Appendix G Waters of the U.S. Determination Form

WATERS OF THE U.S. DETERMINATION FORM US 31 at SR 28 New Interchange Construction Designation Number(s) 1382317

Prepared by: Sandra Bowman, Robert Winebrinner and Julie Barnard, INDOT ESD October 6, 2014

Date of Waters Field Investigation: August 7 and 19, 2013

Location:

Section 7 and 18, Township 21 N, Range 4 E Section 12 and 13, Township 21 N, Range 3 E Kempton & Tipton, Indiana Quadrangles Tipton County, Indiana

Project Description:

The purpose of the project is to create a new interchange at the intersection of US 31 and SR 28. The construction will include bridges to carry SR 28 over US 31, on- and off-ramps, and road widening, turn lanes and/or added travel lanes on SR 28.

National Wetland Inventory (NWI) Information:

There are NWI wetlands identified near the project area. NWI maps are attached to this report.

Soils:

According to the Soil Survey Geographic (SSURGO) Database for Tipton County, Indiana, the project area does contain nationally listed hydric soils.

Soil Unit SymbolSoil Unit NamePnPatton silty clay loam, sandy substratum

Attached Documents:

Summary tables of the waterways and wetlands known to be present in the project area. Maps of the project area. Photographs of the project area. USACE Wetland Determination Data Forms

Field Reconnaissance:

Field visits to the project area were conducted on August 7 and 19, 2013 by the INDOT ESD ecology and waterway permitting staff. The survey footprint consisted of the area that had the potential to be impacted based on all possible design scenarios. This area is shown on the attached map. The survey area was evaluated for the presence or absence of wetlands and waterways. Seventeen data points were taken to determine the presence or absence of wetlands meeting the criteria of the 1987 Corps of Engineers Wetland Delineation Manual and the August 2010 Midwest Regional Supplement. In addition, two stream crossings were evaluated.

STREAMS

One waterway, Dixon Creek, was observed in the project area. Dixon Creek flows southeast from the "Dixon Creek at SR 28" bridge to the "Dixon Creek at US 31" north and south bound bridges. Dixon Creek is classified as R2UBH (Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded) in the National Wetlands Inventory and is a solid blue line stream feature on the USGS topographic map. According to the USGS *Indiana StreamStats* the Dixon Creek drainage area above the US 31 bridge is 12.58 square miles.

Dixon Creek at SR 28

The Dixon Creek bridge on SR 28 is approximately 0.4 miles west of US 31. Dixon Creek at SR 28 had a defined ordinary high water mark (OHWM) and it was approximately 21.5 feet wide and 24 inches deep. This bridge crossing exhibits wetland characteristics on the surrounding banks. It is classified as Wetland G below. Dixon Creek at SR 28 is likely a Waters of the US. Approximately 200 linear feet of Dixon Creek is within the project area at this location and could potentially be impacted by the project.

Dixon Creek at US 31

The Dixon Creek bridges on US 31 are approximately 0.3 miles south of SR 28. Dixon Creek at US 31 had a defined ordinary high water mark (OHWM) and it was approximately 15.75 feet wide and 28 inches deep. The OHWM is visible on both the west and east sides of the road. This bridge crossing does not exhibit wetland characteristics on the surrounding banks. The roadside ditches in the immediate vicinity of the creek are riprap lined and data points were not obtained. Te ditch line further out from the bridges exhibited the three wetland characteristics. Roadside Ditch A and H are discussed below. Dixon Creek at US 31 is likely a Waters of the US. Approximately 400 linear feet of Dixon Creek is within the project area at this location and could potentially be impacted by the project.

Stream Summary Table US 31 New Interchange Construction Tipton County, Indiana Designation Number (s): 1382317

Stream Name	Photos	Lat/Long	OHW Width	Depth	USGS Blue- line	Riffles and Pools	Quality	Likely Water of U.S.	Potential Stream Impact (ft)
Dixon Creek (at US 31)	1-22, 25, 26	40.2711/ 86.1271	15.75'	28"	Yes	None	Poor	Yes	400

Dixon	109, 110,								
Creek	114, 115,								
(at SR	118, 129,	40.2753/	21.5'	24"	Yes	None	Poor	Yes	200
28)	133	86.1271							

WETLANDS

Wetland E

Wetland E is located at the intersection of US 31 and SR 28 in the northwest corner. It is approximately 0.0113 acre in size. Data Point E1 was dominated with wetland vegetation (predominantly *Echinochloa crus-gali* Large Barnyard Grass and *Schoenoplectus tabernaemontani* Soft-Stem Club-Rush). Two wetland hydrology primary indicators were present – Saturation and Inundation Visible on Aerial Imagery. A water table was present at four inches. In addition three secondary indicators were present – Surface Soil Cracks, Geomorphic Position and FAC-Neutral Test. The soil profile contained soils with a matrix of 10YR 4/1 with 10YR 5/6 redox features to 3.5 inches, 10YR 3/2 to seven inches and 10YR 5/1 with 10YR 4/6 redox features to twelve inches. This data point appears to be within a wetland. Data Point E2 contained upland species, non-hydric soil and did not exhibit wetland hydrology indicators. This data point doesn't appear to be within a wetland.

Wetland F

Wetland F is located 0.35 miles west of US 31 in northwest quadrant of the intersection of SR 28 and Dixon Creek. It is approximately 0.0549 acre in size. Data Point F1 was dominated with wetland vegetation (predominantly *Phalaris arundinacea* Reed Canary Grass). Two wetland hydrology secondary indicators were present – Geomorphic Position and FAC-Neutral Test. The soil profile contained soils with a matrix of 10YR 3/2 to eight inches, 10YR 3/2 with 7.5YR 5/8 redox features to fourteen inches and 10YR 4/1 with 7.5YR 4/1 redox features to sixteen inches. This data point appears to be within a wetland. Data Point F2 contained hydrophytic vegetation but did not contain hydric soils or exhibit wetland hydrology characteristics. This data point doesn't appear to be within a wetland.

Wetland I

Wetland I is located in the depression on the South side of SR 28 0.43 miles west of US 31. It is approximately 0.3011 acre in size. Data Point I1 was dominated with wetland vegetation (predominantly *Panicum virgatum* Wand Prairie/Switch Grass). Two secondary wetland hydrology indicators were present – Surface Soil Cracks and Geomorphic Position. The soil profile contained soils with a matrix of 10YR 4/1 with 10YR 5/8 redox features to seven inches and 10YR 2/1 with 10YR 5/1 redox features to thirteen inches. This data point appears to be within a wetland. Data Point I1 contained wetland vegetation but had non-hydric soil and did not exhibit wetland hydrology. This data point doesn't appear to be within a wetland.

Wetland Plot Data Summary Table US 31 New Interchange Construction Tipton County, Indiana Designation Number (s): 1382317

PLOT Hydrophytic Vegetation		Hydric Soils	Wetland Hydrology	Within a Wetland	
A1	Yes	Yes	Yes	No*	
A2	No	No	No	No	
B1	No	Yes	Yes	No	
B2	No	No	No	No	
C1	Yes	Yes	Yes	No*	
C2	No	No	No	No	
D1	No	No	No	No	
E1	Yes	Yes	Yes	Yes	
E2	No	No	No	No	
F1	Yes	Yes	Yes	Yes	
F2	Yes	No	No	No	
G1	Yes	Yes	Yes	No*	
G2	No	No	No	No	
H1	Yes	Yes	Yes	No*	
H2	No	No	No	No	
l1	Yes	Yes	Yes	Yes	
12	Yes	No	No	No	

* Classified as a roadside ditch.

Wetland Summary Table US 31 New Interchange Construction Tipton County, Indiana Designation Number (s): 1382317

Wetland ID	Photos	Lat/Long	Туре	Area (acres)	Quality	Likely Water of U.S.?
E	94-100	40.2755/86.1275	Palustrine Emergent	0.0113	Poor	Yes
F	108-135	40.2755/86.1136	Palustrine Emergent	0.0549	Poor	Yes
I	171-187	40.2752/86.1350	Palustrine Emergent	0.3011	Poor	Yes

Roadside Ditch Jurisdiction Determination

The project area was reevaluated in October, 2014 based on new guidance from the Louisville USACE District regarding wetlands in a roadside ditch. A roadside ditch is a non-jurisdictional feature that doesn't have relatively permanent flow. If the ditch meets the three wetland criteria but the area under consideration is wholly contained within the ditch and doesn't extend beyond

the banks it would not be considered a wetland. If a roadside ditch has an area that meets the three wetland criteria that extends beyond the banks then that area would be considered a wetland. The original report identified seven wetland areas in roadside ditches. Based on the new guidance four of the areas (A, C, G and H) have been reclassified as roadside ditches.

Roadside Ditch A

Roadside Ditch A (0.2523 acre) is located on the east side of the northbound lane of US 31 0.25 miles south of SR 28. It is approximately 0.2326 acre in size. Data Point A1 was dominated with wetland vegetation (predominantly *Phalaris arundinacea* Reed Canary Grass and *Typha angustifolia* Narrow-Leaf Cat-Tail). One wetland hydrology primary indicator was present – Oxidized Rhizopheres on Living Roots. In addition two secondary indicators were present – Geomorphic Position and FAC-Neutral Test. The soil profile contained soils with a matrix of 10YR 3/1 to two inches, 10YR 5/1 with 10YR 5/4 redox features to eight inches and 10YR 5/1 with 10YR 4/6 redox features to sixteen inches. Even though this data point meets the three wetland criteria it is wholly contained within a non-jurisdictional roadside ditch. It appears to meet the classification of a roadside ditch. See photos 32-42. Data Point A2 contained only 50% of OBL, FACW, or FAC species, non-hydric soil and did not exhibit wetland hydrology indicators. This data point doesn't appear to be within a wetland.

Roadside Ditch C

Roadside Ditch C (0.0329 acre) is located on the east side of the northbound lane of US 31 0.5 miles north of SR 28. It is approximately 0.0329 acre in size. Data Point C1 was dominated with wetland vegetation (predominantly *Persicaria pensylvanica* Pinkweed). Two wetland hydrology secondary indicators were present – Surface Soil Cracks and Geomorphic Position. The soil profile contained soils with a matrix of 10YR 4/1 to seven inches, 10YR 5/1 with 10YR 4/6 redox features to eleven inches and 10YR 3/1 with 10YR 6/2 and 10YR 6/6 redox features to twelve inches. Even though this data point meets the three wetland criteria it is wholly contained within a non-jurisdictional roadside ditch. It appears to meet the classification of a roadside ditch. See photos 73-85. Data Point C2 contained upland species, non-hydric soil and did not exhibit wetland hydrology indicators. This data point doesn't appear to be within a wetland.

Roadside Ditch G

Roadside Ditch G (0.0685 acre) is located west of the southbound lane of US 31 immediately south of SR 28. It is approximately 0.0685 acre in size. Data Point G1 was dominated with wetland vegetation (*Typha angustifolia* Reed Canary Grass). Two wetland hydrology primary indicators were present – Surface Water and Saturation. In addition two secondary indicators were present – Geomorphic Position and FAC-Neutral Test. The soil profile contained soils with a matrix of 10YR 4/1 with 10YR 4/6 redox features to ten inches and 10YR 5/1 with 7.5YR 5/6 redox features to sixteen inches. Even though this data point meets the three wetland criteria it is wholly contained within a non-jurisdictional roadside ditch. It appears to meet the classification of a roadside ditch. See photos 141-156. Data Point G2 contained only 50% of OBL, FACW, or FAC species, non-hydric soil and did not exhibit wetland hydrology indicators. This data point doesn't appear to be within a wetland.

Roadside Ditch H

Roadside Ditch H (0.3133 acre) is located on the west side of the southbound lane of US 31 from 0.34 miles south of SR 28 to CR W 250 S. It is approximately 0.3133 acre in size. Data Point H1 was dominated with wetland vegetation (predominantly *Leersia oryzoides* Rice Cut Grass. Two wetland hydrology primary indicators were present – Saturation and Inundation Visible on Aerial Imagery. In addition two secondary indicators were present – Crayfish Burrows and Geomorphic Position. The soil profile contained soils with a matrix of 10YR 4/2 to seven inches, 10YR 5/3 with 10YR 5/6 redox features to twelve inches and 10YR 6/1 with 10YR 5/6 redox features to sixteen inches. Even though this data point meets the three wetland criteria it is wholly contained within a non-jurisdictional roadside ditch. It appears to meet the classification of a roadside ditch. See photos 157-175. Data Point H2 contained only 50% of OBL, FACW, or FAC species, non-hydric soil and did not exhibit wetland hydrology indicators. This data point doesn't appear to be within a wetland.

Data Points B1 and B2

Data Points B1 and B2 are located on the east side of the northbound lane of US 31 0.15 miles south of SR 28. Data Point B1 did not contain wetland vegetation but did exhibit a primary hydric soil indictor – Depleted Matrix. The soil profile contained soils with a matrix of 10YR 4/1 to fourteen inches with 10YR 4/6 redox features. One wetland hydrology primary indicator was present – Oxidized Rhizopheres on Living Roots. In addition the site met the Geomorphic Position secondary indicator. Data Point B1 met only two of the three criteria necessary for a positive wetland determination and does not qualify as a wetland.

Data Point B2 contained upland species, non-hydric soil and did not exhibit wetland hydrology indicators.

Data Point D1

Data Point D1 is located northwest of the US 31 and SR 28 intersection in an agricultural field currently cultivated with soybeans. This area was evaluated because of the hydric soils present on the NRCS Soils Map and the dark shade visible on aerial photos. The soil profile contained soils with a matrix of 10YR 3/2 to fourteen inches. One wetland hydrology secondary indicator was present – Geomorphic Position. Data Point D1 did not meet any of the three criteria necessary for a positive wetland determination and does not qualify as a wetland.

Stormwater Basins X and Y

Stormwater Basin X and Stormwater Basin Y are located in the northeast quadrant of the project area. These stormwater detention basins were created on previous agricultural land to contain runoff from the adjacent industrial complex and are not considered to be wetlands.

Conclusions:

Field observations found three wetlands in the project area that have the potential to be impacted. Four other areas met the three wetland criteria but were classified as non-jurisdictional roadside ditches. One waterway (at two locations) was located within the right-of-way and exhibited Ordinary High Water Mark (OHWM) characteristics. This waterway is likely a Waters of the U.S. Every effort should be taken to avoid and minimize impacts to the wetlands and waterway. If impacts are necessary, then mitigation may be required. The INDOT Environmental Services Division should be contacted immediately if impacts will occur. The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers. This report is our best judgment based on the guidelines set forth by the Corps.

ATTACHMENT PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): October 6, 2014

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Sandra Bowman INDOT – Environmental Services Division 200 N Senate Ave, N642 Indianapolis, IN 46256

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: The US 31 New Interchange Construction project (DES 1382317) is located at the intersection of US 31 and SR 28. A new interchange will be constructed that includes a bridge to carry SR 28 over US 31, onand off-ramps, and road widening, turn lanes and/or added travel lanes on SR 28. The purpose of this project is to improve safety and traffic flow at a heavily used intersection.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: INCounty/parish/borough: Tipton CountyCity: TiptonCenter coordinates of site (lat/long in degree decimal format):
Lat. 41.28° N, Long. 87.18° W.Lat. 41.28° N, Long. 87.18° W.Universal Transverse Mercator:
Name of nearest waterbody: Dixon CreekIdentify (estimate) amount of waters in the review area:
Non-wetland waters: 600 linear feet; 21.5 width (ft) and/or _____ acre.
Cowardin Class: Riverine (R2UBH)
Stream Flow: Permanent
Wetlands: 0.3673 acres
Cowardin Class: Palustrine Emergent (PEM)

Name of any water bodies on the site that have been identified as Section 10 waters: Tidal: N/A Non-Tidal: N/A

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

- Office (Desk) Determination. Date:
- Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project

site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: _____
- USDA Natural Resources Conservation Service Soil Survey. Citation: SSURGO Database, Tipton County.
- National wetlands inventory map(s). Cite name: USFWS NWI.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- 🛛 Photographs: 🖂 Aerial (Name & Date): _____
 - or 🖂 Other (Name & Date): Site Photos August 7 and 19, 1013
- Previous determination(s). File no. and date of response letter:
- Other information (please specify):

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

Saniha A. Bowman

10/6/2014

Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

Signature and date of Regulatory Project Manager (REQUIRED)

WATERS OF THE U.S. AND WETLANDS

Site Number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Wetland C	40.2906	86.1268	PEM	0.0113	Poor
Wetland F	40.2755	86.1136	PEM	0.0549	Poor
Wetland I	40.2752	86.1350	PEM	0.3011	Poor
			Total	0.3673	
Dixon Creek (at US 31)	40.2711	86.1271	Riverine Lower Perennial (R2UBH)	400 feet	Poor
Dixon Creek (at SR 28)	40.2753	86.1335	R2UBH	200 feet	Poor
	·		Total	600	·





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Pg 31



(www.indianamap.org) Map Projection: UTM Zone 16 N Map Datum: NAD83

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





Pg 33



(www.indianamap.org) <u>Map Projection:</u> UTM Zone 16 N <u>Map Datum:</u> NAD83

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representation only. This information is not warranted for accuracy or other purposes.



Waters Investigation/Wetland Delineation Photo Documentation US 31 & SR 28 Interchange INDOT DES 1382317 Performed by: R. Winebrinner, S. Bowman, J. Barnard



001 – View E of Dixon Cr, E of NB US 31.



002 – View S of Dixon Cr, E of NB US 31.



003 – View W of Dixon Cr, E of NB US 31.



004 – View N of Dixon Cr, E of NB US 31.


005 – View of riprap bottom of ditch in NE quad of Dixon Cr, E of NB US 31.



006 – View E of Dixon Cr from under NB US 31.



007 – View W of Dixon Cr from under NB US 31.



008 – View of riprap bottom of ditch in SE quad of Dixon Cr, E of NB US 31.



009 - View N of Dixon Cr from E side of NB US 31.



010 – View E of Dixon Cr, E of NB US 31



011 – View N of ditch in SE quad of Dixon Cr at E side of NB US 31.



012 – View W from ditch in SE quad of Dixon Cr at E side of NB US 31.



013 – View NW of Dixon Cr, E of NB US 31.



014 – View W of Dixon Cr from between SB and NB US 31



015 - View N of Dixon Cr from between SB and NB US 31.



016 – View E of Dixon Cr from between SB and NB US 31.



017 – View S from Dixon Cr between SB and NB US 31.



019 – View N of Dixon Cr, W of SB US 31.



018 – View W of Dixon Cr, W of SB US 31.



020 – View S of Dixon Cr, W of SB US 31.



021 – View E of Dixon Cr, W of SB US 31.



022 – View S of SW ditch of Dixon Cr, W of SB US 31.



023 – View S of SW ditch of Dixon Cr, W of SB US



024 – View of SW ditch riprap bottom.



025 – View S from Dixon Cr from between SB and NB US 31.



026 – View N of Dixon Cr from between SB and NB US 31.



027 – View of riprap at bottom of NE ditch of Dixon Cr, E of NB US 31.



028 – View N of NE ditch from E side of NB US 31.



029 – View S of NE ditch of Dixon Cr, E of NB US 31.



030 – View E of NE ditch of Dixon Cr, E of NB US 31.



031 – View W of NE ditch of Dixon Cr, E of NB US







033 – View N of Roadside Ditch A from point A1.



035 – View W of Roadside Ditch A from point A1.



034 – View S of Roadside Ditch A from point A1.



036 – View E of Roadside Ditch A from point A1. G-44



037 – View of soil point A2.



038 – View of soil point A2.



039 – View S from soil point A2.



040 – View W from soil point A2.



041 – View N from soil point A2.



042 – View E from soil point A2.



043 – View W from soil point B1.



044 – View S from soil point B1.



045 – View SE from soil point B1.



046 – View E from soil point B1.



047 – View N from soil point B1.



048 – View of soil point B1.



049 – View of soil point B1.



050 – View S from soil point B2.



051 – View W from soil point B2.



052 – View E from soil point B2.



053 – View N from soil point B2.



054 – View of soil point B2.



055 – View of soil point B2.



056 – View N from north end of N detention basin.



057 – View W from north end of N detention basin.



058 – View S from north end of N detention basin.



059 – View of north end of N detention basin vegetation.



060 – View N from middle of N detention basin.



061 - View W from middle of N detention basin.



062 – View S from middle of N detention basin.



063 – View N of middle detention basin.



064 – View W from middle detention basin.



065 – View S from middle stormwater basin.



067 – View E from S stormwater basin.



066 – View E from middle stormwater basin.



068 – View S from S stormwater basin.



069 – View W from S stormwater basin.



071 – View W from plant access road.



070 – View S from S stormwater basin, showing stormwater standpipe/overflow.



072 – View W along SR 28 north ditch.



073 – View of soil point C1.



074 – View of soil point C1.



075 – View N of Roadside Ditch C from soil point C1.



076 – View W of Roadside Ditch C from soil point C1. _{G-54}



077 – View E of Roadside Ditch C from soil point C1.



078 – View S of Roadside Ditch C from soil point C1.



079 – View of soil point C2.



080 – View of soil point C2.



081 – View S from soil point C2.



082 – View W from soil point C2.



083 – View N from soil point C2.



084 – View E from soil point C2.



085 – View of Roadside Ditch C, showing typical vegetation and residue.



086 – View of W ditch on SB US 31, north of the interchange.



087 – View of W ditch on SB US 31, north of the interchange.



088 - View of N ditch on SR 28 WB, west of the interchange.



089 – View N from soil point D1.



090 – View E from soil point D1.



091 – View W from soil point D1.



092 – View S from soil point D1.



093 – View of soil point D1.



094 – View of soil point E1.



095 – View of soil point E1.



096 – View SE of Wetland E, NW quad of interchange.



097 – View W of Wetland E.



098 – View WNW of Wetland E.



099 – View N of Wetland E.



100 – View E of ditch leading to Wetland E.



101 – View W of ditch leading to Wetland E.



102 – View E of S ditch leading to Dixon Cr at SR 28.



103 – View W of S ditch leading to Dixon Cr at SR 28.



104 – View E of S ditch before entering Dixon Cr at SR 28. G-61



105 – View W of S ditch before entering Dixon Cr at SR 28



106 – View E of S ditch just before entering Dixon Cr at SR 28.



107 – View W of S ditch just before entering Dixon Cr at SR 28.



108 – View W of Dixon Cr at SR 28 from SE quad of bridge.



109 - View S of Dixon Cr at SR 28 from bridge.



110 – View N of Dixon Cr at SR 28 from bridge.



111 – View W of S ditch from Wetland I to Dixon Cr.



112 – View E of S ditch from Wetland I to Dixon Cr.



113 – View E of Dixon Cr at SR 28 from SW quad of bridge.



114 – View S of Dixon Cr at SR 28 from under bridge.



115 – View N of Dixon Cr at SR 28 from under bridge.



116 – View E of NE ditch leading to Dixon Cr at SR 28.



117 – View W of NE ditch leading to Dixon Cr at SR 28.



118 – View E from soil point F1.



119 – View N from soil point F1.



120 – View S from soil point F1.



121 – View W from soil point F1.



122 – View of soil point F1.



123 – View N from soil point F2.



124 – View S from soil point F2.



125 – View E from soil point F2.



126 – View of soil point F2.



127 – View S from SW quad of Dixon Cr and SR 28; Wetland F.



128 – View W from SW quad of Dixon Cr and SR 28; Wetland F.



129 – View E from SW quad of Dixon Cr and SR 28; Wetland F.



130 – View S from SE quad of Dixon Cr and SR 28, Wetland F.



131 – View N from SE quad of Dixon Cr and SR 28; Wetland F.



132 – view E from SE quad of Dixon Cr and SR 28; Wetland F.



133 – View W of SE quad of Dixon Cr and SR 28; Wetland F.



134 – View S from NE quad of Dixon Cr and SR 28; Wetland F.



135 – View N from NE quad of Dixon Cr and SR 28; Wetland F.



136 – View N from farm field in SW quad of interchange.



137 – View W from farm field in SW quad of interchange.



138 View S from farm field in SW quad of interchange.



139 – View N of S ditch of SR 28, W of interchange.



140 – View N of S ditch of SR 28, just W of interchange. G-70



141 – View of soil point G1.



142 – View of soil point G1.



143 – View N from soil point G2.



144 – View E from soil point G2.



145 – View S from soil point G2.



146 – View S from soil point G1.



147 – View N from soil point G1.



148 – View W of Roadside Ditch G, from point G2. G-72


149 – View NW at pipe connecting three segments of Roadside Ditch G.



150 – View S of Roadside Ditch G from pipe.



151 – View S at Roadside Ditch G.



152 – View of typical vegetation in Roadside Ditch G.



153 – View S of typical Roadside Ditch G vegetation.



154 – View of milkweed found in Roadside Ditch G.



155 – View NW of Roadside Ditch G.



156 – View of Roadside Ditch G vegetation. G-74



157 – View N from Roadside Ditch H to Dixon Cr.



158 – View NW at Roadside Ditch H.



159 – View W of Roadside Ditch H vegetation.



160 – View S at Roadside Ditch H.



161 – View of soil point H1.



162 – View of soil point H1.



163 – View W from soil point H1.



164 – View E from soil point H1.



165 – View N from soil point H1 of Roadside Ditch H.



166 – View S from soil point H1 of Roadside Ditch H.



167 – View N from soil point H2.



168 – View E from soil point H2.



169 – View S from soil point H2.



170 – View of vegetation in plot H2.



171 – View S of continued Roadside Ditch H through pipe.



172 – View S of Roadside Ditch H. G-78



173 – View N of Roadside Ditch H where pipe outlets to out from residential property.



175 – View N of Roadside Ditch H.



174 – View of Roadside Ditch H typical vegetation.



176 – View N from soil point I1.



177 – View of soil point I1.



179 – View E from soil point I1.



178 – View W from soil point I1.



180 – View N from soil point I1.



181 – View S from soil point I1.



183 – Typical vegetation of Wetland I.



182 – Typical vegetation of Wetland I.



184 – View of soil point I2.



185 – View W from soil point I2.



186 – View E from soil point I2.



187 – View S from soil point I2.

Project/Site: US 31/SR 28	City/0	County:	Tipton/Tip	ton Sam	pling Date:	8/7/2013
Applicant/Owner: INDOT		State:	IN	Sam	pling Point:	A1
Investigator(s): Barnard, Bowman, Winebrinner		Secti	on,Townshi	p, Range:	Kempton,	18, 21N, 4E
Landform (hillslope, terrace, etc.): Roadside	Ditch	Local r	elief (conca	ve, convex, non	e):	Concave
Slope (%): <1 Lat: 40.2717		Long:	86.1268	3 Datu	m:	NAD 83
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	substratum		NWI	Classification:		None
Are climatic/hydrologic conditions of the site typical for this	time of the	year? Ye	s X N	lo (lf no	, explain in rema	arks)
Are vegetation , soil , or hydrology sig	gnificantly c	listurbed?	Are "nor	mal circumstand	ces" present?	Yes X No
Are vegetation , soil , or hydrology na	aturally prob	lematic?	remarks	.)		
SUMMARY OF FINDINGS - Attach site map	showing	sampling po	oint locati	ons, transect	s, important f	eatures, etc.
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes		Is the Samp	oled Area			
Wetland hydrology present? Yes		within a We	tland?	Yes	No	Х
Pomarke: (Explain alternative precedures here or in a s	soparato ro	nort) Area is	s wholly in a	- a non iurisdictic	nal PSD and is	s not a wetland
Remarks. (Explain alternative procedures here of in a s	separate re	pon.) Alea a				s not a wetianu.
VEGETATION Use scientific names of plants	6.				T = = () A (= = = = =	
Tree Stratum (Plot size: N/A)	Absolute	Dominant Species	Indicator	Dominance	lest workshe	et
1		Species	Slaus	Number of Dor	FACW or FAC	2 (A)
2				Total Number (of Dominant	(//)
3				Species Acros	s all Strata:	2 (B)
4				Percent of Don	ninant Species	
5				that are OBL, F	FACW, or FAC:	100.00% (A/B)
	0 =	Total Cover				
Sapling/Shrub stratum (Plot size: N/A)				Prevalence	Index Worksh	eet
1				Total % Cove	er of:	4 40
2				OBL species	$\frac{40}{60}$ x	1 = 40
<u> </u>				FACW Species	0 x	2 = 120 3 = 0
5				FACU specie	$s \frac{0}{0} x$	4 = 0
	0 =	Total Cover		UPL species	0 x	5 = 0
Herb stratum (Plot size: 10)				Column totals	s 100 (A)	160 (B)
1 Phalaris arundinacea	60	Y	FACW	Prevalence Ir	ndex = B/A =	1.60
2 Typha angustifolia	40	Y	OBL			
3				Hydrophytic	c Vegetation Ir	ndicators:
4				1 - Rapid	Test for Hydrop	hytic Vegetation
5				X 2 - Domir	nance Test is >5	i0%
6 7		·		X 3 - Preva		3.U
8				data in Rer	narks or on a sepa	arate sheet)
9				Problemat	tic Hydrophytic V	egetation ¹ (Explain)
10						
	100 =	Total Cover				
Woody vine stratum (Plot size: N/A)				¹ Indicators of h	ydric soil and wetla	and hydrology must be
1				present, unless	disturbed or probl	ematic
2				Hydrophytic		
	0 =	Total Cover		vegetation present?	Yes	x No
Pomorko: (Includo photo numboro hara ar ar a caracte	to choct					
remarks. (include photo numbers here or on a separat	le sneet)					
Other plants in area - Scirpus validis (Soft-s	stem Bulr	ush), <i>Eleoc</i>	haris sp.	(Spike-Rush), Asclepias i	<i>incarnata</i> (Swamp
Milkweed)						

Depth	Matri	(R	edox Featu	Jres					
(Inches)	Color (moist)	%	Color	(moist)	%	Type'	Loc ²	Tex	xture	Remarks	
0-2	10YR 3/1	100						Muck			
2-8	10YR 5/1	90	10YI	R 5/4	10	С	PL/M	Clay			
8-16	10YR 5/1	85	10YI	R 4/6	15	С	М	Clay			
		_								·	
							·				
							·				
	Concentration I) – Depleti	on RM-	- Roduco	d Matrix N	19 – Ma	skod Sand	Grains	**Location:	PI – Pore Lining M –	Matrix
Hvdric Se	oil Indicators:	D = Depieti	011, 1111 -	- 1100000	a matrix, iv	//O = 1/10	Silved Galia	Indicat	tors for Prot	blematic Hvdric Soils	:
His	tisol (A1)			San	dy Gleyed	Matrix (S4)	Co	oast Prairie R	edox (A16) (LRR K, L,	R)
His	tic Epipedon (A2	2)		San	dy Redox ((S5)	,	Da	ark Surface (S	S7) (LRR K, L)	
Bla	ck Histic (A3)			Strip	ped Matrix	k (S6)		5 0	cm Mucky Pe	eat or Peat (S3) (LRR K	K, L, R)
Hyd	drogen Sulfide (A	44)		Loa	my Mucky	Mineral	(F1)	Iro	n-Manganes	e Masses (F12) (LRR I	K, L, R)
Stra	atified Layers (A	5)		Loa	my Gleyed	Matrix (F2)	Ve	ery Shallow D	Park Surface (TF12)	
2 ci	m Muck (A10)	rk Curtos -	(111)		leted Matri	x (F3)	()	Ot	ner (explain i	in remarks)	
Dep	Dieted Below Da	rk Surrace	(A11)		OX Dark Su	JITACE (F	で) (EZ)	31			
Sar	dy Mucky Mine	(A12) ral (S1)		Dep	ov Denres	sions (F)	8)	India	cators of nya	ropnytic vegetation and	urbed c
5 ci	n Mucky Peat o	r Peat (S3))		ov Debles	3013 (1	0)	nyu	rology must i	problematic	libeu (
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Period Content of the second content of	OGY /drology Indica icators (minimul Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Com Stained Leaves (f vations: er present? present? present? present? pillary fringe) corded data (str	rial Imagery cave Surfa 39) Yes Yes Yes eam gauge	/ (B7) ce (B8) No No e, monito	I; check a	all that appl Aquatic Fa True Aqua Hydrogen Oxidized F (C3) Presence Recent Iro Thin Muck Gauge or Other (Exp Depth (inc Depth (inc Depth (inc	ly) auna (B1 atic Plant Sulfide (Rhizosph of Reduc con	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tilleo (C7) a (D9) temarks) <u>0 - 16 0 - 16</u> 0 - 16	ing Roots ing Roots i) d Soils (C6) Wetland I ections), if av	econdary Ind Surface Drainae Dry-Se Crayfis Saturat Stuntee X Geome X FAC-Ne	licators (minimum of tw e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Ima d or Stressed Plants (D1 orphic Position (D2) eutral Test (D5)	o requ agery ()
YDROL imary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundat Sparsel Water-S eld Obser urface wate atter table atter atter table atter	OGY /drology Indica icators (minimul Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Com Stained Leaves (If vations: er present? present? present? present? present? posits (B5) corded data (str	rial Imagery cave Surface 39) Yes Yes Yes Yes eam gauge	/ (B7) ce (B8) No No e, monito	I; check a	all that appl Aquatic Fa True Aqua Hydrogen Oxidized F (C3) Presence Recent Iro Thin Muck Gauge or Other (Exp Depth (inc Depth (inc Depth (inc Depth (inc data a constant)	lv) auna (B1 atic Plant Sulfide (Rhizosph of Reduc on Reduc (Surface Well Dat plain in R ches): ches): ches): ches):	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 ttion in Tilleo (C7) a (D9) cemarks) 0 - 16 0 - 16 0 - 16 0 - 16	ing Roots) d Soils (C6) Wetland I sctions), if av	econdary Ind Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo X FAC-Ne	licators (minimum of tw e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Ima d or Stressed Plants (D1 orphic Position (D2) eutral Test (D5)	<u>o requ</u> agery (') No
YDROL pe: pe: peth (inch marks: YDROL thanks:	OGY /drology Indica icators (minimul Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Con Stained Leaves (for vations: er present? present ? present? pre	rial Imagery cave Surfa 39) Yes Yes Yes Yes eam gauge	/ (B7) ce (B8) No No o , monito	; check a 	all that appl Aquatic Fa True Aqua Hydrogen Oxidized F (C3) Presence Recent Iro Thin Muck Gauge or Other (Exp Depth (inc Depth (inc Depth (inc Depth (inc darial pho	ly) auna (B1 atic Plant Sulfide (Rhizosph of Reduc on Reduc (Surface Well Dat plain in R ches): ches): ches):	3) s (B14) Ddor (C1) leres on Liv ced Iron (C4 etion in Tilled c (C7) a (D9) Remarks) <u>0 - 16 0 - 16</u> <u>0 - 16</u> <u>0 - 16</u> <u>vious inspe</u>	ing Roots (f) d Soils (C6) Wetland I ections), if av	econdary Ind Surface Drainag Dry-Se Crayfis Saturat X Geomo X FAC-N hydrology pr	licators (minimum of tw e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Ima d or Stressed Plants (D1 orphic Position (D2) eutral Test (D5)	o requ agery ()

City/County: Tipton/Tipton Sampling Date: 8/7/2013	y/County:	City/	US 31/SR 28	Project/Site: US
State: IN Sampling Point: A2	State		wner: INDOT	Applicant/Owner
Section, Township, Range: Kempton, 18, 27N, 4E	s		(s): Barnard, Bowman, Winebrinner	Investigator(s):
Ditch Local relief (concave, convex, none): concave	Lor	dside Ditch	illslope, terrace, etc.): Roads	Landform (hillslo
Long: 86.12674 Datum: NAD 83	Long:	729	10 Lat: 40.2717	Slope (%): 10
ubstratum NWI Classification: None	- <u> </u>	andy substratum	nit Name: Pn - Patton silty clay loam, san	Soil Map Unit Na
time of the year? Yes X No (If no, explain in remarks)	ne year?	or this time of the	/hydrologic conditions of the site typical for	Are climatic/hydr
nificantly disturbed? Are "normal circumstances" present? Yes X No	/ disturbed?	significantly	ion , soil , or hydrology	Are vegetation
urally problematic? remarks.)	oblematic?	naturally pro	ion , soil , or hydrology	Are vegetation
showing sampling point locations, transects, important features, etc.	g sampling	map showing	Y OF FINDINGS - Attach site m	SUMMARY C
	Ī		hytic vegetation present? No	Hydrophytic
Is the Sampled Area	Is the Sa		soil present? No	Hydric soil r
within a Wetland? Yes No X	within a		d hydrology present? No	Wetland hy
	raport)	in a congrate re	Evolain alternative precedures here or in	Pomarke: (Evol
	eport.,			
Dominance Test Worksheet		lants.	TION Use scientific names of pla	VEGETATIO
Absolute Dominant Indicator % Cover Species Staus Number of Dominant Species	Dominant Species	Absolute % Cover	tum (Plot size: N/A)	Tree Stratum
[Inat are OBL, FACW, or FAC: (A)				1
I otal Number of Dominant Species Across all Strata: 2 (B)				2
Percent of Dominant Species				4
that are OBL, FACW, or FAC: 50.00% (A/B)				5
0 = Total Cover	= Total Co	0		
Prevalence Index Worksheet	-)	Shrub stratum (Plot size: N/A	Sapling/Shrub
Total % Cover of:				1
OBL species 0 x 1 = 0				2
FACW species 0 x 2 = 0				3
FAC species 80 x 3 = 240				4
FACU species 65 x 4 = 260				5
$0 = \text{Total Cover} \qquad \qquad$	= Total Cov	<u> </u>		
	V			Herb stratum
$\frac{80}{20} \qquad Y \qquad FAC \qquad Prevalence Index = B/A = 3.45$	- <u>Y</u>		setum arvense	1 Equisetur
60 Y FACU	- <u>r</u> N	<u> </u>		2 Bromus in
	IN			
2 - Dominance Test is >50%				5
				6
4 - Morphogical Adaptations ¹ (Provide supporting				7
data in Remarks or on a separate sheet)				8
Problematic Hydrophytic Vegetation ¹ (Explain)				9
				10
145 = Total Cover	= Total Co	145		
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic)	ne stratum (Plot size: N/A	Woody vine st
Hydrophytic				2
0 = Total Cover vegetation Yes No X present?	= Total Co	0		
0 = Total Cover Hydrophytic vegetation yes No present? 0 = Sheet)	= Total Cov	0 parate sheet)	Include photo numbers here or on a sep	2 Remarks: (Inclu

Profile Des	cription: (Descr	ibe to the	e depth needed t	o docun	nent the i	ndicator o	r confirm the absence of	indicators.)
Depth	Matrix		Re	edox Fea	itures			•
(Inches)	Color (moist)	%	Color (moist)	%	Туре⁻	Loc ²	Texture	Remarks
0-4	10YR 3/2	100					Loamy/clay/sand	
4-13	10YR 4/2	100				·		
	10111 4/2	100						
				-				
*T	Democratica D	Denleti		al Mastria	MO M-		Oneine **! exetient D	Dens Lisian M. Matrix
Type: C = C	Joncentration, D	= Depietic	Sn, Rivi = Reduce	a Matrix,	MS = Mas	sked Sand	Indicators for Brobl	L = Pore Lining, M = Matrix
			Son	dy Clava	d Motrix (S	24)		
	isul (AT)			dy Bodo	u iviatrix (c 	54)		
	LC = PIPEUOII (AZ)				((33) riv (86)			$(\mathbf{L}\mathbf{R}\mathbf{R},\mathbf{L})$
	rogon Sulfido (AA	I)		ny Muck	v Minoral ((=1)		Massos (E12) (I PP K I P)
	tified Lavors (A5)	•)		ny Glovo	y Milleral (Motrix (I	(II) E2)		(TE12)
	n Muck (A10)			Iny Oleye	triv (F3)	1 Z)	Other (explain in	remarks)
	leted Below Dark	Surface	(A11) Red	ox Dark S	Surface (F	6)		Ternanda)
	k Dark Surface (A12)	Den	leted Dar	rk Surface	(F7)	³ Indicators of hydro	nbytic vegetation and weltand
Sar	dv Mucky Minera	l (S1)		ox Depre	essions (F8	(, , , , 3)	hydrology must be	present unless disturbed or
5 cr	n Mucky Peat or I	Peat (S3)		on Dopio		-)	ilyarology maar be	problematic
							r	
Restrictive	Layer (If observ	ea):					Ubudala a di mara ang	
Type:) -				-		Hydric soll present?	
Depth (Inch	es):				-			
Remarks:							•	
Rock at	13" earthworm	ne -						
TOOK at		13						
HYDROL	OGY							
Wetland Hy	drology Indicate	ors:						
Primary Ind	cators (minimum	of one is	required; check a	II that ap	ply)		Secondary Indic	ators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B1	3)	Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plants	s (B14)	Drainage	Patterns (B10)
Saturati	on (A3)			Hydroge	en Sulfide C	Odor (C1)	Dry-Seas	son Water Table (C2)
Water M	larks (B1)			Oxidized	d Rhizosph	eres on Liv	ing Roots Crayfish	Burrows (C8)
Sedime	nt Deposits (B2)			(C3)			Saturatio	n Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presenc	e of Reduc	ed Iron (C2	4) Stunted of	or Stressed Plants (D1)
	at or Crust (B4)			Booont I	ron Boduo	tion in Tillo	Geomorp	onic Position (D2)
Iron Dep	OUSIIS (BD) on Visible on Aeris	Imagery	(B7)	Thin Mu	ck Surface		a Solis (Co) FAC-Net	itrai Test (D5)
Sparsel	Vegetated Conca	ar innager y ave Surfac	(B7)	Gauge o	or Well Date	(C7) a (D9)		
Water-S	tained Leaves (B9			Other (F	xolain in R	emarks)		
Eigld Obser	vations:	/		0		onnanno)		
Surface wate	valions. er present?	Yes	No X	Denth (ir	nches).	0 - 13		
Water table	present?	Yes		Depth (ir	nches):	0 - 13		
Saturation p	resent?	Yes	No X	Depth (ir	nches):	0 - 13	Wetland hydrology pres	sent? Yes No X
(includes car	oillary fringe)				, .			
Describe re	corded data (strea	am daude	, monitorina well.	aerial ph	notos. prev	ious inspe	ections), if available:	
		32290	,		, p. 01			
Remarks:								
No satur	ation, 10 % slo	pe. road	side backslope	Э				
		,		-				

Project/Site: US 31/SR 28	City	County:	Tipton/Tip	oton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	B1	
Investigator(s): Barnard, Bowman, Winebrinner		Sec	ction,Townshi	ip, Range:	Kempton,	18, 21N, 4E	
Landform (hillslope, terrace, etc.): Roadsid	le Ditch	Local	l relief (conca	ive, convex, none):		Concave	
Slope (%): <1 Lat: 40.2687		Long:	86.77	Datum:		NAD 83	
Soil Map Unit Name: Wkb - Williamstown silt Ioam			NWI	Classification:		None	
Are climatic/hydrologic conditions of the site typical for th	is time of the	e year?	res X M	lo (lf no, exp	olain in rema	arks)	
Are vegetation , soil , or hydrology	significantly	disturbed?	Are "nor	mal circumstances"	present?	Yes No)
Are vegetation , soil , or hydrology	naturally pro	blematic?	remarks	.)			
SUMMARY OF FINDINGS - Attach site ma	p showing	sampling	point locati	ons, transects, ir	nportant fo	eatures, etc.	
Hydrophytic vegetation present? No							
Hydric soil present? Yes		Is the Sam	pled Area				
Wetland hydrology present? Yes		within a W	/etland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in a	separate re	eport.)					
	ooparaton	00011.)					
VECETATION Lies scientific names of plan	to						
VEGETATION Use scientific names of plan	lS.	Developed	la d'actan	Dominance Tes	t Worksho	ot	
Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species	Indicator Staus	Number of Domina	nt Spacias	e.	
1				that are OBL, FAC	W, or FAC:	0	(A)
2				Total Number of Do	ominant		- ` ´
3				Species Across all	Strata:	1	(B)
4				Percent of Domina	nt Species		
5				that are OBL, FAC	W, or FAC:	0.00%	(A/B)
	0	= Total Cove	r			1	
Saping/Shrub stratum (Plot size: N/A)			Total % Cover of:	ex workshi	eet	
2				OBL species	0 x	1 = 0	
3				FACW species	0 x	2 = 0	
4				FAC species	5 x	3 = 15	
5				FACU species	92 x	4 = 368	
	0	= Total Cove	r	UPL species	0 x	5 = 0	
Herb stratum (Plot size: 10)			Column totals	97 (A)	<u>383</u> (B))
1 Bromus inermis	90	Y	FACU	Prevalence Index	= B/A =	3.95	
2 Apocynum cannabinum	5	<u> </u>	FAC			Parton	
3 Cirsium arvense	2	<u>N</u>	FACU	1 Papid Tas	getation in	dicators:	
+				2 - Dominanc	e Test is 56	nytic vegetation	
6				3 - Prevalence	e Index is ≤3	3.0 ¹	
7				4 - Morphogica	al Adaptation	s ¹ (Provide suppor	rting
8				data in Remarks	s or on a sepa	rate sheet)	
9				Problematic H	ydrophytic Ve	egetation ¹ (Explai	n)
10							
	97	= Total Cove	er				
<u>vvoody vine stratum</u> (Plot size: N/A)			¹ Indicators of hydric	soil and wetla	nd hydrology must	t be
2				Present, unless distu	Irbed or proble	ematic	
2		- Total Cove		vegetation	Vos	No X	
	Ū		•	present?			-
Remarks: (Include photo numbers here or on a separ	ate sheet)			•			

Jeptn (Inchas)	Color (m=:=+)	0/			tures	1 2 2	Ŧ	vturo.		mortes
(inches)	Color (moist)	%	Color (moist)) <u>%</u>	Туре	LOC	. Tex	xture	R	emarks
0-14	10YR 4/1	90	10YR 4/6	10	С	PL	clay			
						·				
				_		·				
	Occurrent to the D	Depletie	DM Dedu	a a al Mastria	MO M-		Oralian	**!	DI Dana Linia	a M Matri
pe: C = 0	Joncentration, D	= Depietic	n, Rivi = Redu	ced Matrix,	MS = Ma	sked Sand	Grains.	Location:	PL = Pore Linin	ig, ivi = iviairi.
Hiet	(A1)		S	andy Glavor	d Matrix (9	S4)	Co	ast Prairie F		RKIR)
Hist	tic Eninedon (A2)		<u> </u>	andy Redox	(S5)	54)	Da	ark Surface (S7) (IRR K I)	IX IX, ⊑, IX)
Blac	ck Histic (A3)		<u> </u>	tripped Matr	rix (S6)		<u> </u>	cm Mucky P	eat or Peat (S3)	
	Irogen Sulfide (A	1)	<u> </u>	namy Mucky	/ Mineral	(F1)	lro	on-Manganes	se Masses (F12)	(LRR K. L.
Stra	atified Lavers (A5)	L	pamy Gleve	d Matrix (F2)	Ve	erv Shallow [Dark Surface (TF	
2 cr	n Muck (A10)	·	XD	epleted Mat	trix (F3)		Ot	her (explain	in remarks)	,
Dep	leted Below Darl	Surface ((A11) R	edox Dark S	Surface (F	-6)	—		,	
Thic	ck Dark Surface (A12)	D	epleted Dar	k Surface	(F7)	³ Indi	cators of hyd	rophytic vegeta	tion and welt
Sar	dy Mucky Minera	l (S1)	R	edox Depre	ssions (Fa	8)	hyd	rology must	be present, unle	ess disturbed
5 cr	m Mucky Peat or	Peat (S3)							problematic	
strictive	Laver (if observ	ed):								
Δ.		,					Hydri	c soil nrese	nt? Yes X	No
·C.							119011	c aon preaci		110
oth (inch	es):						i i yan			
pth (inch marks:	es):									
narks:	es):									
Doth (inch- marks:	es):									
/DROL	es): DGY /drology Indicat	ors:								
DROLO	es): OGY /drology Indicat	ors: of one is	required; chec	k all that ap				econdary Inc	dicators (minimu	m of two req
Dth (inch narks: DROL(tland Hy nary Ind Surface	es): DGY /drology Indicat icators (minimum Water (A1) Otor Table (A2)	ors: of one is	required; chec	k all that ap Aquatic F	<u>ply)</u> Fauna (B1	3)		econdary Ind Surfac	<u>dicators (minimu</u> e Soil Cracks (Be	m of two req
Dth (inch narks: DROL tland Hy nary Ind Surface High Wa Saturat	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3)	ors: of one is	required; chec	k all that ap Aquatic I True Aqu	<u>ply)</u> Fauna (B1 Jatic Plant	3) s (B14)	<u>S</u>	econdary Ind Surfac Draina	<u>dicators (minimu</u> e Soil Cracks (Bf ge Patterns (B10 asson Water Tab	<u>m of two req</u>
Dth (inch- narks: DROL(tland Hy nary Ind Surface High Wa Saturati Water M	DGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	ors: of one is	required; chec	k all that ap Aquatic f True Aqu Hydroge Oxidized	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph	3) s (B14) Ddor (C1) ieres on Liv		econdary Inc Surfac Draina Dry-Se Cravfii	dicators (minimu e Soil Cracks (Bf ge Patterns (B10 eason Water Tab	<u>m of two req</u> 6) 1) le (C2)
DROL(narks: DROL(tland Hy nary Ind Surface High Wa Saturati Water M Sedimei	DGY vdrology Indicat vdrology Indicat vdrolog	ors: of one is i	required; chec	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3)	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph	3) s (B14) Ddor (C1) ieres on Liv	ing Roots	econdary Inc Surfac Draina Dry-Se Crayfis Satura	<u>dicators (minimu</u> e Soil Cracks (Bf ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ad	m of two req b) l) le (C2) erial Imagery
DROLO narks: DROLO tland Hy nary Ind Surface High Wa Saturati Water M Sedimen Drift Dej	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	ors: of one is	required; chec	k all that ap Aquatic F True Aqu Hydroge Oxidized ((C3) Presence	<u>ply)</u> Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4	ing Roots	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte	dicators (minimu e Soil Cracks (Bé ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Aé d or Stressed Pla	m of two req 3) 1) le (C2) erial Imagery ants (D1)
Dith (inch- narks: DROL(tland Hy nary Ind Surface High Wa Saturati Water M Sedimen Drift Dej Algal Ma	DGY vdrology Indicat vdrology Indicat vdter (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors: of one is	required; chec	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4	ing Roots	econdary Inc Surfac Draina Dry-Se Crayfie Satura Stunte X Geom	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (E	m of two req 3)) le (C2) erial Imagery ants (D1) D2)
Dth (inch- narks: DROL(tland Hy nary Ind Surface High Wa Saturati Water M Sedimee Drift De Algal Ma Iron Dep	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ors: of one is	required; chec	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence Recent li	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4	ing Roots 4) d Soils (C6)	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (D leutral Test (D5)	m of two req b) le (C2) erial Imagery ants (D1) D2)
DROLO narks: DROLO tland Hy nary Ind Surface High Wa Saturati Water M Sedimei Drift Dei Algal Ma Iron Dep Inundati	DGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri	ors: of one is i	required; chec	k all that ap Aquatic I True Aqu Hydroge Oxidized ((C3) Presence Recent Iu Thin Muc	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc ron Reduc ck Surface	3) s (B14) Ddor (C1) leres on Liv ced Iron (C4 ttion in Tille e (C7)	ing Roots 4) d Soils (C6)	econdary Inc Surfac Draina Dry-Se Crayfis Satura Sturte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req b) le (C2) erial Imagery ants (D1) D2)
DTH (inch- narks: DROL(tland Hy nary Ind Surface High Wa Saturati Water M Sedimee Drift Dep Algal Ma Iron Dep Inundati Sparsel	DGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc	ors: of one is i al Imagery ave Surfac	required; chec 	k all that ap Aquatic I True Aqu Hydroge Oxidized ((C3) Presence Recent In Thin Muo Gauge (<u>ply)</u> Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc con Reduc ck Surface r Well Dat	3) s (B14) Odor (C1) ieres on Liv ced Iron (C4 ction in Tille e (C7) a (D9)	ing Roots 4) d Soils (C6)	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Bf ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ac d or Stressed Pla orphic Position (D leutral Test (D5)	m of two req b) le (C2) erial Imagery ants (D1) D2)
DROLO narks: DROLO tland Hy nary Indi Surface High Wa Saturati Water M Sedimen Drift Dej Algal Ma Iron Dep Inundati Sparseli Water-S	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5)	ors: of one is al Imagery ave Surfac	required; chec	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence Recent fu Thin Muc Gauge o Other (E	<u>ply)</u> Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in R	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 ttion in Tille e (C7) a (D9) &emarks)	ing Roots 4) d Soils (C6)	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Bé ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Aé d or Stressed Pla orphic Position (D leutral Test (D5)	m of two req 3))) le (C2) erial Imagery ants (D1) 02)
Dth (inch- marks: DROL(tland Hy Surface High Wa Saturati Water M Sedimer Drift De Algal Ma Iron Dep Inundati Sparsel Water-S d Obser	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vations: at or present?	ors: of one is al Imagery ave Surfac	required; chec 	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence Recent li Thin Muc Gauge o Other (E	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc con Reduc ck Surface r Well Dat xplain in R	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 stion in Tille e (C7) a (D9) Remarks)	ing Roots 4) d Soils (C6)	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (D leutral Test (D5)	m of two req 3))) le (C2) erial Imagery ants (D1))2)
The function of the function o	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vegetated Conc itain	ors: of one is a al Imagery ave Surfac)) Yes Yes	(B7) e (B8) No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence Recent li Thin Muc Gauge o Other (E	<u>ply)</u> Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc ch Surface r Well Dat xplain in R nches): nches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 ction in Tille (C7) a (D9) Remarks) <u>0 - 14</u> 0 - 14	ing Roots 4) d Soils (C6)	econdary Ind Surface Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req
Deth (inchemarks: marks: (DROL) tland Hy mary Indi Surface High Wa Saturati Water M Sedimen Drift Del Algal Ma Iron Dep Inundati Sparsely Water-S d Obser face wate ter table uration per	DGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc citained Leaves (B5) vations: er present? present?	al Imagery ave Surfac)) Yes Yes	(B7) e (B8) No X No X No X	k all that ap Aquatic I True Aqu Hydroge Oxidized ((C3) Presence Recent II Thin Muc Gauge o Other (E Depth (ir Depth (ir Depth (ir	<u>ply)</u> Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc ck Surface r Well Dat xplain in R nches): nches):	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 ttion in Tille (C7) a (D9) Remarks) 0 - 14 0 - 14 0 - 14	ing Roots 4) d Soils (C6) Wetland	econdary Inc Surfac Draina Dry-Se Crayfis Satura Sturte X Geom FAC-N	dicators (minimu e Soil Cracks (Bf ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ad d or Stressed Pla orphic Position (D leutral Test (D5)	m of two req
Drift Dep Inundati Sparsely Water-S Id Obser face wate ter table p uration p ludes cap	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vegetated Conc vegetated	al Imagery ave Surfac)) Yes Yes	(B7) e (B8) No X No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized (C3) Presence Recent li Thin Muc Gauge o Other (E Depth (ir Depth (ir	<u>ply)</u> Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc ck Surface r Well Dat xplain in R nches): nches):	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 ttion in Tille c (C7) a (D9) Remarks) 0 - 14 0 - 14 0 - 14	ing Roots 4) d Soils (C6)	econdary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Bf ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ac d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req b) le (C2) erial Imagery ants (D1) D2) X No
Deth (inchemarks: DROLO Tarks: DROLO tland Hy mary Ind Surface High Wa Saturati Water M Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S do Doser face water ter table puration pol ludes cap scribe reference	DGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vations: er present? present? present? present? positalary fringe) corded data (stre	al Imagery ave Surfaction Yes Yes am gauge	required; chec (B7) e (B8) No X No X No X No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized (C3) Presence (C3) Recent la Thin Muc Gauge o Other (E) Depth (ir Depth (ir Depth (ir	ply) Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in R nches): nches): nches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 etion in Tille e (C7) a (D9) Remarks) 0 - 14 0 - 14 0 - 14 0 - 14	ing Roots 4) d Soils (C6) Wetland	econdary Ind Surfac Draina Dry-Se Crayfie Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ac d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req 3))) le (C2) erial Imagery ants (D1) D2) X No
The function provides the second seco	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vations: er present? present? present? pillary fringe) corded data (stree	al Imagery ave Surfac)) Yes Yes Yes am gauge	(B7) e (B8) No X No X No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized ((C3) Presence Recent li Thin Muc Gauge o Other (E Depth (ir Depth (ir Depth (ir	ply) Fauna (B1 Juatic Plant n Sulfide C I Rhizosph e of Reduc ck Surface r Well Dat xplain in R nches): nches): nches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 ction in Tille (C7) a (D9) Remarks) <u>0 - 14 0 - 14</u> <u>0 - 14</u>	ing Roots 4) d Soils (C6) Wetland	econdary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req
Drift Dep Inundati Sparsely Water -S Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water -S Id Obser face wate ter table p uration pe ludes cap scribe rec	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vations: er present? present? present? present? present? positalary fringe) corded data (streent)	al Imagery ave Surfactor Yes Yes am gauge	required; chec (B7) e (B8) No X No X No X No X No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized (C3) Presence Recent la Thin Muc Gauge o Other (E Depth (ir Depth (ir Depth (ir ell, aerial ph	ply) Fauna (B1 Jatic Plant n Sulfide (I Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in R nches): nches): nches): nches):	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 etion in Tille c(C7) a (D9) Remarks) 0 - 14 0 - 14 0 - 14 0 - 14 0 - 14 vious inspective	ing Roots 4) d Soils (C6) Wetland ections), if a	econdary Inc Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Bf ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ac d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req 3))) le (C2) erial Imagery ants (D1) D2) X No
Dith (inch- marks: DROL(tland Hy mary Ind Surface High Wa Saturati Water M Sedimen Drift De Algal Ma Iron Dep Inundati Sparsel Water-S d Obser face wate ter table juration p ludes caj scribe re-	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeri y Vegetated Conc itained Leaves (B5) vations: er present? present? poster (Present) poster (Present) p	al Imagery ave Surfactory Yes Yes am gauge	required; chec (B7) e (B8) No X No X No X No X No X	k all that ap Aquatic f True Aqu Hydroge Oxidized (C3) Presence Recent la Thin Muc Gauge o Other (E Depth (ir Depth (ir Depth (ir dell, aerial ph	ply) Fauna (B1 uatic Plant n Sulfide (I Rhizosph e of Reduc ch Surface r Well Dat xplain in R nches): nches): nches): nches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 stion in Tille (C7) a (D9) Remarks) 0 - 14 0 - 14 0 - 14 vious inspe	ing Roots 4) d Soils (C6) Wetland	econdary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom FAC-N	dicators (minimu e Soil Cracks (Be ge Patterns (B10 eason Water Tab sh Burrows (C8) tion Visible on Ae d or Stressed Pla orphic Position (E leutral Test (D5)	m of two req 3) 1) le (C2) erial Imagery ants (D1) D2) X No

Project/Site: US 31/SR 28	City/	/County:	Tipton/Tip	oton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	B2	
Investigator(s): Barnard, Bowman, Winebrinner		Sec	tion,Townshi	ip, Range:	Kempton, 1	18, 27N, 4E	
Landform (hillslope, terrace, etc.): Roadsic	de Ditch	Local	relief (conca	ve, convex, none):		Concave	
Slope (%): < 1 Lat: 40.2733		Long:	86.126	7 Datum:		NAD 83	
Soil Map Unit Name: WkB - Williamstown silt Ioam			NWI	Classification:	1	None	
Are climatic/hydrologic conditions of the site typical for the	his time of the	e year? Y	′es X N	No (If no, exp	plain in remai	·ks)	
Are vegetation, soil, or hydrology	significantly	disturbed?	Are "nor	mal circumstances"	present?	res <u>X</u> No)
Are vegetation, soil, or hydrology	naturally pro	blematic?	remarks	s.)			
SUMMARY OF FINDINGS - Attach site ma	p showing	sampling p	oint locati	ons, transects, in	nportant fe	atures, etc.	
Hydrophytic vegetation present? No							
Hydric soil present? No		Is the Sam	pled Area				
Wetland hydrology present? No		within a w	etland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in a	a separate re	eport.)					
		-1 ,					
VEGETATION Use scientific names of plan	nts.						
	Absolute	Dominant	Indicator	Dominance Tes	t Workshee	t	
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Domina	nt Species		
1				that are OBL, FAC	W, or FAC:	0	(A)
2				Total Number of Do	ominant		
3		·		Species Across all	Strata:	1	_(B)
4				Percent of Dominal	nt Species	0 0.0%	(A/R)
⁵	0	- Total Cove			W, UI FAC. <u>–</u>	0.0076	(AVD)
Sapling/Shrub stratum (Plot size: N/A)	- 10(0) 0010.	1	Prevalence Inde	ex Workshe	et	
1	,			Total % Cover of:			
2				OBL species	0 x 1	= 0	
3				FACW species	0 x 2	= 0	
				FAC species	0 x 3	= 0	
5		Total Covo		FACU species	90 X 4	= 360	
Herb stratum (Plot size: 10	<u>، </u>		ſ	Column totals	10 x 0 100 (A)	$b = \frac{50}{410}$ (B)	\
1 Rromus inermis) 00	V	FACU		$= R/\Delta =$	<u> </u>)
2 Convolvulus arvensis	10	<u> </u>	UPL	Flevalence much	= D/A	4.10	
3				Hydrophytic Ve	getation Inc	dicators:	
4				1 - Rapid Tes	t for Hydroph	ytic Vegetation	
5				2 - Dominance	e Test is >50	%	
6				3 - Prevalence	e Index is ≤3.	0 ¹	
7				4 - Morphogica	al Adaptations	¹ (Provide support	rting
8					s or on a separ	ate sneet)	
9 10					γαιορηγιίε νεί	gelation (Expla	11)
	100	= Total Cove					
Woody vine stratum (Plot size: N/A)		-	¹ Indicators of hydric	soil and wetlan	d hydrology mus	ho ho
1				present, unless distu	urbed or proble	matic	u De
2				Hydrophytic			
	0	= Total Cover	r	vegetation	Yes	No X	_
				present?			
Remarks: (Include photo numbers here or on a separ	ate sheet)						

Profile Des	cription: (Descr	ibe to the	e depth neede	d to docur	nent the i	ndicator o	or confirm th	e absence of	indicators.)		
Depth	Matrix			Redox Fea	atures		-		_		
(Inches)	Color (moist)	%	Color (moist)	%	l ype'	Loc	lex	ture	Re	marks	
0-16	10YR 3/1	100							Worms pres	ent	
						·					
						·					
								·			
*Type: C =	Concentration, D	= Depletion	on, RM = Redu	ced Matrix,	, MS = Ma	sked Sand	Grains.	**Location: PL	= Pore Linin	g, M = Mat	rix
Hydric So	oil Indicators:						Indicat	ors for Proble	matic Hydric	: Soils':	
His	tisol (A1)		Sa	andy Gleye	d Matrix (S4)	Coa	ast Prairie Red	ox (A16) (LR	R K, L, R)	
His	tic Epipedon (A2)		Sa	andy Redo	x (S5)		Da	rk Surface (S7)	(LRR K, L)		
Bla	ck Histic (A3)		St	ripped Mat	trix (S6)		5 c	m Mucky Peat	or Peat (S3)	(LRR K, L,	R)
Hyd	Irogen Sulfide (A4	4)	Lo	amy Muck	y Mineral	(F1)	Iror	n-Manganese N	Masses (F12)	(LRR K, L	., R)
Stra	atified Layers (A5))	Lo	amy Gleye	ed Matrix (F2)	Vei	ry Shallow Dar	k Surface (TF	12)	
2 cr	m Muck (A10)	_ ·	D	epleted Ma	trix (F3)		Oth	ner (explain in r	emarks)		
Dep	leted Below Dark	Surface	(A11)R	edox Dark	Surface (F	-6)	<u>^</u>				
Thie	ck Dark Surface (A12)	D	epleted Da	rk Surface	e (F7)	³ Indic	ators of hydrop	ohytic vegetat	ion and we	eltand
Sar	idy Mucky Minera	II (S1)	R	edox Depre	essions (F	8)	hydr	ology must be	present, unle	ss disturbe	ed or
5 ci	n Mucky Peat or	Peat (S3)						р	roblematic		
Restrictive	Layer (if observ	ed):									
Туре:					_		Hydric	soil present?	Yes	No 2	X
Depth (inch	es):				_						
Remarks:											
HYDROL	DGY										
Wetland Hy	drology Indicate	ors:									
Primary Ind	icators (minimum	of one is	required; checl	c all that ap	oply)		Se	condary Indica	tors (minimur	n of two re	quired)
Surface	Water (A1)			Aquatic	Fauna (B1	3)		Surface S	oil Cracks (B6)	
High Wa	ater Table (A2)			True Aq	uatic Plant	s (B14)		Drainage	Patterns (B10))	
Saturati	on (A3)			Hydroge	en Sulfide (Odor (C1)		Dry-Seas	on Water Tabl	e (C2)	
Water N	larks (B1)			Oxidized	d Rhizosph	eres on Liv	ing Roots	Crayfish E	Burrows (C8)		
Sedime	nt Deposits (B2)			(C3)				Saturation	NVisible on Ae	rial Imager	y (C9)
Drift De	posits (B3)			Presenc	e of Reduc	ced Iron (C4	4)	Stunted o	r Stressed Pla	nts (D1)	
Algal M	at or Crust (B4)			Desert		(1.0	Geomorp	nic Position (D	2)	
Iron De	oosits (B5)		(DZ)	- Recent	Iron Reduc		d Solls (C6)	FAC-Neut	ral Test (D5)		
	on Visible on Aeria	al imagery	(B7)			e (C7)					
Sparser	tained Leaves (BC		е (Бо)	_ Gauge (Sr Weil Dat Evolain in R	a (D9) Pomarks)					
		')				(emarks)	1				
Surface wet	vations:	Voc	No Y	Danth /	nchoe);	0.16					
Water table	oresent?	Yes		_ Depth (i	nches):	0 - 10					
Saturation p	resent?	Yes		_ Depth (i	nches):	0 - 16	Wetland h	vdrology pres	ent? Yes	No	х
(includes ca	oillary fringe)		<u> </u>			0		,			
Describe re	corded data (stree	am daude	. monitoring we	ell, aerial pl	hotos, prev	vious inspe	ections), if av	ailable:			
Describerte		uni guugu	, montoring we	n, aona pi	notoo, pro-						
Remarks:											

Project/Site: US 31/SR 28	City	/County:	Tipton/Tip	oton Sampling	g Date:	8/7/2013
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	C1
Investigator(s): Barnard, Bowman, Winebrinner		Sec	tion,Townshi	ip, Range:	Kempton, 7	, 27N, 4E
Landform (hillslope, terrace, etc.): Roadsid	e Ditch	Local	relief (conca	we, convex, none):	C	oncave
Slope (%): <1 Lat: 40.2806		Long:	86.126	8 Datum:	١	IAD 83
Soil Map Unit Name: Pn - Patton silty clay loam, sandy	substratun	n	NWI	Classification:	N	one
Are climatic/hydrologic conditions of the site typical for th	is time of th	e year? Y	′es X M	No (If no, exp	olain in remark	s)
Are vegetation , soil , or hydrology	significantly	disturbed?	Are "nor	mal circumstances"	present? Y	es X No
Are vegetation , soil , or hydrology	naturally pro	blematic?	remarks	s.)		
SUMMARY OF FINDINGS - Attach site ma	p showing	sampling p	oint locati	ons, transects, in	nportant fea	tures, etc.
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes		Is the Sam	pled Area			x
Wetland hydrology present? Yes		within a W	etland?	Yes	No	Λ
Remarks: (Explain alternative procedures here or in a	separate r	eport.) Area i	s whollv in a	a non-iurisdictional F	RSD and is no	ot a wetland.
	coparato .	op or, / ou .	•			
VEGETATION Use scientific names of plan	te					
	Absolute	Dominant	Indicator	Dominance Tes	t Worksheet	
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Domina	nt Species	
1		-		that are OBL, FAC	W, or FAC:	1 (A)
2				Total Number of Do	ominant	
3				Species Across all	Strata:	1 (B)
4				Percent of Dominar	nt Species	
5		Total Cause		that are OBL, FAC	W, or FAC:	<u>100.00%</u> (A/B)
Sapling/Shrub stratum (Plot size: N/A			I	Prevalence Inde	y Workshee	t
1				Total % Cover of:		
2				OBL species	15 x 1 :	= 15
3				FACW species	85 x 2 :	= 170
4				FAC species	0 x 3 :	= 0
5				FACU species	0 x 4 :	=
Lierh stratum (Dist size) 40	0	= I otal Cove	r		$\frac{0}{100}$ (A)	= 0
<u>Herb stratum</u> (Plot size: 10)	70	V			100 (A)	<u>185</u> (B)
Persicaria pensylvanica Eleceborio polyotrio	15	Y		Prevalence Index	= B/A =	1.85
3 Alonecurus pratensis	15	N	FACW	Hydrophytic Ve	detation Indi	cators:
4			17.077	1 - Rapid Tes	t for Hydrophy	tic Vegetation
5				X 2 - Dominance	e Test is >50%	, 0
6				X 3 - Prevalence	e Index is ≤3.0	1
7				4 - Morphogica	al Adaptations ¹	(Provide supporting
8				data in Remarks	s or on a separat	e sneet)
9				Problematic Hy	ydropnytic Vege	etation (Explain)
10	100	- Total Cove	r			
Woody vine stratum (Plot size: N/A		- 10101 0010		¹ Indiantara of hydria		hudrology must be
1				present, unless distu	irbed or problem	atic
2				Hydrophytic		
	0	= Total Cove	r	vegetation	Yes X	No
				present?		
Remarks: (Include photo numbers here or on a separ	ate sheet)					
Carex spp (Nut Sedge) in area.						

Depth	Matrix		Re	edox Feat	tures			
(Inches)	Color (moist)	%	Color (moist)	%	Type'	Loc [∠]	Texture	Remarks
0-7	10YR 4/1	100	·					
7-11	10YR 5/1	65	10YR 4/6	35	С	М		
11-12	10YR 3/1	80	10YR 6/2, 6/6	20	С	М		
			·					
			·					
			·					
			·					
*Type: C -	Concentration D	– Donloti	ion RM - Reduce	d Matrix	MS – Ma	skod Sand	Grains **Location	n: PL – Pore Lining M – Matrix
Hvdric S	oil Indicators:	- Depiet		a matrix,			Indicators for Pr	oblematic Hydric Soils ³ :
His	tisol (A1)		San	dy Gleyed	d Matrix (S	54)	Coast Prairie	Redox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		San	dy Redox	(S5)	,	Dark Surface	e (S7) (LRR K, L)
Bla	ck Histic (A3)		Strip	ped Matr	ix (S6)		5 cm Mucky	Peat or Peat (S3) (LRR K, L, R)
Hyo	drogen Sulfide (A4	4)	Loar	ny Mucky	/ Mineral ((F1)	Iron-Mangan	ese Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loar	ny Gleye	d Matrix (I	F2)	Very Shallow	Dark Surface (TF12)
2 c	m Muck (A10)		X Dep	leted Mat	rix (F3)		Other (explai	n in remarks)
De	pleted Below Dark	<pre>Surface</pre>	(A11) Red	ox Dark S	Surface (F	6)		
Thi	ck Dark Surface (A12)	Dep	leted Darl	k Surface	(F7)	³ Indicators of h	ydrophytic vegetation and weltand
Sar	ndy Mucky Minera	al (S1)	Red	ox Depres	ssions (F8	3)	hydrology mus	st be present, unless disturbed or
5 c	m Mucky Peat or	Peat (S3)					problematic
Restrictive	Layer (if observ	red):						
Type:							Hydric soil pres	ent? Yes X No
Depth (Inch	es):							
Remarks:								
Wetland Hy	udrology Indicate	ore:						
Drimony Ind	icators (minimum	of one is	roquired: check a	ll that an			Secondary	ndiactora (minimum of two requires
Surface	Mator (A1)		required, check a		Jiy) Juna (B1)	2)	Secondary II	ndicators (minimum of two required
High W	ater Table (A2)				-auria (DT.	3) s (B14)		ace Soli Clacks (B0)
Saturati	(A3)			Hydroder	n Sulfide (dor(C1)	Dry-9	Season Water Table (C2)
Water N	/arks (B1)			Oxidized	Rhizosph	eres on Livi	ing Roots Crav	fish Burrows (C8)
Sedime	nt Deposits (B2)			(C3)			Satu	ration Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presence	e of Reduc	ed Iron (C4	l) Stun	ted or Stressed Plants (D1)
Algal M	at or Crust (B4)						X Geor	morphic Position (D2)
Iron De	posits (B5)			Recent Ir	ron Reduc	tion in Tilleo	d Soils (C6) FAC	-Neutral Test (D5)
Inundat	ion Visible on Aeria	al Imagery	y (B7)	Thin Muc	k Surface	(C7)		
Sparsel	y Vegetated Conca	ave Surfa	ce (B8)	Gauge or	r Well Data	a (D9)		
Water-S	Stained Leaves (B9	9)		Other (E)	xplain in R	emarks)		
Field Obser	vations:	Vac	No V	Donth (abaa).	0 10		
Sufface wat	er present?	Yes		Depth (in	icnes):	0 - 12		
Saturation n	resent?	Yes		Depth (in	iches):	0 - 12	Wetland hydrology	present? Yes X No
(includes ca	pillary fringe)			20ptil (III		0 12	mediana nyarology	
Describe re	corded data (stre	am dauq	e. monitoring well	aerial ph	otos, prev	ious inspe	ctions), if available	
		gaag	-,e	20101 011				
Remarks:								

Project/Site: US 31/SR 28	City/	County:	Tipton/Tip	ton Sampling	Date:	8/7/2013
Applicant/Owner: INDOT		State:	IN	Sampling	Point:	C2
Investigator(s): Barnard, Bowman, Winebrinner		Sect	tion,Townshi	p, Range:	Kempton, 7, 2	27N, 4E
Landform (hillslope, terrace, etc.): Roadside	Ditch	Local	relief (conca	ve, convex, none):	N	one
Slope (%): < 1 Lat: 40.2806		Long:	86.1268	B Datum:	NA	D 83
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	ubstratum	ı <u> </u>	NWI	Classification:	Non	е
Are climatic/hydrologic conditions of the site typical for this	time of the	e year? Y	es X N	lo (If no, expl	ain in remarks)	
Are vegetation , soil , or hydrology sig	nificantly o	disturbed?	Are "nor	mal circumstances" p	resent? Yes	X No
Are vegetation , soil , or hydrology na	turally prob	olematic?	remarks	.)	-	
SUMMARY OF FINDINGS - Attach site map	showing	sampling p	oint locati	ons, transects, im	portant featu	res, etc.
Hydrophytic vegetation present? No						
Hydric soil present? No		Is the Sam	pled Area			
Wetland hydrology present? No		within a Wo	etland?	Yes	No X	(
Remarks: (Explain alternative procedures here or in a se	eparate re	eport.)				
	opulatore	,port.)				
The data point is on the upland side of the transition	from wetl	and on a ge	ntle slope a	way from the creek	κ.	
VECETATION Lies scientific names of plants						
VEGETATION Use scientific flames of plants	• A h a a h sta	Deminent	la dia atau	Dominance Test	Worksheet	
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Dominan	t Species	
1		-		that are OBL, FACW	, or FAC:	0 (A)
2				Total Number of Dor	minant	
3				Species Across all S	itrata:	1 (B)
4				Percent of Dominant	Species	
5				that are OBL, FACW	, or FAC:	0.00% (A/B)
Sopling/Shrub stratum (Dist size: N/A)	0 =	= I otal Cover		Drovalance Index	Warkahaat	
<u>Saping/Shrub stratun</u> (Plot size. N/A)				Total % Cover of:	(worksheet	
2				OBL species	0 x 1 =	0
3				FACW species	0 x 2 =	0
4				FAC species	0 x 3 =	0
5				FACU species	105 x 4 =	420
_	0 :	= Total Cover		UPL species	0 x 5 =	0
Herb stratum (Plot size: 10)				Column totals	105 (A)	420 (B)
1 Festuca arundinacea	100	Y	FACU	Prevalence Index =	= B/A =	4.00
2 Cirsium arvense	5	<u>N</u>	FACU			1
3				Hydropnytic Veg	etation indica	Vogotation
5				2 - Dominance	Test is >50%	vegetation
6				3 - Prevalence	Index is $\leq 3.0^1$	
7				4 - Morphogical	Adaptations ¹ (Pr	rovide supporting
8				data in Remarks	or on a separate s	sheet)
9				Problematic Hyd	drophytic Vegeta	tion ¹ (Explain)
10						
	105 =	= I otal Cover	•			
(Plot size. N/A)				¹ Indicators of hydric s	oil and wetland hy	drology must be
2				Hydrophytic	bed of problematic	
	0	= Total Cover		vegetation	Yes	No X
				present?	·	<u> </u>
Remarks: (Include photo numbers here or on a separate	e sheet)					

Profile Des	cription: (Descr	ibe to the	depth needed t	o docun	nent the i	ndicator o	r confirm the absence	of indicators.)
(Inches)	Color (moist)	%	Color (moist)				Toyturo	Remarks
				/0	туре		Texture	
0-13	10YR 3/2	100	<u> </u>					
		•						
					·			
*Type: C =	Concentration D	= Depletio	n RM = Reduce	d Matrix	MS = Ma	sked Sand	Grains **Location:	PL = Pore Lining M = Matrix
Hydric Se	oil Indicators:	- Dopiolio	n, n. – nouuoo	a main,			Indicators for Pro	blematic Hydric Soils ³ :
Hist	tisol (A1)		San	dv Gleve	d Matrix (S	54)	Coast Prairie R	Redox (A16) (I RR K, I , R)
Hist	tic Eninedon ($\Delta 2$)		San	dy Redox	(S5)	54)	Dark Surface (S7) (IRR K I)
Bla	rk Histic (A3)		Strin	ned Mat	riv (S6)		5 cm Mucky Pe	$(\mathbf{P} \mathbf{R} \mathbf{K}, \mathbf{C})$
	rogon Sulfido (A/	1)	log	ny Mucky	Minoral	(E1)		(ERR R, E, R)
	tified Levers (AF)	+)		my Clove	d Motrix ((II) E2)		$\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i$
	allieu Layers (A5))			u Mainx (rz)		in remarke)
	n Wuck (ATU)	Curfage (ieted ivial	IIX (F3)	(C)	Other (explain	in remarks)
	Derled Below Dark			ox Dark 3	Surface (F	(CZ)	3	
	ck Dark Surface (ATZ)	Dep	leted Dar	k Sunace	(<i>Г1</i>)	Indicators of hyd	rophytic vegetation and weltand
Sar	idy Mucky Minera	$\left(\mathbf{S}^{\dagger} \right)$	Red	ox Depre	SSIONS (F	3)	nydrology must	be present, unless disturbed or
5 cr	m Mucky Peat or I	Peat (S3)						problematic
Restrictive	Layer (if observ	ed):						
Type:							Hydric soil preser	nt? Yes No X
Depth (inch	es):							
Domorko								
HIDROL								
Wetland Hy	drology Indicate	ors:						
Primary Ind	icators (minimum	of one is r	equired; check a	Il that ap	ply)		Secondary Inc	licators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B1	3)	Surfac	e Soil Cracks (B6)
High Wa	ater Table (A2)			True Aqu	uatic Plant	s (B14)	Draina	ge Patterns (B10)
Saturati	on (A3)			Hydroge	n Sulfide (Odor (C1)	Dry-Se	ason Water Table (C2)
Water N	larks (B1)			Oxidized	Rhizosph	eres on Liv	ing Roots Crayfis	h Burrows (C8)
Sedime	nt Deposits (B2)			(C3)	(Satura	tion Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presenc	e of Reduc	ced Iron (C2	4) Stunte	d or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Decent	ron Dadua	tion in Tillo		orphic Position (D2)
	DOSIIS (B5) on Vicible on Acric	lmagan	(P7)	Thin Mu			u Solis (Co) FAC-N	eutral Test (D5)
Sparcal	Vogotatod Conce		(D7) (B8)			(C7)		
Sparser			= (DO)	Gauge o	volain in P	a (D9) Iomarka)		
Water-C	staineu Leaves (De)				emarks)		
Field Obser	vations:	Vaa		Denti- (ob c=\c	0 40		
Surface wate	er present?	res		Depth (Ir	icnes):	0 13		
Saturation a	resent?	165 Vec		Depth (If	iches):	0 - 13	Wotland hydrology -	asant? Vas No V
(includes co	nesent (. 69		Depth (If	iciies).	0-13	wettantu nyurology pi	
Docoribo r-	ordod data (ata-	om course	monitoring	ooriol al	otos are:	ious issa -	(
Describe re	corded data (strea	am gauge,	monitoring well,	aenai pr	lotos, prev	nous inspe	cuons), il available:	
Remarks:								
No india	ators							

Project/Site: US 31/SR 28	City/	County:	Tipton/Tip	oton Sampl	ing Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampli	ng Point:	D1	
Investigator(s): Barnard, Bowman, Winebrinner		Sec	tion,Townsh	ip, Range:	Kempton, 1	2, 27N, 3E	
Landform (hillslope, terrace, etc.): Farm	Field	Local	relief (conca	ave, convex, none)		None	
Slope (%): <1 Lat: 40.2757		Long:	86.128	B Datum:		NAD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy	v substratum	1	NWI	Classification:	١	None	
Are climatic/hydrologic conditions of the site typical for the	is time of the	e year? Y	es X M	No(If no, e	xplain in remar	ks)	
Are vegetation, soil, or hydrology	significantly o	disturbed?	Are "noi	rmal circumstances	s" present? Y	′esNo	
Are vegetation, soil, or hydrology	naturally prob	olematic?	remarks	5.)			
SUMMARY OF FINDINGS - Attach site ma	p showing	sampling p	oint locati	ions, transects,	important fe	atures, etc.	
Hydrophytic vegetation present? No							
Hydric soil present? No		Is the Sam	pled Area				
Wetland hydrology present? No		within a we	etland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in a	separate re	eport.)					
		. ,					
Problematic agricultural field.							
VEGETATION Use scientific names of plan	ts						
	Absolute	Dominant	Indicator	Dominance Te	est Workshee	t	
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Domir	ant Species		
1				that are OBL, FA	CW, or FAC:	0 (/	A)
2				Total Number of	Dominant		
3				Species Across a	II Strata:	0 (I	B)
4				Percent of Domin	ant Species	0.00% (
5		Total Covor		that are OBL, FA	CVV, OF FAC:	0.00% (/	А/В)
Sapling/Shrub stratum (Plot size: N/A)			Prevalence In	dex Workshe	et	
1				Total % Cover of	of:		
2				OBL species	0 x 1	= 0	
3				FACW species	0 x 2	= 0	
4				FAC species	0 x 3	= 0	
5		Tatal O		FACU species	<u>0</u> x 4	=	
Horb stratum (Plot size: 10	<u> </u>	= I otal Cover	ſ	UPL species	$\frac{0}{0}$ (A)	$=$ $\frac{0}{0}$ (B)	
)			Drovolonoo Inde	$\frac{0}{10}$ (A)	<u> </u>	
2				Frevalence mut	dx = D/A =		
3				Hydrophytic \	egetation Ind	licators:	
4				1 - Rapid Te	est for Hydroph	ytic Vegetation	
5				2 - Dominar	nce Test is >50°	%	
6				3 - Prevaler	nce Index is ≤3.	0 ¹	
7				4 - Morphog	ical Adaptations	¹ (Provide supportin	ng
8				Droblomatia	Ludrophytic Voc	ate sheet)	
9					πγαιορηγίις νεί		
	0	= Total Cover					
Woody vine stratum (Plot size: N/A)			¹ Indicators of hydr	ic soil and wetlan	d hydrology must	ho
1				present, unless di	sturbed or probler	natic	50
2				Hydrophytic			
	0 :	= Total Cover	•	vegetation	Yes	No X	
	- (present			
Remarks: (Include photo numbers here or on a separ	ate sheet)						
Glucino ann (souhaan) production							
Givenie spp. (soybeen) production.							

Profile Des	cription: (Descr	ibe to the	depth needed t	o docum	nent the ir	ndicator o	r confirm the absence	of indicators.)
Depth	Matrix		Re	edox Fea	tures	1 2	-	David
(Inches)	Color (moist)	%	Color (moist)	%	I ype'	LOC	lexture	Remarks
0-14	10YR 3/2	100						
					·			
					·			
					·			
*Type: C = 0	Concentration, D	= Depletio	n, RM = Reduce	d Matrix,	MS = Mas	sked Sand	Grains. **Location:	PL = Pore Lining, M = Matrix
Hydric Se	oil Indicators:		*				Indicators for Pro	blematic Hydric Soils ³ :
Hist	tisol (A1)		San	dy Gleye	d Matrix (S	64)	Coast Prairie F	Redox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		San	dy Redox	(S5)		Dark Surface (S7) (LRR K, L)
Bla	ck Histic (A3)		Strip	ped Matr	rix (S6)		5 cm Mucky P	eat or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	4)	Loar	my Mucky	y Mineral (F1)	Iron-Manganes	se Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)	1	Loar	ny Gleye	d Matrix (F	=2)	Very Shallow [Dark Surface (TF12)
2 cr	n Muck (A10)		Dep	leted Mat	trix (F3)		Other (explain	in remarks)
Dep	oleted Below Dark	Surface (A	A11) Red	ox Dark S	Surface (F	6)		
Thio	ck Dark Surface (A	A12)	Dep	leted Dar	k Surface	(F7)	³ Indicators of hyd	drophytic vegetation and weltand
Sar	ndy Mucky Minera	l (S1)	Red	ox Depre	ssions (F8	3)	hydrology must	be present, unless disturbed or
5 cr	m Mucky Peat or I	Peat (S3)						problematic
Restrictive	Laver (if observ	ed):						
Type:							Hydric soil prese	nt?Yes No X
Depth (inch	es):							
					i			
Remarks:								
Farmed								
HYDROL	OGY							
Wetland Hy	drology Indicate	ors:						
Primary Ind	icators (minimum	of one is r	equired: check a	III that ap	olv)		Secondary Inc	dicators (minimum of two required)
Surface	Water (A1)			Aquatic I	Fauna (B13	3)	Surfac	e Soil Cracks (B6)
High Wa	ater Table (A2)			True Aau	uatic Plants	s (B14)	Draina	ae Patterns (B10)
Saturati	on (A3)			Hydroge	n Sulfide C	Odor (C1)	Dry-Se	eason Water Table (C2)
Water M	larks (B1)			Oxidized	Rhizosphe	eres on Liv	ing Roots Crayfis	sh Burrows (C8)
Sedime	nt Deposits (B2)			(C3)			Satura	tion Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presence	e of Reduc	ed Iron (C4	4) Stunte	d or Stressed Plants (D1)
Algal Ma	at or Crust (B4)						X Geom	orphic Position (D2)
Iron Dep	posits (B5)			Recent I	ron Reduct	tion in Tille	d Soils (C6) FAC-N	leutral Test (D5)
Inundati	on Visible on Aeria	al Imagery ((B7)	Thin Muo	ck Surface	(C7)		
Sparsel	y Vegetated Conca	ave Surface	e (B8)	Gauge o	r Well Data	a (D9)		
Water-S	stained Leaves (B9)		Other (E	xplain in R	emarks)		
Field Obser	vations:							
Surface wate	er present?	Yes	No X	Depth (ir	nches):	0 - 14		
Water table	present?	Yes	No X	Depth (ir	nches):	0 - 14	Motor	
Saturation p	resent?	res	NO X	Depth (ir	nches):	0 - 14	wetland hydrology p	resent? YesNOX
(includes ca	piliary iringe)		•, •					
Describe re	corded data (strea	am gauge,	monitoring well,	aerial ph	notos, prev	vious inspe	ctions), if available:	
Remarks:								
NomarNo.								

Project/Site: US 31/SR 28	City/0	County:	Tipton/Tip	ton Sampling Date: 8/7/2013
Applicant/Owner: INDOT		State:	IN	Sampling Point: E1
Investigator(s): Barnard, Bowman, Winebrinner		Secti	ion,Townshi	p, Range: Kempton, 12, 21N, 3E
Landform (hillslope, terrace, etc.): Roadside	Ditch	Local r	elief (conca	ve, convex, none): Concave
Slope (%): < 1 Lat: 40.2755		Long:	86.127	5 Datum: NAD 83
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	ubstratum		NWI	Classification: None
Are climatic/hydrologic conditions of the site typical for this	time of the	year? Ye	es X M	lo (If no, explain in remarks)
Are vegetation, soil, or hydrologysig	nificantly d	listurbed?	Are "nor	mal circumstances" present? Yes X No
Are vegetation , soil , or hydrology na	turally prob	ematic?	remarks	.)
SUMMARY OF FINDINGS - Attach site map	showing	sampling p	oint locati	ons, transects, important features, etc.
Hydrophytic vegetation present? Yes				
Hydric soil present? Yes		Is the Samp	oled Area	
Wetland hydrology present? Yes		within a we	stiand?	Yes <u>X</u> No
Remarks: (Explain alternative procedures here or in a se	eparate re	port.)		
		,		
VEGETATION Use scientific names of plants				
	Absolute	Dominant	Indicator	Dominance Test Worksheet
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Dominant Species
1				that are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3				Species Across all Strata: <u>3</u> (B)
4				Percent of Dominant Species
5	0	Total Covor		that are OBL, FACW, of FAC: 66.67% (A/B)
Sapling/Shrub stratur (Plot size: N/A)				Prevalence Index Worksheet
1				Total % Cover of:
2				OBL species 40 x 1 = 40
3				FACW species 55 x 2 = 110
4				FAC species $0 x 3 = 0$
5		Tatalo		FACU species $0 \times 4 = 0$
Horb stratum (Plot sizo: 10)	0 =	= Total Cover		$\begin{array}{c} \text{UPL species} \underline{40} x \text{ 5} = \underline{200} \\ \text{Colump totals} \underline{135} (A) \underline{350} (B) \end{array}$
1 Echinochlos arus golli	50	V		$\frac{133}{250}$
2 Schoenoplectus tabernaemontani	40			Prevalence index = D/A = 2.59
3 Carex pensylvanica	40		UPL	Hydrophytic Vegetation Indicators:
4 Persicaria pensylvanica	5	N	FACW	1 - Rapid Test for Hydrophytic Vegetation
5				X 2 - Dominance Test is >50%
6				X 3 - Prevalence Index is $≤3.0^1$
7				4 - Morphogical Adaptations ¹ (Provide supporting
8				Dischlemetic Lludrophytic Magatetice ¹ (Evaluit)
9				
	135 =	Total Cover		
Woody vine stratum (Plot size: N/A)				¹ Indicators of hydric coil and wotland hydrology must be
1				present, unless disturbed or problematic
2				Hydrophytic
	0 =	Total Cover		vegetation Yes X No present?
Remarks: (Include photo numbers here or on a separate	e sheet)			

Profile Des	cription: (Descr	ibe to the	e depth needed t	o docun	nent the ir	ndicator o	or confirm the a	bsence of indicators.)	
Depth	Matrix		Re	edox Fea	tures	12	T ()		
(Inches)	Color (moist)	%	Color (moist)	%	Type [*]	Loc	lexture	Ke	emarks
0-3.5	10YR 4/1	90	10YR 5/6	10	C	M			
3.5-7	10YR 3/2	100							
7-12	10YR 5/1	90	10YR 4/6	10	С	М			
	·							·	
*Type: C =	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Mas	sked Sand	Grains. **Lo	ocation: PL = Pore Linin	g, M = Matrix
Hydric So	bil Indicators:		0				Indicators	for Problematic Hydric	
	(ISOI (A'I)		Sand	ay Gleye	a Matrix (3	54)	Coast i	urface (SZ) (LPP K L)	r r, l, r)
	$AZ = \frac{1}{2} \frac{1}{2}$		Sano	Jy Redux	((33) riv (86)			lucky Post or Post (S3)	
	trogen Sulfide (A4)		ny Muck	v Mineral (′ ⊏ 1)		andanese Masses (53)	
Stra	atified Lavers (A5)	.)		ny Gleve	d Matrix (I	[1] [2]		hallow Dark Surface (TE	(EKK K, E, K)
2 ci	m Muck (A10)		X Depl	eted Mat	trix (F3)	2)	Other (explain in remarks)	12)
Der	pleted Below Dark	Surface	(A11) Red	ox Dark S	Surface (F	6)			
	ck Dark Surface (A	A12)	Depl	eted Dar	rk Surface	, (F7)	³ Indicator	s of hydrophytic vegetat	tion and weltand
Sar	ndy Mucky Minera	l (S1)	Rede	ox Depre	essions (F8	3)	hydrolog	y must be present, unle	ss disturbed or
5 ci	m Mucky Peat or F	Peat (S3)						problematic	
Restrictive	Laver (if observe	ed).							
Type:		54).					Hvdric soi	ilpresent? Yes X	No
Depth (inch	es):				-		,	· · · · · · · · · · · · · · · · · · ·	
Domorkoj	·				-				
Remarks.									
Farmed									
HYDROL	OGY								
Wetland Hy	/drology Indicato	ors:							
Primary Ind	icators (minimum	of one is	required: check a	ll that ap	(yla		Secon	dary Indicators (minimu	m of two required)
Surface	Water (A1)			Aquatic	Fauna (B1:	3)	X	Surface Soil Cracks (B6	6)
High Wa	ater Table (A2)			True Aq	uatic Plants	s (B14)		Drainage Patterns (B10)
X Saturati	on (A3)			Hydroge	en Sulfide C	Odor (C1)		Dry-Season Water Tabl	e (C2)
Water N	larks (B1)			Oxidized	d Rhizosph	eres on Liv	ving Roots	Crayfish Burrows (C8)	
Sedime	nt Deposits (B2)			(C3)				Saturation Visible on Ae	erial Imagery (C9)
	posits (B3)			Presenc	e of Reduc	ed Iron (C4	⁴⁾	Stunted or Stressed Pla	ints (D1)
	al of Crusi (B4)			Recent I	ron Reduct	tion in Tille	$\frac{\Lambda}{X}$	EAC-Neutral Test (D5)	(2)
X Inundat	ion Visible on Aeria	l Imagerv	(B7)	Thin Mu	ck Surface	(C7)			
Sparsel	y Vegetated Conca	ive Surfac	e (B8)	Gauge o	or Well Data	(D9)			
Water-S	Stained Leaves (B9)	· · ·	Other (E	xplain in R	emarks)			
Field Obser	vations:								
Surface wate	er present?	/es	No X	Depth (ir	nches):				
Water table	present?	res X	No	Depth (ir	nches):	4"			
Saturation p	resent?	/es	No X	Depth (ir	nches):		Wetland hydro	ology present? Yes	X_No
(includes ca	pillary tringe)						L		
Describe re	corded data (strea	am gauge	, monitoring well,	aerial ph	notos, prev	vious inspe	ections), if availal	ble:	
Remarke:									
NomarNo.									

Project/Site: US 31/SR 28	City/C	county:	Tipton/Tip	ton Sampling	Date:	8/19/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	Point:	E2	
Investigator(s): Bowman, Winebrinner		Secti	on,Townshi	p, Range:	Kempton, 12,	27N, 3E	
Landform (hillslope, terrace, etc.): Farmfie	eld	Local r	elief (conca	ve, convex, none):	١	None	
Slope (%): < 1 Lat: 40.2755		Long:	86. <u>127</u> 5	5 Datum:	N	AD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	substratum		NWI	Classification:	No	ne	
Are climatic/hydrologic conditions of the site typical for this	time of the	year? Ye	s X N	lo (lf no, exp	lain in remarks	;)	
Are vegetation , soil , or hydrology sig	gnificantly di	sturbed?	Are "nor	mal circumstances" p	present? Yes	s X No	
Are vegetation , soil , or hydrology na	aturally probl	lematic?	remarks	.)			
SUMMARY OF FINDINGS - Attach site map	showing s	sampling po	oint locati	ons, transects, im	portant feat	ures, etc.	
Hydrophytic vegetation present? No					-		
Hydric soil present? No		Is the Samp	oled Area				ļ
Wetland hydrology present? No		within a We	tland?	Yes	No	х	
Pomorke: (Evolution alternative procedures here or in a s		oort)					
Remarks: (Explain alternative procedures here of in a s	separate rep)))))))))))))))))))))))					
							ļ
VEGETATION Use scientific names of plants	3.			· ,	· · .		
	Absolute	Dominant	Indicator	Dominance Test	Worksheet		ļ
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Dominar	t Species	0	(^)
					V, of FAC.	U	(A)
2				Total Number of Do	minant Strata	1	(R)
<u> </u>				Dereent of Dominan	+ Spaciae	I	(6)
5				that are OBL, FACV	t Species	0.00%	(A/B)
	0 =	Total Cover				0.0070	(,,,_)
Sapling/Shrub stra <u>turr</u> (Plot size: N/A)				Prevalence Inde	x Worksheet		
1 <u> </u>				Total % Cover of:			
2				OBL species	0 x 1 =	0	
3				FACW species	0 x 2 =	0	
4				FAC species	5 x 3 =	15	
5				FACU species	93 x 4 =	372	
	0 =	Total Cover		UPL species	0 x 5 =	0	
Herb stratum (Plot size: 10)				Column totals	98 (A)	<u>387</u> (B)	
1 Festuca arundinacea	90	Y	FACU	Prevalence Index	= B/A =	3.95	
2 Plantago lanceolata	5	<u>N</u>	FAC				
3 Cirsium arvense	3	N	FACU	Hydrophytic Veg	getation Indic	ators:	
4					tor Hyaropnyu	c vegetation	
0					Indev is <3 0 ¹		
7				4 - Morphogica	Adaptations ¹ (I	Provide support	tina
8				data in Remarks	or on a separate	sheet)	ing
9				Problematic Hy	drophytic Veget	tation ¹ (Explair	ו)
10				—			
	98 =	Total Cover					
Woody vine stratum (Plot size: N/A)				¹ Indicators of hydric s	oil and wetland h	nydrology must	be
1				present, unless distur	bed or problema	tic	
2				Hydrophytic			
	0 =	Total Cover		vegetation	Yes	No X	
				present /			
Remarks: (Include photo numbers here or on a separat	te sheet)						

Profile Des	cription: (Descr	ibe to the	e depth needed	to docur	nent the i	ndicator o	r confirm the a	bsence of indi	cators.)
Depth	Matrix		F	Redox Fea	atures		- .		
(Inches)	Color (moist)	%	Color (moist)	%	l ype'	Loc	l exture		Remarks
0-8	10YR 6/2	100							
8 - 16								Une	consolidated Fill
						·			
						·			
						·			
*Type: C = 0	Concentration, D	= Depletic	on, RM = Reduc	ed Matrix,	MS = Ma	sked Sand	Grains. **L	ocation: PL = P	ore Lining, M = Matrix
Hydric So	oil Indicators:						Indicators	for Problemat	ic Hydric Soils':
Hist	tisol (A1)		Sar	ndy Gleye	d Matrix (S4)	Coast I	Prairie Redox (A	A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		Sar	ndy Redo	x (S5)		Dark S	urface (S7) (LF	R K, L)
Bla	ck Histic (A3)		Stri	pped Mat	rix (S6)		5 cm M	lucky Peat or P	eat (S3) (LRR K, L, R)
Hyd	lrogen Sulfide (A4	4)	Loa	amy Muck	y Mineral	(F1)	Iron-Ma	anganese Mass	ses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	amy Gleye	ed Matrix (F2)	Very S	hallow Dark Su	rface (TF12)
2 cr	m Muck (A10)		X De	pleted Ma	trix (F3)		Other (explain in rema	arks)
Dep	pleted Below Dark	Surface	(A11) Red	dox Dark	Surface (F	6)			
Thio	ck Dark Surface (/	A12)	De	pleted Da	rk Surface	(F7)	³ Indicator	s of hydrophyti	c vegetation and weltand
Sar	ndy Mucky Minera	l (S1)	Ree	dox Depre	essions (Fa	8)	hydrolog	y must be pres	sent, unless disturbed or
5 cr	m Mucky Peat or I	Peat (S3)						proble	ematic
Restrictive	Laver (if observ	ed):							
Type:		,					Hydric soi	I present? Y	es No X
Depth (inch	es):				-				
Domorika	·				-				
Remarks.									
Farmed									
HYDROL	OGY								
Wetland Hy	drology Indicate	ors:							
Primary Ind	icators (minimum	of one is	required: check	all that an	(vla		Secon	dary Indicators	(minimum of two require
Surface	Water (A1)			Aquatic	Fauna (B1	3)		Surface Soil C	racks (B6)
High Wa	ater Table (A2)			True Aa	uatic Plant	s (B14)		Drainage Patte	erns (B10)
Saturati	on (A3)			Hydroge	en Sulfide (Ddor (C1)		Dry-Season W	/ater Table (C2)
Water M	larks (B1)			Oxidized	d Rhizosph	eres on Liv	ing Roots	Crayfish Burro	ws (C8)
Sedime	nt Deposits (B2)			(C3)			-	Saturation Vis	ible on Aerial Imagery (C9
Drift De	posits (B3)			Presenc	e of Reduc	ced Iron (C4	4)	Stunted or Str	essed Plants (D1)
Algal Ma	at or Crust (B4)			-				Geomorphic P	Position (D2)
Iron Dep	posits (B5)			Recent	Iron Reduc	tion in Tille	d Soils (C6)	FAC-Neutral T	est (D5)
Inundati	on Visible on Aeria	al Imagery	(B7)	Thin Mu	ck Surface	(C7)			
Sparsel	y Vegetated Conca	ave Surfac	e (B8)	Gauge	or Well Dat	a (D9)			
Water-S	stained Leaves (B9)		Other (E	xplain in R	(emarks)			
Field Obser	vations:								
Surface wate	er present?	Yes	No X	Depth (i	nches):	0 - 16			
Water table	present?	Yes		Depth (I	nches):	0 - 16			
Saturation p	resent?	res		Depth (II	nches):	0 - 16	wetland hydro	biogy present?	res <u>NO X</u>
(includes ca									
Describe re	corded data (strea	am gauge	, monitoring wel	I, aerial pl	hotos, prev	vious inspe	ections), if availal	ble:	
Remarke									
nomains.									
1									

Project/Site: US 31/SR 28	City/C	ounty:	Tipton/Tip	ton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT	-	State:	IN	Sampling	g Point:	F1	
Investigator(s): Barnard, Bowman, Winebrinner		Section	on,Townshi	o, Range:	Kempton, 12	, 21N, 3E	
Landform (hillslope, terrace, etc.): Terrace		Local re	elief (conca	ve, convex, none):		None	
Slope (%): <1 Lat: 40.2755		Long:	86.1336	Datum:	Ν	AD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy sul	bstratum		NWI	Classification:	No	one	
Are climatic/hydrologic conditions of the site typical for this til	me of the	year? Ye	s X N	o (If no, exp	plain in remarks	3)	
Are vegetation , soil , or hydrology sign	ificantly di	sturbed?	Are "nor	mal circumstances"	present? Ye	es X No	
Are vegetation , soil , or hydrology natu	rally probl	ematic?	, remarks.)			
SUMMARY OF FINDINGS - Attach site map sl	howing s	ampling po	oint location	ons, transects, ir	nportant feat	tures, etc.	
Hydrophytic vegetation present? Yes	Ť				•		
Hydric soil present? Yes		Is the Samp	led Area				
Wetland hydrology present? Yes		within a We	tland?	Yes X	No		
VEGETATION Use scientific names of plants.		,					
AI	osolute	Dominant	Indicator	Dominance Tes	t Worksheet		
<u>Tree Stratum</u> (Plot size: <u>N/A</u>) %	Cover	Species	Staus	Number of Domina that are OBL, FAC	nt Species W, or FAC:	1 ((A)
2				Total Number of Do	ominant		
3				Species Across all	Strata:	1 ((B)
4				Percent of Dominal	nt Species	400.000/	
5		Total Cover		that are OBL, FAC	w, or FAC:	100.00% ((A/B)
Sapling/Shrub stratur (Plot size: N/A)	=			Prevalence Inde	ex Worksheet	•	
1				Total % Cover of:		•	
2				OBL species	10 x 1 =	: 10	
3				FACW species	100 x 2 =	200	
4				FAC species	0 x 3 =	0	
5				FACU species	5 x 4 =	20	
	0 =	Total Cover		UPL species	<u>5</u> x 5 =	25	
Herb stratum (Plot size: 10)				Column totals	120 (A)	255 (B)	
1 Phalaris arundinacea	100	Y	FACW	Prevalence Index	x = B/A =	2.13	
2 Typna angustifolia	10	<u>N</u>		Ludrophytic Vo	actation Indi	otoro.	
Cirsium arvense	5		FACU	1 - Rapid Tes	t for Hydrophyt	ic Vegetation	
5			17.00	X 2 - Dominanc	e Test is >50%	io vegetation	
6				X 3 - Prevalence	e Index is ≤3.0		
7				4 - Morphogica	al Adaptations ¹	Provide supportir	ng
8				data in Remarks	s or on a separate	e sheet)	
9				Problematic H	ydrophytic Vege	tation ¹ (Explain))
10							
	120 =	Total Cover					
Image: stratum Plot size: N/A				¹ Indicators of hydric present, unless distu	soil and wetland urbed or problema	hydrology must atic	be
2	0 =	Total Cover		Hydrophytic vegetation	Yes X	No	
				present?			
Remarks: (Include photo numbers here or on a separate	sheet)						

Depth	Matri	x		Re	edox Feat	tures				
(Inches)	Color (moist)	%	Color (m	noist)	%	Туре¹	Loc ²	Text	ure	Remarks
0-8	10YR 3/2	100								
8-14	10YR 3/2	90	7.5YR	5/8	10	RM	PL			Worm
14-16	10YR 4/1	90	7.5YR	4/1	10		PI	Sandy		
				., .				Callay		
							·			
			·				·			
Type: C =	Concentration,	D = Deplet	ion, RM = F	Reduce	d Matrix,	MS = Ma	sked Sand	Grains.	**Location:	PL = Pore Lining, M = Matrix
Hydric So	oil Indicators:							Indicato	ors for Pro	blematic Hydric Soils ³ :
Hist	tisol (A1)		_	Sand	dy Gleyeo	d Matrix (S4)	Coa	ast Prairie F	Redox (A16) (LRR K, L, R)
Hist	tic Epipedon (A	2)	_	Sand	dy Redox	(S5)		Dar	k Surface (S7) (LRR K, L)
Bla	ck Histic (A3)			Strip	ped Matr	ix (S6)		5 cr	n Mucky P	eat or Peat (S3) (LRR K, L, R
Hyc	lrogen Sulfide (A4)		Loar	my Mucky	/ Mineral	(F1)	Iron	-Manganes	se Masses (F12) (LRR K, L, F
Stra	atified Layers (A	.5)	_	Loar	my Gleye	d Matrix (F2)	Ver	y Shallow [Dark Surface (TF12)
2 cr	m Muck (A10)			X Depl	leted Mat	rix (F3)		Oth	er (explain	in remarks)
Dep	pleted Below Da	rk Surface	(A11)	Red	ox Dark S	Surface (F	6)			
Thio	ck Dark Surface	e (A12)	_	Dep	leted Darl	k Surface	(F7)	³ Indica	ators of hyd	drophytic vegetation and welta
Sar	ndy Mucky Mine	ral (S1)	_	Red	ox Depres	ssions (F	8)	hydro	ology must	be present, unless disturbed
5 cr	m Mucky Peat c	r Peat (S3)							problematic
Restrictive	Layer (if obse	rved):								
vne [.]								Hydric	soil prese	nt? Yes X No
ypo.									Join prese	
)epth (inch	es):							Tiyane		
Depth (inch Remarks:	es):							Inyune		
Depth (inch Remarks: Farmed	es):									
Depth (inch Remarks: Farmed	es):									
Depth (inch Remarks: Farmed	es): OGY /drology Indica	ators:								
Depth (inch Remarks: Farmed HYDROL Vetland Hy Primary Ind	es): OGY /drology Indica icators (minimu	ators: m of one is	s required; (check a	III that app	oly)		Se	condary Inc	dicators (minimum of two requ
Depth (inch Remarks: Farmed HYDROL(Vetland Hy Primary Ind Surface	es): OGY /drology Indica icators (minimu Water (A1)	ators: m of one is	s required; o	check a	Ill that app Aquatic F	<u>oly)</u> Fauna (B1	3)	Ser	<u>condary Ind</u>	<u>dicators (minimum of two requ</u> se Soil Cracks (B6)
Depth (inch Remarks: Farmed HYDROL Vetland Hy Primary Ind Surface High Wa	es): OGY /drology Indica icators (minimu Water (A1) ater Table (A2)	ators: m of one is	s required; o	check a	Ill that app Aquatic F True Aqu	<u>oly)</u> Fauna (B1 latic Plant	3) s (B14)	Se	condary Ind Surfac	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10)
Pepth (inch Remarks: Farmed HYDROL(Vetland Hy Primary Ind Surface High Wa Saturati	es): OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3)	ators: m of one is	required; o	check a	Il that app Aquatic F True Aqu Hydroger	<u>oly)</u> Fauna (B1 uatic Plant n Sulfide (3) s (B14) Ddor (C1)	Se	condary Ind Surfac Draina Dry-Se	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2)
Pepth (inch Remarks: Farmed HYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water M	es): OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) water Dependent (D2)	ators: m of one is	s required; o	check a	Il that app Aquatic F True Aqu Hydrogen Oxidized	oly) Fauna (B1 iatic Plant n Sulfide (Rhizosph	3) s (B14) Ddor (C1) ieres on Liv	Ing Roots	condary Ind Surfac Draina Dry-Se Crayfis	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8)
Pepth (inch Remarks: Farmed HYDROL Vetland Hy Primary Ind Surface High Wa Saturati Water M Water M Sedime	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posite (P2)	ators: m of one is	required; o	check a	Il that app Aquatic F True Aqu Hydroger Oxidized (C3) Brosporc	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph	3) s (B14) Ddor (C1) ieres on Liv	ing Roots	<u>condary Ind</u> Surfac Draina Dry-Se Crayfis Satura	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (d or Stroscod Bloats (D1)
Pepth (inch Remarks: Farmed HYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water N Sedime Drift De Aga M	DGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) /larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ators: m of one is	required; d	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4	ing Roots	<u>condary Ind</u> Surfac Draina Dry-Se Crayfis Satura Stunte	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery (ed or Stressed Plants (D1) orrhic Position (D2)
Pepth (inch Remarks: Farmed IYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ators: m of one is	s required; d	<u>check a</u>	Il that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4	ing Roots	condary Ind Surfac Draina Dry-Se Crayfa Satura Stunte X Geom	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) attion Visible on Aerial Imagery (d or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch inch inch inch inch inch inch inch	es): OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae	ators: m of one is	s required; o	check a	Ill that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc	oly) Fauna (B1 Jatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 ction in Tille	ing Roots 4) d Soils (C6)	condary Ind Surfac Draina Dry-Se Crayfia Satura Stunte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (ad or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
Pepth (inch Remarks: Farmed IYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor	ators: m of one is rial Imager	y (B7) ce (B8)	check a	Ill that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of	oly) Fauna (B1 latic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille c (C7) a (D9)	ing Roots 4) d Soils (C6)	condary Ind Surfac Draina Dry-Se Crayfie Satura Stunte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) tition Visible on Aerial Imagery (ad or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch Remarks: Farmed HYDROLO Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I	ators: m of one is rial Imager acave Surfa 39)	y (B7) ce (B8)	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (Es	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc k Surface r Well Dat xplain in F	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 stion in Tille (C7) a (D9) Remarks)	ing Roots 4) d Soils (C6)	condary Ind Surfac Draina Dry-Se Crayfis Satura Sturte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (ad or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch Remarks: Farmed HYDROLO Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati Sparsel Water-S	es): drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations:	ators: m of one is m of one is	; required; (y (B7) ce (B8)	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E)	oly) Fauna (B1 autic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille (C7) a (D9) cemarks)	ing Roots 4) d Soils (C6)	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N	dicators (minimum of two requ es Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) leutral Test (D5)
Pepth (inch Remarks: Farmed HYDROLO Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S Gield Obser	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present?	ators: m of one is mial Imager icave Surfa 39) Yes	y (B7) ce (B8)		all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E)	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille t (C7) a (D9) Remarks) 0-16	ing Roots 4) d Soils (C6)	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N	dicators (minimum of two requ re Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch Cemarks: Farmed HYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron De Inundati Sparsel Water-S Gurface wate Vater table	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present?	ators: m of one is m of one is cave Surfa 39) Yes Yes	y (B7) ce (B8) No	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E) Depth (in Depth (in	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F uches): uches):	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille (C7) a (D9) temarks) <u>0-16</u> 0-16	ing Roots 4) d Soils (C6)	<u>condary Ind</u> Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Depth (inch Remarks: Farmed IYDROLO Vetland Hy Primary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S Cield Obser Surface wate Vater table Saturation p	DGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present? resent?	ators: <u>m of one is</u> rial Imager icave Surfa 39) Yes Yes Yes	y (B7) ce (B8) No No No	Check a	Ill that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E) Depth (in Depth (in Depth (in	oly) Fauna (B1 Jatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F aches): Jaches): Jaches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 ttion in Tille c (C7) a (D9) cemarks) <u>0-16 0-16</u>	ing Roots 4) d Soils (C6) Wetland h	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ttion Visible on Aerial Imagery (d or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch Remarks: Farmed IYDROLO Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S Gurface wate Vater table Gaturation p ncludes ca	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present? present? posits (B5) ion (A) posits (B5) ion (A) posits (B5) ion (B) ion	ators: m of one is m of one is rial Imager acave Surfa 39) Yes Yes Yes	y (B7) ce (B8)	check a	Ill that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E) Depth (in Depth (in Depth (in	oly) Fauna (B1 latic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F aches): aches): aches):	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C4 etion in Tille c (C7) a (D9) Remarks) 0-16 0-16 0-16	ing Roots 4) d Soils (C6) Wetland h	condary Ind Surfac Draina Dry-Se Crayfie Satura Stunte X Geom X FAC-N	dicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ttion Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Pepth (inch Remarks: Farmed IYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ield Obser Surface wate Vater table iaturation p ncludes ca Describe re	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present? pillary fringe) corded data (sta	ators: m of one is rial Imager; acave Surfa 39) Yes Yes Yes Team gaug	y (B7) ce (B8) No No e, monitorir	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (Es) Depth (in Depth (in Depth (in Depth (in Depth (in	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ches): nches): nches): nches): nches):	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille (C7) a (D9) temarks) 0-16 0-16 0-16 0-16	ing Roots 4) d Soils (C6) Wetland h	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N	dicators (minimum of two requ be Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) leutral Test (D5)
Depth (inch Remarks: Farmed IYDROL Vetland Hy Primary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S Sield Obser Surface wate Vater table Saturation p ncludes ca	es): drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present? present? pillary fringe) corded data (sta	ators: m of one is m of one is rial Imager acave Surfa 39) Yes Yes Yes Yes Yes	y (B7) ce (B8) No e, monitorir	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge or Other (E) Depth (in Depth (in Depth (in	oly) Fauna (B1 atic Plant n Sulfide (Rhizosph e of Reduc con Reduc ck Surface r Well Dat xplain in F aches): aches): aches): aches):	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 tion in Tille (C7) a (D9) cemarks) <u>0-16 0-16</u> 0-16 0-16	ing Roots 4) d Soils (C6) Wetland hy ections), if ava	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N ydrology p ailable:	dicators (minimum of two requ ee Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)
Depth (inch inch Remarks: Farmed IYDROL(Vetland Hy Primary Ind Surface High Wa Saturati Water A Saturati Drift De Algal Ma Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ield Obser Surface wate Vater table Saturation p ncludes can bescribe re	OGY /drology Indica icators (minimu Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Ae y Vegetated Cor Stained Leaves (I vations: er present? present? present? present? poillary fringe) corded data (sta	ators: <u>m of one is</u> rial Imager; icave Surfa 39) Yes Yes Yes Yes Team gaug	y (B7) ce (B8) No No e, monitorir	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E) Depth (in Depth (in Depth (in Depth (in	oly) Fauna (B1 atic Plant n Sulfide (Rhizosph e of Reduc con Reduc ck Surface r Well Dat xplain in F aches): aches): aches): otos, pre	3) s (B14) Ddor (C1) eres on Liv ced Iron (C4 ction in Tille (C7) a (D9) cemarks) 0-16 0-16 0-16 0-16	ing Roots 4) d Soils (C6) Wetland hy ections), if ava	condary Ind Surfac Draina Dry-Se Crayfis Satura Stunte X Geom X FAC-N ydrology p ailable:	dicators (minimum of two requ re Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) titon Visible on Aerial Imagery (ed or Stressed Plants (D1) orphic Position (D2) Jeutral Test (D5)

Project/Site: US 31/SR 28	City	/County:	Tipton/Tip	oton Samplin	g Date:	8/7/2013	
Applicant/Owner: INDOT	<u> </u>	State:	IN	Sampling) Point:	F2	
Investigator(s): Barnard, Bowman, Winebrinner		Sec	tion,Townshi	ip, Range:	Kempton, 1	12, 27N, 3E	
Landform (hillslope, terrace, etc.): Farm	ı Field	Local	relief (conca	ave, convex, none):		None	
Slope (%): <1 Lat: 40.2755	;	Long:	86.133	7 Datum:		NAD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sand	ly substratun	n	NWI	Classification:	1	None	
Are climatic/hydrologic conditions of the site typical for the	his time of the	e year? Y	′es X M	No(If no, exp	plain in remar	rks)	
Are vegetation, soil, or hydrology	significantly	disturbed?	Are "nor	rmal circumstances"	present?	res <u>X</u> No) <u> </u>
Are vegetation, soil, or hydrology	naturally pro	blematic?	remarks	s.)			-
SUMMARY OF FINDINGS - Attach site ma	ap showing	, sampling r	ooint locati	ions, transects, ir	nportant fe	atures, etc.	
Hydrophytic vegetation present? Yes		1	_		_		
Hydric soil present? No		Is the Sam	pled Area				
Wetland hydrology present? No		within a w	etland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in	a separate r	eport.)					
	a coparate	50000					
VECTATION Lies scientific names of play	-10						
VEGETATION Use scientific names or plan	IIS.	Duringent	1	Dominance Tes	+ Workshee	.4	I
Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species	Indicator Staus	Number of Domina	nt Spacias	1	
1	/0 00101	Openice	Olduc	that are OBL, FAC	Nt Species	2	(A)
2				Total Number of Do			- (* */
3				Species Across all	Strata:	3	(B)
4				Percent of Dominal	nt Species		- ` `
5				that are OBL, FAC	N, or FAC:	66.67%	(A/B)
	0	= Total Cove	r				
Sapling/Shrub stratum (Plot size: 10	_)			Prevalence Inde	ex Workshe	et	
1 Morus rubra	10	Y	FAC	Total % Cover of:	0 v 1	0	
2				UBL species		= 0	İ
S				FAC species	<u> </u>	k = 0	l
5				FACU species	0 x 4	= 0	İ
·	10	= Total Cove	r	UPL species	70 x 5	5 = 350	l
Herb stratum (Plot size: 10)			Column totals	160 (A)	620 (B)
1 Setaria pumila	80	Y	FAC	Prevalence Index	= B/A =	3.88	
2 Daucus carota	60	Y	UPL				
3 Convolvulus arvensis	10	Ν	UPL	Hydrophytic Ve	getation Inc	licators:	
4				1 - Rapid Tes	t for Hydroph	ytic Vegetation	i
5				X 2 - Dominanc	e Test is >50	%	
6	•			3 - Prevalence	e Index is ≤3.	0'	
/				4 - Morphogica data in Remarks	al Adaptations s or on a separ	 Provide suppor ate sheet) 	rting
°	·			Problematic H	vdronhvtic Ver	netation ¹ (Explai	in)
10				—	, a. op ,	Journa ()	,
	150	= Total Cove	r				
Woody vine stratum (Plot size: N/A)			¹ Indicators of hydric	soil and wetlan	nd hvdrology mus	t be
1	·			present, unless distu	Irbed or proble	matic	
2				Hydrophytic			
	0	= Total Cove	r	vegetation	Yes X	No	_
1				present /			
Remarks: (Include photo numbers here or on a separ	rate sheet)						
I							

Profile Des	cription: (Dese Matrix	cribe to the	e depth needed	to docur	nent the i	ndicator o	r confirm the absend	ce of indicators.)
(Inches)	Color (moist)	%	Color (moist)	w			Texture	Remarks
0-14	10 VP 3/2	100			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Toxtaro	
0-14	10 1K 3/2	100				·		
						·		
*Type: C =	Concentration, [) = Depletio	on, RM = Reduce	ed Matrix,	MS = Ma	sked Sand	Grains. **Locatio	n: PL = Pore Lining, M = Matrix
Hydric Se	oil Indicators:						Indicators for P	roblematic Hydric Soils ³ :
His	tisol (A1)		Sar	ndy Gleye	d Matrix (S	S4)	Coast Prairie	e Redox (A16) (LRR K, L, R)
His	tic Epipedon (A2	<u>?</u>)	Sar	ndy Redo	x (S5)		Dark Surface	e (S7) (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Mat	rix (S6)		5 cm Mucky	Peat or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A	4)	Loa	my Muck	y Mineral	(F1)	Iron-Mangan	ese Masses (F12) (LRR K, L, R)
Stra	atified Layers (A	5)	Loa	imy Gleve	ed Matrix (F2)	Very Shallow	/ Dark Surface (TF12)
2 ci	n Muck (A10)	,	Der	pleted Ma	trix (F3)	,	Other (explai	in in remarks)
Dep	pleted Below Da	rk Surface	(A11) Red	dox Dark	Surface (F	6)		,
	ck Dark Surface	(A12))Der	pleted Da	rk Surface	, (F7)	³ Indicators of h	vdrophytic vegetation and weltand
Sar	ndv Muckv Mine	ral (S1)	Rec	dox Depre	essions (F	8)	hydrology mus	st be present, unless disturbed or
5 cr	n Muckv Peat o	r Peat (S3)			(-)	njaretegj ma	problematic
De atri ativa	Lauran (K.a.h.a.a.							•
Restrictive	Layer (If obser	vea):					Uvdria apil prog	anta Voc No V
Type:					_		Hydric soli pres	
Depth (inch	es):				-			
Remarks:								
Formod								
Faimeu								
HYDROL	OGY							
Wetland Hy	/drology Indica	tors:						
Primary Ind	icators (minimur	n of one is	required; check	all that ap	oply)		Secondary I	ndicators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B1	3)	Surfa	ace Soil Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plant	s (B14)	Drai	nage Patterns (B10)
Saturati	on (A3)			Hydroge	en Sulfide (Odor (C1)	Dry-	Season Water Table (C2)
Water N	larks (B1)			Oxidized	d Rhizosph	eres on Liv	ing Roots Cray	fish Burrows (C8)
Sedime	nt Deposits (B2)			(C3)			Satu	ration Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presenc	e of Reduc	ced Iron (C4	l) Stun	ited or Stressed Plants (D1)
Algal M	at or Crust (B4)			_			X Geo	morphic Position (D2)
Iron De	posits (B5)			Recent	Iron Reduc	tion in Tille	d Soils (C6) X FAC	-Neutral Test (D5)
Inundat	on Visible on Ae	rial Imagery	(B7)	Thin Mu	ck Surface	(C7)		
Sparsel	y Vegetated Con	cave Surfac	e (B8)	Gauge	or Well Dat	a (D9)		
Water-S	Stained Leaves (E	39)		Other (E	xplain in R	(emarks)		
Field Obser	vations:							
Surface wate	er present?	Yes	No X	Depth (i	nches):	0 - 14		
Water table	present?	Yes	No X	Depth (i	nches):	0 - 14		
Saturation p	resent?	Yes	NO X	Depth (i	nches):	U - 14	wetland hydrology	present? Yes No X
(includes ca	piliary tringe)							
Describe re	corded data (str	eam gauge	, monitoring wel	l, aerial pl	hotos, prev	vious inspe	ctions), if available:	
Remarke								
Normarito.								

Project/Site: US 31/SR 28	City/	County:	Tipton/Tip	oton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	G1	
Investigator(s): Barnard, Bowman, Winebrinner		Sect	tion,Townshi	ip, Range:	Kempton,	13, 27N, 3E	
Landform (hillslope, terrace, etc.): Roadside	Ditch	Local	relief (conca	ive, convex, none):	· · · · ·	Concave	
Slope (%): <1 Lat: 40.2741		Long:	86.1273	3 Datum:		NAD 83	
Soil Map Unit Name: TuB2 - Tuscola, till substratum-Stra	awn comp	lex	NWI	Classification:		None	
Are climatic/hydrologic conditions of the site typical for this	time of the	e year? Ye	es X N	lo (lf no, exp	olain in rema	rks)	
Are vegetation . soil . or hydrology sid	anificantly	disturbed?	Are "nor	mal circumstances"	present?	Ýes No	
Are vegetation . soil . or hydrology na	aturally pro	blematic?	, remarks	, , , , , , , , , , , , , , , , , , ,			
SUMMARY OF FINDINGS - Attach site map	showing	sampling p	oint locati	ons. transects. in	nportant fe	eatures. etc.	
Hvdrophytic vegetation present? Yes				,,	<u> </u>		
Hvdric soil present? Yes		Is the Sam	pled Area			v	
Wetland hydrology present? Yes		within a We	etland?	Yes	No	Λ	
Remarks: (Explain alternative procedures here or in a	separate r	eport.) Area i	s wholly in a	a non-jurisdictional	RSD and is	not a wetland.	
VEGETATION Use scientific names of plants	5.						
	Absolute	Dominant	Indicator	Dominance Tes	t Workshe	et	
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Domina	nt Species		
1				that are OBL, FAC	W, or FAC:	1	(A)
2				Total Number of Do	ominant	4	
3				Species Across all	Strata:	1	(B)
4		·		Percent of Dominal	N or FAC:	100 00%	(A/R)
	0	- Total Cover		that are ODE, I AC	N, OFFAC.	100.0078	(7,0)
Sapling/Shrub straturr (Plot size: N/A)				Prevalence Inde	ex Workshe	et	
1				Total % Cover of:			
2				OBL species	100 x	1 = 100	
3				FACW species	0 x 2	2 = 0	
4				FAC species	0 x 3	3 = 0	
5				FACU species	0 x 4	4 = 0	
	0	= Total Cover		UPL species	0 x :	5 = 0	
Herb stratum (Plot size: 10)				Column totals	100 (A)	<u>100</u> (B)	
1 Typha angustifolia	100	Y	OBL	Prevalence Index	= B/A =	1.00	
2							
3		·		Hydrophytic Ve	getation In	dicators:	
4		·			a Tast is 50		
5		<u> </u>		X 3 - Prevalence	e Index is ≤3	0.0^{1}	
7				4 - Morphogica	al Adaptation	s ¹ (Provide support	ina
8		·		data in Remarks	s or on a sepa	rate sheet)	5
9				Problematic H	ydrophytic Ve	getation ¹ (Explair	n)
10							
	100	= Total Cover					
Woody vine stratum (Plot size: N/A)				¹ Indicators of hydric	soil and wetla	nd hydrology must	be
1				present, unless distu	urbed or proble	ematic	
2				Hydrophytic			
	0	= Total Cover		present?	Yes X	No	
Pomarka: (Includo photo numbero haro ar on a concret	to choot)						
remarks. (include photo numbers here of on a separat	le sneet)						

Depth	Matrix		Re	edox Fea	itures			
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10	10 YR 4/1	97	10 YR 4/6	3	С	М	Clay	Saturated
10-16	10 YR 5/1	82	7.5 YR 5/6	2	C	М	Sandy/Loam	Loam
					- <u> </u>			
/pe: C = (Concentration, D	= Depletic	on, RM = Reduce	d Matrix,	MS = Mas	sked Sand	d Grains. **Locat	ion: PL = Pore Lining, M = Matrix
lydric So	oil Indicators:		0				Indicators for	Problematic Hydric Soils ³ :
Hist	tisol (A1)		San	dy Gleye	d Matrix (S	54)	Coast Prair	TIE REDOX (A16) (LRR K, L, R)
HISI	LIC Epipedon (A2)		San	ay Reao	((55) riv (86)		Dark Surfa	Ce (S7) (LRR K, L)
	CK HISUC (AS) Irogon Sulfido (AA	1)		peu mai	IIX (30) v Minoral (E 1)		y Pear of Pear (SS) (LRR K, L, R
Stre	atified Lavers (A5)	r)		ny Glove	y Matrix (F	=2)	Very Shalle	Dark Surface (TE12)
2 cr	m Muck (A10)		X Den	leted Ma	trix (E3)	2)	Other (expl	ain in remarks)
2 of Der	leted Below Dark	Surface	(A11) Red	ox Dark S	Surface (F	6)		
	ck Dark Surface (A12)	Dep	leted Da	rk Surface	(F7)	³ Indicators of	hydrophytic vegetation and welt
Sar	ndy Mucky Minera	, I (S1)	Red	ox Depre	essions (F8	3)	hydrology m	ust be present, unless disturbed
5 cr	n Mucky Peat or I	Peat (S3)		·	,	,	,	problematic
strictive	Layer (if observ	ed):						
e:							Hydric soil pre	esent? Yes X No
					-		,	
pth (inch marks: Saturate	es):				- -			
pth (inch marks: Saturate	es):				-			
pth (inch marks: Saturate	es): ed to 10" OGY				-			
pth (inch marks: Saturate (DROL(etland H)	es): ed to 10" OGY /drology Indicato	Drs:			-			
pth (inch marks: Saturate (DROL) etland Hy mary Ind	es): ed to 10" OGY /drology Indicato	ors: of one is	required; check a	Ill that ap	- - - 		Secondary	v Indicators (minimum of two requ
pth (inch marks: Saturate (DROL) tiland Hy mary Ind Surface	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1)	ors: of one is	required; check a	Ill that ap Aquatic	- - - - - - - - - - - - - - - - - - -	3)	<u>Secondary</u> Su	<u>/ Indicators (minimum of two requ</u> rface Soil Cracks (B6)
oth (inch marks: Saturate (DROL) tland Hy mary Ind Surface High Wa	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3)	ors: of one is	required; check a	Ill that ap Aquatic True Aq	<u>ply)</u> Fauna (B13 uatic Plants	3) 5 (B14)	<u>Secondary</u> Su Dra	<u>/ Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10)
oth (inch marks: Saturate CDROL tland Hy mary Ind Surface High Wa Saturati Water M	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) darks (B1)	ors: of one is	required; check a	Ill that ap Aquatic True Aq Hydroge Oxidized	<u>ply)</u> Fauna (B13 uatic Plants en Sulfide C	3) s (B14) Odor (C1) eres on Lit	<u>Secondary</u> Su Dr. Dr. Dr.	<u>r Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) avrish Burrows (C8)
Saturate CDROL CDROL Cland Hy mary Ind Surface High Wa Saturati Water M Sedime	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) /larks (B1) nt Deposits (B2)	ors: of one is	required; check a	Ill that ap Aquatic True Aq Hydroge Oxidized (C3)	- - Fauna (B13 uatic Plants en Sulfide C d Rhizosphe	3) s (B14) Ddor (C1) eres on Liv	Secondary Su Uring Roots	<u>/ Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (
Caturate Caturate Caturate Caturate Caturate Caturate Caturate Caturate Saturate Saturate Saturate Caturate Caturate Saturate Caturate Caturate Saturate Caturate Saturate Saturate Caturate Saturate	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)	ors: of one is	required; check a	Ill that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc	- - - Fauna (B13 uatic Plants en Sulfide C d Rhizosphe e of Reduc	3) s (B14) Odor (C1) eres on Liv ed Iron (C	Ving Roots	<u>r Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (unted or Stressed Plants (D1)
The function of the function o	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors: of one is	required; check a	Il that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc	- - Fauna (B13 uatic Plants en Sulfide C I Rhizospho e of Reduc	3) s (B14) Odor (C1) eres on Liv ed Iron (C	ving Roots Cra 4) X Ge	<u>v Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (unted or Stressed Plants (D1) comorphic Position (D2)
The function of the function o	es): ed to 10" OGY /drology Indicato /drology Indicato /dro	ors: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I	- - Fauna (B13 uatic Plants en Sulfide C d Rhizospho e of Reduct	3) s (B14) Ddor (C1) eres on Liv ed Iron (C	ving Roots 4) X Secondary Su Dr Cr Sa Sa X Ge Ad Soils (C6) X FA	<u>v Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (unted or Stressed Plants (D1) comorphic Position (D2) C-Neutral Test (D5)
The function of the function o	es): ed to 10" OGY /drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria	ors: of one is al Imagery	required; check a	Il that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I Thin Mu	- - Fauna (B13 uatic Plants on Sulfide C d Rhizosphe e of Reduct ron Reduct ck Surface	3) s (B14) Odor (C1) eres on Liv ed Iron (C tion in Tille (C7)	Ving Roots 4) xed Soils (C6) Xed Soils (C6) Xed Soils (C6)	<u>/ Indicators (minimum of two requ</u> rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (unted or Stressed Plants (D1) comorphic Position (D2) (C-Neutral Test (D5)
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Project/Site: US 31/SR 28	City/0	County:	Tipton/Tip	ton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	Point:	G2	
Investigator(s): Barnard, Bowman, Winebrinner		Secti	on,Townshi	p, Range:	Kempton,	13, 27N, 3E	
Landform (hillslope, terrace, etc.): Roadside	Ditch	Local r	elief (conca	ve, convex, none):		None	
Slope (%): < 1 Lat: 40.2741		Long:	86.1273	B Datum:		NAD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	ubstratum		NWI	Classification:		None	
Are climatic/hydrologic conditions of the site typical for this	time of the	year? Ye	s X M	lo (If no, exp	olain in rema	rks)	
Are vegetation , soil , or hydrology sig	nificantly d	listurbed?	Are "nor	mal circumstances"	present?	Yes No)
Are vegetation , soil , or hydrology na	turally prob	lematic?	remarks	.)			
SUMMARY OF FINDINGS - Attach site map	showing	sampling po	oint locati	ons, transects, in	nportant fe	eatures, etc.	
Hydrophytic vegetation present? No							
Hydric soil present? No		Is the Samp	led Area				
Wetland hydrology present? No		within a We	tland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in a s	eparate re	port.)					
	opulatorio	por)					
VECETATION Lies estentific names of plants							
VEGETATION Use scientific flames of plants	• •	Densiserat	ha all'a a fa a	Dominance Tes	t Worksho	at	
Tree Stratum (Plot size: N/A)	Absolute % Cover	Species	Staus	Number of Domina	nt Species		
1				that are OBL, FAC	N, or FAC:	1	(A)
2				Total Number of Do	- ominant		- ` ´
3				Species Across all	Strata:	2	(B)
4				Percent of Dominal	nt Species		
5				that are OBL, FAC	N, or FAC:	50.00%	(A/B)
Sopling/Shrub stratum (Dist size) N/A	0 =	= I otal Cover		Brovalance Inde	w Warkaha		
Saping/Shrub stratum (Piot size: N/A)				Total % Cover of:	ex worksne	et	
2				OBL species	0 x ²	1 = 0	
3				FACW species	0 x2	$\frac{1}{2} = 0$	
4				FAC species	70 x 3	3 = 210	
5				FACU species	70 x 4	4 = 280	
	0 =	Total Cover		UPL species	0 x 8	5 = 0	
Herb stratum (Plot size: 10)				Column totals	140 (A)	<u>490</u> (B))
1 Schedonorus arundinaceus	70	<u> </u>	FACU	Prevalence Index	= B/A =	3.50	
2 Festuca rubra	70	Y	FAC	I hadron hartin Ma	watatian In	-1:	
3				1 - Rapid Tes	for Hydroph	uicators:	
				2 - Dominance	e Test is >50)%	
6				3 - Prevalence	e Index is ≤3	.0 ¹	
7				4 - Morphogica	al Adaptations	s ¹ (Provide suppor	rting
8				data in Remarks	s or on a sepai	rate sheet)	
9				Problematic Hy	drophytic Ve	getation ¹ (Explai	n)
10	1.10	Tatal Osuar					
Weedy vine stratum (Plot size: N/A)	140 =	= I otal Cover					
1				¹ Indicators of hydric	soil and wetlar	nd hydrology must	t be
2				Hydrophytic			
	0 =	Total Cover		vegetation	Yes	No X	
				present?	-		-
Remarks: (Include photo numbers here or on a separate	e sheet)						

Profile Des	cription: (Desc	ribe to the	e depth n	eeded	to docum	tures	ndicator o	r confirm the ab	sence of indi	cators.)			
(Inches)	Color (moist)	%	Color (noist)	<u>6007 i⁻ed</u>		Loc ²	Texture		Remarks			
0.19				noioty		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Romanio			
0-10	10 TR 5/2												
0-18	10 YR 5/6	50											
									·				
*Turnet C	Concentration D	Doplati	DD DM	Doduoo	d Motrix		kad Sand	Croina **La	action: DL D	oro Lining M	Actrix		
Hydric So	bil Indicators	= Depletit	דו, אוי =	Reduce	u mainx,		skeu Sanu		or Problemati	ic Hydric Soils ³			
Hist	isol (A1)			San	dv Glever	Matrix (S	34)	Coast P	rairie Redox (A	A16) (I RR K. I.	R)		
Hist	Histic Enjodon (A2)			Sandy Redox (S5)				Dark Surface (S7) (I RR K I)					
Blac	Black Histic (A3)				oped Matr	ix (S6)		5 cm Mucky Peat or Peat (S3) (I RR K, I R)					
Hvc	Irogen Sulfide (A	4)	-		my Mucky	/ Mineral ('F1)	Iron-Manganese Masses (F12) (LRR K, L, R)					
Stra	atified Lavers (A5	5)	-		my Gleve	d Matrix (I	F2)						
2 cr	n Muck (A10)	')	-	Den	leted Mat	rix (E3)	-)	Other (e	Other (explain in remarks)				
2 er	leted Below Dar	k Surface	(A11) -	Red	ox Dark S	Surface (F	6)			ino)			
Thi	ck Dark Surface ((A12)		Dep	leted Dar	k Surface	(F7)	³ Indicators	s of hydrophytic	vegetation and	weltand		
Sar	dv Mucky Minera	al (S1)	-	Red	ox Depre	ssions (F8	3)	hydrology	/ must be pres	ent. unless distu	rbed or		
5 cr	n Mucky Peat or	Peat (S3)	-				-)	, ۵	proble	ematic			
Postrictivo	Laver (if observ	(•				
Type:	Layer (II Observ	veu):						Hydric soil	prosont? Va	No No	Y		
Depth (inch	<i>56).</i>							Hyune son	present: 10		~		
Deptil (inch	<u> </u>												
Remarks:													
Saturate	d to 10"												
HYDROL	OGY												
Wetland Hy	drology Indicat	ors:											
Primary Ind	cators (minimum	n of one is	required;	check a	all that app	oly)		Second	arv Indicators	(minimum of two	o require		
Surface	Water (A1)				Aquatic F	<u></u> Fauna (B1:	3)		Surface Soil C	racks (B6)			
High Wa	ater Table (A2)				True Aqu	atic Plants	, s (B14)		Drainage Patte	erns (B10)			
Saturation (A3)					Hydrogei	n Sulfide C	Odor (C1)	Dry-Season Water Table (C2)					
Water M	larks (B1)				Oxidized	Rhizosph	eres on Liv	ing Roots	Crayfish Burro	ws (C8)			
Sedime	nt Deposits (B2)				(C3)				Saturation Visi	ble on Aerial Ima	gery (C9)		
Drift De	oosits (B3)				Presence	e of Reduc	ed Iron (C4	4)	Stunted or Stre	essed Plants (D1))		
Algal Ma	at or Crust (B4)				_				Geomorphic P	osition (D2)			
Iron Dep	oosits (B5)		(07)		Recent Ir	ron Reduc	tion in Tille	d Soils (C6)	FAC-Neutral T	est (D5)			
Inundati	on Visible on Aeri	al Imagery	(B7)		Thin Muc	k Surface	(C7)						
Sparser	Vegetated Conc	ave Surfac	е (В8)		Gauge of	r Well Data	a (D9)						
valer-s	tained Leaves (D	9)			Other (E)	xpiain in R	emarks)	-					
Field Obser	vations:	Ma a	N1-	v	Denth (in)							
Surface wate	er present?	Yes		<u>×</u>	Depth (in	iches):							
Saturation n	resent?	Ves		<u></u>	Depth (in	iches).		Wetland bydro	logy present?	Vas	No Y		
(includes car	oillary fringe)	165	- 110 -	~	Deptit (iii	icites).		wettand nyuro	logy present?	165			
	corded data (stra		monitori		aorial ph	otoc prov		(() () () () () () () () () () () () () (
Describe re	corded data (stre	am gauge	, monitori	ing weil	, aenai pri	olos, prev	nous inspe	cuons), il avallad	ie:				
Remarks:													
Project/Site: US 31/SR 28	City	County:	Tipton/Tip	oton Samplin	g Date:	8/7/2013							
--	-----------------	----------------	---------------	-----------------------------------	-----------------------------	--------------------------------							
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	H1							
Investigator(s): Barnard, Bowman, Winebrinner		Sect	ion,Townshi	ip, Range:	Kempton, 13	3, 27N, 3E							
Landform (hillslope, terrace, etc.): Roadsic	de Ditch	Local	relief (conca	ave, convex, none):	С	oncave							
Slope (%): <1 Lat: 40.2703		Long:	86.127	4 Datum:	Ν	IAD 83							
Soil Map Unit Name: Pn - Patton silty clay loam, sand	y substratun	<u></u> ו	NWI	Classification:	N	one							
Are climatic/hydrologic conditions of the site typical for the	nis time of the	e year? Ye	es X M	No (lf no, ex	plain in remark	s)							
Are vegetation , soil , or hydrology	significantly	disturbed?	Are "nor	rmal circumstances"	present? Ye	s No							
Are vegetation , soil , or hydrology	naturally pro	blematic?	remarks	s.)									
SUMMARY OF FINDINGS - Attach site ma	p showing	sampling p	oint locati	ions, transects, ir	nportant fea	tures, etc.							
Hydrophytic vegetation present? Yes													
Hydric soil present? Yes		Is the Sam	pled Area			v							
Wetland hydrology present? Yes		within a We	etland?	Yes	No	Λ							
Remarks: (Explain alternative procedures here or in	a sonarato r	eport) Area	is wholly in		 RSD and is n	ot a wetland							
Remarks. (Explain alternative procedures here of in	a separate i	epon.) Alea	is whony in	a non-junsuictional	I ROD allu is li	ot a wetianu.							
VECETATION Liss scientific names of plan	te												
	Abaaluta	Dominant	Indiantar	Dominance Tes	t Worksheet								
Tree Stratum (Plot size: N/A)	% Cover	Species	Staus	Number of Domina	nt Species								
1		·		that are OBL, FAC	W, or FAC:	1 (A)							
2				Total Number of Do	ominant								
3				Species Across all	Strata:	1 (B)							
4				Percent of Domina	nt Species								
5				that are OBL, FAC	W, or FAC:	100.00% (A/B)							
Sopling/Shrub strature (Plot size: N/A	<u> </u>	= I otal Cover		Provalance Inde	ox Workshoo	4							
1)			Total % Cover of:		L							
2		·		OBL species	98 x 1 =	- 98							
3				FACW species	0 x 2 =	= 0							
4				FAC species	0 x 3 =	= 0							
5				FACU species	0 x 4 =	= 0							
	0	= Total Cover		UPL species	0 x 5 =	=							
Herb stratum (Plot size: 10)			Column totals	98 (A)	<u>98</u> (B)							
1 Leersia oryzoides	90	<u>Y</u>	OBL	Prevalence Index	: = B/A =	1.00							
2 Scirpus cyperinus	5	<u> </u>	OBL		antation Indi								
Asciepias incarnata A Typha angustifolia	3	<u> </u>		1 - Rapid Tes	egetation indi	ic Vegetation							
5 Phalaris arundinacea		·	FACW	X 2 - Dominanc	e Test is >50%								
6 Verbena hastata		·	FACW	X 3 - Prevalenc	e Index is ≤3.0	1							
7 Solanum dulcamara			FAC	4 - Morphogic	al Adaptations ¹	(Provide supporting							
8				data in Remark	s or on a separat	e sheet)							
9				Problematic H	ydrophytic Vege	etation ¹ (Explain)							
10													
Woody vine stratum (Plot size: N/A	<u>98</u>	= I otal Cover											
1)			¹ Indicators of hydric	soil and wetland	hydrology must be							
2				Hydrophytic									
	0	= Total Cover		vegetation	Yes X	No							
				present?									
Remarks: (Include photo numbers here or on a separ	ate sheet)												

SOIL

Depui	Matrix			Redox F	eatures			
(Inches)	Color (moist)	%	Color (mo	oist) %	Type ¹	Loc ²	Texture	e Remarks
0-7	10YR 4/2	100					Sandy/Loam	
7-12	10YR 5/3	80	10YR 5	6 20	С	М	Sandy/Clay L	.oam Clay with sand veins
12-16	10YR 6/1	85	10YR 5	6 15	С	M	Clayey	
*Turnet C	Concentration D	Doplatic		aduaad Mat	NO MO	acked Sana	Croino **I	and the section of th
Hvdric Se	oil Indicators:		JII, INIVI – IN		11, 1013 – 101	askeu Sanc	Indicators	for Problematic Hydric Soils ³ :
His	tisol (A1)			Sandv Gle	ved Matrix	(S4)	Coast	Prairie Redox (A16) (LRR K, L, R)
His	tic Epipedon (A2)			Sandy Red	dox (S5)	()	Dark S	Surface (S7) (LRR K, L)
Bla	ck Histic (A3)			Stripped N	Atrix (S6)		5 cm N	lucky Peat or Peat (S3) (LRR K, L, I
Hyc	lrogen Sulfide (A	4)		Loamy Mu	icky Minera	l (F1)	Iron-M	anganese Masses (F12) (LRR K, L,
Stra	atified Layers (A5)		Loamy Gle	eyed Matrix	(F2)	Very S	hallow Dark Surface (TF12)
2 cr	m Muck (A10)		Х	Depleted I	Matrix (F3)	. ,	Other	(explain in remarks)
Dep	pleted Below Dar	k Surface	(A11)	Redox Da	rk Surface	(F6)		
Thio	ck Dark Surface ((A12)		Depleted [Dark Surfac	e (F7)	³ Indicato	rs of hydrophytic vegetation and welt
Sar	ndy Mucky Minera	al (S1)		Redox De	pressions (- 8)	hydrolog	gy must be present, unless disturbed
5 cr	m Mucky Peat or	Peat (S3)						problematic
Restrictive	Layer (if observ	/ed):						
Гуре:							Hydric so	il present? Yes X No
Depth (inch	es):							
Remarks:								
	/							
HYDROL	0GY							
HYDROL Wetland Hy	OGY /drology Indicat	ors:						
HYDROL Wetland Hy	OGY /drology Indicat icators (minimum	ors:	required; ch	neck all that	apply)	12)	Secor	ndary Indicators (minimum of two req
HYDROL Wetland Hy Primary Indi Surface High W/	OGY /drology Indicat icators (minimum Water (A1)	ors: of one is	required; ch	neck all that	<u>apply)</u> tic Fauna (B	13) hts (B14)	<u>Secor</u>	ndary Indicators (minimum of two req Surface Soil Cracks (B6)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3)	ors:	required; cł	heck all that Aqua True Hydro	<u>apply)</u> tic Fauna (B Aquatic Plar paen Sulfide	13) hts (B14) Odor (C1)	Secor	Idary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1)	ors: of one is	required; cł	heck all that Aqua True Hydro Oxidi	<u>apply)</u> tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp	13) hts (B14) Odor (C1) heres on Liv	Secor 	Idary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	ors: of one is	required; cł	neck all that Aqua True Hydro Oxidia (C3)	<u>apply)</u> tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp	13) hts (B14) Odor (C1) heres on Liv	Secor	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery
HYDROL Netland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) 1arks (B1) nt Deposits (B2) posits (B3)	ors: of one is	required; cł	neck all that Aqua True Hydro Oxidi: (C3) Prese	<u>apply)</u> tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Red	13) hts (B14) Odor (C1) heres on Liv uced Iron (C-	Secor	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1)
HYDROL Netland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) /larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors:	required; cł	heck all that Aqua True Hydro Oxidia (C3) Prese	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Red	13) hts (B14) Odor (C1) heres on Liv uced Iron (C-	<u>Secor</u> 	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2)
HYDROL Netland Hy Primary Ind Surface High Wa X Saturati Water M Sedimel Drift Del Algal Ma Iron Deg (Iron Deg	OGY vdrology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ors:	required; cł	heck all that Aqua True Hydro Oxidi (C3) Prese Rece	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Red nt Iron Redu	13) hts (B14) Odor (C1) heres on Liv uced Iron (C-	Secor ring Roots X 4) X d Soils (C6)	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedimer Drift De Algal Ma Iron Deg (Inundati	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri	ors: of one is al Imagery	(B7)	heck all that Aqua True Hydro Oxidi: (C3) Prese Rece Thin I	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu nt Iron Redu Muck Surfac	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7)	Secor ring Roots X 4) X d Soils (C6) X	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Vetland Hy Primary Ind Surface High Wa X Saturati Water M Sedimer Drift De Algal Ma Iron Dep X Inundati Sparsel	DGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc	ors: of one is al Imagery ave Surfac	required; cł (B7) e (B8)	neck all that Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug	apply) tic Fauna (B Aquatic Plan ogen Sulfide zed Rhizosp ence of Redu nt Iron Redu Muck Surfac e or Well Da (Explain in	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille e (C7) ata (D9) Remarks)	Secon ing Roots X 4) X d Soils (C6) X	Idary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Dep (Inundati Sparsel Water-S	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5)	ors: of one is al Imagery ave Surfac 9)	<u>required; ch</u> (B7) e (B8)	heck all that Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu nt Iron Redu Muck Surfac e or Well Da (Explain in	13) ots (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille e (C7) ata (D9) Remarks)	ing Roots X 4) X d Soils (C6)	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Drift De Algal Ma Iron Dep X Inundati Sparsel Water-S Field Obser	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) vations: at present?	ors: of one is al Imagery ave Surfac 9) Yes	required; ch (B7) e (B8) No	heck all that Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac e or Well Da (Explain in	13) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16	Secor ring Roots X 4) X d Soils (C6)	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Dep X Inundati Sparsel Water-S Field Obser Surface wate	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) vations: er present? present?	ors: of one is of one is al Imagery ave Surfac 9) Yes Yes	(B7) ie (B8) No	Aqua True Hydro Oxidi (C3) Prese Rece Thin I Gaug Other X Depth	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu muck Surfac e or Well Da (Explain in n (inches): n (inches):	13) ots (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-16	Secor ring Roots X 4) X d Soils (C6)	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Orift De Algal Ma Iron Dep X Inundati Sparsel Water-S Field Obser Surface wate Water table Saturation p	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B3) vegetated Conc Stained Leaves (B3) vegetated Conc Stained Leaves (B3) vegetated Conc Stained Leaves (B4) present? present?	ors: of one is of one is al Imagery ave Surfac 9) Yes Yes X	(B7) (B7) e (B8) No No No	Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other X Depth Depth	apply) tic Fauna (E Aquatic Plan ogen Sulfide zed Rhizosp ence of Red Muck Surfac e or Well Da (Explain in n (inches): n (inches): n (inches):	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-7	ring Roots X 4) X d Soils (C6) V Wetland hydr	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Dep X Inundati Sparsel Water-S Field Obser Surface wate Water table Saturation pr (includes cap	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B3) vations: er present? present? present? poillary fringe)	al Imagery ave Surfac) Yes Yes X	(B7) e (B8) No No No	Aqua True Hydro Oxidi: (C3) Prese Thin I Gaug Other X Depth X Depth	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac e or Well Da r (Explain in n (inches): n (inches): n (inches):	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-7	Secor ring Roots X 4) X d Soils (C6)	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Dep X Inundati Sparsel Water-S Field Obser Surface wate Water table Saturation pr (includes cap Describe re	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) vations: er present? present? present? pillary fringe) corded data (stree	al Imagery ave Surfac 9) Yes Yes X am gauge	(B7) e (B8) No	Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other X Depth Depth g well, aerial	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac unck Surfac (Explain in (inches): n (inches): n (inches): n (inches):	13) Odor (C1) heres on Liv uced Iron (C- uction in Tille e (C7) ata (D9) Remarks) 0-16 0-7 evious inspective	Secor ring Roots X 4) X d Soils (C6) Wetland hydr	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Dep X Inundati Sparsel X Inundati Sparsel Sturface wate Water table Saturation pl (includes cap Describe red	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) vations: er present? present? present? present? present? present? poillary fringe) corded data (stree	ors: of one is of one is al Imagery ave Surfac) Yes Yes Yes X am gauge	(B7) e (B8) No No No	Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other X Depth Depth g well, aerial	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac e or Well Da (Explain in n (inches): n (inches): n (inches):	13) Odor (C1) heres on Liv uced Iron (C- uction in Tille e (C7) ata (D9) Remarks) 0-16 0-7 0-7	Secor ring Roots X 4) X d Soils (C6) Vetland hydr ections), if availa	Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) ology present? Yes X No ble:
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron Deg X Inundati Sparsel Water-S Field Obser Surface wate Water table Saturation pri (includes cap Describe recomposition	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) vations: er present? present? present? present? poster (A1) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B5) conded data (streen)	al Imagery ave Surfac 9) Yes Yes Yes am gauge	(B7) e (B8) No No No	Aqua True Hydro Oxidi (C3) Prese Rece Thin I Gaug Other X Depth Depth Depth g well, aerial	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac e or Well Da (inches): n (inches): n (inches): n (inches):	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-7 evious inspense	Secor ring Roots X 4) X d Soils (C6) Wetland hydr ections), if availa	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
HYDROL Wetland Hy Primary Ind Surface High Wa X Saturati Water M Sedime Drift De Algal Ma Iron De X Inundati Sparsel Water-S Field Obser Surface wate Nater table p Saturation po (includes cap Describe ree	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B3) vations: er present? present? present? pillary fringe) corded data (streen)	ors: of one is of one is al Imagery ave Surfac ave (B7) e (B8) No No	Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other X Depth Depth Depth g well, aerial	apply) tic Fauna (B Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac unck Surfac (Explain in n (inches): n (inches): n (inches): n (inches):	13) hts (B14) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-7 evious inspective te vious inspective te	Secor ring Roots X 4) X d Soils (C6) Wetland hydr ections), if availa	ndary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	
HYDROL Vetland Hy Primary Ind Surface High Wa X Saturati Water N Sedime Drift De Algal Ma Iron Deg Water S Field Obser Surface wate Vater table Saturation princludes cap Describe red Remarks:	OGY /drology Indicat icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri y Vegetated Conc Stained Leaves (B3) vegetated Conc Stained Leaves (B3) vegetated Conc Stained Leaves (B4) present? present? present? present? present? poillary fringe) corded data (streen)	al Imagery ave Surfac a) Yes Yes X am gauge	(B7) e (B8) No No	Aqua True Hydro Oxidi: (C3) Prese Rece Thin I Gaug Other X Depth Depth g well, aerial	apply) tic Fauna (E Aquatic Plar ogen Sulfide zed Rhizosp ence of Redu Muck Surfac e or Well Da (Explain in n (inches): n (inches): n (inches): n (inches):	13) Odor (C1) heres on Liv uced Iron (C- uction in Tille te (C7) ata (D9) Remarks) 0-16 0-7 evious inspense	Secor ring Roots X 4) X d Soils (C6) Wetland hydr ections), if availa	Adary Indicators (minimum of two req Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)

Project/Site: US 31/SR 28	City/C	Jounty:	Tipton/Tip	ton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	Point:	H2	
Investigator(s): Barnard, Bowman, Winebrinner		Sect	tion,Townshi	ip, Range:	Kempton, 1	3, 27N, 3E	
Landform (hillslope, terrace, etc.): Roadside Ditc	h Side Slope	Je Local	relief (conca	ive, convex, none):		None	
Slope (%): <1 Lat: 40.2702		Long:	86.1274	4 Datum:	I	NAD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy	substratum	-	NWI	Classification:	N	lone	
Are climatic/hydrologic conditions of the site typical for th	is time of the	year? Ye	es X M	√o (lf no, exp	plain in remarl	ks)	
Are vegetation , soil , or hydrology s	significantly di	sturbed?	Are "nor	mal circumstances"	present? Y	'es X No)
Are vegetation , soil , or hydrology r	naturally prob	lematic?	, remarks	.)			
SUMMARY OF FINDINGS - Attach site may	o showing :	sampling p	oint locati	ons. transects, in	nportant fea	atures, etc.	
Hydrophytic vegetation present? No		<u> </u>			<u> </u>	•	I
Hvdric soil present? No		Is the Sam	pled Area				ļ
Wetland hvdrology present? No		within a We	etland?	Yes	No	х	ļ
VEGETATION Use scientific names of plan	ts. Absolute	Dominant	Indicator	Dominance Tes	t Workshee	i	
<u>Tree Stratum</u> (Plot size: <u>N/A</u>) 1	% Cover	Species	Staus	Number of Dominar that are OBL, FACV	nt Species <i>N</i> , or FAC:	1	(A)
2	<i>,</i>	.		Total Number of Do	ominant	_	(=)
3		·		Species Across all	Strata:	2	(B)
4	·	·		Percent of Dominar	nt Species	F0 000/	(^ /D)
5		Total Cover		that are ODL, FAG	/V, of FAC:	50.00%	(А/Б) _
Sanling/Shrub stratum (Plot size: N/A }				Prevalence Inde	Workshee	t	
1				Total % Cover of:		~	ļ
2		·		OBL species	0 x 1	= 0	İ
3				FACW species	0 x 2	= 0	
4				FAC species	70 x 3	= 210	
5				FACU species	75 x 4	= 300	İ
	0 =	Total Cover		UPL species	0 x 5	=	
Herb stratum (Plot size: 10)				Column totals	145 (A)	510 (B))
1 Schedonorus arundinaceus	70	Y	FACU	Prevalence Index	= B/A =	3.52	ļ
2 Festuca rubra	70	<u> </u>	FAC				
3 Cirsium arvense	5	<u>N</u>	FACU	Hydrophytic Ve	getation Ind	icators:	ļ
4	······································				tor Hydrophy	/tic vegetation	ļ
5	·	<u> </u>		2 - Dominance	> 1051 15 >007	″o ∩1	İ
7	·	<u> </u>		4 - Morphogica	Adaptations ¹) ^I (Provide suppor	rtina
8				data in Remarks	s or on a separa	ite sheet)	ung
9	·	<u> </u>		Problematic Hy	ydrophytic Veg	etation ¹ (Explai	in)
10				—	•	-	
	145 =	Total Cover					
<u>Woody vine stratum</u> (Plot size: N/A) 1				¹ Indicators of hydric s present, unless distu	soil and wetland	d hydrology must	be
2				Hydrophytic			
	0 =	Total Cover		vegetation present?	Yes	No X	-
Remarks: (Include photo numbers here or on a separa	ate sheet)			present?	Yes		-

Profile Des	cription: (Desci	ribe to the	e depth ne	eeded to o	docum	ent the i	ndicator o	or confirm tl	he absence o	of indicators.)	
Depth	Matrix			Redo	ox Feat	ures					
(Inches)	Color (moist)	%	Color (n	noist)	%	Type ¹	Loc ²	Тех	ture	Remar	ks
0-18	10YR 3/2	50						Sandy			
0-18	10YR 5/6	50									
					,						
·											
*Type: C =	Concentration, D	= Depleti	on, RM = F	Reduced N	/latrix,	MS = Ma	sked Sand	l Grains.	**Location: F	PL = Pore Lining, M	= Matrix
Hydric Se	oil Indicators:							Indicat	tors for Prob	lematic Hydric So	ils':
His	tisol (A1)			Sandy	Gleyed	d Matrix (S	54)	Co	ast Prairie Re	edox (A16) (LRR K ,	L, R)
His	tic Epipedon (A2)			Sandy	Redox	(S5)		Da	rk Surface (S	57) (LRR K, L)	
Bla	ck Histic (A3)		_	Strippe	d Matr	ix (S6)		5 c	m Mucky Pea	at or Peat (S3) (LR	R K, L, R)
Hyo	drogen Sulfide (A	4)		Loamy	Mucky	Mineral	(F1)	Iro	n-Manganese	e Masses (F12) (LR	R K, L, R)
Stra	atified Layers (A5)		Loamy	Gleye	d Matrix (F2)	Ve	ry Shallow Da	ark Surface (TF12)	
2 cr	m Muck (A10)		–	Deplete	ed Mat	rix (F3)	- 1	Ot	her (explain ir	n remarks)	
	bleted Below Darl	< Surface	(A11)	Redox	Dark S	Surface (F	6)	2			
	ck Dark Surface (A12)	_	Deplete	ed Dari	k Surface	(F7)	SIndia	cators of hydr	ophytic vegetation	and weltand
Sar	ndy Mucky Minera	(S1)		Redox	Depres	SSIONS (F	3)	hyd	rology must b	e present, unless d	isturbed or
^{5 Cl}	п миску Реаг ог	Peal (53)						-		problematic	
Restrictive	Layer (if observ	ved):									
Type:	<u>,</u>							Hydri	c soil present	t? Yes <u> </u>	lo <u>X</u>
Depth (inch	es):										
Remarks:											
Pocky											
ROCKy											
HYDROL	OGY										
Wetland Hy	drology Indicat	ors:									
Primary Ind	icators (minimum	of one is	required;	check all t	hat app	oly)		<u>Se</u>	econdary Indi	<u>cators (minimum of</u>	two required)
Surface	Water (A1)			Ac	quatic F	auna (B1	3)		Surface	Soil Cracks (B6)	
High Wa	ater Table (A2)			Tr	ue Aqu	atic Plant	s (B14)		Drainag	e Patterns (B10)	2)
Saturati	on (A3)			— Hy	ydroger	n Sulfide (Ddor (C1)	ing Deete	Dry-Sea	ason Water Table (C	2)
	nt Denosits (B2)			0	xiuizeu 3)	Rnizosph	eres on Liv	ing Rools	Saturati	on Visible on Aerial	Imagery (C9)
Drift De	nosits (B3)			(C	esence	e of Reduc	ed Iron (C	4)	Stunted	or Stressed Plants (
Algal M	at or Crust (B4)							•)	Geomo	rphic Position (D2)	,
Iron De	posits (B5)			Re	ecent Ir	on Reduc	tion in Tille	d Soils (C6)	FAC-Ne	eutral Test (D5)	
Inundat	on Visible on Aeri	al Imagery	r (B7)	Tł	nin Muc	k Surface	(C7)				
Sparsel	y Vegetated Conc	ave Surfac	ce (B8)	G	auge o	r Well Dat	a (D9)				
Water-S	Stained Leaves (BS	9)		Ot	ther (E)	kplain in R	emarks)				
Field Obser	vations:										
Surface wate	er present?	Yes	No _	X De	epth (in	ches):					
vvater table	present?	res			epth (in	ches):		Watlenst	wdroloo:	Nont? Va-	Ne Y
Saturation p	nesent?	165		<u> </u>	epin (in	cries):		wetland I	iyarology pre	sent? Tes	
Docoribo	oordod data (at	000 00000	monitori	a wall a	vrial at-	otoc cres	ious isses	Letional if a	vailables		
Describe re	corueu uata (stre	am gauge	, monitofii	ig well, ae	nai ph	olos, prev	nous inspe	ections), if al	allable.		
Remarks:											

Project/Site: US 31/SR 28	City/C	ounty:	Tipton/Tipt	on Sampling	Date:	8/19/2013	
Applicant/Owner: INDOT	-	State:	IN	Sampling	Point:	I1	
Investigator(s): Bowman, Winebrinner		Sectio	on,Townshi	o, Range:	Kempton, 12	2, 21N, 3E	
Landform (hillslope, terrace, etc.): Depressio	'n	Local re	elief (concav	/e, convex, none):	С	oncave	
Slope (%): < 1 Lat: 40.2752		Long:	86.135	Datum:	١	AD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy sub	ostratum		NWI	Classification:	N	one	
Are climatic/hydrologic conditions of the site typical for this tir	ne of the y	year? Yes	s X N	o (If no, exp	lain in remark	s)	
Are vegetation , soil , or hydrology signi	ficantly dis	sturbed?	Are "norr	mal circumstances" p	present? Ye	es X No	
Are vegetation , soil , or hydrology natu	rally proble	ematic?	remarks.)			
SUMMARY OF FINDINGS - Attach site map sh	nowing s	ampling po	int locatio	ons, transects, im	portant fea	tures, etc.	
Hydrophytic vegetation present? Yes							
Hydric soil present? Yes		Is the Samp	led Area				
Wetland hydrology present? Yes	,	within a Wet	land?	Yes X	No		
Remarks: (Explain alternative procedures here or in a ser	arate ren	ort)					
VEGETATION Use scientific names of plants.	•	,					
	osolute	Dominant	Indicator	Dominance Test	Worksheet		
Tree Stratum (Plot size: N/A) %	Cover	Species	Staus	Number of Dominan that are OBL, FACW	t Species /, or FAC:	2	(A)
2				Total Number of Do	minant		()
3				Species Across all S	Strata:	2	(B)
4				Percent of Dominan	t Species		
5				that are OBL, FACW	/, or FAC:	100.00%	(A/B)
	0 =	Total Cover		Durana la materia		4	
Sapling/Shrub straturr (Plot size: N/A)				Total % Cover of:	x worksnee	t	
2				OBL species	0 x 1 -	- 0	
3				FACW species	25 x 2 =	= <u>50</u>	
4				FAC species	90 x 3 :	= 270	
5				FACU species	0 x 4 =	= 0	
	0 =	Total Cover		UPL species	0 x 5 :	= 0	
Herb stratum (Plot size: 10)				Column totals	115 (A)	320 (B)	
1 Panicum virgatum	80	Y	FAC	Prevalence Index :	= B/A =	2.78	
2 Cyperus esculentus	25	Y	FACW				
3 Rumex crispus	10	<u>N</u>	FAC	Hydrophytic Veg	for Hydrophy	cators:	
				X 2 - Dominance	Test is >50%		
°				X 3 - Prevalence	Index is ≤3.0	1	
7				4 - Morphogical	Adaptations ¹	(Provide supporti	ing
8				data in Remarks	or on a separat	e sheet)	
9				Problematic Hy	drophytic Vege	etation ¹ (Explain)
10							
	115 =	Total Cover					
Woody vine stratum (Plot size: N/A) 1				¹ Indicators of hydric s present, unless distur	oil and wetland bed or problem	hydrology must atic	be
2	0 =	Total Cover		Hydrophytic vegetation present?	Yes X	No	
Remarks: (Include photo numbers here or on a separate s	sheet)						

Depth	Matrix	[Re	edox Feat	tures				
(Inches)	Color (moist)	%	Color (n	noist)	%	Type ¹	Loc ²	Tex	ture	Remarks
0-7	10YR 4/1	85	10YR	5/8	15	С	М	Sandy		
7-13	10YR 2/1	92	10YR	5/1	8	D	М	Sandy/Lo	am	
							·			
		·								-
							·			-
	Concentration) – Depleti	on RM-I	Roduco	d Matrix	MS – Ma	skod Sand	Grains	**Location:	PI – Pore Lining M – Matrix
Hvdric So	oil Indicators:	- Dopiou	011, 1111 – 1		a main,		oned Carlo	Indicat	ors for Pro	blematic Hvdric Soils ³ :
Hist	tisol (A1)			Sand	dy Gleyed	d Matrix (S4)	Co	ast Prairie F	Redox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2	2)	_	San	dy Redox	(S5)	,	Da	rk Surface (S7) (LRR K, L)
Bla	ck Histic (A3)		-	Strip	ped Matr	ix (S6)		5 c	m Mucky Pe	eat or Peat (S3) (LRR K, L, R
Hyc	drogen Sulfide (A	4)	-	Loar	ny Mucky	Mineral	(F1)	Iror	n-Manganes	se Masses (F12) (LRR K, L, F
Stra	atified Layers (A	5)	-	Loar	ny Gleye	d Matrix (F2)	Vei	ry Shallow D	Dark Surface (TF12)
2 cr	m Muck (A10)			K Depl	leted Mat	rix (F3)		Oth	ner (explain	in remarks)
Dep	pleted Below Da	rk Surface	(A11)	Red	ox Dark S	Surface (F	6)			
Thie	ck Dark Surface	(A12)		Depl	leted Darl	k Surface	e (F7)	³ Indic	ators of hyc	Irophytic vegetation and welt
Sar	ndy Mucky Mine	al (S1)		Red	ox Depres	ssions (F	8)	hydr	ology must	be present, unless disturbed
5 cr	m Mucky Peat o	Peat (S3)) –							problematic
strictive	Layer (if obser	ved):								
be:		,						Hydric	soil preser	nt? Yes X No
									•	
pth (inch	es):									
pth (inch marks:	es):									
pth (inch marks: Rocky	es):									
pth (inch marks: Rocky (DROL(es): OGY	fors								
pth (inch marks: Rocky (DROL) etland Hy	es): OGY /drology Indica	tors:	required:	check a	Ill that and				condary Inc	licotore (minimum of two road
pth (inch marks: Rocky (DROL) tiland Hy mary Ind	es): OGY /drology Indica icators (minimur Water (A1)	tors: n of one is	required;	check a	Ill that app	oly)	3)		condary Inc	licators (minimum of two requ
oth (inch marks: Cocky (DROL) tland Hy mary Ind Surface High W/	es): OGY /drology Indica icators (minimur Water (A1) ater Table (A2)	tors: n of one is	required;	check a	Ill that app Aquatic F	oly) Fauna (B1	3) s (B14)		condary Inc	dicators (minimum of two requested by the soil Cracks (B6)
oth (inch marks: Cocky (DROL)	es): OGY /drology Indica icators (minimur Water (A1) ater Table (A2) on (A3)	tors: n of one is	required;	check a	Il that app Aquatic F True Aqu Hydroger	oly) Fauna (B1 uatic Plant n Sulfide (3) s (B14) 2dor (C1)		condary Inc X Surfac Draina Drv-Se	licators (minimum of two req e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
oth (inch marks: Cocky (DROL)	es): OGY /drology Indica icators (minimur Water (A1) ater Table (A2) on (A3) farks (B1)	tors: n of one is	required;	check a	Il that app Aquatic F True Aqu Hydroger Oxidized	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph	3) s (B14) Ddor (C1) ieres on Liv		<u>condary Inc</u> X Surfac Draina Dry-Se Cravfis	licators (minimum of two requestions (minimum of two requestions) e Soil Cracks (B6) ge Patterns (B10) eason Water Table (C2) sh Burrows (C8)
oth (inch narks: Cocky DROL tland Hy nary Ind Surface High Wa Saturati Water M Sedime	es): OGY /drology Indica icators (minimur Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	tors: n of one is	required;	check a	Il that app Aquatic F True Aqu Hydroger Oxidized (C3)	<u>oly)</u> Fauna (B1 uatic Plant n Sulfide (Rhizosph	3) s (B14) Ddor (C1) ieres on Liv	ving Roots	Condary Inc X Surfac Draina Dry-Se Crayfis Satura	licators (minimum of two requestions (minimum of two requestions) e Soil Cracks (B6) ge Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery
oth (inch marks: Cocky Coch Cocky Cocky Cocky Cocky Cocky Cocky Cocky Cocky Cocky Cocky Co	es): DGY /drology Indica icators (minimur Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	tors: n of one is	required;	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence	oly) Fauna (B1 Iatic Plant n Sulfide (Rhizosph	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C-	ving Roots	Condary Inc X Surfac Draina Dry-Se Crayfis Satura Stunte	<u>dicators (minimum of two req</u> ue e Soil Cracks (B6) ge Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery (d or Stressed Plants (D1)
oth (inch marks: Cocky COCKy COCKy COCKy COCKy COCKY C	es): DGY vdrology Indica icators (minimur Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	tors: n of one is	required;	check a	Ill that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence	oly) Fauna (B1 autic Plant n Sulfide (Rhizosph e of Reduc	3) s (B14) Ddor (C1) ieres on Liv ced Iron (C-	ving Roots	Condary Inc X Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	dicators (minimum of two requested by two requested by two requested by two requested by two requested by two requested by two requested by two requested by two requested provided by two requested pro
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pth (inch marks: Rocky /DROL(>tland Hy mary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ild Obser rface wate turation p cludes ca scribe re marks:	es): /drology Indica icators (minimur Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aei y Vegetated Con Stained Leaves (E vations: er present? present? present? pillary fringe) corded data (str	tors: n of one is n of one is ial Imagery cave Surfact 19) Yes Yes Yes Yes am gauge	required; / (B7) ce (B8) No No 	check a	all that app Aquatic F True Aqu Hydroger Oxidized (C3) Presence Recent Ir Thin Muc Gauge of Other (E) Depth (in Depth (in Depth (in Depth (in	oly) Fauna (B1 uatic Plant n Sulfide (Rhizosph e of Reduc ron Reduc ck Surface r Well Dat xplain in F uches): uches): uches): uches):	3) s (B14) Ddor (C1) teres on Liv ced Iron (C4 ttion in Tille c (C7) a (D9) Remarks) <u>0 - 13 0 - 13</u> <u>0 - 13</u> vious inspe	ring Roots 4) d Soils (C6) Wetland h ections), if av	econdary Inc X Surfac Draina Dry-Se Crayfis Satura Stunte X Geome FAC-N	<u>dicators (minimum of two requ</u> e Soil Cracks (B6) ge Patterns (B10) eason Water Table (C2) sh Burrows (C8) tion Visible on Aerial Imagery (d or Stressed Plants (D1) orphic Position (D2) leutral Test (D5)

Project/Site: US 31/SR 28	City/0	County:	Tipton/Tip	oton Sampling	g Date:	8/7/2013	
Applicant/Owner: INDOT		State:	IN	Sampling	g Point:	I2	
Investigator(s): Barnard, Bowman, Winebrinner		Secti	on,Townshi	ip, Range:	Kempton, 1	2, 21N, 3E	
Landform (hillslope, terrace, etc.): Roadside Ditch	Side Slop	e Local r	elief (conca	ive, convex, none):		None	
Slope (%): <1 Lat: 40.2753		Long:	86.135	Datum:		NAD 83	
Soil Map Unit Name: Pn - Patton silty clay loam, sandy s	substratum		NWI	Classification:	١	None	
Are climatic/hydrologic conditions of the site typical for this	time of the	year? Ye	s X M	lo (lf no, exp	olain in remar	ks)	
Are vegetation , soil , or hydrology sig	gnificantly c	listurbed?	Are "nor	mal circumstances"	present? Y	′es X No	
Are vegetation , soil , or hydrology na	turally prob	lematic?	remarks	.)			
SUMMARY OF FINDINGS - Attach site map	showing	sampling p	oint locati	ons, transects, ir	nportant fe	atures, etc.	
Hydrophytic vegetation present? Yes							
Hydric soil present? No		Is the Samp	oled Area				
Wetland hydrology present? No		within a We	tland?	Yes	No	Х	
Remarks: (Explain alternative procedures here or in a s	enarate re	port)					
		pon.)					
VEGETATION Use scientific names of plants	S.			Deminence Tee	4 W /	4	
Trop Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance les		t	
1		Opecies	Olaus	that are OBL. FAC	Nt Species	2 (/	A)
2				Total Number of Do		(.,
3				Species Across all	Strata:	2 (8	B)
4		······································		Percent of Domina	nt Species		
5				that are OBL, FAC	W, or FAC:	100.00% (/	A/B)
-	0 =	Total Cover					
Sapling/Shrub stratum (Plot size: N/A)				Prevalence Inde	ex Workshe	et	
1		·······		Total % Cover of:	0 × 1	0	
3				CBL species	0 XI	= 0	
4		··········		FAC species	125 x 3	= 375	
5				FACU species	0 x 4	= 0	
	0 =	Total Cover		UPL species	0 x 5	= 0	
Herb stratum (Plot size: 10)				Column totals	125 (A)	375 (B)	
1 Festuca rubra	80	Y	FAC	Prevalence Index	= B/A =	3.00	
2 Plantago lanceolata	45	Y	FAC				
3				Hydrophytic Ve	getation Inc	licators:	
4				1 - Rapid Tes	t for Hydroph	ytic Vegetation	
5				X 2 - Dominanc	e Test Is $>50^{\circ}$	% 0 ¹	
7				4 - Morphogic	al Adaptations	u ¹ (Provide supporting	a
8				data in Remarks	s or on a separa	ate sheet)	9
9				Problematic H	ydrophytic Veg	getation ¹ (Explain)	
10		· · · · ·		I —			
	125 =	Total Cover					
Woody vine stratum (Plot size: N/A)				¹ Indicators of hydric	soil and wetlan	d hydrology must	be
1				present, unless distu	urbed or probler	natic	
2				Hydrophytic	.,		
	0 =	= I otal Cover		present?	Yes X	No	
Remarks: (Include photo numbers haro or on a soparat	a sheet)			<u> </u>			
nomano, (molude photo numbers here of on a separat	c sheet)						

Depth	ription: (Descr Matrix		cucpun	R	edox Fea	tures					•
(Inches)	Color (moist)	%	Color (moist)	%		Loc ²	Text	ture	F	Remarks
0-14	10YR 4/1	100									
1/-16	10VR 3/1	100							·		
14-10	10TK 3/1	100							"		
*Type: C = C	oncentration, D	= Depleti	on. RM =	Reduce	d Matrix.	MS = Ma	asked Sand	Grains.	**I ocation: P	I = Pore I in	ing. M = Matrix
Hydric So	il Indicators:		,					Indicate	ors for Probl	ematic Hydi	ric Soils':
Histi	sol (A1)			San	dy Gleye	d Matrix	(S4)	Coa	ast Prairie Re	dox (A16) (L	RR K, L, R)
Histi	c Epipedon (A2)		•	San	dy Redox	(S5)		Dar	rk Surface (S7	7) (LRR K, L)
Blac	k Histic (A3)		•	Strip	ped Mat	rix (S6)		5 ci	m Mucky Pea	t or Peat (S3	B) (LRR K, L, R
Hydr	ogen Sulfide (A4)	•	Loa	my Mucky	y Mineral	(F1)	Iron	n-Manganese	Masses (F1	2) (LRR K, L, F
Strat	ified Layers (A5)			Loa	my Gleye	d Matrix	(F2)	Ver	y Shallow Da	rk Surface (1	ΓF12)
2 cm	Muck (A10)		•	Dep	leted Mat	trix (F3)		Oth	ier (explain in	remarks)	
Depl	eted Below Dark	Surface	(A11)	Red	ox Dark S	Surface (F6)				
Thicl	k Dark Surface (/	412)		Dep	leted Dar	k Surface	e (F7)	³ Indic	ators of hydro	phytic veget	ation and welta
Sand	dy Mucky Minera	l (S1)		Red	ox Depre	essions (F	-8)	hydro	ology must be	e present, un	less disturbed
5 cm	Mucky Peat or I	Peat (S3)							I	problematic	
Restrictive I	Layer (if observe	ed):									
Туре:								Hydric	soil present	? Yes	No X
Depth (inche	s):					_					
Depth (inche Remarks:	s):					-					
Depth (inche Remarks:	s):					<u>.</u>					
Depth (inche Remarks:	s):					-					
Depth (inche Remarks: Rocky	s):										
Depth (inche Remarks: Rocky	s):										
Depth (inche Remarks: Rocky HYDROLC	s):					-					
Depth (inche Remarks: Rocky HYDROLC Wetland Hyd	s): DGY drology Indicato	ors:									
Depth (inche Remarks: Rocky HYDROLC Wetland Hyd Primary India	S): DGY drology Indicato cators (minimum	ors: of one is	required;	; check a	all that ap	- <u>ply)</u>	(2)		condary India	ators (minim	um of two requ
Depth (inche Remarks: Rocky HYDROLC Wetland Hyd Surface V High Wat	S): DGY drology Indicato cators (minimum Nater (A1) ter Table (A2)	ors: of one is	required	; check a	all that ap Aquatic	<u>ply)</u> Fauna (B	13)		condary Indic	ators (minim Soil Cracks (f	um of two requ 36)
Depth (inche Remarks: Rocky HYDROLC Wetland Hyd Primary Indic Surface V High Wat	S): DGY drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3)	ors: of one is	required;	; check a	all that ap Aquatic True Aqu	<u>-</u> <u>ply)</u> Fauna (B uatic Plan	13) ts (B14) Odor (C1)		condary Indic	ators (minim Soil Cracks (f Patterns (B'	um of two requ 36) 10)
Depth (inche Remarks: Rocky HYDROLC Wetland Hyd Primary Indic Surface V High Wat Saturatio Water Ma	S): DGY drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1)	ors: of one is	required;	; check a	all that ap Aquatic True Aq Hydroge Oxidized	<u>ply)</u> Fauna (B uatic Plan n Sulfide	13) ts (B14) Odor (C1) heres on Liv	Se	condary Indic X Surface Drainage Dry-Sea Cravfish	ators (minim Soil Cracks (f Patterns (B ⁷ son Water Ta Burrows (C8)	um of two requ 36) 10) ble (C2)
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Appendix H Early Coordination

Early Coordination Letter Sent Out Early Coordination Responses 100 North Senate Avenue Room N642 Indianapolis, Indiana 46204-2216 Phone: (317) 232-5348 Fax: (317) 233-4929



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

May 23, 2014

«FirstName» «LastName», «Title» «ServiceName» «Address1» «Address2» «City», «State» «Zip»

Re: Des. No.: 1382317, US 31 at SR 28 Interchange, Tipton County, IN

The Indiana Department of Transportation intends to construct an interchange at U.S. 31 and SR 28 in Tipton County to replace the signalized intersection there (Figures 1, 2, and 3 [graphics follow this letter]). The project is part of a broader effort to upgrade U.S. 31 to freeway status. The need is to improve the safety and mobility of U.S. 31 as a high-speed commerce corridor between Indianapolis and South Bend. The purpose is to rebuild the at-grade intersection of U.S. 31 and SR 28 as a grade-separated interchange to improve safety, reduce travel times, and promote economic development around the interchange area.

This letter is part of the early coordination phase of the environmental review process. We request comments from you in your area of expertise regarding any possible environmental effects. **Please use the above designation number (1382317) and description in your reply.** We will incorporate your comments into a study of the project's environmental impacts.

This project is located on U.S. 31, at SR 28, approximately four miles west of the City of Tipton, in Tipton County. This section of U.S. 31 is functionally classified as a Principal Arterial and is part of the National Highway System. SR 28 has a functional classification of Principal Arterial to the east of U.S. 31 and Minor Arterial to the west. SR 28 was added to the National Highway System as a MAP-21 Principal Arterial.

U.S. 31 is a four-lane divided highway with 12' travel lanes, 4' left shoulders, and 10' right paved shoulders, separated by a 50' grass depressed median. Side slopes are typically 2:1 or flatter. U.S. 31 and SR 28 are generally level. Partial access control right-of-way exists along both sides of U.S. 31. Posted speeds are 60 mph along U.S. 31 and 55 mph along SR 28.

SR 28 west of U.S. 31 is two lanes with 11' travel lanes and 4' paved shoulders. SR 28 east of U.S. 31 is three lanes, narrowing to two lanes east of CR 560 West, approximately 0.5 mile east of U.S. 31. The three-lane section of east SR 28 consists of two 12' travel lanes, a 14' left turn lane, and 8' paved shoulders. The approximate existing right-of-way is 180-200 feet along U.S. 31, 60 feet along west SR 28 and 80 feet along east SR 28.

U.S. 31 bridges Dixon Creek (west to east flow) with a pair of mainline structures approximately 0.25 mile south of SR 28. Both structures were last rehabilitated with a deck overlay in 1993 and are in fair to good condition (NBS ratings of the four primary structure elements are 6 or greater).

Figure 4 shows the project site, including Tucker Cemetery, Dixon Creek, and the recently completed Chrysler Transmission Plant.

<u>www.in.gov/dot/</u> An Equal Opportunity Employer Michael R. Spence, Governor Michael B. Cline, Commissioner «FirstName» «LastName» «Title» «ServiceName» May 23, 2014 Page 2 of 2

The Preferred Alternative, 5, will bridge SR 28 over U.S. 31 on an alignment just to the south of SR 28's present alignment (Figure 5). (Other alternatives have a similar total footprint, but Alternative 5 minimizes land needs and impacts.) The interchange design is a variation of a diamond with the eastbound to southbound movement via a loop ramp in the northwest quadrant, due to the presence of Tucker Cemetery in the southwest quadrant. The interchange limits will have full access control. Ramp ends will be served by roundabouts (Figure 6), which will have curb and gutter drainage. Chrysler will have direct egress from their facility in the northeast quadrant to the east roundabout.

The new interchange will include a new three-span independent ramp bridge over Dixon Creek for the northbound off ramp to SR 28. It would have a deck 32' wide and approximately 100' long.

The primary methods for maintaining traffic during construction will be via detour or maintaining traffic on temporary pavement. The nearest official state highway detours are SR 19 (five miles east of U.S. 31), and SR 26 (ten miles north of SR 28). Use of local roads instead would require an agreement between INDOT and Tipton County. Maintenance of traffic is assisted by the design of Alternative 5 because the bridge can be constructed off of the existing SR 28 alignment, as the approaches to the roundabouts can be skewed. This off-line construction will likely reduce the SR 28 traffic impacts to a short-duration detour as the roundabout approaches are tied into existing pavement.

Zoning and land use in the vicinity of the project is primarily agricultural (Figures 7 and 8), with commercial and industrial use at the project site. The northeast and southeast corners of the intersection have gas stations. There is also a restaurant on the southeast corner. There is vacant commercial land on the southwest corner, plus a motel. Of note, Chrysler Corporation has constructed its Tipton Transmission Plant in the northeast quadrant and is expected to expand its workforce from 200 to 850 in the coming years.

Permanent right-of-way expansion at this point is expected to involve on the order of 50 acres of land, involving 22 property owners and 10 relocations.

INDOT will soon be undertaking a Cemetery Development Plan to examine effects on Tucker Cemetery

URS subconsultant Shrewsbury & Associates will perform wetlands determinations. The INDOT Cultural Resources Section will investigate the areas of additional right-of-way for archaeological and historic resources for compliance with Section 106 compliance. The results of this investigation will be forwarded to the State Historic Preservation Officer for review and concurrence.

Environmental document approval is scheduled for completion in November 2014, with design complete by the end of the year. Real estate efforts are to conclude by September of 2015, with project letting in a similar timeframe.

Should we not receive your response within thirty (30) calendar days from the date of this letter, it will be assumed that your agency feels that there will be no adverse effects incurred as a result of the proposed project. However, should you find that an extension to the response time is necessary; a reasonable amount may be granted upon request. If you have any questions regarding this matter, please feel free to contact Ted Stone of The Corradino Group at 502.587.7221. Thank you in advance for your input.

Sincerely, ED STONG

Ted Stone The Corradino Group, Inc. 200 South Fifth, Suite 503N Louisville, Kentucky 40202

cc and Attachments - see following page

FirstName	LastName	Title	ServiceName	Address1	Address2	City	State	Zip	Red Flag	Other
		Field Supervisor	U.S. Fish and Wildlife Service	Bloomington Field Office	620 South Walker St.	Bloomington	IN 47	403-2121	X	
		State Conservationist	Natural Resource Conservation Service	6013 Lakeside Blvd.		Indianapolis	IN 46	278	0	P-106
		Office of Aviation	Indiana Department of Transportation	Room N955, IGC North	100 North Senate Ave.	Indianapolis	IN 46	204	4	ppend Q
		Regional Environmental Coordinator	National Park Service	Midwest Regional Office	601 Riverfront Dr.	Omaha	NE 68	102		
			Federal Highway Administration	Federal Office Bldg., Room 254	575 No. Pennsylvania St.	Indianapolis	IN 46	204	×	
		Environ. Coordinator, Div. of Fish and Wildlife	Indiana Dept. of Natural Resources	Room W264, IGC South	402 W. Washington St.	Indianapolis	IN 46	204	×	copies
		Field Environ. Officer, Chicago Reg. Office	U.S. Dept. of Housing & Urban Dev.	Metcalf Federal Bldg.	77 W. Jackson Blvd., Room 2401	Chicago	IL 60	604		
			Indiana Dept. of Environmental						> 1	Vellhead
		Chiet, Groundwater Section	Mgmt.	100 N. Senate Ave.		Indianapolis	IN 46	204	×	orm
		Environmental Scoping Mgr.	INDOT Greenfield District Office	32 S. Broadwav St.		Greenfield	IN 46	140-2247	×	
			Dept. of the Army, Louisville Dist.,	•						
		Chief, Environmental Resources	Corps of Eng.	ATTN: CEPMP-P-E	P.O. Box 59	Louisville	KY 40	201-0059	×	
		County Drain Board	Tipton County	101 E. Jefferson St.		Tipton	IN 46	072	×	
			Tipton County Economic							
Jeff	Sheridan	Executive Director	Development Corp.	136 E. Jefferson St.		Tipton	IN 46	072		
Tom	Dolesal	Vice President, Commercial Lender	First Farmers Bank & Trust	P.O. Box 690		Converse	IN 46	919-0690		
200	Morron		Tipton County Economic	136 E lofforcon Ct		Tinton	IN 16	620		
	VanRihher	Vice Dresident	Tinton County Commissioners	c/o Tinton County Auditor	101 E leffercon St	Tinton	IN 46	210		
Mike	Cline	Member	Tipton County Commissioners	c/o Tipton County Auditor	101 E. lefferson St.	Tipton	IN 46	072		
Phil	Heron	President	Tipton County Commissioners	c/o Tipton County Auditor	101 E. Jefferson St.	Tipton	IN 46	072		
Dennis	Henderson		Tipton County Council		101 E. Jefferson St.	Tipton	IN 46	072		
Beth	Roach		Tipton County Council		101 E. Jefferson St.	Tipton	IN 46	072		
Jason	Henderson	County Surveyor	Tipton County		101 E. Jefferson St., Rm 102	Tipton	IN 46	072		
Brett	Morris	Highway Dept. Director	Tipton County		101 E. Jefferson St.	Tipton	IN 46	072		
Don	Havens	Mayor	City of Tipton	113 Court Street	P.O. Box 288	Tipton	IN 46	072		
Kevin	Tolloty	Planning Director	Tipton County Plan Commission	101 E. Jefferson St. #111		Tipton	IN 46	072	×	
		VIA E-MAIL: IGSenvir@indiana.edu	Indiana Geological Survey						4	ppend. R
		http://www.in.gov/idem/envirorevi ew/hwy earlyenviroreview.html	Indiana Dept. of Environmental Mgmt.							
Rick	Clark	rclark@indot.in.gov	Public Hearings	Indiana Dept. of Transportation	100 N. Senate Ave.	Indianapolis	IN 46	204	×	

Graphics

- Figure 1 Project Location Figure 2 Ground Level Photos

- Figure 2 Ground Level Photos Figure 3 Topological Map Figure 4 Project Site Figure 5 Alternative 5 Layout Figure 6 Alternative 5 Roundabout Details Figure 7 Current Zoning Figure 8 Land Use Plan



Figure 1 - Project Location



Figure 2 – Topographic Map





Figure 4 - Project Site *Source:* **Google Earth.** 40°16′31.30″N 86°07′37.45″W. *Image date:* February 26, 2012



Figure 5 – Alternative 5 Layout

<u>Highlights:</u>

SR 28 Cross Section: Two 12' travel lanes (one lane per direction) + one 12-14' left turn lane (to match existing), 10' paved shoulders, 3:1 or flatter grade. Curbed sections will be required in and around the roundabouts.

SR 28 Profile grade: 3.5% grade

Ramp Cross Section: 16' ramp lane, 4' left paved and 8' paved right shoulders, 4:1 or flatter within clear zone.

Additional Right-of-way: 50.1 Acres, 22 Property

Owners, 10 relocations

Temporary R/W: 9.9 Acres

Lighting:Partial lighting at roundaboutsDrainage:OpenditchdrainageIntersection traffic control:Roundabouts

Tucker Cemetery Impact: Up to 20' of taking

Access for Chrysler Corporation: Relocated drive access to east roundabout

Design exceptions: None anticipated



Figure 6 – Alternative 5 Roundabout Details

Source: Engineering Report: Des 1382317



Figure 7 – Current Zoning

Source: Tipton County Comprehensive Plan Adopted July 12, 2013.





Source: Tipton County Comprehensive Plan Adopted July 12, 2013.

Ted Stone

From: Sent: To: Subject: McWilliams, Robin <robin_mcwilliams@fws.gov> Wednesday, June 18, 2014 10:50 AM Ted Stone Des. 1382317; US 31 at SR 28 interchange. Tipton County

Dear Mr. Stone,

This responds to your recent letter, requesting our comments on the aforementioned project.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (I6 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of I969, the Endangered Species Act of I973, and the U.S. Fish and Wildlife Service's Mitigation Policy.

Based on a review of the information you provided, the U.S. Fish and Wildlife Service has no objections to the project as currently proposed. This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. However, should new information arise pertaining to project plans or a revised species list be published, it will be necessary for the Federal agency to reinitiate consultation.

The northern long-eared bat (*Myotis septentrionalis*) (NLEB) is currently proposed for listing under the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). The final listing decision for the NLEB is expected in October 2014. At this time, no critical habitat has been proposed for the NLEB. The state of Indiana is within the known range of the NLEB. During the summer, NLEBs typically roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically \geq 3 inches dbh). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on presence of cavities or crevices or presence of peeling bark. It has also been occasionally found roosting in structures like barns and sheds (particularly when suitable tree roosts are unavailable). They forage for insects in upland and lowland woodlots and tree lined corridors. During the winter, NLEBs predominately hibernate in caves and abandoned mine portals. Additional habitat types may be identified as new information is obtained.

Pursuant to Section 7(a)(4) of the ESA, federal action agencies are required to confer with the Service if their proposed action is likely to **jeopardize** the continued existence of the NLEB (50 CFR 402.10(a)). Action agencies may also voluntarily confer with the Service if the proposed action may affect a proposed species. Species proposed for listing are not afforded protection under the ESA; however as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and "take" applies **regardless of an action's stage of completion**. If the agency retains any discretionary involvement or control over on-the-ground actions that may affect the species after listing, section 7 applies.

1

Based on the project description and information, we do not anticipate any adverse impacts to the northern long-eared bat. This precludes the need for further consultation on this species for this project under Section 7 of the Endangered Species Act (as amended).

We appreciate the opportunity to comment at this early stage of project planning. If project plans change such that fish and wildlife habitat may be affected, please recoordinate with our office as soon as possible. If you have any questions about our recommendations, please call (812)334-4261.

Sincerely,

Robin McWilliams Munson

Robin McWilliams Munson

U.S. Fish and Wildlife Service 620 South Walker Street Bloomington, Indiana 46403 812-334-4261 Fax: 812-334-4273

Temporary Schedule through July 28th Monday, Tuesday, Wednesday - 7:30a-4:00p Thursday - telework 8:30a-10:30a



June 12, 2014

Ted Stone The Corradino Group, Inc. 200 South Fifth, Suite 503N Louisville, Kentucky 40202

Dear Mr. Stone,

The proposed project regarding the construction of an interchange at US 31 and SR 28 in Tipton County, Indiana, as referred to in your letter received May 29, 2014, will cause a conversion of prime farmland.

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

If you need additional information, please contact Rick Neilson at 317-295-5875.

Sincerely,

ane F. Hardesty

JANE E. HARDISTY State Conservationist

Enclosures

U.S. DEPARTMENT OF AGRICULTURE Natural Resources Conservation Service

NRCS-CPA-106 (Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I (To be completed by Fea	leral Agency)		3. Date	of Land Evaluation	on Request		4. Sheet 1	of
1. Name of Project U.S. 31 @ SR	28 Interchange		5. Fede	ral Agency Involv	ed Feder	ral High	way Administra	ation
2. Type of Project Intersection to	interchange con	version	6. Cour	nty and State Ti	pton Co	unty, Inc	liana	
PART II (To be completed by NR	CS)		1. Date Request Received by NRCS 2. Person Completin 5-29-19 1. Date Request Received by NRCS					Ewn
 Does the corridor contain prime, unit (If no, the FPPA does not apply - Do 	que statewide or local i not complete addition	mportant farmland al parts of this form	? n).	YES A NO	Irrigated Average	rrigated Average Farm Size		
5. Major Crop(s)	×	6. Farmable Lar	nd in Gover	mment Jurisdiction	n • • •	7. Amou	nt of Farmland As D	efined in FPPA
A Name Offland Evaluation System II		Acres:	165,8	87 %/	00	Acre	s: 166,23	2 % 100
	seu	9. Name of Loca	ai Sile Asse	essment System		10. Date	Land Evaluation R	/4
PART III (To be completed by Federal Agency)				Alterna Corridor A	tive Corr	idor For S ridor B	Segment Corridor C	Corridor D
A. Total Acres To Be Converted Directly				50				
B. Total Acres To Be Converted India	rectly, Or To Receive	Services		0				
C. Total Acres In Corridor				5,120				
PART IV (To be completed by N	RCS) Land Evaluat	ion Information	1					
A. Total Acres Prime And Unique Fa	armland			24.4				
B. Total Acres Statewide And Local	Important Farmland	The second second		0				
C. Percentage Of Farmland in Cour	ity Or Local Govt. Uni	it To Be Converte	d	0.015				
D. Percentage Of Farmland in Govt.	Jurisdiction With Sam	e Or Higher Relat	ive Value	58				
PART V (To be completed by NRCS value of Farmland to Be Serviced of PART VI (To be completed by Fed	i) Land Evaluation Info or Converted (Scale of eral Agency) Corrido	ormation Criterion of 0 - 100 Points) or	Naximum	87				
Assessment Criteria (These criteri	ia are explained in 7	CFR 658.5(c))	Points					
1. Area in Nonurban Use			15	15				
2. Perimeter in Nonurban Use			10	10				
3. Percent Of Corridor Being Far	med		20	10				
4. Protection Provided By State	And Local Governmen	t	20	0				
5. Size of Present Farm Unit Cor	npared To Average		10	7				
6. Creation Of Nonfarmable Farm	nland		25	0				
7. Availablility Of Farm Support S	Services		5	5		9		
8. On-Farm Investments			20	4				
9. Effects Of Conversion On Far	m Support Services		25	1				
10. Compatibility With Existing Ag	ricultural Use		10	2				
TOTAL CORRIDOR ASSESSME	ENT POINTS		160	54	0		0	0
PART VII (To be completed by Fee	deral Agency)							
Relative Value Of Farmland (From	Part V)		100	87	0		0	0
Total Corridor Assessment (From F assessment)	Part VI above or a loca	al site	160	54	0		0	0
TOTAL POINTS (Total of above	2 lines)		260	141	0		0	0
1. Corridor Selected: Corridor A	2. Total Acres of Farr Converted by Proj 24.4	nlands to be 3 ect:	3. Date Of :	Selection:	4. Was	A Local Si YES [te Assessment Use	ed?

5. Reason For Selection:

STONE leo

Signature of Person Completing this Part:

DATE 10 JULY 2014

NOTE: Complete a form for each segment with more than one Alternate Corridor

THIS IS NOT A PERMIT

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

DNR #:	ER-17637	Request Received: May 29, 2014
Requestor:	The Corradin Ted Stone 200 South Fi Louisville, KY	o Group, Inc. fth, Suite 503N 1 40202
Project:		US 31 at SR 28 interchange construction, about 4 miles west of the City of Tipton; Des #1382317
County/Site in	fo:	Tipton
		The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.
		If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.
Regulatory As	sessment:	This proposal will require the formal approval of our agency for construction in a floodway pursuant to the Flood Control Act (IC 14-28-1), unless it qualifies for a bridge exemption (see enclosure). Please include a copy of this letter with the permit application if the project does not meet the bridge exemption criteria.
Natural Heritag	ge Database:	The Natural Heritage Program's data have been checked. To date, no plant or animal species listed as state or federally threatened, endangered, or rare have been reported to occur in the project vicinity.
Fish & Wildlife	Comments:	Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. A bank stabilization and revegetation plan should be submitted with the permit application, if required.
		For purposes of maintaining fish passage through a crossing structure, the Environmental Unit recommends bridges rather than culverts and bottomless culverts rather than box or pipe culverts. Wide culverts are better than narrow culverts, and culverts with shorter through lengths are better than culverts with longer through lengths. If box or pipe culverts are used, the bottoms should be buried a minimum of 6" (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2') below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the bankful width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width / length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel. The new, replacement, or rehabbed structure should not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions.
Attachmenter	A - Bridge Event	 The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources: 1. Revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion. 2. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction of the prevent sediment from entering the stream or leaving the construction
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THIS IS NOT A	PERMIT
	State of Indiana DEPARTMENT OF NATURAL RESOURCES Division of Fish and Wildlife Early Coordination/Environmental Assessment
	site; maintain these measures until construction is complete and all disturbed areas are stabilized. 3. Seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with erosion control blankets (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.
Contact Staff:	Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.

Date: June 18, 2014

Christie L. Stanifer Environ. Coordinator Division of Fish and Wildlife

Attachments: A - Bridge Exemption Criteria The Flood Control Act (IC 14-28-1) contains a provision (Section 22), which exempts certain bridge projects from its permitting requirement. Specifically, the Act states:

A permit is not required for "a construction or reconstruction project on a state or county highway bridge in a rural area that crosses a stream having an upstream drainage area of not more than fifty (50) square miles..."

Therefore, in order for a bridge project to be exempt, it must:

- be a state or county highway department project;
- be a bridge;
- be located in a rural area; and
- cross a stream having an upstream drainage area of less than 50 square miles.

The initial criterion is very specific - the structure must be a state or county highway department project.

The second requirement mandates that the project be a bridge (for this provision, the Department of Natural Resources considers a culvert to be a bridge). Projects such as bank protection, spoil disposal, borrow pits, etc. are not automatically exempt. Anyone proposing to undertake a non-bridge related activity should consult with the Division of Water's Technical Services Section staff at 317-232-4160 (or toll free at 1-877-928-3755) regarding the applicability of the exemption prior to initiating work.

The third criterion states that the project must be located in a rural area. The phrase "rural area" is defined as an area:

- where the lowest floor elevation, including a basement, of any residential, commercial, or industrial building impacted by the project is at least 2 feet above the 100 year flood elevation with the project in place;

- located outside the corporate boundaries of a consolidated or an incorporated city or town; and

- located outside of the territorial authority for comprehensive planning (generally, a 2 mile planning buffer around a city or town).

The final criterion limits the exemption to a project crossing a stream having an upstream drainage area of less than 50 square miles. The drainage area includes all land area contributing to runoff above the project site and is determined from the United States Geological Survey 7½ minute series quadrangle maps. The Department of Natural Resources will determine the drainage area upon written request.

This exemption has been grossly misunderstood and liberally applied in the past. As a result, the Department of Natural Resources is taking a firm stance on future violations. If challenged, it will be the responsibility of the person claiming the exemption to prove to the Department that all 4 criteria have been satisfied. Failure to do so will result in the Department initiating litigation with the potential for the imposition of fines in amounts up to \$10,000 per day.

Note: This exemption only applies to the Flood Control Act. If a bridge is to be constructed over a navigable waterway, or over or near a public freshwater lake, a permit will be required.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.



100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence Governor Thomas W. Easterly Commissioner

June 16, 2014

66-33 Mr. Ted Strong The Corrandino Group 200 South Fifth Street, Suite 503N Louisville, Kentucky 40202

Dear Mr. Strong:

RE: Wellhead Protection Area Proximity Determination Designation Number 1382317, Intersection Of US 31 And State Road 28, Tipton County

Upon review of the above referenced site, it has been determined that the site **is located** within a Wellhead Protection Area. This information is accurate to the best of our knowledge. However, there are in some cases, a few factors that could impact the accuracy of this determination. For example, some Wellhead Protection Area Delineations have not been submitted or many have not been approved by this office. In these cases, we use a 3,000 foot fixed radius buffer to make the proximity determination. To find the status of a Public Water Supply System's Wellhead Protection Area Delineation, please visit our tracking database at http://www.in.gov/idem/4289.htm.

Note, the Drinking Water Branch has launched a new self service feature which allows one to determine a wellhead proximity without submitting the application form. Use the following instructions: 1) Go to <u>http://idemmaps.idem.in.gov/apps/whpa/</u>; 2) Using the icon/tools in the upper right hand corner of the application, zoom to your site location or address; and 3) Once you have located your site of interest click on the "I" icon, and then using your mouse click on your location. The site wellhead protection area proximity determination will be displayed below the icon tools in the upper right hand corner of tool. In the future, please consider using this self service feature if it is suitable for your needs.



If you have any additional questions, please feel free to contact me at the address above or at (317) 234-7476.

Sincerely, < mus

James Sullivan, Chief Ground Water Section Drinking Water Branch Office of Water Quality

JS:gml

From:jcheard tds.netTo:Ted StoneSubject:Fwd: INDOT ProjectDate:Thursday, July 17, 2014 12:58:15 PM

Ted,

Here is our response from our Well Head person. Hope this is what you are after. Jeff Heard

----- Forwarded message ------

From: Northam, Tim <<u>tim.northam@peerlessmidwest.com</u>> Date: Thu, Jul 17, 2014 at 12:39 PM Subject: INDOT Project To: "jcheard@tds.net" <<u>jcheard@tds.net</u>>

Jeff,

I have no concerns regarding the taking of right of way and proposed construction layout as it relates to the West Well Field WHPA. However, INDOT should be aware that any preexisting soil/groundwater contamination encountered during construction (i.e. gas stations at the intersection of 31 and 28) will need to be addressed promptly. Also during construction, contractors working on this project (i.e. fueling, pesticide application, above ground chemical/fuel storage) must be diligent to reduce the potential for chemical and fuel spills. Secondary containment for fuel/chemical storage and training of construction personnel regarding best management practices for spill containment and cleanup, and spill reporting in the WHPA should be a requirement.

Tim Northam, PG

Sr. Hydrogeologist 17707 Sun Park Drive Westfield, IN 46074 (317) 896-2987 Office (317) 896-3748 Fax (317) 695-7639 Cell



Indiana Department of Environmental Management

IDEM > Proposed Roadway Letter



Indiana Department of Environmental Management

We make Indiana a cleaner, healthier place to live.

Mike Pence Governor

Thomas W. Easterly Commissioner 100 North Senate Avenue Indianapolis , Indiana 46206

(317) 232-8603 800) 451-6027 www.IN.gov/idem

The Corradino Group Ted Stone 200 S Fifth Street Suite 503N Louisville , IN 40202

, IN

Date

To Engineers and Consultants Proposing Roadway Construction Projects:

RE: INDOT Project Des 1382317. A full access-control interchange at US 31 and SR 28 in Tipton County will replace the signalized intersection, four miles west of the City of Tipton. The Preferred Alternative will bridge SR 28 over US 31 on an alignment just to the south of SR 28â€TMs present alignment. The interchange will be a diamond with a loop ramp in the northwest quadrant to avoid impacts to Tucker Cemetery in the southwest quadrant.

This letter from the Indiana Department of Environmental Management (IDEM) serves as a standardized response to enquiries inviting IDEM comments on roadway construction, reconstruction, or other improvement projects within existing roadway corridors when the proposed scope of the project is beneath the threshold requiring a formal National Environmental Policy Act-mandated Environmental Assessment or Environmental Impact Statement. As the letter attempts to address all roadway-related environmental topics of potential concern, it is possible that not every topic addressed in the letter will be applicable to your particular roadway project.

For additional information on specific roadway-related topics of interest, please visit the appropriate Web pages cited below, many of which provide contact information for persons within the various program areas who can answer questions not fully addressed in this letter. Also please be mindful that some environmental requirements may be subject to change and so each person intending to include a copy of this letter in their project documentation packet is advised to download the most recently revised version of the letter; found at: http://www.in.gov/idem/5283.htm.

To ensure that all environmentally-related issues are adequately addressed, IDEM recommends that you read this letter in its entirety, and consider each of the following issues as you move forward with the planning of your proposed roadway construction, reconstruction, or improvement project:

WATER AND BIOTIC QUALITY

 Section 404 of the Clean Water Act requires that you obtain a permit from the U.S. Army Corps of Engineers (USACE) before discharging dredged or fill materials into any wetlands or other waters, such as rivers, lakes, streams, and ditches. Other activities regulated include the relocation, channelization, widening, or other such alteration of a stream, and the mechanical clearing (use of heavy construction equipment) of wetlands. Thus, as a project owner or sponsor, it is your responsibility to ensure that no wetlands are disturbed without the proper permit. Although you may initially refer to the U.S. Fish and Wildlife Service National Wetland Inventory maps as a means of identifying potential areas of concern, please be mindful that those maps do not depict jurisdictional wetlands regulated by the USACE or the Department of Environmental Management. A valid jurisdictional wetlands determination can only be made by the USACE, using the 1987 Wetland Delineation Manual.

USACE recommends that you have a consultant check to determine whether your project will abut, or lie within, a wetland area. To view a list of consultants that have requested to be included on a list posted by the USACE on their Web site, see USACE <u>Permits</u> and <u>Public Notices (http://www.lrl.usace.army.mil/orf/default.asp</u>) and then click on "Information" from the menu on the right-hand side of that page. Their "Consultant List" is the fourth entry down on the "Information" page. Please note that the USACE posts all consultants that request to appear on the list, and that inclusion of any particular consultant on the list does not represent an endorsement of that consultant by the USACE, or by IDEM.

Much of northern Indiana (Newton, Lake, Porter, LaPorte, St. Joseph, Elkhart, LaGrange, Steuben, and Dekalb counties; large portions of Jasper, Starke, Marshall, Noble, Allen, and Adams counties; and lesser portions of Benton, White, Pulaski, Kosciusko, and Wells counties) is served by the USACE District Office in Detroit (313-226-6812). The central and southern portions of the state (large portions of Benton, White, Pulaski, Kosciosko, and Wells counties; smaller portions of Jasper, Starke, Marshall , Noble, Allen, and Adams counties; and lesser portions of Jasper, Starke, Marshall , Noble, Allen, and Adams counties; and all other Indiana counties located in north-central, central, and southern Indiana) are served by the USACE Louisville District Office (502-315-6733).

Additional information on contacting these U.S. Army Corps of Engineers (USACE) District Offices, government agencies with jurisdiction over wetlands, and other water quality issues, can be found at <u>http://www.in.gov/idem/4396.htm</u>. IDEM recommends that impacts to wetlands and other water resources be avoided to the fullest extent.

- 2. In the event a Section 404 wetlands permit is required from the USACE, you also must obtain a Section 401 Water Quality Certification from the IDEM Office of Water Quality Wetlands Program. To learn more about the Wetlands Program, visit: http://www.in.gov/idem/4384.htm.
- 3. If the USACE determines that a wetland or other water body is isolated and not subject to Clean Water Act regulation, it is still regulated by the state of Indiana . A State Isolated Wetland permit from IDEM's Office of Water Quality (OWQ) is required for any activity that results in the discharge of dredged or fill materials into isolated wetlands. To learn more about isolated wetlands, contact the OWQ Wetlands Program at 317-233-8488.
- 4. If your project will involve over a 0.5 acre of wetland impact, stream relocation, or other large-scale alterations to water bodies such as the creation of a dam or a water diversion, you should seek additional input from the OWQ Wetlands Program staff. Consult the Web at: http://www.in.gov/idem/4384.htm for the appropriate staff contact to further discuss your project.
- 5. Work within the one-hundred year floodway of a given water body is regulated by the Department of Natural Resources, Division of Water. The Division issues permits for activities regulated under the follow statutes:
 - IC 14-26-2 Lakes Preservation Act 312 IAC 11
 - IC 14-26-5 Lowering of Ten Acre Lakes Act No related code
 - IC 14-28-1 Flood Control Act 310 IAC 6-1
 - IC 14-29-1 Navigable Waterways Act 312 IAC 6
 - IC 14-29-3 Sand and Gravel Permits Act 312 IAC 6
 - IC 14-29-4 Construction of Channels Act No related code

For information on these Indiana (statutory) Code and Indiana Administrative Code citations, see the DNR Web site at: <u>http://www.in.gov/dnr/water/9451.htm</u>. Contact the DNR Division of Water at 317-232-4160 for further information.

The physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies should be limited to only that which is absolutely necessary to complete the project. The shade provided by the large overhanging trees helps maintain proper stream temperatures and dissolved oxygen for aquatic life.

6. For projects involving construction activity (which includes clearing, grading, excavation and other land disturbing activities) that result in the disturbance of one (1), or more, acres of total land area, contact the Office of Water Quality – Watershed Planning Branch (317/233-1864) regarding the need for of a Rule 5 Storm Water Runoff Permit. Visit the following Web page

 http://www.in.gov/idem/4902.htm

To obtain, and operate under, a Rule 5 permit you will first need to develop a Construction Plan (<u>http://www.in.gov</u>/<u>idem/4917.htm#constreq</u>), and as described in 327 IAC 15-5-6.5 (<u>http://www.in.gov/legislative/iac/T03270/A00150 [PDF]</u>, pages 16 through 19). Before you may apply for a Rule 5 Permit, or begin construction, you must submit your Construction Plan to your county Soil and Water Conservation District (SWCD) (<u>http://www.in.gov/isda/soil/contacts/map.html</u>).

Upon receipt of the construction plan, personnel of the SWCD or the Indiana Department of Environmental Management will review the plan to determine if it meets the requirements of 327 IAC 15-5. Plans that are deemed deficient will require re-submittal. If the plan is sufficient you will be notified and instructed to submit the verification to IDEM as part of the Rule 5 Notice of Intent (NOI) submittal. Once construction begins, staff of the SWCD or Indiana Department of Environmental Management will perform inspections of activities at the site for compliance with the regulation.

Please be mindful that approximately 149 Municipal Separate Storm Sewer System (MS4) areas are now being established by various local governmental entities throughout the state as part of the implementation of Phase II federal storm water requirements. All of these MS4 areas will eventually take responsibility for Construction Plan review, inspection, and enforcement. As these MS4 areas obtain program approval from IDEM, they will be added to a list of MS4 areas posted on the IDEM Website at: http://www.in.gov/idem/4900.htm.

If your project is located in an IDEM-approved MS4 area, please contact the local MS4 program about meeting their storm water requirements. Once the MS4 approves the plan, the NOI can be submitted to IDEM.

Regardless of the size of your project, or which agency you work with to meet storm water requirements, IDEM recommends that appropriate structures and techniques be utilized both during the construction phase, and after completion of the project, to minimize the impacts associated with storm water runoff. The use of appropriate planning and site development and appropriate storm water quality measures are recommended to prevent soil from leaving the construction site during active land disturbance and for post construction water quality concerns. Information and assistance regarding storm water related to construction activities are available from the Soil and Water Conservation District (SWCD) offices in each county or from IDEM.

- 7. For projects involving impacts to fish and botanical resources, contact the Department of Natural Resources Division of Fish and Wildlife (317/232-4080) for addition project input.
- 8. For projects involving water main construction, water main extensions, and new public water supplies, contact the Office of Water Quality Drinking Water Branch (317-308-3299) regarding the need for permits.
- 9. For projects involving effluent discharges to waters of the State of Indiana , contact the Office of Water Quality Permits Branch (317-233-0468) regarding the need for a National Pollutant Discharge Elimination System (NPDES) permit.
- 10. For projects involving the construction of wastewater facilities and sewer lines, contact the Office of Water Quality Permits Branch (317-232-8675) regarding the need for permits.

AIR QUALITY

The above-noted project should be designed to minimize any impact on ambient air quality in, or near, the project area. The project must comply with all federal and state air pollution regulations. Consideration should be given to the following:

1. Regarding open burning, and disposing of organic debris generated by land clearing activities; some types of open burning are allowed (http://www.in.gov/idem/4148.htm) under specific conditions. You also can seek an open burning variance from IDEM.

However, IDEM generally recommends that you take vegetative wastes to a registered yard waste composting facility or that the waste be chipped or shredded with composting on site (you must register with IDEM if more than 2,000 pounds is to be composted; contact 317/232-0066). The finished compost can then be used as a mulch or soil amendment. You also may bury any vegetative wastes (such as leaves, twigs, branches, limbs, tree trunks and stumps) onsite, although burying large quantities of such material can lead to subsidence problems, later on.

Reasonable precautions must be taken to minimize fugitive dust emissions from construction and demolition activities. For example, wetting the area with water, constructing wind barriers, or treating dusty areas with chemical stabilizers (such as calcium chloride or several other commercial products). Dirt tracked onto paved roads from unpaved areas should be minimized.

Additionally, if construction or demolition is conducted in a wooded area where blackbirds have roosted or abandoned buildings or building sections in which pigeons or bats have roosted for 3-5 years precautionary measures should be taken to avoid an outbreak of histoplasmosis. This disease is caused by the fungus Histoplasma capsulatum, which stems from bird or bat droppings that have accumulated in one area for 3-5 years. The spores from this fungus become airborne when the area is disturbed and can cause infections over an entire community downwind of the site. The area should be wetted down prior to cleanup or demolition of the project site. For more detailed information on histoplasmosis prevention and control, please contact the Acute Disease Control Division of the Indiana State Department of Health at (317) 233-7272.

2. The U.S. EPA and the Surgeon General recommend that people not have long-term exposure to radon at levels above 4 pCi/L. (For a county-by-county map of predicted radon levels in Indiana, visit: <u>http://www.in.gov/idem/4145.htm</u>.)

The U.S. EPA further recommends that all homes (and apartments within three stories of ground level) be tested for radon. If in-home radon levels are determined to be 4 pCi/L, or higher, EPA recommends a follow-up test. If the second test confirms that radon levels are 4 pCi/L, or higher, EPA recommends the installation of radon-reduction measures. (For a list of qualified radon testers and radon mitigation (or reduction) specialists visit: <u>http://www.in.gov/isdh/regsvcs/radhealth</u> /<u>pdfs/radon_testers_mitigators_list.pdf</u>.) It also is recommended that radon reduction measures be built into all new homes, particularly in areas like Indiana that have moderate to high predicted radon levels.

To learn more about radon, radon risks, and ways to reduce exposure visit: http://www.in.gov/isdh/regsvcs/radhealth/radon.htm,

http://www.in.gov/idem/4145.htm, or http://www.epa.gov/radon/index.html.

3. With respect to asbestos removal: all facilities slated for renovation or demolition (except residential buildings that have (4) four or fewer dwelling units and which will not be used for commercial purposes) must be inspected by an Indiana-licensed asbestos inspector prior to the commencement of any renovation or demolition activities. If regulated asbestos-containing material (RACM) that may become airborne is found, any subsequent demolition, renovation, or asbestos removal activities must be performed in accordance with the proper notification and emission control requirements.

If no asbestos is found where a renovation activity will occur, or if the renovation involves removal of less than 260 linear feet of RACM off of pipes, less than 160 square feet of RACM off of other facility components, or less than 35 cubic feet of RACM off of all facility components, the owner or operator of the project does not need to notify IDEM before beginning the renovation activity.

For questions on asbestos demolition and renovation activities, you can also call IDEM's Lead/Asbestos section at 1-888-574-8150.

However, in all cases where a demolition activity will occur (even if no asbestos is found), the owner or operator must still notify IDEM 10 working days prior to the demolition, using the form found at http://www.in.gov/icpr/webfile/formsdiv/44593.pdf.

Anyone submitting a renovation/demolition notification form will be billed a notification fee based upon the amount of friable asbestos containing material to be removed or demolished. Projects that involve the removal of more than 2,600 linear feet of friable asbestos containing materials on pipes, or 1,600 square feet or 400 cubic feet of friable asbestos containing material on other facility components, will be billed a fee of \$150 per project; projects below these amounts will be billed a fee of \$50 per project. All notification remitters will be billed on a quarterly basis.

For more information about IDEM policy regarding asbestos removal and disposal, visit: http://www.in.gov/idem/4983.htm.

- 4. With respect to lead-based paint removal: IDEM encourages all efforts to minimize human exposure to lead-based paint chips and dust. IDEM is particularly concerned that young children exposed to lead can suffer from learning disabilities. Although lead-based paint abatement efforts are not mandatory, any abatement that is conducted within housing built before January 1, 1978, or a child-occupied facility is required to comply with all lead-based paint work practice standards, licensing and notification requirements. For more information about lead-based paint removal visit: http://www.in.gov/isdh/19131.htm.
- 5. Ensure that asphalt paving plants are permitted and operate properly. The use of cutback asphalt, or asphalt emulsion containing more than seven percent (7%) oil distillate, is prohibited during the months April through October. See 326 IAC 8-5-2, Asphalt Paving Rule (http://www.ai.org/legislative/iac/T03260/A00080.PDF).
- 6. If your project involves the construction of a new source of air emissions or the modification of an existing source of air emissions or air pollution control equipment, it will need to be reviewed by the IDEM Office of Air Quality (OAQ). A registration or permit may be required under 326 IAC 2 (View at: www.ai.org/legislative/iac/t03260/a00020.pdf.) New sources that use or emit hazardous air pollutants may be subject to Section 112 of the Clean Air Act and corresponding state air regulations governing hazardous air pollutants.
- 7. For more information on air permits visit: <u>http://www.in.gov/idem/4223.htm</u>, or to initiate the IDEM air permitting process, please contact the Office of Air Quality Permit Reviewer of the Day at (317) 233-0178 or OAMPROD atdem.state.in.us.

LAND QUALITY

In order to maintain compliance with all applicable laws regarding contamination and/or proper waste disposal, IDEM recommends that:

- 1. If the site is found to contain any areas used to dispose of solid or hazardous waste, you need to contact the Office of Land Quality (OLQ)at 317-308-3103.
- 2. All solid wastes generated by the project, or removed from the project site, need to be taken to a properly permitted solid waste processing or disposal facility. For more information, visit http://www.in.gov/idem/4998.htm.
- 3. If any contaminated soils are discovered during this project, they may be subject to disposal as hazardous waste. Please contact the OLQ at 317-308-3103 to obtain information on proper disposal procedures.
- 4. If PCBs are found at this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding management of any PCB wastes from this site.
- 5. If there are any asbestos disposal issues related to this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding the management of asbestos wastes (Asbestos removal is addressed above, under Air Quality).
- 6. If the project involves the installation or removal of an underground storage tank, or involves contamination from an underground storage tank, you must contact the IDEM Underground Storage Tank program at 317/308-3039. See: <u>http://www.in.gov/idem/4999.htm</u>.

FINAL REMARKS

Should you need to obtain any environmental permits in association with this proposed project, please be mindful that IC 13-15-8 requires that you notify all adjoining property owners and/or occupants within ten days your submittal of each permit application. However, if you are seeking multiple permits, you can still meet the notification requirement with a single notice if all required permit applications are submitted with the same ten day period.

Should the scope of the proposed project be expanded to the extent that a National Environmental Policy Act Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required, IDEM will actively participate in any early interagency coordination review of the project.

Meanwhile, please note that this letter does not constitute a permit, license, endorsement or any other form of approval on the part of the Indiana Department of Environmental Management regarding any project for which a copy of this letter is used. Also note that is it the responsibility of the project engineer or consultant using this letter to ensure that the most current draft of this document, which is located at <u>http://www.in.gov/idem/5284.htm</u>, is used.

Sincerely,

Thomas W. Easterly

Commissioner

Signature(s) of the Applicant

I acknowledge that the following proposed roadway project will be financed in part, or in whole, by public monies.

Project Description

INDOT Project Des 1382317. A full access-control interchange at US 31 and SR 28 in Tipton County will replace the signalized intersection, four miles west of the City of Tipton. The Preferred Alternative will bridge SR 28 over US 31 on an alignment just to the south of SR 28âCTMs present alignment. The interchange will be a diamond with a loop ramp in the northwest quadrant to avoid impacts to Tucker Cemetery in the southwest quadrant.

With my signature, I do hereby affirm that I have read the letter from the Indiana Department of Environment that appears directly above. In addition, I understand that in order to complete that project in which I am interested, with a minimum of impact to the environment, I must consider all the issues addressed in the aforementioned letter, and further, that I must obtain any required permits.

Date:

Signature of the INDOT Project Engineer or Other Responsible Agent

Date:

Signature of the For Hire Consultant

Ted Stone



INDIANA GEOLOGICAL SURVEY 611 N. Walnut Grove Ave., Bloomington, IN 47405-2208 . (812) 855-7636 http://igs.indiana.edu • IGSinfo@indiana.edu

Project No._____ DES No. _____

Project Description US 31 at SR 28 Intersection to Interchange conversion

Tipton County

Name of Organization requesting early coordination:

Corradino for INDOT

QUESTIONNAIRE FOR THE INDIANA GEOLOGICAL SURVEY

Do unusual and/or problem () geographic, () geological, () geophysical, or 1) () topographic features exist within the project limits? Describe:

NO

- Have existing or potential mineral resources been identified in this area? 2) Describe: NO
- Are there any active or abandoned mineral resources extraction sites 3) located nearby? Describe: NO

This information was furnished by: mathanafa Marni D. Karaffa , Research Geologist 611 N Walnut Grove, Bloomington, IN 47405 (812) 855-7428 / (812) 855-2862 karaffam@indiana.edu

Wednesday, June 18, 2014

Appendix I Noise Report

From:	Bales, Ronald
To:	Muench, Tim
Cc:	Gary Mroczka; Ted Stone
Subject:	RE: Des 1382317 US 31 at SR 28 Final Noise Report and TNM files
Date:	Wednesday, November 19, 2014 1:09:19 PM
Attachments:	image002.png image003.png image004.png image005.png image006.png

A Traffic Noise Analysis report was completed by Corradino on November 18, 2014 for the US 31 at SR 28 Interchange Project, Tipton County, Indiana. The project will involve construction of a new interchange with full access control and a grade separation elevating SR 28 over U.S. 31. The project will also include roundabout terminals on SR 28 for the on- and off-ramps for U.S. 31.. The traffic noise analysis evaluated noise impacts and potential mitigation measures for this project.

The traffic noise analysis identified one (1) impacted receptor in the design year (2031). This receptor represents a single-family home with driveway access to U.S. 31, positioned right in front of the home. Due to the location of the drive, a noise barrier would not be feasible in this location.

Therefore we are not recommending noise barriers be included in this project. A reevaluation of the noise analysis will occur during final design. If during final it has been determined that conditions have changed such that noise abatement is feasible and reasonable, the abatement measures might be provided. The final decision on the installation of any abatement measures will be made upon the completion of the project's final design and the public involvement processes.

This e-mail serves as approval of the traffic noise analysis report.

Please let us know if you would like to view the full report or discuss further. Thank you.

Ron Bales

Senior Environmental Manager 100 North Senate Ave., Room 642 Indianapolis, IN 46204 Office: (317) 234-4916 Email: rbales@indot.in.gov



From: Ted Stone [mailto:Tstone@CORRADINO.com]
Sent: Tuesday, November 18, 2014 3:47 PM
To: Bales, Ronald
Cc: Gary Mroczka
Subject: RE: Des 1382317 US 31 at SR 28 Final Noise Report and TNM files

Ron – thanks for your prompt review. We made the requested changes. Below is a page by page response to comments.
CORRADINO

Noise Study Report

U.S. 31 and State Road 28 Interchange Tipton County, Indiana Des. #1382317

Submitted to:

URS Corporation



Submitted by: Corradino LLC, Inc.

TED STONE

Ted Stone

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- Appendix B Dwelling Unit Equivalent Calculations
- Appendix C TNM2.5 Results:
 - 2014 Existing 2031 No Build 2031 Build 2031 66dB(A) Line

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I:\Projects\4238 US 31\Noise\Draft Noise Report US31 11-12-14

Executive Summary

The project is located in Tipton County, Indiana, at the intersection of U.S. 31 and State Road 28, approximately four miles west of the city of Tipton. The project will involve construction of a new interchange with full access control and a grade separation elevating SR 28 over U.S. 31. The project will also include roundabout terminals on SR 28 for the on- and off-ramps for U.S. 31.

Because roadway capacity will be added through eliminating the traffic signal and a vertical alignment change, and federal funds are involved, under 23 CFR, part 772, the project is considered a "Type I" noise project. This means a noise analysis should be performed to determine whether the project will cause noise impacts and, if so, whether there are feasible and reasonable ways to mitigate those impacts.

This noise analysis follows the guidance in the Federal Highway Administration's (FHWA's) *Highway Traffic Noise: Analysis and Abatement Guidance* (December 2011) and the Indiana Department of Transportation's (INDOT's) *Procedural Manual for Preparing Environmental Documents* and its *Traffic Noise Analysis Procedure* (July 2011).

Noise measurements were made in conformance with FHWA's guidance at three locations, two on the west project leg and one on the south (Figure 2). Homes within 500 feet on the north leg of the project will be acquired, leaving no sensitive receptors. There are no homes or other sensitive receptors on the east leg of the project.

The Federal Highway Administration (FHWA) has developed Noise Abatement Criteria (NAC) that states have adopted (Table 1). These criteria guide how noise impacts are defined and thus, when abatement (mitigation) should be tested. Residential receptors fall into activity category B. The applicable noise criterion for this land use is 67 dB(A), defined in terms of the one-hour equivalent noise level, expressed as Leq (1h). Tucker Cemetery in the southwest project quadrant falls into Activity Category C, with the same criterion of 67 dB(A). Because Part 772 defines potential impacts in terms of noise levels approaching or exceeding the NAC and INDOT's *Traffic Noise Analysis Procedure* defines approaching as one decibel, the effective value for impact analysis in Indiana for activity categories B and C is 66 dB(A), rather than 67 dB(A). Commercial uses, including motels and restaurants, fall into NAC activity category E, with an effective criterion of 71 dB(A). Retail uses, together with industrial and trucking/logistics/warehousing, and agriculture are in NAC activity category F, for which there is no noise impact criterion.

Figure 1 Project Area



Source: ESRI and Corradino LLC

Activity Category	Activity Criteria L _{eq} (1h)	Description of Activity Category
А	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential, if the area is to continue to serve its intended purpose.
B*	67 (Exterior)	Residential.
C*	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
Е	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F		Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G		Undeveloped lands that are not permitted

 Table 1

 FHWA - Noise Abatement Criteria (NAC), Hourly A-Weighted Sound Level-decibels (dB(A))

* Includes undeveloped lands permitted for this activity category.

Source: Federal Highway Administration - 23 CFR 772.

Summary of Analysis

Existing Conditions – Analysis using the Traffic Noise Model (TNM2.5) validated the noise measurements obtained in the field within the standard 3 dB(A). Measurements in July 2014, ranged between 55 and 74 dB(A). Once the TNM2.5 noise model was validated for the measurement sites, additional receptors were tested in the corridor. Seven receptors were run in the TNM2.5 noise model, representing single-family homes and Tucker Cemetery.

No Build Alternative – The No Build Alternative (2031) would experience noise levels very similar to build noise levels because the project will not attract significant new traffic. Traffic is estimated to increase by less than one percent from 2014 to 2031.

Build Alternative – This alternative would result in noise levels ranging from 58 to 66 dB(A), with one receptor predicted by TNM2.5 to experience an impact. Additionally, with traffic increasing by less than one percent, a substantial impact will not occur. The criteria for a substantial impact is a 15.0 dB(A) increase. A 100% increase in traffic would only produce a 3 dB(A) increase.

Conclusions

Under the **Build Alternative**, no mitigation is required. One receptor was predicted by TNM2.5 to be impacted based on the new design and 2031 traffic estimates. Because this receiver represents a single-family home with driveway access to U.S. 31, positioned right in front of the home, a noise wall is not feasible in this location. The driveway is directly in the noise path between U.S 31 and the home.

Based on INDOT and (FHWA) guidelines, the thresholds for the opportunity for a public hearing include acquisition of greater than one-half acre of new right-of-way, substantial change to the layout or function of connecting roadways or the existing facility, substantial adverse impacts on abutting property, or significant social, economic, environmental or other effects. Because the proposed project will acquire 30+ acres of right-of-way a public hearing will be conducted.

A reevaluation of the noise analysis will occur during final design. If during final design it has been determined that conditions have changed such that noise abatement is feasible and reasonable, abatement measures might be provided. The final decision on the installation of any abatement measure(s) will be made upon the completion of the project's final design and the public involvement processes.

1. Project History and Project Background

This project is needed to address safety and mobility at the existing at-grade intersection. U.S. 31 is a highspeed commerce corridor connecting Indianapolis and South Bend. The signal will be replaced by a grade separated interchange that will improve safety, reduce travel times, and promote economic development in the project area.

Existing Infrastructure and Proposed Changes 2.

U.S. 31 is classified as a Principal Arterial and part of the National Highway System. SR 28 is classified as a Principal Arterial east of U.S. 31 and a Minor Arterial to the west. U.S. 31 is a four-lane divided highway with 12' travel lanes. SR 28 is a two-lane highway with 11' travel lanes. They are currently served by a signalized intersection. The preferred alternative will create a full access-controlled interchange and a grade separation with SR 28 passing over U.S. 31. Roundabouts will be added on both sides of U.S. 31 along SR 28 providing connections to on- and off-ramps. A direct connection will be added to the eastern roundabout for traffic exiting the Chrysler Plant and headed north. The project will also include a local access road from SR 28 to Tucker Cemetery in the southwest quadrant.

3. **Existing Noise Environment**

Project area land use is predominately farmland with industrial use in the northeast quadrant. The entire project area was considered a single Common Noise Environment as the project will make U.S. 31 a freeway section through the project length. The project area north-south is approximately one mile long. Terrain is consistently flat through the entire corridor.

Noise measurements were made in conformance with FHWA's guidance at four locations (Figure 2 and Appendix A). Table 2 indicates the relationship between the measurement sites and the receptors they represent.

Measurements Sites and Related Receptors							
Measurement Site	Single Family Homes	Cemetery					
North	0^1						
South	1	1 ²					
East	0 ³						
West	2						
Total Dwelling Un	4						

Table 2.				
Measuremen	ts Sites and Rela	ted Receptors		

Source: Corradino LLC

¹ A measurement was taken to validate the model, however the 3

homes at the north end of the project will be acquired by the project. ² The cemetery is considered to represent 1 equivalent dwelling unit

⁻ see Appendix B

³ Homes to the east, in the end, are more than 500' from the east project limit.

Seven receivers were modeled in the proposed project area. This included receptors representing 6 single-family homes and one cemetery equal to 1 dwelling unit equivalent (DUE). (See Appendix B for the calculations related to DUEs.) Traffic counts by vehicle type were collected during the noise measurements and were used to validate the model.

The noise measurement locations represent worst case locations for all sensitive receptors. The homes are subject to NAC B and the cemetery is subject to NAC C. In both cases this means 67 dB(A) less the approach factor of 1 dB(A), for an effective level of 66 dB(A).

As noted on the Noise Data Sheets in Appendix A, a Quest 2900 Sound Level Meter was used, set on slow response, and A-weighting. A Quest QC-20 Acoustic Calibrator emitting 94 dB(A) was used to calibrate the meter before and after the measurements (calibration certificates follow the Noise Data Sheets). The locations of the sites are as noted in Figure 2. The setup height was five feet on a tripod and the tripod was set away from reflective surfaces. All measurements and traffic counts were 15 minutes in duration. Leq (1h) and Lmax were recorded at each site.

Table 3 shows the noise levels measured July 31, 2014. More description is provided below for each individual site, and Noise Data sheets showing the field results and graphics are provided in Appendix A. The TNM2.5 computer model runs validated the field measurements within 3 dB(A).

2014 Measured vs. Modeled Noise Levels						
Measurement	2014 Measured	2014 Estimated	Difference			
Site	Level	Noise Level	Difference			
North	55.5	56.0	-0.5			
South	73.9	73.7	0.2			
East	60.3	60.7	-0.4			
West	68.2	70.1	-1.9			

Table 32014 Measured vs. Modeled Noise Levels

Source: Corradino LLC

Figure 2 Measurement Sites



Source: ESRI and Corradino LLC

North Measurement Site

This measurement was taken at the north end of the Chrysler parking lot, approximately 420' off of U.S. 31. This site was selected to represent the single family home north of the Chrysler property, however that property will be taken as part of the project. This site was still useful in validating the TNM2.5 noise model.



Source: ESRI and Corradino LLC

South Measurement Site

This measurement was taken approximately 50' off of U.S. 31 in the side yard of the single family home on this property. The location was chosen because it was the least intrusive location on the property.



Source: ESRI and Corradino LLC

East Measurement Site

This measurement was taken approximately 120' off of SR 28 next to the Chrysler Plant's service drive. This measurement represents two single-family homes immediately to the east.



Source: ESRI and Corradino LLC

West Measurement Site

This measurement was taken approximately 30' off of SR 28 directly across from two single-family homes. This site was chosen because it was less intrusive than measuring across the road in yards. The measurement represents three single-family homes on the south side of SR 28.



Source: ESRI and Corradino LLC

4. Analysis Methodology

This noise analysis follows the guidance in the Federal Highway Administration's (FHWA's) *Highway Traffic Noise: Analysis and Abatement Guidance* (July 2010) and the Indiana Department of Transportation's (INDOT's) *Traffic Noise Analysis Procedure* (July 2011).

Noise measurements were made in conformance with FHWA guidance at three locations that represent residences and a cemetery within 500 feet of the project area (the analysis distance criterion set in INDOT's *Traffic Noise Analysis Procedure*). The noise measurement locations generally represent worst case locations for all sensitive receptors in what are considered noise sensitive areas.

The residences fall into land use category B in terms of FHWA's Noise Abatement Criteria (NAC) (Table 1). The applicable noise criterion for this land use is 67 dB(A) in terms of the one-hour equivalent noise level, expressed as L_{eq} (1h). Because Part 772 defines potential impacts in terms of noise levels <u>approaching</u> or exceeding the NAC and INDOT's *Traffic Noise Analysis Procedure* defines approaching as one decibel, the effective value for impact analysis in Indiana for land use category B is 66 dB(A), rather than 67 dB(A). The cemetery falls into NAC land use category C, which is subject to the same NAC dB(A) criterion. Industrial and agriculture uses are in NAC activity category F, for which there is no noise impact criterion.

The FHWA approved TNM2.5 was used to model the noise measurement sites. Traffic counted during the noise measurements (2014) was used to validate the TNM2.5. The purpose of the validation process is to assure that site conditions, such as elevation, tree zones, ground zones, and terrain lines are properly accounted for in the model. All existing modeled values were within 3 dB(A) of the measured values, validating the TNM2.5 model (Table 3).

The TNM2.5 was used to estimate future (2031) build noise levels. TNM2.5 sound level results for all receivers can be found in Appendix C.

Traffic and Other TNM2.5 Input

URS provided 2014 and 2031 AADTs¹, as well as 2031 DHV and truck percentages. These amounts were used to determine traffic inputs for TNM2.5 (Table 4). The traffic amounts provided were split evenly between the northbound and southbound lanes for U.S. 31. Traffic was split evenly for eastbound and westbound SR 28.

On U.S. 31, the design speed of 70 mph was used for cars and motorcycles. 65 mph was used for trucks and buses, following current Indiana posted speed limits. On SR 28, 55 mph was used for the eastern and western ends of the project area. Adjustments were made to individual segments to represent realistic speeds in and between the roundabouts.

All receptors within 500 feet of the project area were modeled. The project area is open and flat and did not require terrain lines or tree zones.

¹URS, *Engineering Assessment*, U.S. 31 and State Road 28 Interchange, November 26, 2013.

Table 4
Traffic Inputs for TNM2.5
Build Conditions (2031)

U.S. 31							
Total DHV 2031	1840	NB (50%)	MPH	SB (50%)	MPH		
Auto		814	70	814	70		
Med		37	65	37	65		
Heavy		69	65	69	65		
Bus		4	65	4	65		
Moto		4	70	4	65		
SR 28 - Boonville-New	Harmon	ny Road					
SR 28 - Boonville-New Total DHV 2031	Harmon 644	ny Road EB (50%)	MPH	WB (50%)	MPH		
SR 28 - Boonville-New Total DHV 2031 Auto	Harmoi 644	ny Road EB (50%) 277	MPH 55	WB (50%) 227	MPH 55		
SR 28 - Boonville-New Total DHV 2031 Auto Med	Harmon 644	ny Road EB (50%) 277 16	MPH 55 55	WB (50%) 227 16	MPH 55 55		
SR 28 - Boonville-New Total DHV 2031 Auto Med Heavy	Harmon 644	ny Road EB (50%) 277 16 29	MPH 55 55 55	WB (50%) 227 16 29	MPH 55 55 55		
SR 28 - Boonville-New Total DHV 2031 Auto Med Heavy Bus	Harmon 644	ny Road EB (50%) 277 16 29 1	MPH 55 55 55 55 55	WB (50%) 227 16 29 1	MPH 55 55 55 55 55		

Source: Corradino LLC

5. Future Noise Environment

The project will have minimal effects on the noise environment, as the interchange addition will result in minimal traffic increases. The biggest change is that SR 28 will be elevated, projecting sound over a greater area. However, there are no receptors close enough to feel this effect. Meanwhile the earth embankment of SR 28 will block some noise from U.S. 31, but there is nothing near enough to feel that effect either. One receiver, on the south interchange leg, is predicted by TNM2.5 to reach a sound level of 66 dB(A). Figure 3 illustrates the location of receivers modeled in TNM2.5. The TNM2.5 model results may be found in Appendix C.

Conclusions

Under the **Build Alternative**, noise mitigation is not required. Noise walls were not tested, because the only receiver predicted by TNM2.5 to be impacted has a driveway accessing U.S. 31, making a noise wall not feasible. The house is on the south leg of the interchange, on the west side, and the driveway, which will remain as the access point to the home, is directly in front of the house.

Based on the studies thus far accomplished, the State of Indiana has not identified any locations where noise abatement is likely. A reevaluation of the noise analysis will occur during final design. If during final design it has been determined that conditions have changed such that noise abatement is feasible and reasonable, abatement measures might be provided. The final decision on the installation of any abatement measure(s) will be made upon the completion of the project's final design and the public involvement processes.

Figure3 Receivers Modeled in TNM 2.5



Source: ESRI and Corradino LLC

6. Construction Noise

It is difficult to predict levels of construction noise at a particular receptor or group of receptors. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. Daily construction normally occurs during daylight hours when people tolerate occasional loud noises. The duration for individual receptors should be short; therefore, there are no anticipated disruptions of normal activities. However, the project plans and specifications include provisions requiring the contractor to make every reasonable effort to minimize construction noise through abatement measure such as work-hour controls and maintenance of muffler systems.

7. Coordination with Local Officials

Consistent with 23 CFR 772.17, this report is being provided to Tipton County. The TNM2.5 indicates that the approximate distance from the outside edge of the near travel lane of U.S. 31 to a noise contour of 66 dB(A) is 150 feet.

This means that dwelling units and sensitive public uses such as parks, schools, and the like should not be approved for development within that buffer zone from U.S. 31.

APPENDIX A

NOISE MEASUREMENT DATA SHEETS AND CALIBRATION CERTIFICATES

NOISE DATA SHEET

						AM/PM	Site: North
Job Number: 4238					Date: 7-31-	14	
Project: US31						Day of Week	MTWTF
Instrumentation	Quest 2900	Sound Level Meter					
	Quest QC-2	20 Acoustic Calibrator @ 94 d	IB(A)		Calibration Cor	firmed	Yes/No
Location	420' off of	US 31 at north end of Chrysle	er parking lot			Temp.	69 F
Receptor Single family home			Sunny/ Clear Night/ Overcast Night				
Major Noise	US 31						
Source						Humidity	94 %
Secondary Source	Chrysler					Pavement	Dry/Wet
Land Use Category	A-57dB(A) Serene Park	<u>B&C-67dB(A)</u> Residential/Active Park/ Hosp/Church/Section 4(f)	E-72dB(A) Motels/Rest./ Offices/Devel.	F-NA Agric./Manuf./ Mainten./Retail	G-NA Undevel. lands not vet permitted	Wind	Upwind -1 to -5
						vvina	Calm –1 to +1 Downwind +1 to +5

	# Lanes	Lane Width	Median	Posted	*Observed
			Width	Speed	Speed
Major Road	4	12	45	60	60
Secondary Road					

Test 1 – 15 min.	From	8:46 am	То	9:01 am	
Decibel Reading	55.	6 L Aeq	6	3.3 L _{max}	
Traffia Valumas	Major Road		Secondary	Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB	
Cars	155	135			
Medium Trucks (3-axle)	11	3			
Heavy Trucks	15	14			
Buses	0	1			
Motorcycles	0	0			





NOISE DATA SHEET

						AM/PM	Site: South
Job Number: 4238						Date: 7-31-1	14
Project: US31						Day of Week	K MTWTF
Instrumentation	Quest 2900) Sound Level Meter					
	Quest QC-	20 Acoustic Calibrator @ 94 d	B(A)		Calibration Cor	firmed	Yes/No
Location	Approximat	tely 50' off of U.S. 31 in side y	ard			Temp. Heavy Over	75 F cast/Light Overcast/
Receptor	Single fami	ly home				Sunny/ Clear	Night/ Overcast Night
Represents							
Major Noise	US 31						
Source						Humidity	88 %
Secondary Source	Bugs						
						Pavement	Dry/Wet
Land Use Category	A-57dB(A) Serene Park	<u>B&C-67dB(A)</u> Residential/Active Park/ Hosp/Church/Section 4(f)	E-72dB(A) Motels/Rest./ Offices/Devel.	F-NA Agric./Manuf./ Mainten./Retail	G-NA Undevel. lands not vet permitted	Wind	Upwind -1 to -5
						vvina	Calm –1 to +1
							L) α wnwind +1 to +5

	# Lanes	Lane Width	Median	Posted	*Observed
			Width	Speed	Speed
Major Road	4	12	45	60	60
Secondary Road					

Toot 1 5 min	From	0.30 am	То	0.5	1 am
Test I – 5 mm.	FIUII	9.59 am	10	9.04	+ aiii
Decibel Reading	73.	9 L _{Aeq}	8	9.8	L _{max}
	Major F	Road	Secondary Road		
	NB/EB	SB/WB	NB/EB		SB/WB
Cars	126	155			
Medium Trucks (3-axle)	9	10			
Heavy Trucks	16	16			
Buses	0	0			
Motorcycles	2	0			





NOISE DATA SHEET

						AM/PM	Site: East
Job Number: 4238						Date: 7-31-	14
Project: US31						Day of Weel	K MTWTF
Instrumentation	Quest 290	0 Sound Level Meter					
	Quest QC	-20 Acoustic Calibrator @ 94 d	B(A)		Calibration Cor	nfirmed	Yes/No
Location	about 120	feet off of SR28 next to Chrysl	er service drive			Temp.	67 F
Location						Heavy Over	cast/Light Overcast/
Receptor	Single fam	Single family homes				Sunny/ Clear	Night/ Overcast Night
Represents							
Major Noise	SR 28						
Source						Humidity	100 %
Secondary Source	Chrysler						
						Pavement	Dry/Wet
Land Use Category	A-57dB(A)	<u>B&C-67dB(A)</u>	E-72dB(A)	F-NA	G-NA		Unwind the C
	Serene Park	Residential/Active Park/ Hosp/Church/Section 4(f)	Motels/Rest./	Agric./Manut./ Mainten /Retail	not vet permitted	\\//in-al	0pwinu - 1 10 – 5
L	. unit		0			vvina	Calm –1 to +1

	# Lanes	Lane Width	Median	Posted	*Observed
			Width	Speed	Speed
Major Road	2	11		45	45
Secondary Road					

Test 1 – 5 min.	From	8:19 am	То	8:34 am	
Decibel Reading	60.	3 L _{Aeq}	7	75.8 L mai	
	Major I	Road	Secondary Road		
	NB/EB	SB/WB	NB/EB	SB/WB	
Cars	32	33			
Medium Trucks (3-axle)	7	4			
Heavy Trucks	7	8			
Buses	0	0			
Motorcycles	0	0			





						AM/PM	Site: West
Job Number: 4238						Date: 7-31-	14
Project: US31						Day of Weel	K MTWTF
Instrumentation	Quest 2900	Sound Level Meter					
	Quest QC-2	20 Acoustic Calibrator @ 94 d	B(A)		Calibration Cor	firmed	Yes/No
Location	about 30 fe	et off of SR28 across from ho	mes		•	Temp.	63 F
LUCATION						Heavy Over	cast/Light Overcast/
Receptor	Single famil	Single family homes				Sunny/ Clear	Night/ Overcast Night
Represents							
Major Noise	SR 28						
Source						Humidity	94 %
Secondary Source	bugs						
						Pavement	Dry/Wet
Land Use Category	A-57dB(A)	<u>B&C-67dB(A)</u>	E-72dB(A)	F-NA	G-NA		Harded Alter 5
	Serene	Residential/Active Park/ Hosp/Church/Section 4(f)	Motels/Rest./	Agric./Manut./ Mainten /Retail	Undevel. lands		Upwind -1 to -5
<u> </u>	Tark		Onicco/Devel.	Mainten./Retail	not yet permitted	Wind	Calm –1 to +1
							Downwind +1 to +5

	# Lanes	Lane Width	Median	Posted	*Observed
			Width	Speed	Speed
Major Road	2	11		45	45
Secondary Road					

Test 1 – 5 min.	From	9:15 am	То	9:30 am		
Decibel Reading	68.	2 L Aeq	8	36.0 L max		
Traffia Valumas	Major F	Road	Secondar	Secondary Road		
	NB/EB	SB/WB	NB/EB	SB/WB		
Cars	22	17				
Medium Trucks (3-axle)	2	2				
Heavy Trucks	11	6				
Buses	0	0				
Motorcycles	0	0				





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Page 1 of 1 ASSET # 00 40183

Certificate of Calibration Certificate No: 5111198CD8080042

Submitted By:

ARGUS-HAZCO 434 ALEXANDERSVILLE RD MIAMISBURG, OH 45342-3658

Serial Number:	CD8080042	Date Received:	2/10/2014
Customer ID:	0040183	Date Issued:	2/18/2014
Model;	2900 SLM	Valid Until:	2/18/2015
Test Conditions:		Model Conditions	t
Temperature:	18°C to 29°C	As Found:	IN TOLERANCE
Humidity:	20% to 80%	As Left:	IN TOLERANCE
Barometric Pressure:	890 mbar to 1050 mbar		
SubAssemblies;			
Description:		Serial Number:	
MICROPHONE QE 7052 1	./2 IN. ELECTRET	38443	
TYPE 2 PREAMP		N/A	

Calibrated per Procedure:56V996

Reference Standard(s):

I.D. Numbaı	- Device
EF000105	QUEST-CAL
ET0000452	FLUKE 45 MULTIMETER
ET0000556	B&K ENSEMBLE
Measurement	Uncertainty:

+/- 2.2% ACOUSTIC (0.19DB)+/- 1.4% VAC +/- 0.1% VDC

Estimated at 95% Confidence Level (k=2)

Calibrated By:

Bethy	K	2/18/2014
BETHANY JOHNSON	Service Technician	

12/12/2013

2/18/2013 5/10/2013

Last Calibration Date Calibration Due 12/12/2013 12/12/2014

2/18/2015

5/10/2014

This report certifies that all calibration equipment used in the test is traceable to NIST, and applies only to the unit identified under equipment above. This report must not be reproduced except in its entirety without the written approval of 3M Detection Solutions.

098-393 Rev. B

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Page 1 of 1



0004407

Date Received: 3/19/2014

4/1/2014

4/1/2015

OUT OF TOLERANCE

IN TOLERANCE

Date Issued:

Valid Until:

Serial Number:

2/14/2014

As Found:

As Left:

Model Conditions:

Certificate of Calibration Certificate No: 550467200K010010

Submitted By:

ARGUS-HAZCO 434 ALEXANDERSVILLE RD MIAMISBURG, OH 45342-3658

QOK01.0010 Serial Number: Customer ID: QC-20 CALIBRATOR Model: Test Conditions: 18°C to 29°C Temperature:

Humidity: 20% to 80% Barometric Pressure: 890 mbar to 1050*mbar

SubAssemblies:

Description:

Calibrated per Procedure:56V982 Reference Standard(s): I.D. Number Device

ET0000556 B&K ENSEMBLE FLUKE 45 MULTIMETER T00230

Measurement Uncertainty: +/- 1.1% ACOUSTIC (0.1DB) +/- 1.4% VAC +/- 0.012% HZ

Estimated at 95% Confidence Level (k=2)

nu

Calibrated By:

ROBERT BURNS

4/1/2014

Last Calibration Date Calibration Due 5/10/2013 5/10/2014

2/14/2016

Service Technician

This report certifies that all calibration equipment used in the test is traceable to NIST, and applies only to the unit identified under equipment above. This report must not be reproduced except in its entirety without the written approval of 3M Detection Solutions.

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Certificate of Calibration Certificate No: 5111198HW0060028

Submitted By:

ARGUS-HAZCO 434 ALEXANDERSVILLE RD MIAMISBURG, OH 45342-3658

Serial Number:	HW0060028	Date Received:	2/10/2014
Customer ID:	ELM1073	Date Issued:	2/18/2014
Model:	OB-100 FILTER	Valid Until:	2/18/2015
Test Conditions:		Model Conditions	
Temperature:	18°C to 29°C	As Found:	IN TOLERANCE
Humidity:	20% to 80%	As Left:	IN TOLERANCE
Barometric Pressure:	890 mbar to 1050 mbar		,
SubAssemblies:			

Description:

Serial Number:

Calibrated per Procedure:59V735

Reference Standard(s): I.D. Number Device ET0000556 B&K ENSEMBLE

Measurement Uncertainty:

Last Calibration Date Calibration Due 5/10/2013 5/10/2014

2/18/2014

+/- 2.2% ACOUSTIC (0.19DB) Estimated at 95% Confidence Level (k=2)

Calibrated By:

BETHANY JOHNSON Service Technician

This report certifies that all calibration equipment used in the test is traceable to NIST, and applies only to the unit identified under equipment above. This report must not be reproduced except in its entirety without the written approval of 3M Detection Solutions.

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ASSET # ELMIO73

APPENDIX B

DWELLING UNIT EQUIVALENT CALCULATIONS

	Users per day	People in Average Household	Percent within 500'	DUEs
Cemetery	2	2.59	100	1
	4			`

DUE = ((Users per day)/(People per household)*(percentage)

APPENDIX C

TNM2.5 SOUND LEVEL RESULTS 2031

2014 Existing 2031 No Build 2031 Build 2031 66dB(A) Line

RESULTS: SOUND LEVELS									US31 Noi	se					
The Corradino Group		-							18 Noven	ber 2014		-			
John Bucher									TNM 2.5						
									Calculate	d with TNN	12.5				
RESULTS: SOUND LEVELS	-														
PROJECT/CONTRACT:		US31 N	loise			-5									
RUN:		US31 2	014 Exist	dng					N						
BARRIER DESIGN:		INPUT	HEIGHT	6						Average p	avement typ	e shall be us	sed unles	Ś	
										a State hi	ghway agenc	y substantia	ites the u	se	
ATMOSPHERICS:		68 deg	J F, 50% F	ЗH						of a differ	ent type with	approval of	FHWA.		
Receiver											-		-		
Name	No.	#DUs	Existing	I No Ba	urier						With Barrier				
			LAeq1h	LAeq	1h		Incre	ase over	existing	Type	Calculated	Noise Redu	Iction		
			,	Calcu	lated	Crit'n	Calci	ulated	Crit'n	Impact	LAeq1h	Calculated	Goal	ပီ	Iculated
	-								Sub'l Inc					Ē	nus
														ŏ	bal
X	-		dBA	dBA		4BA	đВ		dB	-	dBA	dB	dB	dB	
W1			0	0'	60.2	e	9	60.2	15		60.2	Ó	0	5	-2:0 -2:0
W2	2	4	0	0.0	58.8	9	, 9	58.8	15		58.5	Ö	0	ഹ	-5.0
W3	с 	·	0	0.0	59.1	9	9	59.1	15		59.1	Ó	0	5	-5.0
S1	4	4	0	0.0	64.7	9	9	64.7	15		64.7	Ö	0	S	-5.0
Ē	ŝ	÷-	0	0	60.1	Q	9	60.1	15		60.1	0	0	£	-5.0
E2	9	***	0	0.0	60.8	9	9	60.8	5	1	60.8	Ö	0	5	-5.0
East Test	6	-	0	0	61.2	9	9	61.2	15	i waadamaan	61.2	Ö	0	ß	-5.0
South Test	10	-	0	0.	68.8	Q	9	68.8	15	Snd Lvl	68.8	0		5	-5.0
Cemetery	1.	-	0	0	62.3	e	9	62.3	15	1	62.3	Ö	0	S	-5.0
West Test	12	-	0	0.	71.0	9	9	71.0	15	Snd Lvl	71.0	Ö	0	5 L	-5.0
North Test	13	-	0	0.	56.8	9	9	56.8	15	- -	56.8	0	0	2	-5.0
Dwelling Units		\$NC #	Noise F	Reductio	E										-
· · · · · · · · · · · · · · · · · · ·			Min	Avg		Мах	1					,			
			dB	đB		ąp									
All Selected		11	0	0	0.0	0.									
All Impacted		2	0	0.	0.0	o.	Q								
All that meet NR Goal			0	0.	0.0	Ö	0								

I: NPROJECTS/4238 US 31/NOISE/TNM/US31 EXISTING

18 Novembr

~

RESULTS: SOUND LEVELS								US31 No	oise			-		
The Corradino Group John Bucher					•			18 Nove TNM 2.5 Calculat	mber 2014 ed with TNI	M 2.5				
RESULTS: SOUND LEVELS PROJECT/CONTRACT:		US31 N	loise									-	-	
RUN: BARRIER DESIGN:		US31 2 INPUT	031 No Bu HEIGHTS	ild					Average	pavement typ	be shall be	used unles	Ś	
ATMOSPHERICS:		68 deg	F, 50% RI	т					a State h	ighway agenc rent type with	cy substar n approval	tiates the uror of FHWA.	se	·
Receiver														
Name	No.	#DUs	Existing	No Bari	ier					With Barrie	L			
			LAeq1h	LAeq1h			Increase ov	er existing	Type	Calculated	Noise Re	eduction		
i n				Calcula	ted C	rit'n	Calculated	Crit'n	Impact	LAeq1h	Calculat	ed Goal	Calc	ulated
								Sub'l Inc					min Goa	s _
			dBA	dBA	GI	BA	dB	đВ		dBA	dB	dB	ар Вр	
WI	1		60.2	0	60.4	99		0.2	5	60.	4	0.0	5	-5.0
W2	2		58.	0	59.0	96		0.2	1	59.	0	0.0	ۍ	-5.0
W3	ĉ	-	59.	-	59.3	96		0.2	5	59.		0.0	5	-5.0
S1	4	***	64.7	2	64.9	96	0	0.2	5	64	6	0.0	£	-5.0
E1 .	5	L	60.4	t	60.2	96	Y	0.2	1	60.	2	0.0	ہ ، ي	-5.0
E2	9	-	60.5	0	60.9	96		0.1	1	60.1	0	0.0	5	-5.0
Cemetery	11	-	62.5		62.5	96		0.2	2	62.	5	0.0	5	-5.0
Dwelling Units		# DUs	Noise Re	eduction										
			Min	Avg	2	lax					-			
			dB	dB	7	В	······							
All Selected		7	0.0		0.0	0.0								
All Impacted		0	0.0		0.0	0.0								
All that meet NR Goal		0	0.0	0	0.0	0.0								
• .													-	
						·		,						
		-									i			-
·												•	1	

I:\PROJECTS\4238 US 31\NOISE\TNM\US31 2031 No Build

18 Novembr

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RESULTS: SOUND LEVELS								ns	31 Noise						
The Corradino Group John Bucher	·							18 TNI Cal	Novemb M 2.5 Culated	er 2014 with TNM	2.5				
RESULTS: SOUND LEVELS PROJECT/CONTRACT:		US311	Voise							* .					
RUN: BARRIER DESIGN:		US31 2 INPUT	2031 Build HEIGHTS							Average p	avement typ	e shall be t	used unles	s	
ATMOSPHERICS:		68 de	g F, 50% R	т						State high	hway agenc nt type with	y substant approval c	iates the u of FHWA.	ISC	
Receiver															
Name	No.	\$NQ#	Existing	No Bari	rier						With Barrier				
			LAeq1h	LAeq1h			Increase	e over exis	sting	ype	Calculated	Noise Rec	fuction		
				Calcula	ted	rit'n	Calcula	ted Crit	ťn l	mpact	LAeq1h	Calculate	d Goal	Cal	culated
								Sut	o'l Inc					Ğ	urs al
			dBA	dBA	G	Å	dB	Вb			dBA	dB	дB	巴	
W1			1 60.	2	59.3	99	(0)	-0.9	15		59.5		0.0	5	-5.0
W2	~		1 58.	8	58.3	96	2	-0.5	15		58.3	-	0.0	5	-5.0
W3 .	0		59.	-	58.7	96	5	-0.4	15		58.7		0.0	5	-5.0
S1	ч		1 64.	7	66.1	96		1.4	15	Snd Lvl	66.1		0.0	£	-5.0
E1 .	40	,	60.	4	58.2	96	6	-2.2	15	1	58.2	-	0.0	5	-5.0
E2	e		1 60.	80	59.7	96		1.1	15		59.7	~	0.0	5	-5.0
Cemetery	S		1 62.	3	65.6	96		3.3	15		65.6	9	0.0	5	-5.0
Dwelling Units		*DU	Noise R	eduction	l	-	-								
			Min	Avg	N	ах									
			dB	dB	þ	В					-				
All Selected			0	0	0.0	0.0									
All Impacted		Ì	0	ó	0.0	0.0	~								
All that meet NR Goal			0	0	0.0	0.0									
				·						-					
													-		
-															7
														1	

1:\Projects\4238 US 31\Noise\TNM\US31 2031

18 November 2014

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Titue Currantino Crouti Titue 25 Calculatered 214 John Bueter John Bueter Titue 25 Titue 25 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with X2.5 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with X2.5 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with X2.5 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with X2.5 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with X2.5 RESULTS SCOND LEVELS US31 Able Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculatered virtue of with Laculate	RESULTS: SOUND LEVELS								IS31 Nois	e					
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120 22 1 0.0 67.2 66 67.2 66 67.2 10 70 67.2 0.0 5 -5.0 130 23 1 0.0 66.5 66 66.5 10 70 66.5 0.0 5 -5.0 140 24 1 0.0 66.5 66.6 66.6 66.6 10 70 66.5 0.0 5 -5.0 150 25 1 0.0 65.6 66.6 66.0 10 70 66.5 0.0 5 -5.0 160 25 1 0.0 65.6 66.0 66.0 10 70 -65.6 0.0 5 -5.0 170 26 1 0.0 64.9 66.0 64.9 10 -10 64.8 0.0 5 -5.0 170 27 1 0.0 64.9 66 64.8 10 -10 64.8 0.0 5 -5.0 170 28 1 0.0 64.8 66 64.8 10 -10 64.8 0.0 5 -5.0 170 29 10 0.0 64.8 0.0 64.8 0.0 66.6 -5.0 -5.0 180 29 10 0.0 64.8 0.0 64.8 0.0 -5.6 -5.0 190 10 0.0 63.1 10 -10 -10 -10 -10 -5.6 -5.0 200 31 10 <	110	21	1	0.0	67.	7	66	67.7	10	Snd Lv	1 67.	7	0.0	5	-5.0
1302310.066.56666.510Null66.50.055.01402410.066.066.066.010Null66.00.055.01502510.065.66666.010Snd Lul66.00.055.01602610.065.66666.010 $$ 66.00.055.01602710.064.96664.810 $$ 66.80.055.01702710.064.86664.810 $$ 66.80.055.0170272810.063.96663.910 $$ 64.80.05 -5.0 1802810.063.96663.910 $$ 64.80.05 -5.0 1902910.063.110 $$ 64.80.05 -5.0 2003010.063.110 $$ 64.80.05 -5.0 100510.063.110 $$ 64.80.05 -5.0 2003110.063.110 $$ 64.80.05 -5.0 2003210.063.110 $$ 66.3105 -5.0 <t< td=""><td>120</td><td>22</td><td>-</td><td>0.0</td><td>67.</td><td>2</td><td>66</td><td>67.2</td><td>10</td><td>Snd Lv</td><td>I 67.:</td><td>2</td><td>0.0</td><td>5</td><td>-5.0</td></t<>	120	22	-	0.0	67.	2	66	67.2	10	Snd Lv	I 67.:	2	0.0	5	-5.0
1402410.066.0 <td>130</td> <td>23</td> <td>-</td> <td>0.0</td> <td>66.</td> <td>2</td> <td>66</td> <td>66.5</td> <td>10</td> <td>Snd Lv</td> <td>1 66.</td> <td>2</td> <td>0.0</td> <td>5</td> <td>-5.0</td>	130	23	-	0.0	66.	2	66	66.5	10	Snd Lv	1 66.	2	0.0	5	-5.0
1502510.065.66665.610 $$ 65.60.05 -5.0 1602610.064.96664.910 $$ 64.90.05 -5.0 1702710.064.86664.810 $$ 64.80.051802710.064.86664.810 $$ 64.80.051802810.063.96663.910 $$ 64.80.051902910.063.66663.610 $$ 63.90.052003010.063.110 $$ 63.60.05 -5.0 2103110.062.56662.510 $$ 63.60.05 -5.0 2103210.062.36662.510 $$ 62.50.05 -5.0 2203310.062.310 $$ 62.50.05 -5.0 2303310.062.310 $$ 62.50.05 -5.0 2303310.062.310 $$ 62.30.05 -5.0 2303310.062.310 $$ 62.30.05 -5.0 2303310.062.310 <td>140</td> <td>24</td> <td>1</td> <td>0.0</td> <td>66.</td> <td>0</td> <td>66</td> <td>66.0</td> <td>10</td> <td>Snd Lv</td> <td>1 . 66.</td> <td>0</td> <td>0.0</td> <td>5</td> <td>-5.0</td>	140	24	1	0.0	66.	0	66	66.0	10	Snd Lv	1 . 66.	0	0.0	5	-5.0
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	160	26	-	0.0	64.	0	66	64.9	10	-	64.	6	0.p	5	-5.0
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	180	28	4	0.0	63.	6	66	63.9	10		63.	6	0.0	5	-5.0
200 30 1 0.0 63.1 66 63.1 10 63.1 0.0 5 -5.0 210 31 1 0.0 62.5 66 62.5 10 62.5 0.0 5 -5.0 220 32 1 0.0 62.3 66 62.3 10 62.5 0.0 5 -5.0 220 32 1 0.0 62.3 66 62.3 10 62.3 0.0 5 -5.0 230 33 1 0.0 62.0 66 62.3 10 62.3 0.0 5 -5.0 230 33 1 0.0 62.0 60 70 10 62.3 0.0 5 -5.0	190	29	-	0;0	63.	9	66	63.6	10	1	63.	6	0.0	5	-5,0
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220 32 1 0.0 62.3 66 62.3 10 62.3 0.0 5 -5.0 230 33 1 0.0 62.0 66 62.0 10 62.0 5 -5.0 230 33 1 0.0 62.0 66 62.0 10 62.0 0 5 -5.0	210	31	-	0.0	62.	5	66	62.5	10	-	62.	5	0.0	5	-5.0
230 230 33 1 0.0 62.0 66 62.0 10 62.0 0.0 5	220	32	-	0.0	62.	e	66	62.3	10	1	62.	e	0.0	5	-5.0
	230	33	1	0.0	62.	0	66	62.0	10	1	62.	0	0.0	.5	-5.0

2400 241 0 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 66 61.5 </th <th>RESULTS: SOUND LEVELS</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>SN</th> <th>31 Nois</th> <th>e</th> <th></th> <th></th> <th></th> <th></th>	RESULTS: SOUND LEVELS						SN	31 Nois	e				
	240	34	-	0.0	61.5	66	61.5	10		61.5	0.0	5	-5.0
	250	35	٢	0.0	61.1	66	61.1	10	-	61.1	0.0	5	-5.0
	10	36	-	0.0	78.5	99 .	78.5	10	Snd Lvl	78.5	0.0	5	-5.0
0 0 1 0.0 7.3 0.6 7.3 0.6 7.3 0.6 7.3 0.6	20	37	+	0.0	76.9	99	76.9	10	Snd Lvl	76.9	0.0	5	-5.0
(0) (0) (1) <t< td=""><td>30</td><td>38</td><td>-</td><td>0.0</td><td>75.7</td><td>99</td><td>75.7</td><td>10</td><td>Snd Lvl</td><td>75.7</td><td>0.0</td><td>5</td><td>-5.0</td></t<>	30	38	-	0.0	75.7	99	75.7	10	Snd Lvl	75.7	0.0	5	-5.0
00 40 1 0.0 7.3 66 7.3 10 7.3 00 5 00 41 1 00 7.10 66 7.10 10 7.10 00 5 6 00 42 1 00 7.10 66 7.10 10 5 10 5 5 00 44 1 00 7.10 66 7.10 10 5 6 5 100 44 1 00 67.1 66 67.1 10 57.1 00 6 <th6< th=""> <th6< th=""> 6 <th6< td=""><td>40</td><td>39</td><td>-</td><td>0.0</td><td>74.6</td><td>66</td><td>74.6</td><td>10</td><td>Snd Lvl</td><td>74.6</td><td>0.0</td><td>5</td><td>-5.0</td></th6<></th6<></th6<>	40	39	-	0.0	74.6	66	74.6	10	Snd Lvl	74.6	0.0	5	-5.0
	50	40	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	5	-5.0
	60	41	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	5	-5.0
(0) <t< td=""><td>20</td><td>42</td><td>-</td><td>0.0</td><td>71.0</td><td>66</td><td>71.0</td><td>10</td><td>Snd Lvl</td><td>71.0</td><td>0.0</td><td>5</td><td>-5.0</td></t<>	20	42	-	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	5	-5.0
(0) <t< td=""><td>80</td><td>43</td><td><u> </u></td><td>0.0</td><td>70.0</td><td>66</td><td>70.0</td><td>10</td><td>Snd Lvl</td><td>70.0</td><td>0.0</td><td>5</td><td>-5.0</td></t<>	80	43	<u> </u>	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	5	-5.0
	06	44	1	0.0	.69.1	66	69.1	10	Snd Lvl	69.1	0.0	5	-5.0
	. 100	45	-	0.0	68.5	66	68.5	.10	Snd Lvl	68.5	0.0	5	-5.0
	110	46	+	0.0	67.6	66	67.6	10	Snd Lvi	67.6	0.0	5	-5.0
	120	47	-	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	2	-5.0
140 140 1 0.0 65.6 65.6 10 65.6 0.0 5 6 <th6< th=""> <th6< th=""> <th6< th=""> <th6< th=""> <th6< th=""></th6<></th6<></th6<></th6<></th6<>	130	48	~	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	5	-5.0
150 150 15 10 654 66 654 10 $$ 654 00 654 00 654 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 645 00 653 10 $$ 645 00 56 10 00 633 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 10 $$ 637 1	140	49	~	0.0	65.8	99	65.8	10		65.8	0.0	5 2	-5.0
160 161 1 0.0 6.4.5 6.6 6.4.5 10 6.4.5 0.0 6 6.5 1770 52 1 0.0 6.3.5 66 6.3.7 10 6.4.5 6.5 </td <td>150</td> <td>50</td> <td>-</td> <td>0.0</td> <td>65.4</td> <td>99</td> <td>65.4</td> <td>10</td> <td></td> <td>65.4</td> <td>0.0</td> <td>21</td> <td>-5.0</td>	150	50	-	0.0	65.4	99	65.4	10		65.4	0.0	21	-5.0
170 12 1 0.0 64.5 66 64.5 10 64.5 0.0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 0 5 0 0 5 0	160	51	-	0.0	64.6	99	64.6	10		64.6	0.0	5	-5.0
180 53 1 0.0 63.7 16 $$ 63.7 10 $$ 63.7 0.0 63.7 0.0 63.7 $$ 63.7 0.0 63.7 $$ 63.7 $$ 63.7 $$ 63.7 0.0 63.7 $$ 63.7 $$ 63.7 $$ 63.7 0.0 63.7 $$ 63.7 0.0 63.7 $$ 63.7 0.0 63.7 $$ 63.7 0.0 $$ $ $	170	52	-	0.0	64.5	99	64.5	10		64.5	0.0	5	-5.0
100 54 1 0.0 63.4 10 63.4 10 63.4 0.0 5 0.0 5 0.0 5 0.0 5 0.0 5 0.0 5 1 0.0 62.1 0.0 5 0.0	180	53	-	0.0	63.7	66	63.7	10		63.7	0.0	5	-5.0
200 20 62.7 66 62.7 10 $$ 62.7 0.0 5 $$ 0.0 0.0 5 $$	190	54	~	0.0	63.4	99	63.4	10		63.4	0.0	5	-5.0
210 510 62.4 66 62.4 10 $$ 62.4 0.0 6 -5.0 2200 230 67 1 0.0 62.1 66 62.1 10 $$ 62.4 0.0 6 -5.0 230 230 67 1 0.0 61.1 0.0 $$ 61.0 0.0 5 5.0 240 56 1 0.0 61.0 0.0 61.0 0.0 5 -5.0 240 56 1 0.0 61.0 0.0 61.0 0.0 5 -5.0 210 56 1 0.0 74.6 56 74.6 74.0 77.0 0.0 5 -5.0 20 56 7 10 56 74.6 10 56 7.0 56 -5.0 20 56 7 10 56 74.0 56 -5.0 -5.0 -5.0	200	55	1	0.0	62.7	99	62.7	10		62.7	0.0	2	-5.0
220 57 1 0.0 62.1 66 62.1 10 62.1 0.0 5 -5.0 230 230 56 1 0.0 61.6 10 61.6 0 5 -5.0 240 56 1 0.0 61.2 66 61.0 61.6 0.0 5 -5.0 250 50 1 0.0 61.2 66 71.0 10 61.6 0.0 5 -5.0 20 62 1 0.0 61.2 66 77.0 10 54.1 7.0 0.0 5 -5.0 20 62 1 0.0 73.3 66 73.3 10 54.1 7.0 0.0 5 -5.0 20 65 1 0.0 73.3 66 73.3 10 54.1 7.0 0.0 5 -5.0 20 65 73<	210	56	-	0.0	62.4	99	62.4	10		62.4	0.0	2 L	-5.0
230 230 61 0.0 61.6 0.0 61.6 0.0 61.6 0.0 61.6 0.0 61.6 0.0 61.6 0.0 61.0	220	57	-	0.0	62.1	99	62.1	10		62.1	0.0	5	-5.0
240 240 61 0 61 0 61.2 66 61.2 66 61.2 61.2 0.0 51.0 56 56.0 250 60 1 0.0 61.0 61.0 61.0 0.0 5 -5.0 10 60 1 0.0 71.0 66 71.0 73.6 0.0 5 -5.0 20 65 1 0.0 77.0 66 77.0 73.6 0.0 5 -5.0 30 65 1 0.0 77.9 66 77.9 77.6 0.0 67 5 -5.0 50 65 7 10 77.6 10 5.44 77.6 0.0 5 -5.0 50 66 7 10 74.6 0.0 6 -5.0 50 67 1 73.3 10 5.04 7.0 0.0 5 -5.0 60 1	230	58	-	0.0	61.6	66	61.6	9		61.6	0.0	5	-5.0
250 610 61 61.0 77.0 00.0 51.0 50.0 30 62 1 0.0 77.0 60.0 77.0 0.0 51.0 50.0 30 63 1 0.0 77.0 66.0 74.6 66.0 77.0 0.0 51.0 50.0 40 67 1 0.0 77.3 66 77.0 10 50.0 51.0 50.0 51.0 50.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0 <	240	59		0.0	61.2	99	61.2	10		61.2	0.0	2	-5.0
10 10 78.6 66 78.6 10 86.1 77.0 66 77.0 66 77.0 66 77.0 66 77.0 66 77.0 66 77.0 66 77.0 77.0 66 77.0 77.0 77.0 77.0 66 77.0 77.0 77.0 67.0 77.0 67	250	. 09	v	0.0	61.0	99	61.0	10		61.0	0.0	5	-5.0
20 20 63 1 0.0 77.0 66 77.0 10 $8nd Lvi$ 77.0 0.0 5 -5.0 30 64 1 0.0 75.8 66 75.8 10 $8nd Lvi$ 75.8 0.0 5 -5.0 40 65 1 0.0 74.6 66 74.6 66 74.6 0.0 5 -5.0 50 66 1 0.0 74.6 66 74.6 66 74.6 0.0 5 -5.0 50 66 1 0.0 73.3 66 73.3 10 $8nd Lvi$ 73.3 0.0 5 -5.0 50 66 1 0.0 73.3 66 73.3 10 $8nd Lvi$ 73.3 0.0 5 -5.0 50 60 71.9 66 71.9 66 71.9 10 $8nd Lvi$ 70.7 0.0 5 -5.0 70 70 70 70 70 70 70 70 70 70 5 -5.0 80 1 0.0 68.7 66 68.7 10 $8nd Lvi$ 70.7 0.0 5 -5.0 10 71 1 0.0 68.7 66 68.7 10 $8nd Lvi$ 70.7 0.0 5 -5.0 10 71 1 0.0 68.7 10 $8nd Lvi$ 70.7 0.0 5 -5.0 10 1	10	62	-	0.0	78.6	66	78.6	10	Snd, Lvl	78.6	0.0	2	-5.0
30 30 56 75.8 66 75.8 10 $8nd Lvi$ 75.8 0.0 5 -5.0 40 65 1 0.0 74.6 66 74.6 10 $8nd Lvi$ 74.6 0.0 5 -5.0 50 66 1 0.0 73.3 66 73.3 66 73.3 10 $8nd Lvi$ 73.3 0.0 5 -5.0 50 67 1 0.0 71.9 66 71.9 66 71.9 70.7 0.0 5 -5.0 70 68 1 0.0 71.9 66 71.9 10 $8nd Lvi$ 70.7 0.0 5 -5.0 80 70 70 68 71.9 66 71.9 10 $8nd Lvi$ 70.7 0.0 5 -5.0 80 10 0.0 71.9 10 $8nd Lvi$ 70.7 0.0 6 -5.0 80 10 0.0 68.1 66 68.1 10 $8nd Lvi$ 70.7 0.0 5 -5.0 90 71 10 0.0 68.1 66 68.1 10 $8nd Lvi$ 70.7 0.0 5 -5.0 10 10 10 $8nd Lvi$ 70.7 10 <td>20</td> <td>63</td> <td>-</td> <td>0.0</td> <td>77.0</td> <td>99</td> <td>77.0</td> <td>10</td> <td>Snd Lvl</td> <td>77.0</td> <td>0.0</td> <td>2</td> <td>-5.0</td>	20	63	-	0.0	77.0	99	77.0	10	Snd Lvl	77.0	0.0	2	-5.0
40 40 65 1 0.0 74.6 66 74.6 0.0 5 -5.0 50 66 1 0.0 73.3 66 73.3 10 $Md Lvl$ 73.3 0.0 5 -5.0 60 67 1 0.0 73.3 66 73.3 10 $Md Lvl$ 73.3 0.0 5 -5.0 60 67 1 0.0 71.9 66 71.9 10 $Md Lvl$ 73.3 0.0 5 -5.0 70 68 1 0.0 71.9 66 71.9 10 $Md Lvl$ 71.9 0.0 5 -5.0 70 69 1 0.0 69.7 66 71.9 10 $Nd Lvl$ 70.7 0.0 5 -5.0 90 71 1 0.0 68.1 70.7 10 $Nd Lvl$ 70.7 0.0 5 -5.0 10 71 1 0.0 68.1 66 68.3 10 $Nd Lvl$ 70.7 0.0 5 -5.0 10 71 1 0.0 68.1 66 68.3 10 $Nd Lvl$ 70.7 0.0 5 -5.0 10 71 1 0.0 68.1 66 68.3 10 $Nd Lvl$ 68.7 0.0 5 -5.0 10 72 1 0.0 66.7 66 68.1 10 $Nd Lvl$ 66.7 0.0	30	64	-	0.0	75.8	66	75.8	10	Snd Lvl	75.8	0.0	5	9.0 9
50 66 1 0.0 73.3 66 73.3 66 73.3 0.0 5 -5.0 60 67 1 0.0 71.9 66 71.9 70 71.9 00 5 -5.0 70 68 1 0.0 71.9 66 70.7 70 70.9 65 -5.0 70 68 1 0.0 68.1 69.7 66 69.7 0.0 65 -5.0 80 70 10 80.1 10 80.1 70.7 0.0 5 -5.0 90 71 1 0.0 68.1 66 68.1 10 80.1 60.7 60 50 50 100 72 1 0.0 68.1 10 80.1 60.1 60.1 60.1 60.1 60.1 60.1 60.1 60.1	40	65	1	0.0	74.6	66	74.6	10	Snd Lvl	74.6	0.0	5	-2.O
60 71.9 66 71.9 70 71.9 71.9 71.9 70.7	50	66	.	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	5	-5.0
70 70 66 70.7 66 70.7 10 No.1 70.7 0.0 5 -5.0 80 69 1 0.0 69.7 66 69.7 10 No.1 69.7 0.0 5 -5.0 90 70 1 0.0 69.7 66 69.7 10 No.1 69.7 0.0 5 -5.0 90 70 1 0.0 68.8 66 68.8 10 No.1 68.7 0.0 5 -5.0 100 73 1 0.0 68.1 66 68.1 10 Snd Lvl 68.8 0.0 5 -5.0 110 73 7 0.0 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 120 73 1 0.0 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 130 74 1 5 66.7	60	67	-	0.0	71.9	66	71.9	10	Snd Lvl	71.9	0.0	5	-5.0
80 69 1 0.0 69.7 66 69.7 10 51 69.7 50 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 53.7 <th< td=""><td>70</td><td>68</td><td>-</td><td>0.0</td><td>70.7</td><td>66</td><td>70.7</td><td>10</td><td>Snd Lvl</td><td>70.7</td><td>0.0</td><td>5</td><td>-5.0</td></th<>	70	68	-	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	5	-5.0
90 70 1 0.0 68.8 66 68.8 10 Nd Lvl 68.8 0.0 5 -5.0 100 71 1 0.0 68.1 66 68.1 10 Nd Lvl 68.8 0.0 5 -5.0 110 72 1 0.0 67.4 66 68.1 10 Snd Lvl 68.1 0.0 5 -5.0 120 73 1 0.0 67.4 66 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 120 74 1 0.0 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 130 74 1 0.0 66.2 66 66.2 10 Snd Lvl 66.7 60 5 -5.0 130 74 1 0.0 66.2 10 Snd Lvl 66.2 0.0 5 -5.0 130 75 1 <td< td=""><td>80</td><td>69</td><td>1</td><td>0.0</td><td>69.7</td><td>66</td><td>69.7</td><td>10</td><td>Snd Lvl</td><td>69.7</td><td>0.0</td><td>5</td><td>-5.0</td></td<>	80	69	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	5	-5.0
	06	70	-	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	5	-5.0
110 72 1 0.0 67.4 66 67.4 10 50 6.0 5 5.0 120 73 1 0.0 66.7 66 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 130 74 1 0.0 66.7 66 66.2 10 Snd Lvl 66.7 0.0 5 -5.0 130 74 1 0.0 66.2 66 66.2 10 Snd Lvl 66.2 0.0 5 -5.0 140 75 1 0.0 65.6 66.6 65.6 10 5 0.0 5 -5.0	100	71	~	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	5	-2 ^{.0}
120 73 1 0.0 66.7 66 66.7 10 Snd Lvl 66.7 0.0 5 -5.0 130 74 1 0.0 66.2 66 66.2 10 Snd Lvl 66.2 0.0 5 -5.0 140 75 1 0.0 65.6 66 65.6 10 Snd Lvl 66.2 0.0 5 -5.0	110	72	-	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	5	-5.0
130 74 1 0.0 66.2 66 66.2 10 Shd Lv1 66.2 0.0 5.0 140 75 1 0.0 65.6 66 65.6 10 5.0 0.0 5.0	120	73	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	5	-5.0
140 75 1 0.0 65.6 66 65.6 10 65.6 0.0 5 -5.0	130	74	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	-5	-5.0
	140	75	¥	0.0	65.6	66	65.6	10		65.6	0.0	5	-5.0

RESULTS: SOUND LEVELS							US31 Noi	ise				
150	76	-	0.0	65.7	90	65.1	÷		65.1	0.0	5	-5.0
160	77		0.0	64,6	96	64.6	1	0	64.6	0.0	S	-5.0
170	78	1	0.0	64.2	99	64.2	11		64.2	0.0	5	-5.0
	62	-	0.0	63.6	66	63.8	1		63.8	0.0	ß	-5.0
190	80	-	0.0	63.5	66	63.3	1		63.3	0.0	22	-5.0
200	81	-	0.0	62.6	66	62.9	1		62.9	0.0	5	-5.0
210	82	-	0.0	62.6	66	62.6	7		62.6	0.0	5	-5.0
220	83	F	0'0	62.2	66	62.2	7	1	62.2	0.0	ت	-5.0
230	84	-	0.0	61.8	99	61.8	1(1	61.8	0.0	S	-5.0
240	85	-	0.0	61.6	99	616			61.6	0.0	5	-5.0
250	86	~	0.0	61.2	96	61.2	1		61.2	0.0	5	-5.0
10	87	-	0.0	78.6	99	78.6	1	D Snd Lvl	78.6	0.0	ഹ	-5.0
20	88	-	0.0	77.1	66	1.77	1(D Snd Lvl	77.1	0.0	5	-5.0
30	89	-	0.0	75.8	66	75.8	1	Snd Lvi	75.8	0.0	5	-5.0
40	06	-	0.0	74.6	66	74.6	1(Snd Lvl	74.6	0.0	2J	-5.0
50	91	<u>۲</u>	0.0	73.3	66	73.3	1(D Snd Lvl	73.3	0.0	5	-5.0
60	92	~	0.0	72.0	66	72.0	1(D Snd Lvl	72.0	0.0	5	-5.0
. 02	33	1	0.0	70.5	66	70.9	1	D Snd Lvl	70.9	0.0	ч С	-5.0
80	94	-	0.0	69.69	66	6.69	2	Snd Lvl	6.99	0.0	S	-5.0
90	95	-	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	2 2	-5.0
100	96	-	0.0	68.3	66	68.3	1(Snd Lvi	68.3	0.0	S	-5.0
110	67	-	0.0	67.6	66	67.6	1	Snd Lvl	67.6	0.0	5	-5.0
120	86	~	0.0	66.5	66	6.9	10	Snd Lvl	6.99	0.0	. 5	-5.0
130	66		0.0	66.4	99	66.4	1(Shd Lvl	66.4	0.0	5	-5.0
140	100	-	0.0	65.9	99	62.9	10	-	65.9	0.0	5	-5.0
150	101	-	0.0	65.3	99	65.3	10		65.3	0.0	5	-5.0
160	102	-	0.0	64.5	99	64.9			64.9	0.0	5	-5.0
170	103	-	0.0	64.4	99	64.4	10		64.4	0.0	50	-5.0
180	104	-	0.0	64.C	99	64.0	10	(64.0	0.0	S	-5.0
190	105	٦	0.0	63.6	66	63.6	10		63.6	0.0	S	-5.0
200	106	1	0.0	63.2	66	63.2	10		63.2	0.0	S	-5.0
210	107	1	0.0	62.8	99	62.8	5		62.8	0.0	5	-5.0
220	108	-	0.0	62.4	99	62.4	10		62.4	0.0	5	-5.0
230	109	1	0.0	62.1	66	62.1	10	(62.1	0.0	2	-5.0
240	110	-	0.0	61.7	99	61.7	10	-	61.7	0.0	5	-5.0
250	111	-	0.0	61.4	66	61.4	10	(61.4	0.0	5	-5.0
Dwelling Units	0#	NS N	oise Redu	uction								
		Σ	in	Åvg	Мах							
		đ	~	B	dB							
All Selected		100	0.0	0.0	0.0						-	
	бива										18 Noven	har 2014
							v				ID NOVEN	10 51 14 14

RESULTS: SOUND LEVELS						_	US31 Noise					[
All Impacted	-	53	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0,0	0.0							:
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