I-69 SECTION 5 PROJECT

PUBLIC-PRIVATE AGREEMENT
TECHNICAL PROVISIONS

ATTACHMENT 7-1
ENVIRONMENTAL APPROVALS AND PERMITS

IFA-PROVIDED APPROVALS				
LOCATION	**APPROVAL NAME**	**ADMINISTERING AGENCY**	**STATUS**	**ANTICIPATED APPROVAL DATE**
I-69 (Section 5)	2013 ROD	Federal Highway Administration (FHWA)		Approved 08/07/2013
I-69 (Section 5)	Section 401 Water Quality Certification Permit	Indiana Department of Environmental Management (IDEM)	Submitted by IFA for Agency Review 8/26/2013	11/1/2014
I-69 (Section 5)	Section 404 of the Clean Water Act Permit	US Army Corps of Engineers (USACE)	Submitted by IFA for Agency Review 8/26/2013	11/1/2014
I-69 (Section 5)	Karst Agreement	Indiana Department of Natural Resources (IDNR), Indiana Department of Environmental Management (IDEM) and U.S. Fish and Wildlife Service (USFWS)	Submitted by IFA for Agency Review November 2013	5/30/2014

Indiana Department of Environmental Management
401 Water Quality Certification Application

I-69 Evansville to Indianapolis Project
Section 5
Bloomington to Martinsville
Located in Monroe & Morgan Counties, Indiana

DES#
1297885

Date:
August 26, 2013

Prepared For:

Government Building North, Room N642
100 North Senate Avenue
Indianapolis, Indiana 46204-2249

Prepared By:

BERNARDIN · LOCHMUELLER & ASSOCIATES, INC.
6200 Vogel Road · Evansville · Indiana 47715-4006
PHONE (812) 479-6200 · TOLL FREE (800) 423-7411 · FAX (812) 479-6262

List of Attachments

I-69 Section 5 401 Water Quality Certification Application

The I-69 Section 5 project begins just south of the That Road intersection in Monroe County, Indiana near Bloomington at the end of the current construction of the SR 37 and I-69 interchange project and ends just to the south of the SR 37 and SR 39 interchange in Morgan County, Indiana near Martinsville.

The permitting limits for the water resource impacts identified within this I-69 Section 5 permit application will differ slightly from the impacts identified within the Tier 2 Section 5 FEIS/ROD. In coordination with the TPA, the permit limits utilized in this submittal are a hybrid of the construction limits and right-of-way for the Refined Preferred Alternative 8 (RPA 8) that was identified in the FEIS/ROD. The stream impacts identified in the permit have decreased from the impacts identified in the FEIS/ROD for the (RPA 8) by 40,719 linear feet. The FEIS/ROD identified 80,582 linear feet of stream impact for RPA 8; this included the stream length within the entire right-of-way. This also included impacts to streams that have been identified as non-jurisdictional based on coordination with the USACE. There is currently 39,863 linear feet of stream impacts identified within the Section 5 permit limits. The wetland impacts have increased 1.01 acres based on the RPA 8 construction limits shown in the FEIS/ROD and have decreased by 3.89 acres based on the RPA 8 right-of-way. The FEIS/ROD identified 3.45 acres within the construction limits and 8.35 acres within the right-of-way. There is currently 4.46 acres of wetland impacts identified within the Section 5 permit limits.

Application for Authorization to Discharge Dredged or Fill Material to Isolated Wetlands and/or Waters of the State

State Form 51821 (R / 10-04)

Indiana Department of Environmental Management

INSTRUCTIONS: 1. Read the instruction sheet before filling out this form.

2. You must complete all applicable sections of this form

1. Applicant Information	2. Agent Information
Name of Applicant: Indiana Department of Transportation (INDOT)	Name of Agent: Bernardin Lochmueller and Associates, Inc.
Mailing address: (Street/ PO Box/ Rural Route, City, State, ZIP Code) 100 North Senate Avenue, Room N642 Indianapolis, Indiana 46204	Mailing address: (Street/ PO Box/ Rural Route, City, State, ZIP Code) 6200 Vogel Road Evansville, Indiana 47715
Daytime Telephone Number: (317) 232-0240	Daytime Telephone Number: (812) 479-6200
Fax Number: (317) 233-4929	Fax Number: (812) 479-6262
E-mail address: (optional) nsaxe@indot.in.gov	E-mail address: (optional) jkieffner@blainc.com
Contact person: (required) Nathan Saxe	Contact person: Jeremy Kieffner

3. Project/Tract Location

County: Monroe & Morgan Counties		Nearest city or town: Bloomington & Martinsville	
U.S.G.S. Quadrangle map name (Topographic map): Clear Creek, Bloomington, Modesto, Hindustan, & Martinsville(See Attachment #5)		Project street address (if applicable): Not Applicable	
Quarter: Multiple	Section: Multiple	Township: T8N, T9N, T10N, T11N	Range: R1E, R1W, R2W
Type of aquatic resource(s) to be impacted: (Attach Worksheet One) Wetlands, Ponds, and Streams		Project name or title: (if applicable) I-69 Section 5	

Other location descriptions or driving directions:

Section 5 of the I-69 Project is located on or near SR 37 b/w Blooimington and Martinsville (App. 22 miles in length).

4. Project Purpose and Description (*Use additional sheet(s) if **required***)

Has any construction been started? ☐ Yes ☒ No	Anticipated start date: 6/1/2014

If yes, how much work is completed?

Purpose of project and overview of activities:

The purpose and need of the entire I-69 project from Evansville to Indianapolis is to strengthen the transportation network in SW Indiana; support economic development in SW Indiana; and complete the portion on the National I-69 project between Evansville and Indianapolis. The purpose and need for Section 5 of the I-69 project is to complete Section 5 of I-69 as determined in the I-69 Tier 1 ROD; improve traffic safety; and support local economic development initiatives. The completion of this project will include the construction to upgrade existing SR 37 to interstate standards between the proposed new interchnage with the future I-69 & existing SR 37 in Monroe County to just south of the SR 39 interchange in Morgan County, Indiana. A total of 4.44 acres of wetlands , 0.02 acres of ponds, and 39,863 linear feet of streams will be impacted by the I-69 Section 5 permitting limits. Impact Site Forms, QHEI or HHEI assessments and Wetland assessements (InWRAP) completed on these wetlands and streams may be found in Attachment (Att) #8. Att #17 contains an electronic copy of the I-69 Section 5 FEIS/ROD. See Chapters 2 - 4 in Att #17 for addtional purpose and need and project description information. Att #18 contains the approved Tier 1 ROD. Att #19 contains an impact summary table.

5. Avoidance, Minimization, and Mitigation Information: Applicants must answer all of the following questions
(*Use additional sheet(s) if necessary - provide a detailed response to all applicable questions*).

A. For projects with Class II isolated wetlands –

1. Is there a reasonable alternative to the proposed activity?

There are no Class II isolated wetlands being impacted by Section 5 of the I-69 Project

2. Is the proposed activity reasonably necessary or appropriate?

B. For projects with Class III wetlands, adjacent wetlands, and/or streams, rivers, lakes or other water bodies –

1. Is there a practicable alternative to the proposed activity?

There is no practicable alternative for Section 5 of the I-69 project that avoids all wetlands and streams.

2. Have practicable and appropriate steps to minimize impacts to water resources been taken?

Avoidance and minimization efforts have been ongoing and will continue to be reviewed and modified throughout the I-69 project through final design (See Att #17 Chapter 5.19 and Att #10). INDOT will follow the standard for sumping culverts in Att #12 to further minimize impacts at stream crossing locations.

Describe all compensatory mitigation required for unavoidable impacts.

Section 5 of the I-69 project will impact approximately 2.65 acres of jurisdicational emergent wetlands, 0.28 acre of jurisdicational scrub shrub wetlands, 1.43 acres of a jurisdictional forested wetlands, 0.08 acres of jurisdictional aquatic bed wetlands, 0.02 acres of jurisdicational open water, and 39,863 linear feet of juridictional streams. See Att #8 and Att #17 Chapter 5.19 for additional information on water resource impacts. Att #10 contains the Compensatory Mitigation Plan. Att #14 contains a typical culvert sheet. Att #15 contain a diagram of a pump around that may be used for construction of culverts.

6. Drawing/Plan Requirements *(applicants must provide the following)*

a. Top/aerial/overhead views of the project site showing existing conditions and proposed construction. See Att #5 and #6
b. Cross sectional view of areas of fill or alterations to streams and other waters. See Att #7
c. North arrow, scale, property boundaries. See Att #16
d. Include wetland delineation boundary (if applicable). Label all wetlands (jurisdictional, isolated and exempt) as I-1, I-2, I-3, etc. and the mitigation areas as M-1, M-2, etc. See Att #6, #7, and #9
e. Location of all surface waters, including wetlands, erosion control measures, existing and proposed structures, fill and excavation locations, disposal area for excavated material, including quantities, and wetland mitigation site (if applicable). See Att #5, #6, #7 and #8
f. Approximate water depths and bottom configurations (if applicable).

7. Supplemental Application Materials *(applicants must provide the following)*

a. A wetland delineation of all wetlands on the project site (for projects with wetland impacts). See Att #9
b. At least three photographs of the project site. Indicate the photo locations on the project plans. See Att #8
c. If isolated wetlands are present, a letter from the Corps of Engineers verifying this statement. See Att #11
d. Wetland mitigation plan and monitoring report. See Att #10
e. Classification of all isolated wetlands on the tract (if isolated wetlands are present onsite).
f. Copies of all applicable local permits and/or resolutions pertaining to the project or tract. See Att #17
g. Tract history (see instructions).

8. Additional information that MAY be required *(IDEM will notify you if needed)*

a. Erosion control and/or storm water management plans. The Erosion Control Plan will be complete as part of final design.
b. Sediment analysis.
c. Species surveys for fish, mussels, plants and threatened or endangered species.
d. Stream habitat assessment. See Att #8
e. Any other information IDEM deems necessary to review the proposed project. Att #8

9. Permitting Requirements

a. Does this project require the issuance of a Department of the Army Section 404 Permit from the US Army Corps of Engineers? ☒ Yes ☐ No

If no, you do not need to answer Part b.

b. Have you applied for an Army Corps of Engineers Section 404 permit? ☐ Yes ☒ No

If yes, please supply the Corps of Engineers ID Number, the Corps of Engineers District, the project manager, and a copy of any correspondence with the Corps. **If no, contact** the Army Corps of Engineers regarding the possible need for a permit application.

USACE Section 404 Permit in being applied for concurrently.

c. Have you applied for, received, or been denied a permit from the Department of Natural Resources for this project? ☐ Yes ☒ No

Please give the permit name, permit number, and date of application, issance or denial..

Construction in a Floodway Permits will be applied prior to any construction activities beginning in required areas.

d. Have you applied for, received, or been denied any other federal, state, or local permits, variances, licenses, or certifications for this project? ☒ Yes ☐ No

Please give the permit name, agency from which it was obtained, permit number, and date of issuance or denial.

USFWS BO was approved on July 25, 2013.

10. Adjoining Property Owners and Addresses

List the names and addresses of landowners adjacent to the property on which your project is located and the names and addresses of other persons (or entities) potentially affected by your project. Use additional sheet(s) if required.

Name See Att #16 Address City State ZIP Code	Name Address City State ZIP Code
Name Address City State ZIP Code	Name Address City State ZIP Code
Name Address City State ZIP Code	Name Address City State ZIP Code
Name Address City State ZIP Code	Name Address City State ZIP Code
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Name Address City State ZIP Code	Name Address City State ZIP Code

11. Signature - Statement of Affirmation

I certify that I am familiar with the information contained in this application and, to the best of my knowledge and belief, such information is true and accurate. I certify that I have the authority to undertake and will undertake the activities as described in this application. I am aware that there are penalties for submitting false information. I understand that any changes in project design subsequent to IDEM's granting of authorization to discharge to a water of the state are not authorized and I may be subject to civil and criminal penalties for proceeding without proper authorization. I agree to allow representatives of the IDEM to enter and inspect the project site. I understand that the granting of other permits by local, state, or federal agencies does not release me from the requirement of obtaining the authorization requested herein before commencing the project.

Applicant's Signature: Nat Saxe

Date: 08/26/2013 (mm/dd/yyyy)

Print Name: Nathan Saxe

Title: Manager, INDOT ES

Worksheet – Summary of Onsite Water Resources and Project Impacts

A. Jurisdictional Wetlands (Existing Conditions)		Jurisdictional Wetlands (Proposed Impacts)			
Wetland Type	**Size of wetland (acreage)**	**To be Impacted?**	**Acreage**	**Fill quantity (cys)**	**ATF**
☐ EM ☐ SS ☐ FO	See Att #1	☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			
☐ EM ☐ SS ☐ FO		☐ Yes ☐ No			

Describe the type and composition of fill material to be placed in wetlands on the project site:

See Att #1

Describe the type and composition and quantity (cubic yards) of material proposed to be dredged or excavated from wetlands on the project site:

See Att #1

B. Isolated Wetlands (Existing Conditions)			Isolated Wetlands (Proposed Impacts)			
Wetland Class	**Type**	**Size of wetland (acreage)**	**To be Impacted?**	**Acreage**	**Fill quantity (cys)**	**ATF**
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F	N/A	☐ Yes ☐ No			
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F		☐ Yes ☐ No			
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F		☐ Yes ☐ No			
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F		☐ Yes ☐ No			
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F		☐ Yes ☐ No			
☐ 1 ☐ 2 ☐ 3	☐ NF ☐ F		☐ Yes ☐ No			

Describe the type and composition of fill material to be placed in isolated wetlands on the project site:

No isolated wetlands are being impacted by Section 5

Describe the type and composition and quantity (cubic yards) of material proposed to be dredged or excavated from isolated wetlands on the project site:

No isolated wetlands are being impacted by Section 5

C. Bridges and Stream Crossings - provide the following information for EACH structure (*Use additional sheet(s) if required*)

Stream name:
See Att #2

Description of impacts:

Length of upstream bank impacts: Left side: Right side:

Length of downstream bank impacts: Left side: Right side:

Bank protection fill placed below the Ordinary High Water Mark: Volume per running foot:

Bank protection fill placed below the Ordinary High Water Mark: Area of coverage:

D. Bank Stabilization – provide the following information for EACH segment (*Use additional sheet(s) if required*)

Water body name:
No stream stabilization will be completed by the Section 5 project.

Description of impacts:

Length of shoreline or bank protection:

Volume (cubic yards) of bank protection fill placed below the Ordinary High Water Mark per running foot:

Area (square feet) of bank protection fill placed below the Ordinary High Water Mark:

E. Stream Relocation

Water body name:
See Att #3

Description of impacts:

Length of existing channel to be relocated: (linear feet)

Length of new channel to be constructed: (linear feet)

Existing channel to be backfilled: ☒ Yes ☐ No

Type of relocation: ☐ Piping ☒ Open Channel ☐ Other: _____

Type of fill and volume: (cubic yards)

F. Open Water Fill

Water body name:
See Att #4

Description of impacts:

Area of water body to be filled: (acres)

Type of fill and volume: (cubic yards)

Notes and Instructions for Authorization to Discharge Dredged or Fill Material to a State Regulated Wetland and/or Waters of the State Permit Application Form and Worksheet

Note to applicants:

This form is to be used by all persons who intend to discharge dredged or fill materials into wetlands, isolated wetlands, or any other water body regulated under state and federal law. Specifically, this form is to be used for the following:

1. Application for Section 401 Water Quality Certification for any project not covered by the Indiana Regional General Permit
2. Application for a State Regulated Wetland Permit authorized under HEA 1798 and HEA 1277, excluding any activities authorized under any of the State Regulated Wetland General Permits

Consult the Office of Water Quality Web site for information on the types of authorizations and requirements for projects regulated under these laws "

http://www.in.gov/idem/water/planbr/401/401home.html

Do not submit this form until you are familiar with the various authorizations and proper forms for obtaining these authorizations. An application submitted on the incorrect form may result in delays in processing.

Applicants should also contact the Indiana Department of Natural Resources (DNR) regarding potential permit requirements associated with construction in a floodway or a public freshwater lake. You can reach the DNR Division of Water at (317) 232-4160 or toll free at (877) WATER-55.

Instructions for Completing the Application and Worksheet

Address all applications or questions to:

Indiana Department of Environmental Management
Office of Water Quality
Section 401 Water Quality Certification/State Isolated Wetlands Program
100 North Senate
Indianapolis, Indiana 46204

Telephone: (800) 451-6027 or (317) 233-8488

Print clearly or type
Attach additional 8.5" x 11" sheets as necessary

APPLICATION

Note: Some wetland activities may impact both U.S. navigable waters and state regulated isolated wetlands. In those situations, the project will require a Section 401 Water Quality Certification and Section 404 U.S. Corps of Engineers permit AND approval under the new State Isolated Wetland Regulatory Program. When IDEM receives an application that involves an activity that may impact both intrastate navigable waters and a state regulated wetland, current state law requires that we evaluate each activity using different authorities. IDEM will, at the request of an applicant, evaluate a project with multi-jurisdictional wetlands under the Section 401 certification framework and will provide one authorization for the project, applying the state regulated isolated wetlands law and federal Clean Water Act Section 401 authorities. If an applicant prefers that all IDEM approvals occur within one streamlined review process, a separate letter specifically requesting a combined review of the entire project should be submitted concurrently with the application.

Block 1 - Applicant Information
Provide your name, address, and telephone number. You MUST provide a contact name. For complex projects or projects with multiple contractors and responsible parties, designation of a single point of contact will speed up the review process and enable more timely responses to requests for information.

Block 2 - Agent Information
If you choose to be represented by an agent, provide the agent™s address and telephone information. You are not required to have an agent.

Block 3 - Project Location
Provide specific information relating to the location of your proposed project. Provide accurate maps depicting the project location. Try to keep detail on maps to a minimum, focusing instead on the location of structures and associated water bodies. Consult the USGS Quadrangle maps for information on the quarter, section, township and range of the project. IDEM may require that you submit full size plans to supplement the 8 1/2" by 11" map sheets if the project is large or complex.

Block 4 - Project Purpose and Description
Provide the proposed or actual start date and the anticipated completion date. If you have started your project before obtaining authorization, you may be in violation of federal and/or state law. Give a narrative description of the proposed project. You should include any supplemental environmental reports, assessments, or other documents that explain or justify the proposed configuration of the project. Describe the purpose of the project (that is, what goal oroutcome will be met by the construction of the project).

Block 5 - Avoidance, Minimization, and Mitigation Information
You must describe possible alternatives to the proposed project that would avoid impacts to the aquatic resource that were considered during the project planning process. You must also describe ways to minimize impacts considered during the project planning process, including a description of how you plan to contain any dredged/excavated material to prevent re-entry into waterways or wetlands. Examples of alternatives include construction on the upland portions of the property; rerouting a roadway to avoid a wetland; or alternate design plans. Minimization of the impacts may decrease any mitigation requirements that might otherwise apply. Minimization may include reduction of the amount of dredging, filling, or vegetative clearing. For isolated wetlands only, enclosure of a copy of (1) a resolution of the executive of the county or municipality in which the wetland is located or (2) a permit or other approval from a local government entity having authority over the proposed use of the property on which the wetland is located; that includes a specific finding that the wetland activity is part of a legitimate use proposed by the applicant on the property, substitutes for the information required on avoidance and minimization.

Answer all the questions in detail, providing example, drawings, or other supporting information to illustrate the steps taken to consider alternatives. Provide reasons why various alternatives were or were not considered.

In general, all impacts to wetlands or other waters that require the use of this form will require some form of compensatory mitigation. A detailed description ofthe mitigation plan must be provided, including: the location of the mitigation site, the size and type of mitigation to be performed, the construction sequence ortiming of the mitigation, information on post construction monitoring, mitigation techniques, and success criteria of the mitigation site. A mitigation plan, with overview drawings, planting lists, cross sectional views, and other relevant information is recommended as a supplement to answer this question.

Block 6 - Drawing/Plan Requirements

You must submit drawings/plans that are on 8 1/2 by 11 inch sheets. Your project will be delayed if these materials are not submitted in the formats specified in the application.

Block 7 "Supplemental Application Materials

All projects involving impacts to wetlands must be accompanied by a wetland delineation using the procedures established in the U.S. Army Corps of EngineersWetland Delineation Manual, Technical Report Y-87-1 (January 1987). This delineation must be approved or reviewed by the Corps of Engineers in order for IDEM to determine the impacts to water bodies associated with the project. DO NOT submit an application involving impacts to wetlands without a wetland delineation. For projects that involve impacts to isolated wetlands, a letter from the Corps of Engineers that specifically makes this determination must be provided or the application will not be processed. Submittal of photographs depicting the project site is highly encouraged. Photos must be clearly labeled with the direction of the shot, the area depicted, and notes on relevant features. A map depicting the location of photos on the project site is also useful and should be included whenever photos are submitted.

For project sites with isolated wetlands, a tract history is also required. This history provides information on all the wetlands on the site prior to January 1, 2004, and describes any and all activities within these wetlands, including impacts allowed to wetlands exempt from regulation under the various provisions of federal and state law. Direct questions regarding this requirement to IDEM staff for clarification.

Block 8 - Additional Information That May Be Required

You are not required to submit the information specified in this section unless directed to do so by IDEM. However, you may submit the information if you anticipate that such information will be required. For example, if you are aware of issues on the proposed project site which may impact water resources, such as the presence of contaminated soils or sediments, endangered species, well field protection areas, or previously permitted activities on the project site, information regarding these points must be submitted with the certification application.

Block 9 - Permitting Requirements

Provide information regarding your application to the Corps of Engineers. If you have not yet contacted the Corps of Engineers, you must do so as soon as possible (SEE BLOCK 7). Provide information regarding any other federal, state, or local permits, variances, licenses, or certifications required for your project.Please indicate whether they were approved, denied, or are pending.

Block 10 - Adjoining Property Owners and Addresses

List the names and addresses of landowners adjacent to the property on which your project is located. Adjacent property owners are persons who share property lines with your property. Inclusion of names and addresses of other persons (or entities) potentially affected by your project must include persons within your neighborhood, lake association, or in the general vicinity that may have an interest in your project. Consult with IDEM for further clarification.

Block 11 - Signature - Statement of Affirmation

You must sign and date the application. If the applicant is a corporation, a responsible person from that corporation must sign. No other signatures will be accepted. The application will not be processed without the appropriate signature.

WORKSHEET

Note: When calculating any type of impact, all areas that are affected by placement of fill, bank armoring, culverting, excavation, or any other activity must be counted. When calculating open water impact, all areas within lakes, rivers, streams and the like must be counted. This includes areas under new bridge piers, beaches, and boat ramps, as examples. The Ordinary High Water Mark means that line on the shore of a water body established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, natural destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

- Fill out only the sections of this worksheet that apply to your project -

Section A - Wetlands

This section is for wetlands determined to be under the jurisdiction of the U.S. Army Corps of Engineers (Corps) and that require a Section 404 permit as well as a Section 401 Water Quality Certification from IDEM. List the type of wetland as Emergent (EM), Scrub shrub (SS), or Forested (FO). "Emergent wetland" means a wetland characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. "Scrub shrub wetland" means a wetland dominated by woody vegetation having a height greater than three and two-tenths (3.2) feet, and a stem diameter less than three (3) inches. This includes true shrubs, young trees, and trees and shrubs stunted by environmental conditions. œForested wetland•means a wetland dominated by woody vegetation that has a diameter, at breast height, greater than three (3) inches, regardless of total height. The size of the wetland must be determined by conducting a wetland delineation consistent with the protocols established in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. The applicant must list whether or not the wetland will be impacted, the acreage of the impact, and the quantity of fill to be discharged into the wetland. The applicant must identify whether or not this is an after-the-fact (ATF) permit. An ATF permit is for impacts to wetlands or other water bodies under the jurisdiction of IDEM that did not receive authorization before the impacts occurred. Additionally, the applicant must describe the type and composition of material proposed to be discharged or removed from the wetland.

Section B - Isolated Wetlands

This section is for wetlands the Corps has determined to be isolated and no longer under their jurisdiction. The Corps jurisdictional determination letter must be included with the application. Isolated wetlands are considered State Regulated Wetlands and proposed impacts to these wetlands will be reviewed pursuant to IC 13-18-22. The class of wetland must be determined by the definitions outlined in IC-13-11-2-25.8. This is determined by assessing the vegetation type, hydrologic function, habitat functions, values of the wetland, and disturbances to the wetland. The applicant must determine the type of wetland by designating the wetland as either Non-Forested (NF) or Forested (F). The size of the wetland must be determined by conducting a wetland delineation consistent with the protocols established in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. The applicant must list whether or not the wetland will be

impacted, the acreage of the impact, and the quantity of fill to be discharged into the wetland. The applicant must identify whether or not this is an after-the-fact (ATF) permit. An ATF permit is for impacts to wetlands or other water bodies under the jurisdiction of IDEM that did not receive authorization before the impacts occurred. Additionally, the applicant must describe the type and composition of material proposed to be discharged or removed from the wetland.

Section C - Bridges and Stream Crossings

This section is for projects that impact streams in order to construct, maintain, or protect structures used to cross the stream. The applicant must list the name of the stream to be impacted by the proposed project. The stream name can be found on the USGS Topographic map. If the stream does not have a name, identify it as a tributary to the next stream or water body with a name. Describe the proposed impacts in detail. Include the lengths of bank impacts to both banks upstream and downstream. Determination of left and right banks is made in the following manner- at the point furthest upstream on the project site, face downstream - the left bank is on your left and the right bank is on your right. Identify the volume per running foot of material to be discharged below the Ordinary High Water Mark (OHWM). Identify the total area below the OHWM to receive a discharge of fill material.

Section D - Bank Stabilization

This section is for projects that discharge fill material in order to stabilize eroding land along streams, lakes, or other water bodies. The applicant must list thename of the water body to be impacted by the proposed project. The name of the water body can be found on the USGS Topographic map. If the water bodydoes not have a name, identify it as a tributary to the next stream or water body with a name. Provide the length of shoreline or bank impact. Identify the volume per running foot of material to be discharged below the Ordinary High Water Mark (OHWM). Identify the total area below the OHWM to receive a discharge of fill material.

Section E - Stream Relocation

This section is for projects that propose to relocate a stream from its existing banks either by open channel construction or by stream piping. The applicant must list the name of the stream to be impacted by the proposed project. The stream name can be found on the USGS Topographic map. If the stream does not have a name, identify it as a tributary to the next stream or water body with a name. Describe the impacts to the stream. Provide the linear feet of existing channel to be relocated and the length of new channel to be constructed. The applicant must state whether the old channel is proposed to be filled and describe the type and quantity of fill to be used to fill the old channel. The applicant must also provide the type of relocation “new channel or piping.

Section F - Open Water Fill

This is for projects where the fill material extends beyond the edge of the shoreline into open water. Some examples include the filling of pit mines, borrow pits, and other land reclamation projects. Provide the name of the water body to be impacted. If the water body does not have a name, identify it as unnamed open water body. Describe the impacts to the water body including the area to be filled and the type and quantity of fill material to be discharged.

US Army Corps of Engineers
Section 404 Permit Application

I-69 Evansville to Indianapolis Project
Section 5
Bloomington to Martinsville
Located in Monroe & Morgan Counties, Indiana

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List of Attachments

I-69 Section 5 Section 404 Permit Application

The I-69 Section 5 project begins just south of the That Road intersection in Monroe County, Indiana near Bloomington at the end of the current construction of the SR 37 and I-69 interchange project and ends just to the south of the SR 37 and SR 39 interchange in Morgan County, Indiana near Martinsville.

The permitting limits for the water resource impacts identified within this I-69 Section 5 permit application will differ slightly from the impacts identified within the Tier 2 Section 5 FEIS/ROD. In coordination with the TPA, the permit limits utilized in this submittal are a hybrid of the construction limits and right-of-way for the Refined Preferred Alternative 8 (RPA 8) that was identified in the FEIS/ROD. The stream impacts identified in the permit have decreased from the impacts identified in the FEIS/ROD for the (RPA 8) by 40,719 linear feet. The FEIS/ROD identified 80,582 linear feet of stream impact for RPA 8; this included the stream length within the entire right-of-way. This also included impacts to streams that have been identified as non-jurisdictional based on coordination with the USACE. There is currently 39,863 linear feet of stream impacts identified within the Section 5 permit limits. The wetland impacts have increased 1.01 acres based on the RPA 8 construction limits shown in the FEIS/ROD and have decreased by 3.89 acres based on the RPA 8 right-of-way. The FEIS/ROD identified 3.45 acres within the construction limits and 8.35 acres within the right-of-way. There is currently 4.46 acres of wetland impacts identified within the Section 5 permit limits.

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:
First - Nathan Middle - Last – Saxe
Company – Indiana Department of Transportation
E-mail Address – nsaxe@indot.in.gov

8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Jeremy Middle - s. Last – Kieffner
Company – Bernardin Lochmueller and Associates, Inc.
E-mail Address – JKieffner@blainc.com

6. APPLICANT'S ADDRESS.
Address - 100 N. Senate Ave. Room N642
City – Indianapolis State – Indiana Zip – 46204 Country – USA

9. AGENT'S ADDRESS
Address - 6200 Vogel Road
City – Evansville State – Indiana Zip – 47715 Country – USA

7. APPLICANT'S PHONE NOs. W/AREA CODE

a. Residence	b. Business	c. Fax
N/A	(317) 232-0240	(317) 233-4929

10. AGENT'S PHONE NOs. W/AREA CODE

a. Residence	b. Business	c. Fax
N/A	(812) 479-6200	(812) 479-6262

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Bernardin Lochmueller and Associates, Inc. to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
I-69 Section 5

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Multiple

14. PROJECT STREET ADDRESS (if applicable)
Address N/A
City - N/A State – Indiana Zip - N/A

15. LOCATION OF PROJECT
Latitude: °N 39.253
Longitude: °W -86.531

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID N/A Municipality N/A
Section – Multiple Township – T8N, T9N, T10N, T11N Range – R1E, R1W, R2W

17. DIRECTIONS TO THE SITE

Section 5 of the I-69 Project is located on what is currently known as SR 37 beginning where the proposed new Section 4 of I-69 will intersect with existing SR 37 and extending to just south of the SR 39 interchange in Monroe and Morgan Counties.

18. Nature of Activity (Description of project, include all features)

The completion of this project will include the construction to upgrade an existing portion of SR 37 to interstate standards (total length of approximately 22 miles). Attachments #5 and #6 contain the USGS and 2011 Aerial Maps showing the project location and water resource impacts. Attachment #17 contains an electronic copy of the I-69 Section 5 FEIS and ROD that gives a complete description of the project and impacts. Attachment #19 contains an impact summary table for water resource impacts.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose and need of the entire I-69 project from Evansville to Indianapolis is to strengthen the transportation network in Southwest Indiana; support economic development in Southwest Indiana; and complete the portion on the National I-69 project between Evansville and Indianapolis. The purpose and need for Section 5 of the I-69 project is to complete Section 5 of I-69 as determined in the I-69 Tier 1 ROD (Attachment #18); improve traffic safety; and support local economic development initiatives. See Chapter 2 in Attachment #17 for a complete Purpose and Need description.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Discharge of fill material into the wetlands and stream channels will be required for the completion of this roadway construction project. Attachment #9 contains the Wetland Delineation Report. Attachment #7 contains the project plan and profile sheets showing water resource impact locations. Attachment #11 contains the signed Preliminary JD Report. Attachment #10 contains the compensatory mitigation plan. See Attachment #17 (FEIS) Chapter 3 and 5.19 for a description of the Refined Preferred Alternative 8 and more detailed descriptions of the water resource impacts respectively. Temporary sediment basins for erosion control may be installed in stream channels that have HHEI scores of 45 or less. In addition, temporary sediment basins may be installed in other stream channels with scores greater than 45 in consultation with IDEM and USACE.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See Attachments #1, #2, #3, and #4		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 4.44 acres of jurisdictional wetlands and 0.02 acres of jurisdictional open water ponds (See Attachments #8 & 9 for additional information on wetland impacts) Also, see Attachment #17 Chapter 5.19.

Or

Liner Feet 39,863 linear feet of stream channels (See Attachments #8 for additional information on stream impacts) See Attachment #17 Chapter 5.19 for additional water resource info.

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Avoidance and minimization efforts have been ongoing and will continue to be reviewed and modified throughout the I-69 project from the Tier 1 EIS through final design (See Attachment #10 and Attachment #17- Chapter 5.19 for more avoidance and minimization efforts description). INDOT will follow the standard for sumping culverts in Attachment #12 for this project to further minimize impacts at stream crossing locations. Attachment #10 contains a description of the Compensatory Mitigation being offered for the I-69 Section 5 Impacts. Attachment #13 contains a bridge typical sheet. Attachment #14 contains a culvert typical sheet. Attachment #15 contain a diagram of a pump around and temporary stream crossing.

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☑ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – See Attachments #16

City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
IDEM	401 WQC	N/A	August 23, 2013	N/A	N/A
IDNR	Construction in Floodway	N/A	N/A	N/A	N/A
USFWS	Biological Opinion	N/A	N/A	July 25, 2013	N/A
NEPA Document	Section 5 FEIS/ROD	N/A	N/A	August 7, 2013	N/A

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
			08/26/2013

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

I-69 SECTION 5 PROJECT

PUBLIC-PRIVATE AGREEMENT

TECHNICAL PROVISIONS

ATTACHMENT 7-2
KARST AGREEMENTS

I-69 Section 5 Karst Agreement

EDS No. _____

This Agreement is made and entered into this ___ day of _____, 2013 between the Indiana Department of Transportation (INDOT), the Indiana Department of Natural Resources (IDNR), the Indiana Department of Environmental Management (IDEM) and the U.S. Fish and Wildlife Service (USFWS) in accordance with the October 1993 Karst Memorandum of Understanding (hereinafter referred to as the "1993 Karst MOU", attached as **Attachment A** and herein incorporated by reference).

WHEREAS, INDOT, IDNR, IDEM and the USFWS wish to cooperate in the identification, study and treatment of drainage in karst regions related to the construction of Section 5 of I-69; and

WHEREAS, INDOT has complied with Stipulations 1 - 4 of the 1993 Karst MOU in developing Section 5 of I-69 by:

1. In accordance with Stipulation 1 of the 1993 Karst MOU, the locations of karst features and their relationship, prior to proposed alterations or construction, have been determined and are documented in I-69 Evansville to Indianapolis, Tier 2 Studies, Final Karst Feature and Groundwater Flow Investigation Report, Section 5, SR 37 south of Bloomington to SR 39 (April 2013) (hereinafter the "Karst Report"). A map showing the general location of karst within I-69 Section 5 is attached as **Attachment B** and herein incorporated by reference).
2. In accordance with Stipulation 2 of the 1993 Karst MOU, public and private information sources have been researched, karst features have been field checked, and a draft of the Karst Report was prepared. The Karst Report includes photographs, maps, drainage areas, land use, dye tracing results, and pollutant load estimates.
3. In accordance with Stipulation 3 of the 1993 Karst MOU, IDNR, IDEM, and USFWS have reviewed the Karst Report and provided comments on the findings.
4. INDOT has begun to formulate appropriate measures to offset unavoidable impacts to karst features. These measures are included in the Karst Report; and

WHEREAS, the purpose of this Agreement is to meet the requirements contained in Stipulation 10 of the 1993 Karst MOU for Section 5 of I-69; and

WHEREAS, this Agreement also provides additional information or clarification for Section 5 of I-69 in: 1) describing how the location of sinkholes will be provided to IDEM, per Stipulation 12 of the 1993 Karst MOU; 2) describing additional pre-construction karst studies, per Stipulation 1 of the 1993 Karst MOU; 3) presenting measures to offset karst impacts, per Stipulations 4 and 10 of the 1993 Karst MOU; 4) providing detail on the discovery of karst features during construction, per Stipulation 14 of the 1993 Karst MOU; 5) providing further detail on the implementation of the monitoring and maintenance plan, per Stipulation 8 of the 1993 Karst MOU; and 6) providing details for agency staff for construction and maintenance monitoring, per Stipulation 13 of the 1993 Karst MOU;

NOW, THEREFORE, in consideration of the terms and conditions set forth herein, the INDOT, IDNR, IDEM, and USFWS agree as follows:

1. Location and Nature of Sinkholes – INDOT will provide this information in the form of maps of karst features, positive dye trace inputs and outputs for those areas dye traced, and affected feature drainage areas. Maps will be provided with an aerial photograph base map and a U.S.G.S. topographic base map. This information will be provided with the detailed design and karst feature mitigation measure information discussed in

Section 3 of this Agreement, below. IDEM will provide this information to the appropriate local authorities and Hazmat teams.

2. Pre-construction Karst Studies - Pre-construction studies, conducted by INDOT or their consultants, may identify previously unknown karst features or hydrological connectivity to the proposed right-of-way. Such studies may include, but are not limited to: geotechnical surveys, video records from geotechnical boreholes, geophysical surveys (electro resistivity, etc.), and dye tracing. The results of this information will be used in the Measures to Offset Karst Impacts in Section 3 of this Agreement. The results of these pre-construction studies will be provided to the IDNR, IDEM, and USFWS prior to construction at a specific feature.

3. Measures to Offset Karst Impacts - The general mitigation approach for karst features in Section 5 of I-69 is shown in the Anticipated Karst Feature Design Scenarios and Remediation Guidance in **Attachment C** of this Agreement (attached and herein incorporated by reference). Karst Areas of Importance, as identified in the Section 5 Final Karst Feature and Groundwater Flow Investigation Report may require site specific karst design scenarios. Detailed design and mitigation measures for karst features will be provided to the IDNR, IDEM, and USFWS for review and comment prior to construction for that area. The detailed design and mitigation measures will include but are not limited to: the results of pre-construction karst-related studies, design plans, maps, and design meeting minutes documenting mitigation and design decisions made. This information will be provided by INDOT, or its representative, to the IDNR Division of Fish and Wildlife, IDEM Ground Water Section, and the USFWS Bloomington Field Office. The information will be in either hard copy or electronic (CD, DVD, e-mail or ftp site) format; and will be mailed or hand delivered to the IDNR, IDEM, and USFWS. The IDNR, IDEM, and USFWS will be invited to field checks and meetings to review karst features and proposed treatment measures.

   IDNR, IDEM, and USFWS will respond with comments within two (2) weeks of receiving the detailed design and karst feature mitigation measure information package in Section 5. Comments may be provided via a hard copy letter format or e-mail. INDOT will address agency comments on the karst feature mitigation measures. If INDOT determines an agency request cannot be reasonably and feasibly incorporated into the design plans, an explanation will be provided to the agency. INDOT will provide responses to agency comments within two (2) weeks of receiving agency comments on a construction contract. Any outstanding concerns will be resolved at a follow up meeting with INDOT, IDNR, IDEM, and USFWS.

4. Previously Unidentified Features - If a previously unidentified karst feature is discovered during construction, or a proposed treatment measure must be modified due to unforeseen conditions, construction personnel will be required to immediately inform the Project Engineer/Supervisor on site, who will then inform the INDOT Environmental Services Office. Work will stop in that area until an agreement is reached with the Parties to this Agreement. INDOT will characterize the feature identified and develop a proposed treatment measure for the karst feature. This will be provided to the Parties to this Agreement. Per the Karst MOU, a two (2) working days response time is needed from the resource agencies to provide comments on the proposed treatment measure. A Threatened and Endangered Species (TES) training DVD, which includes this information, will be required to be viewed by all on-site construction personnel, including INDOT and contractor personnel, in karst areas.

5. Monitoring and Maintenance Plan - A Monitoring and Maintenance Plan will be developed for Section 5 and provided to the IDNR, IDEM, and USFWS for review and comment prior to construction. IDNR, IDEM,

and USFWS will have a 30-day comment period for this Plan. The Monitoring and Maintenance Plan will include, but is not limited to, the following information:

a. Water Quality Sampling – Water quality sampling will occur in three (3) phases:
    i. Phase 1: Baseline Sampling: INDOT, or its representative, will conduct baseline water quality sampling at selected karst features within that construction area prior to construction (baseline conditions). The baseline water quality sampling will consist of two rounds: one round of base flow sampling and one round of storm flow sampling. The round of sampling, either base flow or storm flow, will be noted in the report documenting the results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. Water quality sampling will focus on the Areas of Importance identified in the Section 5 Final Karst Feature and Groundwater Flow Investigation Report and karst features with known hydrological connectivity to the project right-of-way. The parameters to be sampled are listed in **Attachment D** (attached and herein incorporated by reference). The results of the baseline sampling will be provided to the IDNR, IDEM, and USFWS for their information. Any remediation standards will take baseline sampling results into consideration.
    ii. Phase 2: Sampling During Construction: The same karst features surveyed during the baseline sampling will be sampled during construction. Samples will be collected quarterly (four times per year) throughout construction. In addition, water quality sampling will be conducted at dry well water quality treatment measures (rock or peat filters), once installed, to determine the effectiveness of the treatment. Two (2) of the quarterly samples will be sampled at base flow conditions and two (2) of the quarterly samples will be sampled at storm flow conditions. The round of sampling, either base flow or storm flow, will be noted in the report documenting the results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. The parameters to be sampled are listed in **Attachment D**. The pesticides listed in **Attachment D** will only be analyzed at the location of peat or rock filters for dry well discharges. Pesticides will be sampled only once per year during the growing season (2nd or 3rd quarter samples). The results of the Phase 2 sampling will be provided to the IDNR, IDEM, and USFWS for their information.
    iii. Phase 3: Sampling Post Construction: Water quality sampling will continue for a total of six (6) years post construction. The same karst features surveyed during the baseline sampling will be sampled after construction. In addition, water quality sampling will be conducted at dry well water quality treatment measures (rock or peat filters), once installed, to determine the effectiveness of the treatment. The parameters to be sampled are listed in **Attachment D**. The pesticides listed in **Attachment D** will only be analyzed at the location of peat or rock filters for dry well discharges. Pesticides will be sampled only once per year during the growing season (2nd or 3rd quarter samples). Samples will be collected quarterly (four times per year) for the first full one (1) year following construction. Two (2) of the quarterly samples will be sampled at base flow conditions and 2 of the quarterly samples will be sampled at storm flow conditions. The round of sampling, either base flow or storm flow, will be noted in the report documenting the

results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. Samples will be collected twice per year (semiannually), after the first year post construction, for five (5) consecutive years. One (1) of the semiannual samples will be sampled at base flow conditions and one (1) will be sampled at storm flow conditions. The same conditions noted above for the quarterly samples apply to the semiannual samples. The results of the Phase 3 sampling will be provided to the IDNR, IDEM, and USFWS for their information.

b. Cave Fauna Sampling - Areas that were sampled for cave fauna prior to construction will be sampled for cave fauna three (3) years after the Section 5 construction to determine if there are any changes in the faunal community.

c. Low Salt/No Spray Strategy – INDOT will minimize the use of salt in the Low Salt Zone to only what is necessary to safely treat the road. A Low Salt/No Spray signing strategy has been developed for Section 5. Low Salt/No Spray signs (see **Attachment E**) will be installed starting at approximately at the SR 37 interchange with a sign at approximately every three (3) miles for northbound and southbound I-69 up to 200 feet north of Chambers Pike. As shown in **Attachment E** (attached and herein incorporated by reference), signs directing motorists to "Report all Spills" to the IDEM toll-free spill line phone number will be placed in between the Low Salt/No Spray signs at approximately three (3) mile intervals. The "Report all Spills" signs will alert the public to the fact that all types of spills are potentially hazardous to the karst environment.

d. Karst Feature Erosion/Sediment Control Reviews - Karst feature mitigation measures will be installed early in the construction process to protect features from construction related water quality impacts. During construction, inspection of these measures and other stormwater control measures will be conducted per 327 IAC 15-5 Rule 5 requirements.

e. Karst Feature Mitigation Measure Inspection - After construction, karst feature water quality mitigation measures (i.e. detention basins, hazardous materials traps, rock filters, peat filters, engineered wetlands, etc.) will be visually inspected semiannually (two times per year) for five (5) consecutive years. Remediation measures, if needed, will be developed in consultation with the IDNR, IDEM, and USFWS. After the five (5) year period, the water quality mitigation measures will be inspected every two (2) years by maintenance staff and every ten (10) years by a karst specialist. The karst specialist shall be pre-qualified by INDOT. It is anticipated that sediment and woody vegetation will be removed every twenty (20) years. Maintenance concerns identified as part of this long-term monitoring will be addressed. Inspection reports will be made available to the IDNR, IDEM, and USFWS upon request.

f. Karst Feature Structural Treatment Measure Maintenance – After construction, karst feature structural treatment measures (concrete or aggregate caps, spring boxes, lined ditches, settlement markers, etc.) will be included on as-built plans and visually inspected semiannually (two times per year) for five (5) consecutive years. After the five (5) year period, the karst feature structural treatment measures will be inspected every two (2) years by maintenance staff and every ten (10)

years by a karst specialist. Inspection reports will be made available to the IDNR, IDEM, and USFWS upon request.

6. Construction and Maintenance Monitoring – Per Stipulation 13 of the 1993 Karst MOU, IDNR, IDEM, and USFWS may visit the Section 5 karst areas at any time to monitor construction or maintenance activities related to karst features. Agency staff shall wear proper personal protection equipment (hard hat, vest, and boots) and carry identification. Agency staff shall provide notification to the appropriate INDOT personnel on site upon arrival.

7. Term - Except for the provisions of Section 5(e) and 5(f) of this Agreement, the term of this Agreement shall be from the date of last signature through the date that all mitigation measures described herein are completed or six (6) years after construction is complete (whichever occurs first), unless extended or renewed pursuant to Section 8 of this Agreement.

8. Amendment - Any Party executing this Agreement may request an amendment of the Agreement, whereupon all parties shall consult to consider the proposed amendment. However, no amendment to this Agreement shall be effective until reduced to a written agreement and signed by all Parties.

9. Funding Cancellation Clause. When the Director of the Office of Management and Budget makes a written determination that funds are not appropriated or otherwise available to support continuation of the performance of this Agreement, this Agreement shall be canceled. A determination by the Budget Director that funds are not appropriated or otherwise available to support continuation of performance shall be final and conclusive.

10. General Provisions.

A. During the performance of this Agreement, the Parties agree to abide by the terms of Executive Order 11246 on non-discrimination and will not discriminate against any person because of age, race, color, religion, sex, or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their age, race, color, religion, sex, or national origin.

B. All contracts to be developed and awarded pursuant to this Agreement, including all designs, plans, specifications, estimates, construction, utility relocation work, right-of-way acquisition procedures, acceptance of work and procedures in general, shall at all times conform to the applicable Federal and state laws, rules, regulations, orders and approvals, including procedures and requirements relating to labor standards, equal employment opportunity non-discrimination, compliance with the American with Disabilities Act, anti-solicitation, information, auditing, and reporting requirements.

C. Continuation of Existing Responsibilities

(i.) The Parties to this Agreement are acting in an independent capacity in the performance of their respective legally authorized functions under this Agreement, and none of the Parties' employees are to be considered the officer, agent, or employee of another Party.

(ii.) This Agreement shall not abrogate any obligations or duties to comply with the regulations promulgated under the 1973 (Federal) Endangered Species Act, as amended; the 1958 (Federal) Fish and Wildlife Coordination Act, as amended; the National Environmental Policy Act of 1969; the (Federal) Clean Water

Act of 1977, as amended; National Historic Preservation Act of 1966, or any other Federal statute or implementing regulations.

D. This Agreement in no way restricts the Parties from participating in similar activities with other public or private agencies, organizations, and individuals.

E. This Agreement and any claims arising out of this agreement shall be governed by the laws of the United States and the State of Indiana.

F. Each of the Parties shall provide its own workers compensation coverage as needed throughout the duration of the Agreement and any extensions thereof.

G. All Parties acknowledge that any person executing this Agreement in a representative capacity hereby represents that he/she has been duly authorized by his/her principal to execute this Agreement on such principal's behalf.

In Witness Whereof, each PARTY has caused this Agreement to be executed by an authorized official on the date and year set forth next to their signatures.

INDIANA DEPARTMENT OF TRANSPORTATION

By: _____ Date: _____

INDIANA DEPARTMENT OF NATURAL RESOURCES

By: _____ Date: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

By: _____ Date: _____

U.S. FISH AND WILDLIFE SERVICE

By: ______________________________ Date: ______________________

APPROVALS

STATE OF INDIANA
Department of Administration

_____
Jessica Robertson, Commissioner

Date: _____

Indiana State Budget Agency

_____(for)
Brian E. Bailey, Director

Date:_____

APPROVED AS TO FORM AND LEGALITY

_____(FOR)

Gregory F. Zoeller, Attorney General

Date:_____

I-69 Section 5 Karst Agreement

Attachment A

1993 KARST MOU

Memorandum of Understanding

(Retyped of original text 3/14/2007)

This Memorandum of Understanding is made and entered into this thirteenth day of October, 1993, between the Indiana Department of Transportation (INDOT), the Indiana Department of Natural Resources (IDNR), the Indiana Department of Environmental Management (IDEM) and the U.S. Fish and Wildlife Service (USFWS) for the purpose of delineating guidelines for construction of transportation projects in karst regions of the State.

Whereas, INDOT, IDNR, IDEM and the USFWS wish to cooperate in the identification, study and treatment of drainage in karst regions related to the construction of transportation projects and

Whereas, INDOT, IDNR, IDEM and the USFWS accept responsibility to ensure the transportation needs of Indiana are met in an environmentally sensitive manner that protects the habitat of all species and

Whereas, design and construction practices must protect ground water quality, public health and safety, and the environment.

Whereas, the Indiana Department of Natural Resources will conform to the terms and conditions within this MOU for their transportation projects. Likewise, it will be IDNR's responsibility to provide standard biological review for projects in the karst region.

Therefore, in consideration of the terms and conditions set forth herein the INDOT, IDNR, IDEM and USFWS agree as follows:

1. INDOT in cooperation with the IDNR, IDEM and USFWS shall determine the location of sinkholes, caves, underground streams, and other related karst features and their relationship prior to proposed alterations or construction in karst regions of the state, a consultant with expertise in karst geology/hydrology may assist in the identification and characterization of the karst features. The choice of the consultant retained by INDOT will be subject to the review of IDNR, USFWS and IDEM.

2. Tasks to accomplish this work will include:

   Research public and private information sources for information relative to karst features.

   Conduct field check karst and cave features that appear from the first task and identify any additional karst features.

   Prepare a draft report, with photographs and maps, drainage areas, and land use of that drainage area for each sinkhole or karst feature, dye-tracing and/or other geotechnical information to determine subsurface flow of water in the project area

and surface water drainage patterns of the area. Calculations of estimates of annual pollutant loads from the highway and drainage with the right-of-way will be made, including prior to, during and post construction estimates. The design of the treatment of the karst features will take into consideration treatments necessary to meet the standards of the monitoring and maintenance plan.

That report will be used as a tool to assist in determining the proposed highway alignment. The intent of INDOT is to avoid karst areas and use alternate drainage where possible.

3. IDNR, IDEM and USFWS will be requested to review and comment on the findings at the early coordination phase of project development.

4. INDOT, using the input from IDNR, IDEM and USFWS will begin to formulate appropriate measures to offset unavoidable impacts to the karst features. It is understood by all parties that some of the methods proposed at this time will be generic and could be applied throughout the length of the corridor. Other methods may be specific to a particular cave or karst feature. Some of the approaches may require additional investigations to determine their necessity and/or their feasibility. A revised draft report will be prepared by INDOT's consultant and provided to the IDNR, IDEM and the USFWS as part of the design review process.

5. Drainage entering from beyond the right-of-way will be treated according to the same process as drainage generated by the project.

6. As the project progresses further into the design phase, the IDNR, IDEM and USFWS will be invited and will attend field checks and meetings dealing with efforts to negate or minimize adverse impacts.

7. Hazardous materials traps (HMT's) will be constructed at storm water outfalls and other locations that will protect karst features from spill contamination.

8. INDOT agrees to develop a monitoring and maintenance plan for the affected karst features. IDNR, IDEM and USFWS will be provided an opportunity to review this plan. The establishment of water quality and a point at which a standard is established for remediation will be a part of each monitoring plan. The results of the monitoring will be submitted to IDNR, USFWS and IDEM on a regular basis.

9. A low salt and no spray strategy will be developed for each future project. A signing strategy for these items will also be developed for each project.

10. Prior to acceptance of the final design plans an agreement will be developed which will set out the appropriate and practicable measures to offset unavoidable impacts to karst features. This agreement will be signed by the Department Director of IDNR, the Commissioner of the IDEM, the Commissioner of INDOT and the Supervisor of the USFWS Bloomington, Indiana Field Office. The agreement will become a part of

the contract documents for the project, will be discussed at the pre-construction conference and will be on file at the office of the project administrator.

11. INDOT will assure that the terms of the agreement will be completed with all safeguards given to the karst area. Special provisions, which are binding provisions that are a part of the contract, will be included outlining the precautions to be taken. Construction and design strategies for handling karst features will be discussed with the contractor(s) and project administrator during the pre-construction conference. Project administrator shall ensure that the contractor is following the new erosion control standards that meet Rule 5 of 327 IAC 13 and any special precautions outlined in the design plans that the sinkhole treatment is being handled correctly. The erosion control plan must be available at the project administrator's office. An emergency response plan will be made a part of the contract documents. In addition, the contract documents will contain a strategy for signing to alert the public to the fact that all types of spills are potentially hazardous to the karst environment. For INDOT, this plan would be procedure 20 of the Field Operations Manual dated 6/24/1992. [Currently in the Construction Activities Environmental Manual].

12. The location and nature of the sinkholes and drainage schematic will be provided to the IDEM. They will provide the information to the appropriate local authorities and the Hazmat teams. An emergency response plan will be followed. This constitutes procedure 20. Included in this information is an understanding that all types of spills are potentially hazardous to karst regions.

13. IDNR, IDEM and USFWS personnel will monitor construction and maintenance to the agreed upon terms, as deemed necessary.

14. If during construction it is found that the mitigation agreement must be altered, all of the agencies will be contacted and agreement reached prior to work continuing in that specific area of the project. In order to not unduly delay projects, a two working days response time is needed from the resource agencies.

15. Treatments will be maintained during construction by means of a visual inspection on a weekly basis or after every rain. Corrective action will be taken as needed.

16. If after the above procedure is followed and a state/federal endangered/threatened species is found during construction, work in that area of the project will stop. The IDNR and USFWS will be immediately notified. The IDNR and USFWS will promptly investigate the situation, advise the project administrator and assume responsibility for protecting the endangered species and taking the appropriate action.

17. This document will be reviewed annually or more frequently at the request of any of the foregoing agencies.

MR. FREDERICK C. P'POOL, COMMISSIONER
INDIANA DEPARTMENT OF TRANSPORTATION

MR. PATRICK R. RALSTON, DIRECTOR
INDIANA DEPARTMENT OF NATURAL RESOURCES

MS. KATHY PROSSER, COMMISSIONER
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

MR. DAVID C HUDAK, FIELD SUPERVISOR, BLOOMINGTON FIELD OFFICE
U. S. FISH AND WILDLIFE SERVICE

I-69 Section 5 Karst Agreement

Attachment B

LOCATION OF SECTION 5 KARST AREAS

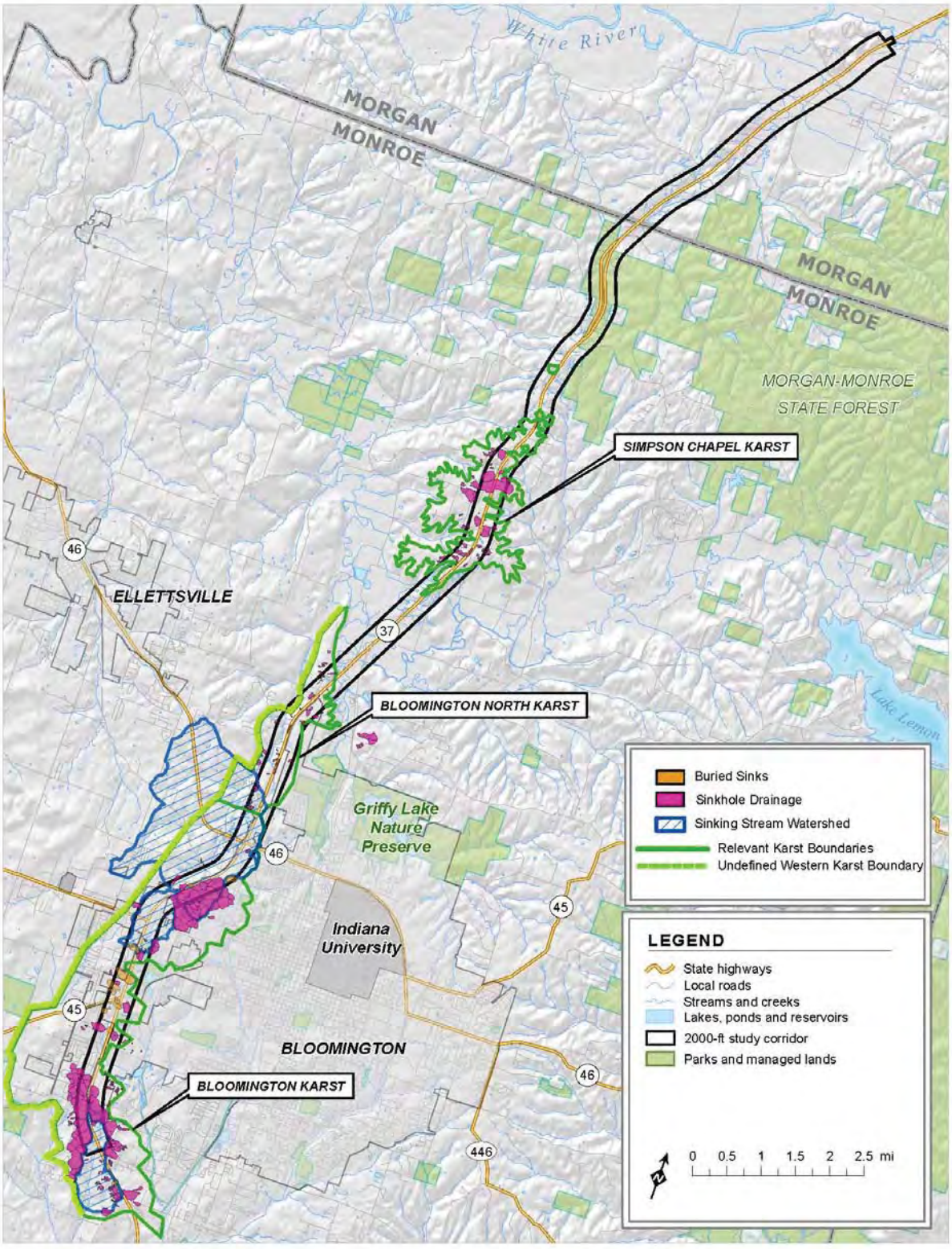


Figure 2 Location of Section 5 Karst Areas

I-69 Section 5 Karst Agreement

Attachment C

ANTICIPATED KARST FEATURE DESIGN SCENARIOS AND REMEDIATION GUIDANCE

I-69 SECTION 5

SR 37 south of Bloomington to SR 39

ANTICIPATED KARST FEATURE DESIGN SCENARIOS AND REMEDIATION GUIDANCE

ough presented in a table format, are to be evaluated on a case-by-case basis since karst location, ns, topography, an understanding of the relation and impact to other karst features, practicality, and the MOU must be considered in the final design scenario used. The following areas of importance will arst design scenarios:

Area 2. Buried Sinks at Intersection of SR 45/2nd Street and SR 37 3. Lemon Lane Landfill

5. Sample Road Interchange

FEATURE ABOVE PROPOSED PROFILE GRADE	FEATURE AT PROPOSED PROFILE GRADE	FEATURE BELOW PROPOSED PROFILE GRADE
Site characterization is necessary to understand feature. Possible scenarios could include: • Excavation and removal of soil material and bedrock void. • If void/throat remains directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge from non-highway runoff, as practical • Span feature. • Use geosynthetic lined ditches and lined Storm Water Management (SWM) ponds in adjacent areas.	Site characterization is necessary to understand feature. Possible scenarios could include: • If void/throat remains directly under roadway, excavate and remove soil and overburden; use reverse graded aggregate filter and concrete cap. If outside roadway, excavate and consider aggregate cap to perpetuate recharge from non-highway runoff, as practical. • Span feature. • Use geosynthetic lined ditches and lined Storm Water Management (SWM) ponds in adjacent areas.	Site characterization is necessary to understand feature. If structural concern, possible scenarios could include: • If void/throat remains directly under roadway, excavate and remove soil and overburden; use reverse graded aggregate filter and concrete cap. If outside roadway, excavate and consider aggregate cap to perpetuate recharge from non-highway runoff, as practical. • Span feature. • Use geosynthetic lined ditches and lined Storm Water Management (SWM) ponds in adjacent areas.

FEATURE ABOVE PROPOSED PROFILE GRADE	FEATURE AT PROPOSED PROFILE GRADE	FEATURE BELOW PROPOSED PROFILE GRADE
If typical spring flows exceed 5 gpm, use spring box and discharge beyond roadway along the spring's natural course to a stream (avoid discharging to roadside ditch if possible). If typical spring flows are less than 5 gpm, treat using standard INDOT methods.	If typical spring flows exceed 5 gpm, use spring box and discharge beyond roadway along the spring's natural course to a stream (avoid discharging to roadside ditch if possible). If typical spring flows are less than 5 gpm, treat using standard INDOT methods.	If typical spring flows exceed 5 gpm, use spring box and discharge beyond roadway along the spring's natural course to a stream (avoid discharging to roadside ditch if possible). If typical spring flows are less than 5 gpm, treat using standard INDOT methods.
If possible and practical, consider collecting prior to reaching roadway and pipe / discharge to other side of roadway to perpetuate recharge; understanding of hydrogeologic conditions is necessary; may require sand/peat filter; use geosynthetic lined ditches.	Preferred alternative is to span feature with culvert to maintain storm flow / recharge; support structure below karstic rock. Alternatively, consider collecting prior to reaching roadway and pipe / discharge on other side of roadway to maintain recharge; understanding of hydrogeologic conditions is necessary; may require sand/peat filter; use geosynthetic lined ditches.	Span feature with culvert to maintain storm flow / recharge; support structure below karstic rock.

FEATURE ABOVE PROPOSED PROFILE GRADE	FEATURE AT PROPOSED PROFILE GRADE	FEATURE BELOW PROPOSED PROFILE GRADE
If exposure is unavoidable, excavate to stable slope, remove loose material, and collect drainage. Understanding of hydrogeologic conditions is necessary to avoid creating a cascade along exposed slope face that could result unsafe roadway conditions.	Remove and backfill; if directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge, as practical.	If structural concern, remove and backfill; if directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge, as practical.
Site characterization is necessary to understand feature. Possible scenarios could include: • Avoidance. • Excavate to stable slope, remove loose material, and collect drainage. • Understanding of hydrogeologic conditions is necessary to avoid creating a cascade along exposed slope face that could result unsafe roadway conditions.	Site characterization is necessary to understand feature and assess collapse likelihood and subsequent roadway damage. Possible scenarios could include: • Consider backfill with inverse graded aggregate filter, if appropriate. • Cap / span feature if roadway collapse is likely.	Site characterization is necessary to understand feature and assess collapse likelihood and subsequent roadway damage. Possible scenarios could include: • Consider backfill with inverse graded aggregate filter, if appropriate. • Cap / span feature if roadway collapse is likely.

FEATURE ABOVE PROPOSED PROFILE GRADE	FEATURE AT PROPOSED PROFILE GRADE	FEATURE BELOW PROPOSED PROFILE GRADE
Avoidance if possible. Evaluate connectivity downstream in the system to perpetuate flow.	Span feature and perpetuate flow.	Site characterization is necessary to understand feature and assess collapse likelihood and subsequent roadway damage. Possible scenarios could include: • If rock cover can provide long-term support, leave as is. • Span feature and perpetuate flow.
Avoidance if possible. Site characterization is necessary to understand feature and hydrogeologic conditions. Possible scenario could include: • Excavate to remove void, stablize slope and trim remaining cave walls as necessary to remove loose material.	Avoidance if possible. Site characterization is necessary to understand feature and hydrogeologic conditions. Possible scenarios could include: • Expose and backfill with inverse graded aggregate filter.	Avoidance if possible. Site characterization is necessary to understand feature and hydrogeologic conditions. Possible scenarios could include: • Expose and backfill with aggregate / granular material. • Span feature.

FEATURE ABOVE PROPOSED PROFILE GRADE	FEATURE AT PROPOSED PROFILE GRADE	FEATURE BELOW PROPOSED PROFILE GRADE
Site characterization is necessary to understand feature. Possible scenarios could include: • Excavation and removal of void. • If void remains directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge, as practical • Span feature.	Site characterization is necessary to understand feature. Possible scenarios could include: • If void remains directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge, as practical. • Span feature.	Site characterization is necessary to understand feature If structural concern, possible scenarios could include: • If void remains directly under roadway use reverse graded aggregate filter and concrete cap. If outside roadway, consider aggregate cap to perpetuate recharge, as practical. • Span feature.

I-69 Section 5 Karst Agreement

Attachment D

WATER QUALITY SAMPLING PARAMETERS

Indiana Groundwater Quality Standards
Drinking Water Class Ground Water (327 IAC 2-11-6)

Inorganic Contaminants	
Contaminant	**Criterion (mg/L[1])**
Antimony	0.006
Arsenic	0.01
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium (total)	0.1
Cyanide (free)	0.2
Fluoride	4
Lead	0.015
Mercury (inorganic)	0.002
Nitrate (as N)	10
Nitrite (as N)	1
Selenium	0.05
Thallium	0.002

Organic Contaminants [Table 6(a)(2)]		
Chemical Abstract Registry Number	**Contaminant**	**Criterion (mg/L)**
15972-60-8	Alachlor	0.002
1912-24-9	Atrazine	0.003
71-43-2	Benzene	0.005
50-32-8	Benzo(a)pyrene (PAHs)	0.0002
1563-66-2	Carbofuran	0.04
56-23-5	Carbon tetrachloride	0.005
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2
103-23-1	Di(2-ethylhexyl) adipate	0.4
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.0002
95-50-1	Dichlorobenzene, 1,2-	0.6
106-46-7	Dichlorobenzene, 1,4-	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane or methylene chloride	0.005
78-87-5	1,2-Dichloropropane	0.005
117-81-7	Di(2-ethylhexyl) phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
100-41-4	Ethylbenzene	0.7
106-93-4	Ethylene dibromide	0.00005
1071-83-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
108-90-7	Monochlorobenzene	0.1

23135-22-0	Oxamyl (Vydate)	0.2
87-89-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP (Silvex)	0.05
120-82-1	1,2,4-Trichlorobenzene	0.07
71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10
Note: Excludes 2, 3, 7, 8-TCDD (Dioxin)		

Indicator Criteria (327 IAC 2-11-6(b))	
Contaminant	**Criterion (mg/L)**
Chloride	250
Sulfate	250
Total dissolved solids	500
Total coliform bacteria	Non-detect

Other Contaminants
Oil and Grease
Total Hardness
Total Suspended Solids
Ammonia

Notes

1 mg/l is milligrams per liter

I-69 Section 5 Karst Agreement

Attachment E

KARST SIGN GRAPHICS

1.5" Radius, 0.6" Border, 0.4" Indent, White on Blue;
"REPORT ALL" C; "SPILLS TO" C; "1-888-233-7745" C;
Table of letter and object lefts.

R	E	P	O	R	T	A	L	L
6.8	9.8	12.5	15.3	18.5	21.4	27.4	30.5	33.2

S	P	I	L	L	S	T	O
9.0	12.0	15.1	16.5	19.1	21.8	28.0	30.7

1	-	8	8	8	-	2	3	3	-	7	7	4	5
3.0	4.6	7.1	9.9	12.8	15.6	18.1	21.0	23.8	26.7	28.9	31.3	33.7	36.9

1.5" Radius, 0.6" Border, 0.4" Indent, White on Blue;
"LOW SALT ZONE" C; "NO SPRAY ZONE" C;
Table of letter and object lefts.

L	O	W	S	A	L	T	Z	O	N	E
5.0	7.7	10.7	17.7	20.5	23.7	25.9	31.9	34.8	38.0	41.0

N	O	S	P	R	A	Y	Z	O	N	E
4.7	7.8	14.1	17.1	20.1	23.0	25.7	32.2	35.1	38.2	41.3

I-69 Section 5 Karst Monitoring and Maintenance Plan
November 7, 2013

CONTAINS CONFIDENTIAL INFORMATION

I. Introduction

Section 5 of the I-69 project in Monroe County is located within karst terrain and will follow the stipulations outlined in the 1993 Karst Memorandum of Understanding (MOU) between the Indiana Department of Transportation (INDOT), Indiana Department of Natural Resources (IDNR), Indiana Department of Environmental Management (IDEM), and United States Fish and Wildlife Service (USFWS).

This Monitoring and Maintenance Plan fulfills Stipulation 8 of the 1993 Karst MOU which states:

> INDOT agrees to develop a monitoring and maintenance plan for the affected karst features. IDNR, IDEM and USFWS will be provided an opportunity to review this plan. The establishment of water quality and a point at which a standard is established for remediation will be a part of each monitoring plan. The results of the monitoring will be submitted to IDNR, USFWS and IDEM on a regular basis.

II. Water Quality Sampling Locations

Appendix A contains a table of water quality sampling locations. Appendix B contains maps showing the water quality sampling locations. Water quality sampling will be conducted at 29 selected springs/caves (and one quarry) within Monroe County. The selected locations are based on five criteria: 1) Area of Importance (AI) documented in the *I-69 Evansville to Indianapolis Tier 2 Studies Final Karst Feature and Groundwater Flow Investigation Report: Section 5, SR 37 south of Bloomington to SR 39* (April 2013) (Section 5 Karst Report) and also including the Sample Road area; 2) Dye Connectivity (DC) to the highway right-of-way established through dye tracing; 3) Inferred Connectivity (IC) to the highway right-of-way based on nearby dye traces; 4) Springs located within the proposed Right-of-way (RW) for I-69 and related roadways; or 5) Biota survey location (B) as documented in the *Interstate 69 Evansville to Indianapolis Tier 2 Studies: Section 5 Cave Fauna FINAL REPORT* (August 2005) (Section 5 Cave Fauna Report). A site had to meet at least one of the above-listed criteria to be considered as a water quality sampling location. The selected springs are believed to be a representative sample of springs in the project area.

Water quality sampling will also be conducted at the inputs and outputs of proposed water treatment (filtration) measures to be installed at dry well discharges, once the Section 5 roadway is open to traffic, to determine the effectiveness of the treatment.

III. Water Quality Sampling Methodology

The parameters to be sampled during the water quality sampling are listed in Appendix C. Water quality sampling parameters are based on the Indiana Groundwater Quality Standards, Drinking Water Class Ground Water (327 IAC 2-11-6). Water quality sampling will occur in three (3) phases:

a. Phase 1: Baseline Sampling: INDOT, or its representative, will conduct baseline water quality sampling at selected karst features within that construction area prior to

construction (baseline conditions). The baseline water quality sampling will consist of two rounds: one round of base flow sampling and one round of storm flow sampling. The round of sampling, either base flow or storm flow, will be noted in the report documenting the results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. The parameters to be sampled are listed in Appendix C. The results of the baseline sampling will be provided to the IDNR, IDEM, and USFWS for their information. Any remediation standards will take baseline sampling results into consideration.

b. Phase 2: Sampling During Construction: The same karst features surveyed during the baseline sampling will be sampled during construction. Samples will be collected quarterly (4 times per year) throughout construction until substantial completion[1] is achieved for that portion of the Section 5 roadway hydrologically connected to the sampling location. In addition, water quality sampling will be conducted at dry well water quality treatment measures (rock or peat filters), once installed, to determine the effectiveness of the treatment. Two (2) of the quarterly samples will be sampled at base flow conditions and 2 of the quarterly samples will be sampled at storm flow conditions. The round of sampling, either base flow or storm flow, will be noted in the report documenting the results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. The parameters to be sampled are listed in Appendix C. The pesticides listed in Appendix C will only be analyzed at the location of peat or rock filters for dry well discharges. Pesticides will be sampled only once per year during the growing season (2nd or 3rd quarter samples). The results of the Phase 2 sampling will be provided to the IDNR, IDEM, and USFWS for their information.

c. Phase 3: Sampling Post Construction: Water quality sampling will continue for a total of (6) years post construction. The same karst features surveyed during the baseline sampling will be sampled after construction. Pesticides will be sampled only during the growing season (2nd and 3rd quarter samples). In addition, water quality sampling will be conducted at dry well water quality treatment measures (rock or peat filters), once installed, to determine the effectiveness of the treatment. The parameters to be sampled are listed in Appendix C. The pesticides listed in Appendix C will only be analyzed at the location of peat or rock filters for dry well discharges. Pesticides will be sampled only once per year during the growing season (2nd or 3rd quarter samples). Samples will be collected quarterly (4 times per year) for the first full one (1) year following construction. Two (2) of the quarterly samples will be sampled at base flow conditions and 2 of the

[1] Substantial completion is defined as the following: All new or rehabilitated roadways are complete and open to unrestricted traffic.

quarterly samples will be sampled at storm flow conditions. The round of sampling, either base flow or storm flow, will be noted in the report documenting the results. A storm event is defined as greater than three-quarters (0.75) inch of rainfall in a twenty-four (24) hour period. If meteorological conditions prohibit the collection of storm flow samples (i.e. there are no storm events), IDNR, IDEM and USFWS will be notified. Samples will be collected twice per year (semiannually), after the first year post construction, for five (5) consecutive years. One (1) of the semiannual samples will be sampled at base flow conditions and 1 will be sampled at storm flow conditions. The same conditions noted above for the quarterly samples apply to the semiannual samples. The results of the Phase 3 sampling will be provided to the IDNR, IDEM, and USFWS for their information.

Water quality samples will be collected using direct fill methods. Where ideal conditions allow, the sample will be collected directly from the water source (e.g., spring) utilizing laboratory certified, clean, unpreserved sample media (e.g., a 1- liter amber glass container), and a disposable, laboratory grade dip-cup for filling preserved sample containers. Where flow conditions are not ideal, alternative sample methods may need to be used. If alternative methods are necessary, the sample quality and collection methodologies will remain consistent with industry standards. Following collection, water quality samples will be transported/shipped to the laboratory utilizing appropriate chain-of-custody documentation and procedures.

IV. Water Quality Remediation

The water quality sampling results will be compared to the Indiana Groundwater Quality Standards, Drinking Water Class Ground Water (327 IAC 2-11-6). If the water quality sampling results exceed the respective standards, INDOT or their representative will assess whether this is likely due to construction of I-69 or other outside factors. Baseline sampling results and other activities within the potential spring recharge area will be analyzed and included in the assessment. If INDOT or their representative determines the standards are exceeded because of I-69, potential remediation measures will be developed in coordination with IDNR, IDEM, and USFWS.

V. Cave Fauna Sampling

Three sites were sampled for cave invertebrates within and in proximity to Section 5 as part of the National Environmental Policy Act (NEPA) study: May Cave, Well Cave, and Boobytrap Cave. The Interstate 69 Evansville to Indianapolis Tier 2 Studies: Section 5 Cave Fauna Report documents the results of this survey.

The sites referenced above will be sampled for cave fauna three (3) years after the Section 5 construction is substantially complete within the vicinity of these sites. The sampling methodology will be developed by the cave fauna expert contracted for the study and in coordination with IDNR and USFWS. Results of the survey will be documented in a report and provided to IDEM, IDNR, and USFWS.

VI. Low Salt/No Spray Strategy

A Low Salt/No Spray signing strategy has been developed for Section 5. Low Salt/No Spray signs (see Appendix D) will be installed starting just north of the I-69/SR 37 interchange with a sign approximately

every three (3) miles for northbound and southbound I-69 up to 200 feet north of Chambers Pike. As shown in Appendix D, signs directing motorists to "Report all Spills" to the IDEM toll-free spill line phone number will be placed in between the Low Salt/No Spray signs at approximately three (3) mile intervals. The "Report all Spills" signs will alert the public to the fact that all types of spills are potentially hazardous to the karst environment.

INDOT or their representative will minimize the use of salt in the Low Salt Zone to only what is necessary to safely treat the road. INDOT's current policy is to use the minimum amount of plowing and salt to achieve bare pavement conditions. INDOT's Operations Memorandum 08-01 Snow and Ice Control is included in Appendix E.

No pesticide spraying will be allowed within the highway right-of-way within the karst area of Section 5.

VII. Hazardous Spill Containment Maintenance

Hazardous spill containment measures will be visually inspected semiannually (two (2) times per year) for five (5) consecutive years after construction is substantially complete for that portion of the highway. Copies of inspection reports shall be maintained by INDOT or their representative for review by IDEM, IDNR, and USFWS.

After the five (5)-year period, the hazardous spill containment measures will be inspected every two (2) years by INDOT or their representative and every ten (10) years by a karst specialist. The karst specialist shall be pre-qualified by INDOT under prequalification category 5.12, Karst Studies. Sediment and woody vegetation will be removed as necessary for effective operation of the hazardous spill containment measure, at a minimum once every twenty (20) years.

The inspection report will document any deficiencies identified during the inspection and identify corrective actions to be undertaken to correct the noted deficiency. Significant remediation measures (e.g., hazardous spill containment measure replacement or reconstruction) will be developed in consultation with IDNR, IDEM, and USFWS. Inspection reports will be made available to the INDR, IDEM, and USFWS upon request.

VIII. Karst Feature Water Quality Treatment Measure Maintenance

Karst feature water quality treatment measures (i.e. detention basins, hazardous materials traps, rock filters, peat filters, engineered wetlands, etc.) will be visually inspected semiannually (two (2) times per year) for five (5) consecutive years after construction is substantially complete for that portion of the highway. Copies of inspection reports shall be maintained by INDOT or their representative for review by IDEM, IDNR, and USFWS.

After the five (5)-year period, the karst feature water quality treatment measures will be inspected every two (2) years by INDOT or their representative and every ten (10) years by a karst specialist. The karst specialist shall be pre-qualified by INDOT under prequalification category 5.12, Karst Studies. Sediment and woody vegetation will be removed as necessary for effective operation of the water quality treatment measure, at a minimum once every twenty (20) years.

The inspection report will document any deficiencies identified during the inspection and identify corrective actions to be undertaken to correct the noted deficiency. Significant remediation measures (e.g., treatment measure replacement or reconstruction) will be developed in consultation with IDNR, IDEM, and USFWS. Inspection reports will be made available to the INDR, IDEM, and USFWS upon request.

IX. Karst Feature Structural Treatment Measure Maintenance

Karst feature structural treatment measures (concrete or aggregate caps, spring boxes, lined ditches, settlement markers, etc.) will be included on as-built plans and visually inspected semiannually (two (2) times per year) for five (5) consecutive years after construction is substantially complete for that portion of the highway. Copies of inspection reports shall be maintained by INDOT or their representative for review by IDEM, IDNR, and USFWS.

After the five (5)-year period, the karst feature structural treatment measures will be inspected every two (2) years by INDOT maintenance staff and every ten (10) years by a karst specialist. The karst specialist shall be pre-qualified by INDOT under prequalification category 5.12, Karst Studies.

The inspection report will document any deficiencies identified during the inspection and identify corrective actions to be undertaken to correct the noted deficiency. Significant remediation measures (e.g., structural treatment measure replacement or reconstruction) will be developed in consultation with IDNR, IDEM, and USFWS. Inspection reports will be made available to the INDR, IDEM, and USFWS upon request.

Appendices

Appendix A – Water Quality Sampling Locations Table

Appendix B – Water Quality Sampling Locations Maps

Appendix C – Water Quality Sampling Parameters

Appendix D – Karst Sign Graphics

Appendix E - INDOT's Operations Memorandum 08-01 Snow and Ice Control

I-69 Section 5 Karst Monitoring and Maintenance Plan

Appendix A

WATER QUALITY SAMPLING LOCATIONS TABLE

Section 5 Water Quality Sampling Locations
11/02/2013

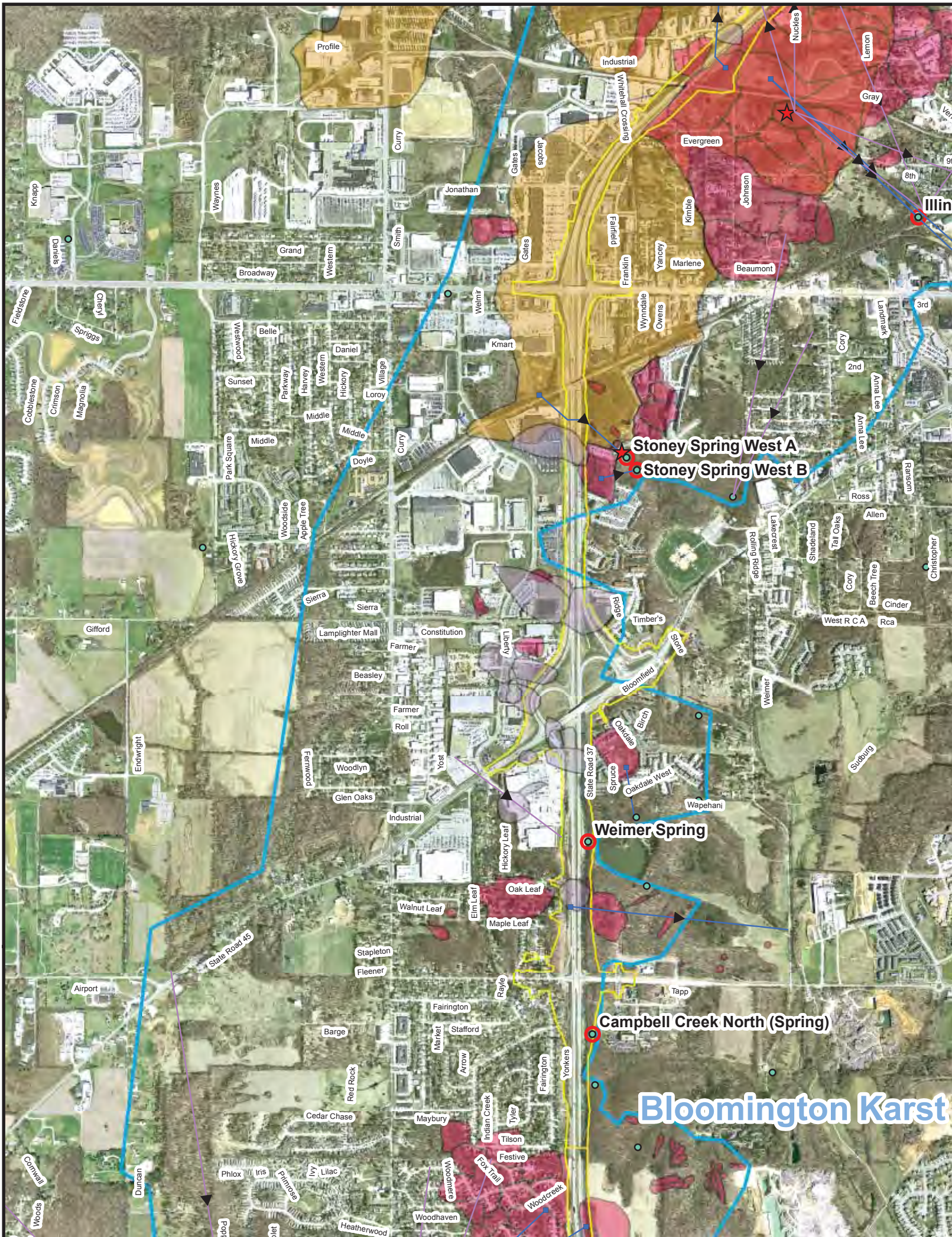
ature ID #	Name	Reason for Sampling	Notes
	Former Spring Box	DC	
	Valley Spring	DC	
	Well Cave	B	
	May Spring	AI, B, DC	May Cave
	Bailey Spring	DC	
	Treefall Spring	IC	
	Sexton Spring East	DC	
	Fullerton Spring	RW	
	Campbell Creek North Spring	RW	
	Weimer Spring	AI, RW	Near 2nd Street, spring flows under existing SR 37
	Stoney Spring West B	IC	
	Stoney Spring West A	DC	
	Illinois Central Spring	AI, DC	
	Snoddy Spring A	DC	
	Packinghouse Culvert Spring	IC	
	Wedge Quarry	AI	Bennett's Dump area
	Church Spring	DC	
	Slope Spring	DC	
	Purfey Spring	DC	
	Water Line Spring	DC	
	Ashfall Spring	DC	
	Ledge Spring	RW	
	Snooks Spring	DC	
	BP Spring	RW	
	Headwall Spring	AI, DC	Sample Road interchange
	Stile Spring	RW	
	Van Spring	DC	
	Dye Spring	DC	
	Thorn Spring	DC	

AI = Area of Importance
DC = Dye Connectivity
IC = Inferred Connectivity
B = Biota Sampling
RW = Right-of-way

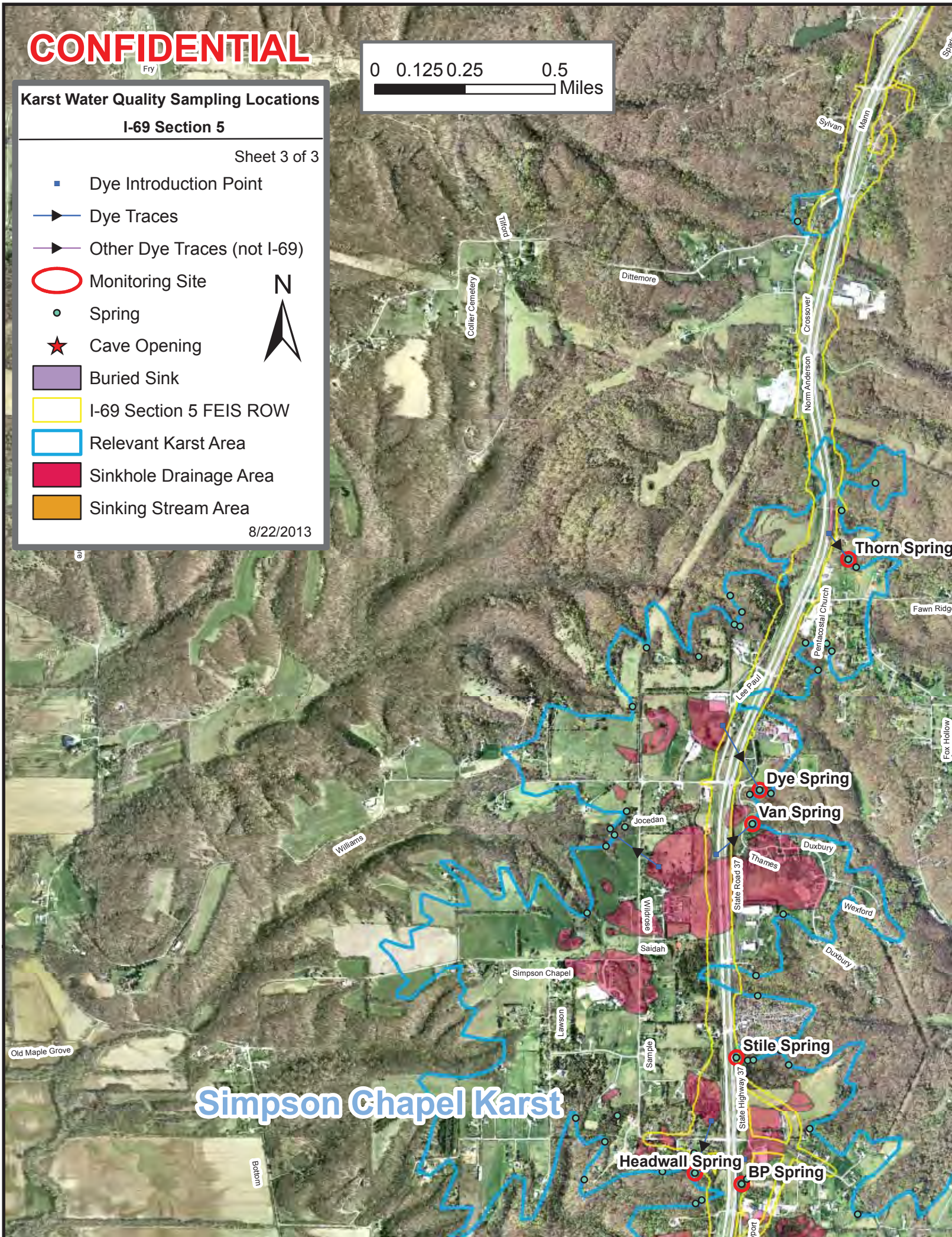
I-69 Section 5 Karst Monitoring and Maintenance Plan

Appendix B

WATER QUALITY SAMPLING LOCATIONS MAPS


Stoney Spring West A
Stoney Spring West B
Weimer Spring
Campbell Creek North (Spring)
Bloomington Karst
Profile
Industrial
Whitehall Crossing
Nuckles
Lemon
Gray
Evergreen
8th
Illin
Knapp
Daniels
Waynes
Jonathan
Curry
Gates
Jacobs
Johnson
Kimble
Fairfield
Yancey
Marlene
Beaumont
Franklin
Wyndale
Owens
Grand
Broadway
Western
Smith
Welmir
Kmart
Fieldstone
Cheryl
Spriggs
Westwood
Belle
Daniel
Sunset
Parkway
Harvey
Western
Hickory
Village
Loroy
Middle
Cobblestone
Crimson
Magnolia
Park Square
Doyle
Curry
Landmark
3rd
Cory
2nd
Anna Lee
Ransom
Ross
Allen
Lakecrest
Rolling Ridge
Shadeland
Tall Oaks
Christopher
Beech Tree
Cinder
West R C A
Rca
Woodside
Apple Tree
Hickory Grove
Sierra
Gifford
Lamplighter Mall
Constitution
Farmer
Library
Ridge
Timber's
Stone
Beasley
Bloomfield
Weimer
Roll
Oakdale
Birch
Endwright
Fernwood
Woodlyn
Yost
State Road 37
Spruce
Oakdale West
Sudbury
Glen Oaks
Wapehani
Industrial
Hickory Leaf
Elm Leaf
Oak Leaf
Walnut Leaf
Maple Leaf
State Road 45
Stapleton
Fleener
Airport
Rayle
Tapp
Fairington
Barge
Market
Stafford
Arrow
Red Rock
Yonkers
Cedar Chase
Maybury
Indian Creek
Tyler
Tilson
Festive
Fox Trail
Woodmere
Woodcreek
Woodhaven
Heatherwood
Cornwall
Woods
Duncan
Phlox
Iris
Primrose
Ivy
Lilac


CONFIDENTIAL
Karst Water Quality Sampling Locations
I-69 Section 5
Sheet 2 of 3
Dye Introduction Point
Other Dye Traces (not I-69)
Dye Traces
Monitoring Site
Spring
Cave Opening
Buried Sink
I-69 Section 5 FEIS ROW
Relevant Karst Area
Sinkhole Drainage Area
Sinking Stream Area
11/02/2013
N
0 0.125 0.25 0.5
Miles
Bloomington North Karst
Ashfall S
Water Line Spring
Purfey
Slope Spring
Church Spring
Maple Grove
Maple Grove Church
Glen Ellen
Lost Mans
Lauren
Maefield
Maine
Echo
Crestwood
Mosswood
Lynwest
Outback
Vaught and Bell
Castlewood
Ashbrook
Centennial
Deer Park
Cheryl
Blue Sky
Buick
De Ann
Craig
Shared
Forest Park
Merry Way
Carmola
Nowby
Andy
Nelson
Brewster
Trenton Overlook
Shelburne
Bristol
Liverpool
Reynolds
Wiltshire
Lancaster
Ellsworth
Rajuni
Stoutes Creek
Arlington
Stony Brook
Norwest Woods
Blue Bell
Canterbury
Winding
Valleyview
Stoney Crest
Whitewood
Rosewood
Acuff
Kinser
Old Kinser
State Road 37


CONFIDENTIAL
Karst Water Quality Sampling Locations
I-69 Section 5
Sheet 3 of 3
Dye Introduction Point
Dye Traces
Other Dye Traces (not I-69)
Monitoring Site
Spring
Cave Opening
Buried Sink
I-69 Section 5 FEIS ROW
Relevant Karst Area
Sinkhole Drainage Area
Sinking Stream Area
8/22/2013
N
0 0.125 0.25 0.5
Miles
Simpson Chapel Karst
Thorn Spring
Dye Spring
Van Spring
Stile Spring
Headwall Spring
BP Spring
Fry
Tilford
Collier Cemetery
Dittemore
Sylvan
Mann
Crossover
Norm Anderson
Pentacostal Church
Fawn Ridge
Lee Paul
Fox Hollow
Jocedan
Williams
Duxbury
Thames
State Road 37
Wexford
Wildrose
Saidah
Simpson Chapel
Lawson
Sample
State Highway 37
Old Maple Grove
Bottom

I-69 Section 5 Karst Monitoring and Maintenance Plan

Appendix C

WATER QUALITY SAMPLING PARAMETERS

Indiana Groundwater Quality Standards
Drinking Water Class Ground Water (327 IAC 2-11-6)

Inorganic Contaminants	
Contaminant	**Criterion (mg/L[1])**
Antimony	0.006
Arsenic	0.01
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium (total)	0.1
Cyanide (free)	0.2
Fluoride	4
Lead	0.015
Mercury (inorganic)	0.002
Nitrate (as N)	10
Nitrite (as N)	1
Selenium	0.05
Thallium	0.002

Organic Contaminants [Table 6(a)(2)]		
Chemical Abstract Registry Number	**Contaminant**	**Criterion (mg/L)**
15972-60-8	Alachlor	0.002
1912-24-9	Atrazine	0.003
71-43-2	Benzene	0.005
50-32-8	Benzo(a)pyrene (PAHs)	0.0002
1563-66-2	Carbofuran	0.04
56-23-5	Carbon tetrachloride	0.005
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2
103-23-1	Di(2-ethylhexyl) adipate	0.4
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.0002
95-50-1	Dichlorobenzene, 1,2-	0.6
106-46-7	Dichlorobenzene, 1,4-	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane or methylene chloride	0.005
78-87-5	1,2-Dichloropropane	0.005
117-81-7	Di(2-ethylhexyl) phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
100-41-4	Ethylbenzene	0.7
106-93-4	Ethylene dibromide	0.00005
1071-83-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
108-90-7	Monochlorobenzene	0.1

23135-22-0	Oxamyl (Vydate)	0.2
87-89-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP (Silvex)	0.05
120-82-1	1,2,4-Trichlorobenzene	0.07
71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10
Note: Excludes 2, 3, 7, 8-TCDD (Dioxin)		

Indicator Criteria (327 IAC 2-11-6(b))	
Contaminant	**Criterion (mg/L)**
Chloride	250
Sulfate	250
Total dissolved solids	500
Total coliform bacteria	Non-detect

Other Contaminants
Oil and Grease
Total Hardness
Total Suspended Solids
Ammonia

Notes

1 mg/l is milligrams per liter

I-69 Section 5 Karst Monitoring and Maintenance Plan

Appendix D

KARST SIGN GRAPHICS

1.5" Radius, 0.6" Border, 0.4" Indent, White on Blue;
"LOW SALT ZONE" C; "NO SPRAY ZONE" C;
Table of letter and object lefts.

L	O	W	S	A	L	T	Z	O	N	E
5.0	7.7	10.7	17.7	20.5	23.7	25.9	31.9	34.8	38.0	41.0

N	O	S	P	R	A	Y	Z	O	N	E
4.7	7.8	14.1	17.1	20.1	23.0	25.7	32.2	35.1	38.2	41.3

1.5" Radius, 0.6" Border, 0.4" Indent, White on Blue;
"REPORT ALL" C; "SPILLS TO" C; "1-888-233-7745" C;
Table of letter and object lefts.

R	E	P	O	R	T	A	L	L
6.8	9.8	12.5	15.3	18.5	21.4	27.4	30.5	33.2

S	P	I	L	L	S	T	O
9.0	12.0	15.1	16.5	19.1	21.8	28.0	30.7

1	-	8	8	8	-	2	3	3	-	7	7	4	5
3.0	4.6	7.1	9.9	12.8	15.6	18.1	21.0	23.8	26.7	28.9	31.3	33.7	36.9

I-69 Section 5 Karst Monitoring and Maintenance Plan

Appendix E

INDOT'S OPERATIONS MEMORANDUM 08-01
SNOW AND ICE CONTROL

INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

100 North Senate Avenue
Room N901
Indianapolis, Indiana 46204-2216 (317) 232-5488 FAX: (317)232-5551

Mitchell E. Daniels, Jr., Governor
Karl B. Browning, Commissioner

DATE: December 12, 2008

MEMORANDUM:

TO: District Deputy Commissioners
District Highway Maintenance Directors

OPERATIONS
MEMORANDUM NO. 08-01
Maintenance

FROM: James Poturalski, Deputy Commissioner
Highway Management

Michael B. Cline, Deputy Commissioner
District Operations & Traffic Management

SNOW AND ICE CONTROL

Department Objective:

The Indiana Department of Transportation (INDOT) will utilize available resources to keep all INDOT roads and bridges open and passable during winter storm events.

Three classifications of INDOT roads are identified to prioritize allocation of INDOT resources and to outline INDOT's snow and ice control service objectives.

Classifications

The three classes of INDOT roadways are identified as follows:

CLASS I

Interstate routes and roadways with Average Daily Traffic (ADT) volumes over 10,000 vehicles per day, as well as other high priority roadways, including but not limited to those serving hospital facilities and other emergency service providers.

CLASS II

Routes with traffic volumes between 5,000 and 10,000 ADT.

CLASS III

Routes with traffic volumes of less than 5,000 ADT.

Service Objectives

The following snow and ice control service objectives are identified for each of the three roadway classifications:

CLASS I

INDOT shall provide service to mainline pavements, ramps, and turn lanes to remove snow and ice from pavement surfaces by plowing and chemical applications to achieve bare pavement conditions. Once bare pavement conditions are achieved, minimal plowing of shoulders should commence. All other cleanup will be deferred to normal working hours. Class I routes should be serviced approximately every 2 hours.

CLASS II

INDOT shall provide service to mainline pavements, ramps, and turn lanes to remove snow and ice from pavement surfaces by plowing and chemical applications to achieve bare pavement conditions. All other cleanup will be deferred to normal working hours. Class II routes should be serviced approximately every 2.5 hours.

CLASS III

INDOT shall provide service to remove snow and ice from mainline pavements to provide partial bare pavement. Final cleanup will generally be deferred to normal working hours. Class III routes should be serviced approximately every 3 hours.

GENERAL NOTES

Winter Storm Event cleanup activities begin after the storm ends and after the identified service objectives have been achieved. Normally, cleanup activities should be performed during normal working hours; however, under some circumstances, such as when another winter storm is approaching or sudden drop in temperature is anticipated, cleanup activities may occur during overtime hours.

Cleanup activities include plowing and spot use of materials to remove snow and ice from the driving surface. This work also includes plowing back shoulders, crossovers and approaches, cleaning and opening of frozen drains, and equipment cleanup.

It is impractical to develop specific rules for every winter storm event situation due to the numerous variables involved in winter storms. The judgment of the District Highway Maintenance Director, Sub-District Managers,

and the Unit Foremen will govern the type, quantities and application schedules used for INDOT's snow and ice control services.

It is the intent of INDOT to use the appropriate amount of deicing and anti-icing chemicals needed to maintain and/or restore bare pavement conditions before, during and after winter storm events.

For the purposes of this document, bare pavement is defined as a condition under which the roadway's driving surface is cleared of loose snow and ice. The driving surface may have isolated patches of snow, ice, or slush.

For the purposes of this document, partial bare pavement is defined as a condition under which the roadway's driving surface is partially cleared of loose snow and ice. The driving surface may have some bare pavement, but the bare pavement may be limited to that portion of the pavement in the vehicular wheel paths.