

Report:

Mitigation Site Assessment

Date: 16 Jan 1995

Re: Mitigation Site Assessment

Eckmann Property
Madison County

Date Investigated: 28 November 1994

Site Description

A wetland mitigation site assessment was carried out on a 14.7 ha (36.2 acre) tract near Collinsville, IL in Madison Co. (Legal location: T 3 N, R 9 W, Sect. 25, SE 1/4, NE 1/4). The site occurs on the Mississippi River floodplain and the presettlement environment consisted of mesic and hydric floodplain forests, wet shrublands, and backwater ponds and sloughs. The surrounding land use is primarily cropland, although large amounts of floodplain forest and wet shrubland still exist. The tract itself is a wet agricultural field reverting back to formland (one year fallow). On two sides, the tract is bordered by large drainage ditches with floodplain forest beyond.

Hydrology

The hydrologic inputs at this site are backflow from the Mississippi River, precipitation and runoff from adjacent uplands. Water leaves the site by evapotranspiration, sheetflow through the swamp to the south and streamflow via Cahokia Canal. Backflow from the Mississippi deposits sediment on the site. During periods of exceptionally high water, sediment may be carried offsite. The following hydrologic alterations are currently in effect: 1. The site has drain tiles. 2. Small ditch/culvert systems lead into large canals to the east and south. 3. A levee separates the site from Cahokia Canal and the Mississippi River. The topography of the site is level and elevation is 125 m (410 ft). In the nonwetland portion of the tract, the water table was at a depth of .61 m (24 in). The wetland portions have water at or near the surface for at least two weeks during the growing season. The Mississippi has a watershed greater than 25,920 km² (10,000 mi²). Its hydrologic basin unit code is 07140101, Mississippi River, Upper.

Soils

Soil cores were taken in the project area and Beaucoup silty clay loam, poorly drained, is mapped at the site. A portion of this Beaucoup series soil in the southwest corner of the tract is incorrectly mapped as Wakeland silt loam. This soil exhibits moderately slow permeability. The potential for occasional flooding exists. Soil pH is neutral to slightly acidic. Beaucoup is a floodplain soil formed in loamy alluvium and is a hydric soil.

Vegetation

The community type found on this tract is formland/marsh (Table 1). The site was cropped with corn in 1993 and possibly 1994, but due to extreme wetness, only a small portion of the crop survived. The southwestern 1/8 of the tract is slightly higher topographically and probably lacks wetland hydrology.

Table 1. Plant Communities within the Project Area

A1. Marsh/Forbland (eastern 2/3 of tract)

Dominant Species

Understory- *Echinochloa muricata*, *Typha angustifolia*, *Amaranthus tuberculatus*

A2. Marsh/Forbland (northwest portion of tract)

Dominant Species

Understory- *Echinochloa muricata*, *Aster simplex*, *Rumex crispus*,
Ambrosia trifida, *Panicum dicotomiflorum*, *Xanthium strumarium*

B1. Forbland (southwest portion of tract)

Dominant Species

Understory- *Rumex crispus*, *Eupatorium serotinum*, *Aster simplex*,
Setaria faberi, *Digitaria sanguinalis*

Wetland Assessment

The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geologic Survey topographic map and National Wetland Inventory map (Monk's Mound 7.5 minute quadrangle); Soil Survey of Madison Co.; aerial photographs; *National List of Plant Species That Occur in Wetlands*; *The 1987 Corps of Engineers Wetland Delineation Manual*; and on-site vegetation, soil, and hydrologic indicators. Two of the three sites investigated meet the criteria of a wetland. Results of these determinations are summarized on the following pages and are described in more detail on the accompanying forms.

A brief functional assessment of each wetland is provided in this report. However, this assessment is not an exhaustive description of the values of the site. The Floristic Quality Index (FQI), Developed by Taft, Ladd, Wilhelm and Wetstein (*Floristic Quality Assessment Database for the State of Illinois*, unpublished data, 1993), was applied to the vegetation of each wetland. This index should not be used as a substitute for quantitative vegetation analysis, but it does provide a measure of floristic integrity. The FQI was calculated as follows: $I = R/N^{1/2}$, where R represents the sum of the numerical ratings for all species recorded in the area and N represents the number of recorded native species. The mean C was calculated as follows: $Mean C = R/N$. FQI values of less than ten indicate low natural quality, while sites with values greater than twenty have at least some evidence of native character and may be considered environmental assets.

Site 1: This marsh/forbland occupies the eastern 2/3 of the tract. Wetland vegetation, soils and hydrology are present. Therefore the site is a wetland. The site receives runoff from surrounding uplands, and water leaves by evapotranspiration, sheetflow and streamflow. This marsh is 9.7 ha (24.0 acres). The site is uncoded by the NWI. The NRCS classifies the site as Prior Converted Wetland, but admits that it is probably Farmed Wetland instead.

Site 2: This marsh/forbland occurs in the northwest corner of the tract. Wetland vegetation, soils and hydrology are present. Therefore the site is a wetland. This marsh/forbland receives runoff from surrounding uplands and water leaves by evapotranspiration and sheetflow. The site is 3.2 ha (7.8 acres) and is uncoded by the NWI. The NRCS classifies the site as Prior Converted Wetland.

Site 3: This forbland occurs in the southwest corner of the tract. Although wetland vegetation and soils are present, the site lacks wetland hydrology. Therefore the site is not a wetland. The site is 1.8 ha (4.4 acres) and is uncoded by the NWI.

Natural Areas

A large expanse of floodplain forest (200 ha (500 acres)), adjacent to the Cahokia Canal, borders the site to the south and east. Bohm Nature Preserve, a 4 ha (10 acre) mesic upland forest on the bluffs of the Mississippi, is located 16 km (10 mi) north of the site.

Wildlife Use and Habitat for Threatened and Endangered Species

This tract and adjacent land provide habitat for waterfowl and aquatic mammals, herptiles and fish. The ponds and floodplain forest in the vicinity may provide suitable foraging and nesting habitat for the great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), black crowned night heron (*Nycticorax nycticorax*), yellow crowned night heron (*Nyctanassa violacea*), little blue heron (*Egretta caerulea*) and moorhen (*Gallinula chloropus*), which are known to occur in Madison County. The snowy egret, black crowned night heron and little blue heron are endangered in Illinois. The great egret, moorhen and yellow crowned night heron are threatened in Illinois. No threatened or endangered plant species were located or are likely to occur onsite or nearby.

Potential for Wetland Creation or Restoration

This 14.7 ha (36.2 acre) site is a very wet agricultural field, one year fallow. The NRCS classifies the site as prior converted wetland, but admits that it is probably farmed wetland and will visit the site on request. Large canals adjacent to floodplain forest border the site on two sides. Silver maple, cottonwood, willow and American elm seedlings have already become established. If left alone, this tract will certainly become floodplain forest, possibly with marsh openings. Blocking the culverts and impeding the canal flow might be helpful. The more well drained 1.8 ha (4.4 acres) to the southwest, could be shallowly excavated, but this is probably not necessary. Plantings of *Quercus palustris*, *Q. bicolor*, *Carya illinoensis* and *C. cordiformis* might do well and would benefit wildlife.

Appendix 1: Wetland Determinations

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 3)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Marsh/Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255. Eastern 2/3 of tract.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Echinochloa muricata</i>	herb	OBL
2. <i>Typha angustifolia</i>	herb	OBL
3. <i>Amaranthus tuberculatus</i>	herb	OBL

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: No:
Rationale: More than 50% of dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Beaucoup silty clay loam
On Madison County hydric soils list?: Yes: No:
Is the soil a histosol? Yes: No: Histic epipedon present? Yes: No:
Is the soil: Mottled? Yes: No: Gleyed? Yes: No:
Matrix color: 10YR 4/1 Mottle color: 10YR 5/8, 7.5YR 4/6
Other hydric soil indicators: This soil is found in a level to depressional area.

Hydric soils: Yes: No:
Rationale: The Soil Conservation Service classifies Beaucoup silty clay loam as having aquatic conditions. This soil has mottles, a low chroma matrix, and is found in a low-lying area. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 3)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Marsh/Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255. Eastern
 2/3 of tract.

HYDROLOGY

Inundated: Yes: X (Partially) No: Depth of standing water: .1 m (4 in)
Depth to saturated soil: at surface to .38 m (15 in)
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from uplands. Evapotranspiration, streamflow and sheetflow are the major outputs.

Size of watershed: greater than 25,920 km² (10,000 mi²)

Other field evidence observed: The site occupies a level to depressional area in the landscape and is adjacent to canals and floodplain forest

Wetland hydrology: Yes: X No:

Rationale: Field evidence suggests that this site may be saturated or inundated for a sufficient duration to meet the wetland hydrology criterion.

WETLAND DETERMINATION AND RATIONALE:

Is the site a wetland?: Yes: X No:

Rationale: Hydrophytic vegetation, hydric soils and wetland hydrology are present. Therefore, we determined that this area is a wetland.

Determined by: Allen Plocher (vegetation and hydrology)
 Dave Ketzner (vegetation and hydrology)
 Dennis Keene (soils and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 3 of 3)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Marsh/Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255. Eastern 2/3 of tract.

SPECIES LIST (Sites 1 and 2)

Scientific name	Common name	Stratum	Wetland indicator status	NARI
<i>Acer rubrum</i>	red maple	herb	FAC	5
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Amaranthus tuberculatus</i>	tall water hemp	herb	OBL	1
<i>Ambrosia artemisiifolia</i>	common ragweed	herb	FACU	0
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	3
<i>Apocynum sibiricum</i>	Indian hemp	herb	FAC+	2
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	0
<i>Aster pilosus</i>	hairy aster	herb	FACU+	0
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Barbarea vulgaris</i>	winter cress	herb	FAC	
<i>Bidens cernua</i>	beggar's ticks	herb	OBL	2
<i>Bidens frondosa</i>	beggar's ticks	herb	FACW	1
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Carex annectens</i>	yellow-fruited sedge	herb	FACW	3
<i>Carex lacustris</i>	lake sedge	herb	OBL	6
<i>Cyperus erythrorhizos</i>	red rooted sedge	herb	OBL	1
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eleocharis spp.</i>	spikerush	herb		
<i>Ipomea lacunosa</i>	small white morning glory	herb	FACW	1
<i>Lycopus rubellus</i>	tapered-leaf bugleweed	herb	OBL	8
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Panicum capillare</i>	witch grass	herb	FAC	0
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	
<i>Polygonum amphibium</i>	water smartweed	herb	OBL	3
<i>Polygonum lapathifolium</i>	pale smartweed	herb	FACW+	0
<i>Populus deltoides</i>	cottonwood	herb	FAC+	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	
<i>Salix amygdaloides</i>	peach leaf willow	herb	FACW	4
<i>Salix exigua</i>	sandbar willow	herb	OBL	1
<i>Salix nigra</i>	black willow	herb	OBL	3
<i>Scirpus fluviatilis</i>	river bullrush	herb	OBL	3
<i>Scirpus pendulus</i>	drooping bullrush	herb	OBL	3
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	
<i>Setaria glauca</i>	yellow bristle grass	herb	FAC	
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Typha angustifolia</i>	narrow leaf cattail	herb	OBL	
<i>Ulmus americana</i>	American elm	herb	FACW-	4
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

*Floristic Quality Index, by J. Taft, D. Ladd, G. Wilhelm and L. Wetstein (1993)
 FQI= 11.3, mean C = 1.8

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 2)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Marsh/Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255.
 Northwest corner of tract.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Echinochloa muricata</i>	herb	OBL
2. <i>Aster simplex</i>	herb	FACW
3. <i>Rumex crispus</i>	herb	FAC+
4. <i>Ambrosia trifida</i>	herb	FAC+
5. <i>Panicum dichotomiflorum</i>	herb	FACW-
6. <i>Xanthium strumarium</i>	herb	FAC

Percentage of dominant species that are OBL, FACW, or FAC: 100%

Hydrophytic vegetation: Yes: No:
Rationale: More than 50% of dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Beaucoup silty clay loam

On Madison County hydric soils list?: Yes: No:

Is the soil a histosol? Yes: No: Histic epipedon present? Yes: No:

Is the soil: Mottled? Yes: No: Gleyed? Yes: No:

Matrix color: 10YR 4/1 Mottle color: 10YR 5/8, 7.5YR 4/6

Other hydric soil indicators: This soil is found in a level to depressional area.

Hydric soils: Yes: No:

Rationale: The Soil Conservation Service classifies Beaucoup silty clay loam as having aquic conditions. This soil has mottles, a low chroma matrix, and is found in a low-lying area. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2 (page 2 of 2)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Marsh/Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255.
 Northwest corner of tract.

HYDROLOGY

Inundated: Yes: X (Partially) No: Depth of standing water: .1 m (4 in)
 Depth to saturated soil: at surface to .38 m (15 in)
 Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from uplands. Evapotranspiration, streamflow and sheetflow are the major outputs.
 Size of watershed: greater than 25,920 km² (10,000 mi²)
 Other field evidence observed: The site occupies a level to depressional area in the landscape.

Wetland hydrology: Yes: X No:
Rationale: This site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

WETLAND DETERMINATION AND RATIONALE:

Is the site a wetland?: Yes: X No:
Rationale: Hydrophytic vegetation, hydric soils and wetland hydrology are present. Therefore, we determined that this area is a wetland.

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ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 1 of 3)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255.
 Southwest corner of tract.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Rumex crispus</i>	herb	FAC+
2. <i>Eupatorium serotinum</i>	herb	FAC+
3. <i>Aster simplex</i>	herb	FACW
4. <i>Setaria faberi</i>	herb	FACU+
5. <i>Digitaria sanguinalis</i>	herb	FACU

Percentage of dominant species that are OBL, FACW, FAC+ or FAC: 60%

Hydrophytic vegetation: Yes: No:
Rationale: More than 50% of dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Beaucoup silty clay loam
 On Madison County hydric soils list?: Yes: No:
 Is the soil a histosol? Yes: No: Histic epipedon present? Yes: No:
 Is the soil: Mottled? Yes: No: Gleyed? Yes: No:
 Matrix color: 10YR 4/1 Mottle color: 10YR 5/8, 7.5YR 4/4
 Other hydric soil indicators: This soil is found in a level area.

Hydric soils: Yes: No:
Rationale: The Soil Conservation Service classifies Beaucoup silty clay loam as having aquic conditions. This soil has mottles, a low chroma matrix, and is found in a level area. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 2 of 3)

Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255.
 Southwest corner of tract

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
 Depth to saturated soil: .38 m (24 in)
 Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from uplands. Evapotranspiration, streamflow and sheetflow are the major outputs.
 Size of watershed: greater than 25,920 km² (10,000 mi²)
 Other field evidence observed: none

Wetland hydrology: Yes: No: X
Rationale: This site is slightly higher topographically than the surrounding land. It is not inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

WETLAND DETERMINATION AND RATIONALE:

Is the site a wetland?: Yes: No: X
Rationale: Although hydrophytic vegetation and hydric soils are present, wetland hydrology is not. Therefore, we determined that this area is not a wetland.

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ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 3 of 3)

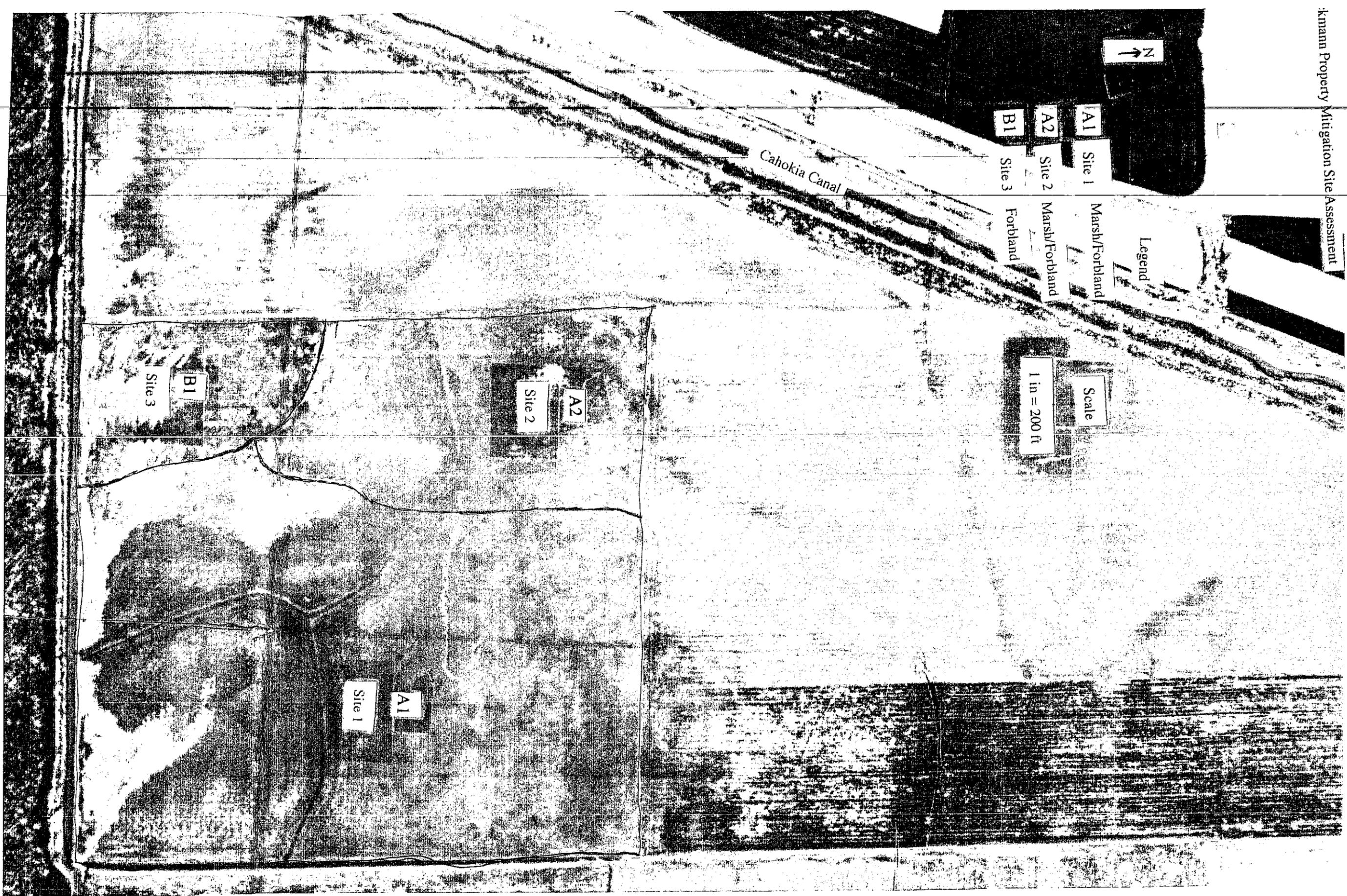
Field Investigators: Plocher, Ketzner, Keene **Date:** 28 November 1994
Section No.: NA **Project Name:** Eckmann Property
State: Illinois **County:** Madison **Applicant:** IDOT District 8
Site Name: Forbland
Legal Description: T. 3 N., R. 9 W., Sec. 25, SE/4, NE/4
Location: 1.6 km (1 mi) north of I 70, .8 km (1/2 mi) west of I 255.
 Southwest corner of tract.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	NARI
<i>Abutilon theophrasti</i>	velvetleaf	herb	FACU-	
<i>Ambrosia artemisiifolia</i>	common ragweed	herb	FACU	0
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0
<i>Aster simplex</i>	panicked aster	herb	FACW	3
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Carex spp.</i>	sedge	herb		
<i>Conyza canadensis</i>	horseweed	herb	FAC-	0
<i>Cornus spp.</i>	dogwood	shrub		
<i>Desmodium spp.</i>	tick trefoil	herb		
<i>Digitaria sanguinalis</i>	hairy crabgrass	herb	FACU	
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	
<i>Erigeron annuus</i>	annual fleabane	herb	FAC-	1
<i>Eupatorium serotinum</i>	late thoroughwort	herb	FAC+	1
<i>Matelea spp.</i>	climbing milkweed	herb		
<i>Mimulus alatus</i>	winged monkey flower	herb	OBL	6
<i>Populus deltoides</i>	cottonwood	herb	FAC+	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Sorghum halapense</i>	Johnson grass	herb	FACU	
<i>Taraxacum officinale</i>	common dandelion	herb	FACU	
<i>Ulmus americana</i>	American elm	herb	FACW-	4
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Wetstein (1993)

FQI= 6.3, mean C= 1.4



N

A1
A2
B1

Site 1
Site 2
Site 3

Legend

Marsh/Forbland

Marsh/Forbland

Forbland

Scale

1 in = 200 ft

Cahokia Canal

A2

Site 2

A1

Site 1

B1

Site 3