrel Length (ft.): Original Culvert Shape:

Measurement Remarks:

Structure Additional Description: *Other Masonry Box Culvert with a slab top*

Openings:

Direction	Opening Latitude	Opening Longitude	Direction	Opening Latitude	Opening Longitude
1.			3.		
2.			4.		

Openings Comments:

Follow Up Required:

**If checked, please describe for follow up:

Endangered Species

Bats: seen or heard under structure? * *N*

Birds/swallows/nests seen? Empty nests present? *N*

* If yes, add one photo to the dropdown field

General Condition Ratings

(36A) Bridge Railings:	*0*	(36C) Approach Guardrail:	
(36B) Transitions:		(36D) Approach Guardrail Ends:	

Culvert:

(62) Culvert - Rating:	*4*
(62) Culvert Rating Comments:	*This structure is being replaced under the SR 58 Road Reconstruction Project West of SR 135 (Norman Hill). This project has been suspended. Headwalls have failed and this is effecting the active roadway. The abutments are sloping in spalls and cracks in the abutments. The slab is sagging down on both ends.*

Deck:

(58) Deck:	
(58a) Deck Comments:	

Superstructure:

(59) Superstructure:	*N*
(59.01) Superstructure Comments:	

Substructure:

(60) Substructure:	*N*
(60.01) Substructure Comments:	

Channel:

(61) Channel and Channel Protection:	*4*
(61.01) Channel and Channel Protection Comments:	*There is a 1' scour hole on north side. Sediment throughout. Bank erosion is effecting the active roadway.*
Bank Erosion Rating:	*4*
Drift/Sediment Rating	*4*
Channel Alignment Rating	*5*

Check this box if culvert has OBSTRUCTED flow

Describe Obstruction:	
Overtopping Frequency:	
Overtopping Frequency Comments:	

INDIANA DEPARTMENT OF TRANSPORTATION

Hydraulics Department
100 North Senate Avenue
Room N642-BR
Indianapolis, Indiana 46204

PHONE: (317) 232-6439
FAX: (317) 233-4929

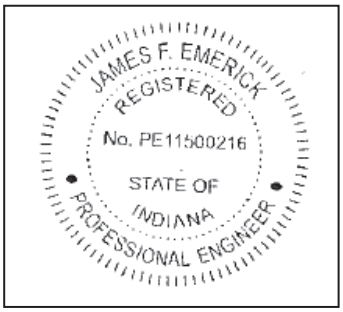
Eric Holcomb, Governor
Joe McGuinness, Commissioner

August 15, 2018

TO: Adam Pyle
Assistant Bridge Asset Engineer
Seymour District

FROM: James Boehm, EIT
Hydraulics Engineer

THROUGH: James Emerick, PE
Sr. Hydraulics Engineer



SUBJECT: Hydraulic Review
Status: Final Design
Des. #: N/A
Str. #: CV 058-036-096.15
County: Jackson (036)
Location: SR 58, 7.09 miles east of SR 446
DNR CFI Permit (Y/N): N
Legal Drain (Y/N): N

Site Parameters		
Drainage Area	26.4	acres
Q_{100} Discharge	62	cfs
Q_{25} Discharge	43	cfs
Q_{100} Depth	1.16	ft.
Roadway Overtopping Elevation	98.30	ft.

Culvert Properties						
Parameter	**Existing**		**Option #1**		**Option #2**	
Structure	5.7' x 2.7' RCB		83" x 57" CMPA w/ Headwall Sumped 6"		91" x 58" RCEP Sumped 6"	
Road Overflow at Q_{10} Elevation	No		No		No	
Waterway Area Below Q_{100} Elevation	6.61	sq ft	7.43	sq ft	6.62	sq ft
Q_{100} Headwater Elevation	90.52	ft	90.31	ft	90.35	ft
Backwater	1.44	ft	1.23	ft	1.27	ft
Outlet Velocity (Q_{10})	8.08	ft/s	5.85	ft/s	5.75	ft/s
Minimal Outlet Riprap Size	N/A		Revetment Riprap		Revetment Riprap	
Inlet Riprap Needed (Y/N)	N/A		Y		Y	
Natural Channel Velocity	7.66	ft/s	7.66	ft/s	7.66	ft/s
Minimal Inlet Riprap Size	N/A		Class 1 Riprap		Class 1 Riprap	

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Culvert Properties						
Parameter	**Existing**		**Option #3**		**Option #4**	
Structure	5.7' x 2.7' RCB		78" ID RCP Sumped 6"		7' x 4' RCB Sumped 6"	
Road Overflow at Q_{10} Elevation	No		No		No	
Waterway Area Below Q_{100} Elevation	6.61	sq ft	5.51	sq ft	7.87	sq ft
Q_{100} Headwater Elevation	90.52	ft	90.29	ft	90.31	ft
Backwater	1.44	ft	1.21	ft	1.23	ft
Outlet Velocity (Q_{10})	8.08	ft/s	6.17	ft/s	5.82	ft/s
Minimal Outlet Riprap Size	N/A		Revetment Riprap		Revetment Riprap	
Inlet Riprap Needed (Y/N)	N/A		Y		Y	
Natural Channel Velocity	7.66	ft/s	7.66	ft/s	7.66	ft/s
Minimal Inlet Riprap Size	N/A		Class 1 Riprap		Class 1 Riprap	

Existing Conditions and Analysis:
The existing culvert is a 5.7'span by 2.7' rise RCB that is approximately 30' long. The structure is located in Jackson County under SR 58, 7.09 miles east of SR 446. This structure is not part of a legal drain and flows from south to north. The upstream channel is in a wide valley with brush and trees and is not well defined. The downstream channel parallels the westbound lane of SR 58 until turning north away from the highway, and is lined with brush and trees. The drainage area is rural with a large amount of wooded land cover.

The section of SR 58 at the structure has an AADT of less than 1000 vehicles. Therefore, the design discharge for roadway serviceability was based on a storm event with a 10% EP (exceedance probability), and a maximum discharge based on a storm event with a 1% EP. Maximum and design discharge was calculated using the rational method. All replacement options were modeled using HY-8 7.2.

Replacement options:

- Option #1: 83" x 57" Corrugated Metal Pipe Arch with Square Edge Headwall Sumped 6"
- Option #2: 91" x 58" Reinforced Concrete Elliptical Pipe Sumped 6"
- Option #3: 78" ID Reinforced Concrete Pipe Sumped 6"
- Option #4: 7' x 4' Reinforced Concrete Box Sumped 6"

All Replacement options must be sumped 6" per IDM 203-2.02(10). Replacement options 2-4 are not required to have, but may be constructed with an improved inlet treatment, i.e. headwall, or wing-wall. Replacement option 1 is required to be constructed with a square edge headwall. Circular corrugated and semi-smooth pipe options were modeled but were not hydraulically adequate within the existing parameters. Replacement option 3 does decrease the waterway area below Q_{100} elevation, but the decrease is negligible and does not represent the effectiveness of the pipe at higher discharges. Elevations are based on a relative datum in conjunction with surveyed rod readings taken at the location. Existing downstream invert and proposed downstream flowline elevation for analysis was 87.62'. Contractor shall verify the existing flowline elevation to set the appropriate sump depth.

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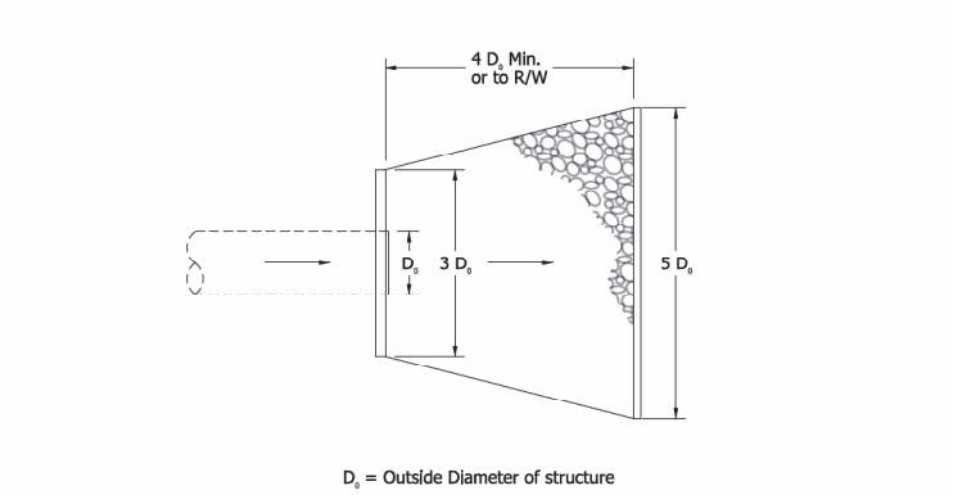
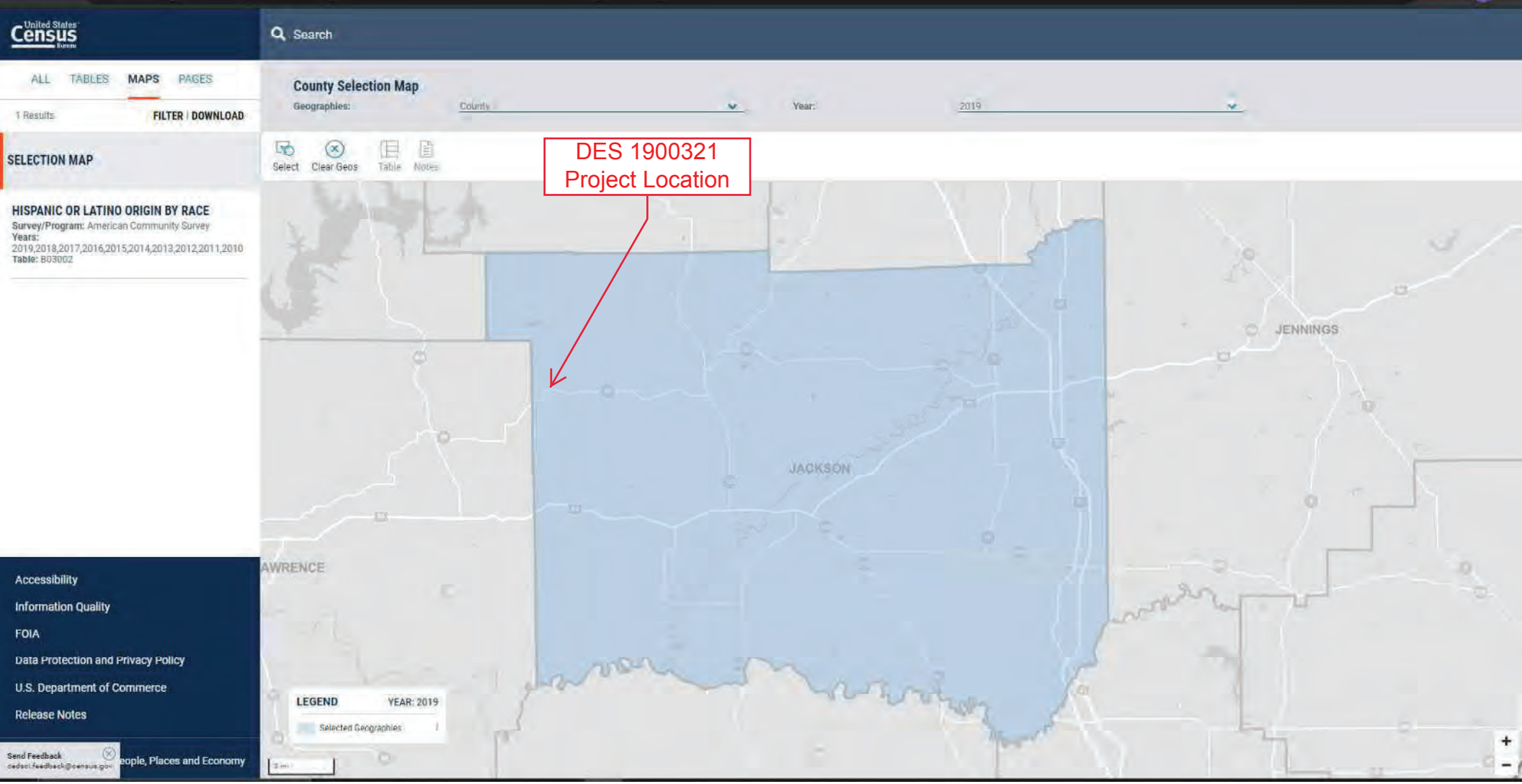
Scour Protection Design and Recommendations:
For scour protection, class revetment riprap *must* be placed at the outlet for all replacement options in accordance with IDM 203-2.03(10) and IDM Figure 203-2J. It is recommended but not required to place riprap for scour protection at the inlet of all replacement options. Riprap placed at the inlet for scour protection should have a minimum size of class 1 riprap. The inlet riprap apron may be constructed to dimensions at the discretion of the designing engineer or in accordance with INDOT Standard Drawing No. E714-BCSP-01.



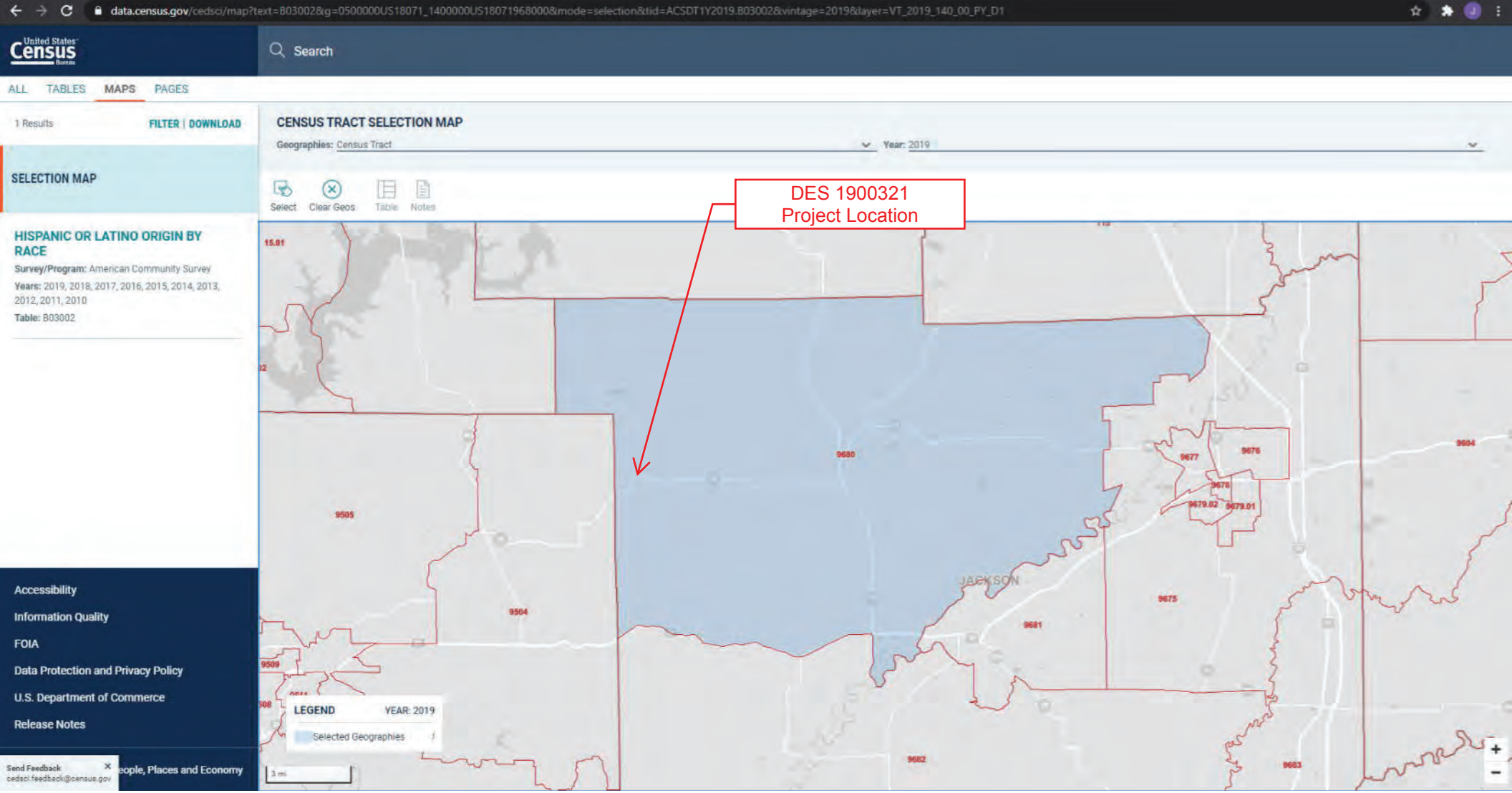
IDM Figure 203-2J Minimum Riprap Apron Dimensions

If you have any questions or comments, please contact me at (317) 232-6439.

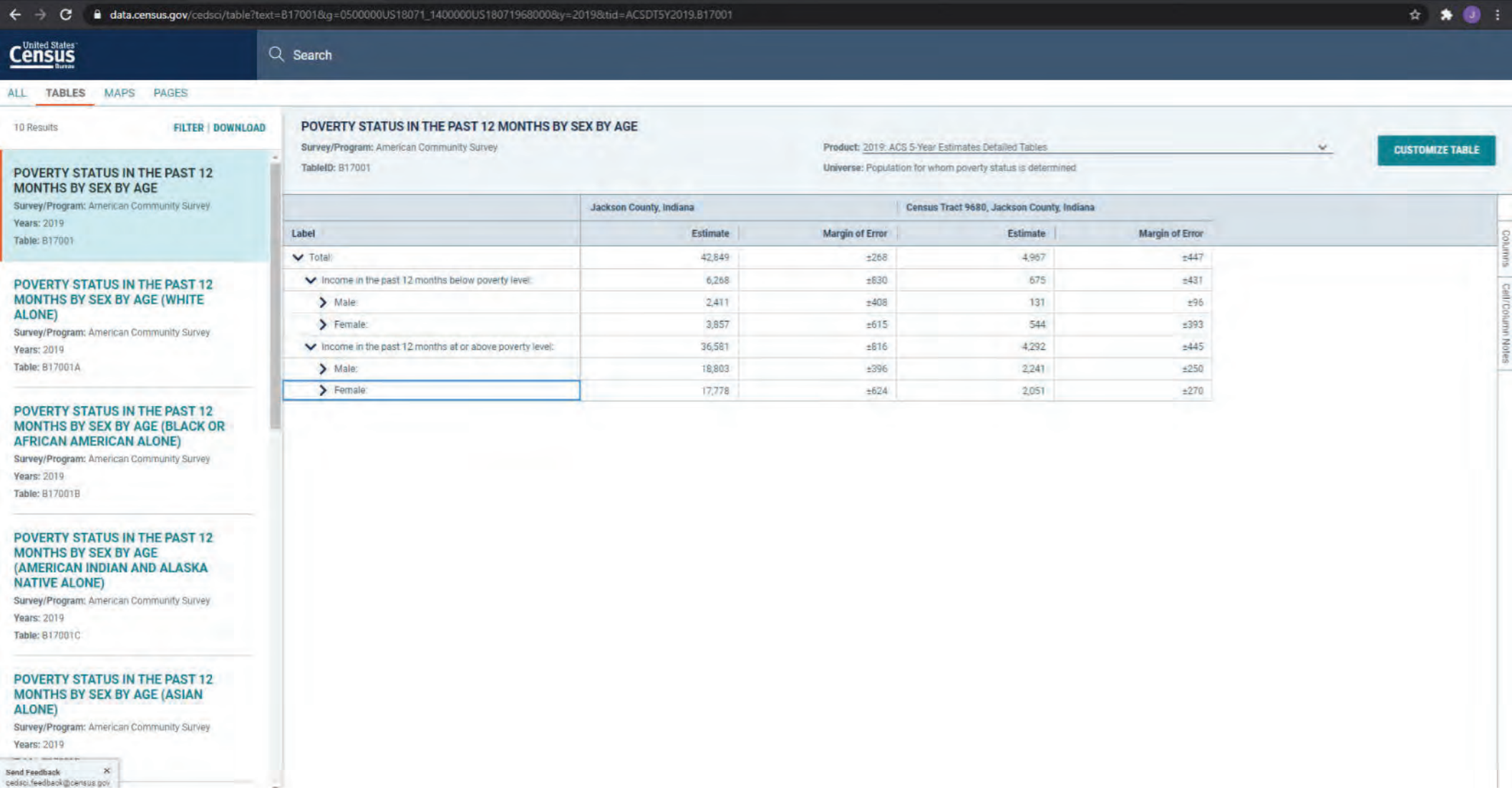
JPB



Community of Concern (COC)- Jackson County



Affected Community (AC)- Census Tract 9680


data.census.gov/cedsci/table?text=B17001&g=0500000US18071_1400000US18071968000&y=2019&tid=ACSDT5Y2019.B17001
United States Census Bureau
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POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE
Survey/Program: American Community Survey
Years: 2019
Table: B17001
POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (WHITE ALONE)
Survey/Program: American Community Survey
Years: 2019
Table: B17001A
POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (BLACK OR AFRICAN AMERICAN ALONE)
Survey/Program: American Community Survey
Years: 2019
Table: B17001B
POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (AMERICAN INDIAN AND ALASKA NATIVE ALONE)
Survey/Program: American Community Survey
Years: 2019
Table: B17001C
POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (ASIAN ALONE)
Survey/Program: American Community Survey
Years: 2019
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POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE
Survey/Program: American Community Survey
TableID: B17001
Product: 2019: ACS 5-Year Estimates Detailed Tables
Universe: Population for whom poverty status is determined
CUSTOMIZE TABLE
Jackson County, Indiana
Census Tract 9680, Jackson County, Indiana
Label
Estimate
Margin of Error
Estimate
Margin of Error
Total: 42,849 ±268 4,967 ±447
Income in the past 12 months below poverty level: 6,268 ±830 675 ±431
Male: 2,411 ±408 131 ±96
Female: 3,857 ±615 544 ±393
Income in the past 12 months at or above poverty level: 36,581 ±816 4,292 ±445
Male: 18,803 ±396 2,241 ±250
Female: 17,778 ±624 2,051 ±270
Columns
Cell/Column Notes

1 Results FILTER | DOWNLOAD

HISPANIC OR LATINO ORIGIN BY RACE
Survey/Program: American Community Survey
Years: 2019
Table: B03002

HISPANIC OR LATINO ORIGIN BY RACE

Survey/Program: American Community Survey
TableID: B03002

Product: 2019: ACS 5-Year Estimates Detailed Tables
Universe: Total population

CUSTOMIZE TABLE

	Jackson County, Indiana		Census Tract 9680, Jackson County, Indiana	
Label	Estimate	Margin of Error	Estimate	Margin of Error
Total:	44,025	*****	4,967	±447
Not Hispanic or Latino:	40,939	*****	4,962	±446
White alone	38,802	±83	4,926	±446
Black or African American alone	473	±116	0	±12
American Indian and Alaska Native alone	61	±35	0	±12
Asian alone	983	±82	9	±20
Native Hawaiian and Other Pacific Islander alone	14	±22	0	±12
Some other race alone	56	±77	13	±23
Two or more races:	550	±161	14	±23
Two races including Some other race	51	±53	14	±23
Two races excluding Some other race, and three or more races	499	±150	0	±12
Hispanic or Latino:	3,086	*****	5	±8
White alone	1,211	±314	0	±12
Black or African American alone	0	±25	0	±12
American Indian and Alaska Native alone	36	±58	0	±12
Asian alone	0	±25	0	±12
Native Hawaiian and Other Pacific Islander alone	0	±25	0	±12
Some other race alone	1,709	±314	0	±12
Two or more races:	130	±95	5	±8
Two races including Some other race	125	±95	0	±12
Two races excluding Some other race, and three or more races	5	±8	5	±8

Columns | Cell/Column Notes

Environmental Justice Analysis for SR 58 Small Structure Replacement (Des. 1900321)

		COC Noble County, Indiana	AC1 Census Tract 9720, Noble County, Indiana
B170001	LOW-INCOME		
	3CDH@CGBÃ<ÃAJ=CAÃDI; EGKÃFGHÃF>Ã; GEA>B; : *Ã5GT@	$"Ã($)	$À)&'
	3CDH@CGBÃ<ÃAJ=CAÃDI; EGKÃFGHÃF>Ã; GEA>B; : */B9CA; ÃBÃD7FÃ"Ã ACBGFÃ8;@CÃDCI;EGK	&À&(	&'%
	Percent Low-Income	**14.6%**	**13.6%**
	125 Percent of COC	**18.3%**	**AC<125% COC**
	Potential Low-Income EJ Impact?		
-Ã # "	**MINORITY**		
	5CG@DÃCDH@7DBÃ5CG@	$$Ã"%	$À)&'
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BC	$ Ã)#)	$À)&"
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃ6 =>;Ã7@CB;	#(À("	$À"&
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃ4@79ÃCEÃE>97BÃA ;E>97BÃ7@CB;	$'#	
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃA ;E>97BÃB:>7BÃB:Ã, @7H7Ã17GI;Ã7@CB;	&!	
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃF >7BÃ7@CB;	)(#	)
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃ17GI;Ã. 7J7>>7BÃB:Ã2G=;EÃ379>=9ÃF@7B:;EÃ@CB;	!$	
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃ4CA;ÃCG=;EÃ79;Ã7@CB;	%&	!#
	5CG@DÃCDH@7DBÃ1CÃ >HD7B>ÃCEÃ7G>BÃ6J CÃCEÃCE;Ã79;F	%%	!$
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BC	#À(&	%
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃ6 =>;Ã7@CB;	!Ã"!!	
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃ4@79ÃCEÃE>97BÃA ; E>9BÃ7@CB;		
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃA ;E>97BÃB:>7BÃB:Ã,@7H?7Ã17G> Ã7@CB;	#&	
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃF >7BÃ7@CB;		
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃ17GI;Ã. 7J7>>7BÃB:Ã2G=;EÃ379>=9ÃF@7B:;EÃ@CB;		
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃ4CA;ÃCG=;EÃ79;Ã7@CB;	!Ã')	
	5CG@DÃCDH@7DBÃ >HD7B>ÃCEÃ7G>BÃ6J CÃCEÃCE;Ã79;F	!#	%
	Number Non-White/Minority (P007001-P007003)	**5,223**	**41**
	Percent Non-White/Minority	**11.9%**	**0.8%**
	125 Percent of COC	**14.8%**	**AC<125% COC**
	Potential Minority EJ Impact?		