

Des 1800269
Appendix E
Red Flag Investigation



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N642
Indianapolis, Indiana 46204

PHONE: (317) 232-5113
FAX: (317) 233-4929

Eric Holcomb, Governor
Joe McGuinness,
Commissioner

Date: September 28, 2020

To: Site Assessment & Management
Environmental Policy Office - Environmental Services Division (ESD)
Indiana Department of Transportation
100 N Senate Avenue, Room N642
Indianapolis, IN 46204

From: Victoria Veach
Seymour District
1104 Prospect Street
Indianapolis, Indiana
victoria@green3studio.com

Re: RED FLAG INVESTIGATION
DES 1800269, State Project
Small Structure Replacement
SR 250 over Bear Branch, 4.61 Miles East of SR 129
Switzerland County, Indiana

PROJECT DESCRIPTION

Brief Description of Project: The Indiana Department of Transportation (INDOT) and the Federal Highway Administration (FHWA) intend to proceed with a small structure project of the culvert carrying Bear Branch under SR 250 (CV 250-078-51.30). The original structure, a 4-foot by 3.2-foot three-sided concrete culvert, failed and was replaced with two 36-inch diameter corrugated metal pipes. The anticipated preferred alternative for this project involves replacing the existing structure with a 5-foot by 4-foot reinforced concrete box culvert. The existing guardrails will be replaced. Scour protection is anticipated at the inlet and outlet of the new structure.

Bridge and/or Culvert Project: Yes No Structure # CV 250-078-51.30

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

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

Proposed right of way: Temporary # Acres N/A Permanent # Acres >0.5, Not Applicable

Type and proposed depth of excavation: Excavation will be required for placement of the new structure and to place riprap at the inlet and outlet of the new structure. The maximum depth of excavation is anticipated to be approximately 5 feet below the existing grade.

Maintenance of traffic: A road closure with a detour utilizing SR 129 and SR 56 is the anticipated method for maintenance of traffic.

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

State Project: LPA:

Any other factors influencing recommendations: N/A

INFRASTRUCTURE TABLE AND SUMMARY

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

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

Explanation:

Pipelines: One (1) pipeline segment is located within the 0.5 mile search radius. The nearest segment, owned by Texas Gas Transmission Corp., is located approximately 0.18 mile northwest of the project area. No impact is expected.

WATER RESOURCES TABLE AND SUMMARY

Water Resources			
Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
NWI - Points	1	Canal Routes - Historic	N/A
Karst Springs	N/A	NWI - Wetlands	27
Canal Structures – Historic	N/A	Lakes	11
NPS NRI Listed	N/A	Floodplain - DFIRM	N/A
NWI-Lines	2	Cave Entrance Density	N/A
IDEM 303d Listed Streams and Lakes (Impaired)	4	Sinkhole Areas	N/A
Rivers and Streams	7	Sinking-Stream Basins	N/A

Explanation:

NWI – Points: One (1) NWI point is located within the 0.5 mile search radius. The nearest NWI point is located approximately 0.04 mile north of the project area. No impacts are expected.

NWI – Lines: Two (2) NWI lines are located within the 0.5 mile search radius. The nearest NWI line is located approximately 0.09 mile southeast of the project area. No impacts are expected.

IDEM 303d Listed Streams and Lakes (Impaired): Four (4) IDEM 303d Listed Streams are located within the 0.5 mile search radius. Three (3) impaired stream segments, all associated with Bear Branch, are located within and adjacent to the project area. Bear Branch is listed as impaired for Impaired Biotic Communities (IBC) and *E. coli*. Concerning IBC, Best Management Practices (BMPs) will be used to avoid further degradation to the stream. Workers who are working in or near water with *E. coli* should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

Rivers and Streams: Seven (7) stream segments are located within the 0.5 mile search radius. Three (3) stream segments associated with Bear Branch are located within and adjacent to the project area. A Waters of the US Report will be prepared and coordination with INDOT ESD Ecology and Waterway Permitting will occur.

NWI – Wetlands: Twenty-seven (27) NWI wetlands are located within the 0.5 mile search radius. One (1) wetland is located within the project area. A Waters of the US Report will be prepared and coordination with INDOT ESD Ecology and Waterway Permitting will occur.

Lakes: Eleven (11) lakes are located within the 0.5 mile search radius. The nearest lake is located approximately 0.06 mile southwest of the project area. No impacts are expected.

URBANIZED AREA BOUNDARY SUMMARY

Explanation: This project is not located within an Urbanized Area Boundary.

MINING AND MINERAL EXPLORATION TABLE AND SUMMARY

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

Explanation: No mining and mineral resources were identified within the 0.5 mile search radius.

HAZARDOUS MATERIAL CONCERNS TABLE AND SUMMARY

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

Leaking Underground Storage (LUST) Sites	N/A	Notice of Contamination Sites	N/A
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Explanation:

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

ECOLOGICAL INFORMATION SUMMARY

The Switzerland County listing of the Indiana Natural Heritage Data Center information on endangered, threatened, or rare (ETR) species and high quality natural communities is attached with ETR species highlighted. A preliminary review of the Indiana Natural Heritage Database by INDOT ESD did indicate the presence of ETR species within the 0.5 mile search radius. Coordination with USFWS and IDNR will occur.

A review of the USFWS database did not indicate the presence of endangered bat species in or within 0.5 mile of the project area. The project is located in a rural area surrounded by agriculture fields. The June 18, 2018, inspection report for Culvert #250-078-51.30 states that no evidence of bats was seen or heard in the culvert; however, since the report is >2 years old, additional investigation to confirm the presence or absence of bats in the culvert will be necessary. The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects".

RECOMMENDATIONS SECTION

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

INFRASTRUCTURE: N/A

WATER RESOURCES:

The presence of the following water resources will require the preparation of a Waters of the US Report and coordination with INDOT ESD Ecology and Waterway Permitting:

- Three (3) stream segments associated with Bear Branch are located within and adjacent to the project area.
- One (1) wetland is located within the project area.

IDEM 303d Listed Streams and Lakes (Impaired): Bear Branch are located within and adjacent to the project area. Bear Branch is listed as impaired for IBC and *E. coli*. Concerning IBC, BMPs will be used to avoid further degradation to the stream. Workers who are working in or near water with *E. coli* should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

URBANIZED AREA BOUNDARY: N/A

MINING/MINERAL EXPLORATION: N/A

HAZARDOUS MATERIAL CONCERNS: N/A

ECOLOGICAL INFORMATION: Coordination with USFWS and IDNR will occur. Additional investigation to confirm the presence or absence of bats in the culvert will be necessary. The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects".

INDOT ESD concurrence: Nicole Fohey Breting (Signature)
Digitally signed by Nicole Fohey-Breting
Date: 2020.12.12 13:24:52 -05'00'

Prepared by:
Victoria Veach
Ecologist
Green 3, LLC

Graphics:

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

SITE LOCATION: YES

INFRASTRUCTURE: YES

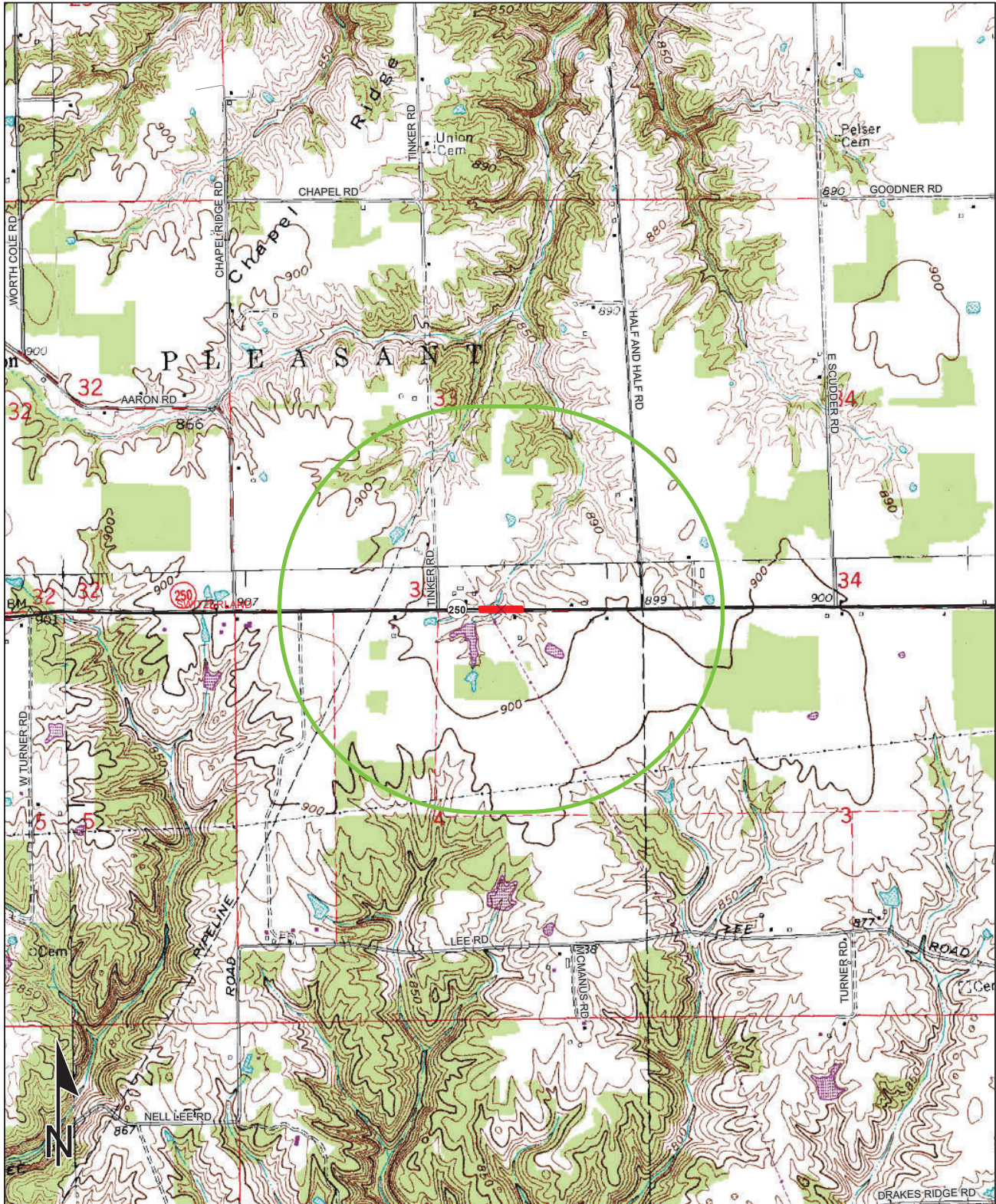
WATER RESOURCES: YES

URBANIZED AREA BOUNDARY: N/A

MINING/MINERAL EXPLORATION: N/A

HAZARDOUS MATERIAL CONCERNS: N/A

Red Flag Investigation - Site Location
 SR 250, 4.61 miles East of SR 129
 Des. No. 1800269, Small Structure Project
 Switzerland County, Indiana



Sources: 0.3 0.15 0 0.3 Miles
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83
 This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

VEVAY NORTH QUADRANGLE
 INDIANA
 7.5 MINUTE SERIES
 (TOPOGRAPHIC)

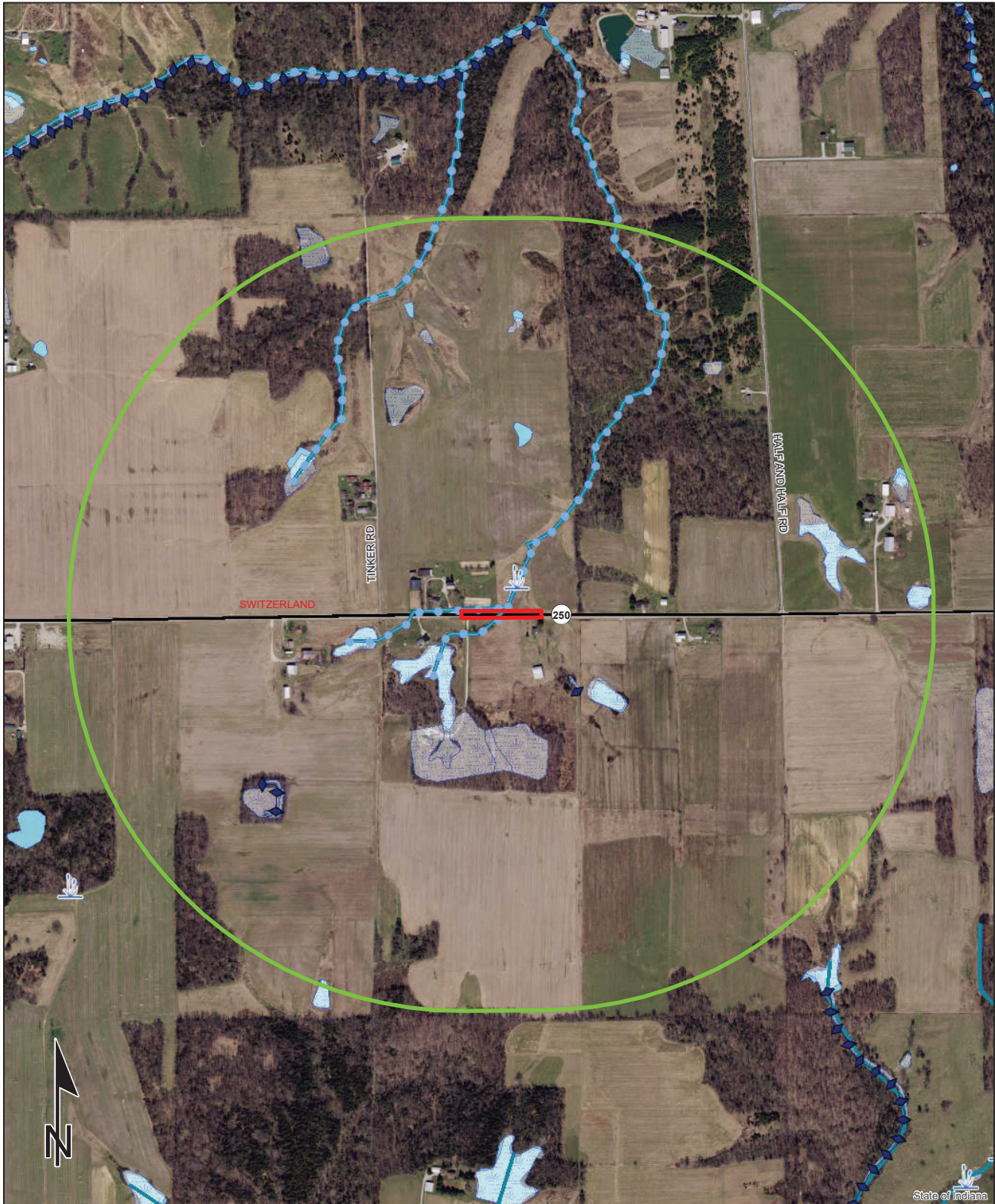
Red Flag Investigation - Infrastructure
 SR 250, 4.61 Miles East of SR 129
 Des. No. 1800269, Small Structure Project
 Switzerland County, Indiana



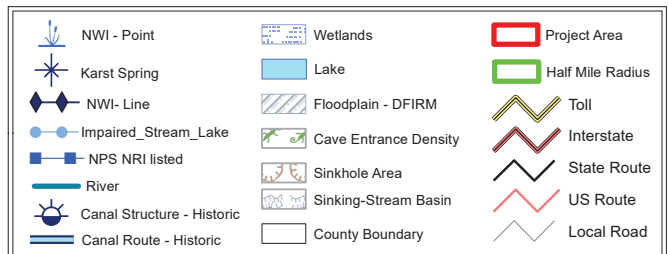
Sources: 0.15 0.075 0 0.15 Miles
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83
 This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

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

Red Flag Investigation - Water Resources
 SR 250, 4.61 Miles East of SR 129
 Des. No. 1800269, Small Structure Project
 Switzerland County, Indiana



Sources: 0.15 0.075 0 0.15 Miles
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83
 This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.



Indiana County Endangered, Threatened and Rare Species List
County: Switzerland



Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
<i>Ligumia recta</i>	Black Sandshell		SSC	G4G5	S2
<i>Plethobasus cyphus</i>	Sheepnose	LE	SE	G3	S1
<i>Pleurobema cordatum</i>	Ohio Pigtoe		SSC	G4	S2
Insect: Odonata (Dragonflies & Damselflies)					
<i>Stylurus notatus</i>	Elusive Clubtail		SE	G3	S1
Amphibian					
<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender	C	SE	G3T2	S1
Bird					
<i>Ammodramus henslowii</i>	Henslow's Sparrow		SE	G4	S3B
<i>Buteo platypterus</i>	Broad-winged Hawk		SSC	G5	S3B
<i>Circus hudsonius</i>	Northern Harrier		SE	G5	S2
<i>Falco peregrinus</i>	Peregrine Falcon		SSC	G4	S2B
<i>Haliaeetus leucocephalus</i>	Bald Eagle		SSC	G5	S2
<i>Helmitheros vermivorus</i>	Worm-eating Warbler		SSC	G5	S3B
<i>Tyto alba</i>	Barn Owl		SE	G5	S2
Vascular Plant					
<i>Azolla caroliniana</i>	Carolina mosquito-fern		ST	G5	S3
<i>Baptisia australis</i>	wild false indigo		ST	G5	S3
<i>Chaerophyllum shortii</i>	wild chervil		ST	G5T3T4Q	S2
<i>Linum striatum</i>	ridged yellow flax		WL	G5	S3
<i>Ludwigia decurrens</i>	primrose willow		WL	G5	S3
<i>Penstemon canescens</i>	gray beardtongue		SE	G4	S1
<i>Sida hermaphrodita</i>	Virginia mallow		SE	G3	S1
<i>Valerianella chenopodiifolia</i>	goose-foot corn-salad		WL	G4	S3
Other Significant Feature					
<i>Freshwater Mussel Concentration Area</i>	Mussel Bed		SG	G3	SNR

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting
State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list
GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long-term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank
SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long-term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Des 1800269
Appendix G
Public Involvement



Sample Notice of Entry Letter

Strand Associates, Inc.[®]
629 Washington Street
Columbus, IN 47201
(P) 812-372-9911

NOTICE OF SURVEY

October 25, 2019

[Redacted]
[Redacted]
[Redacted]

Re: Location Control Route Survey for the Indiana Department of Transportation
S.R. 250 over UNT Bear Creek Small Structure Replacement
Switzerland County, Indiana
Des. No. 1800289

Dear Property Owner:

Strand Associates, Inc.[®] (Strand) information indicates that property is occupied or owned by you near this proposed small structure replacement project. Strand employees will conduct a survey of the project area in the near future. It may be necessary for Strand to come onto your property to complete this work. This is allowed by law as stated in Indiana Code IC 8-23-7-26. Strand will show you their identification, if you are available, before coming onto your property. If you have sold this property, or it is occupied by someone else, please provide any known name and address changes of the new owner or current occupant so that Strand may contact them about the survey.

The survey work will include mapping the location of features such as trees, buildings, fences, driveways, sidewalks, and utilities within our project limits. The survey is needed for proper planning and design of this small structure replacement project. Please be assured of our sincere desire to cause you as little inconvenience as possible during this survey.

At this stage, Strand generally does not know what affect, if any, this project may eventually have on your property. If it is determined at a later time that your property will be affected, you will be contacted with additional information. If any problems occur, please contact Strand's field crew or me at (812) 372-9911 or write to the address provided above. Thank you for your cooperation.

Sincerely,

STRAND ASSOCIATES, INC.[®]

A handwritten signature in black ink, appearing to read 'Jacob E. Fitzsimmons', written over a horizontal line.

Jacob E. Fitzsimmons, P.L.S.

Des 1800269
Appendix F
Water Resources



Li Kang 05/24/2021

**Waters Report
SR 250 over UNT to Bear Branch
Switzerland County, Indiana
Small Structure Project, CV 250-078-51.30
Des. No. 1800269**

Report Completed on: May 20, 2021

Prepared for:
Strand Associates, Inc.

Prepared By:
Victoria Veach
SJCA Inc.

9102 N Meridian St, Suite 200
Indianapolis, IN 46260

p. 317.634.4110

f. 866.422.2046

e. vveach@sjcainc.com



Site Location:

Section 33, Township 4 North, Range 3 West
Section 4, Township 3 North, Range 3 West
Vevay North 1:24,000 Quadrangle
Switzerland County, Indiana
Bear Creek Sub-watershed, 12-Digit HUC: 050902030602
Latitude 38.873458, Longitude -85.104978

Field Investigation Dates: September 3, 2020 and April 16, 2021*

*The April 16, 2021 site visit was required to obtain additional photos to better show the stream bed and bank of the identified stream features, to confirm the ordinary high water mark measurement, and to take additional sample points of a suspected wetland located within the area where right-of-way will be acquired. The site was overgrown with vegetation during the September 3, 2020 site visit, making it difficult to see the bed and bank in the site photos.

Project Description:

Des 1800269 involves the replacement of the existing culvert (CV 250-078-51.30), which carries an unnamed tributary (UNT) to Bear Branch under SR 250 in Switzerland County, Indiana. The existing culvert is a temporary structure placed following the failure of the original structure and consists of two 36-inch diameter corrugated metal pipes. The original structure was a 4-foot by 3.2-foot three-sided concrete structure with a length of approximately 30 feet. The proposed project will replace the existing temporary structure with a 5-foot by 4-foot reinforced concrete box with a length of approximately 68 feet. Wing walls will be constructed at the inlet and outlet of the structure. The existing guardrails in the project area may be replaced and extended. Ditch grading may occur on the north and south side of the roadway.

Methodology:

The delineation of wetlands and other “waters of 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: Midwest Region (Environmental Laboratory, 2012)* as required by current U.S. Army Corps of Engineers (USACE) policy.

Prior to the field work, background information, including US Geological Survey (USGS) topographic maps, aerial photographs, the U.S. USGS National Hydrography Dataset (NHD) layer on the Indiana Geological Society’s (IGS) IndianaMap website, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and the Natural Resources Conservation Service (NRCS) Web Soil Survey for Switzerland 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 within the investigated area is generally flat. The larger landscape is characterized by rolling hills, and one small hill and associated depressional area is located in the northeast quadrant of the investigated area.
- **Existing Land-Use:** The investigated area is located in a rural area characterized by rolling hills and cultivated land. The northern part of the investigated area appears to be unmaintained. The southern part of the investigated area is maintained lawn.
- **Plant Communities:** Vegetation on the south side of SR 250 was characterized as maintained lawn and dominated by common lawn grasses. On the north side of SR 250, vegetation was characterized by red fescue (*Festuca rubra*, FACU), smooth brome (*Bromus inermis*, FACU), Canada goldenrod (*Solidago altissima*, FACU), annual ragweed (*Ambrosia artemisiifolia*, FACU), giant ragweed (*Ambrosia trifida*, FAC), Canada thistle (*Cirsium arvense*, FACU), and Autumn olive (*Elaeagnus umbellata*, NI). Vegetation along the roadsides was dominated by tall fescue (*Schedonorus arundinaceus*, FACU) and red fescue.
- **Soils:** According to the Switzerland County Soil Survey, soils mapped within the investigated area include:

Table 1. Soil Types Within the Investigated Area

Soil Name	Map Abbreviation	Hydric Range
Cincinnati silt loam, 2-6% slopes, eroded	CnB2	0
Weisburg silt loam, 6-12 percent slopes, eroded	WgC2	0

- **Hydrology:** According to the Indiana Department of Natural Resources (IDNR) Best Available Flood Hazard Layer (see attached Floodplain Map), the project area is not mapped within a floodplain. Based on the National Hydrography Dataset (NHD) (see attached NWI and NHD Flowlines Map), two (2) stream flowline segments are present in the investigated area. One (1) stream flowline segment is associated with UNT to Bear Creek and is mapped flowing through the project area. One (1) stream flowline segment is mapped on along the north side of SR 250 in the northwest quadrant of the structure.
- **NWI Data:** According to the NWI map, no wetlands are mapped within the investigated area.
- **Site Conditions:** Site conditions were typical for late summer during the September 2020 site visit and were typical of early spring during the April 2021 site visit. According to Weather Underground (www.wunderground.com), the area received approximately 0.93 inches of rain during the five days prior to the September 2020 site visit and approximately 0.56 inches of rain during the five days prior to the April 2021 site visit.

Findings

Soil Sample Points (SP)

Table 2. Sample Point Summary Table

Data Point	Photos	Hydrophytic Vegetation	Hydric Soil	Wetland Hydrology	Wetland	Date
SP 1	19-22	Yes	Yes	Yes	Yes	4/16/21
SP 2	25-28	No	No	No	No	4/16/21

Site Analysis

The investigated area included roadside right-of-way, maintained lawn, and an uncultivated area of rolling hills and associated depressions. Hydrology within the investigated area is influenced by roadway runoff and drainage from the landscape. The investigated area is located within the Bear Creek subwatershed. According to the NWI map and USGS topographic map, there are no wetlands mapped within or adjacent to the investigated area. Two (2) streams are mapped within the investigated area. The presence of the two (2) streams, both unnamed tributaries (UNT) to Bear Branch, was confirmed during the site visit. One (1) wetland, **Wetland 1**, was identified during the site visit.

Sample Point 1 (SP 1) was taken in a suspected wetland in a depressional area northeast of the structure. SP 1 was dominated by narrow leaf cattail (*Typha angustifolia*, OBL) in the herb stratum. This plant community passed the Rapid Test for hydrophytic vegetation. Soils at SP 1 were 10 YR 4/2 (70%) with redox concentrations of 5 YR 3/4 (30%) in the matrix from 0-10 inches and 10 YR 4/1 (95%) with redox concentrations of 10 YR 3/3 (5%) in the matrix from 10-16 inches. Soil texture was silt loam from 0-10 inches and clay loam from 10-16 inches. SP 1 met the Depleted Matrix (F3) and Redox Depressions (F8) indicators for hydric soil. The primary wetland hydrology indicator Saturation (A3) and the secondary indicators Crayfish Burrows (C8), Geomorphic Position (D2), and the FAC-Neutral Test (D5) were observed at SP 1. Hydrophytic vegetation, hydric soil, and wetland hydrology were observed at SP 1; therefore, SP 1 is within a wetland. **Wetland 1** is an emergent wetland located adjacent to UNT 1 to Bear Branch northeast of the project structure. Wetland 1 does not provide habitat for aquatic flora and fauna and is dominated by a monoculture of narrow leaf cattail, an invasive species; therefore, it was determined that Wetland 1 is poor quality. Wetland 1 extends beyond the investigated area. Approximately 0.01 acre of Wetland 1 is within the investigated area. Photos of SP 1 can be seen in photos 19-22 in the attached photo key. Wetland 1 receives runoff from the surrounding hills and is likely inundated with water during high water or flood events at UNT 1 to Bear Branch. Wetland 1 drains into UNT 1 to Bear Branch, which drains to Bear Branch, which drains into Bear Creek, which drains into Laughery Creek, which drains into the Ohio River, a traditionally navigable waterway, approximately 16.5 miles northeast of the investigated area. Wetland 1 directly abuts UNT 1 to Bear Branch, a paragraph (a)(1)-(3) water; therefore, it is likely a Waters of the US. Photos of Wetland 1 can be found in photos 18, 21-24, and 27 in the attached photo key.

Sample Point 2 (SP 2) was taken southwest of SP 1 outside of the depressional area adjacent to the stream. Vegetation at SP 2 was dominated by Autumn olive (*Elaeagnus umbellata*, NI) in the sapling/shrub stratum and red fescue (*Festuca rubra*, FACU) in the herb stratum. This vegetative community did not meet any indicators for hydric vegetation. Soils at SP 2 were 10 YR 3/4 (100%) from 0-7 inches, 10 YR 4/4 (90%) with redox concentrations of 10 YR 3/6 (10%) in the matrix from 7-14 inches, and 10 YR 4/1 (60%) with redox concentrations of 10 YR 3/6 (38%) in the matrix and 5 YR 3/4 (2%) in the pore linings. Soil texture was silt loam from 0-7 inches and clay loam from 7-16 inches. This soil did not meet any indicators for hydric soil. No wetland hydrology indicators were observed at SP 2. This sample point did not meet the criteria for hydrophytic vegetation, hydric soil, or wetland hydrology; therefore SP 2 is not within a wetland. Photos of SP 2 can be seen in photos 25-28 in the attached photo key.

Table 3. Wetland Summary Table

Wetland Name	Photos	Lat/Long	Type	Total Area in Investigated Area	Quality	Likely Water of US?
Wetland 1	18, 21-24, 27	38.873622/ -85.104710	Emergent	0.01 acre	Poor	Yes

Streams

Two streams, **UNT 1 to Bear Branch** and **UNT 2 to Bear Branch**, were observed within the investigated area during the site visit.

Table 4. Stream Summary Table

Stream Name	Photos	Lat/Long	OHWB Width (ft)	OHWB Depth (ft)	USGS Blue-line?	Riffles? Pools?	Substrate	Quality	Length of Stream in Investigated Area	Likely Water of U.S.?
UNT 1 to Bear Branch	5-9, 14-18	38.873458/ -85.104978	4.5 feet	1 foot	Yes, intermittent	No	Silt and Cobble	Average	165 feet	Yes
UNT 2 to Bear Branch	12-13	38.873519/ -85.105236	1 foot	0.5 feet	Yes, ephemeral	No	Silt	Poor	250 feet	Yes

UNT 1 to Bear Branch flows from south to north under SR 250. UNT 1 to Bear Branch is shown as a dashed blue line feature on the USGS topographic map, as a stream with the classification R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded) on the NWI map, and as a stream path on the NHD map. UNT 1 to Bear Branch exhibited a bankfull width of approximately 6 feet wide. The ordinary high water mark (OHWM) is approximately 4.5 feet wide and 1 foot deep. The OHWM measurements were taken both upstream and downstream and outside of the influence of the structure, and the measurement was 4.5 feet wide and 1 foot deep on the upstream and downstream side. The substrate of UNT 1 to Bear Branch consisted of silt and cobble. The banks of UNT 1 to Bear Branch were vegetated and provided moderate instream cover. UNT 1 to Bear Branch exhibited moderate erosion within the investigated area. No riffle/run complexes were observed. Based on these qualities, UNT 1 to Bear Branch is average quality. The USGS *Indiana StreamStats* upstream drainage area at the project structure

is approximately 0.139 square miles. Photos of UNT 1 to Bear Branch can be seen in photos 5-9 and 14-18 in the attached photo log. UNT 1 to Bear Branch drains to Bear Branch, which drains to Bear Creek, which flows into Laughery Creek, which flows into the Ohio River, a traditionally navigable waterway, approximately 16.5 miles northeast of the investigated area. Due to its intermittent flow conditions and connectivity to a traditionally navigable waterway, UNT 1 to Bear Branch is likely a Water of the U.S. and jurisdictional under the USACE.

UNT 2 to Bear Branch flows from west to east on the north side of SR 250 west of the project culvert. UNT 2 to Bear Branch is shown as a dashed blue line feature on the USGS topographic map, as a stream with the classification R4SBC on the NWI map, and as a stream path on the NHD map. UNT 2 to Bear Branch exhibited an average OHWM of approximately 1 foot wide and 6 inches deep. The substrate of UNT 2 to Bear Branch consisted of silt. The banks of UNT 2 to Bear Branch were vegetated with the common roadside grasses tall fescue (*Schedonorus arundinaceus*) and red fescue (*Festuca rubra*). No riffle/run complexes were observed. Based on these qualities, UNT 2 to Bear Branch is poor quality. UNT 2 to Bear Branch is not indicated on the USGS *Indiana StreamStats*, but its location is included in the upstream drainage area of UNT 1 to Bear Branch. The upstream drainage area of UNT 2 to Bear Branch is assumed to be less than that indicated for UNT 1 to Bear Branch. Photos of UNT 2 to Bear Branch can be seen in photos 12-13 in the attached photo log. UNT 2 to Bear Branch carries roadside drainage as well as drainage from a pond located approximately 0.15 mile southwest of the project culvert and drains to UNT 1 to Bear Branch. No water was observed in UNT 2 to Bear Branch during the September 3, 2020 or April 16, 2021 site visit. Based on the field observation, it was determined that UNT 2 to Bear Branch is an ephemeral stream feature. INDOT acknowledges that UNT 2 to Bear Branch would likely not meet the definition of a Waters of the US. However, INDOT is requesting that the USACE take jurisdiction of UNT 2 to Bear Branch.

Open Water

No open water features were identified within or adjacent to the investigated area during the desktop review of the site and none were identified during the site visit.

Other Features:

The investigated area was assessed for the presence of other water features. Other water features include roadside ditches, areas of concentrated flow, or other unusual drainage features. No other features were identified during the site visit.

Conclusions:

The site investigation identified two streams and one wetland within the investigated area. Wetland 1 is located in a depressional area northeast of the structure outlet. UNT 1 to Bear Branch flows through the project structure, and UNT 2 to Bear Branch is located on the north side of SR 250 west of the project structure. UNT 1 to Bear Branch is likely a Water of the US due to its intermittent flow conditions and connectivity to the Ohio River approximately 16.5 miles northeast of the investigated area. Wetland 1 is likely a Water of the US due to its proximity and connectivity to UNT 1 to Bear Branch. UNT 2 to Bear Branch was determined to be an ephemeral roadside drainage feature. INDOT acknowledges that UNT 2 to Bear Branch would likely not meet the definition of a Waters of the US. However, INDOT is requesting that the USACE take jurisdiction of UNT 2 to Bear Branch. Every effort should be taken to avoid and



minimize impacts to these features. If impacts are necessary, then mitigation may be required. The final determination of jurisdictional features is ultimately made by the appropriate regulatory staff of the US Army Corps of Engineers. This report is our best judgement based on the guidelines set forth by the USACE.

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.

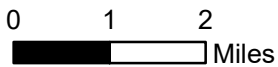
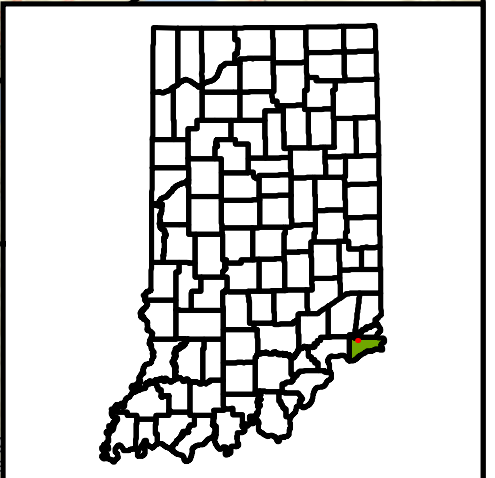
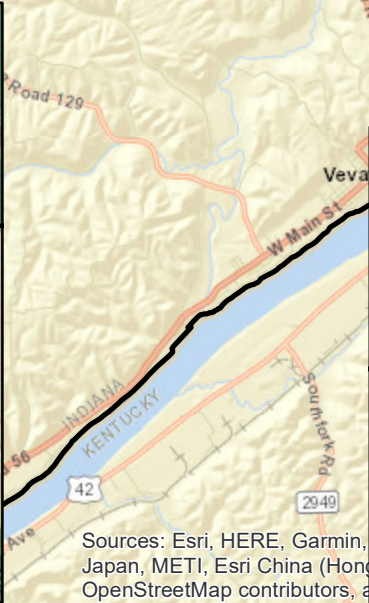
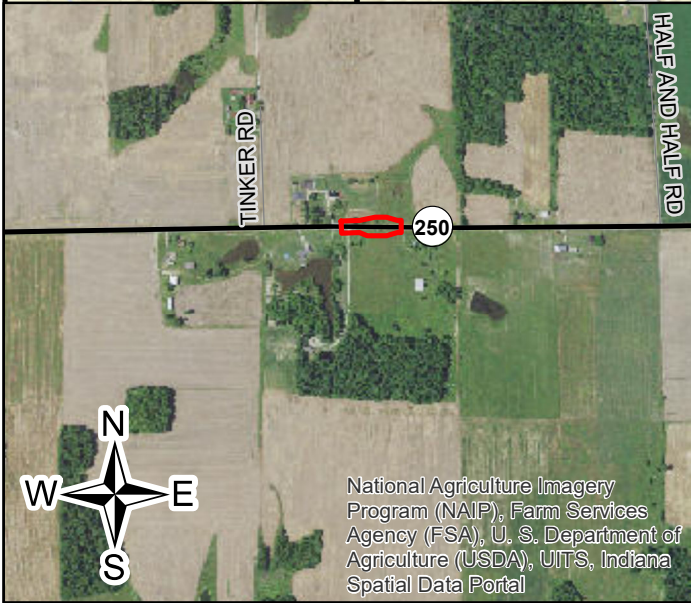
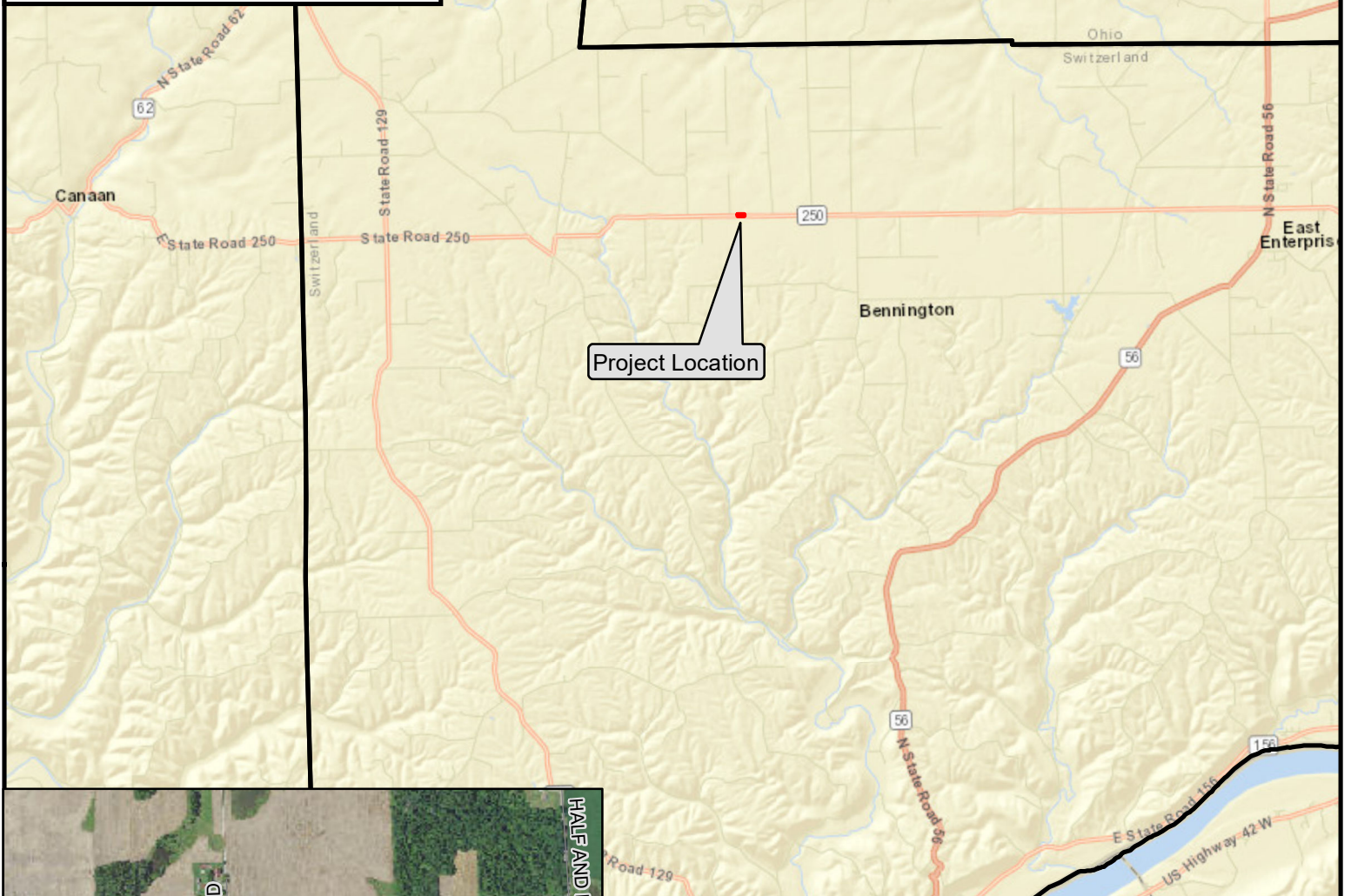
Victoria Veach

Ecologist
SJCA Inc
Date: May 20, 2020

Attached Documents:

- Maps (Project Location, Topographic, Aerial Imagery, NWI and NHD Map, Floodplain Map, Soil Series Map, Watershed Map, Water Resources Map)
- Photographs and Photograph Location and Orientation Map
- Pre-Jurisdictional Determination form

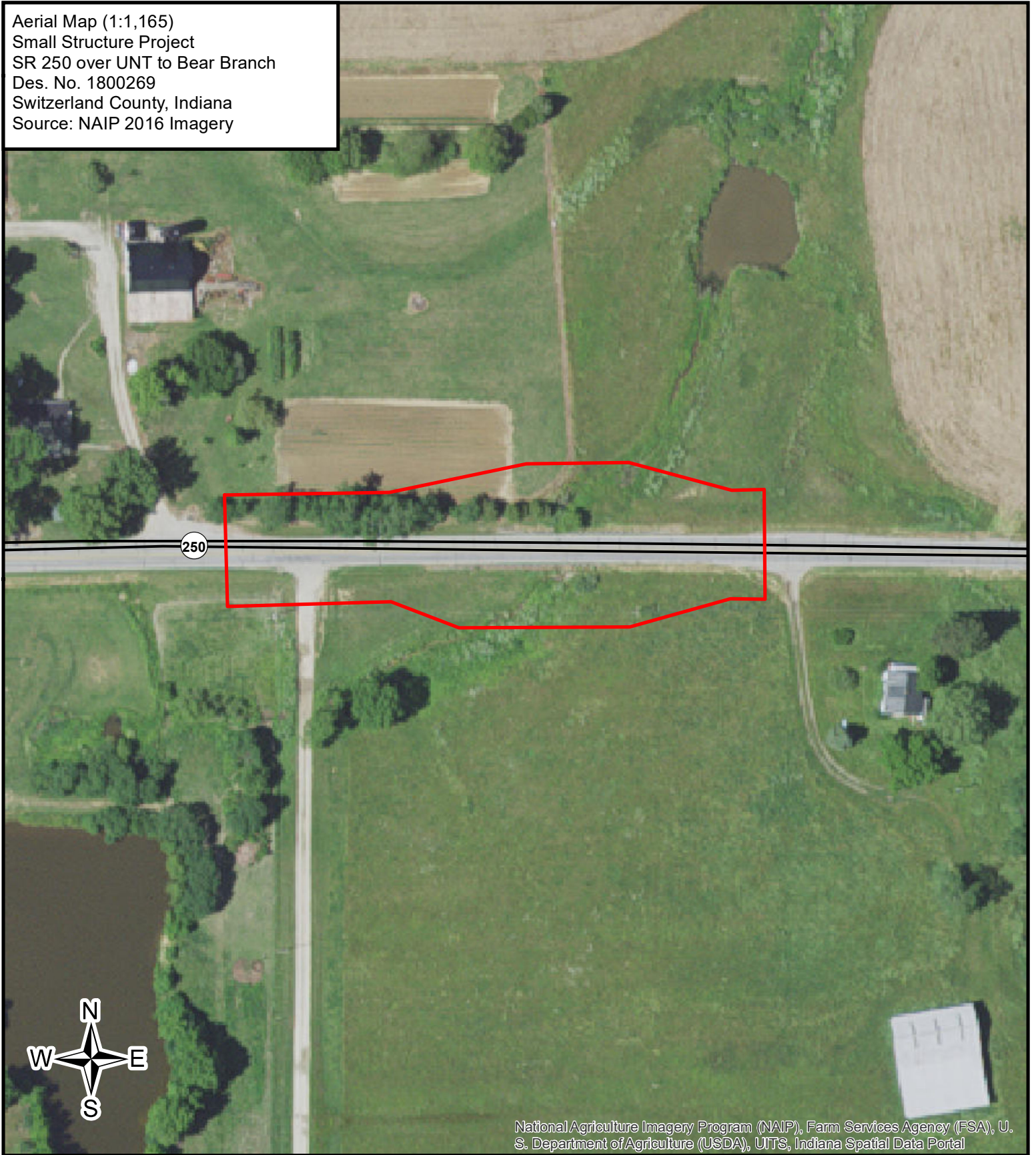
Project Location Map (1:7,701,065)
 Small Structure Project
 SR 250 over UNT to Bear Branch
 Des. No. 1800269
 Switzerland County, Indiana
 Source: Indiana Geological Survey



- Investigated Area
- County Boundary
- Project County



Aerial Map (1:1,165)
Small Structure Project
SR 250 over UNT to Bear Branch
Des. No. 1800269
Switzerland County, Indiana
Source: NAIP 2016 Imagery



National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal

0 60 120
Feet

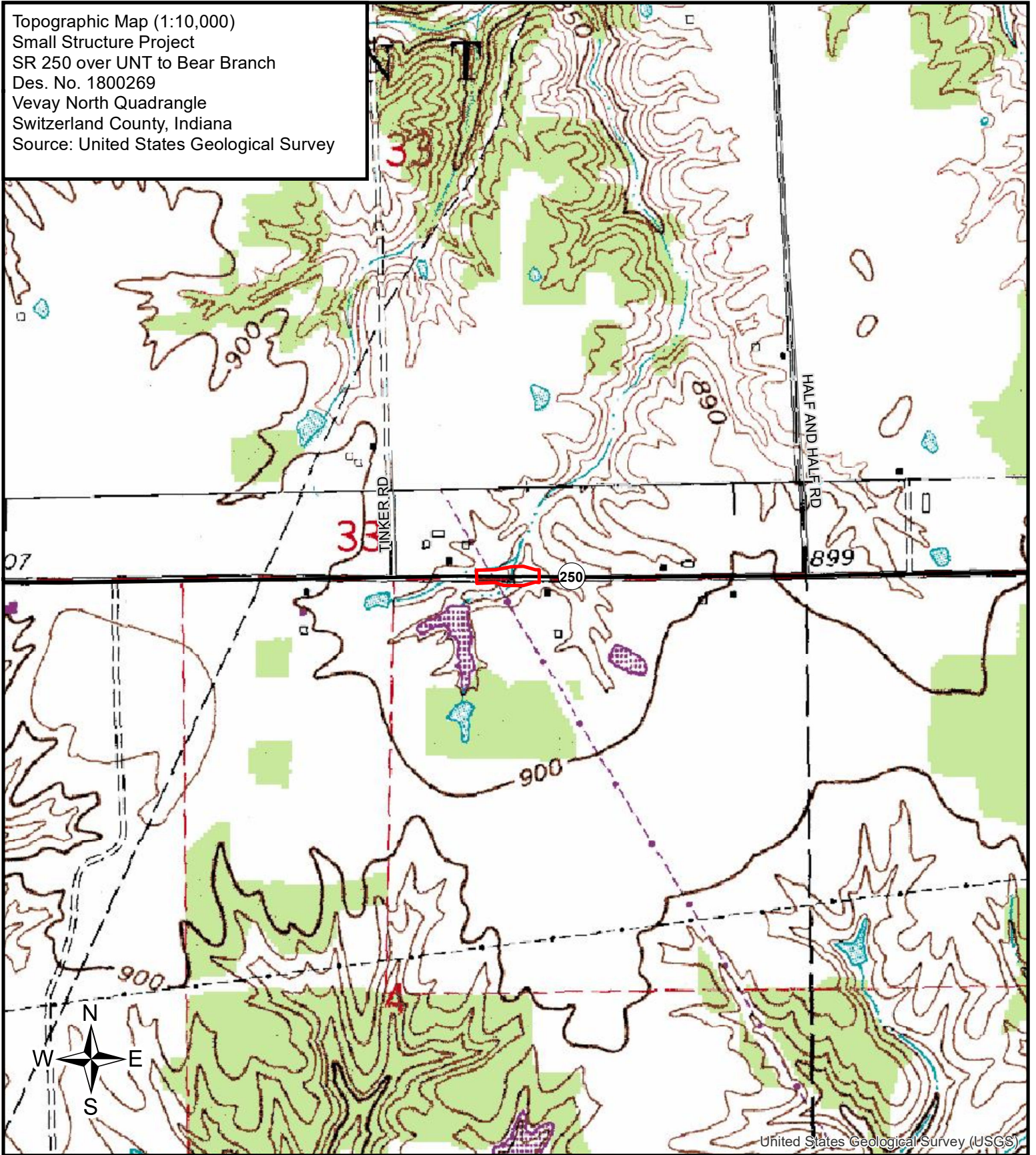
 Investigated Area



4/23/2021

F9

Topographic Map (1:10,000)
Small Structure Project
SR 250 over UNT to Bear Branch
Des. No. 1800269
Vevay North Quadrangle
Switzerland County, Indiana
Source: United States Geological Survey



0 590 1,180
Feet

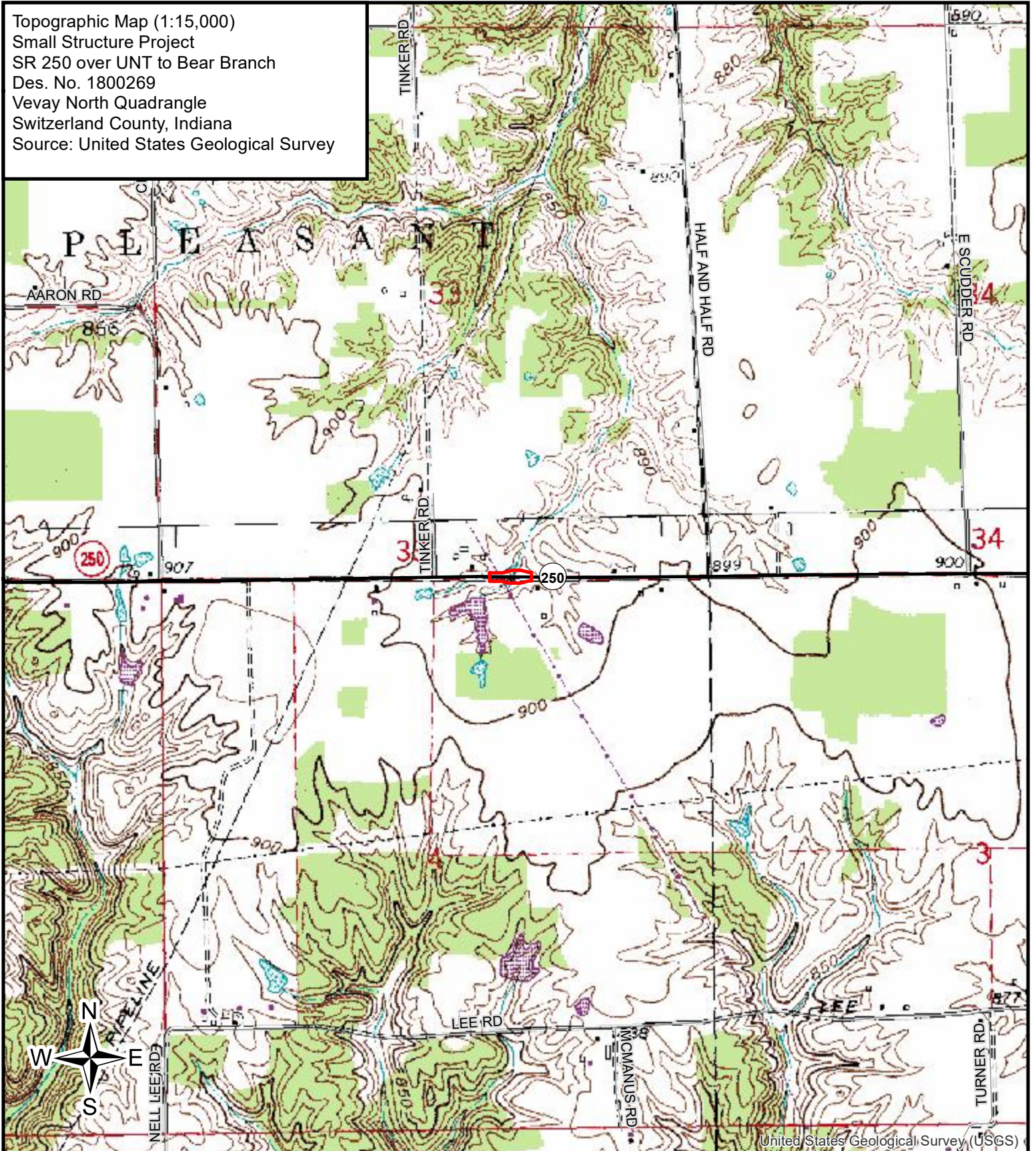
 Investigated Area



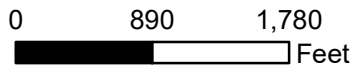
4/23/2021

F10

Topographic Map (1:15,000)
Small Structure Project
SR 250 over UNT to Bear Branch
Des. No. 1800269
Vevay North Quadrangle
Switzerland County, Indiana
Source: United States Geological Survey



United States Geological Survey (USGS)



 Investigated Area



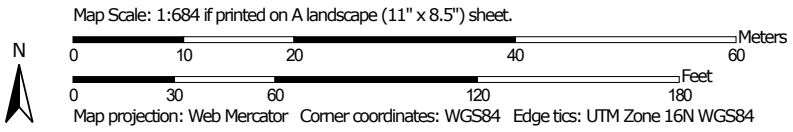
4/23/2021

F11

Soil Map
 Small Structure Project
 Des 1800269
 Switzerland County, Indiana




Soil Map may not be valid at this scale.









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

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: Switzerland County, Indiana
Survey Area Data: Version 24, Jun 11, 2020

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

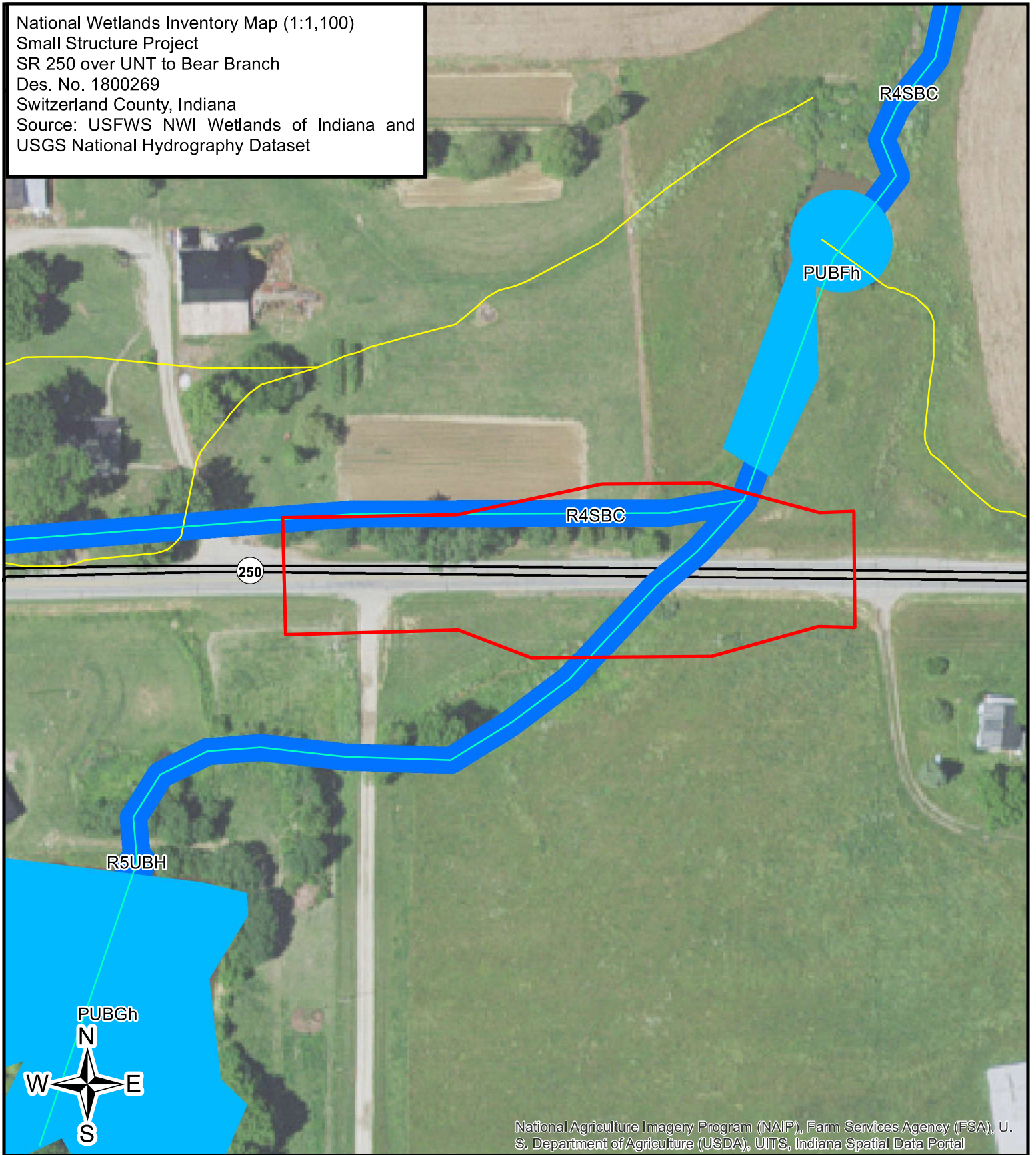
Date(s) aerial images were photographed: Apr 17, 2019—Jun 28, 2019

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.

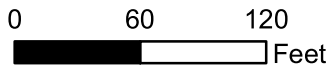
Hydric Rating by Map Unit










Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CnB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	0	0.1	15.5%
WgC2	Weisburg silt loam, 6 to 12 percent slopes, eroded	0	0.8	84.5%
Totals for Area of Interest			1.0	100.0%

National Wetlands Inventory Map (1:1,100)
 Small Structure Project
 SR 250 over UNT to Bear Branch
 Des. No. 1800269
 Switzerland County, Indiana
 Source: USFWS NWI Wetlands of Indiana and
 USGS National Hydrography Dataset



National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal



- | | | | |
|---|-----------------------------------|---|-----------------|
|  | Investigated Area |  | Freshwater Pond |
|  | NHD Flowline |  | Lake |
|  | NHD Unclassified Flowline |  | Riverine |
|  | Freshwater Emergent Wetland |  | Other |
|  | Freshwater Forested/Shrub Wetland | | |

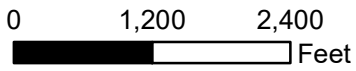
4/25/2021



Floodplain Map (1:20,000)
 Small Structure Project
 SR 250 over UNT to Bear Branch
 Des. No. 1800269
 Switzerland County, Indiana
 Source: IDNR Best Available Flood Hazard Layer



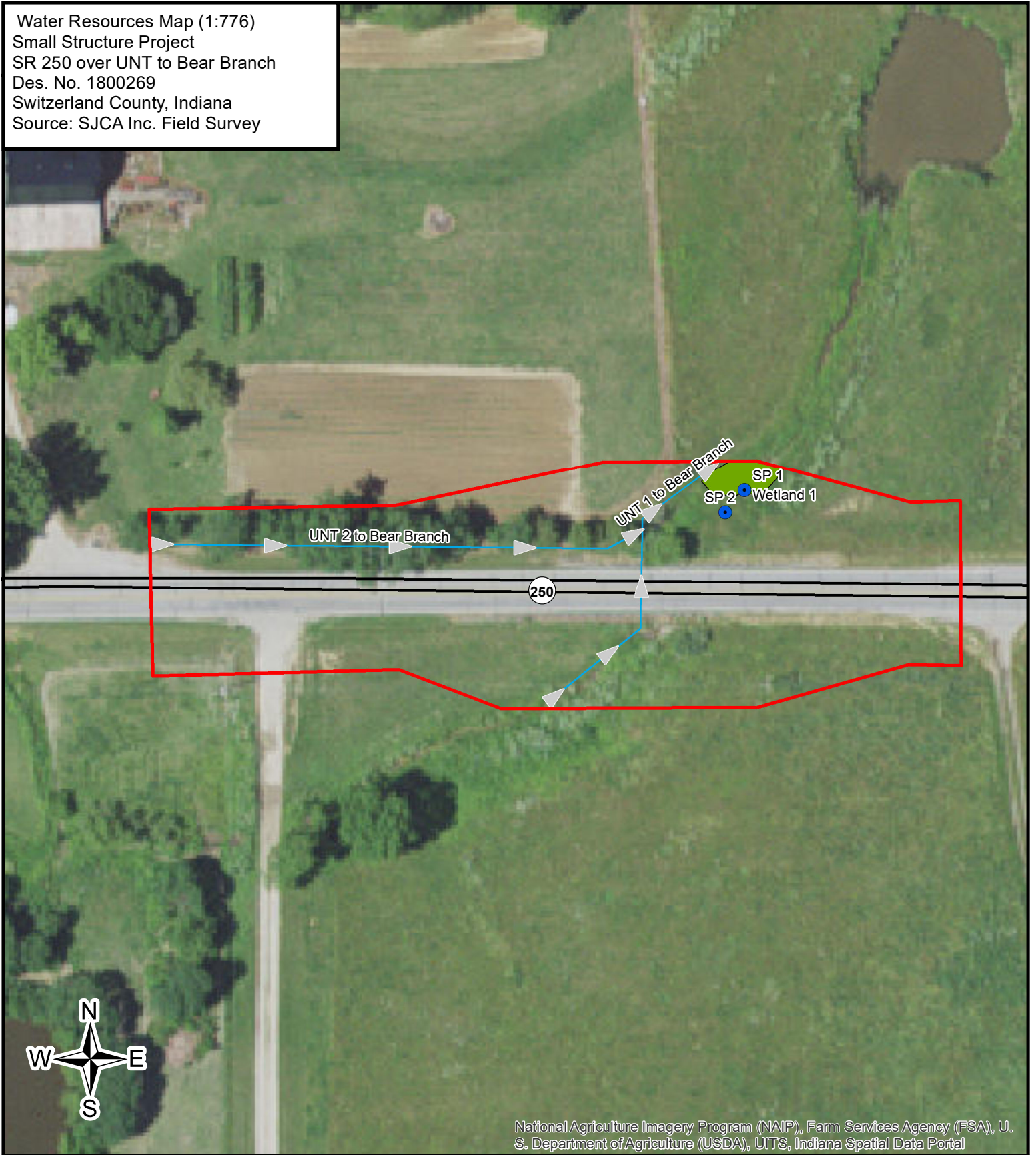
Indiana Department of Natural Resources, Division of Water, National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal



- Investigated Area
- DNR Approximate Floodway



Water Resources Map (1:776)
 Small Structure Project
 SR 250 over UNT to Bear Branch
 Des. No. 1800269
 Switzerland County, Indiana
 Source: SJCA Inc. Field Survey



National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal

0 40 80
 Feet

- Investigated Area
- Forested
- Scrub-Shrub
- Emergent
- Sample Point
- Stream Line



4/23/2021

F17