

Wetland Monitoring Report



Project Site:

Swan Road (TR 222) Mitigation Site
Perry County, Illinois

IDOT Sequence Number: 12315



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Project Summary

A second-year monitoring survey was conducted at the wetland mitigation site for Swan Road (TR 222) over Little Beaucoup Creek in Perry County, Illinois. Introductory information, goal, objective, performance criteria, methods, and results are presented in this report, followed by discussion including recommendations. Wetland determination results and a printout of the digital orthoquad (DOQ) showing wetland boundaries and sampling points are also included. Wetland determination forms can be found in Appendix A, species lists in Appendix B, and figures in Appendix C.

Signed:  Date: December 20, 2012

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Table of Contents

Project Summary.....	2
Introduction	4
Goal, Objective, and Performance Criteria.....	4
Methods.....	5
Results.....	7
Discussion.....	8
Literature Cited	9
APPENDIX A.....	11
Wetland Determination Forms.....	12
APPENDIX B.....	20
Wetland Plant Species Lists	21
APPENDIX C.....	23
Figure 1 – Mitigation Site Location Map.....	24
Figure 2 – 2011 Wetland Mitigation Monitoring Map	25
Figure 3 – ISGS Wetland Hydrology Map.....	26

Cover Photo: Facing south with the mitigation area on both sides of Swan Road.

Swan Road (TR 222) Mitigation Site

Perry County, Illinois

Introduction

Second-year monitoring was conducted on September 17, 2012 at the Swan Road mitigation site. This project is located approximately 3.5 miles northeast of Tamaroa, Illinois (Figure 1, Appendix C). The legal location of this site is Section 13, Township 4 South, Range 2 West, Perry County, Illinois. The total planned mitigation area is 0.73 acres (Hieser 2007) to cover the required 0.715 acres (Barb Traeger, personal communication). This site lies within the Big Muddy River drainage basin (Hydrologic unit code 07140106). The site was constructed in 2008, with site work including excavation of the old road bed and seeding both portions of the site with a seed mix, possibly inclusive of red top (*Agrostis gigantea*). Natural regeneration from the adjacent forest is expected, hence no trees were planted. Soils at the site are mapped as Bonnie silt loam (USDA-NRCS *Web Soil Survey*), which is listed as a hydric soil.

This report discusses the goal, objective, and performance criteria for the mitigation project, the methods used for monitoring the site, monitoring results, and discussion including recommendations based on the results. Methods and results are discussed by performance criterion for the goal.

Goal, Objective, and Performance Criteria

Goal, objective, and performance criteria for the Swan Road site follow those specified in the *Conceptual Compensation Plan for the Creation of Wetlands* (Hieser 2007) developed for this site. The project goal, listed below, should be attained by the end of the 5-year monitoring period. The goal, objective, and performance criteria are listed below.

Project goal: To create forested wetland.

Objective: Replace impacted wetland at a ratio of 5.5:1 with functional jurisdictional wetlands of similar function and type.

Performance criteria:

1. Predominance of hydrophytic vegetation: More than 50% of the dominant plant species must be hydrophytic.
2. Presence of hydric soils: Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.
3. Presence of wetland hydrology: The area must be either permanently or periodically inundated at average depths of less than 6.6 ft or be saturated to the surface for at

least 5% of the growing season when the site also meets the soils and vegetation criteria or 12.5% of the growing season if the other two criteria are not met.

Methods

The soils and vegetation at this mitigation site were assessed during a site visit in 2010 (Zylka et al.); however, full monitoring at this mitigation area began in 2011. INHS personnel will monitor the biological and soil parameters and ISGS personnel will monitor hydrology.

Project goal: To create a forested wetland.

1. **Predominance of hydrophytic vegetation:** The method for determining dominant vegetation at a wetland site is described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (U.S. Army Corps of Engineers 2010) and further explained in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989). It is based on aerial coverage estimates for individual plant species. Each of the dominant plant species is then assigned its wetland indicator status rating (Lichvar and Kartesz 2012). Any plant rated facultative or wetter (i.e., FAC, FACW, and OBL) is considered a hydrophyte. A predominance of wetland vegetation in the plant community exists if more than 50% of the dominant species present are hydrophytic. Predominance of hydrophytic vegetation was determined at the sampling point level as part of the routine wetland determination procedure. Site-wide dominant species were estimated visually, and are noted in the site species list (Appendix B) for each site.

Additionally, a Floristic Quality Assessment for each site was calculated. Each native plant species was assigned a “coefficient of conservatism” (C) (Taft et al. 1997), a subjective rating of species fidelity to undegraded natural communities, ranging from zero to ten. Conservative species - those more likely to be found in “pristine” natural areas - were assigned high numbers, whereas non-conservative species - those that occur in anthropogenically disturbed areas - were given lower numbers. Non-native species and those not identifiable to species level were not assigned a rating. The Floristic Quality Index (FQI) is computed as $FQI = (\text{mean } C) \times (\sqrt{N})$, where mean C is the mean coefficient of conservatism for all native plant species at a site and N is the total number of native plant species at the site. In very general terms, higher FQI values for plant communities indicate more similarity to “pristine” natural areas, as compared to those communities with lower FQI values. Botanical nomenclature follows Mohlenbrock (2002).

2. **Occurrence of hydric soils:** To monitor hydric soil development, the soil was sampled at various locations within each vegetative cover type. Soil profile morphology, including horizon color, texture, and structure was analyzed at representative points throughout the site. Additionally, the presence, type, size, and abundance of redoximorphic features were recorded. In the absence of hydric soil indicators, hydrologic data can be

used to confirm that conditions favorable for hydric soil formation persist at the site (Environmental Laboratory 1987).

3. Presence of wetland hydrology: The extent of wetland hydrology at the Swan Road site was monitored by the Illinois State Geological Survey (ISGS) (Miner et al. 2012). The ISGS monitors 1.07 acre compared to the 0.73 acres INHS monitors. The following methods are adapted from that ISGS report. An area must be inundated or saturated for no less than 5% of the growing season (10 days at this site) in order to satisfy wetland hydrology criteria using the 1987 Manual, or a minimum of 14 consecutive days when using the 2010 Midwest Region supplement. These areas will be determined to be jurisdictional wetlands if vegetation and soils criteria mentioned above are also met. Areas that are inundated or saturated for greater than 12.5% of the growing season (26 days at this site) satisfy wetland hydrology criteria in a conclusive manner, and strongly indicate wetland conditions, especially where soil and/or vegetation data are inconclusive or slow to respond after site construction activities. To assist in proper characterization of wetland mitigation sites, the ISGS report shows areas that are inundated or saturated for greater than 5% and greater than 12.5% of the growing season. Areas satisfying wetland hydrology criteria in the 2010 Midwest Region supplement (14 consecutive days during the growing season) are also shown for comparison. Inundation occurs when surface water is present at depths no greater than 6.6 ft, while saturation occurs when the water table is no deeper than 1 ft below land surface. Furthermore, INHS personnel will survey the site annually for field indicators of wetland hydrology.

Inundation and saturation at the site were monitored using 7 monitoring wells. Water levels were measured twice monthly from February through May and measured monthly for the rest of the year. Manual readings were supplemented by a datalogger, which measured surface- and ground-water levels at regular intervals to document all hydrologic events. Additional details regarding site conditions regarding wetland hydrology in 2012 are summarized in the *ISGS Annual Report for Active IDOT Wetland Compensation and Hydrologic Monitoring Sites, September 1, 2011 to August 31, 2012* (Miner et al. 2012).

Wetland site boundaries were recorded using a Trimble Global Positioning System (either model Pathfinder Pro XR or Pathfinder Pro XRS), with a presumed accuracy of +/- 0.5 m under optimal field conditions. Locations of determination sites were overlaid on a digital orthophoto quadrangle (DOQ) and approximate area was determined for each wetland site using ArcGIS 10.0 software (ESRI 2010). Resulting areas are calculated in acres, reported to two decimal places.

Results

Project goal: To create a forested wetland.

1. Predominance of hydrophytic vegetation: Dominant hydrophytic vegetation is present in Sites 1 and 2. Site 3 currently does not have dominant hydrophytic vegetation. Dominant species for each site are listed on the species lists in Appendix B.

Additionally, the FQI was calculated for each wetland site using native species only. Both FQI and mean C values (mCv) were approximately the same or slightly lower compared to last year's values (Table 1).

Table 1 – Reported FQI and mCv from 2011 and 2012.

	2011			2012	
	Site 1	Site 2		Site 1	Site 2
mCv	2.8	2.8		2.4	2.9
FQI	17.5	16.0		15.9	15.4

2. Occurrence of hydric soils: Hydric soils are present in Site 1 and Site 2, but not present in the rest of the mitigation site. The hydric soils within the mitigation site are the poorly to very poorly drained Bonnie silt loam. The non-hydric soil in Site3 is the somewhat poorly drained Belknap silt loam. Soil descriptions are available on the Wetland Determination Data Forms in Appendix A.
3. Presence of wetland hydrology: According to the 2012 ISGS annual monitoring report (Miner et al 2012) and as shown on Figure 3 in Appendix C, 0.24 ac of the Swan Road Site satisfied wetland hydrology criteria (Environmental Laboratory 1987) for more than 5% of the 2012 growing season. Zero ac satisfied the wetland hydrology criteria for more than 12.5% of the growing season. For comparison, 0.78 ac satisfied the wetland hydrology criteria (U.S. Army Corps of Engineers 2010) for 14 or more consecutive days.

Total precipitation for the 2012 monitoring period was 87% of normal, and 55% of normal for the period March through May (Miner et al 2012). Perry County was in moderate to severe drought through the summer and fall.

During visits to the mitigation area, the following indicators of wetland hydrology were observed in Sites 1 and 2: water stained leaves, geomorphic position, and FAC-neutral test. Crayfish burrows and drift deposits were observed across all the sites.

Note: Mitigation site boundaries monitored by the ISGS are different than the boundaries monitored by the INHS by approximately 0.30 ac. Acreages presented in this section are based on ISGS boundaries. Below is a summation of wetland acreages based on the INHS boundaries.

Wetland hydrology is met during 5% of the growing season on 0.23 acres, entirely north and east of Swan Road, within the boundaries monitored by INHS. Wetland hydrology is

met during 14 days or more on 0.69 acres within the boundaries monitored by the INHS.

Discussion

This is the second year of monitoring by both INHS and ISGS at the Swan Road site. Based on 2012 data, most of Sites 1 and 2 met all three wetland criteria using the 14 days or more wetland hydrology criterion. Additionally, only part of Site 1 (Figure 2, Appendix C) met all three wetland criteria using the 5% hydrology criterion. While Site 1 is in close proximity to forest, it is also a very open site that will require more time than Site 2 to become forested. Woody species are present on Site 1, but not to the extent they are present on Site 2. The woody species on Site 1 are in either shrub/sapling or herb stratum, whereas Site 2 already contains some trees.

Site 2 is mostly surrounded by floodplain forest. The site itself is mostly open with trees present around the perimeter of the elongated floodplain forest depression. The site currently contains many woody species (see Appendix B for full species list) that should eventually attain tree size. According to the ISGS, this year this site did not meet the 5% hydrology criterion, but did meet the 14 days or more wetland hydrology criterion. Based on its topographic position and the current presence of wetland hydrology indicators, we believe this site will be found to have wetland hydrology in the future.

Site 3 does not appear poised to become wetland. It lacks dominant hydrophytic vegetation and hydric soils and only a portion (0.08 ac) possesses wetland hydrology (only met by 14 days or more criteria). The potential for development of hydric soil for Site 3 is not promising as the area is noticeably higher than Site 2. Hydric soil development might be aided through mechanical site work to lower the soil surface.

Based on mitigation site boundaries the INHS monitors, this mitigation area will require nearly complete conversion to wetland to successfully meet the required mitigation acreage. Currently only 0.23 acres can be considered wetland using 5% wetland hydrology criterion, but approximately 0.69 acres can be considered wetland using the 14 days or more wetland hydrology criterion. The acquisition of additional acreage would provide a greater chance for success. Given the current topography of the site, particularly the areas surrounding sampling point 3A (Figure 2, Appendix C), it is unlikely that the required acreage will be realized.

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Zylka, J., J. Kurylo, and P. Marcum. 2010. Wetland Report for TR 222 Mitigation in Perry County, IL. Technical report submitted to Illinois Department of Transportation. 18 p.

APPENDIX A

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Swan Road (TR 222) City/County: Perry Sampling Date 9/17/2012
 Applicant/Owner: IDOT District 9 State: IL Sampling Point 1A
 Investigator(s): Kurylo and Marcum Section, Township, Range: Sec 13, T4S, R2W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave
 Slope (%): <2 Lat: 38.17846 Long: -89.27767 Datum: NAD 83
 Soil Map Unit Name: Bonnie silt loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? No (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet shrubland. This area of the state underwent a moderate to severe drought this year, so some sites may display no indicators of wetland hydrology and still be wetlands.	

VEGETATION -Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 30 ft radius)				
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1. <u>Acer saccharinum</u>	65	Yes	FACW	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____
2. <u>Populus deltoides</u>	3	No	FAC	
3. <u>Betula nigra</u>	1	No	FACW	
4. _____				
5. _____				
<u>69</u> = Total Cover				
Herb Stratum (Plot size: 5 ft radius)				
1. <u>Aster lanceolatus</u>	40	Yes	FAC	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Carex vulpinoidea</u>	30	Yes	FACW	
3. <u>Carex tribuloides</u>	10	No	OBL	
4. <u>Scirpus atrovirens</u>	10	No	OBL	
5. <u>Dichanthelium clandestinum</u>	5	No	FACW	
6. <u>Acer saccharinum</u>	3	No	FACW	
7. <u>Acer negundo</u>	2	No	FAC	
8. <u>Bidens aristosa</u>	2	No	FACW	
9. <u>Solidago gigantea</u>	2	No	FACW	
10. _____				
<u>104</u> = Total Cover				
Woody Vine Stratum (Plot size: 30 ft radius)				
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>
2. _____				
<u>0</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	89	10YR 5/1	10	D	M	SI-SIL	
0-6			5YR 3/4	1	C	M		
6-16	10YR 4/2	85	5YR 3/4	15	C	M	SI-SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: _____ Depth (inches): _____						Hydric Soil Present? <u>Yes</u>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two is required)
Primary Indicators (minimum of one is required: check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? <u>Yes</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: ISGS well data, see remarks (Miner et al. 2012).		
Remarks: Point meets wetland hydrology 5% of the growing season and meets the 14 consecutive day criterion (Figure 3, Appendix C).		

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Swan Road (TR 222) City/County: Perry Sampling Date 9/17/2012
 Applicant/Owner: IDOT District 9 State: IL Sampling Point 1B
 Investigator(s): Kurylo and Marcum Section, Township, Range: Sec 13, T4S, R2W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex
 Slope (%): <3 Lat: 38.17840 Long: -89.27792 Datum: NAD 83
 Soil Map Unit Name: Belknap silt loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? No (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet shrubland. This area of the state underwent a moderate to severe drought this year, so some sites may display no indicators of wetland hydrology and still be wetlands.	

VEGETATION -Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Acer saccharinum</i>	25	Yes	FACW		
2. <i>Betula nigra</i>	1	No	FACW		
3. <i>Populus deltoides</i>	1	No	FAC		
4. <i>Salix nigra</i>	1	No	OBL		
5. _____					
<u>28</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Ambrosia trifida</i>	35	Yes	FAC		
2. <i>Aster lanceolatus</i>	25	Yes	FAC		
3. <i>Carex vulpinoidea</i>	25	Yes	FACW		
4. <i>Juncus effusus var. solutus</i>	12	No	OBL		
5. <i>Festuca arundinacea</i>	8	No	FACU		
6. <i>Scirpus atrovirens</i>	8	No	OBL		
7. <i>Leersia oryzoides</i>	4	No	OBL		
8. _____					
9. _____					
10. _____					
<u>117</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 4/3	70	10YR 5/2	20	D	M	SI-SIL	
0-7			7.5YR 4/6	10	C	M		
7-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SI-SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
Restrictive Layer (if observed):						Hydric Soil Present? <u>Yes</u>		
Type: _____ Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
Primary Indicators (minimum of one is required: check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations:				Wetland Hydrology Present? <u>Yes</u>	
Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
ISGS well data, see remarks (Miner et al. 2012).					
Remarks: This point met the 14 consecutive days or more criterion (Figure 3, Appendix C).					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Swan Road (TR 222) City/County: Perry Sampling Date 9/17/2012
 Applicant/Owner: IDOT District 9 State: IL Sampling Point 2A
 Investigator(s): Kurylo and Marcum Section, Township, Range: Sec 13, T4S, R2W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none to concave
 Slope (%): <2 Lat: 38.17800 Long: -89.27806 Datum: NAD 83
 Soil Map Unit Name: Bonnie silt loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? No (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest. This area of the state underwent a moderate to severe drought this year, so some sites may display no indicators of wetland hydrology and still be wetlands.	

VEGETATION -Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Acer saccharinum</i>	25	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <i>Ulmus americana</i>	25	Yes	FACW		
3. <i>Quercus palustris</i>	10	No	FACW		
4. <i>Gleditsia triacanthos</i>	5	No	FACU		
5. <i>Juglans nigra</i>	5	No	FACU		
<u>75</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Aster lanceolatus</i>	45	Yes	FAC		
2. <i>Elymus virginicus</i>	25	Yes	FACW		
3. <i>Leersia virginica</i>	10	No	FACW		
4. <i>Ambrosia trifida</i>	4	No	FAC		
5. <i>Solidago gigantea</i>	3	No	FACW		
6. <i>Cinna arundinacea</i>	2	No	FACW		
7. <i>Leersia oryzoides</i>	2	No	OBL		
8. <i>Acer saccharinum</i>	1	No	FACW		
9. <i>Rumex altissimus</i>	1	No	FACW		
10. _____					
<u>93</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. <i>Campsis radicans</i>	1	No	FACU		
2. <i>Toxicodendron radicans</i>	1	No	FAC		
<u>2</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Swan Road (TR 222) City/County: Perry Sampling Date 9/17/2012
 Applicant/Owner: IDOT District 9 State: IL Sampling Point 3A
 Investigator(s): Kurylo and Marcum Section, Township, Range: Sec 13, T4S, R2W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None
 Slope (%): <3 Lat: 38.17780 Long: -89.27772 Datum: NAD 83
 Soil Map Unit Name: Belknap silt loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? No (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland. This area of the state underwent a moderate to severe drought this year, so some sites may display no indicators of wetland hydrology and still be wetlands.	

VEGETATION -Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <u>Juglans nigra</u>	10	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>33%</u> (A/B)	
2. <u>Celtis occidentalis</u>	2	No	FAC		
3. _____					
4. _____					
5. _____					
<u>12</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <u>Acer negundo</u>	2	No	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
<u>2</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Festuca arundinacea</u>	35	Yes	FACU		
2. <u>Ambrosia trifida</u>	15	Yes	FAC		
3. <u>Agrostis gigantea</u>	10	No	FACW		
4. <u>Aster lanceolatus</u>	8	No	FAC		
5. <u>Elymus virginicus</u>	8	No	FACW		
6. <u>Teucrium canadense</u>	4	No	FACW		
7. <u>Erigeron annuus</u>	2	No	FACU		
8. <u>Phlox paniculata</u>	2	No	FACU		
9. <u>Acalypha rhomboidea</u>	1	No	FACU		
10. _____					
<u>85</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 4/3	91	5YR 4/4	8	C	M	SI-SIL	
0-12			5YR 4/6	1	C	M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Gleyed Matrix (S4)					
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)					
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)					
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1)					
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)					
<input type="checkbox"/> 2 cm Muck (A10)			<input type="checkbox"/> Depleted Matrix (F3)					
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):								
Type: _____						Hydric Soil Present? <u>No</u>		
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
Primary Indicators (minimum of one is required: check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)			<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)			<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)			<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)			<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)			<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:					
Surface Water Present? <u>No</u>		Depth (inches): _____		Wetland Hydrology Present? <u>No</u>	
Water Table Present? <u>No</u>		Depth (inches): _____			
Saturation Present? <u>No</u>		Depth (inches): _____ (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: ISGS well data, see remarks (Miner et al. 2012).					
Remarks: This point does not meet any wetland hydrology criteria (Figure 3, Appendix C)					

APPENDIX B

Wetland Plant Species Lists

Site 1 Wet shrubland (proposed forested wetland)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acer saccharinum</i>	silver maple	HS	FACW	1
<i>Aster lanceolatus</i>	panicled aster	H	FAC	3
<i>Carex vulpinoidea</i>	brown fox sedge	H	FACW	3
<i>Euthamia graminifolia</i>	grass-leaved goldenrod	H	FACW	3
<i>Solidago canadensis</i>	Canada goldenrod	H	FACU	1
<i>Acer negundo</i>	box elder	HS	FAC	1
<i>Agrostis gigantea</i>	red top	H	FACW	0
<i>Amaranthus tuberculatus</i>	tall waterhemp	H	OBL	1
<i>Ambrosia trifida</i>	giant ragweed	H	FAC	0
<i>Betula nigra</i>	river birch	HS	FACW	4
<i>Bidens aristosa</i>	swamp marigold	H	FACW	1
<i>Bidens frondosa</i>	common beggar's ticks	H	FACW	1
<i>Campsis radicans</i>	trumpet creeper	W	FACU	2
<i>Carex frankii</i>	bristly cattail sedge	H	OBL	4
<i>Carex normalis</i>	spreading oval sedge	H	FACW	4
<i>Carex tribuloides</i>	awl-fruited oval sedge	H	OBL	3
<i>Cyperus pseudovegetus</i>	false green flat sedge	H	FACW	5
<i>Dichanthelium clandestinum</i>	deer-tongue grass	H	FACW	4
<i>Echinochloa muricata</i>	spiny barnyard grass	H	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	H	FACW	2
<i>Elymus virginicus</i>	Virginia wild rye	H	FACW	4
<i>Festuca arundinacea</i> *	tall fescue	H	FACU	-
<i>Fraxinus lanceolata</i>	green ash	S	FACW	2
<i>Ipomoea hederacea</i> *	ivy-leaved morning glory	H	FAC	-
<i>Ipomoea lacunosa</i>	small morning glory	H	FACW	1
<i>Juncus effusus var. solutus</i>	common rush	H	OBL	4
<i>Juncus interior</i>	inland rush	H	FAC	3
<i>Leersia oryzoides</i>	rice cut grass	H	OBL	3
<i>Ludwigia alternifolia</i>	seedbox	H	OBL	5
<i>Lycopus americanus</i>	common water horehound	H	OBL	3
<i>Muhlenbergia frondosa</i>	common satin grass	H	FACW	3
<i>Panicum dichotomiflorum</i>	fall panicum	H	FACW	0
<i>Penthorum sedoides</i>	ditch stonecrop	H	OBL	2
<i>Persicaria pensylvanica</i>	pinkweed	H	FACW	1
<i>Persicaria punctata</i>	smartweed	H	OBL	3
<i>Phyla lanceolata</i>	fog fruit	H	OBL	1
<i>Platanus occidentalis</i>	sycamore	S	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	S	FAC	2
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Salix nigra</i>	black willow	S	OBL	3
<i>Scirpus atrovirens</i>	dark green rush	H	OBL	4
<i>Solidago gigantea</i>	late goldenrod	H	FACW	3
<i>Ulmus americana</i>	American elm	HS	FACW	5
<i>Verbena hastata</i>	blue vervain	H	FACW	3
<i>Verbena urticifolia</i>	white vervain	H	FAC	3
<i>Xanthium strumarium</i>	cocklebur	H	FAC	0

*Non-native species Bolded species is dominant in the denoted stratum Mean C = 2.4
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine FQI = 15.9

Site 2 Wet floodplain forest

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acer saccharinum</i>	silver maple	HST	FACW	1
<i>Aster lanceolatus</i>	panicled aster	H	FAC	3
<i>Elymus virginicus</i>	Virginia wild rye	H	FACW	4
<i>Leersia virginica</i>	white grass	H	FACW	4
<i>Ulmus americana</i>	American elm	HST	FACW	5
<i>Acer negundo</i>	box elder	H	FAC	1
<i>Ambrosia trifida</i>	giant ragweed	H	FAC	0
<i>Bidens aristosa</i>	swamp marigold	H	FACW	1
<i>Bidens frondosa</i>	common beggar's ticks	H	FACW	1
<i>Calystegia sepium</i>	American bindweed	H	FAC	1
<i>Campsis radicans</i>	trumpet creeper	HW	FACU	2
<i>Carex frankii</i>	bristly cattail sedge	H	OBL	4
<i>Cicuta maculata</i>	water hemlock	H	OBL	4
<i>Cinna arundinacea</i>	common wood reed	H	FACW	5
<i>Festuca arundinacea</i> *	tall fescue	H	FACU	-
<i>Gleditsia triacanthos</i>	honey locust	T	FACU	2
<i>Glyceria striata</i>	fowl manna grass	H	OBL	4
<i>Juglans nigra</i>	black walnut	HT	FACU	4
<i>Leersia oryzoides</i>	rice cut grass	H	OBL	3
<i>Mimulus alatus</i>	winged monkey flower	H	OBL	6
<i>Persicaria punctata</i>	smartweed	H	OBL	3
<i>Plantago rugelii</i>	red-stalked plantain	H	FAC	0
<i>Quercus bicolor</i>	swamp white oak	T	FACW	7
<i>Quercus palustris</i>	pin oak	T	FACW	4
<i>Rudbeckia laciniata</i>	wild golden glow	H	FACW	3
<i>Rumex altissimus</i>	pale dock	H	FACW	2
<i>Scirpus atrovirens</i>	dark green rush	H	OBL	4
<i>Solidago canadensis</i>	Canada goldenrod	H	FACU	1
<i>Solidago gigantea</i>	late goldenrod	H	FACW	3
<i>Toxicodendron radicans</i>	poison ivy	HW	FAC	1

*Non-native species Bolded species is dominant in the denoted stratum

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

Mean C = 2.9

FQI = 15.4

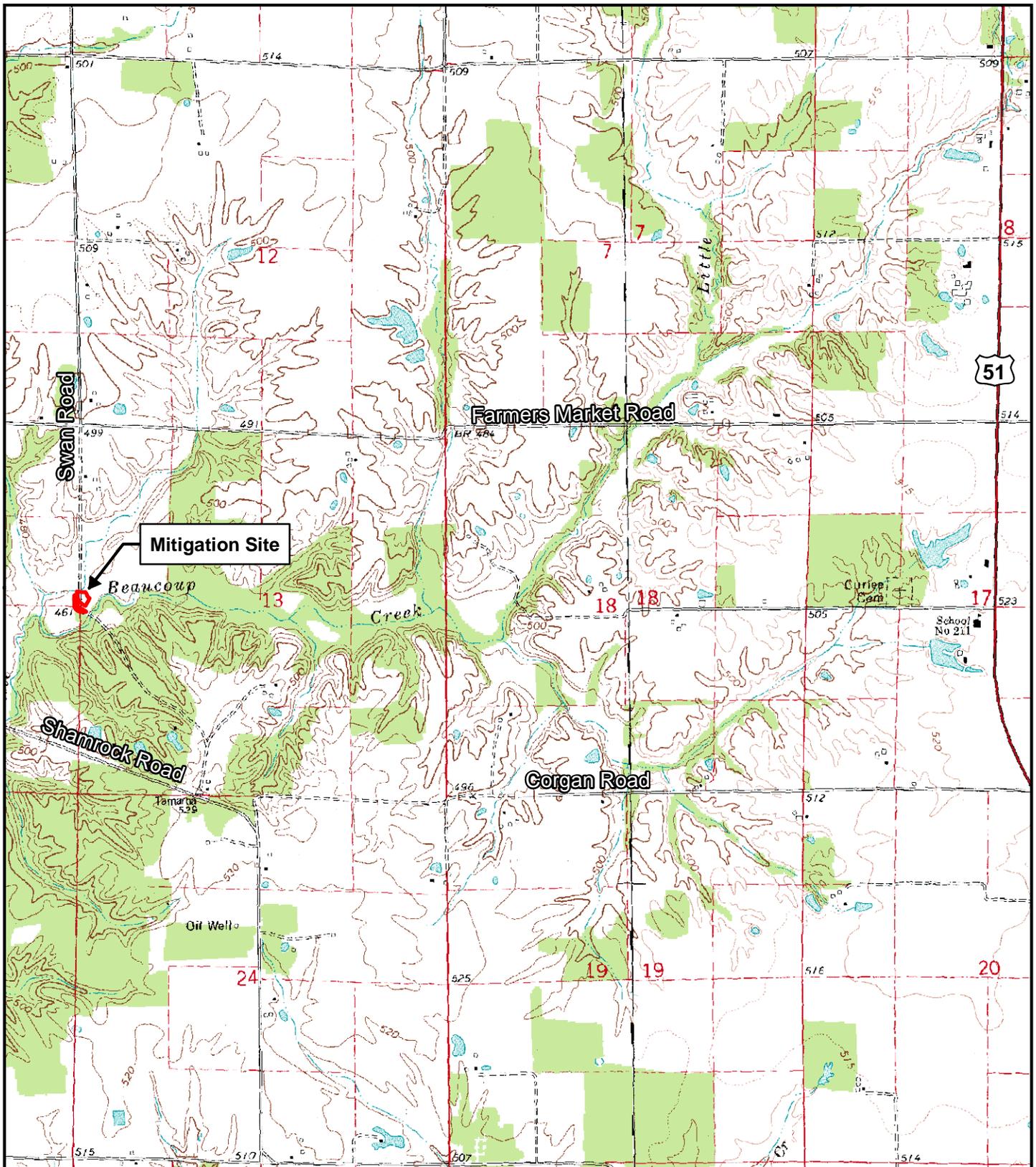
APPENDIX C

Figures

Figure 1 – Mitigation Site Location Map

Figure 2 – 2012 Wetland Mitigation Monitoring Map

Figure 3 – ISGS 2012 Wetland Hydrology Map



University of Illinois at Urbana-Champaign



**ILLINOIS NATURAL
HISTORY SURVEY**
PRAIRIE RESEARCH INSTITUTE

Wetland Science Program
1816 South Oak Street
Champaign, Illinois 61820

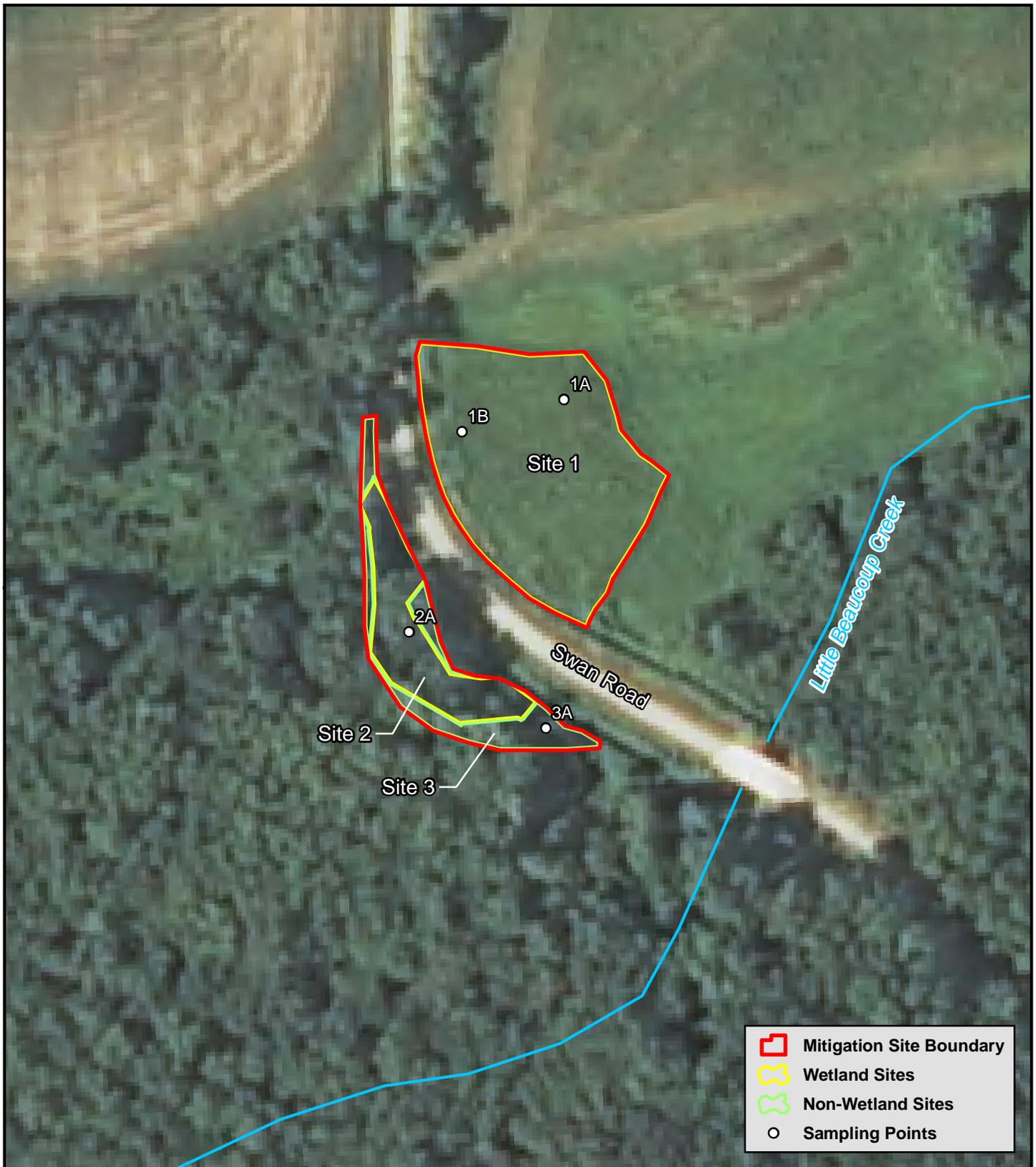
Figure 1
Mitigation Site Location Map
Swan Road (TR 222)
Perry County

Seq. No: 12315



January 2013





University of Illinois at Urbana-Champaign

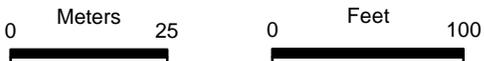


ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

Wetland Science Program
1816 South Oak Street
Champaign, Illinois 61820

Figure 2
2012 Wetland Mitigation Monitoring Map
Swan Road (TR 222)
Perry County

Seq. No: 12315



January 2013



Swan Road Wetland Mitigation Site Estimated Areal Extent of 2012 Wetland Hydrology

September 1, 2011 through August 31, 2012

Map based on 2012 Farm Service Agency digital orthophotograph, Perry County, Illinois (USDA-FSA 2012)

