TRANSMITTAL

To: Bureau of Design and Environment
Attn: Matthew J. Sunderland
From: Illinois Natural History Survey
Topic: Mitigation Monitoring

Route and Location

Project Name: FAP 301 (US 20)(west Freeport bypass)
County: Stephenson
Job Number: P92-029-02
Project Number: N/A
Sequence Number: 10487
Contract Number: N/A
Section Number: 177-2
Location: At the wetland compensation site near the Jane Addams Bike Trail; ISGS Site 6W

Surveys Conducted by: Paul Tessene, Jesse Kurylo, Jeff Matthews, David Ketzner, and Brad Zercher
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Date Conducted: 10 August 2007

Project Summary:

We conducted the first year of monitoring of a site for wetland impact mitigation resulting from proposed construction and addition of lanes on the west Freeport bypass on US 20 in Stephenson County. The site involves the creation, restoration, and preservation of wetlands. The Illinois Department of Transportation established the site in 2006, planting trees. The attached report includes an explanation of monitoring methods and results. We also discuss the progress toward attaining project goals.

Signed: _____ Signed: _____

Dr. Allen E. Plocher
INHS/IDOT Project Coordinator

Dr. Edward J. Heske
INHS/IDOT Project Principal Investigator

Date: _____ Date: _____

Wetland Mitigation Monitoring Report for the FAP 301 (US 20 – Freeport bypass) site near the Jane Addams Trail (ISGS Site 6W), Stephenson County, Illinois (First monitoring year--2007)

by Paul Tessene, Jesse Kurylo, Jeff Matthews, David Ketzner, and Brad Zercher
Illinois Natural History Survey, Champaign

Summary

Based on observations made during the 2007 season (first year of monitoring), the following is a summary that relates the likelihood that the compensation site will meet each goal within the five-year monitoring period. The goals, objectives, and performance standards follow those outlined in the IDOT monitoring request (9 November 2006).

Overall project goal: To create and enhance wetlands on a 9.6 ha (23.6 acre) site.

Hydric soils and wetland hydrology are currently present over nearly all the wetland creation site. Dominant hydrophytic vegetation is present in pre-existing wetlands, but has not yet developed on most of the former crop fields. The latter areas are dominated by *Lolium* and *Setaria faberi*, while old field weeds are common. Planted tree species appear to be doing well. A drainageway and adjacent areas on the east side of the site are dominated by *Phalaris*, which will likely spread throughout most of the former crop fields if not controlled. The berm placed across the drainageway in the woods needs to be repaired.

Introduction

This report describes the first year of monitoring of a wetland created to mitigate for wetlands affected by the construction of another set of lanes for the FAP 301 (US 20) bypass around Freeport. Trees were planted on former agricultural fields in the floodplain of the Pecatonica River on 25 May 2006. A drainageway was plugged with dirt and rocks near its outlet into the oxbow at the west edge of the site. This was completed on 27 September 2006. Its purpose was to hold water on the site for longer periods.

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. Methods and results are discussed for performance criteria for each goal.

Goals, Objectives, and Performance Criteria

The goals, objectives, and performance criteria described below follow those listed in the request to monitor the site (Matthew J. Sunderland, IDOT, 9 November 2006). Each goal should be attained by the end of a five-year monitoring period.

Project Goal 1: The created wetland community should be a jurisdictional wetland as defined by current federal standards.

Objective: The created wetland will be formed through plugging a ditch that drained former crop fields on the site.

Performance criteria:

a. Predominance of hydrophytic vegetation: More than 50% of the dominant plant species must be hydrophytic.

b. Presence of hydric soils: Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.

c. Presence of wetland hydrology: The area must be either permanently or periodically inundated at average depths less than 2 m (6.6 ft) or be saturated to the surface for at least 12.5% of the growing season.

Project Goal 2: The created wetland community should meet standards for floristic composition and vegetation cover.

Objective: A floodplain forest will be created by planting native woody species. Herbaceous vegetation will be allowed to colonize the site naturally.

Performance criteria:

a. Planted species survivorship: At the end of the five-year monitoring period, at least 55 planted trees per acre will be present and healthy in the created wetland site.

b. Native species composition: At the end of the five-year monitoring period, at least 50% of total species should be non-weedy, native perennial species.

c. Dominant plant species: None of the three most dominant plant species in the planned wetland should be non-native or weedy species, such as cattail, sandbar willow, or reed canary grass.

Methods

Project Goal 1

a) Predominance of hydrophytic vegetation

The method for determining dominant hydrophytic vegetation at a wetland site is described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), based on areal coverage estimates for individual plant species. Each of the dominant plant species is assigned its wetland indicator rating (Reed 1988). A plant species that is rated facultative or wetter (FAC, FAC+, FACW, or OBL) is considered to be hydrophytic. If more than 50% of the dominant species present are hydrophytic, this criterion of wetlands is met.

b) Occurrence of hydric soils

To monitor hydric soil development, the soil was sampled at various locations within each cover type in 2007. 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).

c) Presence of wetland hydrology

The extent of wetland hydrology at the Freeport Bypass West Potential Wetland Compensation Site 6W was monitored by the Illinois State Geological Survey and is shown on the accompanying figure (Fucciolo et al. 2007)(Appendix 2 in this report). Wetland hydrology occurs when inundation or saturation to land surface is present for greater than 5% of the growing season (9 days at this site) where the soils and vegetation parameters in the Corps of Engineers Wetland Delineation Manual also are met; if either is lacking, then inundation or saturation must be present for greater than 12.5% of the growing season (23 days at this site) to satisfy wetland hydrology criteria (Environmental Laboratory 1987 [http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf]). Inundation and saturation at the site were monitored using a combination of 20 monitoring wells and 3 stage gauges. Water levels were measured at least biweekly during April and May, and monthly during the remainder of the year. Manual readings were supplemented by 2 dataloggers, which measure surface- and ground-water levels at regular intervals to document all hydrologic events. Additional details regarding site conditions and monitoring results for wetland hydrology in 2007 are summarized in ISGS' Annual Report for Active IDOT Wetland Compensation and Hydrologic Monitoring Sites, September 1, 2006 to September 1, 2007 (Fucciolo et al. 2007).

Project Goal 2

a) Planted species survivorship

In May 2006, saplings were planted on the two former crop fields on the wetland mitigation site at the rate of 100 per acre (IDOT Conceptual Wetland Compensation Plan, FAP 301, Section 177-2, March 2005, amended). All living planted trees were counted and assigned to species. Apparent dead stems of the planted species were also counted. Planted tree species tallied on the site were *Carya illinoensis, Fraxinus pennsylvanica, Platanus occidentalis, Quercus bicolor,* and *Quercus palustris.*

b) Native species composition, and
c) Dominant plant species

The wetland mitigation site is comprised of two former crop fields, with existing wetland and buffer areas also present. Therefore, the wetland mitigation site was divided into cover types. These include: wet meadow along a drainageway and adjacent areas on the east side of the mitigation site (Site 1), the majority of the former crop fields (Sites 2 and 8), a marsh in the southeast corner of the mitigation site (Site 3), floodplain forest along low drainageways (Sites 4 and 5), and mesic floodplain forest (Site 7) bordering an oxbow pond (Site 6). A site description of the oxbow is included in this report, but is not included in the ISGS report (Fucciolo et al. 2007). Excluded from the cover types is a narrow, steep wooded ditch located along the former railbed (Jane Addams Bike Trail). Most of this narrow ditch has no potential to become wetland.

A separate plant species list was made for each of the wetland determination sites, representing the different vegetation cover types of the site. Dominant plant species for each wetland determination site were determined by visual assessment of each area. Planted tree species were added to the species lists for Sites 1, 2, and 8, except for *Fraxinus*, which also occurred as volunteers on each site from nearby floodplain forest.

Included with the assessment of a site is the site's Floristic Quality Index, as described by Swink and Wilhelm (1994) and Taft *et al.* (1997). Although the Index is not a substitute for quantitative vegetation analysis in assessing plant communities, it provides a measure of the floristic integrity or level of disturbance of a site. Each plant species native to Illinois is assigned a rating between 0 and 10 (the Coefficient of Conservatism) that is a subjective indicator of how likely a plant may be found on an undisturbed site in a natural plant community. A plant species that has a low Coefficient of Conservatism (c) is common and is likely to tolerate disturbed conditions; a species with a high c is relatively rare and is likely to require specific, undisturbed habitats. Species that are not native to Illinois are not rated.

To calculate the Floristic Quality Index (FQI), first compute the mean c value ($\bar{c}$), $\bar{c} = (\sum C)/N$, where $\sum C$ represents the sum of the numerical ratings (c) for all species native to Illinois recorded for a site, and N represents the number of native species on the site. The c value for each species is shown in the species list for the site. The FQI of each site is determined by multiplying the mean c value by the square root of N ($\bar{c}\ \sqrt{N}$) (equivalent to $\sum C/\sqrt{N}$). An Index score below 10 suggests a site of low natural quality; below 5, a highly disturbed site. An FQI value of at least 20 ($\bar{c}$ above 3.0) suggests that a site has evidence of native character and may be considered an environmental asset.

Results and discussion

Project goal 1

a) Predominance of hydrophytic vegetation

Dominant plant species for each of the wetland determination sites are presented in Table 2. The majority of the dominant species are hydrophytic, except for the former crop fields in Sites 2 and 8. A full list of plant species observed is presented in the wetland determination forms at the end of this report (Appendix 1).

Table 2. Dominant plant species for each wetland determination site by stratum and wetland indicator status.

Table 2a. Dominant plant species in the wet meadow at wetland determination Site 1.

Dominant Plant Species	Indicator Status	Stratum
1. *Phalaris arundinacea*	FACW+	herb

Table 2b. Dominant plant species in the non-native grassland at wetland determination Site 2.

Dominant Plant Species	Indicator Status	Stratum
1. *Lolium perenne*	FACU	herb
2. *Setaria faberi*	FACU+	herb

Table 2c. Dominant plant species in the marsh at wetland determination Site 3.

Dominant Plant Species	Indicator Status	Stratum
1. *Phalaris arundinacea*	FACW+	herb
2. *Scirpus fluviatilis*	OBL	herb

Table 2d. Dominant plant species in the floodplain forest at wetland determination Site 4.

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Elymus virginicus*	FACW-	herb
3. *Lysimachia nummularia*	FACW+	herb
3. *Toxicodendron radicans*	FAC+	herb

Table 2e. Dominant plant species in the floodplain forest at wetland determination Site 5.

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Lysimachia nummularia*	FACW+	herb
3. *Pilea pumila*	FACW	herb

Table 2f. Dominant plant species in the pond at wetland determination Site 6.

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Cephalanthus occidentalis*	OBL	shrub
3. *Lemna minor*	OBL	herb

Table 2g. Dominant plant species in the mesic floodplain forest at wetland determination Site 7.

Dominant Plant Species	Indicator Status	Stratum
1. *Celtis occidentalis*	FAC-	tree
2. *Gleditsia triacanthos*	FAC	tree
3. *Juglans nigra*	FACU	tree
4. *Ulmus americana*	FACW-	tree
5. *Elymus virginicus*	FACW-	herb
6. *Rudbeckia laciniata*	FACW+	herb
7. *Viola pratincola*	FAC	herb

Table 2h. Dominant plant species in the forbland at wetland determination Site 8.

Dominant Plant Species	Indicator Status	Stratum
1. *Conzya canadensis*	FAC-	herb
2. *Setaria faberi*	FACU+	herb

All previously existing vegetation outside the former crop fields (Sites 2 and 8) meet the dominant hydrophytic vegetation criterion. Sites 2 and 8 (Table 2b and 2h, respectively), do not meet the dominant hydrophytic vegetation criterion. Over time, at least Site 2 is likely to become dominated by hydrophytes as conditions become less disturbed. Also, the planted tree species will continue to grow, and other woody species will establish from surrounding areas.

b) Presence of hydric soils

The NRCS mapped the poorly drained Sawmill silty clay loam and a wetter version of that series over the vast majority of the site. The somewhat poorly drained Lawson silt loam is mapped in the very northeast portion of the project area (Ray et al. 1976). The soils were investigated more recently on a finer scale with soil borings in 2003 by the ISGS and with a rough soils map compiled in January of 2006 by INHS personnel (Plankell and Weaver-Miner 2007). The findings of the ISGS and INHS personnel from that 2007 report are consistent with each other. The soils map provided by INHS personnel in Plankell and Weaver-Miner (2007) shows the poorly drained Otter silt loam over a large portion of the site and the well drained Batavia silt loam on the western and southern portions of the site. Findings from an August 2007 site visit agree with the general location of the change in soils reported in Plankell and Weaver-Miner (2007), but agree more with the soil types mapped by the NRCS.

Northern Illinois received an unusually large amount of rain in a short period of time in Summer 2007, possibly affecting the soils on this site. This site may have been wetter than it is in normal years.

In the northeast corner of the site is a well drained soil, Dickinson sandy loam (Table 3a). This sloping area has a low likelihood of becoming hydric.

Table 3a. Soil from the northeast corner of the tree planting area (Site 8) (Dickinson sandy loam, non-hydric)

Depth [cm]	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
0 – 25	10YR 3/2	7.5YR 3/4 (less than 1%)	-	sandy loam	very weak subangular blocky
25 – 89	10YR 3/3	-	-	sandy loam	single grain

Sawmill silty clay loam, with its deep mollic epipedon and concretions, appears to be the dominant soil type over the rest of the project area (Table 3b). Established wetlands already exist along the northern (Site 5) and eastern (Sites 1 & 3) edges of the site. Moving east across the larger of the two tree planting areas, part of Site 2, there are two undetermined soils (Table 3c), one hydric and the other non-hydric, mixed in with the Sawmill. During the August 2007 site monitoring, neither of these two undetermined variants was determined to be extensive enough to map out separately.

Table 3b. Dominant soil from the tree planting areas (Site 2) (Sawmill silty clay loam, hydric)

Depth [cm]	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
0 – 15	10YR 2/1	-	-	silty clay loam	subangular blocky
15 – 38	10YR 3/2	10YR 4/6	-	clay loam to silty clay loam	subangular blocky
38 - 61	10YR 3.5/2	10YR 4/6 & 10YR 4/3	-	clay loam to silty clay loam	subangular blocky

Table 3c. Undetermined soil variants from within the larger tree planting area (Site 2)

Depth [cm]	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
0 – 15	10YR 2/1	-	-	silty clay loam	subangular blocky
15 – 38	10YR 3/2	10YR 4/6	-	clay loam to silty clay loam	subangular blocky
38 – 61 hydric	10YR 4/2 & 10YR 4/3	-	-	clay loam to silty clay loam	subangular blocky
Or					
38 – 61 Non-hydric	10YR 4/3	-	10YR 4/2	clay loam to silty clay loam	subangular blocky

c) Presence of wetland hydrology

The week before our site visit (INHS), a heavy rain caused flooding on the Pecatonica River. This made the site wetter than typical for midsummer, while making low areas and drainage patterns more obvious.

The berm placed across the wooded drainageway just before the oxbow pond was holding water back and may have contributed to increasing the period of wetland hydrology on at least the east third to half of the site. However, there appeared to be gaps in its structure, and so it may need repair.

Field evidence of wetland hydrology included low landscape position of much of the site, drift lines, wetland drainage patterns, and areas of saturated soils and shallow inundation. Well data from instruments placed by ISGS personnel suggest that the total area of the wetland mitigation site that met the wetland hydrology criterion for at least 5% of the growing season is 9.4 ha (23.3 acres), out of an total site of 9.6 ha (23.6 acres) (Fucciolo *et al*. 2007). The ISGS also estimated that 5.2 ha (12.8 acres) of the site met the wetland hydrology criterion for at least 12.5% of the 2007 growing season. The ISGS estimates of areas that met the 5% and 12.5% benchmarks for wetland hydrology are shown in Appendix 2.

Project Goal 2

a) Survival of planted trees

Tree planting was intended at the rate of 100 trees per acre across the former crop fields. We observed the planted species in the former crop fields and in the wet meadow along the east side of the north field as well.

Table 4 presents data for planted tree survival, with numbers of observed live and apparent dead stems. Density of live stems of each species is also listed.

Table 4. Observed survival of planted trees in 2007 at the Jane Addams Trail wetland mitigation site (ISGS Site 6W).

Species	Total stems Observed	(north field)	(south field)	Total density live/acre (live/ha)
Carya illinoensis	382	339	43	22.30 (9.03)
Fraxinus pennsylvanica	286	258	28	16.70 (6.76)
Platanus occidentalis	277	247	30	16.18 (6.55)
Quercus bicolor	286	250	36	16.70 (6.76)
Quercus palustris	303	283	20	17.69 (7.16)
Total live stems	1534	1377	157	89.58 (36.27)
Dead	22	20	2	

In the first year of observation, the planted trees seem to be doing well. Time will tell whether the August flooding of much of the site affected the plantings. The total number of planted trees observed appears to be about 90/acre instead of the 100/acre intended when the site was established. No trees were planted in the west half of the south field; however, trees were planted across the wet meadow along the drainageway in the north field. In any case, survival clearly exceeds the project goal of 55 established planted trees/acre.

Seedlings and small shrub-sized individuals of native trees were also observed on the tree planting areas. These will continue to come in from surrounding woodlands and hasten the development of the planned wetland areas on the mitigation site as floodplain forest.

b) Native species composition and
c) Dominant plant species

Among the project goals for the mitigation site are that a majority of species on the site be native, non-weedy perennials, and that none of the dominant species be non-native or weedy species such as reed canary grass, cattail, or sandbar willow. Table 5 presents the total number of plant species, number of native species, perennial non-weedy native species (PNWN) and percent of PNWN species for each of the wetland determination sites within the wetland mititation site.

Table 5. Percent perennial, non-weedy native species (PNWN) at each wetland determination site at the Jane Addams Trail wetland mitigation site (ISGS Site 6W).

Site #	Total species	Native	PNWN	% PNWN
1 (wet meadow)	36	29	13	36.1
2 (non-native grassland)	63	41	16	25.4
3 (marsh)	29	26	13	44.8
4 (floodplain forest)	40	36	25	62.5
5 (floodplain forest)	34	30	19	55.9
6 (pond)	26	24	15	57.7
7 (mesic floodplain forest)	61	55	39	63.9
8 (forbland)	20	13	2	10.0

The former crop fields (Sites 2 and 8) and adjacent wet areas (Sites 1 and 3) that were continually disturbed during agricultural use of the site have percentages for perennial native species that do not meet project goals. The number of perennial native species is expected to increase now that the sites are less disturbed and will receive propagules from adjacent forests.

On the other hand, the wet meadow and marsh (Sites 1 and 3, respectively) have *Phalaris arundinacea* as a dominant. This non-native, aggressive perennial grass can spread quickly by seed and rhizomes under suitable conditions, and is very likely to invade the former crop fields. This species was common before the mitigation site was established (Plankell and Weaver-Miner 2007). The project goal that more than 50% native, non-weedy species dominate the site is threatened by this species, let alone the goal that *Phalaris* not be a dominant at all on the site. Control with herbicides should be considered, being careful to avoid other, more desirable, vegetation.

Summary and Recommendations

Given the hydrological conditions of the past year and the soils observed on the site, it is likely that much of the planned wetland area will become wetland. This may have been an unusual year hydrologically, since there was a flood in summer. Hydric soils were also present over much of the whole mitigation site, except for a small area in the northeast corner.

Planted tree species appeared to be doing well, exceeding project goals. Natural colonization by woody species growing in the surrounding wetlands will add to density somewhat.

Unplanted herbaceous species in the planned wetland basin are weedy species that tolerate disturbance, as one might expect on a recently created site. One of the most common species sampled on the former crop field (*Setaria faberi*) is a non-native, non-wetland annual species. By the end of five years of monitoring, it may not be as common; no control measures appear necessary at this time.

Phalaris is a potential threat to project goals for native species richness and dominance, since it is common in the wet meadow and marsh along the east side of the site, and can easily spread into the disturbed ground of the former crop fields. Some effort to control it using herbicide should be made.

The berm across the wooded drainageway near the oxbow pond may be helping to retain water on the site for longer periods, contributing to wetland hydrology. The berm appeared to be in need of repair, because there were a number of gaps allowing water to flow through at the time of our site visit (August 10).

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Appendix 1
ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 1 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Wet meadow
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway running mainly along the east side of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Phalaris arundinacea*	FACW+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 4/6
Redox depletions? Yes: X No: Color: 10YR 4/1
Matrix color: 10YR 2/1
Other indicators: Site was mostly inundated at the time of visit.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

HYDROLOGY
Inundated: Yes: X (in places) No: Depth of standing water: 0 to 0.6 m (2 ft)
Depth to saturated soil: At or near surface
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and flow along a drainageway to Site 6.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site includes a drainageway and adjacent areas in a floodplain. Saturated and shallowly ponded areas are present on the site. We observed drift lines.

ROUTINE ONSITE WETLAND DETERMINATION

Site 1 (page 2 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Wet meadow
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway running mainly along the east side of the mitigation site

Wetland hydrology: Yes: X No:
Rationale: Low landscape position in the floodplain of a large river and physical evidence of flooding suggest that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. Calculations by the ISGS suggest that this site was inundated or saturated for at least 12.5% of the past growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:
Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Abutilon theophrasti	velvetleaf	herb	FACU-	**
Acer saccharinum	silver maple	herb	FACW	1
Alisma plantago-aquatica	water plantain	herb	OBL	2
Amaranthus tuberculatus	water hemp	herb	OBL	1
Ambrosia trifida	giant ragweed	herb	FAC+	0
Ammania coccinea	scarlet loosestrife	herb	OBL	5
Apocynum cannabinum	dogbane	herb	FAC	2
Asclepias incarnata	swamp milkweed	herb	OBL	4
Bidens comosa	swamp tickseed	herb	FACW	2
Bidens vulgata	tall beggar's ticks	herb	FACW	0
Boltonia asteroides	false aster	herb	FACW	5
Cichorium intybus	chicory	herb	UPL	**
Cyperus esculentus	yellow nutsedge	herb	FACW	0
Echinochloa muricata	barnyard grass	herb	OBL	0
Eleocharis obtusa	spike rush	herb	OBL	2
Eragrostis pectinacea	love grass	herb	FAC	0
Erigeron annuus	daisy fleabane	herb	FAC-	1
Fraxinus pennsylvanica	green ash	(sapling), herb	FACW	2
Geum canadense	white avens	herb	FAC	2
Gleditsia triacanthos	honey locust	herb	FAC	2
Iris shrevei	blue flag iris	herb	OBL	5

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois

(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 3 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Wet meadow
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway running mainly along the east side of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Panicum dichotomiflorum	fall panic grass	herb	FACW-	0
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Polygonum amphibium	water smartweed	herb	OBL	3
Polygonum hydropiper	water pepper	herb	OBL	**
Polygonum lapathifolium	nodding smartweed	herb	FACW+	0
Polygonum pensylvanicum	smooth smartweed	herb	FACW+	1
Populus deltoides	cottonwood	shrub, herb	FAC+	2
Portulaca oleracea	purslane	herb	FAC-	**
Rorippa islandica	yellow marsh cress	herb	OBL	4
Rudbeckia laciniata	tall coneflower	herb	FACW+	3
Rumex crispus	curly dock	herb	FAC+	**
Setaria faberi	giant foxtail	herb	FACU+	**
Sparganium eurycarpum	common bur-reed	herb	OBL	5
Xanthium strumarium	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 56/29 = 1.9$ FQI = $\sum C/\sqrt{N} = 56/\sqrt{29} = 10.4$

Including planted tree species:

Scientific name	Common name	Stratum	Wetland Indicator	C*
Carya illinoensis	pecan	sapling	FACW	6
Platanus occidentalis	sycamore	sapling	FACW	3
Quercus bicolor	swamp white oak	sapling	FACW+	7
Quercus palustris	pin oak	sapling	FACW	4

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 76/33 = 2.3$ FQI = $\sum C/\sqrt{N} = 76/\sqrt{33} = 13.2$

Determined by:

Paul Tessene, David Ketzner, and Jeff Matthews
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ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 1 of 5)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Non-native grassland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: The majority of the former crop fields away from the drainageway running along the east side of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Lolium perenne*	FACU	herb
2. *Setaria faberi*	FACU+	herb

Comment: Hydrophytic tree species are planted across the site, but no woody species dominates.
Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 0%
Hydrophytic vegetation: Yes: No: X
Rationale: Fewer than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 4/6
Redox depletions? Yes: No: X Color: N/A
Matrix color: 10YR 2/1 over 10YR 3/2
Other indicators: Some areas within the site contained concretions in the subsurface horizons. There are also some higher areas within this site with somewhat poorly drained soils.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 2 of 5)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Non-native grassland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: The majority of the former crop fields away from the drainageway running along the east side of the mitigation site

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None
Depth to saturated soil: At surface to below 0.6 m (24 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and runoff to lower ground.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is within a floodplain. Saturated areas are present on the site. We observed a few drift lines.

Wetland hydrology: Yes: No: Undetermined: X
Rationale: Although much of the site appeared subject to flooding, and ISGS calculations suggest that the site was flooded or saturated for at least 5% of the growing season, some parts of the site are unlikely to meet the wetland hydrology criterion every year.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: No: Undetermined: X
Rationale: Although hydric soils are present and the ISGS found wetland hydrology across the site for at least 5% of the growing season this past year, dominant hydrophytic vegetation has yet to develop. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Abutilon theophrasti	velvetleaf	herb	FACU-	**
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Alisma plantago-aquatica	water plantain	herb	OBL	2
Amaranthus tuberculatus	water hemp	herb	OBL	1
Ambrosia artemisiifolia	common ragweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Apocynum cannabinum	dogbane	herb	FAC	2

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
(Species list continues on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 3 of 5)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Non-native grassland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: The majority of the former crop fields away from the drainageway running along the east side of the mitigation site

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Aster ontarionis	Ontario aster	herb	FAC	4
Bidens comosa	swamp tickseed	herb	FACW	2
Bidens frondosa	beggar's ticks	herb	FACW	1
Bidens vulgata	tall beggar's ticks	herb	FACW	0
Boltonia asteroides	false aster	herb	FACW	5
Campanula americana	tall bellflower	herb	FAC	4
Cichorium intybus	chicory	herb	UPL	**
Cirsium arvense	creeping thistle	herb	FACU	**
Cirsium vulgare	bull thistle	herb	FACU-	**
Conyza canadensis	horseweed	herb	FAC-	0
Cornus racemosa	gray dogwood	shrub	FACW-	2
Cyperus esculentus	yellow nutsedge	herb	FACW	0
Digitaria ischaemum	smooth crabgrass	herb	FACU	**
Echinochloa muricata	barnyard grass	herb	OBL	0
Eleocharis obtusa	spike rush	herb	OBL	2
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Eragrostis pectinacea	love grass	herb	FAC	0
Erigeron annuus	daisy fleabane	herb	FAC-	1
Euphorbia maculata	nodding spruge	herb	FACU-	0
Fraxinus pennsylvanica	green ash	(sapling), herb	FACW	2
Geum canadense	white avens	herb	FAC	2
Hackelia virginiana	stickseed	herb	FAC-	1
Juglans nigra	black walnut	herb	FACU	4
Lactuca floridana	blue lettuce	herb	FAC-	4
Lactuca serriola	prickly lettuce	herb	FAC	**
Lolium perenne	perennial ryegrass	herb	FACU	**
Lotus corniculatus	birdsfoot trefoil	herb	FAC-	**
Lysimachia nummularia	moneywort	herb	FACW+	**
Medicago lupulina	black medic	herb	FAC-	**
Melilotus alba	white sweet clover	herb	FACU	**
Panicum dichotomiflorum	fall panic grass	herb	FACW-	0
Parthenocissus quinquefolia	Virginia creeper	woody vine	FAC-	2
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Polygonum amphibium	water smartweed	herb	OBL	3
Polygonum hydropiper	water pepper	herb	OBL	**

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 4 of 5)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Non-native grassland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: The majority of the former crop fields away from the drainageway running along the east side of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Polygonum lapathifolium	nodding smartweed	herb	FACW+	0
Polygonum pensylvanicum	smooth smartweed	herb	FACW+	1
Populus deltoides	cottonwood	shrub, herb	FAC+	2
Potentilla norvegica	rough cinquefoil	herb	FAC	0
Prunus serotina	black cherry	herb	FACU	1
Rhamnus cathartica	common buckthorn	sapling, shrub	FACU	**
Rorippa islandica	yellow marsh cress	herb	OBL	4
Rudbeckia laciniata	tall coneflower	herb	FACW+	3
Rumex altissimus	pale dock	herb	FACW-	2
Rumex crispus	curly dock	herb	FAC+	**
Secale cerelae	rye	herb	UPL	**
Setaria faberi	giant foxtail	herb	FACU+	**
Solanum caroliniense	horse nettle	herb	FACU-	0
Sonchus arvensis	spreading sow-thistle	herb	FAC-	**
Sonchus asper	prickly sowthistle	herb	FAC	**
Taraxacum officinale	dandelion	herb	FACU	**
Trifolium hybridum	alsike clover	herb	FAC-	**
Trifolium pratense	red clover	herb	FACU+	**
Ulmus americana	American elm	herb	FACW-	5
Xanthium strumarium	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 68/41 = 1.7$ FQI = $\sum C/\sqrt{N} = 68/\sqrt{41} = 10.6$

Including planted tree species:

Scientific name	Common name	Stratum	Wetland Indicator	C*
Carya illinoensis	pecan	sapling	FACW	6
Platanus occidentalis	sycamore	sapling	FACW	3
Quercus bicolor	swamp white oak	sapling	FACW+	7
Quercus palustris	pin oak	sapling	FACW	4

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 88/45 = 2.0$ FQI = $\sum C/\sqrt{N} = 88/\sqrt{45} = 13.1$

ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 5 of 5)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Non-native grassland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: The majority of the former crop fields away from the drainageway running along the east side of the mitigation site

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
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ROUTINE ONSITE WETLAND DETERMINATION
Site 3 (page 1 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Marsh
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway in the southeast corner of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Phalaris arundinacea*	FACW+	herb
2. *Scirpus fluviatilis*	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 4/6
Redox depletions? Yes: No: X Color: N/A
Matrix color: 10YR 2/1 over 10YR 3/1
Other indicators: Site was inundated at the time of visit.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

HYDROLOGY
Inundated: Yes: X (in places) No: Depth of standing water: 0 to 0.6 m (2 ft)
Depth to saturated soil: From surface to 0.4 m (15 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and flow along a drainageway to Site 4.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is a low area in a floodplain. Saturated and shallowly ponded areas are present on the site. We observed wetland drainage patterns and drift lines.

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 2 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Marsh
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway in the southeast corner of the mitigation site

Wetland hydrology: Yes: X No:
Rationale: Low landscape position in the floodplain of a large river and physical evidence of flooding suggest that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. Calculations by the ISGS suggest that this site was inundated or saturated for at least 12.5% of the past growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:
Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Abutilon theophrasti	velvetleaf	herb	FACU-	**
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer saccharinum	silver maple	tree, shrub, herb	FACW	1
Alisma plantago-aquatica	water plantain	herb	OBL	2
Amaranthus tuberculatus	water hemp	herb	OBL	1
Ambrosia artemisiifolia	common ragweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Bidens comosa	swamp tickseed	herb	FACW	2
Bidens frondosa	beggar's ticks	herb	FACW	1
Bidens vulgata	tall beggar's ticks	herb	FACW	0
Boltonia asteroides	false aster	herb	FACW	5
Carex lacustris	lake sedge	herb	OBL	6
Carex trichocarpa	sedge	herb	OBL	6
Carex sp.	sedge	herb	--	--
Cyperus esculentus	yellow nutsedge	herb	FACW	0
Echinochloa muricata	barnyard grass	herb	OBL	0
Erechtites hieracifolia	fireweed	herb	FACU	2
Fraxinus pennsylvanica	green ash	shrub	FACW	2
Leersia oryzoides	rice cutgrass	herb	OBL	3
Mentha arvensis	field mint	herb	FACW	4

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois

(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 3 (page 3 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Marsh
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a drainageway in the southeast corner of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Polygonum amphibium	water smartweed	herb	OBL	3
Polygonum hydropiper	water pepper	herb	OBL	**
Polygonum pensylvanicum	smooth smartweed	herb	FACW+	1
Rumex crispus	curly dock	herb	FAC+	**
Salix nigra	black willow	tree	OBL	3
Sagittaria latifolia	common arrowhead	herb	OBL	4
Scirpus fluviatilis	river bulrush	herb	OBL	3
Sparganium eurycarpum	common bur-reed	herb	OBL	5
Xanthium strumarium	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 56/26 = 2.2$ FQI = $\sum C/\sqrt{N} = 56/\sqrt{26} = 11.0$

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
(vegetation and hydrology)
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ROUTINE ONSITE WETLAND DETERMINATION
Site 4 (page 1 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded drainageway separating the two former crop fields on the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Elymus virginicus*	FACW-	herb
3. *Lysimachia nummularia*	FACW+	herb
3. *Toxicodendron radicans*	FAC+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 5/4
Redox depletions? Yes: No: X Color: N/A
Matrix color: 10YR 2/1
Other indicators: Areas of inundation and saturation are present along the middle of the site.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

ROUTINE ONSITE WETLAND DETERMINATION
Site 4 (page 2 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded drainageway separating the two former crop fields on the mitigation site

HYDROLOGY

Inundated: Yes: X (in places) No: Depth of standing water: 0 to 0.6 m (2 ft)
Depth to saturated soil: From surface to below 0.6 m (24 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and flow along a drainageway to Site 6.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is a low area along a drainageway in a floodplain. Saturated and shallowly ponded areas are present on the site. We observed wetland drainage patterns, drift lines, and watermarks on trees.

Wetland hydrology: Yes: X No:
Rationale: Low landscape position in the floodplain of a large river and physical evidence of flooding suggest that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. Calculations by the ISGS suggest that this site was inundated or saturated for at least 12.5% of the past growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:
Rationale: This site meets all three wetland criteria. The NWI code for the site is PFO1C (seasonally flooded, broad-leaved deciduous, forested palustrine wetland).

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer negundo	box elder	tree, shrub, herb	FACW-	1
Acer saccharinum	silver maple	tree, shrub, herb	FACW	1
Ambrosia artemisiifolia	common ragweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Arisaema draconitum	green dragon	herb	FACW	5
Aster ontarionis	Ontario aster	herb	FAC	4

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 4 (page 3 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded drainageway separating the two former crop fields on the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Bidens comosa	swamp tickseed	herb	FACW	2
Bidens frondosa	beggar's ticks	herb	FACW	1
Carex grayi	bur sedge	herb	FACW+	6
Carex lacustris	lake sedge	herb	OBL	6
Carex lupulina	hop sedge	herb	OBL	5
Carex trichocarpa	sedge	herb	OBL	6
Carex sp.	sedge	herb	--	--
Celtis occidentalis	hackberry	shrub, herb	FAC-	3
Cryptotaenia canadensis	honewort	herb	FAC	1
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Fraxinus pennsylvanica	green ash	tree, shrub, herb	FACW	2
Geum canadense	white avens	herb	FAC	2
Gleditsia triacanthos	honey locust	herb	FAC	2
Impatiens capensis	orange jewelweed	herb	FACW	2
Juglans nigra	black walnut	shrub	FACU	4
Laportea canadensis	wood nettle	herb	FACW	2
Lycopus virginicus	Virginia bugleweed	herb	OBL	5
Lysimachia nummularia	moneywort	herb	FACW+	**
Menispermum canadense	moonseed	herb	FAC	4
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Physostegia virginiana	obedient plant	herb	FACW	6
Pilea pumila	clearweed	herb	FACW	3
Polygonum virginianum	woodland knotweed	herb	FAC	3
Populus deltoides	cottonwood	tree	FAC+	2
Rumex crispus	curly dock	herb	FAC+	**
Scutellaria lateriflora	mad-dog skullcaps	herb	OBL	4
Smilax hispida	bristly catbrier	woody vine	FAC	3
Solanum dulcamara	bittersweet nightshade	herb	FAC	**
Toxicodendron radicans	poison ivy	herb	FAC+	1
Ulmus americana	American elm	tree, shrub, herb	FACW-	5
Urtica dioica	stinging nettle	herb	FAC+	2
Viola pratincola	common blue violet	herb	FAC	1
Vitis riparia	riverbank grape	woody vine	FACW-	2

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 102/36 = 2.8$

** Species not native to Illinois
FQI = $\sum C/\sqrt{N} = 102/\sqrt{36} = 17.0$

ROUTINE ONSITE WETLAND DETERMINATION
Site 4 (page 4 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded drainageway separating the two former crop fields on the mitigation site

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
(vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
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ROUTINE ONSITE WETLAND DETERMINATION
Site 5 (page 1 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded swale in the northwest corner of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Lysimachia nummularia*	FACW+	herb
3. *Pilea pumila*	FACW	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 4/6
Redox depletions? Yes: X No: Color: 10YR 4/1
Matrix color: 10YR 2/1
Other indicators: Much of the site was shallowly inundated.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

ROUTINE ONSITE WETLAND DETERMINATION

Site 5 (page 2 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded swale in the northwest corner of the mitigation site

HYDROLOGY

Inundated: Yes: X (in places) No: Depth of standing water: 0 to 0.6 m (2 ft)
Depth to saturated soil: From surface to below 0.3 m (12 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and flow along a drainageway to Site 1.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is a low area along a drainageway in a floodplain. Saturated and shallowly ponded areas are present on the site. We observed wetland drainage patterns, drift lines, and watermarks on trees.

Wetland hydrology: Yes: X No:
Rationale: Low landscape position in the floodplain of a large river and physical evidence of flooding suggest that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. Calculations by the ISGS suggest that this site was inundated or saturated for at least 12.5% of the past growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:
Rationale: This site meets all three wetland criteria. The NWI code for the site is PFO1C (seasonally flooded, broad-leaved deciduous, forested palustrine wetland).

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer negundo	box elder	tree, shrub, herb	FACW-	1
Acer saccharinum	silver maple	tree, shrub, herb	FACW	1
Ambrosia trifida	giant ragweed	herb	FAC+	0
Aster ontarionis	Ontario aster	herb	FAC	4
Bidens comosa	swamp tickseed	herb	FACW	2
Bidens frondosa	beggar's ticks	herb	FACW	1
Carex grayi	bur sedge	herb	FACW+	6

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois

(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 5 (page 3 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Along a wooded swale in the northwest corner of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Carex sp.	sedge	herb	--	--
Celtis occidentalis	hackberry	shrub, herb	FAC-	3
Cryptotaenia canadensis	honewort	herb	FAC	1
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Fraxinus pennsylvanica	green ash	tree, shrub, herb	FACW	2
Geum canadense	white avens	herb	FAC	2
Gleditsia triacanthos	honey locust	herb	FAC	2
Impatiens capensis	orange jewelweed	herb	FACW	2
Iris shrevei	blue flag iris	herb	OBL	5
Laportea canadensis	wood nettle	herb	FACW	2
Lycopus virginicus	Virginia bugleweed	herb	OBL	5
Lysimachia nummularia	moneywort	herb	FACW+	**
Menispermum canadense	moonseed	herb	FAC	4
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Pilea pumila	clearweed	herb	FACW	3
Polygonum virginianum	woodland knotweed	herb	FAC	3
Populus deltoides	cottonwood	tree	FAC+	2
Rumex crispus	curly dock	herb	FAC+	**
Salix exigua	sandbar willow	shrub	OBL	1
Scutellaria lateriflora	mad-dog skullcaps	herb	OBL	4
Solanum dulcamara	bittersweet nightshade	herb	FAC	**
Toxicodendron radicans	poison ivy	herb	FAC+	1
Ulmus americana	American elm	tree, shrub, herb	FACW-	5
Urtica dioica	stinging nettle	herb	FAC+	2
Viola pratincola	common blue violet	herb	FAC	1
Vitis riparia	riverbank grape	woody vine	FACW-	2

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 73/30 = 2.4$ FQI = $\sum C/\sqrt{N} = 73/\sqrt{30} = 13.3$

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
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ONSITE WETLAND DETERMINATION
Site 6 (page 1 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Pond
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: In an oxbow along the southwest border of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Acer saccharinum*	FACW	tree
2. *Cephalanthus occidentalis*	OBL	shrub
3. *Lemna minor*	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: NRCS mapped as pond and Sawmill silty clay loam, wet; revised to water
On Stephenson County hydric soils list? Yes: No: Undetermined: X
Is the soil a histosol? Yes: No: Undetermined: X
Histic epipedon present? Yes: No: Undetermined: X
Redox concentrations? Yes: No: Undetermined: X
Redox depletions? Yes: No: Undetermined: X
Matrix color: Undetermined
Other indicators: The site was completely inundated.
Hydric soils? Yes: X No:
Rationale: This site is a pond that is inundated for a long or very long duration during the growing season. Therefore, this soil meets the hydric soil criterion. This soil meets none of the NRCS hydric soil indicators.

HYDROLOGY
Inundated: Yes: X No: Depth of standing water: 0 to 1.8 m (6 ft)
Depth to saturated soils: At surface
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration and occasional return flow to the Pecatonica River.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is an oxbow pond. We observed drift lines and standing water.

ROUTINE ONSITE WETLAND DETERMINATION

Site 6 (page 2 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Pond
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: In an oxbow along the southwest border of the mitigation site

Wetland hydrology: Yes: X No:
Rationale: Low landscape position in the floodplain of a large river and physical evidence of flooding suggest that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. This site was not included in ISGS calculations of hydrology, but would certainly be inundated for more than 12.5% of the growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:
Rationale: This site meets all three wetland criteria. The NWI codes for the site are PUBG (intermittently exposed palustrine wetland with an unconsolidated bottom), PABF (semipermatnently flooded palustrine aquatic bed), and PEMC (seasonally flooded, emergent palustrine wetland).

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer saccharinum	silver maple	tree, shrub	FACW	1
Asclepias incarnata	swamp milkweed	herb	OBL	4
Bidens frondosa	beggar's ticks	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
Cephalanthus occidentalis	buttonbush	shrub	OBL	4
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Fraxinus pennsylvanica	green ash	tree, sapling, shrub	FACW	2
Gleditsia triacanthos	honey locust	tree, shrub	FAC	2
Lemna minor	duckweed	herb	OBL	3
Lycopus americanus	bugleweed	herb	OBL	3
Lysimachia nummularia	moneywort	herb	FACW+	**
Physostegia virginiana	obedient plant	herb	FACW	6
Pilea pumila	clearweed	herb	FACW	3
Polygonum pensylvanicum	smooth smartweed	herb	FACW+	1
Polygonum scandens	climbing knotweed	herb	FAC	2

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois

(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 6 (page 3 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Pond
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: In an oxbow along the southwest border of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Rumex crispus	curly dock	herb	FAC+	**
Sagittaria latifolia	common arrowhead	herb	OBL	4
Salix exigua	sandbar willow	sapling, shrub	OBL	1
Salix nigra	black willow	sapling, shrub	OBL	3
Sium suave	water parsnip	herb	OBL	5
Smilax hispida	bristly catbrier	woody vine	FAC	3
Sparganium eurycarpum	common bur-reed	herb	OBL	5
Toxicodendron radicans	poison ivy	herb	FAC+	1
Vitis riparia	riverbank grape	woody vine	FACW-	2
Xanthium strumarium	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 63/24 = 2.6$

** Species not native to Illinois
FQI = $\sum C/\sqrt{N} = 63/\sqrt{24} = 12.9$

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
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ROUTINE ONSITE WETLAND DETERMINATION
Site 7 (page 1 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Mesic floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Woods along a slope bordering the oxbow in the southwest part of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Celtis occidentalis*	FAC-	tree
2. *Gleditsia triacanthos*	FAC	tree
3. *Juglans nigra*	FACU	tree
4. *Ulmus americana*	FACW-	tree
5. *Celtis occidentalis*	FAC-	sapling
6. *Elymus virginicus*	FACW-	herb
7. *Rudbeckia laciniata*	FACW+	herb
8. *Viola pratincola*	FAC	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 62.5%
Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: NRCS mapped as Sawmill silty clay loam
On Stephenson County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: X No: Color: 10YR 5/4
Redox depletions? Yes: No: X Color: N/A
Matrix color: 10YR 2/1
Other indicators: The upper and lower parts of this site are level; between them is a slope.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Sawmill as having poorly drained conditions. This soil along the level portion of the site has a low chroma matrix with prominent redox features. These characteristics are evidence of a hydric soil. This soil also meets the F6 (redox surface) hydric soil indicator from the NRCS.

ROUTINE ONSITE WETLAND DETERMINATION
Site 7 (page 2 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Mesic floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Woods along a slope bordering the oxbow in the southwest part of the mitigation site

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None
Depth to saturated soil: More than 0.6 m (24 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration, soil infiltration, and runoff to lower ground.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is located in a floodplain.

Wetland hydrology: Yes: No: Undetermined: X
Rationale: Although the site is located in a floodplain, it is sloping, so is unlikely to be inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. The ISGS calculated that this area may have been inundated or saturated for more than 5% of the past growing season.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: No: Undetermined: X
Rationale: This site may meet all three wetland criteria this growing season, but it is located on a slope that would tend to shed water rather than retain it. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer negundo	box elder	tree, shrub	FACW-	1
Acer saccharinum	silver maple	tree, shrub	FACW	1
Alliaria petiolata	garlic mustard	herb	FAC	**
Ambrosia artemisiifolia	common ragweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Arctium minus	burdock	herb	UPL	**
Asarum canadense	wild ginger	herb	UPL	5

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
(Species list continues on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 7 (page 3 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Mesic floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Woods along a slope bordering the oxbow in the southwest part of the mitigation site

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Asclepias syriaca	common milkweed	herb	UPL	0
Aster ontarionis	Ontario aster	herb	FAC	4
Campanula americana	tall bellflower	herb	FAC	4
Carex blanda	sedge	herb	FAC	2
Carex grayi	bur sedge	herb	FACW+	6
Carex sp.	sedge	herb	--	--
Carya cordiformis	bitternut hickory	shrub	FAC	4
Celtis occidentalis	hackberry	tree, sapling, shrub	FAC-	3
Cirsium vulgare	bull thistle	herb	FACU-	**
Cornus racemosa	gray dogwood	shrub	FACW-	2
Crataegus mollis	downy hawthorn	sapling	FACW-	2
Cryptotaenia canadensis	honewort	herb	FAC	1
Dioscorea villosa	wild yam	herb	FAC-	4
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Erigeron annuus	daisy fleabane	herb	FAC-	1
Fraxinus americana	white ash	tree	FACU	4
Fraxinus pennsylvanica	green ash	tree	FACW	2
Geum canadense	white avens	herb	FAC	2
Gleditsia triacanthos	honey locust	tree	FAC	2
Hackelia virginiana	stickseed	herb	FAC-	1
Juglans nigra	black walnut	tree, sapling	FACU	4
Lactuca floridana	blue lettuce	herb	FAC-	4
Laportea canadensis	wood nettle	herb	FACW	2
Lysimachia nummularia	moneywort	herb	FACW+	**
Menispermum canadense	moonseed	herb	FAC	4
Oenothera biennis	evening primrose	herb	FACU	1
Oxalis dillenii	yellow wood-sorrel	herb	FACU	0
Parthenocissus quinquefolia	Virginia creeper	woody vine	FAC-	2
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Phlox divaricata	blue phlox	herb	FACU	5
Podophyllum peltatum	mayapple	herb	FACU	4
Polygonum scandens	climbing knotweed	herb	FAC	2
Polygonum virginianum	woodland knotweed	herb	FAC	3

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois

(Species list concludes on next page)

ROUTINE ONSITE WETLAND DETERMINATION
Site 7 (page 4 of 4)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Mesic floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Woods along a slope bordering the oxbow in the southwest part of the mitigation site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
Ranunculus abortivus	kidneyleaf buttercup	herb	FACW-	1
Ribes missouriense	gooseberry	shrub	UPL	2
Rosa multiflora	multiflora rose	shrub	FACU	**
Rubus occidentalis	black raspberry	shrub	UPL	2
Rudbeckia laciniata	tall coneflower	herb	FACW+	3
Quercus macrocarpa	bur oak	tree	FAC-	5
Sanicula canadensis	black snakeroot	herb	FACU+	4
Sanicula gregaria	black snakeroot	herb	FAC+	2
Smilax hispida	bristly catbrier	woody vine	FAC	3
Teucrium canadense	American germander	herb	FACW-	3
Tilia americana	American basswood	tree	FACU	5
Toxicodendron radicans	poison ivy	woody vine, herb	FAC+	1
Ulmus americana	American elm	tree, sapling, shrub	FACW-	5
Urtica dioica	stinging nettle	herb	FAC+	2
Verbena urticifolia	white vervain	herb	FAC+	3
Viburnum prunifolium	blackhaw viburnum	shrub	FACU	4
Viola pensylvanica	smooth yellow violet	herb	FACW-	5
Viola pratincola	common blue violet	herb	FAC	1
Viola sororia	woolly blue violet	herb	FAC-	3
Vitis riparia	riverbank grape	woody vine	FACW-	2
Zanthoxylum americanum	prickly ash	shrub	UPL	4

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 146/55 = 2.7$ FQI = $\sum C/\sqrt{N} = 146/\sqrt{55} = 19.7$

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
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ROUTINE ONSITE WETLAND DETERMINATION
Site 8 (page 1 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Forbland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Former crop field in the northeast corner of the mitigation site

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Conzya canadensis*	FAC-	herb
2. *Setaria faberi*	FACU+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 0%
Hydrophytic vegetation: Yes: No: X
Rationale: Fewer than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: NRCS mapped as Lawson silt loam, revised to Dickinson sandy loam
On Stephenson County hydric soils list? Yes: No: X
Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X
Redox concentrations? Yes: No: X Color: N/A
Redox depletions? Yes: No: X Color: N/A
Matrix color: 10YR 3/2 over 10YR 3/3
Other indicators: The site is situated on a slope above the rest of the project area.
Hydric soils? Yes: No: X
Rationale: The Natural Resources Conservation Service classifies Dickinson as having well drained conditions. This soil has a subsurface matrix color too bright to be considered hydric.

HYDROLOGY
Inundated: Yes: No: X Depth of standing water: None
Depth to saturated soil: More than 0.9 m (35 in)
Overview of hydrologic flow through system: Precipitation, sheet flow, and rare overflow from the Pecatonica River contribute water to this site. Water leaves the site by evapotranspiration soil infiltration, and sheet flow to lower ground.
Size of watershed: About 3367 km^2 (1300 mi^2)
Other field evidence observed: This site is located on a slope at the edge of a floodplain.
Wetland hydrology: Yes: No: X
Rationale: This site is on a slope and at an elevation that rarely floods. It is unlikely that the site is inundated or saturated for long enough during the growing season to meet the wetland hydrology criterion. The ISGS did not consider this site to have wetland hydrology.

ROUTINE ONSITE WETLAND DETERMINATION

Site 8 (page 2 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Forbland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Former crop field in the northeast corner of the mitigation site

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: No: X

Rationale: This site meets none of the three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Ambrosia artemisiifolia	common ragweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Bidens vulgata	tall beggar's ticks	herb	FACW	0
Cirsium vulgare	bull thistle	herb	FACU-	**
Conyza canadensis	horseweed	herb	FAC-	0
Echinochloa muricata	barnyard grass	herb	OBL	0
Erigeron annuus	daisy fleabane	herb	FAC-	1
Fraxinus pennsylvanica	green ash	(sapling), shrub	FACW	2
Lactuca serriola	prickly lettuce	herb	FAC	**
Lolium perenne	perennial ryegrass	herb	FACU	**
Oenothera biennis	evening primrose	herb	FACU	1
Panicum dichotomiflorum	fall panic grass	herb	FACW-	0
Polygonum lapathifolium	nodding smartweed	herb	FACW+	0
Phalaris arundinacea	reed canary grass	herb	FACW+	**
Populus deltoides	cottonwood	shrub, herb	FAC+	2
Potentilla norvegica	rough cinquefoil	herb	FAC	0
Setaria faberi	giant foxtail	herb	FACU+	**
Taraxacum officinale	dandelion	herb	FACU	**
Trifolium hybridum	alsike clover	herb	FAC-	**

* Coefficient of Conservatism (see introduction) ** Species not native to Illinois
Mean c value = $\sum C/N = 6/13 = 0.5$ FQI = $\sum C/\sqrt{N} = 6/\sqrt{13} = 1.7$

Including planted tree species:

Scientific name	Common name	Stratum	Wetland Indicator	C*
Carya illinoensis	pecan	sapling	FACW	6
Platanus occidentalis	sycamore	sapling	FACW	3
Quercus bicolor	swamp white oak	sapling	FACW+	7
Quercus palustris	pin oak	sapling	FACW	4

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 26/17 = 1.5$ FQI = $\sum C/\sqrt{N} = 26/\sqrt{17} = 6.3$

ROUTINE ONSITE WETLAND DETERMINATION

Site 8 (page 3 of 3)

Field Investigators: Tessene, Kurylo, Matthews, Ketzner, and Zercher **Date**: 10 August 2007
Job No.: P92-029-02 **Project Name**: FAP 301 (US 20-Freeport bypass)
State: Illinois **County**: Stephenson **Applicant**: IDOT District 2
Site name: Forbland
Legal Description: SW/4, SW/4, SW/4, Sec. 14, T.27N., R.7E.
Location: Former crop field in the northeast corner of the mitigation site

Determined by: Paul Tessene, David Ketzner, and Jeff Matthews
(vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
Brad Zercher (GIS)
Illinois Natural History Survey
Division of Ecology and Conservation Sciences
1816 South Oak Street
Champaign, Illinois 61820
(217) 244-7984 (Tessene)

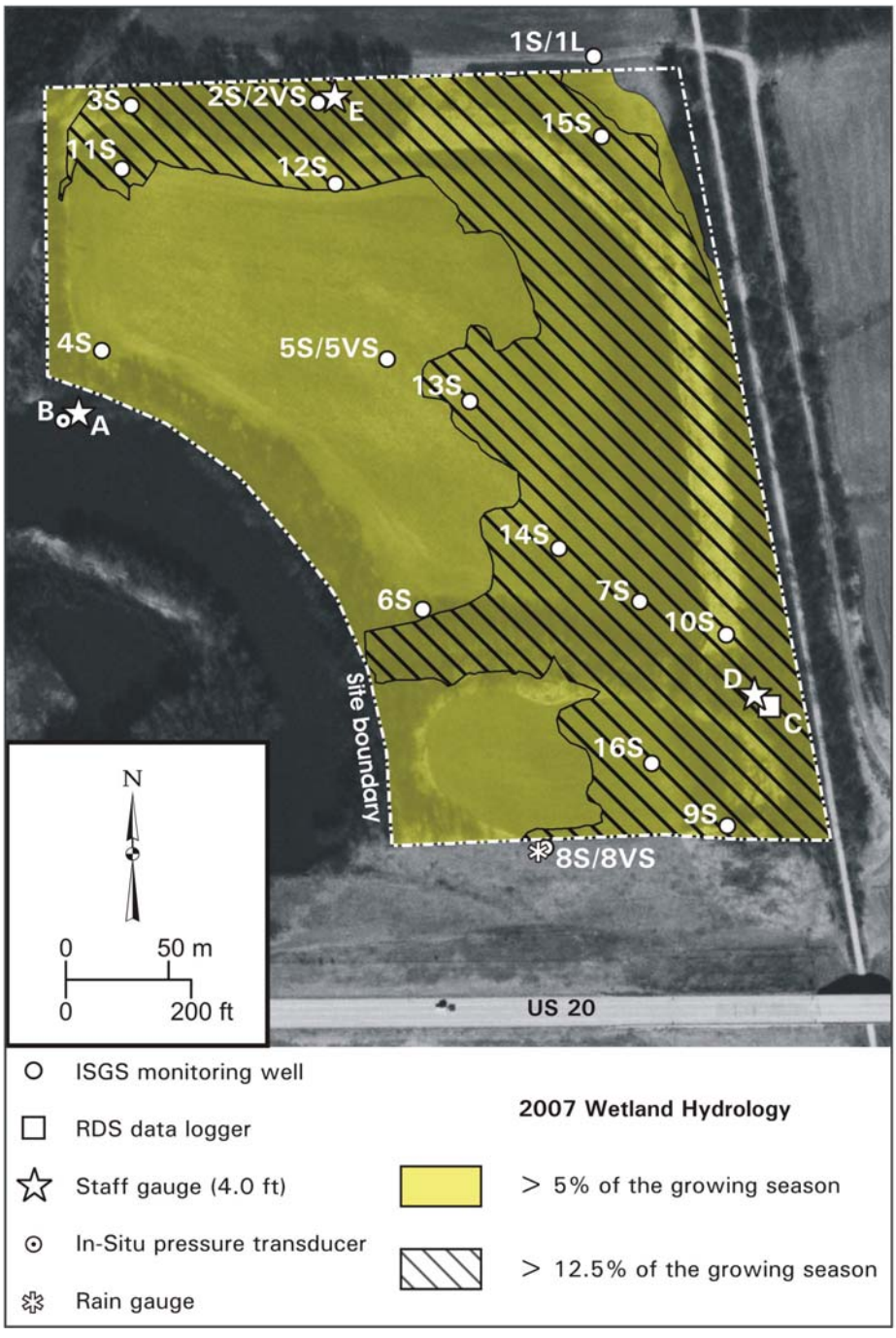
Appendix 2

Freeport Bypass West Wetland Compensation Site 6W (FAS 301)

Estimated Areal Extent of 2007 Wetland Hydrology

based on data collected between September 1, 2006 and September 14, 2007

Map based on USGS digital orthophotograph, Freeport West, NE quarter quadrangle (ISGS 2005)



Jane Addams Bike Trail
Wetland Mitigation Site
Stephenson County

0 400 800 Feet

0 100 200 Meters

scale 1:4800
1 inch=400 ft

Project boundary

Wetland site - 1, 3 - 6
Undetermined site - 2, 7
Non-wet site - 8

12/07