Mitigation Monitoring

To: Thomas Brooks
From: Rick Larimore, Allen Plocher, David Ketzner, and Dennis Keene
Date: December 22. 2008
Regarding: Mitigation Monitoring – Eckmann Site/Multi-Use Wetland Compensation, Madison County

Roadwork on FAP 14 (IL 3) resulted in wetland impacts. Compensation for these and other impacts is proposed on the Eckmann-Bischoff property near Collinsville, IL, Madison Co. (Legal location: T 3 N, R 9 W, Sect. 25, S/2 and NE/4, NE/4 and N/2, SE/4). This 25.1 ha (62 acre) tract occurs within an abandoned Mississippi River oxbow and is bordered by forested wetland and marsh to the south and east and Cahokia Canal levee to the west. The site occurs on the Mississippi River floodplain and the presettlement environment consisted of mesic and hydric floodplain forest, wet shrubland, marsh and backwater ponds and sloughs. The surrounding land use is primarily cropland and developed land. The forested land to the south is listed as Illinois Natural Area – Levee Lake and is in public ownership. The property, originally consisting of cropland considered to be nonwetland by the NRCS, was acquired by the IDOT in 1995 (Plocher et al. 1994) and 1997 (Keene and Ketzner 1997). Wetland and natural area restoration was to proceed by natural revegetation utilizing the soil seed bank and colonization from adjacent marsh and forested wetland (Thomas Brooks personal comm.). The State and Federally listed *Boltonia decurrens* had previously been located in low numbers at this site; however, fewer, (less than 10) individuals were found in 2008 and none were found in 2009. As of 2000, 17 ha (42 acres) of wetlands (marsh and wet shrubland) had developed on the site (Ketzner et al. 2001); this was found to be the approximate area of wetland in 2002 (Ketterling and Robinson 2002, Robinson and Larimore 2003) and again in 2003 (Fucciolo et al. 2003, Larimore et al. 2004). Monitoring of the site began in 2002 and was conducted again in 2003. After that time monitoring was determined to be unnecessary since the site had been developing natural vegetation for seven years and that stable plant communities and hydrology were demonstrated. The ISGS and INHS submitted a letter and map to IDOT showing wetlands with ISGS hydrological data and INHS vegetation surveys combined in figure 1 (Robinson and Larimore 2003). In 2009 the wetland boundaries and plant communities remain basically the same (figure 1), as does ISGS hydrological data (Fucciolo 2009); however, wet shrubland has become floodplain forest and due to wetland hydrology in large portions of Site 4 (non wetland/ forbland), vegetation in that community appears to be increasingly hydrophytic.

Hydrology

Low topography and proximity to the Mississippi River combine to keep this area consistently wet. This site receives water through precipitation, sheet flow from adjacent higher ground, and occasionally from backflow via Schneider Ditch (Rorick, 1994). Water leaves the site by way of soil infiltration, evapotranspiration and by sheet flow into Schneider Ditch on occasions.

In 2009, the area of the site that satisfied wetland hydrology criteria for greater than 12.5% of the growing season was estimated to be 22.7 ha (56.0 ac) of 23.1 ha (57.0 ac) according to Benton in Fucciolo *et al.* (2009).

Size of immediate watershed: < 13 km^2 (5 mi^2) The Mississippi River has a watershed greater than 25,920 km^2 (10,000 mi^2). The hydrologic basin unit code is 07140101, Mississippi River, Upper.

Soils

Soil samples were taken where possible at the site. Most of the site was inundated with water reaching 2-3 ft in some areas. The NRCS had Wakeland silt loam and Beaucoup silt clay loam mapped at the site. Upon evaluation of this site, the uninundated area appeared to be Petrolia silty clay loam. Petrolia silty clay loam is a hydric poorly drained soil. Depth to the seasonal high water table is 0 to 0.5 ft. This soil is ideal for wetland plants and wildlife. This soil lies on the western portion of the site.

Vegetation

This site is made up of marsh, wet meadow, wet floodplain forest, and forbland plant communities (figure 1). The plant communities have remained fairly stable since 2003; however, much of the wet floodplain forest was wet shrubland at that time. The marsh community, dominated by *Typha angustifolia* and *T. latifolia* and the wet meadow community, dominated by *Carex hyalinolepis, Leersia oryzoides,* and *Phyla lanceolata* are of good natural quality (FQI = 20.5), (percent weedy or non-native = 27.5%). The wet floodplain forest community is of fair natural quality (FQI = 11.5), (percent weedy or non-native = 39.3%).

The forbland on the western edge of the property, dominated by *Setaria faberi* and *Solidago canadensis* is of fair to poor quality. The wet floodplain forest communities to the east and south (Illinois Natural Area – Levee Lake) of the property appear to be of fairly good quality. North of the property lies a marsh (*Typha* spp.) and shallow pond apparently used for duck hunting and possibly in a conservation program of some kind.

Summary

All revegetation of this site has been 'natural' with no seeding or planting, relying on the seed bank and colonization from adjacent seed sources to enhance natural quality. Since this property was acquired by IDOT in 1995 and 1997 (Keene and Ketzner 1997), approximately 17 ha (42 acres) of marsh and wet shrubland had developed in 2000 (Ketzner et al. 2001); this was found to be the approximate area of wetland in 2002 (Robinson and Larimore 2003) and 2003 (Larimore et al. 2004). The area of wetland in 2008 was 21.0 ha (51.8 ac) out of 25.1 ha (62 acres). In 2009, the area of the site that satisfied wetland hydrology criteria for greater than 12.5% of the growing season was estimated to be 22.7 ha (56.0 ac) of 23.1 ha (57.0 ac) according to Benton in Fucciolo *et*

al. (2009). For the most part wet shrubland has become wet floodplain forest as many saplings have become tree sized.

The abundance of *Phragmites australis* and *Typha angustifolia* in the marsh community is a concern. It is apparent that *Phragmites* particularly is increasing. *Lespedeza cuneata* and *Lonicera japonica* are apparently increasing into the drier 'forbland' to the west; however, these species should not be a long term problem in wetlands.

*At the time of our visit in November 2009, the west end of Schneider Ditch had recently been significantly excavated. At that time the site hydrology did not seem to have been immediately impacted; however, it appeared that a heavy rain event or loss of beaver dams could potentially drain much of the site.

Table 1. Plant Communities within the Project Area

1. Marsh (most of eastern two thirds of tract)

   Dominant Species

   Understory - *Typha angustifolia* and *T. latifolia*

2. Wet Meadow (in western one third of tract)

   Dominant Species

   Understory - *Carex hyalinolepis, Leersia oryzoides,* and *Phyla lanceolata*

3. Wet Floodplain Forest (through northern and western thirds of tract)

   Dominant Species

   Overstory – *Populus deltoides*
   Sapling Layer – *Fraxinus pennsylvanica, Populus deltoides*
   Understory - *Carex hyalinolepis, Toxicodendron radicans*

4. Forbland (far western edge of tract)

   Dominant Species

   Understory – *Setaria faberi, Solidago canadensis*

Wetland Assessment

All potential wetlands within the project area were examined on November 13, 2009. Four on-site wetland determinations were performed and it was determined that three of these sites are wetlands. Results of these determinations are summarized below and described in more detail on the accompanying forms (Appendix 1). The wetland delineation sites are marked on the enclosed digital ortho photograph (Figure 1). Wetland boundaries were mapped using Trimble Global Positioning System (GPS) and depicted using ArcView 3.3 overlain on a digital ortho photograph. GPS data has been posted on the IDOT extranet site.

The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geological Survey topographic map and National Wetland Inventory (NWI) map (Monks Mound 7.5 minute quadrangle); aerial photograph; Reed (1988); Leeper (2004); Mohlenbrock (1986); U.S. Army Corps of Engineers (1993); and Environmental Laboratory (1987). These materials were used during an on-site evaluation of vegetation, soils, and hydrology.

Included with the assessment of a site is its Floristic Quality Index, developed by Swink and Wilhelm (1979) and modified by Taft *et al.* (1997) and Swink and Wilhelm (1994). 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 Coefficient of Conservatism (C value), a number between 0 and 10. The rating number given to each plant is subjective and indicates the likelihood of finding the plant on an undisturbed site in a natural plant community. A plant species that has a low C value is common and is likely to tolerate disturbed conditions; a species with a high C value is relatively rare and is likely to require specific, undisturbed habitats. The Floristic Quality Index (FQI) is calculated as follows: $FQI = \sum C / \sqrt{N}$, where $\sum C$ represents the sum of the numerical ratings for all species recorded for a site, and N represents the number of plant species found on the site. The C value for each species is shown in the species list for the site. The mean C value (also known as mean rated quality) was also calculated for each site. This value is calculated as follows: $mCv = \sum C / N$. Species not native to Illinois (indicated by * in the species list) are not included in the calculations. Plants not identified to species level are not rated and also not included in the calculations. FQI values of less than 10 indicate low natural quality, while sites with values of 20 or more (mean C > 3.0) have at least some evidence of native character and may be considered environmental assets. However, diversity and species composition (therefore FQI and mean C values) may differ naturally between plant community types and seasonally within community types.

Wetland Site Summaries

Site 1: This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract. The small portion is approximately 0.6 ha (1.6 ac) and the large portion 11.8 ha (29.1 ac) in area for a total of 12.4 ha (30.7 ac). Dominant hydrophytic vegetation, wetland hydrology and hydric soils are all present; therefore, the wetland criteria are met and this site is a wetland. This site provides good quality wildlife habitat. This site was not coded as wetland by the NWI.

Site 2: This wet meadow is made up of two areas, both in the western one third of the tract. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 3. The northern portion lies approximately 15.2 m (50 ft) east of the base of the Cahokia Canal levee and extends west to Site 3 and south. The southern portion is approximately 0.9 ha (2.2 ac) and the northern portion 1.7 ha (4.1 ac) in area for a total of 2.5 ha (6.3 ac). Dominant hydrophytic vegetation, wetland hydrology and hydric soils are all present, therefore, the wetland criteria are met and this site is a wetland. This site provides good quality wildlife habitat. This site was not coded as wetland by the NWI.

The FQI and mean C of marsh and wet meadow combined was 20.5 and 2.56 respectively. These values indicate good natural quality and that the site may be an environmental asset.

Site 3: This wet floodplain forest is made up of two areas. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 1. The northern portion lies approximately 15.2 m (450 ft) east of the Cahokia Canal and extends east along the northern half of Site 1 to the eastern edge of the tract. The southern portion is approximately 3.2 ha (8.0 ac) and the northern portion 2.8 ha (6.9 ac) in area for a total of 6.0 ha (14.8 ac). Dominant hydrophytic vegetation, wetland hydrology and hydric soils are all present; therefore, the wetland criteria are met and this site is a wetland. This site provides medium quality wildlife habitat. The FQI was 11.5 and mean C value was 2.39. These values indicate fair natural quality. This site was not coded as wetland by the NWI.

Site 4: This forbland lies on the western edge of the tract just east of the base of the Cahokia Canal levee. Hydric soils are present; however, dominant hydrophytic vegetation and wetland hydrology are not. The wetland criteria are not all met and this site is not a wetland. This site was dominated by *Setaria faberi* and *Solidago canadensis.* This site was not coded as wetland by the NWI.

* The exotic/invasive species *Lespedeza cuneata* (sericea lespedeza) and *Lonicera japonica* (Japanese honeysuckle) were found in significant numbers at this site in 2009. These species should not be a problem in wetlands but will probably dominate in drier sites if not controlled.

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Appendix 1:

Routine Wetland Determinations

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: marsh
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract.
Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, and/or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
Typha angustifolia	OBL	herb
Typha latifolia	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: Undetermined (inundated area)
On Madison 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: Undet: X
Redox depletions: Yes: No: Undet: X
Matrix color: NA
Other hydric soil indicators: Soil is saturated.

Hydric soils: Yes: X No:
Rationale:This site was inundated. This soil is ponded for a long duration or a very long duration during the growing season. This characteristic is evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: marsh
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract.

HYDROLOGY

Inundated: Yes: X No: Depth of standing water: 0 to 0.3 m (0 to 12 in)
Depth to saturated soil: at surface
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and occasionally from backflow via Schneider Ditch (Rorick, 1994). Water leaves the site by way of soil infiltration, evapotranspiration and by sheet flow into Schneider Ditch on occasions.

Size of immediate watershed: < 13 km^2 (5 mi^2) The Mississippi River has a watershed greater than 25,920 km^2 (10,000 mi^2).
Other field evidence observed: drift lines, water marks, and water-borne sediment deposits
Wetland hydrology? Yes: X No:
Rationale: Topographic position indicates that water leaves this site slowly. In our opinion this site is flooded or saturated long enough during the growing season to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, wetland hydrology, and hydric soils are all present. The wetland criteria are all met and this site is a wetland. This site was not coded as wetland by the NWI.

Determined by: Rick Larimore (vegetation and hydrology)
David Ketzner (GPS, vegetation, and hydrology)
Dennis Keene (soils and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 3 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: marsh
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract.

SPECIES LIST
(for marsh and wet meadow combined)

Scientific name	Common name	Stratum	Wetland indicator status	C†
Acalypha rhomboidea	three seeded Mercury	herb	FACU	0
Acer negundo	box elder	shrub/seedling	FACW-	1
Acer saccharinum	silver maple	shrub/sapling	FACW	1
Alisma plantago aquatica	water plantain	herb	OBL	2
Amaranthus tuberculatus	water hemp	herb	OBL	1
Ambrosia trifida	giant ragweed	herb	FAC+	0
Ammannia coccinea	ammannia	herb	OBL	5
Apocynum cannabinum	dogbane	herb	FAC	2
Asclepias incarnata	swamp milkweed	herb	OBL	4
Aster simplex	panicled aster	herb	FACW	3
Bidens aristosa	swamp marigold	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
Boltonia asteroides	false aster	herb	FACW	5
Carex blanda	woodland sedge	herb	FAC	2
Carex crus corvi	sedge	herb	OBL	6
Carex hyalinolepis	sedge	herb	OBL	4
Carex lupulina	hop sedge	herb	OBL	5
Carex tribuloides	sedge	herb	FACW+	3
Carex vulpinoidea	fox sedge	herb	OBL	3
Cornus drummondii	rough leaf dogwood	shrub	FAC	2
Cyperus acuminatus	taperleaf flatsedge	herb	OBL	2
Cyperus ferruginescens	flat sedge	herb	OBL	1
Cyperus strigosus	straw colored flatsedge	herb	FACW	0
Diospyros virginiana	persimmon	shrub	FAC	2
Echinochloa muricata	barnyard grass	herb	OBL	0
Eleocharis erythropoda	red rooted spikerush	herb	OBL	3
Eleocharis obtusa	spikerush	herb	OBL	2
Eleocharis smallii	spikerush	shrub	OBL	5

(continued)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 4 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: marsh
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract.

SPECIES LIST (continued)
(for marsh and wet meadow combined)

Scientific name	Common name	Stratum	Wetland indicator status	C†
Eupatorium serotinum	late flowering thoroughwort	herb	FAC+	1
Fraxinus pennsylvanica	green ash	shrub/seedling	FACW	2
Hibiscus laevis	halberd leaf rose mallow	herb	OBL	4
Ipomoea lacunosa	small white morning glory	herb	FACW	1
Iva annua	sumpweed	herb	FAC	0
Juncus torreyi	Torrey's rush	herb	FACW	3
Juniperus virginiana	eastern red cedar	shrub	FACU	1
Leersia oryzoides	rice cutgrass	herb	OBL	3
Leersia virginica	white grass	herb	FACW	4
Lemna minor	duckweed	herb	OBL	3
Lindernia dubia	false pimpernel	herb	OBL	5
Liquidambar styraciflua	sweet gum	shrub	FACW	6
Ludwigia peploides	creeping primrose willow	herb	OBL	5
Lycopus americanus	water horehound	herb	OBL	3
Penthorum sedoides	ditch stonecrop	herb	OBL	2
Phragmites australis	common reed	herb	FACW+	1
Phyla lanceolata	fog fruit	herb	OBL	1
Platanus occidentalis	sycamore	shrub/sapling	FACW	3
Polygonum hydropiperoides	water pepper	herb	OBL	4
Polygonum lapathifolium	nodding smartweed	herb	FACW+	0
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1
Polygonum persicaria	spotted lady's thumb	herb	FACW	*
Populus deltoides	cottonwood	herb	FAC+	2
Ranunculus sceleratus	cursed crowfoot	herb	OBL	3
Rorippa sessiliflora	sessile flowered cress	herb	OBL	3
Rumex altissimus	pale dock	herb	FACW-	2
Rumex crispus	curly dock	herb	FAC+	*
Sagittaria latifolia	arrowhead	herb	OBL	4
Salix exigua	sandbar willow	shrub/sapling	OBL	1
Salix nigra	black willow	shrub/sapling	OBL	3
Samolis valerandii	brookweed	herb	OBL	5

(continued)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 5 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: marsh
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This marsh is located 99 m (325 ft) east of the Cahokia Canal and extends from there east through much of the tract. One small portion of this site is located in the extreme southwest corner of the tract.

SPECIES LIST (continued)
(for marsh and wet meadow combined)

Scientific name	Common name	Stratum	Wetland indicator status	C†
Scirpus validus	great bulrush	herb	OBL	4
Setaria faberi	giant foxtail	herb	FACU+	*
Solidago canadensis	Canada goldenrod	herb	FACU	1
Sorghum halapense	Johnson grass	herb	FACU	*
Typha angustifolia	narrow leaf cattail	herb	OBL	*
Typha latifolia	common cattail	herb	OBL	1
Ulmus americana	American elm	seedling	FACW-	5
Verbena hastata	blue vervain	herb	FACW+	3
Vitis aestivalis	summer grape	herb	FACU	4
Vitis riparia	riverbank grape	herb	FACW-	2

= Coefficient of Conservatism (Taft et al. 1997) mCv = ∑C/N = 164/64 = 2.56
* Non-native species FQI = ∑C/√N = 164/√64 = 20.5 Quality = good
Percent weedy or nonnative: 19/69 = 27.5%

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: wet meadow
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This wet meadow is made up of two areas both in the western one third of the tract. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 3. The northern portion lies approximately 15.2 m (50 ft) east of the base of the Cahokia Canal levee and extends west to Site 3 and south.

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

VEGETATION

Dominant Plant Species	**Indicator Status**	**Stratum**
Carex hyalinolepis	OBL	herb
Leersia oryzoides	OBL	herb
Phyla lanceolata	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: Petrolia silty clay loam
On Illinois State 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:
Redox depletions: Yes: X No:
Matrix color: 2.5Y 4/1
Other indicators: This soil is found in low areas and was inundated in many places.

Hydric soils: Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Petrolia silty clay loam as having aquic conditions. This soil has iron masses, iron depletions, and an iron depleted matrix. Furthermore, this soil meets the NRCS hydric soil indicator F3 (depleted matrix). These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 2 of 5)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: wet meadow
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This wet meadow is made up of two areas both in the western one third of the tract. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 3. The northern portion lies approximately 15.2 m (50 ft) east of the base of the Cahokia Canal levee and extends west to Site 3 and south.

HYDROLOGY

Inundated: Yes: X No: Depth of standing water: 0 to 0.3 m (0 to 12 in)
Depth to saturated soil: at surface
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and occasionally from backflow via Schneider Ditch (Rorick, 1994). Water leaves the site by way of soil infiltration, evapotranspiration and by sheet flow into Schneider Ditch on occasions.

Size of immediate watershed: < 13 km^2 (5 mi^2) The Mississippi River has a watershed greater than 25,920 km^2 (10,000 mi^2).
Other field evidence observed: drift lines, water stains, and sediment deposits
Wetland hydrology? Yes: X No:
Rationale: Topographic position indicates that water leaves this site slowly. In our opinion this site is flooded or saturated long enough during the growing season to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, wetland hydrology, and hydric soils are all present. The wetland criteria are all met and this site is a wetland. This site was not coded as wetland by the NWI.

Determined by: Rick Larimore (vegetation and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 1 of 3)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: wet floodplain forest
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This wet floodplain forest is made up of two areas. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 1. The northern portion lies approximately 15.2 m (450 ft) east of the Cahokia Canal and extends east along the northern half of Site 1 to the eastern edge of the tract.

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

VEGETATION

Dominant Plant Species	**Indicator Status**	**Stratum**
Populus deltoides	FAC+	tree
Fraxinus pennsylvanica	FACW	sapling
Populus deltoides	FAC+	sapling
Carex hyalinolepis	OBL	herb
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: Undetermined (inundated area)
On Madison 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: Undet: X
Redox depletions: Yes: No: Undet: X
Matrix color: NA
Other hydric soil indicators: Soil is saturated.

Hydric soils: Yes: X No:
Rationale:This site was inundated. This soil is ponded for a long duration or a very long duration during the growing season. This characteristic is evidence of a hydric soil.

Site 3 (page 2 of 3)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: wet floodplain forest
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This wet floodplain forest is made up of two areas. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 1. The northern portion lies approximately 15.2 m (450 ft) east of the Cahokia Canal and extends east along the northern half of Site 1 to the eastern edge of the tract.

HYDROLOGY

Inundated: Yes: X No: Depth of standing water: 0 to 0.3 m (0 to 12 in)
Depth to saturated soil: at surface
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and occasionally from backflow via Schneider Ditch (Rorick, 1994). Water leaves the site slowly by way of soil infiltration, evapotranspiration and by sheet flow into Schneider Ditch on occasions.
Size of immediate watershed: < 13 km^2 (5 mi^2) The Mississippi has a watershed greater than 25,920 km^2 (10,000 mi^2).
Other field evidence observed: drift lines and sediment deposits
Wetland hydrology? Yes: X No:
Rationale: Topographic position indicates that water leaves this site slowly. In our opinion this site is flooded or saturated long enough during the growing season to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, wetland hydrology, and hydric soils are all present: therefore, the wetland criteria are all met and this site is a wetland. This site was not coded as wetland by the NWI.

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 3 of 3)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: wet floodplain forest
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This wet floodplain forest is made up of two areas. The southern portion is adjacent to the base of the Cahokia Canal levee and extends east to the western edge of Site 1. The northern portion lies approximately 15.2 m (450 ft) east of the Cahokia Canal and extends east along the northern half of Site 1 to the eastern edge of the tract.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C†
Acer saccharinum	silver maple	sapling	FACW	1
Asparagus officinalis	asparagus	herb	FACU	*
Bidens frondosa	beggar's ticks	herb	FACW	1
Campsis radicans	trumpet creeper	herb/woody vine	FAC	2
Carex hyalinolepis	sedge	herb	OBL	4
Cassia fasciculata	partridge pea	herb	FACU-	1
Cornus racemosa	gray dogwood	shrub	FACW-	2
Cynanchum laeve	blue vine	herb	FAC	1
Eclipta prostrata	yerba de tajo	herb	FACW	2
Fraxinus pennsylvanica	green ash	shrub/sapling	FACW	2
Hibiscus laevis	halberd leaf rose mallow	herb	OBL	4
Juncus torreyi	Torrey's rush	herb	FACW	3
Lemna minor	duckweed	herb	OBL	3
Lysimachia nummularia	moneywort	herb	FACW+	*
Morus alba	white mulberry	shrub	FAC	*
Panicum dichotomiflorum	fall panicum	herb	FACW-	0
Panicum virgatum	switchgrass	herb	FAC+	4
Phalaris arundinacea	reed canarygrass	herb	FACW+	*
Phragmites australis	common reed	herb	FACW+	1
Populus deltoides	cottonwood	tree/sapling	FAC+	2
Rumex crispus	curly dock	herb	FAC+	*
Salix amygdaloides	peach leaf willow	sapling	FACW	4
Scirpus validus	great bulrush	herb	OBL	4
Solidago gigantea	late goldenrod	herb	FACW	3
Stachys tenuifolia	slender leaf betony	herb	OBL	5
Toxicodendron radicans	poison ivy	herb/woody vine	FAC+	1
Ulmus americana	American elm	seedling	FACW-	5
Xanthium strumarium	cocklebur	herb	FAC	0

= Coefficient of Conservatism (Taft et al. 1997) mCv = ∑C/N = 55/23 = 2.39
* Non-native species FQI = ∑C/√N = 55/√23 = 11.5 Quality = fair
Percent weedy or non-native: 11/28 = 39.3%

ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 1 of 2)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: forbland
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This forbland is located on the west side of the tract, adjacent to the east edge of Cahokia Canal, 0.8 km (0.5 mi) west of I 255.

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

VEGETATION

Dominant Plant Species	**Indicator Status**	**Stratum**
Setaria faberi	FACU+	herb
Solidago canadensis	FACU	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 0%

Hydrophytic vegetation? Yes: No: X
Rationale: Less than 50% of the dominants are OBL, FACW, FAC+ or FAC

SOILS

Series and phase: Petrolia silty clay loam
On Illinois State 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:
Redox depletions: Yes: X No:
Matrix color: 2.5Y 4/1
Other indicators: This soil is found in low areas.

Hydric soils: Yes: X No:
Rationale: The Natural Resources Conservation Service classifies Petrolia silty clay loam as having aquic conditions. This soil has iron masses, iron depletions, and an iron depleted matrix. Furthermore, this soil meets the NRCS hydric soil indicator F3 (depleted matrix). These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 2 of 2)

Field Investigators: Larimore, Ketzner, and Keene
Date: November 13, 2009
Project Name: Eckmann mitigation site
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: forbland
Legal Description: S 1/2 of NE 1/4 and NE 1/4 of NE ¼ Sec 25, T 3 N, R 9 W
Location This forbland is located on the west side of the tract, adjacent to the east edge of Cahokia Canal, 0.8 km (0.5 mi) west of I 255.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: 0.25 m (10 in)
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and occasionally from backflow of adjacent wetlands. Water leaves the site by way of soil infiltration, evapotranspiration and by sheet flow into adjacent wetlands.

Size of immediate watershed: < 13 km^2 (5 mi^2) The Mississippi has a watershed greater than 25,920 km^2 (10,000 mi^2).
Other field evidence observed: none
Wetland hydrology? Yes: No: X
Rationale: Topographic position indicates that water leaves this site quickly. In our opinion this site is not flooded or saturated long enough during the growing season to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: No: X
Rationale for decision: Dominant hydrophytic vegetation is present; however, wetland hydrology, and hydric soils are not. Therefore, the wetland criteria are not all met and this site is not a wetland. This site was not coded as wetland by the NWI.

Determined by: Rick Larimore (vegetation and hydrology)
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Eckmann Property
Mitigation Site Monitoring
Madison County

figure 1

0 400 800 Feet

0 100 200 Meters

scale 1:4800
1 inch=400 ft

Project boundary

1 - marsh
2 - wet meadow
3 - floodplain forest
4 - forbland (not wet)

11/09