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# Wetland Monitoring Report

Project Site:

## Coles County Wetland Mitigation Site
## (TR 1000N and TR 41)
## Coles County, Illinois

IDOT Sequence Number: 1273

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**Project Summary**

A first-year monitoring survey was conducted at the Coles County Wetland Mitigation Site in Coles County, Illinois. Introductory information, goals, objectives, performance criteria, methods, and results are presented in this report, followed by discussion and 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 Appendices B and C, figures in Appendix D, and photographs in Appendix E.

Signed: _____

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INHS/IDOT Project Coordinator

Date: 02/06/12

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*Cover Photo: Facing northwest from photo station 3.*

# Coles County Wetland Mitigation Site
# (TR 1000N and TR 41)
# Coles County, Illinois

## Introduction

First-year monitoring was conducted on October 6, 2011 at the Coles County Wetland Mitigation Site. This project is located within the northeast infield of the I-57 and TR 1000N interchange, 2.5 miles northeast of Mattoon, Illinois. The project site comprises approximately 5.13 acres (Hanson Professional Services Inc. 2004), but, excluding embankment, it was mapped as approximately 3.31 acres during the first-year survey. The legal description of its location is the Southwest Quarter of the Southeast Quarter of Section 33, Township 13 North, Range 8 East of the Third Principle Meridian, Coles County, Illinois. The site lies within the Embarras River drainage basin (Hydrologic Unit Code 5120112). The site was constructed and planted in 2008 with one tree species (bald cypress, *Taxodium distichum*), one shrub species (red osier dogwood, *Cornus sericea*), and a wetland grass and sedge mixture. The National Wetlands Inventory did not map any wetlands within the site, but the site is bordered to the west by a borrow pond that is mapped as an excavated, intermittently exposed, unconsolidated-bottom palustrine wetland (PUBGx). Soils at the site are mapped as predominantly Drummer silty clay loam (Web Soil Survey), which is listed as a hydric soil.

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

## Goals, Objectives, and Performance Criteria

Goals, objectives, and performance criteria for the Coles County Wetland Mitigation Site follow those specified in the Wetland Compensation Plan (Hanson Professional Services Inc. 2004) developed for this site. Performance criteria are based on those specified in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), *Illinois Wetland Restoration and Creation Guide* (Admiraal et al. 1997), and in *Guidelines for Developing Mitigation Proposals* (USACE 1993). The project goal should be attained by the end of the 5-year monitoring period. Goals, objectives, and performance criteria are listed below.

**Project goal:** To create a more functional wetland than those impacted by the roadway construction.

> **Objectives:** Replace impacted wetland types at a ratio of 1:1 or greater with functional jurisdictional wetlands of similar function and type. Locate the wetlands within the same drainage basin as the impacted wetlands. Design the wetland to remove sediments and nutrients from surface water runoff, in order to prevent these materials from entering

the Riley Creek aquatic system. Plant the compensation site with native hydrophytic vegetation.

**Performance criteria:**

1. Vegetation coverage: The site was to have been seeded with a temporary grass cover immediately following completion of site preparation activities, and within three weeks at least 75 percent of the ground surface should have been vegetated.
2. Woody planted species survivorship: Following the period of establishment, 100 percent of the planted trees and shrubs should be alive and healthy. At the end of the five-year monitoring period 80 percent of the planted trees and 75 percent of the shrubs must be alive and healthy.
3. Predominance of hydrophytic vegetation: At the end of the five-year monitoring period, at least 75 percent of the wetland area should be covered by persistent hydrophytic vegetation. The wetland community must achieve the following percent coverage in the following years: year 1, 15 percent; year 2, 30 percent; year 3, 45 percent; year 4, 60 percent.
4. Native species composition: At the end of five years, 50 percent of the species in the herbaceous layer should be native. The percentage of native plants that should be established in the following years are: year 1, 10 percent; year 2, 20 percent; year 3, 30 percent; year 4, 40 percent. None of the three most dominant plant species in any stratum may be non-native.
5. Wetland site classification: Five years following construction, the site should be a jurisdictional wetland. The site should classify as part forested wetland, and part emergent wetland.

## Methods

1. Vegetation coverage: No vegetation surveys were performed at the site for three years following its preparation and planting, but existing vegetation coverage was noted for the first-year monitoring survey.

2. Woody planted species survivorship: In order to create a forested wetland, tree saplings and shrubs were to be planted at the compensation site as specified in the Wetland Compensation Plan (Hanson Professional Services Inc. 2004). Planting was completed in 2008. Planting species and numbers are shown in Table 1. Both trees and shrubs were to be 36 inch bare root plants.

Table 1. Planted woody species.

| Species | Common Name | Quantity |
|---|---|---|
| *Taxodium distichum* | bald cypress | 109 |
| *Cornus sericea* | red osier dogwood | 2021 |

All apparently living planted trees and shrubs at the site were counted. Dead trees and shrubs were also counted. The Wetland Compensation Plan calls for measurement of

height and diameter at breast height of planted trees, as well as shoot growth. Due to the small size of the planted trees, however, only their height was measured. A subset of the trees present at the site was selected for measurement; eight of the 48 total trees counted at the site were sampled.

3. 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 (Reed 1988). Any plant rated facultative or wetter (*i.e.*, FAC, 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 jhydrophytic vegetation was determined at the sampling point level as part of the routine wetland determination procedure. According to the Wetland Compensation Plan (Hanson Professional Services Inc. 2004), intensive sampling of the herbaceous vegetation was not required for first-year monitoring of the site. Site-wide dominant species were estimated visually, and are noted in the site species list.

4. Native species composition: A complete list of plant species present was compiled. 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 = (mean C) X (√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 *Vascular Flora of Illinois* (Mohlenbrock 2002).

5. Wetland site classification: Areas that meet the Federal definition of a wetland were identified and mapped in order to measure the site's progression toward jurisdictional wetland status. Characteristics of vegetation, soils, hydrology, and topography were evaluated during field investigation and on-site wetland determination. Wetland determinations were conducted using definitions and guidelines established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010). Data from these determinations were recorded on U.S. Army Corps of Engineers' Wetland Determination Data Forms –

Midwest Region (Appendix A); a data form was completed for each wetland sampling point.

Wetland 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

1. Vegetation coverage: At the time of the first-year monitoring survey, much of the site was bare ground. The central portion of the site (referred to in the site plan as Zone C), which was to have been planted with a seed mix, was more than 50 percent bare ground.

2. Woody plant species survivorship: The results of the planted woody species census are presented in Table 2. Trees were to have been planted in three sections of the site: the northwest corner, the southwest corner, and an island in the middle of the site. In each of these areas, respectively, tree counts were 2, 32, and 14. Tree measurements are presented in Table 3.

Table 2. Planted woody species survival.

| Species | Common Name | Number Planted | Number Surviving | Percent Survival |
|---|---|---|---|---|
| *Taxodium distichum* | bald cypress | 109 | 48 | 44% |
| *Cornus sericea* | red osier dogwood | 2021 | 80 | 4% |

Table 3. Sampled tree measurements.

| Tree number | Location | Height (inches) |
|---|---|---|
| 1 | South area | 39 |
| 2 | South area | 29 |
| 3 | South area | 42 |
| 4 | South area | 49 |
| 5 | North area | 32 |
| 6 | Island | 43 |
| 7 | Island | 33 |
| 8 | Island | 38 |

Average height: 38.1 inches

3. Predominance of hydrophytic vegetation: 2.37 acres of the mitigation site (Site 2, see site summaries below) met the criteria for dominant hydrophytic vegetation. However, this portion of the site was very sparsely vegetated. Based on a visual estimate, the site did not appear to meet the first-year hydrophytic vegetation coverage requirement of 15 percent. *Echinochloa muricata* and *Typha angustifolia* were the overall wetland site dominant species. Please see wetland determination forms (Appendix A) for dominant species at all sampling points.

4. Native species composition: 32 of the 43 species identified at the site (excluding planted trees and shrubs) are native. Therefore, 75 percent of the species in the herbaceous layer were native in the first year of monitoring. *Typha angustifolia*, one of the three overall most dominant species in the wetland site, however, is non-native. Including planted species, the site-wide FQI is 10.6, indicating that although most species at the site are native, weedy species predominate.

5. Wetland site classification: The portions of the site that met and failed to meet the three federal wetland criteria are summarized below, and labeled in Figure 1. More detailed information about soils, vegetation and hydrology can be found in the wetland determination forms (Appendix A).

   **Site Number: 1**
   Community type: **Forbland**
   National Wetlands Inventory code: **U (Upland)**
   Site location: **Outer edge of site and island, including tree and shrub plantings**
   Hydrophytic vegetation? **No** Hydric soils? **Yes** Wetland hydrology? **Yes**
   Is this site a wetland? **No**
   Total site area: **0.94 acres**

   **Site Number: 2**
   Community type: **Marsh**
   National Wetlands Inventory code: **U (Upland)**
   Site location: **Interior of site, including pond edge, open water, and mud flat areas**
   Hydrophytic vegetation? **Yes** Hydric soils? **Yes** Wetland hydrology? **Yes**
   Is this site a wetland? **Yes**
   Total site area: **2.37 acres**
   hMean Coefficient of Conservatism (mean C): **2.2** Floristic Quality Index (FQI): **9.4**

   Hydrology: According to the 2011 ISGS annual monitoring report (Miner et al 2011), 3.26 acres of the Coles County Wetland Mitigation Site satisfied wetland hydrology criteria (Environmental Laboratory 1987) during more than 5 percent of the 2011 growing season (Figure 2). 2.82 acres satisfied the wetland hydrology criteria for more than 12.5 percent of the growing season. 3.18 acres satisfied the wetland hydrology criteria (U.S. Army Corps of Engineers 2010) for 14 or more consecutive days. Total

precipitation for the 2011 monitoring period was 109 percent of normal, and 156 percent of normal for the period March through May (Miner et al 2011).

**Discussion**

The Coles County Wetland Mitigation Site has potential to meet the performance criteria, due to its hydric soils and wetland hydrology. However, survival of planted species in the first year of monitoring (three years after site establishment) is poor. Fewer than 50 percent of planted trees, and only four percent of planted shrubs appeared to be alive. Seeded herbaceous species showed very poor survival. Low survival of the planted species could be due to flooding, given that rainfall early in the 2011 growing season was greater than normal.

The site overall met the first criterion for native herbaceous species composition. However approximately 0.94 acre of the site was dominated by weedy upland herbaceous species, including the areas of the site that were to have been planted with hydrophytic trees (*Taxodium distichum*) and shrubs (*Cornus sericea*). The site failed to meet the second criterion, as one of the three most dominant herbaceous species, *Typha angustifolia*, is non-native.

Approximate wetland acreage at the site in the first year of monitoring was 2.37 acres. It is recommended that the site be re-planted with native woody and herbaceous hydrophytic vegetation, and as hydrophytic vegetation becomes established, this acreage is expected to increase.

**Literature Cited**

Admiraal, A.N., M.J. Morris, T.C. Brooks, J.W. Olson, and M.V. Miller. 1997. Illinois wetland restoration and creation guide. Illinois Natural History Survey Special Publication 19. viii+188pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1. 207 p.

ESRI. 2010. ArcGIS, version 10.0. Environmental Systems Research Institute, Redlands, CA, USA.

Federal Interagency Committee for Wetland Delineation. 1989. Federal manual for identifying and delineating jurisdictional wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington, D.C. Cooperative technical publication.

Hanson Professional Services Inc. 2004. Wetland Compensation Plan for TR1000N and TR41, Sections 99-00124-00-ES and 96-09118-00-BR (Seq. No. 8925), Coles County, Illinois. Submitted to Coles County Highway Department.

Illinois Department of Natural Resources. 2008. Integrating Multiple Taxa in a Biological Stream Rating System. Illinois Department of Natural Resources, Springfield. iv+34 p.

Miner, J.J., J.R. Ackerman, S.E. Benton, K.E. Bryant, M.C. Campbell, K.W. Carr, A.K.M. Knight, J.L.B. Monson, E.T. Plankell, and G.E. Pociask. 2011. Annual report for active IDOT wetland mitigation and hydrologic monitoring sites. Submitted to the Illinois Department of Transportation, Bureau of Design and Environment, Wetlands Unit.

Mohlenbrock, R. H. 2002. Vascular Flora of Illinois. Southern Illinois University Press, Carbondale and Edwardsville, Illinois, USA.

Reed, P.B., Jr. 1988. National List of Plant Species that Occur in Wetlands: Illinois. U. S. Fish and Wildlife Service. National Wetlands Inventory. NERC-88/18.13. 117 p.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online at https://soilseries.sc.egov.usda.gov/osdname.asp [Accessed October 1-15, 2011].

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/ [Accessed October 1-15, 2011].

Taft, J., D. Ladd, G.S. Wilhelm, and L.A. Masters. 1997. Floristic Quality Assessment for Vegetation in Illinois, a Method for Assessing Vegetation Integrity. Erigenia. 15:3-95.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

US Army Corps of Engineers. 1993. Guidelines for developing mitigation proposals. Chicago District. September 1.

# APPENDIX A

## *Wetland Determination Forms*

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cole County Wetland Mitigation Site City/County: Coles Sampling Date: October 6, 2011

Applicant/Owner: IDOT District 7 State: IL Sampling Point: 1A

Investigator(s): Sivicek, Wiesbrook, and Wilm Section, Township, Range: Sec. 33, T13N, R8E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): <1 Lat: 39.52214 Long: -88.31181 Datum: NAD83

Soil Map Unit Name: NRCS mapped as Dana SIL, 2-5% slopes; revised to Aquent NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] 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? | Yes [ ] | No [X] | **Is the Sampled Area within a Wetland?** Yes [ ] No [X] |
| Hydric Soil Present? | Yes [X] | No [ ] | |
| Wetland Hydrology Present? | Yes [X] | No [ ] | |

Remarks: Community type: Forbland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Taxodium distichum* | 5 | yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 5 = Total Cover | | |

| Herb Stratum (Plot size: 5 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Aster pilosus* | 50 | yes | FACU+ |
| 2. *Solidago canadensis* | 20 | yes | FACU |
| 3. *Eupatorium serotinum* | 5 | no | FAC+ |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 75 = Total Cover | | |

| Woody Vine Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 5 | x 1 = 5 |
| FACW species | | x 2 = |
| FAC species | 5 | x 3 = 15 |
| FACU species | 70 | x 4 = 280 |
| UPL species | | x 5 = |
| Column Totals: | 80 (A) | 300 (B) |

Prevalence Index = B/A = 3.75

**Hydrophytic Vegetation Indicators:**

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes [ ] No [X]

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 Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 4/3 | 60 | 10YR 5/6 | 1 | C | M | SIL | Highly disturbed profile |
| | 10YR 4/2 | 39 | | | | | | |
| 4-8 | 10YR 4/1 | 50 | 10YR 5/6 | 20 | C | M | SICL | |
| | 10YR 3/1 | 30 | | | | | | |
| 8-13 | 10YR 3/1 | 40 | 10YR 5/6 | 30 | C | M | SICL | |
| | 10YR 4/1 | 30 | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [x] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Dense compaction

Depth (inches): 13

**Hydric Soil Present?** Yes [x] No [ ]

Remarks:

While the soil at this site meets no hydric soil indicators individually, it does meet a combination of indicators F3 and F6, with 9 inches of chroma 1 matrix colors with greater than 2% concentrations.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [x] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [x] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [x] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [x] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- [ ] FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes [ ] No [x] Depth (inches): _____

Water Table Present? Yes [ ] No [x] Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes [ ] No [x] Depth (inches): _____

**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

According to ISGS monitoring well data, this sampling point meets the 5% and 14-day criteria for wetland hydrology.

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Coles County Wetland Mitigation Site City/County: Coles Sampling Date: October 6, 2011

Applicant/Owner: IDOT District 7 State: IL Sampling Point: 1B

Investigator(s): Sivicek, Wiesbrook, and Wilm Section, Township, Range: Sec. 33, T13N, R8E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): <2 Lat: 39.52270 Long: -88.31114 Datum: NAD83

Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Aquent NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] 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? | Yes [ ] | No [X] | **Is the Sampled Area within a Wetland?** Yes [ ] No [X] |
| Hydric Soil Present? | Yes [X] | No [ ] | |
| Wetland Hydrology Present? | Yes [X] | No [ ] | |

Remarks: Community type: Forbland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Elaeagnus umbellata* | 10 | yes | UPL |
| 2. *Populus deltoides* | 10 | yes | FAC+ |
| 3. *Cornus sericea* | 2 | no | FACW |
| 4. | | | |
| 5. | | | |
| | 22 = Total Cover | | |

| Herb Stratum (Plot size: 5 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Trifolium repens* | 30 | yes | FACU+ |
| 2. *Solidago canadensis* | 20 | yes | FACU |
| 3. *Aster pilosus* | 5 | no | FACU+ |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 60 = Total Cover | | |

| Woody Vine Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | 2 | x 2 = | 4 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 55 | x 4 = | 220 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 77 (A) | | 304 (B) |

Prevalence Index = B/A = 3.9

**Hydrophytic Vegetation Indicators:**

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes [ ] No [X]

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 Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 2.5YR 4/2 | 90 | 10YR 5/8 | 10 | C | M | SIL | |
| 5-13+ | 2.5YR 4/2 | 70 | 10YR 5/8 | 10 | C | M | SICL | |
| | 10YR 2/1 | 20 | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes [X] No [ ]

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [x] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [x] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [x] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [x] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- [ ] FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes [ ] No [X] Depth (inches): _____

Water Table Present? Yes [ ] No [X] Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes [ ] No [X] Depth (inches): _____

**Wetland Hydrology Present?** Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

According to ISGS monitoring well data, this sampling point meets the 12.5% and 14-day criteria for wetland hydrology.

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Coles County Wetland Mitigation Site City/County: Coles Sampling Date: October 6, 2011

Applicant/Owner: IDOT District 7 State: IL Sampling Point: 1C

Investigator(s): Sivicek, Wiesbrook, and Wilm Section, Township, Range: Sec. 33, T13N, R8E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): <1 Lat: 39.52363 Long: -88.31193 Datum: NAD83

Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Aquent NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] 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? | Yes [ ] | No [X] | **Is the Sampled Area within a Wetland?** Yes [ ] No [X] |
| Hydric Soil Present? | Yes [X] | No [ ] | |
| Wetland Hydrology Present? | Yes [ ] | No [X] | |

Remarks: Community type: Forbland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15 ft radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Herb Stratum (Plot size: 5 ft radius) | | | |
|---|---|---|---|
| 1. *Solidago canadensis* | 65 | yes | FACU |
| 2. *Aster pilosus* | 10 | yes | FACU+ |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 80 = Total Cover | | |

| Woody Vine Stratum (Plot size: 30 ft radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**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 =

**Hydrophytic Vegetation Indicators:**

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes [ ] No [X]

Remarks: (Include photo numbers here or on a separate sheet.)

## SOIL

Sampling Point: 1C

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6.5 | 10YR 2/1 | 95 | 10YR 5/8 | 5 | C | M | SICL | |
| 6.5-14 | 10YR 4/1 | 85 | 10YR 5/6 | 15 | C | M | SICL | |
| 14-20+ | 10YR 5/1 | 70 | 10YR 5/8 | 15 | C | M | SICL | |
| | | | 10YR 5/6 | 15 | 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:**

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes [x] No [ ]

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes [ ] No [x] Depth (inches): _____

Water Table Present? Yes [ ] No [x] Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes [ ] No [x] Depth (inches): _____

**Wetland Hydrology Present?** Yes [ ] No [x]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

According to ISGS monitoring well data, this sampling point does not meet any criteria for wetland hydrology.

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Coles County Wetland Mitigation Site City/County: Coles Sampling Date: October 6, 2011

Applicant/Owner: IDOT District 7 State: IL Sampling Point: 1D

Investigator(s): Sivicek, Wiesbrook, and Wilm Section, Township, Range: Sec. 33, T13N, R8E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): <1 Lat: 39.52280 Long: -88.31158 Datum: NAD83

Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Aquent NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] 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? | Yes [ ] | No [X] | **Is the Sampled Area within a Wetland?** Yes [ ] No [X] |
| Hydric Soil Present? | Yes [X] | No [ ] | |
| Wetland Hydrology Present? | Yes [X] | No [ ] | |

Remarks: Community type: Forbland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Populus deltoides* | 20 | yes | FAC+ |
| 2. *Salix interior* | 5 | no | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 25 = Total Cover | | |

| Herb Stratum (Plot size: 5 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Aster pilosus* | 60 | yes | FACU+ |
| 2. *Solidago canadensis* | 20 | yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 85 = Total Cover | | |

| Woody Vine Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 5 | x 1 = 5 |
| FACW species | | x 2 = |
| FAC species | 20 | x 3 = 60 |
| FACU species | 80 | x 4 = 320 |
| UPL species | | x 5 = |
| Column Totals: | 105 (A) | 385 (B) |

Prevalence Index = B/A = 3.7

**Hydrophytic Vegetation Indicators:**

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes [ ] No [X]

Remarks: (Include photo numbers here or on a separate sheet.)

## SOIL

Sampling Point: 1D

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-7 | 10YR 3/1 | 98 | 10YR 5/8 | 2 | C | M | SICL | |
| 7-11 | 10YR 4/1 | 50 | 10YR 5/6 | 3 | C | M | SICL | |
| | 10YR 3/1 | 45 | 10YR 5/8 | 2 | C | M | | |
| 11-16+ | 10YR 4/1 | 50 | 10YR 5/8 | 10 | C | M | SICL | |
| | 10YR 5/1 | 40 | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes [x] No [ ]

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [x] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes [ ] No [x] Depth (inches): _____

Water Table Present? Yes [ ] No [x] Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes [ ] No [x] Depth (inches): _____

**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

According to ISGS monitoring well data, this sampling point meets 12.5% and 14-day wetland hydrology criteria.

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Coles County Wetland Mitigation Site City/County: Coles Sampling Date: October 6, 2011

Applicant/Owner: IDOT District 7 State: IL Sampling Point: 2A

Investigator(s): Sivicek, Wiesbrook, and Wilm Section, Township, Range: Sec. 33, T13N, R8E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): <2 Lat: 39.52318 Long: -88.31174 Datum: NAD83

Soil Map Unit Name: NRCS mapped as Dana SIL, 2-5% slopes; revised to Aquent NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] 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? | Yes [X] | No [ ] | **Is the Sampled Area within a Wetland?** Yes [X] No [ ] |
| Hydric Soil Present? | Yes [X] | No [ ] | |
| Wetland Hydrology Present? | Yes [X] | No [ ] | |

Remarks: Community type: Marsh

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15 ft radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |

| Herb Stratum (Plot size: 5 ft radius) | | | |
|---|---|---|---|
| 1. *Echinochloa muricata* | 60 | yes | OBL |
| 2. *Typha angustifolia* | 35 | yes | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 96 = Total Cover | | |

| Woody Vine Stratum (Plot size: 30 ft radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**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 = _____

**Hydrophytic Vegetation Indicators:**

- [X] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes [X] No [ ]

Remarks: (Include photo numbers here or on a separate sheet.)

## SOIL

Sampling Point: 2A

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 3/1 | 80 | 10YR 5/8 | 5 | C | M | SICL | |
| | | | 10YR 5/6 | 5 | C | M | | |
| | | | 2.5Y 4/1 | 10 | D | M | | |
| 16-23+ | 2.5Y 4/1 | 85 | 10YR 5/8 | 15 | C | M | SICL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes [x] No [ ]

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [x] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [x] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes [ ] No [x] Depth (inches): _____

Water Table Present? Yes [ ] No [x] Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes [ ] No [x] Depth (inches): _____

**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

According to ISGS monitoring well data, this sampling point meets the 12.5% and 14-day criteria for wetland hydrology.

Remarks:

# APPENDIX B

## *Wetland Plant Species List*

## Site 2 - Marsh

SPECIES LIST (Dominant species and strata indicated by bold.)

| Scientific name | Common name | Stratum | Wetland indicator status | Coefficient of conservatism |
|---|---|---|---|---|
| *Abutilon theophrasti* | buttonweed | herb | FACU- | * |
| *Apocynum cannabinum* | dogbane | herb | FAC | 2 |
| *Aster lanceolatus* | panicled aster | herb | FACW | 3 |
| *Bidens* sp. | beggar's ticks | herb | ----- | - |
| *Carex* sp. | sedge | herb | ----- | - |
| *Cyperus strigosus* | long-scaled nut sedge | herb | FACW | 0 |
| ***Echinochloa muricata*** | **spiny barnyard grass** | **herb** | **OBL** | **0** |
| *Eleocharis erythropoda* | red-rooted spike rush | herb | OBL | 3 |
| *Eleocharis ovata var. obtusa* | blunt spike rush | herb | OBL | 2 |
| *Eupatorium serotinum* | late boneset | herb | FAC+ | 1 |
| *Helenium autumnale* | sneezeweed | herb | FACW+ | 3 |
| *Juncus torreyi* | Torrey's rush | herb | FACW | 3 |
| *Ludwigia palustris var. americana* | marsh purslane | herb | OBL | 4 |
| *Lycopus americanus* | common water horehound | herb | OBL | 3 |
| *Panicum dichotomiflorum* | fall panicum | herb | FACW- | 0 |
| *Persicaria pensylvanica* | pinkweed | herb | FACW+ | 1 |
| *Populus deltoides* | eastern cottonwood | shrub, herb | FAC+ | 2 |
| *Salix interior* | sandbar willow | shrub, herb | OBL | 1 |
| *Schoenoplectus pungens* | chairmaker's rush | herb | OBL | 3 |
| *Schoenoplectus tabernaemontani* | soft-stem bulrush | herb | OBL | 4 |
| *Setaria faberi* | giant foxtail | herb | FACU+ | * |
| *Stuckenia pectinata* | comb pondweed | herb | OBL | 5 |
| ***Typha angustifolia*** | **narrow-leaved cattail** | **herb** | **OBL** | ***** |

* Non-native species

mCv = 2.2

FQI = 9.4

# APPENDIX C

## *Full Site Plant Species List*

SPECIES LIST (Dominant species and strata indicated by bold.)

| Scientific name | Common name | Stratum | Wetland indicator status | Coefficient of conservatism |
|---|---|---|---|---|
| *Abutilon theophrasti* | buttonweed | herb | FACU- | * |
| *Acalypha rhomboidea* | three-seeded mercury | herb | FACU | 0 |
| *Agrostis gigantea* | red top | herb | FACW | 0 |
| *Ambrosia artemisiifolia* | common ragweed | herb | FACU | 0 |
| *Apocynum cannabinum* | dogbane | herb | FAC | 2 |
| *Aster lanceolatus* | panicled aster | herb | FACW | 3 |
| *Aster novae-angliae* | New England aster | herb | FACW | 4 |
| ***Aster pilosus*** | **hairy aster** | **herb** | **FACU+** | **0** |
| *Aster sp.* | aster | herb | ---- | - |
| *Bidens sp.* | beggar's ticks | herb | ---- | - |
| *Carex frankii* | bristly cattail sedge | herb | OBL | 4 |
| *Carex sp.* | sedge | herb | ---- | - |
| *Chamaesyce humistrata* | spreading spurge | herb | FACW | 1 |
| *Chamaesyce maculata* | spotted creeping spurge | herb | UPL | 0 |
| *Cirsium vulgare* | bull thistle | herb | FACU- | * |
| *Conyza canadensis* | horseweed | herb | FAC- | 0 |
| *Cornus sericea* | red osier dogwood | shrub | FACW | 4 |
| *Cyperus esculentus* | field nut sedge | herb | FACW | 0 |
| *Cyperus strigosus* | long-scaled nut sedge | herb | FACW | 0 |
| *Daucus carota* | Queen Anne's lace | herb | UPL | * |
| *Dipsacus laciniatus* | cut-leaved teasel | herb | UPL | * |
| *Echinochloa muricata* | spiny barnyard grass | herb | OBL | 0 |
| *Elaeagnus umbellata* | autumn olive | shrub | UPL | * |
| *Eleocharis erythropoda* | red-rooted spike rush | herb | OBL | 3 |
| *Eleocharis ovata var. obtusa* | blunt spike rush | herb | OBL | 2 |
| *Elytrigia repens* | quack grass | herb | FACU | * |
| *Eupatorium serotinum* | late boneset | herb | FAC+ | 1 |
| *Helenium autumnale* | sneezeweed | herb | FACW+ | 3 |
| *Juncus torreyi* | Torrey's rush | herb | FACW | 3 |
| *Ludwigia palustris var. americana* | marsh purslane | herb | OBL | 4 |
| *Lycopus americanus* | common water horehound | herb | OBL | 3 |
| *Melilotus officinalis* | yellow sweet clover | herb | FACU | * |
| *Oenothera biennis* | common evening primrose | herb | FACU | 1 |
| *Panicum capillare* | old witch grass | herb | FAC | 0 |
| *Panicum dichotomiflorum* | fall panicum | herb | FACW- | 0 |
| *Persicaria pensylvanica* | pinkweed | herb | FACW+ | 1 |
| *Poa pratensis* | Kentucky blue grass | herb | FAC- | * |
| *Populus deltoides* | eastern cottonwood | shrub | FAC+ | 2 |
| *Salix interior* | sandbar willow | shrub | OBL | 1 |
| *Schoenoplectus pungens* | chairmaker's rush | herb | OBL | 3 |
| *Schoenoplectus tabernaemontani* | soft-stem bulrush | herb | OBL | 4 |

Continued on next page .

SPECIES LIST, continued

| Scientific name | Common name | Stratum | Wetland indicator status | Coefficient of conservatism |
|---|---|---|---|---|
| *Setaria faberi* | giant foxtail | herb | FACU+ | * |
| ***Solidago canadensis*** | **Canada goldenrod** | **herb** | **FACU** | **1** |
| *Stuckenia pectinata* | comb pondweed | herb | OBL | 5 |
| *Taxodium distichum* | bald cypress | shrub | OBL | 7 |
| *Trifolium pratense* | red clover | herb | FACU+ | * |
| *Typha angustifolia* | narrow-leaved cattail | herb | OBL | * |
| *Xanthium strumarium* | cocklebur | herb | FAC | 0 |

* Non-native species

mCv = 1.8

FQI = 10.6

# APPENDIX D

## *Figures*

**Figure 1 – Wetland Delineation Map**
**Figure 2 – ISGS 2011 Wetland Hydrology Map**

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
**Wetland Science Program**
Illinois Natural History Survey
Prairie Research Institute
1816 South Oak Street
Champaign, Illinois 61820

**Wetland Mitigation Monitoring Map**
**I-57 (FAI 57) at County Road 1000N**
**Coles County**

**Seq. No: 1273**

0 Meters 25
1 : 1,200

0 Feet 100
1 inch : 100 feet

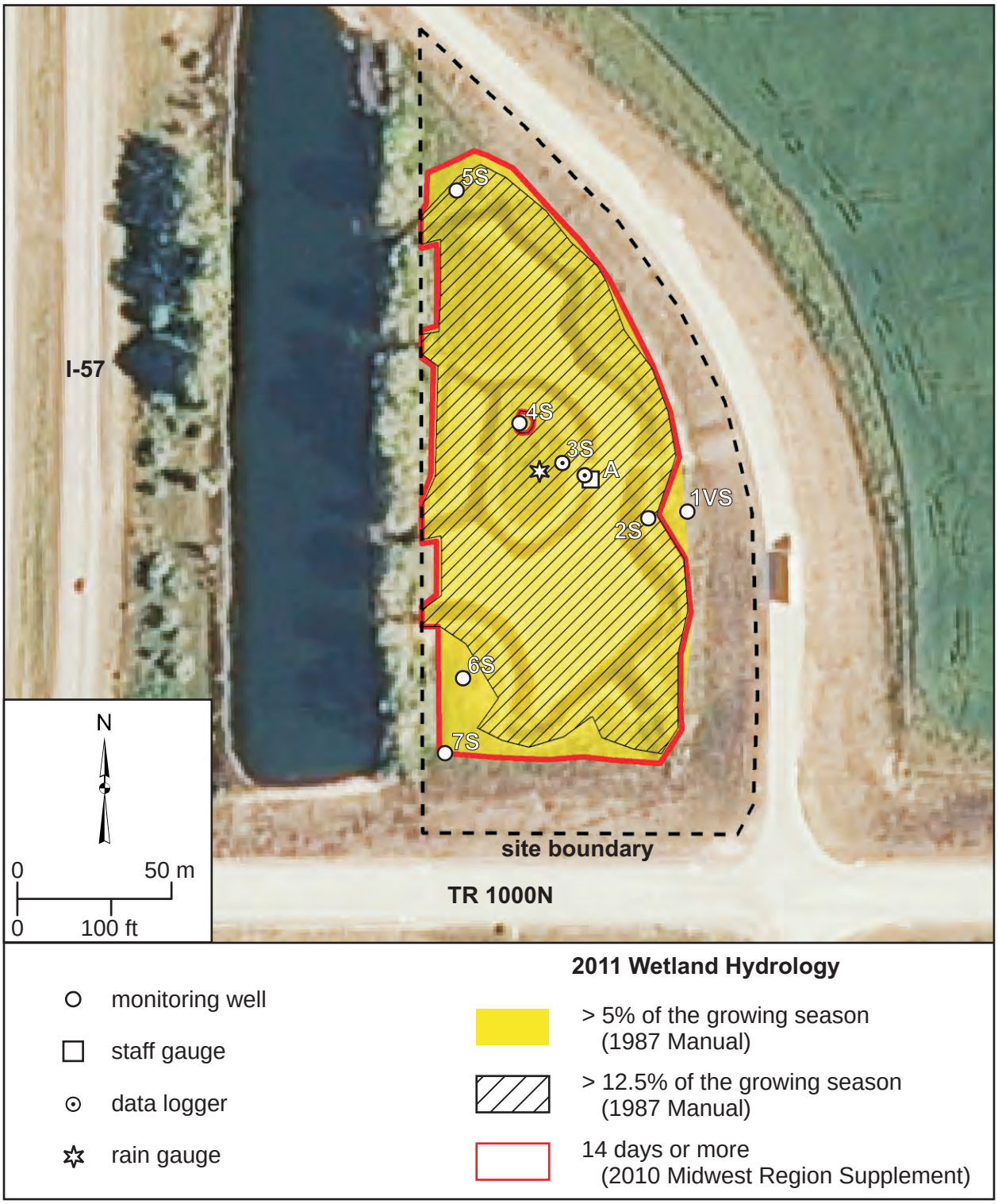
December 2011

Figure 1

N

# Coles County Wetland Mitigation Site
# (TR 1000N and TR 41)
## Estimated Areal Extent of 2011 Wetland Hydrology
### September 1, 2010 through August 31, 2011

Map based on National Agricultural Imagery Program (NAIP) digital orthophotograph, Coles County, Illinois, taken September 29, 2011 (USDA 2011)



# APPENDIX E

## Photographs of Wetland Mitigation Site

Photo 1. Facing southwest from photo station 1 (located just west of roadway)

Photo 2. Facing northwest from photo station 1

Photo 3. Facing north from photo station 2 (located at 2S ISGS monitoring well)

Photo 4. Facing south from photo station 2

Photo 5. Facing west from photo station 3 (located on rock bridge)

Photo 6. Facing northwest from photo station 3

Photo 7. Facing south from photo station 3