

TRANSMITTAL

To: Bureau of Design and Environment
Attention: Tom Brooks
From: Illinois Natural History Survey
Regarding: Wetland Monitoring

Route and Location

Route: FAP 999
County: St. Clair
IDOT District: 8
Local Name: Fairmont City Wetland Compensation Site

Survey Conducted By: David Ketzner, Dennis Keene and Paul Marcum
Illinois Natural History Survey
Division of Ecology & Conservation Science
1816 S. Oak Street
Champaign, IL 61820
217-244-8821 (Ketzner)
dketzner@inhs.uiuc.edu

Dates Conducted: 2 and 28 October, 14 November 2008

Project Summary:

First year monitoring of the wetland compensation site was completed in November. The enclosed report includes information detailing monitoring methods and results, and the status of the wetland restoration is evaluated and discussed. Three wetlands and four plant communities were identified at the site. Recommendations for future management are also included.

Signed: 
Dr. Allen E. Plocher
INHS/IDOT Project Coordinator

Date: _____

Signed: _____
Dr. Edward J. Heske
INHS/IDOT Project Principal Investigator

Date: _____

Site Monitoring of the Fairmont City Wetland Compensation Site, St. Clair County, Illinois - 2008

David Ketzner, Dennis Keene, Paul Marcum and Brad Zercher
Illinois Natural History Survey
Division of Ecology & Conservation Science
607 East Peabody Drive
Champaign, IL 61820
217-244-8821 (Ketzner)
dketzner@inhs.uiuc.edu

Introduction and Site Description

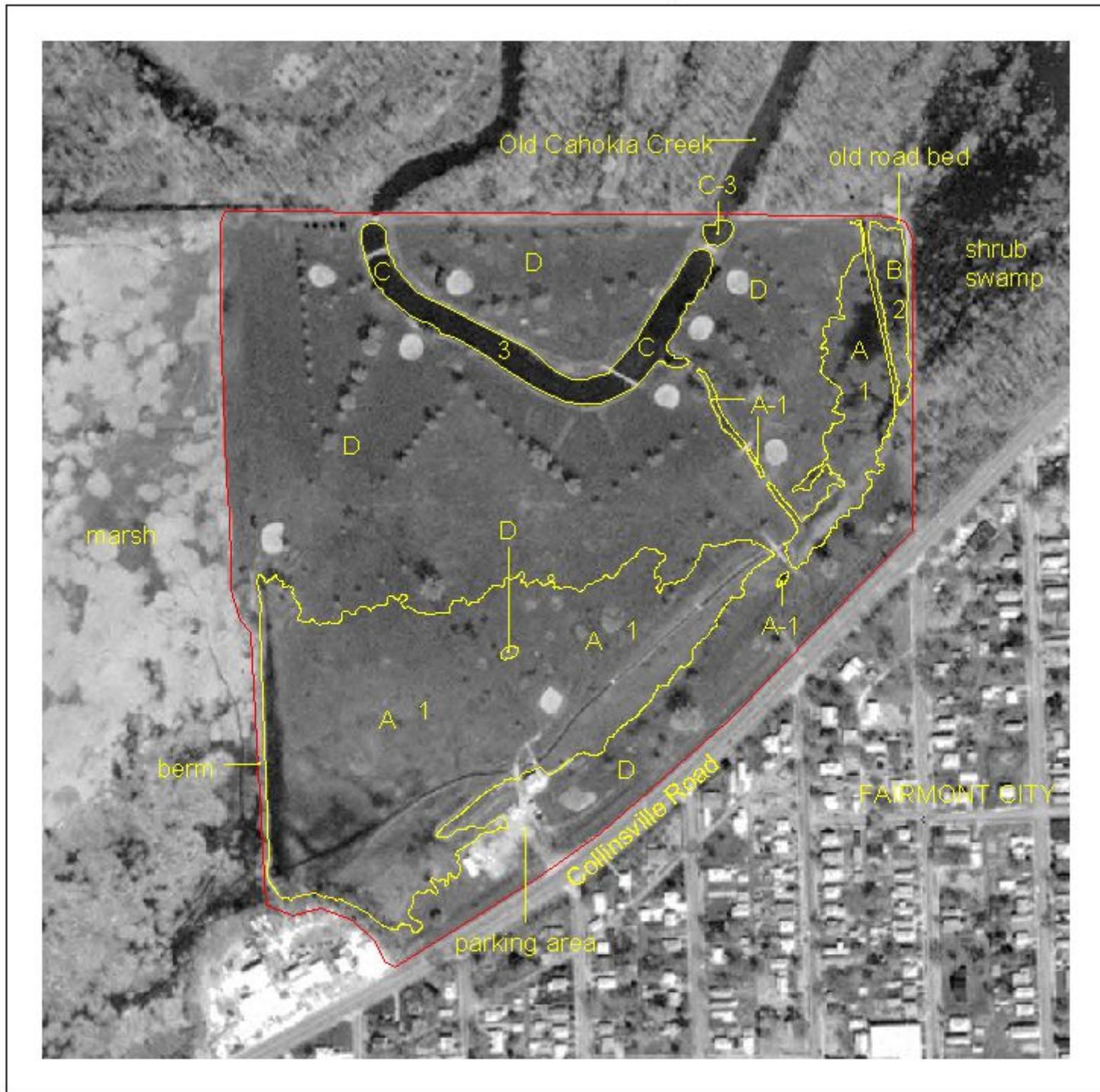
Wetland mitigation site monitoring was conducted on the Fairmont City Wetland Compensation Site, located near Fairmont City, in St. Clair County, Illinois. This tract was purchased in February 2000 by the Illinois Department of Transportation for mitigation of lost wetlands. The site is approximately 28 ha (69.3 acres) in size and is located in the American Bottoms, the broad floodplain of the Mississippi River east of St. Louis. The presettlement environment of this area consisted of bottomland forest, marsh, wet prairie and mesic prairie (Schwegman *et al.* 1973). Oxbow lakes and sloughs were also common in this region, with many of them persisting to this day. The Fairmont City Wetland Compensation Site is located just north of Collinsville Road (Figure 1), with marsh, shrub swamp and bottomland forest bordering the other three sides. A narrow berm along the southwest border of the site separates it from the deeper parts of the adjacent marsh. Along the east and north boundaries of the property, an old roadbed separates the site from the adjacent shrub swamp and bottomland forest. Old Cahokia Creek meanders through the north part of the mitigation site.

A mitigation site assessment was conducted on this site in August of 1999 (Keene and Ketzner 1999). At that time, the site was an active golf course with nine holes and a driving range. Flooding of the course and clubhouse was a reoccurring problem, and the site was soon sold to the IDOT. Since the closing of the golf course, water pumps were shut down and the clubhouse was demolished. Other than the shutting down of the water pumps, no hydrologic modifications were made to the site, and plant communities have largely been allowed to develop naturally. In 2005 most of the non-native trees on the site were removed, but no planting or seeding has been done by IDOT. Several features of the abandoned golf course are still present. Putting greens, planted in Bermuda grass, are still present and evident on aerial photos. Three foot bridges crossing Old Cahokia Creek are still functional. At the time of the mitigation site assessment, Old Cahokia Creek was almost entirely open water, with very little vegetation present. Since purchase by the IDOT, the old creek channel has grown-up in marsh and wet shrubland.

The mitigation site assessment identified two different plant communities on the site, including two wetland sites (Keene and Ketzner 1999). A wet meadow dominated by *Eleocharis erythropoda*, *Leersia oryzoides* and *Polygonum hydropiperoides* was identified in the southwest part of the site. This wetland was approximately 1.2 ha (3 acres) in size. Another wet meadow, approximately 0.3 ha (0.7 acre) in size, was found in the southeast part of the site. This wetland was dominated by *Leersia oryzoides*, *Polygonum hydropiperoides* and *Sagittaria latifolia*. The rest of the site was closely mown, non-native grassland (the golf course fairway), dominated by *Digitaria ischaemum*, *Eleusine indica*, *Plantago rugelii* and *Trifolium repens*. Large trees, many of them in rows, were also present in the north part of

Fairmont City Wetland Compensation Site St. Clair County

Figure 1



0 400 800 Feet

scale 1:4800
1 inch=400 ft

0 100 200 Meters

 **Wetland site**
 **Project boundary**

Plant Communities
 A-marsh
 B-wet floodplain forest
 C-wet shrubland / marsh
 D-non-native grassland



01/09

the site and along Collinsville Road. Many of these trees were probably planted, and most persist to this day.

The decurrent false aster (*Boltonia decurrens*) is known from the site. *Boltonia decurrens* is currently listed as federally threatened and is also threatened within the state of Illinois (U. S. Fish and Wildlife Service 1990, Illinois Endangered Species Protection Board 2005). This population was monitored yearly from 2002 to 2006, and results can be found in Ketzner *et al.* (2007). In 2008, an estimated 750 - 1000 individuals of the decurrent false aster were found at the Fairmont City Wetland Compensation Site. Details of this study will be reported in a separate report to the IDOT.

Field monitoring of the mitigation site was conducted on 2 and 28 October, and 14 November 2008. This report details results of the first year of monitoring. Monitoring will continue on the site until further notice is received from the IDOT, and additional annual reports will follow. The population of the decurrent false aster will also be monitored yearly and results will be detailed in separate reports to the IDOT.

Vegetation

Four plant communities are present within the project area (Table 1). The marsh community extends from the southwest part of the site, across the south quarter of the property, and into the northeast corner of the site (Figure 1). Tall graminoid plants dominate this community. Common reed (*Phragmites australis*) and cattails (*Typha* spp.) form a thick band on the periphery of the marsh, with a zone of rice cutgrass (*Leersia oryzoides*) to the inside. In the deeper middle of the marsh the graminoids give way to duckweeds (*Lemna minor* and *Spirodela polyrhiza*) and open water. The FQI for this community is 23.0 and the mean C value is 2.9 (Appendix 1, Site 1). These values are indicative of good natural quality. Most of the decurrent false aster plants on site occur within this community. There are actually three sections of marsh within the site (Figure 1), with the easternmost section separated from the others by a narrow roadbed. The marsh community covers approximately 8.16 ha (20.17 acres) of the site.

The wet floodplain forest is located in the northeast part of the site, between an old roadbed and a small berm. This forest is relatively young growth, and most of the trees are probably less than 20 years old. The FQI for this community is 17.2 and the mean C value is 3.1 (Appendix 1, Site 2). These values are indicative of fair natural quality. The wet floodplain forest is approximately 0.29 ha (0.72 acre) in size.

The wet shrubland/marsh is located in the channel of Old Cahokia Creek. This community is a mosaic of shrubby areas dominated by buttonbush (*Cephalanthus occidentalis*) and marshy areas dominated by rice cutgrass (*Leersia oryzoides*) and narrow-leaved cattail (*Typha angustifolia*). Duckweed (*Lemna minor*) dominates the deeper areas of the old channel. Buttonbush will probably continue to increase in cover at this site, and the marshy areas will probably decrease. In 1999, the old creek channel was mostly open water. At that time, the site was an active golf course, and vegetation here may have been periodically cut or treated with herbicide to maintain an open channel. The FQI for this community is 20.4 and the mean C value is 3.1 (Appendix 1, Site 3). These values are indicative of good natural quality. The wet shrubland/marsh community is approximately 0.93 ha (2.30 acres) in size.

The non-native grassland community includes most of the northern half of the site, and includes almost all of the area that is not wetland. This community is dominated by the non-native tall fescue (*Festuca arundinacea*), undoubtedly planted at the site, and Canada goldenrod (*Solidago canadensis*). In 1999, when the site was first visited, tall fescue was common but did not dominate the site. However, it increased dramatically after the Fairmont

Table 1. Plant communities within the project area.

A Marsh (Wetland Site 1)

Dominant Plant Species

Herbs - *Leersia oryzoides*, *Phragmites australis*, *Typha angustifolia* & *Typha latifolia*

B Wet Floodplain Forest (Wetland Site 2)

Dominant Plant Species

Trees - *Fraxinus pennsylvanica* and *Ulmus americana*

Sapling - *Fraxinus pennsylvanica*

Sapling/Shrub - *Ilex decidua*

Herb - *Carex hyalinolipis*

C Wet Shrubland/Marsh (Wetland Site 3)

Dominant Plant Species

Shrub - *Cephalanthus occidentalis*

Herbs - *Leersia oryzoides*, *Lemna minor* & *Typha angustifolia*

D Non-native Grassland

Dominant Plant Species

Herbs - *Festuca arundinacea* & *Solidago canadensis*

Golf Course was closed, and soon covered over half of the compensation site. In recent years, it has declined somewhat, and Canada goldenrod has increased in abundance. The non-native grassland community is approximately 18.6 ha (46.1 acres) in size. Including three species of trees that were probably planted, the FQI for this community is 16.8 and the mean C value is 2.1 (Appendix 2). Excluding planted species, the FQI for this community is 15.1 and the mean C value is 1.9. These values are all indicative of fair natural quality.

Soils

Soil samples were taken throughout the site. The soil survey of St. Clair County (Indorante and Leeper 2000) originally had Darwin silty clay and Fluvaquents mapped at this site. After conducting the field investigation of the site, it was determined that Karnak silty clay and Fluvaquents were present in this area. Fluvaquents are poorly drained bottomland soils. Fluvaquents were found in the wettest area (west part of site) and were, for the most part, inundated. Fluvaquents are rated as fair for potential for wetland plants and wetland wildlife. Karnak silty clay was found in the other areas and had a water table deeper than 1 m at the time of the field visit. Karnak silty clay is a poorly drained soil (hydric soil) with a low permeability rate. Karnak is rated good for potential for wetland plants and wetland wildlife.

Hydrology

The hydrologic inputs at this site appear to be precipitation, sheet flow from higher ground to the south (Collinsville Road and beyond), and from overflow of Old Cahokia Creek and the wetlands to the east and west of the site. It seems likely that during periods of high water, the shrub swamp to the east and the marsh to the west overtop the abandoned road and the berm separating them from the Fairmont City Wetland Compensation Site. The abandoned road on the east boundary of the site is only a few inches higher than the shrub swamp, and does not provide much of a barrier to flow. Although the berm on the southwest boundary of the site is higher and wider than the old roadbed, water probably does overtop it at times. However, this berm probably acts as a barrier, most of the time, to flow from the east, and likely aids in retention of water onto the compensation site. Another low berm composed of dredge material, is situated along a shallow ditch, and separates the marsh community from the wet floodplain forest community within the site. This berm is very low and is breached in at least one area. It does not appear to impede flow from the wet floodplain forest to the marsh community.

In addition to overflow from wetlands to the east and west, the site probably receives floodwater from Old Cahokia Creek, via two ditches connecting the creek to the marsh community. One ditch runs parallel to the old roadbed on the northeast boundary of the site before abruptly turning south and draining into the marsh community. This ditch is very narrow and shallow, and probably only drains small amounts of water away from the creek during extreme flooding events. Since this ditch slopes downhill from the creek, it seems unlikely to ever drain water away from the marsh. The other ditch is much deeper and wider, and likely has a much greater influence on the hydrology of the compensation site. It probably drains water away from the marsh community to Old Cahokia Creek at times, while at other times acts to do the reverse, depending on relative water levels in the marsh and creek. Another ditch, entirely within the marsh community and running roughly parallel to Collinsville Road, is readily apparent on Figure 1. This ditch runs from the berm on the southwest boundary of the site, to a small roadbed in the southeast part of the property that runs through the marsh community. Although this ditch may have at one time helped drain the site while it was an active golf course, it appears to have little effect on the hydrology of the site since the water pumps were deactivated.

The hydrology of Old Cahokia Creek has been greatly modified from presettlement times, and it is difficult today to even determine which direction it historically flowed. Segments of the historic channel have been filled, and the creek no longer is directly connected to Horseshoe Lake as it once was. Today the creek is cut-off from Horseshoe Lake by the embankment along the Cahokia Canal, and possibly Interstate Route 55/70, northeast of the compensation site. To the northwest of the site, the creek now empties into a pond along Interstate Route 55/70, at the base of a landfill. From there, the historic channel is apparently buried by the landfill. Beaver also make extensive use of the creek, and their dams are apparent.

The USGS hydrologic unit code for this basin is 707140101 (Mississippi River Tribs - Hartford to Reily Lake). The watershed size of Old Cahokia Creek at the project site is probably less than 12.9 km² (5 mi²). Although within its historical floodplain, the area no longer receives direct flooding from the Mississippi River because of a levee system.

Wetland Survey

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 Quadrangle, 7.5 Minute Series); Reed (1988); Indorante and Leeper (2000); and Environmental Laboratory (1987). Plant nomenclature primarily follows Mohlenbrock (1986). These materials were used during an on-site evaluation of vegetation, soils, and hydrology.

All potential wetlands within the project area were examined. Three routine on-site wetland determinations were performed. All three sites met all wetland criteria and, therefore, were determined to be wetlands. Results of the determinations are summarized below and are described in more detail on the accompanying forms (Appendix 1). Wetland boundaries were recorded using a Trimble Global Positioning System. The locations of the determination sites were overlain on a digital orthoquad (DOQ), and approximate wetland acreages were determined using ArcView 3.2. Printouts of the DOQ are included with this report (Figure 1). Locations of the sites, in relation to nearby roads, were measured from the edge of the pavement.

Included with the assessment of the site is its Floristic Quality Index (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 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. Plants not identified to species level are not rated and are not included in the calculations.

The Floristic Quality Index (FQI) is calculated as follows: $FQI = R/\sqrt{N}$, where R represents the sum of the numerical ratings (C) for all species recorded for a site, and N represents the number of plants on the site. The mean C value (also known as mean rated quality) was also determined for each site. This value is calculated as follows: $mCv = R/N$. The C value for each species is shown in the species list for the site. Species not native to Illinois (indicated by ** in the species list for each site) are not included in calculations. An Index score below 10 suggests a site of low natural quality; below five, a highly disturbed site. An FQI value of 20 or more suggests that a site has evidence of native character and may be considered an environmental asset.

Wetland Site Summaries

Site 1: This marsh is located approximately 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the compensation site. Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. This site is approximately 8.16 ha (20.17 acres) in size and is entirely within the project area. This marsh provides floodwater storage and wildlife habitat of good quality. The National Wetlands Inventory (NWI) codes parts of this site as PEMA (temporarily flooded, emergent, palustrine wetland), PEMC (seasonally flooded, emergent, palustrine wetland), PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland) and part as non-wetland. The FQI for the site is 23.0 and the mean C value is 2.9. These values are indicative of good natural quality, and this site can be considered an environmental asset. An estimated 750 - 1000 plants of decurrent false aster (*Boltonia decurrens*) occur at this site.

Site 2: This wet floodplain forest is located approximately 88.4 m (290 ft) north of Collinsville Road, along the old roadbed, in the northeast corner of the compensation site. Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. This site is approximately 0.29 ha (0.72 acre) in size and is entirely within the project area. This wet floodplain forest provides floodwater storage and wildlife habitat of fairly good quality. The NWI codes part of this site as PEMC (seasonally flooded, emergent, palustrine wetland), part as PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland), and part as non-wetland. The FQI for the site is 17.2 and the mean C value is 3.1. These values are indicative of fair natural quality. Most of the trees at this site are probably under 20 years old.

Site 3: This wet shrubland/marsh is the channel of Old Cahokia Creek, located approximately 240.8 m (790 ft) north of Collinsville Road, in the north-central part of the compensation site. Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. Although this site is located within a stream channel, it is well vegetated with rooted-emergent and woody hydrophytic plant species and, in our opinion possesses sufficient wetland character to be classified as a wetland. In addition, the Old Cahokia Creek appears to have been cut off during construction of the Cahokia Canal and, therefore, may no longer be a free-flowing stream. Beaver have also constructed dams within the channel, resulting in pooling and uneven water levels. This site is approximately 0.93 ha (2.30 acres) in size within the compensation site, and extends outside of the site an undetermined distance. This wet shrubland/marsh provides floodwater storage and wildlife habitat of good quality. The NWI codes this site as R2UBHx (excavated, permanently flooded, lower perennial, riverine system with an unconsolidated bottom). The FQI for the site is 20.4 and the mean C value is 3.1. These values are indicative of good natural quality, and this site can be considered an environmental asset. A few plants of decurrent false aster (*Boltonia decurrens*) were found at this site.

Discussion and Recommendations

Based on our fieldwork and the well data collected by the Illinois State Geological Survey, we estimate that approximately 9.39 ha (23.19 acres) of the site satisfied all wetland criteria in 2008. Fucciolo *et al.* (2008) estimated that the area of the site that satisfied wetland hydrology criteria for more than 5% of the 2008 growing season was 13.9 ha (34.4 acre), and the area of the site that satisfied wetland hydrology for more than 12.5% of the 2008 growing season was also estimated to be 13.9 ha (34.4 acre). However, not all of the area satisfying all wetland hydrology criteria has hydrophytic vegetation. A small area of non-native grassland satisfied the wetland hydrology criteria in 2008. However, this area adjacent to the marsh community, is dominated by tall fescue (*Festuca arundinacea*) and Canada goldenrod (*Solidago canadensis*), neither of which is considered to be a hydrophyte. In addition,

Fucciolo *et al.* (2008) did not include the Old Cahokia Creek area in their estimate. We consider this site of approximately 0.93 ha (2.30 acres) to satisfy all wetland hydrology criteria and, therefore, to be a wetland. Hydric soils appear to be present throughout the entire wetland compensation area.

In 2005, most of the exotic trees and shrubs were removed from the site. This work was contracted to Mott Excavating of Vienna, Illinois. Although most of the trees were destroyed, a few were missed, and some individuals may have resprouted after cutting and herbicide treatment. In addition, some saplings have undoubtedly colonized the area since treatment. The most important problem tree is Siberian elm (*Ulmus pumila*). A small grove of this species is developing just south of the Old Cahokia Creek. At this time, trees in this small grove are approximately 0.2 m (8 in) in diameter at breast height. In addition to Siberian elm, a few individuals of tree-of-Heaven (*Ailanthus altissima*), white mulberry (*Morus alba*), Amur honeysuckle (*Lonicera maackii*) and privet (*Ligustrum vulgare*) are scattered throughout the non-native grassland community. All of these woody species are non-native, invasive, and undesirable.

We recommend removal of all Siberian elms from the site. Trees should be girdled in the late spring to mid-summer (Kennay and Fell 1990). They usually die slowly over one or two years and do not resprout. The girdle should not cut into the xylem, or shoots will sprout from the girdle. Cutting the trees along with treatment of the stumps with Roundup is also effective. A 10-20% concentration of Roundup is recommended. Any resprouts from the stumps should be cut. The other exotic trees and shrubs should also be removed. We recommend these species be treated in the same manner as those of Siberian elm.

This report details results of the first year of monitoring at this site. If more intensive monitoring is needed, the IDOT should notify the Illinois Natural History Survey prior to the beginning of the growing season. Monitoring will continue at this site until further notice is received.

Literature Cited

- Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 207 pp.
- Fucciolo, C. S., S. E. Benton, K. E. Bryant, K. W. Carr, C. W. Knight, J. J. Miner, E. T. Plankell and G. E. Pociask. 2008. Annual report for active IDOT wetland compensation and hydrologic monitoring sites. September 1, 2007 to September 1, 2008. Report submitted to the Illinois Department of Transportation by the Illinois State Geological Survey, Champaign. 210 pp.
- Illinois Endangered Species Protection Board. 2005. Checklist of endangered and threatened animals and plants of Illinois. Illinois Endangered Species Protection Board, Springfield. 16 pp.
- Indorante, S. J. and R. A. Leeper. 2000. Soil survey of St. Clair County, Illinois. United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Illinois Agricultural Experiment Station.
- Keene, D. and D. Ketzner. 1999. Wetland mitigation site assessment survey report for FAP 999, Mississippi Bridge Crossing, St. Clair County. Report submitted to the Illinois Department of Transportation by the Illinois Natural History Survey, Champaign. 15 pp.

- Kennay, J. and G. Fell. 1990. Vegetation management guideline. Siberian elm (*Ulmus pumila* L.). Vol. 1, No. 21. Illinois Nature Preserves Commission, Springfield. 4 pp + illustration.
- Ketzner, D., P. Marcum, D. Keene, J. Zylka and A. Plocher. 2007. Results from the decurrent false aster (*Boltonia decurrens*) recovery project - FAP 999 (New Mississippi River Crossing, Relocated I-70 and I-64 Connector) and FAP 14 (IL Route 3 Relocation), Madison and St. Clair counties, Illinois - 2006. Report submitted to the Illinois Department of Transportation by the Illinois Natural History Survey, Champaign. 15 pp.
- Mohlenbrock, R. H. 1986. Guide to the vascular flora of Illinois. Revised and enlarged edition. Southern Illinois University Press, Carbondale. 507 pp.
- Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: Illinois. U. S. Fish and Wildlife Service. National Wetlands Inventory. NERC-88/18.13. 117 pp.
- Schwegman, J. E., G. B. Fell, M. Hutchison, G. Paulson, W. M. Shepherd and J. White. 1973. Comprehensive plan for the Illinois Nature Preserves System. Part 2. The natural divisions of Illinois. Illinois Nature Preserves Commission, Springfield. 32 pp.
- Taft, J. B., G. S. Wilhelm, D. M. Ladd and L. A. Masters. 1997. Floristic quality assessment for vegetation in Illinois: a method for assessing vegetation integrity. *Erigenia* 15: 3-95.
- U. S. Fish and Wildlife Service. 1990. Decurrent false aster recovery plan. U. S. Fish and Wildlife Service, Twin Cities, Minnesota. 26 pp.

Appendix 1

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 5)

Field Investigators: Ketzner and Keene **Date:** 2 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: SW ¼, Sec. 4, T2N, R9W
Location: 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the site.

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

VEGETATION

| Dominant Plant Species | Indicator Status | Stratum |
|--------------------------------|-------------------------|----------------|
| 1. <i>Leersia oryzoides</i> | OBL | herb |
| 2. <i>Phragmites australis</i> | FACW+ | herb |
| 3. <i>Typha angustifolia</i> | OBL | herb |
| 4. <i>Typha latifolia</i> | 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: Fluvaquent
On St. Clair County hydric soils list? Yes: No: Undetermined: X
Is the soil a histosol? Yes: No: X
Histic epipedon present? Yes: No: X
Redox concentrations: Yes: X No:
Redox depletions: Yes: No: X
Matrix color: N 4/ and 5/
Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:
Rationale: This soil has iron masses and a gleyed matrix. Furthermore, this soil meets the Natural Resources Conservation Service hydric soil indicator F2 (loamy gleyed matrix). These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 5)

Field Investigators: Ketzner and Keene **Date:** 2 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: SW ¼, Sec. 4, T2N, R9W
Location: 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the site.

HYDROLOGY

Inundated? Yes: X (in part) No: Depth of standing water: to approximately 0.6 m (2 ft)
Depth to saturated soil: at surface to 0.5 m (20 in)
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and probably from overflow of Old Cahokia Creek via a ditch. Water leaves the site via evapotranspiration and via the ditch connecting this marsh to Old Cahokia Creek.
Size of watershed: < 12.9 km² (5 mi²)
Other field evidence observed: This site is lower than adjacent ground to the north and south. Well data indicated this entire site satisfied the wetland hydrology criteria for more than 12.5% of the 2008 growing season (Fucciolo *et al.* 2008). Water marks and water-borne sediment deposits were observed at this site.

Wetland hydrology: Yes: X No:
Rationale: The relatively low landscape position, well data collected throughout the 2008 growing season, and other field evidence indicate that wetland hydrology is present. In our opinion, this site is flooded or saturated long enough to meet the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as PEMA (temporarily flooded, emergent, palustrine wetland), PEMC (seasonally flooded, emergent, palustrine wetland), PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland) and part as non-wetland.

Determined by: David Ketzner (vegetation, hydrology and GPS)
Dennis Keene (soils and hydrology)
Illinois Natural History Survey
Center for Wildlife Ecology
607 East Peabody Drive
Champaign, Illinois 61820
(217) 244-8821 (Ketzner)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 3 of 5)

Field Investigators: Ketzner and Keene **Date:** 2 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: SW ¼, Sec. 4, T2N, R9W
Location: 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the site.

SPECIES LIST

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|----------------------------------|---------------------------|----------------------|--------------------------|----|
| <i>Acer saccharinum</i> | silver maple | tree, herb | FACW | 1 |
| <i>Alisma plantago-aquatica</i> | broad-leaf water-plantain | herb | OBL | 2 |
| <i>Amaranthus tuberculatus</i> | tall waterhemp | herb | OBL | 1 |
| <i>Ambrosia artemisiifolia</i> | common ragweed | herb | FACU | 0 |
| <i>Ammannia coccinea</i> | long-leaved ammannia | herb | OBL | 5 |
| <i>Ampelopsis cordata</i> | raccoon grape | woody vine | FAC+ | 2 |
| <i>Apocynum cannabinum</i> | dogbane | herb | FAC | 2 |
| <i>Asclepias incarnata</i> | swamp milkweed | herb | OBL | 4 |
| <i>Aster simplex</i> | panicked aster | herb | FACW | 3 |
| <i>Azolla mexicana</i> | water fern | herb | OBL | 8 |
| <i>Bidens aristosa</i> | swamp marigold | herb | FACW | 1 |
| <i>Bidens cernua</i> | nodding beggar-ticks | herb | OBL | 2 |
| <i>Bidens frondosa</i> | common beggar-ticks | herb | FACW | 1 |
| <i>Boehmeria cylindrica</i> | false nettle | herb | OBL | 3 |
| <i>Boltonia decurrens</i> | false aster | herb | OBL | 4 |
| <i>Carex cristatella</i> | crested oval sedge | herb | FACW+ | 3 |
| <i>Carex crus-corvi</i> | sedge | herb | OBL | 6 |
| <i>Carex hyalinolepis</i> | sedge | herb | OBL | 4 |
| <i>Carex vulpinoidea</i> | fox sedge | herb | OBL | 3 |
| <i>Catalpa</i> sp. | catalpa | tree, sapling, shrub | ----- | -- |
| <i>Cephalanthus occidentalis</i> | buttonbush | shrub | OBL | 4 |
| <i>Commelina diffusa</i> | day flower | herb | FACW | 3 |
| <i>Cornus drummondii</i> | rough-leaved dogwood | shrub | FAC | 2 |
| <i>Cynodon dactylon</i> | Bermuda grass | herb | FACU | ** |
| <i>Cyperus erythrorhizos</i> | red-rooted sedge | herb | OBL | 1 |
| <i>Cyperus esculentus</i> | yellow nut-sedge | herb | FACW | 0 |
| <i>Desmanthus illinoensis</i> | Illinois bundleflower | herb | FAC- | 4 |
| <i>Diospyros virginiana</i> | persimmon | shrub | FAC | 2 |
| <i>Echinochloa muricata</i> | barnyard grass | herb | OBL | 0 |
| <i>Eleocharis erythropoda</i> | red-rooted spike rush | herb | OBL | 3 |
| <i>Erechtites hieracifolia</i> | fire weed | herb | FACU | 2 |
| <i>Eupatorium serotinum</i> | late boneset | herb | FAC+ | 1 |

Species list continued on the following page.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 4 of 5)

Field Investigators: Ketzner and Keene **Date:** 2 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: SW ¼, Sec. 4, T2N, R9W
Location: 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the site.

SPECIES LIST (continued)

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|----------------------------------|--------------------------|----------------------|--------------------------|----|
| <i>Festuca arundinacea</i> | tall fescue | herb | FACU+ | ** |
| <i>Fraxinus pennsylvanica</i> | green ash | tree, sapling, shrub | FACW | 2 |
| <i>Hibiscus laevis</i> | rose mallow | herb | OBL | 4 |
| <i>Juncus effusus</i> | common rush | herb | OBL | 4 |
| <i>Juncus torreyi</i> | Torrey's rush | herb | FACW | 3 |
| <i>Leersia oryzoides</i> | rice cutgrass | herb | OBL | 3 |
| <i>Lemna minor</i> | common duckweed | herb | OBL | 3 |
| <i>Liquidambar styraciflua</i> | sweet gum | sapling, shrub | FACW | 6 |
| <i>Ludwigia peploides</i> | creeping primrose willow | herb | OBL | 5 |
| <i>Lycopus americanus</i> | common water horehound | herb | OBL | 3 |
| <i>Lythrum alatum</i> | winged loosestrife | herb | OBL | 5 |
| <i>Penthorum sedoides</i> | ditch stonecrop | herb | OBL | 2 |
| <i>Phragmites australis</i> | common reed | herb | FACW+ | ** |
| <i>Phyla lanceolata</i> | fog-fruit | herb | OBL | 1 |
| <i>Polygonum amphibium</i> | water smartweed | herb | OBL | 3 |
| <i>Polygonum cespitosum</i> | creeping smartweed | herb | UPL | ** |
| <i>Polygonum hydropiperoides</i> | mild water pepper | herb | OBL | 4 |
| <i>Polygonum pensylvanicum</i> | giant smartweed | herb | FACW+ | 1 |
| <i>Polygonum persicaria</i> | spotted lady's thumb | herb | FACW | ** |
| <i>Polygonum punctatum</i> | dotted smartweed | herb | OBL | 3 |
| <i>Populus deltoides</i> | eastern cottonwood | sapling, shrub | FAC+ | 2 |
| <i>Ranunculus sceleratus</i> | cursed crowfoot | herb | OBL | 3 |
| <i>Rubus pensylvanicus</i> | blackberry | shrub | FAC- | 2 |
| <i>Rumex crispus</i> | curly dock | herb | FAC+ | ** |
| <i>Sagittaria latifolia</i> | arrowhead | herb | OBL | 4 |
| <i>Salix amygdaloides</i> | peach-leaved willow | tree, sapling | FACW | 4 |
| <i>Salix exigua</i> | sandbar willow | shrub | OBL | 1 |
| <i>Salix nigra</i> | black willow | tree, sapling | OBL | 3 |
| <i>Scirpus fluviatilis</i> | river bulrush | herb | OBL | 3 |
| <i>Scutellaria lateriflora</i> | mad-dog skullcap | herb | OBL | 4 |
| <i>Sium suave</i> | water parsnip | herb | OBL | 5 |
| <i>Solidago canadensis</i> | Canada goldenrod | herb | FACU | 1 |

Species list continued on the following page.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 5 of 5)

Field Investigators: Ketzner and Keene **Date:** 2 October 2008

Project Name: Fairmont City Wetland Compensation Site (FAP 999)

State: Illinois **County:** St. Clair

Applicant: IDOT District 8 **Site Name:** Marsh

Legal Description: SW ¼, Sec. 4, T2N, R9W

Location: 18.3 m (60 ft) north of Collinsville Road, extending from the southwest part of the site, across the south quarter of the property, into the northeast corner of the site.

SPECIES LIST (continued)

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|------------------------------|-----------------------|------------|--------------------------|----|
| <i>Sparganium eurycarpum</i> | burreed | herb | OBL | 5 |
| <i>Spirodela polyrhiza</i> | big duckweed | herb | OBL | 5 |
| <i>Stachys tenuifolia</i> | hedge nettle | herb | OBL | 5 |
| <i>Typha angustifolia</i> | narrow-leaved cattail | herb | OBL | ** |
| <i>Typha latifolia</i> | cattail | herb | OBL | 1 |
| <i>Ulmus americana</i> | American elm | shrub | FACW- | 5 |
| <i>Vitis riparia</i> | riverbank grape | woody vine | FACW- | 2 |
| <i>Xanthium strumarium</i> | cockle bur | herb | FAC | 0 |

*Coefficient of Conservatism (Taft *et al.* 1997)

**Non-native species

$FQI = R/\sqrt{N} = 184/\sqrt{64} = 23.0$

$mCv = R/N = 184/64 = 2.9$

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 4)

Field Investigators: Ketzner, Keene and Marcum **Date:** 14 November 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: NW ¼, NE ¼, SW ¼, Sec. 4, T2N, R9W
Location: 88.4 m (290 ft) north of Collinsville Road, along old roadbed in northeast corner of site.

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

VEGETATION

| Dominant Plant Species | Indicator Status | Stratum |
|----------------------------------|-------------------------|----------------|
| 1. <i>Fraxinus pennsylvanica</i> | FACW | tree |
| 2. <i>Ulmus americana</i> | FACW- | tree |
| 3. <i>Fraxinus pennsylvanica</i> | FACW | sapling |
| 4. <i>Ilex decidua</i> | FACW | sapling/shrub |
| 5. <i>Carex hyalinolepis</i> | 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: Karnak silty clay
On St. Clair 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:
Redox depletions: Yes: No: X
Matrix color: N 4/

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

Hydric soils: Yes: X No:
Rationale: Karnak silty clay has iron masses and a gleyed matrix. Furthermore, this soil meets the Natural Resources Conservation Service hydric soil indicator F2 (loamy gleyed matrix). These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 2 of 4)

Field Investigators: Ketzner, Keene and Marcum **Date:** 14 November 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: NW ¼, NE ¼, SW ¼, Sec. 4, T2N, R9W
Location: 88.4 m (290 ft) north of Collinsville Road, along old roadbed in northeast corner of site.

HYDROLOGY

Inundated? Yes: X (in part) No: Depth of standing water: to approximately 0.10 m (4 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 from overflow of Site 1 and a wetland to the east. Water leaves the site via evapotranspiration and overflow into Site 1 via a break in the berm separating the two sites.

Size of watershed: < 12.9 km² (5 mi²)

Other field evidence observed: This site is lower than adjacent ground. Well data indicated this entire site satisfied the wetland hydrology criteria for more than 12.5% of the 2008 growing season (Fucciolo *et al.* 2008). Water-stained leaves, water marks and crayfish burrows were observed at this site.

Wetland hydrology: Yes: X No:

Rationale: The relatively low landscape position, well data collected throughout the 2008 growing season, and other field evidence indicate that wetland hydrology is present. In our opinion, this site is flooded or saturated long enough to meet the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?
Rationale for decision:

Yes: X No:
 Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as PEMC (seasonally flooded, emergent, palustrine wetland), PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland) and part as non-wetland.

Determined by: David Ketzner (vegetation, hydrology and GPS)
 Paul Marcum (vegetation and hydrology)
 Dennis Keene (soils and hydrology)
 Illinois Natural History Survey
 Center for Wildlife Ecology
 607 East Peabody Drive
 Champaign, Illinois 61820
 (217) 244-8821 (Ketzner)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 3 of 4)

Field Investigators: Ketzner, Keene and Marcum **Date:** 14 November 2008

Project Name: Fairmont City Wetland Compensation Site (FAP 999)

State: Illinois **County:** St. Clair

Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest

Legal Description: NW ¼, NE ¼, SW ¼, Sec. 4, T2N, R9W

Location: 88.4 m (290 ft) north of Collinsville Road, along old roadbed in northeast corner of site.

SPECIES LIST

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|-----------------------------------|--------------------------|-------------------------|--------------------------|----|
| <i>Acer negundo</i> | box elder | tree | FACW- | 1 |
| <i>Acer saccharinum</i> | silver maple | tree, sapling, herb | FACW | 1 |
| <i>Aster simplex</i> | panicled aster | herb | FACW | 3 |
| <i>Campsis radicans</i> | trumpet creeper | woody vine, shrub, herb | FAC | 2 |
| <i>Carex crus-corvi</i> | sedge | herb | OBL | 6 |
| <i>Carex hyalinolepis</i> | sedge | herb | OBL | 4 |
| <i>Carex</i> sp. | sedge | herb | ----- | -- |
| <i>Catalpa</i> sp. | catalpa | sapling | ----- | -- |
| <i>Celastrus orbiculatus</i> | round-leaved bittersweet | woody vine | UPL | ** |
| <i>Celtis occidentalis</i> | hackberry | tree, sapling | FAC- | 3 |
| <i>Cephalanthus occidentalis</i> | buttonbush | shrub | OBL | 4 |
| <i>Cornus obliqua</i> | pale dogwood | shrub | FACW+ | 4 |
| <i>Crataegus viridis</i> | green thorn | tree | FACW | 5 |
| <i>Elymus virginicus</i> | Virginia wild rye | herb | FACW- | 4 |
| <i>Euonymus fortunei</i> | climbing euonymus | herb | UPL | ** |
| <i>Eupatorium serotinum</i> | late boneset | herb | FAC+ | 1 |
| <i>Fraxinus pennsylvanica</i> | green ash | tree, sapling, shrub | FACW | 2 |
| <i>Geum canadense</i> | white avens | herb | FAC | 2 |
| <i>Glyceria striata</i> | fowl manna grass | herb | OBL | 4 |
| <i>Ilex decidua</i> | swamp holly | sapling, shrub | FACW | 6 |
| <i>Liquidambar styraciflua</i> | sweet gum | tree, sapling | FACW | 6 |
| <i>Lonicera maackii</i> | Amur honeysuckle | shrub | UPL | ** |
| <i>Lycopus americanus</i> | common water horehound | herb | OBL | 3 |
| <i>Polygonum amphibium</i> | water smartweed | herb | OBL | 3 |
| <i>Polygonum punctatum</i> | dotted smartweed | herb | OBL | 3 |
| <i>Populus deltoides</i> | eastern cottonwood | tree | FAC+ | 2 |
| <i>Prunella vulgaris elongata</i> | self-heal | herb | FAC | 1 |
| <i>Quercus palustris</i> | pin oak | herb | FACW | 4 |
| <i>Rubus pensylvanicus</i> | blackberry | shrub | FAC- | 2 |
| <i>Salix nigra</i> | black willow | tree, sapling | OBL | 3 |
| <i>Smilax hispida</i> | bristly greenbrier | woody vine | FAC | 3 |
| <i>Solidago gigantea</i> | late goldenrod | herb | FACW | 3 |

Species list continued on the following page.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 4 of 4)

Field Investigators: Ketzner, Keene and Marcum **Date:** 14 November 2008

Project Name: Fairmont City Wetland Compensation Site (FAP 999)

State: Illinois **County:** St. Clair

Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest

Legal Description: NW ¼, NE ¼, SW ¼, Sec. 4, T2N, R9W

Location: 88.4 m (290 ft) north of Collinsville Road, along old roadbed in northeast corner of site.

SPECIES LIST (continued)

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|-------------------------------|---------------|-------------------------|--------------------------|----|
| <i>Toxicodendron radicans</i> | poison ivy | woody vine, shrub, herb | FAC+ | 1 |
| <i>Ulmus americana</i> | American elm | tree, sapling | FACW- | 5 |
| <i>Verbena urticifolia</i> | white vervain | herb | FAC+ | 3 |

*Coefficient of Conservatism (Taft *et al.* 1997)

**Non-native species

$FQI = R/\sqrt{N} = 94/\sqrt{30} = 17.2$

$mCv = R/N = 94/30 = 3.1$

ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 1 of 4)

Field Investigators: Ketzner and Keene **Date:** 28 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Shrubland/Marsh
Legal Description: N ½, NW ¼, SW ¼, Sec. 4, T2N, R9W
Location: Old Cahokia Creek, approximately 240.8 m (790 ft) north of Collinsville Road,
in the north-central part of the site.

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

VEGETATION

| Dominant Plant Species | Indicator Status | Stratum |
|-------------------------------------|-------------------------|----------------|
| 1. <i>Cephalanthus occidentalis</i> | OBL | shrub |
| 2. <i>Leersia oryzoides</i> | OBL | herb |
| 3. <i>Lemna minor</i> | OBL | herb |
| 4. <i>Typha angustifolia</i> | 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
On St. Clair 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: Undetermined: X
Redox depletions: Yes: No: Undetermined: X
Matrix color: undetermined
Other indicators: This soil is inundated.

Hydric soils: Yes: X No:
Rationale: 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 3 (page 2 of 4)

Field Investigators: Ketzner and Keene **Date:** 28 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Shrubland/Marsh
Legal Description: N ½, NW ¼, SW ¼, Sec. 4, T2N, R9W
Location: Old Cahokia Creek, approximately 240.8 m (790 ft) north of Collinsville Road, in the north-central part of the site.

HYDROLOGY

Inundated? Yes: X No: Depth of standing water: to approximately 0.46 m (1.5 ft)

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 possibly from overflow of Site 1 via a ditch. Water leaves the site via evapotranspiration and probably by overflow to Site 1 via the ditch connecting the two sites.

Size of watershed: < 12.9 km² (5 mi²)

Other field evidence observed: This site, the channel of Old Cahokia Creek, is lower than adjacent ground. Old Cahokia Creek appears to have been cut off during construction of the Cahokia Canal and, therefore, may no longer be a free-flowing stream.

Wetland hydrology: Yes: X No:

Rationale: The relatively low landscape position, the visual observation of inundation and soil saturation, and other field evidence indicate that wetland hydrology is present. In our opinion, this site is flooded or saturated long enough to meet the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?
Rationale for decision:

Yes: X No:
 Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as R2UBHx (excavated, permanently flooded, lower perennial, riverine system with an unconsolidated bottom).

Determined by: David Ketzner (vegetation, hydrology and GPS)
 Dennis Keene (soils and hydrology)
 Illinois Natural History Survey
 Center for Wildlife Ecology
 607 East Peabody Drive
 Champaign, Illinois 61820
 (217) 244-8821 (Ketzner)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 3 of 4)

Field Investigators: Ketzner and Keene **Date:** 28 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Shrubland/Marsh
Legal Description: N ½, NW ¼, SW ¼, Sec. 4, T2N, R9W
Location: Old Cahokia Creek, approximately 240.8 m (790 ft) north of Collinsville Road, in the north-central part of the site.

SPECIES LIST

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|----------------------------------|---------------------------|-------------|--------------------------|----|
| <i>Alisma plantago-aquatica</i> | broad-leaf water-plantain | herb | OBL | 2 |
| <i>Apocynum cannabinum</i> | dogbane | herb | FAC | 2 |
| <i>Aster simplex</i> | panicked aster | herb | FACW | 3 |
| <i>Azolla mexicana</i> | water fern | herb | OBL | 8 |
| <i>Bidens frondosa</i> | common beggar-ticks | herb | FACW | 1 |
| <i>Boehmeria cylindrica</i> | false nettle | herb | OBL | 3 |
| <i>Boltonia decurrens</i> | false aster | herb | OBL | 4 |
| <i>Carex crus-corvi</i> | sedge | herb | OBL | 6 |
| <i>Carex hyalinolepis</i> | sedge | herb | OBL | 4 |
| <i>Carex</i> sp. | sedge | herb | ----- | -- |
| <i>Carex vulpinoidea</i> | fox sedge | herb | OBL | 3 |
| <i>Cephalanthus occidentalis</i> | buttonbush | shrub | OBL | 4 |
| <i>Crataegus viridis</i> | green thorn | tree | FACW | 5 |
| <i>Cyperus</i> sp. | flatsedge | herb | ----- | -- |
| <i>Echinochloa muricata</i> | barnyard grass | herb | OBL | 0 |
| <i>Eclipta prostrata</i> | yerba de tajo | herb | FACW | 2 |
| <i>Eleocharis erythropoda</i> | red-rooted spike rush | herb | OBL | 3 |
| <i>Erechtites hieracifolia</i> | fire weed | herb | FACU | 2 |
| <i>Eupatorium serotinum</i> | late boneset | herb | FAC+ | 1 |
| <i>Fraxinus pennsylvanica</i> | green ash | shrub, herb | FACW | 2 |
| <i>Hydrocotyle ranunculoides</i> | water pennywort | herb | OBL | 5 |
| <i>Ipomoea lacunosa</i> | white morning-glory | herb | FACW | 1 |
| <i>Iris shrevei</i> | southern blue flag | herb | OBL | 5 |
| <i>Leersia oryzoides</i> | rice cutgrass | herb | OBL | 3 |
| <i>Lemna minor</i> | common duckweed | herb | OBL | 3 |
| <i>Liquidambar styraciflua</i> | sweet gum | herb | FACW | 6 |
| <i>Ludwigia peploides</i> | creeping primrose willow | herb | OBL | 5 |
| <i>Lycopus americanus</i> | common water horehound | herb | OBL | 3 |
| <i>Mentha arvensis</i> | field mint | herb | FACW | 4 |
| <i>Phyla lanceolata</i> | fog-fruit | herb | OBL | 1 |
| <i>Platanus occidentalis</i> | sycamore | shrub | FACW | 3 |
| <i>Polygonum hydropiperoides</i> | mild water pepper | herb | OBL | 4 |

Species list continued on the following page.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 4 of 4)

Field Investigators: Ketzner and Keene **Date:** 28 October 2008
Project Name: Fairmont City Wetland Compensation Site (FAP 999)
State: Illinois **County:** St. Clair
Applicant: IDOT District 8 **Site Name:** Wet Shrubland/Marsh
Legal Description: N ½, NW ¼, SW ¼, Sec. 4, T2N, R9W
Location: Old Cahokia Creek, approximately 240.8 m (790 ft) north of Collinsville Road,
in the north-central part of the site.

SPECIES LIST (continued)

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|-------------------------------|-----------------------|------------|--------------------------|----|
| <i>Rorippa islandica</i> | marsh yellow cress | herb | OBL | 4 |
| <i>Rubus pensylvanicus</i> | blackberry | shrub | FAC- | 2 |
| <i>Rumex crispus</i> | curly dock | herb | FAC+ | ** |
| <i>Rumex verticillatus</i> | swamp dock | herb | OBL | 5 |
| <i>Setaria faberi</i> | giant foxtail | herb | FACU+ | ** |
| <i>Setaria glauca</i> | yellow foxtail | herb | FAC | ** |
| <i>Sium suave</i> | water parsnip | herb | OBL | 5 |
| <i>Solidago canadensis</i> | Canada goldenrod | herb | FACU | 1 |
| <i>Sparganium eurycarpum</i> | burreed | herb | OBL | 5 |
| <i>Stachys tenuifolia</i> | hedge nettle | herb | OBL | 5 |
| <i>Toxicodendron radicans</i> | poison ivy | herb | FAC+ | 1 |
| <i>Typha angustifolia</i> | narrow-leaved cattail | herb | OBL | ** |
| <i>Typha latifolia</i> | cattail | herb | OBL | 1 |
| <i>Verbena urticifolia</i> | white vervain | herb | FAC+ | 3 |
| <i>Vitis riparia</i> | riverbank grape | woody vine | FACW- | 2 |
| <i>Xanthium strumarium</i> | cockle bur | herb | FAC | 0 |

*Coefficient of Conservatism (Taft *et al.* 1997)

**Non-native species

$$FQI = R/\sqrt{N} = 132/\sqrt{42} = 20.4$$

$$mCv = R/N = 132/42 = 3.1$$

Appendix 2

Species list for non-native grassland community.

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|----------------------------------|----------------------|----------------------|--------------------------|----|
| <i>Acer negundo</i> | box elder | sapling, shrub | FACW- | 1 |
| <i>Acer rubrum</i> | red maple | tree | FAC | 5↔ |
| <i>Acer saccharinum</i> | silver maple | tree | FACW | 1 |
| <i>Acer saccharum</i> | sugar maple | tree | FACU | 4↔ |
| <i>Agrostis alba</i> | red top | herb | FACW | 0 |
| <i>Ailanthus altissima</i> | tree-of-Heaven | sapling | NI | ** |
| <i>Amaranthus tuberculatus</i> | tall waterhemp | herb | OBL | 1 |
| <i>Ambrosia artemisiifolia</i> | common ragweed | herb | FACU | 0 |
| <i>Ambrosia trifida</i> | giant ragweed | herb | FAC+ | 0 |
| <i>Ampelopsis cordata</i> | raccoon grape | woody vine | FAC+ | 2 |
| <i>Andropogon virginicus</i> | broom sedge | herb | FAC- | 1 |
| <i>Asclepias syriaca</i> | common milkweed | herb | UPL | 0 |
| <i>Aster pilosus</i> | hairy aster | herb | FACU- | 0 |
| <i>Bidens aristosa</i> | swamp marigold | herb | FACW | 1 |
| <i>Bidens cernua</i> | nodding beggar-ticks | herb | OBL | 2 |
| <i>Bidens frondosa</i> | common beggar-ticks | herb | FACW | 1 |
| <i>Boehmeria cylindrica</i> | false nettle | herb | OBL | 3 |
| <i>Boltonia decurrens</i> | false aster | herb | OBL | 4 |
| <i>Campsis radicans</i> | trumpet creeper | woody vine | FAC | 2 |
| <i>Carduus nutans</i> | nodding thistle | herb | UPL | ** |
| <i>Carex hyalinolepis</i> | sedge | herb | OBL | 4 |
| <i>Cassia marilandica</i> | Maryland senna | herb | FACW | 4 |
| <i>Catalpa</i> sp. | catalpa | tree, sapling, shrub | ----- | -- |
| <i>Celtis occidentalis</i> | hackberry | sapling, shrub | FAC- | 3 |
| <i>Cephalanthus occidentalis</i> | buttonbush | shrub | OBL | 4 |
| <i>Cirsium discolor</i> | field thistle | herb | UPL | 3 |
| <i>Cirsium vulgare</i> | bull thistle | herb | FACU- | ** |
| <i>Conyza canadensis</i> | horseweed | herb | FAC- | 0 |
| <i>Cornus drummondii</i> | rough-leaved dogwood | shrub | FAC | 2 |
| <i>Crataegus viridis</i> | green thorn | tree | FACW | 5 |
| <i>Cynodon dactylon</i> | Bermuda grass | herb | FACU | ** |
| <i>Cyperus</i> sp. | flatsedge | herb | ----- | -- |
| <i>Daucus carota</i> | Queen-Anne's-lace | herb | UPL | ** |
| <i>Digitaria sanguinalis</i> | hairy crab grass | herb | FACU | ** |
| <i>Diospyros virginiana</i> | persimmon | sapling, shrub | FAC | 2 |
| <i>Echinochloa muricata</i> | barnyard grass | herb | OBL | 0 |
| <i>Elymus virginicus</i> | Virginia wild rye | herb | FACW- | 4 |
| <i>Erechtites hieracifolia</i> | fire weed | herb | FACU | 2 |
| <i>Euonymus fortunei</i> | climbing euonymus | herb | UPL | ** |
| <i>Eupatorium serotinum</i> | late boneset | herb | FAC+ | 1 |
| <i>Festuca arundinacea</i> | tall fescue | herb | FACU+ | ** |
| <i>Fraxinus pennsylvanica</i> | green ash | tree, sapling | FACW | 2 |
| <i>Gleditsia triacanthos</i> | honey locust | sapling, shrub | FAC | 2 |
| <i>Hackelia virginiana</i> | stickseed | herb | FAC- | 1 |

Species list continued on following page.

Species list for non-native grassland community (continued).

| Scientific name | Common name | Stratum | Wetland indicator status | C* |
|-----------------------------------|------------------------|----------------------|--------------------------|----|
| <i>Humulus japonicus</i> | Japanese hops | herb | FACU | ** |
| <i>Ilex decidua</i> | swamp holly | tree, sapling | FACW | 6 |
| <i>Iva annua</i> | marsh elder | herb | FAC | 0 |
| <i>Juniperus virginiana</i> | eastern red cedar | tree, shrub | FACU | 1 |
| <i>Leersia oryzoides</i> | rice cutgrass | herb | OBL | 3 |
| <i>Ligustrum vulgare</i> | privet | shrub | UPL | ** |
| <i>Liquidambar styraciflua</i> | sweet gum | tree, sapling, shrub | FACW | 6 |
| <i>Lonicera japonica</i> | Japanese honeysuckle | woody vine, herb | FACU | ** |
| <i>Lonicera maackii</i> | Amur honeysuckle | shrub | UPL | ** |
| <i>Lycopus americanus</i> | common water horehound | herb | OBL | 3 |
| <i>Morus alba</i> | white mulberry | tree, sapling, shrub | FAC | ** |
| <i>Panicum dichotomiflorum</i> | fall panicum | herb | FACW- | 0 |
| <i>Phyla lanceolata</i> | fog-fruit | herb | OBL | 1 |
| <i>Phytolacca americana</i> | pokeweed | herb | FAC- | 1 |
| <i>Platanus occidentalis</i> | sycamore | tree | FACW | 3 |
| <i>Poa pratensis</i> | Kentucky bluegrass | herb | FAC- | ** |
| <i>Polygonum lapathifolium</i> | currtop lady's thumb | herb | FACW+ | 0 |
| <i>Polygonum pensylvanicum</i> | giant smartweed | herb | FACW+ | 1 |
| <i>Polygonum punctatum</i> | dotted smartweed | herb | OBL | 3 |
| <i>Polygonum virginianum</i> | Virginia knotweed | herb | FAC | 3 |
| <i>Populus deltoides</i> | eastern cottonwood | tree | FAC+ | 2 |
| <i>Quercus palustris</i> | pin oak | tree | FACW | 4 |
| <i>Rubus discolor</i> | Himalaya-berry | shrub | UPL | ** |
| <i>Rubus pensylvanicus</i> | blackberry | shrub | FAC- | 2 |
| <i>Salix amygdaloides</i> | peach-leaved willow | tree | FACW | 4 |
| <i>Salix exigua</i> | sandbar willow | tree, sapling, shrub | OBL | 1 |
| <i>Salix nigra</i> | black willow | shrub | OBL | 3 |
| <i>Setaria faberi</i> | giant foxtail | herb | FACU+ | ** |
| <i>Setaria glauca</i> | yellow foxtail | herb | FAC | ** |
| <i>Solanum carolinense</i> | horse-nettle | herb | FACU- | 0 |
| <i>Solidago canadensis</i> | Canada goldenrod | herb | FACU | 1 |
| <i>Spermacoce glabra</i> | smooth buttonweed | herb | FACW+ | 4 |
| <i>Symphoricarpos orbiculatus</i> | coralberry | shrub | FACU | 1 |
| <i>Taxodium distichum</i> | bald cypress | tree | OBL | 7↔ |
| <i>Toxicodendron radicans</i> | poison ivy | woody vine, herb | FAC+ | 1 |
| <i>Tridens flavus</i> | purple-top | herb | UPL | 1 |
| <i>Trifolium repens</i> | white clover | herb | FACU+ | ** |
| <i>Ulmus pumila</i> | Siberian elm | tree, sapling, shrub | UPL | ** |
| <i>Urtica dioica</i> | stinging nettle | herb | FAC+ | 2 |
| <i>Verbascum thapsus</i> | woolly mullein | herb | UPL | ** |
| <i>Verbena urticifolia</i> | white vervain | herb | FAC+ | 3 |
| <i>Xanthium strumarium</i> | cockle bur | herb | FAC | 0 |

*Coefficient of Conservatism (Taft *et al.* 1997)

**Non-native species

↔Planted species

$$\text{FQI} = R/\sqrt{N} = 134/\sqrt{64} = 16.8 \text{ (including planted species)}$$

$$\text{mCv} = R/N = 134/64 = 2.1 \text{ (including planted species)}$$

$$\text{FQI} = R/\sqrt{N} = 118/\sqrt{61} = 15.1 \text{ (excluding planted species)}$$

$$\text{mCv} = R/N = 118/61 = 1.9 \text{ (excluding planted species)}$$