

## DEPARTMENT OF THE ARMY PERMIT

**Permittee:** Indiana Department of Transportation

**Permit Number:** LRL-2012-223-sjk

**Issuing Office:** U.S. Army Engineer District, Louisville

**NOTE:** The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Description:** Discharge of fill material (including clean, earthen fill, concrete, and limestone riprap) within sixteen streams, thirteen adjacent wetlands, and five jurisdictional ponds for the construction of the U.S. Highway 50 western bypass around North Vernon. A total of 8,000 cubic yards of clean fill material would be discharged into 2,317 linear feet (lf) of ephemeral stream, 888 lf of intermittent stream, 260 lf of perennial stream, 0.83 acre of emergent wetland, 0.56 acre forested wetland, and 2.51 acres of pond. A total of ten crossings would be constructed within "waters of the United States," and several streams would be relocated into constructed roadside ditches so the flow may be directed to one of the crossings. If the streams are flowing at the time of construction, the contractor may install temporary dewatering dike and pump around systems to prevent downstream sedimentation.

**Project Location:** The project begins on U.S. Highway 50 near County Road 400 West and ends at State Road 3 just south of County Road 350 North in North Vernon, Jennings County, Indiana.

### **Permit Conditions:**

#### **General Conditions:**

1. The time limit for completing the authorized activity ends on **August 3, 2014**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

**Special Conditions:**

1. The permittee shall provide off-site compensatory mitigation in accordance with the Mitigation and Monitoring Plan dated June 11, 2012.
2. Mitigation shall consist of the creation and enhancement of 6.25 acres of forested wetland, 0.16 acre of open water, preservation of existing 0.16 acre of open water, and the creation of 3,465 linear feet of forested riparian corridor along both sides of two ephemeral, one intermittent, and one perennial stream.
3. The permittee shall monitor the off-site stream mitigation sites (Goecker and Harrell) annually for a period of five years and monitor the off-site wetland mitigation site (Stidam) annually for a period of 10 years. The permittee shall submit monitoring reports to the U.S. Army Corps of Engineers, Indianapolis Regulatory Office by December 31 of each reporting year (years 1-5 for stream mitigation, and years 1,2,4,6,8,10 for wetland mitigation).
4. The permittee shall permanently protect the entire mitigation areas through the implementation of the Corps approved deed restriction. A draft copy of the deed restrictions for the mitigation sites shall be submitted within 90 days of the issuance of this DA permit. A signed and recorded copy of the deed restrictions shall be submitted within 30 days following notification from the Corps to record the final deed restrictions. The Corps shall be notified in writing prior to the transfer of the mitigation site(s) to another entity or individual. Permanent protection shall transfer with the properties.
5. The permittee's responsibility to complete the required compensatory mitigation as set forth in the above listed special conditions shall not be considered fulfilled until they have demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers.
6. Avoid tree clearing in the forested area associated with perennial stream T1-S8 (located at Line B, Station 308 on the construction plan sheets) between April 1 and September 30.

**Further Information:**

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:
  - ( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
  - (X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
  - ( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
  - a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
  - b. This permit does not grant any property rights or exclusive privileges.
  - c. This permit does not authorize any injury to the property or rights of others.
  - d. This permit does not authorize interference with any existing or proposed Federal project.

3. **Limits of Federal Liability.** In issuing this permit, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. **Reliance on Applicant's Data.** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. **Extensions.** General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Thomas J. Warner \_\_\_\_\_ 8/3/2012  
(PERMITTEE) (DATE)

Thomas J. Warner

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

For: \_\_\_\_\_

LUKE T. LEONARD  
COLONEL, CORPS OF ENGINEERS  
(COMMANDER AND DISTRICT ENGINEER)

(DATE) 8/3/2012

Labin Lindley \_\_\_\_\_  
BY: Labin Lindley  
Team Leader  
Indianapolis Regulatory Office

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
(TRANSFeree) (DATE)

**MEMORANDUM FOR RECORD**

**SUBJECT:** Department of the Army (DA) Environmental Assessment and Statement of Finding for Above-Numbered Permit Application

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, Public Interest Review, and Statement of Findings.

1. Application as described in the public notice.

**APPLICANT:** Indiana Department of Transportation

**WATERWAY & LOCATION:** Sixmile Creek, Twomile Creek, Indian Creek, their tributaries, and adjacent wetlands in Jennings County, Indiana.

**LATITUDE & LONGITUDE:** Latitude: 39.0093  
Longitude: -85.6637

**PROJECT PURPOSE:**

Basic: Construct a western highway bypass for the city of North Vernon.

Overall: Provide a new transportation corridor that would reduce congestion along U.S. Highway 50 and State Road 7 around the north and west sides of North Vernon, provide a safer transportation facility for both truck and passenger vehicles around the north and west sides of the city, provide an efficient transportation link between the existing and growing industrial area on the north side of the city to U.S. 50 west of North Vernon, and support state and local transportation planning.

Water Dependency Determination: Highway construction is not a water-dependent activity.

**PROPOSED WORK:** The applicant proposes the discharge of fill material (including clean, earthen fill, concrete, and limestone riprap) within sixteen streams, thirteen adjacent wetlands, and five jurisdictional ponds for the construction of a new highway. Since the Public Notice was issued, the applicant refined and clarified the construction limits of the project. This resulted in a net decrease in the discharge of fill material into "waters of the United States." A total of 8,000 cubic yards of clean fill material would be discharged into 2,317 linear feet (lf) of ephemeral stream, 888 lf of intermittent stream, 260 lf of perennial stream, 0.83 acre of emergent wetland, 0.56 acre forested wetland, and 2.51 acres of pond. A total of ten crossings would be constructed within "waters of the United States," and several streams would be relocated into constructed roadside ditches so the flow may be directed to one of the crossings. If the streams are flowing at the time of construction, the contractor may install temporary dewatering dike and pump around systems to prevent downstream sedimentation. The dikes would be constructed with non-erodible materials, and all temporary fills would be removed and the sites restored and stabilized upon

completion of construction. See attached “Wetland and Waterbody Impact and Mitigation Table” for specific impact descriptions and locations. The southern terminus of the project is on U.S. 50 near Jennings County Road 400 West, where the road will travel northeast and terminate at State Road 3 on the north side of North Vernon, just south of County Road 350 North.

Avoidance and Minimization Information: Impacts to streams and wetlands were unavoidable considering that the proposed project involves constructing a two-lane highway bypass on new alignment.

In an Environmental Assessment (EA) dated October 24, 2011, the applicant analyzed a total of 14 design alternatives divided amongst 3 segments (southern, middle, northern) of the project corridor and the “no-build” alternative. The preferred alternative (made up of a combination of alternatives S-2 Modified, M2, and N-6 Modified) avoids impacts to Waters of the United States to the maximum extent possible given other limiting factors described in the Alternatives Analysis section of this document.

The applicant has avoided impacts to over 0.68 acre of wetland, 1,610 lf of stream, and 0.25 acre of jurisdictional pond by reducing the construction limits and prohibiting work within the remaining right-of-way outside of the work area. Impacts to the remaining Waters of the United States were minimized to the greatest extent possible.

Compensatory Mitigation: Proposed off-site stream and wetland mitigation for unavoidable impacts is located within the same 8-digit watershed at three different sites. The compensatory mitigation plan dated June 11, 2012, proposes the following activities: at the Goecker site in Jackson County, forested riparian corridor would be created along both sides of 2,317 lf of ephemeral and 888 lf of intermittent stream. At the Harrell mitigation site in Jefferson County, 260 lf of forested riparian corridor would be created along both sides of a perennial stream. At the Stidam site in Jackson County, 6.25 acres of forested wetland and 0.16 acres of open water habitat would be created. Additionally, an existing 0.16 acre open water area would be preserved. The mitigation areas would be protected in perpetuity with a land-use restriction.

EXISTING CONDITIONS: In general, the 4.5 mile long highway would traverse areas consisting primarily of abandoned pasture and agricultural land with wooded areas interspersed. The proposed crossings would be constructed on tributaries of Sixmile Creek, Twomile Creek, and Indian Creek, wetlands, and ponds.

Crossing 1 is located in an area dominated by agricultural fields (row crops) and abandoned pasture bordering an active railroad line. The crossing is a part of an interchange and bridge construction and would impact a few small emergent wetlands (wet pasture) and a forested wetland.

Crossing 2 is surrounded by commercial and residential development, abandoned pasture, and row crops. It is located along existing U.S. 50 and would impact a poor quality ephemeral stream.

Crossing 3 is surrounded by agricultural (row crop) fields with sparse patches of upland trees and would impact the headwaters of a low quality ephemeral channel.

Crossing 4 is surrounded by agricultural (row crop) fields and would impact the headwaters of three ephemeral tributaries that have a narrow to moderate forested riparian corridor. The riparian areas have been previously disturbed from agriculture and clearing.

Crossing 5 and Crossing 6 are located in agricultural (row crop) fields that drain through two emergent wetlands to man-made ponds that are impoundments of headwater tributaries to Twomile Creek. The two wetlands would be impacted by the crossing construction.

Crossing 7 is located adjacent to a large, forested community to the west and northeast, abandoned pasture to the east, and some manicured, residential lawn to the northwest. The crossing would impact three headwater ephemeral tributaries and one intermittent tributary that has been impounded upstream.

Crossing 8 is located in a small upland wooded area that is bisected by a county road, and surrounded by abandoned pasture, row crops, and residential land. The crossing would impact one ephemeral and one intermittent tributary.

Crossing 9 is located in a large, wet, wooded riparian area bisected by an abandoned railroad and surrounded by row crops, abandoned pasture, and commercial and residential development. The crossing would impact three ephemeral streams, one perennial stream, and a forested riparian wetland.

Crossing 10 is surrounded by row crops, abandoned pasture, and residential development. A narrow, woody riparian corridor is located at the site and has been segmented by surrounding uses. The crossing would impact an intermittent tributary.

2. Authority.

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).

☒ Section 404 of the Clean Water Act (33 U.S.C. §1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

3. Scope of Analysis.

a. NEPA. *(Write an explanation of rationale in each section, as appropriate)*

(1) Factors.

(i) Whether or not the regulated activity comprises "merely a link" in a corridor type project.

The proposed construction of the U.S. 50 western bypass would include ten separate and complete crossings of "waters of the United States." Each crossing would be a link in a corridor project.

- (ii) Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity.

The proposed crossings are part of a proposed highway bypass. The alignment of the highway in the immediate vicinity of the crossings does affect the location and configuration of the crossings. The road in the immediate vicinity of the regulated activity was designed to avoid and minimize impacts to "waters of the U.S." to the greatest extent possible.

- (iii) The extent to which the entire project will be within the Corps jurisdiction.

The portion of the project that is within the Corps' jurisdiction will include jurisdictional "waters of the U.S." and the immediate adjacent riparian corridor that would be filled, directly or indirectly, by the construction of each separate and complete crossing. The CWA does not provide the Corps legal authority to regulate highway projects, such as the proposed U.S. 50 bypass, beyond the limits of the "waters of the U.S." Overall responsibility for the construction and approval of interstate highway projects is the responsibility of the Federal Highways Administration (FHWA).

- (iv) The extent of cumulative Federal control and responsibility.

The proposal is a federal project. As stated above, overall responsibility for the construction and approval of interstate highway projects is the responsibility of the FHWA. FHWA prepared and finalized an Environmental Assessment on October 24, 2011, and signed the FONSI on December 16, 2011, which approved the preferred alternative combination of S-2 Modified, M2, and N-6 Modified.

- (2) Determined scope.

☒ Only within the footprint of the regulated activity within the delineated waters.  
☐ Over entire property. *Explain.*

b. NHPA "Permit Area".

- (1) Tests. Activities outside the waters of the United States ☒are/☐are not included because all of the following tests ☒are/☐are not satisfied: Such activity ☐would/☒would not occur but for the authorization of the work or structures within the waters of the United States; Such activity ☒is/☐is not integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program); and Such activity ☒is/☐is not directly associated (first order impact) with the work or structures to be authorized. *Explain.* The location and configuration of some of the activities that would occur outside the "waters of the U.S." would be determined by the location and configuration of one of the crossings. As a result, these activities would meet all three tests; and therefore, they are



considered in the NHPA "Permit Area."

Activities outside the waters of the United States the location of which is not determined by the location of each separate and complete crossing ☐are/☒are not included because all of the following tests ☐are/☒are not satisfied: (box is checked if test is satisfied) ☐ Such activity would not occur but for the authorization of the work or structures within the waters of the United States; ☒ Such activity is integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program); and ☐ Such activity is directly associated (first order impact) with the work or structures to be authorized. *Explain.* The proposed crossings are part of a linear project. As such, the location and configuration of each separate and complete crossing would only determine the location and configuration of activities outside "waters of the U.S." that are in proximity to a crossing. Beyond a certain distance, the location and configuration of activities outside "waters of the U.S." may be modified without modifying the crossing. These activities would not meet all three tests; therefore, those activities are not considered in the NHPA "Permit Area."

- (2) Determined scope. *Describe.* The portion of the Right of Way (ROW) immediately adjacent to the crossing that encompasses the approaches of the crossing is within the Corps' NHPA "Permit Area." The configuration of this portion of the ROW typically is determined by the location of the crossing.

c. ESA "Action Area".

- (1) Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.
- (2) Determined scope. *Describe.* The federal action for the purposes of this decision is the ten proposed crossings and other locations of fill within "waters of the United States." The proposed crossings and the upland area around them that would be impacted directly or indirectly by the construction of the crossings are the ESA "Action Area." The FHWA has overall responsibility for construction of the U.S. 50 western bypass. The areas directly and indirectly affected by the overall construction of the bypass are within FHWA's "Action Area."

- (3) Determined scope. *Describe.* The federal action for the purposes of this decision is the ten proposed crossings and other locations of fill within “waters of the United States.” The proposed crossings and the upland area around them that would be impacted directly or indirectly by the construction of the crossings are the ESA “Action Area.” The FHWA has overall responsibility for construction of the U.S. 50 western bypass. The areas directly and indirectly affected by the overall construction of the bypass are within FHWA’s “Action Area.”

d. Public notice comments. ☐ NA

- (1) The public also provided comments at ☐ public hearing, ☐ public meeting, and/or ☐ *Explain.*

(2) Commenters and issues raised.

Name	Issue
U.S. Fish and Wildlife Service	In a letter dated May 16, 2012, and electronic correspondence dated May 22, 2012, USFWS stated the proposed project is not likely to adversely affect the Indiana Bat ( <i>Myotis sodalis</i> ) if tree clearing is restricted in all non-surveyed summer habitat areas from April 1 to September 30 (specifically, the riparian area directly associated with stream T1-S4).
DNR, Division of Fish and Wildlife	In a letter received May 30, 2012, the DNR indicated the project does not require formal approval under its regulatory programs administered by the Division of Water.
Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology	In a letter dated June 4, 2012, the SHPO concurred that no historic properties were identified in the bypass project area and no above-ground eligible properties at the 3 mitigation sites were identified. In a letter dated July 17, 2012, the SHPO concurred with the archaeological report provided for the 3 mitigation sites that resulted in two resources identified that are outside the mitigation work boundaries at the Harrell property. See Section 6, “Public Interest Review” below.
U.S. Environmental Protection Agency, Region 5	In electronic correspondence dated June 6, 2012, and June 18, 2012, USEPA requested information regarding downstream impacts associated with diverting ephemeral channels, best management practices that would be used to minimize downstream sedimentation and impacts to water quality, and requested the revised version of the compensatory mitigation plan.

- (3) Site ☒ was/☐ was not visited by the Corps to obtain information in addition to

delineating jurisdiction. A site visit was conducted on June 5, 2012, by Corps staff and the agent, Parsons. In general, each crossing is located in areas dominated by agricultural pasture and crop lands, sparse and segmented forested areas, and residential properties situated both within and outside the project limits. Much of the pasture land has been abandoned and has partially converted to emergent wetland. The streams have been historically manipulated and are susceptible to increased erosion due to the soil types and location abutting or adjacent to active agriculture and development. The proposed mitigation sites were inspected separately on January 19, 2012 (Harrell) and August 11, 2011 (Goecker and Stidam). The Harrell site is surrounded by active cattle pasture with little to no riparian vegetation along the stream due to grazing. The stream has unstable banks at cattle crossing locations. The Stidam site is primarily abandoned pasture and row crop areas that have been historically drained. Some of the drainage tile has failed, causing the creation of a small area of forested wetland and open water. A large forested floodplain associated with the Muscatatuck River borders the site to the south. The Goecker site is surrounded by row crops and contains two ephemeral tributaries that combine and become one intermittent tributary before entering the forested floodplain to the southeast.

- (4) Issues identified by the Corps. *Describe.* No issues were identified.
- (5) Issues/comments forwarded to the applicant. ☐NA/☒Yes. Comments were forwarded to the applicant on June 11, 2012, in order to provide an opportunity to respond.
- (6) Applicant replied/provided views. ☐NA/☒Yes. Electronic mail was received from the applicant responding to the comments on June 14, 2012, June 20, 2012, and July 18, 2012.
- (7) The following comments are not discussed further in this document as they are outside the Corps purview. ☒ NA/☐ Yes *Explain.*

#### 4. Alternatives Analysis.

- a. Basic and Overall Project Purpose (as stated by applicant and independent definition by Corps).

☒ Same as Project Purpose in Paragraph 1.  
☐ Revised: *Insert revised project purpose here and explain why it was revised.*

- b. Water Dependency Determination:

☒ Same as in Paragraph 1.  
☐ Revised: *Insert revised water dependency determination here if it has changed due to changing project purpose or new information.*

- c. Applicant preferred alternative site and site configuration.

☒ Same as Project Description in Paragraph 1.  
☐ Revised: *Explain any difference from Paragraph 1*

Criteria. Activities were evaluated based on their ability to meet the purpose and need of the project, impacts on aquatic resources, impacts on other environmental resources, and practicability.

Issue	Measurement and/or constraint
Wetland Impact	Acres of impact
Stream Impact	Linear feet of impact
Impacts to other sensitive environmental resources	The extent of unavoidable impacts to these resources
Floodplains	Acres of impact
Purpose and Need	Whether the purpose and need are satisfied
Farmland	Acres of Impact

d. Off-site locations and configuration(s) for each. (e.g. alternatives located on property not currently owned by the applicant are not practicable under the Section 404(b)(1) Guidelines as this project is the construction or expansion of a single family home and attendant features, such as a driveway, garage, storage shed, or septic field; or the construction or expansion of a barn or other farm building; or the expansion of a small business facility; and involves discharges of dredged or fill material less than two acres into jurisdictional wetlands.)

#### Off-site locations and configurations

Description	Comparison to criteria
Alternatives in EA.	See discussion below.

In 2008, the applicant prepared a U.S. 50 corridor study that identified concerns with deteriorating levels of service, safety, and increased traffic congestion on the highway from Seymour to the Jennings/Ripley County line. The study included a preliminary alternatives screening report that proposed a full bypass around the city of North Vernon in addition to “spot improvements” to address deteriorated culverts and decrease traffic collisions in certain sections by adding turn/passing lanes (“on-site alternatives”). Due to increasing economic development on the north and west sides of North Vernon, the applicant identified an immediate need to reduce levels of traffic (notably, commercial) traveling from Interstate 65 to the north side of the city via U.S. 50 downtown to State Road 7 and State Road 3. Providing an alternative route would reduce traffic congestion and increase safety at multiple intersections.

In 2011, the applicant prepared an Environmental Assessment that considered a total of 14 design alternatives divided amongst 3 segments (southern, middle, northern) of the project corridor and the “no-build” alternative. The following paragraph provides a summary of the alternatives identified and evaluated by the Federal Highway Administration (FHWA) during the NEPA review for the proposed U.S. 50 western bypass.

A total of five southern alternatives were identified and evaluated. “S1” would have

required a large amount of right-of-way, construction of a frontage road, and restricted access to farmland. It would have required the second highest amount of stream impact and was the second most expensive alternative. "S2" would have required the removal of access to Base Road, which would have restricted access for residents and emergency services. Additionally, it was the most expensive alternative due to the design geometrics of the proposed bridge over the CSX railroad and would have required the most residential relocations. "S3" was eliminated from further consideration because it would have created a new signalized intersection with the existing U.S. 50, causing a disruption in traffic flow and conflicting with the applicant's goal to have an uninterrupted bypass. Additionally, this alternative would have had the highest amount of open water impact and had the third highest amount of wetland and stream impact. "S4" was eliminated from consideration because it has the greatest stream, open water, and wetland impacts and required the most new right-of-way. "S2-Modified" was selected as the preferred alternative for this segment because it meets the stated Purpose and Need while minimizing impacts to wetlands, streams, and other natural resources.

Two middle segment alternatives were identified and evaluated. "M1" had a disproportionate amount of residential relocations due to the use of Kipper Lane as part of the new highway, which resulted in a high amount of negative public feedback. This alternative would have had the most open water impact, but less stream and wetland impact; however, it was eliminated from further consideration due increased negative impacts to residents in the area. "M2" was selected as the preferred alternative for this segment because it meets the stated Purpose and Need while minimizing residential disturbance and indirect impacts to wetlands and upland forest.

Seven northern segment alternatives were identified and evaluated. "N1" was eliminated from consideration because of the engineering challenges and costs associated with crossing County Road 300 North in a creek valley. Additionally, this alternative impacted a large, forested wetland at the northern terminus. "N2" was eliminated from consideration for the same reasons as N1; however, its alignment would cause the most impacts to floodplains. "N3" was eliminated because it had the highest amount of residential relocations, the highest amount of stream impact, and would have required relocating State Road 3 at the northern terminus of the project. "N4" was eliminated because it would not support the city's plans for future development, it would negatively impact surrounding commercial operations, and impact a hazardous materials landfill. "N5" was eliminated from further consideration due to excessive impacts to a large, forested wetland at the northern terminus, and it had the highest amount of residential and commercial relocations. "N6" was eliminated because the new U.S. 50 roadway would intersect State Road 3 too close to the existing intersection of State Road 3 and County Road 350 North, conflicting with design specifications, safety standards, and traffic patterns. "N6-Modified" addressed the limitations identified in alternative N6 by moving the new U.S. 50 intersection with State Road 3 to the south, creating a larger separation distance with the State Road 3/County Road 350 North intersection. N6-Modified was selected as the preferred alternative for this segment since it meets the applicant's stated Purpose and Need while minimizing impacts to streams and residents and increasing safety of the intersection.

e. (☒ NA) Site selected for further analysis and why.

f. On-site configurations.

Description	Comparison to criteria
Added Travel Lanes (turn/passing lanes) on existing U.S. 50 at select locations on the west side of North Vernon	This alternative would have the least environmental impacts, but would not meet the applicant's need to relieve traffic congestion. While a minimal improvement is anticipated in the short term, the primary benefit of this alternative would be to reduce vehicular crashes within the incorporated limits of the city. With anticipated economic growth on the north and west sides of the city, traffic would continue to increase to unacceptable levels. Due to the safety benefits anticipated from this alternative, it is being implemented as a separate project.
Added Travel Lanes through North Vernon, including downtown	This alternative would have numerous adverse impacts to historic structures within downtown North Vernon, relocate/demolish dozens of commercial and residential properties, cause great public dissent, and increase the cost of the project exponentially. Therefore, this alternative was not considered feasible and was eliminated from further consideration.

g. Other alternatives not requiring a permit, including No Action.

Description	Comparison to criteria
No Action	This alternative would not have any impacts on open water or other aquatic resources; however, traffic congestion and safety would continue to worsen to unacceptable levels due to continuing economic growth on the north and west sides of the city. This alternative does not meet the applicant's stated purpose and need.

h. Alternatives not practicable or reasonable. *Describe/explain*

The addition of turning/passing lanes in certain segments of existing U.S. 50 is considered feasible and practicable and avoids impacts to waters of the United States; however, it does not meet the applicant's stated Purpose and Need to increase the level of service, decrease congestion on U.S. 50 through North Vernon, and support economic development on the north and west sides of the city. While this alternative is being implemented for its potential ability to increase safety through the existing roadway, it would not fully address the project's need. Added travel lanes through downtown North Vernon is not considered feasible or reasonable due to the large adverse effects to historic properties, businesses, and residents, and the excessive cost.

The fourteen off-site alternatives evaluated and ultimately reduced to the three preferred

alternative segments (S2-Modified, M2, N6-Modified). The eleven alternatives that were eliminated failed to meet the stated Purpose and Need and/or caused more than minimal impact to residents, businesses, wetlands, streams, and other natural resources, or did not meet required safety standards.

i. Least environmentally damaging practicable alternative. *Describe/explain*

The Corps has reviewed the information on alternatives contained in the EA, the permit application, and supporting documentation, and for the reasons stated in d, e, f, and h above, have determined that the proposed project, the construction of ten proposed crossings, is the least damaging practicable alternative.

5. Evaluation of the 404(b)(1) Guidelines. (☐NA)

a. Factual determinations.

<p>Physical Substrate.</p> <p><input type="checkbox"/> See Existing Conditions, paragraph 1</p> <p><input checked="" type="checkbox"/> The substrate composition at each of the crossings was identified using the U.S. Department of Agriculture's Web Soil Survey for Jennings County. Each crossing contains one or more of the following eight soil units: Bloche-Cincinnati silt loams, Blocher silt loams, Deputy silt loams, Deputy-Tappist silty clay loam, Holt silt loam, Oldenburg silt loam, Pekin silt loam, and Scottsburg-Deputy silt loams. Wetland and ponds in the proposed project area are located in one or more of the following eight soil units: Avonburg silt loams, Blocher-Cincinnati silt loams, Cobbsfork silt loam (hydric), Nabb silt loam, Oldenburg silt loam, Pekin silt loam, and Udorthents (loamy).</p> <p>The twelve ephemeral streams had substrates consisting of silt, leaf pack, or fine detritus. The three intermittent streams' substrates primarily contained silt, sand, gravel, and bedrock. The perennial stream had a bedrock, boulder, and slab substrate.</p> <p>The proposed project would result in direct impact to substrate as fresh concrete, riprap, and earthen material would be placed in the aforementioned sixteen streams and their adjacent wetlands and ponds in order to construct ten separate and complete crossings. It is anticipated that the proposed project would permanently change the substrate at most crossings. The earthen fill material would comply with INDOT's 2010 Standard Specifications, which require borrow material to be "free of substances that will form deleterious deposits, or produce toxic concentrations or combinations that may be harmful to human, animal, plant or aquatic life, or otherwise impair the designation uses of the stream or area."</p>
<p>Water circulation, fluctuation, and salinity.</p> <p><input checked="" type="checkbox"/> Addressed in the Water Quality Certification.</p> <p><input type="checkbox"/></p>
<p>Suspended particulate/turbidity.</p> <p><input checked="" type="checkbox"/> Turbidity controls in Water Quality Certification.</p> <p><input type="checkbox"/></p>

Contaminant availability. <input checked="" type="checkbox"/> General Condition requires clean fill. <input type="checkbox"/>
Aquatic ecosystem and organism. <input checked="" type="checkbox"/> Wetland/wildlife evaluations, paragraphs 5, 6, 7 & 8. <input type="checkbox"/>
Proposed disposal site. <input checked="" type="checkbox"/> Public interest, paragraph 7. <input type="checkbox"/>
Cumulative effects on the aquatic ecosystem. <input checked="" type="checkbox"/> See Paragraph 7.e. <input type="checkbox"/>
Secondary effects on the aquatic ecosystem. <input checked="" type="checkbox"/> See Paragraph 7.e. <input type="checkbox"/>

b. Restrictions on discharges (230.10).

- (1) It ☒has/☐has not been demonstrated in paragraph 5 that there are no practicable nor less damaging alternatives which could satisfy the project's basic purpose. The activity ☒is/☐is not located in a special aquatic site (wetlands, sanctuaries, and refuges, mudflats, vegetated shallows, coral reefs, riffle & pool complexes). The activity ☒does/☐does not need to be located in a special aquatic site to fulfill its basic purpose.
  - (2) The proposed activity ☐does/☒does not violate applicable State water quality standards or Section 307 prohibitions or effluent standards (☐based on information from the certifying agency that the Corps could proceed with a provisional determination). The proposed activity ☐does/☒does not jeopardize the continued existence of federally listed threatened or endangered species or affects their critical habitat. The proposed activity ☐does/☒does not violate the requirements of a federally designate marine sanctuary.
  - (3) The activity ☐will/☒will not cause or contribute to significant degradation of waters of the United States, including adverse effects on human health; life stages of aquatic organisms, ecosystem diversity, productivity and stability; and recreation, esthetic, and economic values.
  - (4) Appropriate and practicable steps ☒have/☐have not been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (see Paragraph 8 for description of mitigative actions).
6. Public Interest Review: All public interest factors have been reviewed as summarized here. Both cumulative and secondary impacts on the public interest were considered. Public interest factors that have had additional information relevant to the decision are discussed in number 7.



				+ Beneficial effect
				0 Negligible effect
				- Adverse effect
				M Neutral as result of mitigative action
+	0	-	M	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conservation.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Economics.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Aesthetics.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	General environmental concerns.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wetlands.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Historic properties.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fish and wildlife values
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flood hazards.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Floodplain values.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Land use.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Navigation.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shore erosion and accretion.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recreation.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water supply and conservation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water quality.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Energy needs.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Food and fiber production.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mineral needs.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Considerations of property ownership.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Needs and welfare of the people.

7. Effects, policies and other laws.

a. ☐ NA

Public Interest Factors. *(add factors that are relevant to specific project that you checked in number 6 above and add a discussion of that factor)*

Conservation: There are no rivers listed in the National Wild and Scenic Rivers System in the project corridor. In addition, there are no rivers listed on the Nationwide River Inventory, the IDEM Waters Designated for Special Protection, or the IDNR Natural and Scenic River Segments within this corridor.

Economics: There would be both beneficial and adverse socio-economic impacts from the proposed project. However, overall the impacts are expected to be beneficial. Direct socio-economic impacts of the proposed crossings would include the loss of farm income due to the removal of farmland from production, project cost, increased employment during

construction, annual maintenance and operation costs, changes in the local property tax base as a result of taking taxable property for public right-of-way, and changes in property values due to improved or diminished access or exposure. The proposed crossings would have the indirect socio-economic impact of increased business and employment associated with changes in land use due to development induced by improved access. The project would not require the displacement or relocation of any commercial facility.

Aesthetics: The proposed crossings would result in both temporary and permanent visual impacts. Temporary impacts include the siting of construction equipment and the clearing of areas to construct the crossings. These would be mitigated by limiting vegetation clearing to the area in the construction limits and quick re-vegetation upon completion of construction. Permanent impacts would include the conversion of forests, wetlands, farmland, and rural landscapes to a highway. The effect on aesthetics is generally considered to be a matter of personal preference. However, the net effect is expected to be negligible.

General Environmental Concerns: No portion of the project area (Jennings County) is located within a designated nonattainment area for any of the air pollutants for which the USEPA has established standards. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxic (MSAT) concerns. As such, this project would not result in changes in traffic volume, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the No Action alternative.

The proposed crossings would be located in rural areas and nearby areas would experience an increase in levels of construction-related noise temporarily and highway-related noise in the long-term. FHWA and INDOT conducted a Noise Impact Analysis for the project in the spring of 2011. The analysis described and evaluated the existing noise levels, the predicted Future No-Build noise levels, and the predicted year 2032 noise levels for alternatives S1, S2-Modified, M1, M2, N3, and N6-Modified. The FHWA Traffic Noise Model (TNM) Version 2.5 was used to model existing and proposed noise levels. Measured in A-weighted decibels (dBA), existing noise levels in the corridor range from 57.2 dBA to 60.3 dBA. Design year (2032) modeled traffic generated noise levels range from 39.6 dBA to 67.1 dBA. Because the design year noise level has been predicted to approach or exceed the FHWA Noise Abatement Criteria (NAC) for one Category B residential receiver the project has been found to have a traffic noise impact. Based on the INDOT *Traffic Noise Analysis Procedure*, the feasibility and reasonableness of a noise barrier was evaluated at the location of the impacted receiver.

Based on the studies, the applicant has not identified any locations where noise abatement is likely. Noise abatement at these locations is based upon preliminary design costs and design criteria. Noise abatement has not been found to be reasonable based on the cost effectiveness criteria; therefore, no noise barriers are proposed.

Wetlands: The proposed construction of the ten crossings and road fill would result in fill material being discharged into a total of 2.51 acres of open water, 0.83 acre of emergent wetland, and 0.56 acre of forested wetlands. The existing wetlands provide a limited

surface water storage function, but very limited or no flood protection is provided because the wetlands are restricted to a relatively small, localized portion of the watershed. Some subsurface water storage and groundwater recharge also occurs. The wetland hydrology is primarily driven by precipitation and overland flow. The wetlands would also be expected to provide the following functions: nutrient transformations and processing, biomass accumulation and decomposition, and provide habitat for wildlife.

The proposed project was located and designed to minimize impacts to wetlands. Proposed off-site stream and wetland mitigation for unavoidable impacts is located within the same 8-digit watershed (Muscatatuck, 05120207) at three different sites: Harrell in Jefferson County and the Stidam and Goecker sites in Jackson County. All three mitigation sites were historically disturbed to some degree through land clearing and agricultural practices. At the Goecker site in Jackson County, forested riparian corridor would be created along both sides of 2,317 lf of ephemeral and 888 lf of intermittent stream. At the Harrell mitigation site in Jefferson County, 260 lf of forested riparian corridor would be created along both sides of a perennial stream. At the Stidam site in Jackson County, 6.25 acres of forested wetland and 0.16 acres of open water habitat would be created. Additionally, an existing 0.16 acre open water area would be preserved. The mitigation areas would be protected in perpetuity with a land-use restriction.

Wetlands that are within the right-of-way but outside of the designated construction area would be protected from secondary construction impacts. Herbicides would be prevented from entering the wetland areas by posting "Do Not Mow or Spray" signs in the right-of-way.

Historic Properties: FHWA completed Section 106 consultation for the proposed project. Archival and survey efforts have identified no properties in the Area of Potential Effect (APE) that are listed in the National Register of Historic Places (NRHP). One archaeological site has been recommended eligible for the NRHP, but it is being avoided by the proposed work and therefore would not be affected. FHWA determined that the finding of "No Historic Properties Affected" is appropriate as no historic properties are present within the preferred alternative. The SHPO concurred with the results of the aboveground and archaeological survey reports in a letter dated October 19, 2011 (namely that no resources listed in or eligible for the NRHP within the APE would be affected within the APE of the preferred alternative). See attached "Regulatory-Section 106/Appendix C-Documentation" for a summary of determinations and findings.

In response to the Public Notice, the Corps received a letter dated June 4, 2012, from the SHPO. The agency indicated that the three mitigation sites did not contain any eligible, above-ground properties; however, they requested additional information from the applicant regarding archaeological surveys of all three sites. The requested information was submitted to the SHPO by the applicant on June 28, 2012. In a letter dated July 17, 2012, the SHPO concurred with the archaeological report submitted for the three mitigation sites and stated that two identified resources (a cemetery and an archaeological site) appear outside of the area of proposed work. The SHPO stated that they did not have enough information to determine if archaeological site 12Je543 was eligible for the National Register of Historic Places; however, both sites would be completely avoided by the applicant (this was

confirmed by a response by the applicant received electronically on July 18, 2012). The SHPO stated that site 12Je543 must be completely avoided by all project activities or be subjected to further archaeological investigations.

Fish and Wildlife Values: The proposed U.S. 50 corridor is predominantly agricultural areas with low wildlife habitat value. The proposed project would impact upland habitat (including old-field, mid-successional forest, forest fragment, floodplain forest), wetlands (emergent, forested), ephemeral and intermittent streams, and open water ponds.

Additionally, the project would include crossing one perennial stream, an unnamed tributary to Sixmile Creek (Crossing 9). The ephemeral and smaller intermittent streams that would be impacted by the proposed crossings are generally moderate to high gradient headwater streams originating in agricultural areas. These channels convey storm water flow down the slopes into the larger streams located in the broader valleys, provide sediment transport (from detritus) from the upslope areas down to the valleys, and provide wildlife habitat. The water conveyance and sediment transportation functions of these channels would be maintained through the project area because drainage would be maintained through the right-of-way. Habitat for aquatic organisms adapted to living in the open water ponds proposed to be filled would be eliminated by the project. This habitat would be replaced at the proposed wetland mitigation site (Stidam). The proposal would result in only minimal loss of benthic life from the fill activity within tributaries of Sixmile Creek, Twomile Creek, and Indian Creek and jurisdictional wetlands. The proposed crossings were designed to minimize impacts to the streams and their aquatic habitat.

The proposed off-site wetland and open water mitigation (Stidam site) includes creation of a total of 8.2 acres of forested wetland (this includes 0.66 acre of mitigation to satisfy state requirements for the U.S. 50 spot improvements project and contingency acreage). Impacts to open water would be mitigated through the creation of an additional 0.16 acre of open water, preservation of the existing 0.16 acre of open water, and creation of a total of 2.35 acres of forested wetland. Emergent wetland impacts would also be mitigated out-of-kind through the creation of 1.66 acre of forested wetland (2:1 ratio). The mitigation would provide flood storage during flood events and filter storm water. The close proximity to the forested riparian area of the Muscatatuck River would make the site appealing to amphibians, birds, and mammals for foraging and breeding. Overall, this mitigation site is expected to provide the following benefits to the watershed: reduced erosion, reduced flooding, reduced water temperatures, increased water quality, decreased sediment load, decreased turbidity, increased biodiversity, increase in game species, connection of wildlife corridors, and decrease in *E. coli*.

The proposed off-site stream mitigation areas (Harrell and Goecker) include construction of a total of 3,465 lf of forested riparian corridors on both sides of the streams. Additionally, the Harrell mitigation site would involve the construction of fencing around the mitigation buffer area to isolate cattle from the stream and stabilization of an existing cattle crossing that is contributing sediment to the stream. The watershed is dominated by agricultural areas where cattle contribute to the impairment of streams through the addition of *E. coli* and sediment. The mitigation is expected to decrease bank erosion, absorb and release storm water into the channels in a more natural manner, and help to decrease flash hydrology events in the streams (which would serve to decrease turbidity and siltation). The corridors

would aid in buffering the phosphorus, nitrates, and pesticides from adjacent agricultural areas and serve to decrease algal blooms, lowering biological oxygen demand, and protect organisms sensitive to chemicals. The Goecker site's close proximity to the forested riparian area of the Muscatatuck River will make this mitigation site appealing to amphibians, birds, and mammals for foraging and breeding. The overall benefits are similar to those of the Stidam wetland mitigation site.

The mitigation sites will provide two times (for emergent wetland impacts) or four times (for forested wetland impacts) the amount of forested wetland as compared to the amount proposed to be impacted. The expected quality of created wetlands is intended to exceed the functional quality of the impact locations. The provided open water preservation and expansion will help to replace any aquatic habitat function that the open water ponds provided in the watershed; however, it is anticipated that the provided mitigation would have an increased variety of functions since it is being integrated within a forested wetland. Out-of-kind mitigation for the low quality emergent wetland and open water ponds consists of the creation of a higher quality and function forested wetland complex. The majority of the impacted streams are of poor quality and are located in agricultural headwater areas with little to no riparian corridors. The proposed stream mitigation would provide greater function and habitat in the watershed through the creation of wide, forested riparian corridors, bank stabilization, and isolation of cattle from a channel.

The applicant coordinated with the USFWS to determine the potential impacts to Federally-listed threatened and endangered species. This coordination and the impacts to such species are discussed in 7.b.

The applicant coordinated with the Indiana Department of Natural Resources to determine potential impacts on state-listed species. In response to a request for information received on June 6, 2011, IDNR Division of Nature Preserves stated that there are no endangered, threatened, or rare (ETR) species, high quality natural communities, or natural areas documented in the project area.

Flood Hazards: The proposed crossings would be hydraulically sized to support the 100-year flood event and allow the unimpeded flow of the streams and to equalize hydrology between existing wetlands. Additionally, most of the crossings are located in agricultural headwater areas near the top of a micro-watershed where the impacted areas provided little to no flood storage for the watershed. The flood control functions provided by the impacted wetlands would be mitigated through the creation of wetlands at the Stidam site and riparian corridors at the Goecker and Harrell sites, which are all located in the same 8-digit watershed as the proposed impacts. The proposed crossings should not adversely affect existing flood control functions and would not increase the potential for interruption or termination of emergency service or emergency evacuation routes.

Floodplain Values: This project does not encroach upon a regulatory floodplain of the U.S. Department of Housing and Urban Development Special Flood Hazard Area. The nearest mapped floodplain is located south of the project corridor and is associated with Vernon Fork.

Land Use: The proposed crossings would have an impact on land use. They would convert property that is currently wooded, agricultural, or residential for U.S. 50 right-of-way. Jennings County and the city of North Vernon have developed comprehensive plans that include plans to manage and promote economic growth as a result of the proposed western bypass. The entire corridor of U.S. 50, including the ten crossings, has been incorporated into local land use classifications.

Most vacant parcels within the study area are currently zoned agricultural. Impacts in these areas are considered “indirect,” influenced directly and solely by the U.S. 50 North Vernon Project in an area that is unlikely to be developed in the reasonably foreseeable future. (i.e., not zoned for residential or commercial development or not identified in the Comprehensive Plan). The majority of parcels adjacent to the proposed intersection locations are currently residential properties which limits probability of indirect impacts occurring at these intersection locations. The applicant forecasts that the indirect land use changes as a result of the proposed project would be the conversion of 255 acres from agricultural land use and 88 acres from forest land use to commercial or residential use as a result of the proposed project.

Navigation: This is not a factor associated with the proposed project.

Shore Erosion and Accretion: No adverse effect to erosion and accretion rates or patterns is expected from any of the crossings. Erosion control measures, which are discussed in more detail in 8a(6), would be implemented on the worksites to protect the waterways from receiving increased sedimentation from the work area.

Recreation: There are no known publicly-owned parks, recreation areas, or wildlife or waterfowl refuges within the corridor for the western bypass.

Water Supply and Conservation: The public water system serving North Vernon and surrounding communities relies on surface water from the Vernon Fork of the Muscatatuck River. Potential impacts to surface water would be minimized to the greatest extent possible by the implementation of Best Management Practices (BMPs). These BMPs would help avoid impacts to the Vernon Fork of Muscatatuck River by containing sediment and pollutants within the project site. No known aquifer recharge areas are situated in the study area, and there are no sole source aquifers or Wellhead Protection Areas in the project vicinity.

Water Quality: During construction, fill material would be placed in wetlands and/or streams at each crossing. Since these waters would be eliminated as a result of the proposed project, water quality impacts would be considered long-term adverse impacts without mitigation. The applicant has proposed mitigation for wetland impacts through wetland creation and enhancement at an off-site location. Water quality impacts to streams would be limited to the construction period and would be considered temporary. Best management practices would be utilized to stabilize the fill and minimize water quality impacts to the streams.

Fill material used for construction of the crossing and road bed would comply with

INDOT's 2010 Standard Specifications, which require borrow material to be "free of substances that will form deleterious deposits, or produce toxic concentrations or combinations that may be harmful to human, animal, plant or aquatic life, or otherwise impair the designation uses of the stream or area."

Energy Needs: The proposed crossings and the construction of the U.S. 50 western bypass would lead to a permanent increase in the energy consumed by vehicle travel in the project corridor; however, energy consumption may decrease overall by providing a direct and efficient route to the growing commercial areas on the north side of the city and avoiding the multiple intersections and traffic congestion downtown that can cause lower fuel economy. The increase to energy consumption along the new bypass is necessary to achieve the project's purpose.

Safety: The proposed project is part of a larger plan to reduce the frequency of traffic collisions along U.S. 50 through North Vernon by decreasing the number of commercial vehicles traveling through downtown to reach the growing commercial areas north of the city. This project, in addition to the separate spot improvement project to add turning and passing lanes in certain areas of U.S. 50, would reduce traffic congestion and increase safety through North Vernon.

Food and Fiber Production: The proposed crossings would have a minimal adverse impact on food and/or fiber production by reducing the amount of acres that can be harvested. Prime farmland soils are prominent throughout the project area. As defined by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), prime farmland is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses (i.e., land that could be cropland, pastureland, rangeland, forest land or other land, but not urban built-up land or water)." These soils must also be protected from flooding and not be susceptible to ponding for long periods of time in order to be considered prime farmland. In Jennings County, a majority of the project area is underlain by Nabb, Cobbsfork, and Avonburg soils, which are all prime or prime if drained farmland. These soils have the "quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods."

The entire western bypass corridor would convert approximately 199 acres of prime and unique farmland to a highway. These impacts are necessary to attain the project goals. The Natural Resources Conservation Service (NRCS) assessed impacts to farmlands and determined that the proposed project would have no significant impact to farmland.

Consideration of Property Owners: Along the entire bypass corridor, owners of 6 parcels declined INDOT's offer to purchase their acreage and those parcels would be condemned. The adjoining property owners were mailed a copy of the public notice to provide an opportunity for comment. No comments were received. Adjoining property owners should not be adversely affected by the proposed crossings.

Mineral Needs: None of the crossings would have an impact on mineral needs as there are

no known mineral resources within the area of those proposed crossings.

Needs and Welfare of the People: The public and private need for the proposed project is to provide an efficient and direct route for commercial traffic traveling from Jackson County to the growing economic area north of the city of North Vernon. The proposed project would provide improved access and safety, support for economic development, and relief of traffic congestion. The proposal would provide employment during construction and after for maintenance of the proposed crossings. Indirectly, the changes in land use due to development induced by improved access are expected to yield an increase in business and employment.

b. Endangered Species Act. ☐ NA

The proposed project:

(1) Will not affect these threatened or endangered species:

☐ Any/☐ . *Explain.*

(2) May affect, but is not likely to adversely affect:

Species: Indiana bat (*Myotis sodalis*). *Explain.* Mist net surveys were conducted in 2009 and 2011, with negative results. In letters dated November 29, 2011, and May 16, 2012, and electronic correspondence dated May 22, 2012, USFWS, Bloomington Field Office, concurred with the results of the survey and concurred that the proposed project is not likely to adversely affect the Indiana Bat as long as tree clearing was restricted in the forested area surrounding Crossing 9 (stream T1-S8) between April 1 and September 30.

(3) ☐ Will/☐ Will not adversely modify designated critical habitat for the .  
*Explain.*

(4) ☐ Is/☐ Is not likely to jeopardize the continued existence of the .  
*Explain.*

(5) The Services ☐ concurred/☐ provided a Biological Opinion(s). *Explain.*

c. Essential Fish Habitat. Adverse impacts to Essential Fish Habitat ☐ will/☒ will not result from the proposed project. *Explain.* There is no Essential Fish Habitat within the project area.

d. Historic Properties. The proposed project ☐ will/☒ will not have any effect on any sites listed, or eligible for listing, in the National Register of Historic Places, or otherwise of national, state, or local significance based on ☒ letter from SHPO/☐. *Explain.* In letters dated June 4, 2012, and July 17, 2012, the SHPO concurred with the FHWA finding of No Historic Properties Affected for the project area and indicated that identified potentially eligible resources on the Harrell mitigation site would be avoided by the applicant.



- e. Cumulative & Secondary Impacts. The geographic area for this assessment is the Muscatatuck watershed.

- (1) Baseline. (from Indiana Rapid Watershed Assessments <http://www.in.gov/isda/2381.htm>). Approximately 35.41% of the Muscatatuck watershed area is wetland (10.54% in Jennings County). This watershed has approximately 978.74 miles of stream of which 540.55 miles are first order, 240.02 are second order, 108.95 miles are third order, 49.66 miles are fourth order, 30.73 miles are fifth order, and 0.05 miles are sixth order. The stream order for 8.79 miles is not available.

The Muscatatuck watershed covers thirteen different Indiana counties and has a drainage area of just over 731,319 acres. Approximately 9.2 percent (90.72 miles of the 978.74 total miles) within the watershed have identified impairments. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity.

Historic impacts to “waters of the U.S.” in the project corridor have been mainly from the development of agricultural fields, residences, commercial facilities, and infrastructure development (railroads, highways, local roads). In addition to wetland fill, streams were channelized and relocated to facilitate the cultivation and development of the land. It is estimated the state of Indiana has lost approximately 87% of the wetlands that were present in the 1780s (Dahl, 1990). The impact from each individual crossing would be in the immediate area of the crossing. Cumulative impacts to the watershed would be minimal since a very small proportion of the watershed would be impacted by each crossing and appropriate mitigation would be implemented to further ensure minimization of impacts.

A search of the Corps database and project files was conducted for projects within two miles of the proposed project. The search was limited to a two mile radius because impacts from the proposed project would be negligible beyond this area. The search revealed that Corps permits have authorized the discharge of fill into approximately 1.02 acres of wetland and 3,152 lf of stream. The projects included road maintenance, two commercial developments, hazardous materials cleanup, and airport infrastructure. The projects that generated the greatest impacts (two commercial developments totaling 2,522 lf of stream and 0.95 acre wetland impacts) were required to construct compensatory mitigation to replace lost functions in the watershed. Since there is missing information in both the database and project files, there may have been more impacts than those quantified above.

It is projected that the proposed U.S. 50 western bypass will support continued economic growth on the north and west sides of North Vernon. Land immediately surrounding the new U.S. 50 interchanges is primarily residential,

so it is not expected that these areas would be converted to a different use (such as commercial or industrial) in the foreseeable future. Six parcels of undeveloped land in the area have been identified as potential sites for future industrial development by the Jennings County Economic Development Commission. Of the six parcels, two are currently zoned agricultural, three are zoned industrial, and one is zoned business. Most of the remaining undeveloped land in the area is agricultural, and it is expected that the increased access provided by the proposed bypass will increase the likelihood for future development. Additionally, while the route is yet to be determined, additional impact would result from the planned completion of the bypass around North Vernon. It is likely that some of this development would require Section 404 CWA authorization for wetland fill or stream crossings. Any such induced development would be required to avoid, minimize, and mitigate for any impacts to “waters of the U.S.”

- (2) Context. The proposed project is ☐ typical of ☒ a precedent ☐ very large compared to ☐ other activities in the watershed. There are many other road crossings in the area. Each separate and complete crossing for this project would have larger impacts than historic road projects (primarily maintenance and otherwise minor in scope), but similar to the impacts authorized for nearby commercial developments.

Resulting natural resource changes and stresses from projected development (residential, commercial, and industrial) would include conversion of woods, streams, and wetlands into homes, lawns, businesses, parking facilities, and associated infrastructure. Authorization under Section 404 of the Clean Water Act would be required for any placement of fill into “waters of the U.S.” Avoidance, minimization, and mitigation measures would be required for any development requiring a permit.

Natural resource changes and stresses from agricultural activities include the continued erosion of sediments and runoff of herbicides, pesticides, fertilizer, and animal waste into surface waters. Most agricultural operations have farmed or created pastures on all suitable land, leaving unsuitable land as woods. Conversion of these woods is not expected.

The key issues of concern in these watersheds are loss of streams and wetlands, water quality, and habitat fragmentation. There should be no significant secondary or cumulative impacts from the proposed project related to these issues. The applicant’s proposed mitigation would offset impacts to streams from the proposed crossings and result in a net increase in wetland acres in the affected watersheds. Water quality issues are addressed in the applicant’s Section 401 Water Quality Certification. The crossings would cause minimal habitat fragmentation. The proposed mitigation would include creating forests and forested wetlands in cultivated fields, creating large blocks of forest and decreasing the fragmentation in the mitigation areas, which are all within the same 8-digit watershed.

- (3) Mitigation and Monitoring. The project affects the following key issue(s): the proposed crossings include 1.39 acres of wetland and 2.51 acres of open water pond that would be permanently filled and 3,465 linear feet of stream that would be permanently relocated, encapsulated, and/or lined with riprap. The magnitude of the proposed effect is approximately 0.01% of total wetland area within the watershed. The applicant has avoided impacts to over 0.68 acre of wetland, 1,610 lf of stream, and .25 acre of open water pond by reducing the construction limits and prohibiting work within the remaining right-of-way that is outside of the construction area. Impacts to the remaining waters of the United States were minimized to the greatest extent possible. Compensatory mitigation and monitoring, namely the proposed mitigation plan dated June 11, 2012, described therein would result in the creation of 3,465 linear feet of forested riparian corridor and creation of a total of 8.2 acres of forested wetland (this includes 0.66 acre of mitigation to satisfy state requirements for the U.S. 50 spot improvements project and contingency acreage). Impacts to open water would be mitigated through the creation of an additional 0.16 acre of open water, preservation of the existing 0.16 acre of open water, and creation of a total of 2.35 acres of forested wetland. Emergent wetland impacts would also be mitigated out-of-kind through the creation of 1.66 acre of forested wetland (2:1 ratio).

- f. Corps Wetland Policy. Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.
- g. (☐ NA) Water Quality Certification under Section 401 of the Clean Water Act ☒ has/☐ has not yet been issued by ☐/☒ State/☐ Commonwealth.
- h. (☒ N/A) Coastal Zone Management (CZM) consistency/permit: Issuance of a State permit certifies that the project is consistent with the CZM plan. ☐ There is no evidence or indication from the that the project is inconsistent with their CZM plan.
- i. Other authorizations.
- j. (☒ NA) Significant Issues of Overriding National Importance. *Explain.*
8. Compensation and other mitigation actions.
- a. Compensatory Mitigation
- (1) Is compensatory mitigation required? ☒ yes ☐ no [If "no," do not complete the rest of this section]
- (2) Is the impact in the service area of an approved mitigation bank? ☐ yes ☒ no
- (i) Does the mitigation bank have appropriate number and resource type of credits available? ☐ yes ☐ no

- (3) Is the impact in the service area of an approved in-lieu fee program?

☐ yes ☒ no

- (i) Does the in-lieu fee program have appropriate number and resource type of credits available?

☐ yes ☐ no

- (4) Check the selected compensatory mitigation option(s):

☐ mitigation bank credits

☐ in-lieu fee program credits

☒ permittee-responsible mitigation under a watershed approach

☐ permittee-responsible mitigation, on-site and in-kind

☒ permittee-responsible mitigation, off-site and out-of-kind

- (5) If a selected compensatory mitigation option deviates from the order of the options presented in §332.3(b)(2)-(6), explain why the selected compensatory mitigation option is environmentally preferable. Address the criteria provided in §332.3(a)(1) (i.e., the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory mitigation project):

The three proposed off-site mitigation areas are located within the Muscatatuck 8-digit watershed (05210207). The Harrell site is surrounded by active cattle pasture with little to no riparian vegetation along the stream due to grazing. The stream has unstable banks at cattle crossing locations. The Stidam site is primarily abandoned pasture and row crop areas that have been historically drained. Some of the drainage tile has failed, causing the creation of a small area of poor quality forested wetland and open water. A large forested floodplain associated with the Muscatatuck River borders the site to the south. The Goecker site is surrounded by row crops and contains two ephemeral tributaries that combine and become one intermittent tributary before entering the forested floodplain to the southeast.

The proposed off-site wetland and open water mitigation (Stidam site) includes creation of a total of 8.2 acres of forested wetland (this includes 0.66 acre of mitigation to satisfy state requirements for the U.S. 50 spot improvements project and contingency acreage). Impacts to open water would be mitigated through the creation of an additional 0.16 acre of open water, preservation of the existing 0.16 acre of open water, and creation of a total of 2.35 acres of forested wetland. Emergent wetland impacts would also be mitigated out-of-kind through the creation of 1.66 acre of forested wetland (2:1 ratio). The mitigation would provide flood storage during flood events and filter storm water. The close proximity to the forested riparian area of the Muscatatuck River will make the site appealing to amphibians, birds, and mammals for foraging and breeding. Overall, this mitigation site is expected to provide the following benefits to the

watershed: nutrient transformation and processing, biomass accumulation and decomposition, increase in wildlife habitat, reduced erosion, reduced flooding (surface water storage), reduced water temperatures, increased water quality, decreased sediment load, decreased turbidity, increased biodiversity, increase in game species, connection of wildlife corridors, and decrease in *E. coli*.

The proposed off-site stream mitigation areas (Harrell and Goecker) include construction of a total of 3,465 lf of forested riparian corridors on both sides of the streams. Additionally, the Harrell mitigation site would involve the construction of fencing around the mitigation buffer area to isolate cattle from the stream and stabilization of an existing cattle crossing that is contributing sediment to the stream. The watershed is dominated by agricultural areas where cattle contribute to the impairment of streams through the additional of *E. coli* and sediment. The mitigation is expected to decrease bank erosion, absorb and release storm water into the channels in a more natural manner, and help to decrease flash hydrology events in the streams (which will serve to decrease turbidity and siltation). The corridors would aid in buffering the phosphorus, nitrates, and pesticides from adjacent agricultural areas and serve to decrease algal blooms, lowering biological oxygen demand, and protect organisms sensitive to chemicals. The Goecker site's close proximity to the forested riparian area of the Muscatatuck River will make this mitigation site appealing to amphibians, birds, and mammals for foraging and breeding. The overall benefits are similar to those of the Stidam wetland mitigation site.

The mitigation sites would provide two times (for emergent wetland impacts) or four times (for forested wetland impacts) the amount of forested wetland as compared to the amount proposed to be impacted. The expected quality of created wetlands is intended to exceed the functional quality of the impact locations. The provided open water preservation and expansion would help to replace any aquatic habitat function that the open water ponds provided in the watershed; however, it is anticipated that the provided mitigation would have an increased variety of functions since it is being integrated within a forested wetland. Out-of-kind mitigation for the low quality emergent wetland and open water ponds consists of the creation of a higher quality and function forested wetland complex. The majority of the impacted streams are of poor quality and are located in agricultural headwater areas with little to no riparian corridors. The proposed stream mitigation would provide greater function and habitat in the watershed through the creation of wide, forested riparian corridors, bank stabilization, and isolation of cattle from a channel.

- (6) Other Mitigative Actions – During construction, runoff control measures would be implemented with Best Management Practices to reduce downstream sedimentation or other water quality impacts caused by construction activities. Water collected from potential temporary dewatering operations and pump bypassing shall be treated by acceptable methods before being released. All measures would be installed in accordance with INDOT specifications and would be maintained in accordance with recommendations outlined in the

Indiana Storm Water Quality Manual and as required by state regulations. Permanent measures that would be implemented to prevent roadside runoff from impacting downstream water quality include seeding and/or sodding in ditches and culvert inlet and outlet protection to filter out sediment prior to its reaching culverts or streams. Existing vegetation between the construction limits and the right-of-way would help filter sheet flow. Riprap over geo-textile at storm water outlets would prevent scour.

The applicant would avoid potential adverse impacts to the federally endangered *Myotis sodalis* (Indiana Bat) by refraining from clearing a potential habitat area located at Crossing 9 between April 1 and September 30.

Environmentally sensitive locations, such as wetlands, would be clearly shown on construction plans and would not be permitted for use as staging areas, borrow, or waste sites. Trees and understory vegetation would not be cleared outside of the construction area, and "Do Not Disturb" and "Do Not Mow or Spray" signs would be posted to protect the undisturbed areas within right-of-way.

Disturbed areas would be re-vegetated immediately upon project completion.

All work would be avoided within the inundated portions of the streams during the fish spawning season (April 1 to June 30).

A minimum average six inch graded riprap stone would be used and would extend below the normal water level to provide habitat for aquatic organisms in the voids.

All excavated material, debris, felled trees, and sediment would be disposed landward of the floodway of any stream.

Impacts to upland forest under 1 acre would be mitigated at a 1:1 ratio, while impacts greater than 1 acre would be mitigated at a 2:1 ratio.

9. General evaluation criteria under the public interest review. We considered the following within this document:

- a. The relative extent of the public and private need for the proposed structure or work. (e.g. Public benefits include employment opportunities and a potential increase in the local tax base. Private benefits include land use and economic return on the property; for transportation projects benefits include safety, capacity and congestion issues.)  
*Explain.* The public and private need for the proposed project is to increase safety and level of service for motorists driving through the area and provide a direct and efficient route to the north and west sides of North Vernon.
- b. ☒ There are no unresolved conflicts as to resource use.

- c. The extent and permanence of the beneficial and/or detrimental effects, which the proposed work is likely to have on the public, and private uses to which the area is suited. ☒ Detrimental impacts are expected to be minimal although they would be permanent in the construction area. The beneficial effects associated with utilization of the property would be permanent. *Explain.* The proposed crossings include 1.39 acres of wetland and 2.51 acres of open water pond that would be permanently filled and 3,465 linear feet of stream that would be permanently relocated, encapsulated, and/or lined with riprap. To offset the losses of wetland and stream, the applicant would create and enhance wetlands and forested riparian corridors at three off-site mitigation areas within the same 8-digit watershed.

10. Determinations.

- a. Public Hearing Request: ☒ NA

☐ I have reviewed and evaluated the requests for a public hearing. There is sufficient information available to evaluate the proposed project; therefore, the requests for a public hearing are denied.

- b. Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

- c. Relevant Presidential Executive Orders.

- (1) EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians. ☒ This action has no substantial direct effect on one or more Indian tribes. *Explain.* Received no response to the public notice from any Native American tribes.
- (2) EO 11988, Floodplain Management. ☒ Not in a floodplain. (☐ Alternatives to location within the floodplain, minimization, and compensation of the effects were considered above.)
- (3) EO 12898, Environmental Justice. In accordance with Title III of the Civil Right Act of 1964 and Executive Order 12898, it has been determined that the project would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin nor would it have a disproportionate effect on minority or low-income communities.
- (4) EO 13112, Invasive Species.  
☐ There were no invasive species issues involved.

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- ☒ The evaluation above included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects.  
☐ Through special conditions, the permittee will be required to control the introduction and spread of exotic species.

- (5) EO 13212 and 13302, Energy Supply and Availability. ☒ The project was not one that will increase the production, transmission, or conservation of energy, or strengthen pipeline safety. (☐ The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy-related (including pipeline safety) project while maintaining safety, public health, and environmental protections.)

b. Finding of No Significant Impact (FONSI). Having reviewed the information provided by the applicant and all interested parties and an assessment of the environmental impacts, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an Environmental Impact Statement will not be required.

c. Compliance with 404(b)(1) guidelines. ☐ NA

Having completed the evaluation in paragraph 5, I have determined that the proposed discharge ☒ complies/☐ does not comply with the 404(b)(1) guidelines.

d. Public Interest Determination: I find that issuance of a Department of the Army permit ☒ is not/☐ is contrary to the public interest, if properly conditioned. Therefore, I have decided to issue the requested Department of the Army permit subject to all Standard Conditions and the following Special Conditions:

1. The permittee shall provide off-site compensatory mitigation in accordance with the Mitigation and Monitoring Plan dated June 11, 2012.
2. Mitigation shall consist of the creation and enhancement of 6.25 acres of forested wetland, 0.16 acre of open water, preservation of existing 0.16 acre of open water, and the creation of 3,465 linear feet of forested riparian corridor along both sides of two ephemeral, one intermittent, and one perennial stream.
3. The permittee shall monitor the off-site stream mitigation sites (Goecker and Harrell) annually for a period of five years and monitor the off-site wetland mitigation site (Stidam) annually for a period of 10 years. The permittee shall submit monitoring reports to the U.S. Army Corps of Engineers, Indianapolis Regulatory Office by December 31 of each reporting year (years 1-5 for stream mitigation, and years 1,2,4,6,8,10 for wetland mitigation).
4. The permittee shall permanently protect the entire mitigation areas through the implementation of the Corps approved deed restriction. A draft copy of the deed restrictions for the mitigation sites shall be submitted within 90 days of the issuance of this DA permit. A signed and recorded copy of the deed restrictions shall be



submitted within 30 days following notification from the Corps to record the final deed restrictions. The Corps shall be notified in writing prior to the transfer of the mitigation site(s) to another entity or individual. Permanent protection shall transfer with the properties.

5. The permittee's responsibility to complete the required compensatory mitigation as set forth in the above listed special conditions shall not be considered fulfilled until they have demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers.
6. Avoid tree clearing in the forested area associated with perennial stream T1-S8 (located at Line B, Station 308 on the construction plan sheets) between April 1 and September 30.


CELRL-OP-FN (Application LRL-2012-223-sjk)

SUBJECT: Department of the Army Environmental Assessment and Statement of Findings for the  
Above-Numbered Permit Application

**PREPARED BY:**



Date: 8/3/12

 Sarah Keller  
Project Manager  
Indianapolis Regulatory Office

**APPROVED BY:**



Date: 8/3/12

Greg McKay  
Chief, North Section  
Regulatory Branch

## REGULATORY-SECTION 106/Appendix C- DOCUMENTATION

**Type of permit:** ☐ Section 10 ☒ Section 404 ☐ Section 10 / 404  
☐ NWP# ☐ PCN ☐ RGP ☐ LOP ☐ IP ☐ Violation

**Potential to Affect Historic Properties (to be made by the Regulatory project manager or in consultation with the Regulatory Archaeologist, if necessary):**

☐ The undertaking has no potential to affect historic properties, Section 106 is complete, no need to consult with SHPO; 36 C.F.R 800.3(a)(1), Appendix C, Section (3)(b), USACE Interim Guidance April 25, 2005.

**Rationale (check all that apply):**

- ☐ Area has been extensively disturbed by previous work;
- ☐ Area created in modern times;
- ☐ Limited nature and scope of undertaking;
- ☐ No historic structures in the permit area or immediate viewshed;
- ☐ The proposed work area is not visually prominent
- ☐ Other:

☒ The undertaking has the potential to affect historic properties or the potential is unknown (submit to regulatory archaeologist along with the following information.

- ☒ Map of project area, any off-site mitigation areas, and coordinates;
- ☒ Project plans or Public Notice;
- ☒ Any correspondence from SHPO or another Federal Agency (if included with permit application);
- ☒ Photo(s) of the project area(s) (if included);
- ☒ Information about houses, buildings, structures, etc. [including estimated construction dates] (if included);
- ☒ Previous Cultural Resources Work [predetermination reports, survey reports, etc.] (if included)
- ☒ Cultural Resources Survey Report / EIS / EA/other federal agency determination (if included).

**Effect Determination (to be made in consultation with the Regulatory Archaeologist):**

☒ No effects to historic properties; 36 C.F.R. §800.4(d)(1), 33 C.F.R. §325, Appendix C, Section (7)(b), USACE Interim Guidance April 25, 2005 (SHPO concurrence required within 30 days)

☐ No adverse effects to historic properties; 36 C.F.R. §800.5(d)(1); 33 C.F.R. §325, Appendix C(7)(c), USACE Interim Guidance April 25, 2005 (SHPO concurrence required within 30 days)

☐ Adverse effect to historic properties 36 C.F.R. §800.5(d)(2) and 33 C.F.R. §325, Appendix C(7)(d), USACE Interim Guidance April 25, 2005 (SHPO concurrence, MOA will be required)

**Rationale:**

- ☒ No Effect: ☒ Archaeological and/or Structures survey identified no cultural resources; ☒ Archaeological and/or Structures survey identified resources but they are not eligible for the National Register (NR);
- ☐ No Adverse Effect: ☐ NR-eligible properties are present, but will not be adversely impacted by undertaking;
- ☐ Adverse Effect: ☐ Eligible properties present and will be adversely impacted by undertaking.

**Date Section 106 complete (Choose One):**

☒ SHPO concurred with the Corps' effect determination on [June 4, 2012]

☐ Memorandum of Agreement (MOA) accepted by the Advisory Council on Historic Preservation on [add date]

(Note: this only applies to adverse effect determinations.)

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**For Mining Projects Complete This Page:**

**The Corps is responsible for Section 106 compliance for proposed mining operations only within our Permit Area and any off-site mitigation areas (Permit Area=impacted waters of the US plus riparian corridor [± 50-foot width])**

**Was a Cultural Resources review completed for SMCRA process:** ☐ Yes ☐ No

**Did the applicant provide any of the following supporting documentation:**

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- ☐ Letter from the Kentucky Heritage Council;
- ☐ Letter from the Indiana DNR Division of Reclamation archaeologist (IN SHPO does not review mines, only mitigation areas.);
- ☐ Letter from Illinois SHPO;
- ☐ Other documentation (e.g. map showing sites and impacts, survey report, etc).

**Were any historic properties identified in the Permit Area:**

- ☐ Yes (submit documentation to Regulatory Archaeologist for Determination of Effect)
- ☐ No. Section 106 is complete, no historic properties affected.

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**Proposed Mitigation Area:**

- ☐ In-lieu fee/mitigation bank credits.
- ☐ On-site. Cultural resources survey conducted during the SMCRA process.
- ☒ Off-site (submit documentation to regulatory archaeologist):  
Survey Required: ☒ Yes ☐ No

**Effects determination for off-site mitigation area:**

- ☒ No potential to affect historic properties; *36 C.F.R. 800.3(a)(1), Appendix C, Section (3)(b), USACE Interim Guidance April 25, 2005. (no SHPO coordination required)*
- ☐ No effects to historic properties; *36 C.F.R. §800.4(d)(1), 33 C.F.R. §325, Appendix C, Section (7)(b), USACE Interim Guidance April 25, 2005 (SHPO concurrence required within 30 days)*
- ☐ No adverse effects to historic properties; *36 C.F.R. §800.5(d)(1); 33 C.F.R. §325, Appendix C(7)(c), USACE Interim Guidance April 25, 2005 (SHPO concurrence required within 30 days)*
- ☐ Adverse effect to historic properties *36 C.F.R. §800.5(d)(2) and 33 C.F.R. §325, Appendix C(7)(d), USACE Interim Guidance April 25, 2005 (SHPO concurrence, MOA will be required)*

**Rationale (check all that apply for no potential to affect):**

No Potential: ☐ Area has been extensively disturbed by previous work; ☐ Area created in modern times;  
☐ limited nature and scope of undertaking; ☐ No historic structures in the permit area or immediate viewshed; ☐ The proposed work area is not visually prominent; ☐ Other:

No Effects: ☐ Archaeological and/or Structures survey identified no cultural resources; ☒  
Archaeological and/or Structures survey identified resources but they are not eligible for the National Register (NR): archaeological site at the Harrell Property would be completely avoided by the applicant, so the SHPO did not request additional investigations although they did not have enough information to determine eligibility.

No Adverse Effect: ☒ NR-eligible properties are present, but will not be adversely impacted by undertaking: archaeological site at the Harrell Property would be completely avoided by the applicant, so the SHPO did not request additional investigations although they did not have enough information to determine eligibility.

Adverse Effect: ☐ Eligible properties present and will be adversely impacted by undertaking.

**Section 106 completed for off-site mitigation area when (Choose One):**

- ☒ SHPO concurred with the Corps' effect determination on [conditionally, July 17, 2012] See Section 6, "Public Interest Review" for full explanation.
- ☐ Memorandum of Agreement (MOA) accepted by the Advisory Council on Historic Preservation on [add date] (Note: this only applies to adverse effect determinations.)

## U.S. 50 North Vernon New Roadway Project

### Wetland and Waterbody Impact and Mitigation Table

[illegible]



U.S. 50 North Vernon New Roadway Project  
Wetland and Waterbody Impact and Mitigation Table

Wetland/ Waterbody Name	Wetland/ Waterbody type	Avg. Width at OHWM (ft)	Avg. Depth at OHWM (ft.)	Impacted Area (ac)	Impacted linear feet	Waters of the U.S.?	Fill (cubic yds.)	Mitigation Ratio	On site mitigation (lin. feet)	Off site mitigation (lin. feet or acres)	Comments
Contract #	Station #										
Stream T1-S4  Contract 2	INT  Line B STA 321 + 25	13	2.5	0.061	203	Yes	236	1:1	None	203	203 linear feet of this intermittent stream will be impacted by placing the stream in a concrete box culvert under the new U.S. 50 roadway. Offsite mitigation will consist of 203 feet of riparian plantings along both sides of the intermittent stream at the Goecker mitigation site.
Wetland T2-W8  Contract 1	PEM  Line AR -1 STA 1005 + 80	N/A	N/A	0.03	N/A	Yes	194	1:2	None	0.06	0.03 acre of clean earthen fill will be used to fill a portion of this emergent wetland in order to create the roadbed and slide slopes a new road connection with the new U.S. 50 roadway and CR 400 W south of existing U.S. 50. Offsite mitigation will consist of creating 0.06 acre forested wetland at the Stidam mitigation site.
Wetland T1-W10  Contract 2	PFO  Line B STA 307	N/A	N/A	0.23	N/A	Yes	484	1:4	None	0.92	0.23 acre of clean earthen fill will be used to partially fill this forested wetland to create the new U.S. 50 roadway and build the southern abutment for the bridge carrying the new U.S. 50 over Unnamed Tributary to Sixmile Creek (Stream T1-P8). Offsite mitigation will consist of creating 0.92 acre of forested wetland at the Stidam mitigation site.
Wetland T1-W23  Contract 2	PFO  Line B STA 242 + 50	N/A	N/A	0.02	N/A	Yes	32	1:4	None	0.08	0.02 acre of clean earthen fill will be used to completely fill this small, forested wetland to create the new U.S. 50 roadway. Offsite mitigation will consist of creating 0.08 acre of forested wetland at the Stidam mitigation site.
Wetland T1-W31  Contract 2	PEM  Line B STA 336 + 25	N/A	N/A	0.01	N/A	Yes	65	1:2	None	0.02	0.01 acre of clean earthen fill will be used to fill a small portion of this emergent wetland in order to create the new U.S. 50 roadway. Offsite mitigation will consist of creating 0.02 acre of forested wetland at the Stidam mitigation site.
Wetland T1-W32  Contract 2	PEM  Line B STA 218 + 50	N/A	N/A	0.14	N/A	Yes	532	1:2	None	0.28	0.14 acre of clean earthen fill will be used to fill a portion of this wetland in order to create the new U.S. 50 roadway. A culvert will also be placed under the road to maintain the water regime with the wetland and pond downstream of the impact. Offsite mitigation will consist of creating 0.28 acre of forested wetland at the Stidam mitigation site.
Wetland T1-W33  Contract 2	PEM  Line B STA 220 + 50	N/A	N/A	0.23	N/A	Yes	710	1:2	None	0.46	0.23 acre of clean earthen fill will be used to fill a portion of this wetland in order to create the new U.S. 50 roadway. A culvert will also be placed under the road to maintain the water regime with the wetland and pond downstream of the impact. Offsite mitigation will consist of creating 0.46 acre of forested wetland at the Stidam mitigation site.





U.S. 50 North Vernon New Roadway Project  
Wetland and Waterbody Impact and Mitigation Table

Wetland/ Waterbody Name	Wetland/ Waterbody type	Avg. Width at OHWM (ft)	Avg. Depth at OHWM (ft.)	Impacted Area (ac)	Impacted linear feet	Waters of the U.S.?	Fill (cubic yds.)	Mitigation Ratio	On site mitigation (lin. feet)	Off site mitigation (lin. feet or acres)	Comments
Contract #	Station #										
Pond T1-P1	PUB	N/A	N/A	0.28	N/A	Yes	470	1:1	None	0.032 open water	Clean earthen fill will be used to completely fill this impoundment. Combined offsite, in-kind mitigation for all five open water impacts will be to preserve an existing pond and to enlarge it by 0.16ac. This component will be incorporated at the Stidam wetland mitigation site.
Contract 1	Line B STA 118									0.248 forested wetland	The remaining impacted area of this pond will be mitigated by out-of-kind creation of 0.248 acre of forested wetland at the Stidam mitigation site.
Pond T1-P2	PUB	N/A	N/A	1.31	N/A	Yes	2100	1:1	None	0.032 open water	Clean earthen fill will be used to completely fill this impoundment. Combined offsite, in-kind mitigation for all five open water impacts will be to preserve an existing pond and to enlarge it by 0.16ac. This component will be incorporated at the Stidam wetland mitigation site.
Contract 1	Line B STA 201									1.278 forested wetland	The remaining impacted area of this pond will be mitigated by out-of-kind creation of 1.278 acres of forested wetland at the Stidam mitigation site.
Pond T1-P3	PUB	N/A	N/A	0.34	N/A	Yes	440	1:1	None	0.032 open water	Clean earthen fill will be used to completely fill this impoundment. Combined offsite, in-kind mitigation for all five open water impacts will be to preserve an existing pond and to enlarge it by 0.16ac. This component will be incorporated at the Stidam wetland mitigation site.
Contract 2	Line B STA 286									0.308 forested wetland	The remaining impacted area of this pond will be mitigated by out-of-kind creation of 0.308 acre of forested wetland at the Stidam mitigation site.
Pond T1-P4	PUB	N/A	N/A	0.19	N/A	Yes	920	1:1	None	0.032 open water	Clean earthen fill will be used to partially fill this impoundment. Combined offsite, in-kind mitigation for all five open water impacts will be to preserve an existing pond and to enlarge it by 0.16ac. This component will be incorporated at the Stidam wetland mitigation site.
Contract 2	Line B STA 333 + 75									0.158 forested wetland	The remaining impacted area of this pond will be mitigated by out-of-kind creation of 0.158 acre of forested wetland at the Stidam mitigation site.
Pond T1-P5	PUB	N/A	N/A	0.39	N/A	Yes	540	1:1	None	0.032 open water	Clean earthen fill will be used to completely fill this impoundment. Combined offsite, in-kind mitigation for all five open water impacts will be to preserve an existing pond and to enlarge it by 0.16ac. This component will be incorporated at the Stidam wetland mitigation site.
Contract 2	Line B STA 335									0.358 forested wetland	The remaining impacted area of this pond will be mitigated by out-of-kind creation of 0.358 acre of forested wetland at the Stidam mitigation site.



Temporary/Construction impacts  
US 50 North Vernon  
INDOT Des. No. 0401402

Waterbody	Temporary impact type	Temporary impact material	Length of fill (ft)	Width at OHWM (ft)	Depth of OHWM (ft)	Area of fill (ft <sup>2</sup> )	Volume of fill (yd <sup>3</sup> )
T1-S27	Pump-around	Clean water dike, sediment dike, hose	4	2.5	1.5	6.25	3.70
T1-S21	Temporary Dike	Clean water dike, hose	4	1	0.5	2	0.30
T1-S20	Temporary Dike	Clean water dike, hose	4	3	2	9	1.33
T1-S20A	Temporary Dike	Clean water dike, hose	4	3	1.5	7.5	1.11
T1-S19	Temporary Dike	Clean water dike, hose	4	3	1.5	7.5	1.11
T1-S45	Temporary Dike	Clean water dike, hose	4	4	2	12	1.78
T1-S46	Pump-around	Clean water dike, sediment dike, hose	4	8	2.5	28	16.59
T1-S47	Temporary Dike	Clean water dike, hose	4	2	0.5	4	0.59
T1-S48	Temporary Dike	Clean water dike, hose	4	2	1	4	0.59
T1-S49	Pump-around	Clean water dike, sediment dike, hose	4	7	2	21	12.44
T1-S49A	Temporary Dike	Clean water dike, hose	4	2	0.5	4	0.59
T1-S11	Temporary Dike	Clean water dike, hose	4	3	1	6	0.89
T1-S10	Temporary Dike	Clean water dike, hose	4	3	1	6	0.89
T1-S8	Pump-around	Clean water dike, sediment dike, hose	4	22	3	88	52.15
T1-S7	Temporary Dike	Clean water dike, hose	4	3	1	6	0.89
T1-S4	Pump-around	Clean water dike, sediment dike, hose	4	13	2.5	45.5	26.96
T2-W8		Temp. Silt Fence	170	—	—	—	—
T1-W10		Temp. Silt Fence	200	—	—	—	—
T1-W23	No temporary impacts	—	—	—	—	—	—
T1-W31		Temp. Silt Fence	80	—	—	—	—
T1-W32		Temp. Silt Fence	100	—	—	—	—
T1-W33		Temp. Silt Fence	100	—	—	—	—
T1-W34		Temp. Silt Fence	28	—	—	—	—
T1-W36		Temp. Silt Fence	20	—	—	—	—
T1-W37		Temp. Silt Fence	10	—	—	—	—
T1-W40		Temp. Silt Fence	120	—	—	—	—
T1-W41		Temp. Silt Fence	20	—	—	—	—
T1-W42		Temp. Silt Fence	30	—	—	—	—
T1-W43		Temp. Silt Fence	100	—	—	—	—
T1-P1	Dewater Pond	—	—	—	—	—	—
T1-P2	Dewater Pond	—	—	—	—	—	—
T1-P3	Dewater Pond	—	—	—	—	—	—
T1-P4	Dewater Pond	—	—	—	—	—	—
T1-P5	Dewater Pond	—	—	—	—	—	—