TRANSMITTAL

To: Bureau of Design and Environment
Attention: Matthew J. Sunderland
From: Illinois Natural History Survey
Regarding: Wetland Mitigation Monitoring

Title and Location

Title: FAU 5822 (Milan Beltway)
Location: Green Rock site Phases I and II - 1.6 km (0.74 mi) southwest of Green Rock
Job Number: P-92-096-84 (BDE Seq. No. 67)
Section Number: 1-3
County: Henry
IDOT District: District 2

Survey Conducted By:

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Date Conducted: August 7 & September 18, 2007

Project Summary:

For the second year we monitored Phase I of the site created for wetland impact mitigation for FAU 5822 (Milan Beltway), Green Rock site, in Henry County. Phase I was completed and all trees planted by spring 2006. For the first year we monitored Phase II of the site. Phase II was completed and all trees planted by spring 2007. The attached report includes information detailing monitoring methods and results. The status of the created wetland sites is discussed. The areas discussed are marked on the DOQ included with this report.

Signed:_____ Signed: _____

Dr. Allen E. Plocher
INHS/IDOT Project Coordinator

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

Date:_____ Date: _____

WETLAND MITIGATION SITE MONITORING REPORT
FAU 5822 (Milan Beltway) Henry County – Green Rock Site
Introduction

This report details monitoring of the wetland mitigation site created to compensate for impacts associated with FAU 5822 (Milan Beltway) in Henry County. Phase I of the site consists of approximately 16.88 ha (41.69 ac) of wetland creation/restoration (IDOT 2002), while Phase II of the site consists of approximately 3.02 ha (7.45 ac) of wetland creation/restoration. The wetland creation site is located 1.6 km (0.74 mi) southwest of Green Rock, IL, north and west of the crossing of I-74 over Mosquito Creek. The legal location is SW/4, NE/4, and SE/4, NW/4 Section 16, T. 17 N., R. 1 E. The project area lies within the United States Geological Survey Mississippi River hydrologic unit 07090007, Green River. Phase I was completed and all trees planted by spring 2006; Phase II was completed by spring 2007. On-site monitoring was conducted on August 7 & September 18, 2007. This report discusses the goals, objectives, and performance criteria for the mitigation project, the methods used for monitoring the site, monitoring results, and discussion and recommendations based on the results. Methods and results are discussed by performance criteria for each goal.

Goals, Objectives, and Performance Standards

Goals, objectives, and performance standards follow those specified in the Conceptual Wetland Compensation Plan (IDOT, 2002) developed for this site. Performance criteria are based on those specified in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), *Illinois Wetland Restoration and Creation Guide* (Admiraal et al. 1997), and in *Guidelines for Developing Mitigation Proposals* (USACE 1993). Each goal should be attained by the end of the 5-year monitoring period. Goals, objectives, and performance criteria are listed below.

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

Objective: The created wetland should compensate for the loss of 16.73 ha (41.31 ac) of wetland.

Performance criteria:
a. Predominance of hydrophytic vegetation: More than 50% of the dominant plant species must be hydrophytic.
b. Occurrence of hydric soils: Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.
c. Presence of wetland hydrology: The area must be either permanently or periodically inundated at average depths less than 2 m (6.6 ft) or have soils that are saturated to the surface for at least 12.5% of the growing season.

Project goal 2: The created wetland plant community should meet standards for planted species survival and floristic composition.

Objectives: Planting trees will create a forested wetland. Other herbaceous vegetation will be allowed to colonize the site naturally.

Performance criteria:

a. Planted species survivorship: At least 136 planted trees per hectare should be established and living by the end of the five year monitoring period.
b. Native species composition: At least 50% of the plants present should be non-weedy, native, perennial species.
c. Dominance of vegetation: None of the three most dominant plant species may be non-native or weedy species, such as cattails, sandbar willow, or reed canary grass (IDOT 2002).

Methods

Project goal 1

a. Predominance of hydrophytic vegetation

The method for determining dominant vegetation at a wetland site is described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and further explained in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989). It is based on aerial coverage estimates for individual plant species. Each of the dominant plant species is then assigned its wetland indicator status rating (Reed 1988). Any plant rated facultative or wetter (FAC, FAC+, FACW, or OBL) is considered a hydrophyte. A predominance of wetland vegetation in the plant community exists if more than 50% of the dominant species present are hydrophytic. Since the survival of planted hydrophytic trees and shrubs on non-wetlands (e.g. yards) is well documented, these species were excluded from calculations of percentage of dominant hydrophytic species.

b. Occurrence of hydric soils

The soil was sampled in order to monitor hydric soil development. Soil profile morphology including horizon color, texture, and structure was described at various points throughout the site. Additionally, the presence, type, size, and abundance of redoximorphic features were noted. Hydric soils may develop slowly, and characteristics may not be apparent during the first several years after project construction. In the absence of hydric soil indicators at the end of the five-year monitoring period, hydrologic data could be used as corroborative evidence that conditions favorable for hydric soil formation persist at the site.

c. Presence of wetland hydrology

The extent of wetland hydrology at the Green Rock Wetland Compensation Site was monitored by the Illinois State Geological Survey and is shown on the accompanying figure (Fucciolo et al. 2007). Wetland hydrology occurs when inundation or saturation to land surface is present for greater than 5% of the growing season (10 days at this site) where the soils and vegetation parameters in the Corps of Engineers Wetland Delineation Manual also are met; if either is lacking, then inundation or saturation must be present for greater than 12.5% of the growing season (25 days at this site) to satisfy wetland hydrology criteria (Environmental Laboratory 1987). Inundation and saturation at the site were monitored using a combination of 14 monitoring wells. Water levels were measured at least biweekly during April and May, and monthly during the remainder of the year. Manual readings were supplemented by a data-logger, which measured surface-water levels at regular intervals to document all hydrologic events. Additional details regarding site conditions and monitoring results for wetland hydrology in 2007 are summarized in ISGS' Annual Report for Active IDOT Wetland Compensation and Hydrologic Monitoring Sites, September 1, 2006 to September 1, 2007 (Fucciolo et al. 2007).

Project goal 2

a. Planted species survivorship

In order to create floodplain forest, tree saplings were planted at the compensation site. The number of trees to be planted within Phase I [Notice to bidders, specifications, proposal, contract and contract bond (IDOT, 2004)] and Phase II [Notice to bidders, specifications, proposal, contract and contract bond (IDOT, 2004)] are listed in Table 1, which follows:

Table 1. Tree species planted in the created wetland (Planting dates spring 2006 and 2007).

Species	Common Name	Phase I (2006)	Phase II (2007)
Carya illinoensis	Pecan	970	168
Fraxinus pennsylvanica	Green ash	970	162
Platanus occidentalis	Sycamore	971	163
Quercus bicolor	Swamp white oak	982	165
Quercus palustris	Pin oak	972	164
TOTAL		4865	822

All of the trees were to be balled and burlapped 4.4-5.1 cm (1.75-2 in) caliper trees, except the *Carya illinoensis*, which were bare root two year old seedlings. Survivorship and density of planted trees were determined through a census of the created wetland. All live trees were counted. Dead trees were counted but not identified by species.

Tree survival was calculated as the number live trees per hectare: Total number of live planted stems counted/total hectares at site (16.88 ha for Phase I, 3.02 ha for Phase II).

b. Native Species Composition

A complete list of plant species present was compiled. This was used to determine the number and percentage of species present that are non-weedy, native perennials.

In addition, the Floristic Quality Assessment (Taft et al. 1997) was applied to the plant community at the site to evaluate floristic quality and nativity. The assessment methodology is used to identify natural areas and facilitate floristic comparisons among sites. This technique is part of the procedure for the long-term monitoring of natural areas and the monitoring of restored or created wetlands (Swink and Wilhelm 1994). The basis of the method is that each native plant species is assigned a conservatism coefficient (C) ranging from 0 to 10. Individual conservatism coefficients are ranks of species behavior and reflect the committee's (Taft et al. 1997) confidence level for a taxon's correspondence to anthropogenic disturbances. Coefficient values range from 0 to 10, with all adventive species given a coefficient of 0. Plant species assigned 0 have low affinities for natural areas, whereas those assigned 10 have very high affinities. When a complete species list is assembled for a wetland site, the overall average conservatism coefficient ($\bar{c}$) and a site floristic quality index (FQI) can be calculated. The $\bar{c}$ is calculated by summing the coefficients of conservatism ($\sum C$) and dividing by the total number of native species (N). The FQI is then calculated by dividing the $\sum C$ by the square root of N. These values provide a measure of site floristic quality. Floristic quality index (FQI) values less than 5 indicate that the area is extremely weedy or in an early successional stage (Swink and Wilhelm 1994). FQI values between 20 and 35 ($\bar{c}$ = 3.0) indicate that the area has evidence of native character and can be considered a botanical asset. FQI values between 35 and 50 ($\bar{c}$ = 3.5) indicate that the area has significant native character.

c. Dominance of vegetation

Plant species dominance was determined as in project goal 1, a. Predominance of hydrophytic vegetation. The method for determining dominant vegetation at a wetland site is described in the *Corps*

of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and further explained in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989).

Results – Phase I

Project goal 1

a. Predominance of hydrophytic vegetation

Dominant plant species for Phase I in 2007 are shown in Table 2. Due to differing dominant vegetation, we divided Phase I into three areas for vegetative analyses (Figure 1). The west portion of Phase I meets this criteria as the only dominant is hydrophytic. This results in 100% of the dominants being hydrophytic, which meets the minimum project goal of >50%. The southeast portion of Phase I does not meet this criteria, with none of the three dominants hydrophytes. This results in 0% of the dominants being hydrophytic, which does not meet the minimum project goal of >50%. The northeast portion of Phase I has two of the four dominant species rated OBL, FACW, FAC+, or FAC and hydrophytic. This results in only 50% of the dominants being hydrophytic, which does not meet the minimum project goal of >50%.

Table 2. Dominant plant species by area, stratum, and wetland indicator status.

Area	Dominant Plant Species	Stratum	Indicator Status
Phase I West	1. *Phalaris arundinacea*	Herb	FACW+
Phase I Southeast	1. *Lolium perenne*	Herb	FACU
	2. *Poa pratensis*	Herb	FAC-
	3. *Setaria faberi*	Herb	FACU+
Phase I Northeast	1. *Ambrosia trifida*	Herb	FAC+
	2. *Aster lateriflorus*	Herb	FACW-
	3. *Poa pratensis*	Herb	FAC-
	4. *Solidago canadensis*	Herb	FACU

b. Occurrence of hydric soils

Soils examined were found to be relatively undisturbed and hydric soil indicators are present at the west and southeast areas of Phase I (Figure 1); however, the northeast area shows evidence of disturbance and lacks clear hydric soil indicators at this time. Table 3 below presents a soil description of a typical pedon located within the west and southeast areas of this site:

Table 3. Description of the soils at the site.

Depth	**Matrix Color**	**Concentrations**	**Depletions**	**Texture**	**Structure**
0-23 cm (0-9 in)	10YR 3/1	Few 10YR 4/6 and common 7.5YR 4/4	None	Silty clay loam	Medium granular
23-91 cm (9-36+ in)	10YR 3/1 with 10YR 6/1 strata	Common 7.5YR 4/4 and common 10YR 4/4	None	Silty clay loam	Medium granular and blocky

FAU 5822, Green Rock
Mitigation Site Monitoring
Henry County

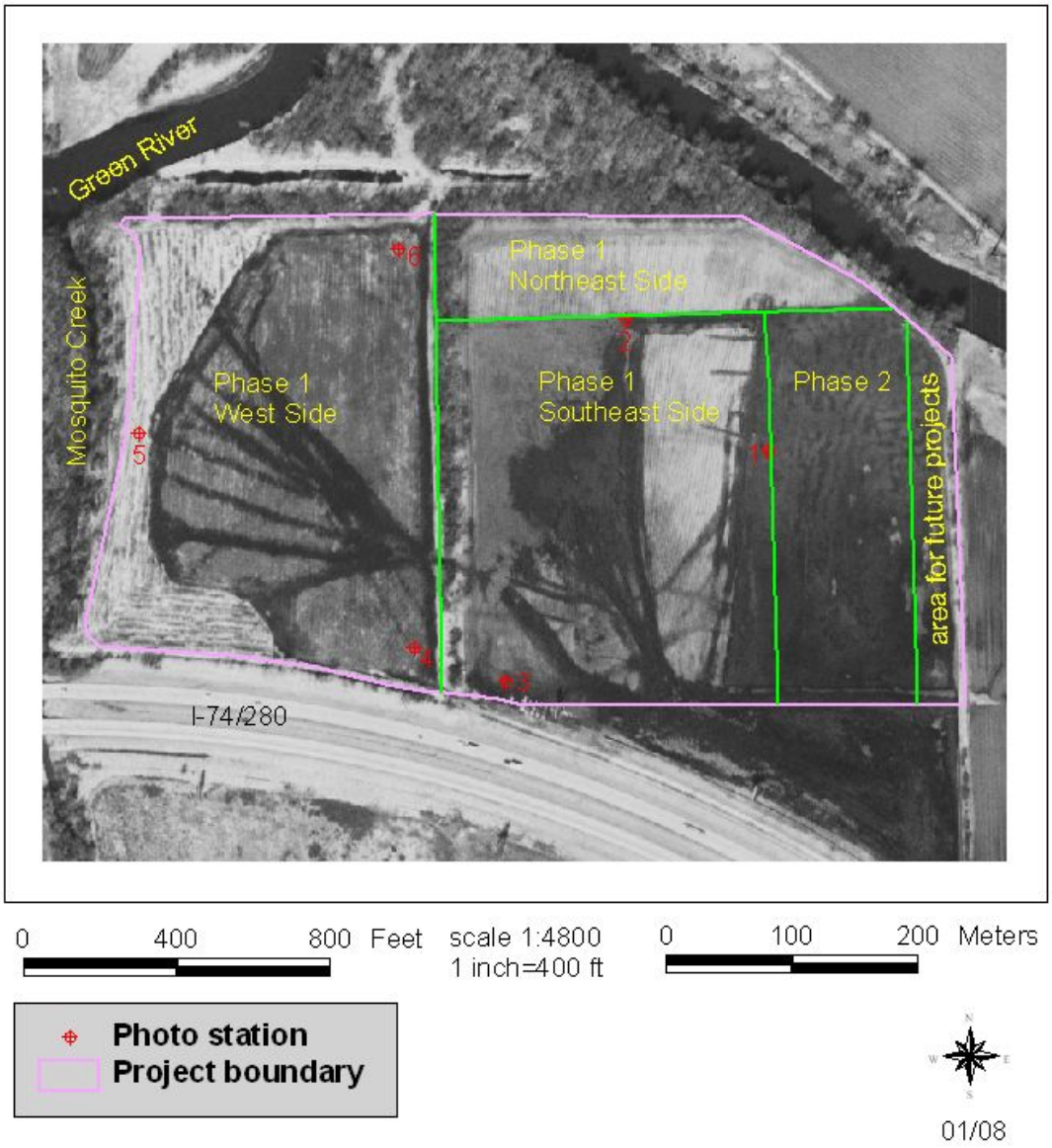

Figure 1. Site, Phase I areas, Phase II, and photo station location map.

c. <u>Presence of wetland hydrology</u>

The ISGS estimated that "the total area of created wetland that satisfied wetland hydrology criteria for more than 5% of the growing season was estimated to be 21.2 ha (52.4.7 ac) out of an area of 21.1 ha (52.0 ac). This included 18.4 ha (45.5 ac) of Phase I and 2.7 ha (6.8 ac) of Phase II." (Figure 2) (Fucciolo, et al. 2007). More information is available in the *Milan Beltway, Green Rock Wetland Compensation Site* report (ibid). This total area includes the southeast area of Phase I, which satisfied the criteria for 12.5% of the growing season, and the west area of Phase I, which satisfied the criteria for 5% of the growing season, but also had hydric soils and hydrophytic vegetation. The northeast area had neither hydric soils nor hydrophytic vegetation, and therefore did not meet the hydrology criteria this year. During our September 18 site visit, both the southeast and west areas were still inundated from a flood event on August 25. This event exceeds the criteria for wetland hydrology.

Based on ISGS data and field evidence observed during our on-site visits, all of the southeast and west areas of Phase I exhibited wetland hydrology. At this time we estimate that approximately 16.7 ha (41.2 ac) of Phase I this year has wetland hydrology.

Figure 2. "Estimated Areal Extent of 2007 Wetland Hydrology" (Fucciolo, et al. 2007).

Project goal 2

a. Planted species survivorship

Table 4 shows the results of the census. There were only minor discrepancies between the numbers of trees reported as planted and the number of live trees counted. The major discrepancy noticed again this year was that the number of swamp white oaks found was about one-quarter of those reported as planted. However, many overcup and white oak were found which were not reported as planted, and we feel this was simply a result of confusion at the nursery. These trees can look similar when small and immature, and were probably simply mistaken for swamp white oaks. When we group all of the oaks that were not pin oaks into a *Quercus* spp. category (Table 4), we arrive at much more reasonable numbers in terms of survival. Table 4 also shows the percent survival for the trees. These figures were calculated both by species and overall for all species in the entire site. More than 81% of the trees reported planted were counted as alive.

Table 4. Number of trees counted and percent tree survival (by species).

Species	Common Name	Number Planted	Number Surviving	% Survival.
Carya illinoensis	Pecan	970	522	53.8
Fraxinus pennsylvanica	Green ash	970	928	97.7
Platanus occidentalis	Sycamore	971	817	84.1
Quercus palustris	Pin oak	972	867	89.2
Quercus spp.*	Swamp white, white, and overcup oak	982	820	83.5
TOTAL		4865	3954	81.3

* For survival analysis, we grouped all of the oak species that were not pin oaks.

Therefore, there were 4220 live trees counted during the census over 16.88 ha. This results in a trees per hectare number of 234, easily exceeding the stated project goal (>136 trees per hectare).

b. Native species composition

The west portion of Phase I has 41.1% non-weedy, native, annual and perennial species. The southeast portion of Phase I has 21.6% non-weedy, native, annual and perennial species. The northeast portion of Phase I has 28.1% non-weedy, native, annual and perennial species. Therefore, none of these areas meet the requirement for native species composition (>50%). It is normal, however, for a site to begin very weedy and develop more native character over time, so this site may be expected to increase in native species composition over time and may exceed the stated project goal.

Two FQI and $\bar{c}$ values were also calculated for each area of Phase I from the species lists included in Appendix A. The first values are calculated from only species which became established on the site naturally; the second values include the planted trees. The values are reported in Table 5, which follows:

Table 5. FQI and $\bar{c}$ values with and without planted trees, by year and area of Phase I.

	West Area				Southeast Area				Northeast Area			
	Without planted species		With planted species		Without planted species		With planted species		Without planted species		With planted species	
Year	FQI	$\bar{c}$	FQI	$\bar{c}$	FQI	$\bar{c}$	FQI	$\bar{c}$	FQI	$\bar{c}$	FQI	$\bar{c}$
2006*	9.1	1.5	13.0	2.0	9.1	1.5	13.0	2.0	9.1	1.5	13.0	2.0
2007	11.7	1.9	15.2	2.3	6.5	1.2	10.8	1.8	7.6	1.7	12.4	2.4

* In 2006, Phase I was not differentiated; therefore the calculated value was used for each of the three areas.

These values indicate that the west area of Phase I is of fair natural quality, while the southeast and northeast areas are of poor natural quality. These values should increase over time in each of the areas, as higher quality vegetation becomes established.

c. Dominance of vegetation

The west portion of Phase I does not meet this criterion, with only one dominant which is non-native and weedy. The southeast portion of Phase I does not meet this criterion, with all of the three dominants non-native and weedy. The northeast portion of Phase I does not meet this criterion, with two of the four dominants non-native and weedy; one dominant (*Solidago canadensis*) is weedy but native, while the fourth dominant (*Aster lateriflorus*) is both native and non-weedy. Therefore, this site does not meet the performance criterion for dominance of vegetation.

Photography stations were established in areas chosen to give maximum representation of the site. Locations of the photography stations can be seen in Figure 1 (page 6). Photographs were taken from the permanent photography stations established in 2006 and are in Appendix B of this report.

Discussion – Phase I

After this second monitoring season, Phase I shows some progress toward forested wetland establishment. All standards for Project Goal 1 have not been met, as the majority of this site is not a jurisdictional wetland. There is some evidence to support that this site will comply with this goal in the future, since there was ample hydrology over most of this site. One of the three standards for Project Goal 2 has been met (tree survival), and as the vegetative succession proceeds, this site may comply with that goal by the end of the monitoring period.

The southeast and northeast areas of Phase I do not satisfy all the wetland criteria; therefore, we believe these areas are not wetlands. Only a small portion of the west area of Phase I satisfies all the wetland criteria; therefore, we believe this portion is a wetland. Current wetland acreage at this site is estimated to be approximately 22.4 ac (9.1 ha), corresponding to the west area of Phase I. This estimate will be refined in future years as more data are gathered.

With the exception of the west area of Phase I, the vegetation is not hydrophytic. It also does not meet the dominance criteria for native non-weedy species. The planted trees exhibited excellent survival, and should meet the planted species performance criterion at the end of the monitoring

period There are still a large number of species at each site that have very low coefficients of conservatism (C). This is common on disturbed and early successional sites and is not a cause for concern at this time. It is likely that as succession progresses, more conservative species will become established on the site.

Currently, the primary concerns for this site are establishing non-weedy, native dominant hydrophytic vegetation, hydric soils, and wetland hydrology. An estimate of current wetland acreage is approximately 22.4 ac (9.1 ha), corresponding to the west area of Phase I.

Results – Phase II

Project goal 1

a. Predominance of hydrophytic vegetation

Dominant plant species for Phase II in 2007 are shown in Table 6. Neither of the dominants are rated OBL, FACW, FAC+, or FAC or are hydrophytic. This results in 0% of the dominants being hydrophytic, which does not meet the minimum project goal of >50%.

Table 6. Dominant plant species by stratum and wetland indicator status.

Dominant Plant Species	Stratum	Indicator Status
1. *Poa pratensis*	Herb	FAC-
2. *Setaria faberi*	Herb	FACU+

b. Occurrence of hydric soils

Soils examined were found to be relatively undisturbed and hydric soil indicators are present in the majority of Phase II. Soils in Phase II were very similar to the hydric soils in Phase I (see Table 3). A more detailed soil description for Phase II soils will be provided in coming years.

c. Presence of wetland hydrology

The ISGS estimated that "the total area of created wetland that satisfied wetland hydrology criteria for more than 12.5% of the growing season was estimated to be 13.2 ha (32.7 ac) out of an area of 21.1 ha (52.0 ac). This included 10.5 ha (25.9 ac) of Phase I and 2.7 ha (6.8 ac) of Phase II." (Figure 2) (Fucciolo, et al. 2007). More information is available in the *Milan Beltway, Green Rock, Wetland Compensation Site* report (ibid). During our September 18 site visit, this site was still inundated from a flood event on August 25. This easily exceeds the criteria for wetland hydrology.

Based on field evidence observed during our on-site visits, the majority of the 3.02 ha (7.45 ac) in Phase II exhibits indicators of wetland hydrology. At this time we estimate that this year all of Phase II has wetland hydrology.

Project goal 2

a. Planted species survivorship

Table 8 shows the results of the census. There were only minor discrepancies between the numbers of trees reported as planted and the number of live trees counted. Table 8 also shows the percent survival for the trees. These figures were calculated both by species and overall for all species in the entire site. More than 85% of the trees reported planted were counted as alive.

Table 8. Number of trees counted and percent tree survival (by species).

Species	Common Name	Number Planted	Number Surviving	% Survival.
Carya illinoensis	Pecan	168	53	31.5
Fraxinus pennsylvanica	Green ash	162	162	101.2
Platanus occidentalis	Sycamore	163	165	101.2
Quercus palustris	Pin oak	164	153	93.3
Quercus bicolor	Swamp white oak	165	162	98.2
TOTAL		822	700	85.2

Therefore, there were 700 live trees counted during the census over 3.02 ha. This results in a trees per hectare number of 232, easily exceeding the stated project goal (>136 trees per hectare).

b. Native species composition

This site has 23.3% non-weedy, native, annual and perennial species. Therefore, it does not meet the requirement for native species composition (>50%). It is normal, however, for a site to begin very weedy and develop more native character over time, so this site may be expected to increase in native species composition over time and should easily exceed the stated project goal.

Two FQI values were also calculated for this site from the species lists included in Appendix C. The first FQI value is calculated from only species which became established on the site naturally; the second FQI value includes the planted trees. The FQI value is 5.8 with a $\bar{c}$ value of 1.3 when only naturally established vegetation is considered, and 9.6 and 1.9 respectively when the planted trees are included. Therefore this site is of poor natural quality.

c. Dominance of vegetation

This site does not meet the performance criteria for dominance of vegetation. Both of the dominant species (Table 6) are non-native and weedy.

Photography stations were established in areas chosen to give maximum representation of the site. Locations of the photography stations can be seen in Figure 1 (page 6). Photographs were taken from the permanent photography station established in 2006 and are in Appendix D of this report.

Discussion – Phase II

After this first monitoring season, Phase II shows some progress toward forested wetland establishment. All standards for Project Goal 1 have not been met, as this site is not a jurisdictional wetland. There is some evidence to support that this site will comply with this goal in the future, since there was ample hydrology over this entire site. One of the three standards for Project Goal 2 has been met, and as the vegetative succession proceeds, this site may comply with that goal by the end of the monitoring period.

None of Phase II satisfies all the wetland criteria; therefore, we believe this site is not a wetland. Current wetland acreage at this site is determined to be 0.0 ac (0.0 ha); however, 2.7 ha (6.8 ac) - corresponding to that area determined by the ISGS to possess wetland hydrology - shows great promise to develop into wetland. This estimate will be refined in future years as more hydrologic data is gathered.

The vegetation is not hydrophytic. It also does not meet the dominance criteria for native non-weedy species. The planted trees exhibited excellent survival, and should meet the planted species performance criterion at the end of the monitoring period There are still a large number of species at each site that have very low coefficients of conservatism (C). This is common on disturbed and early successional sites and is not a cause for concern at this time. It is likely that as succession progresses, more conservative species will become established on the site.

Currently, the primary concerns for this site are establishing non-weedy, native dominant hydrophytic vegetation. A determination of current wetland acreage is 0.0 ac (0.0 ha).

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Appendix A

Wetland Determination Forms of Wetland Mitigation Site: Green Rock Phase I

ROUTINE ONSITE WETLAND DETERMINATION
Northeast area (page 1 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Forbland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area north of the pipeline on the east side of Phase I.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. *Ambrosia trifida*	Herb	FAC+
2. *Aster lateriflorus*	Herb	FACW-
3. *Poa pratensis*	Herb	FAC-
4. *Solidago canadensis*	Herb	FACU

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 50%
Hydrophytic vegetation: Yes: No: X
Rationale: Not more than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: NRCS mapped as Sawmill and Radford;
Revised to Radford silt loam (Fluvaquentic Hapludoll)
On county hydric soils list? Yes: No: X
Is the soil a histosol? Yes: No: X
Histic epipedon present? Yes: No: X
Redox Concentrations? Yes: No: X Color: N/A
Redox Depletions? Yes: No: X Color: N/A
Matrix color: 10YR 3/2 over strata of 10YR 3/2 and 4/2
Other indicators: None.
Hydric soils? Yes: No: X
Rationale: The Natural Resources Conservation Service identifies Radford silt loam as a Fluvaquentic Hapludoll which is somewhat poorly drained. This soil lacks redox concentrations or depletions and possesses a medium chroma matrix, which indicates saturated or reduced conditions for only brief duration. Therefore, the soil at this site does not meet the hydric soil criterion. This soil meets none of the NRCS hydric soil indicators.

ROUTINE ONSITE WETLAND DETERMINATION
Northeast area (page 2 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Forbland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area north of the pipeline on the east side of Phase I.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: N/A
Depth to saturated soil: >0.91 m (36 in)
Overview of hydrological flow through the system: This area is hydrologically influenced by overflow from the Green River and Mosquito Creek, sheet flow from surrounding uplands, and precipitation. Water leaves the area via evapotranspiration, sheet flow, and drainage into the river.
Size of watershed: 2596 km^2 (1003 mi^2) for the Green River at Geneseo, IL (Wicker, et al. 1996)
Other field evidence observed: The ISGS estimated that this area did not meet the wetland hydrology criterion (Fucciolo et al. 2007). No hydrologic indicators were observed.

Wetland hydrology: Yes: No: X
Rationale: Field evidence cited above and ISGS data indicate that this area is not inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the area a wetland? Yes: No: X
Rationale: Hydric soils, dominant hydrophytic vegetation, and wetland hydrology are absent at this area; therefore, we determined that this area is not a wetland.

ROUTINE ONSITE WETLAND DETERMINATION
Northeast area (page 3 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Forbland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area north of the pipeline on the east side of Phase I.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Abutilon theophrasti	velvet-leaf	herb	FACU-	*+
Amaranthus tuberculatus	tall waterhemp	herb	OBL	1+
Ambrosia artemisiifolia	common ragweed	herb	FACU	0+
Ambrosia trifida	giant ragweed	herb	FAC+	0+
Aster lateriflorus	side-flowered aster	herb	FACW-	2
Aster ontarionis	Ontario aster	herb	FAC	4
Aster simplex	panicled aster	herb	FACW	3
Bromus inermis	awnless brome grass	herb	UPL	*+
Cichorium intybus	chickory	herb	UPL	*+
Cirsium arvense	Canada thistle	herb	FACU	*+
Cirsium vulgare	bull thistle	herb	FACU-	*+
Conyza canadensis	horseweed	herb	FAC-	0+
Elymus canadensis	Canada wild rye	herb	FAC-	4
Elymus virginicus	Virginia wild rye	herb	FACW-	4
Erigeron annuus	annual fleabane	herb	FAC-	1+
Eupatorium rugosum	white snakeroot	herb	FACU	2
Eupatorium serotinum	late boneset	herb	FAC+	1+
Phalaris arundinacea	reed canary grass	herb	FACW+	*+
Phleum pratense	Timothy	herb	FACU	*+
Plantago lanceolata	narrow-leaved plantain	herb	FAC	*+
Poa pratensis	Kentucky bluegrass	herb	FAC-	*+
Polygonum amphibium	water smartweed	herb	OBL	3
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1+
Rumex crispus	curly dock	herb	FAC+	*+
Setaria faberi	giant foxtail	herb	FACU+	*+
Solidago canadensis	Canada goldenrod	herb	FACU	1+
Taraxacum officinale	common dandelion	herb	FACU	*+
Toxicodendron radicans	poison ivy	herb	FAC+	1+
Urtica dioica	stinging nettle	herb	FAC+	2
Verbena urticifolia	white vervain	herb	FAC+	3
Viola pratincola	common blue violet	herb	FAC	1+
Xanthium strumarium	cocklebur	herb	FAC	0+

Coefficient of Conservatism (Taft et al. 1997) + weedy native or non-native species, *non-native species

$FQI = \sum C/\sqrt{N} = 34/\sqrt{20} = 7.6$ $\bar{C} = \sum C/N = 34/20 = 1.7$

ROUTINE ONSITE WETLAND DETERMINATION
Northeast area (page 4 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Forbland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area north of the pipeline on the east side of Phase I.

Planted Saplings
SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Carya illinoensis	pecan	sapling(p)	FACW	6
Fraxinus pennsylvanica	green ash	sapling(p)	FACW	2
Platanus occidentalis	sycamore	sapling(p)	FACW	3
Quercus bicolor	swamp white oak	sapling(p)	FACW+	7
Quercus lyrata	overcup oak	sapling(p)	OBL	7
Quercus palustris	pin oak	sapling(p)	FACW	4

Coefficient of Conservatism (Taft et al. 1997) (p) planted species

$FQI^* = \sum C/\sqrt{N} = 63/\sqrt{26} = 12.4$ $\bar{C}^* = \sum C/N = 63/26 = 2.4$

*These calculations include the complete species list above, as well as the planted trees.

Determined by:

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Brian Wilm, Valerie Sivicek, and Jason Zylka
(vegetation and hydrology)
Brad Zercher (GIS)
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ROUTINE ONSITE WETLAND DETERMINATION
Southeast area (page 1 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area south of the pipeline on the east side of Phase I.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. *Lolium perenne*	Herb	FACU
2. *Poa pratensis*	Herb	FAC-
3. *Setaria faberi*	Herb	FACU+

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

SOILS

Series and phase: NRCS mapped as Sawmill, Radford, and Tice;
Revised to Sawmill silty clay loam (Cumulic Endoaquoll)

On county hydric soils list?	Yes:	No: X	
Is the soil a histosol?	Yes:	No: X	
Histic epipedon present?	Yes:	No: X	
Redox Concentrations?	Yes: X	No:	Color: 7.5YR 4/4, 10YR 4/6, and 4/4
Redox Depletions?	Yes:	No: X	Color: N/A

Matrix color: 10YR 3/1 over strata of 10YR 3/1 and 6/1
Other indicators: None.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service identifies Sawmill silty clay loam as a Cumulic Endoaquoll which is poorly drained. This soil possesses redox concentrations within a low chroma matrix, which indicates saturated or reduced conditions for extended duration. Therefore, the soil at this site meets the hydric soil criterion. This soil meets NRCS hydric soil indicator F6 – Redox dark surface.

ROUTINE ONSITE WETLAND DETERMINATION
Southeast area (page 2 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area south of the pipeline on the east side of Phase I.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: N/A
Depth to saturated soil: >0.91 m (36 in)
Overview of hydrological flow through the system: This area is hydrologically influenced by overflow from the Green River and Mosquito Creek, sheet flow from surrounding uplands, some directed drainage from Interstate 280/74, and precipitation. Water leaves the area via evapotranspiration, possible groundwater recharge, and drainage into the creek and river.
Size of watershed: 2596 km^2 (1003 mi^2) for the Green River at Geneseo, IL (Wicker, et al. 1996)
Other field evidence observed: The ISGS estimated that this area met the wetland hydrology criterion (Fucciolo et al. 2007). This site was inundated during site visit.

Wetland hydrology: Yes: X No:
Rationale: Field evidence cited above and ISGS data indicate that this area is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the area a wetland? Yes: No: X
Rationale: While hydric soil and wetland hydrology are present at this area, dominant hydrophytic vegetation is not; therefore, we determined that this area is not a wetland.

ROUTINE ONSITE WETLAND DETERMINATION
Southeast area (page 3 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area south of the pipeline on the east side of Phase I.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Abutilon theophrasti	velvet-leaf	herb	FACU-	*+
Amaranthus tuberculatus	tall waterhemp	herb	OBL	1+
Ambrosia artemisiifolia	common ragweed	herb	FACU	0+
Ambrosia trifida	giant ragweed	herb	FAC+	0+
Apocynum cannabinum	dogbane	herb	FAC	2
Asclepias syriaca	common milkweed	herb	UPL	0+
Aster lateriflorus	side-flowered aster	herb	FACW-	2
Aster pilosus	hairy aster	herb	FACU+	0+
Aster simplex	panicled aster	herb	FACW	3
Bidens aristosa	swamp marigold	herb	FACW	1
Calystegia sepium	American bindweed	herb	FAC	1+
Chamaesyce maculata	nodding spurge	herb	FACU-	0+
Chenopodium album	lamb's quarters	herb	FAC-	*+
Cirsium arvense	Canada thistle	herb	FACU	*+
Conyza canadensis	horseweed	herb	FAC-	0+
Cornus drummondii	rough-leaved dogwood	herb	FAC	2
Cyperus strigosus	straw-colored flatsedge	herb	FACW	0+
Datura stramonium	jimsonweed	herb	FACU-	*+
Daucus carota	Queen Anne's lace	herb	UPL	*+
Digitaria sanguinalis	hairy crab grass	herb	FACU	*+
Echinochloa muricata	barnyard grass	herb	OBL	0+
Echinochloa walteri	salt-marsh cockspur grass	herb	OBL	5
Elymus canadensis	Canada wild rye	herb	FAC-	4
Eragrostis hypnoides	creeping love grass	herb	OBL	5
Eragrostis pectinacea	Carolina love grass	herb	FAC	0+
Erigeron annuus	annual fleabane	herb	FAC-	1+
Festuca pratensis	meadow fescue	herb	FACU-	*+
Hordeum jubatum	squirrel-tail	herb	FAC+	*+
Ipomoea sp.	morning glory	herb	-----	--+
Lolium perenne	crested rye grass	herb	FACU	*+
Medicago lupulina	black medic	herb	FAC-	*+
Panicum dichotomiflorum	fall panicum	herb	FACW-	0+
Phalaris arundinacea	reed canary grass	herb	FACW+	*+
Phyla lanceolata	fog-fruit	herb	OBL	1
Poa pratensis	Kentucky bluegrass	herb	FAC-	*+
Polygonum aviculare	knotweed	herb	FAC-	*+
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1+

Species list continued on next page.

ROUTINE ONSITE WETLAND DETERMINATION
Southeast area (page 4 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area south of the pipeline on the east side of Phase I.

SPECIES LIST (Cont.)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Populus deltoides	eastern cottonwood	shrub, herb	FAC+	2
Rumex crispus	curly dock	herb	FAC+	*+
Setaria faberi	giant foxtail	herb	FACU+	*+
Setaria glauca	pigeon grass	herb	FAC	*+
Sida spinosa	prickly sida	herb	FACU	*+
Solanum carolinense	horse nettle	herb	FACU-	0+
Solanum ptycanthum	black nightshade	herb	FACU-	0+
Solidago canadensis	Canada goldenrod	herb	FACU	1+
Sonchus arvensis	field sowthistle	herb	FAC-	*+
Taraxacum officinale	common dandelion	herb	FACU	*+
Trifolium pratense	red clover	herb	FACU+	*+
Trifolium repens	white clover	herb	FACU+	*+
Verbena hastata	blue vervain	herb	FACW+	3
Xanthium strumarium	cocklebur	herb	FAC	0+

Coefficient of Conservatism (Taft et al. 1997) + weedy native or non-native species, *non-native species

$FQI = \sum C/\sqrt{N} = 35/\sqrt{29} = 6.5 \quad \bar{C} = \sum C/N = 35/29 = 1.2$

Planted Saplings
SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Carya illinoensis	pecan	sapling(p)	FACW	6
Fraxinus pennsylvanica	green ash	sapling(p)	FACW	2
Platanus occidentalis	sycamore	sapling(p)	FACW	3
Quercus bicolor	swamp white oak	sapling(p)	FACW+	7
Quercus lyrata	overcup oak	sapling(p)	OBL	7
Quercus palustris	pin oak	sapling(p)	FACW	4

Coefficient of Conservatism (Taft et al. 1997) (p) planted species

$FQI^* = \sum C/\sqrt{N} = 64/\sqrt{35} = 10.8 \quad \bar{C}^* = \sum C/N = 64/35 = 1.8$

*These calculations include the complete species list above, as well as the planted trees.

ROUTINE ONSITE WETLAND DETERMINATION
Southeast area (page 5 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland occupies the area south of the pipeline on the east side of Phase I.

Determined by:

Scott Wiesbrook (soils and hydrology)
Brian Wilm, Valerie Sivicek, and Jason Zylka
(vegetation and hydrology)
Brad Zercher (GIS)
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ROUTINE ONSITE WETLAND DETERMINATION
West area (page 1 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Wet meadow
Legal Description: SE/4, NW/4, Section 16, T. 17 N., R. 1 E
Location: This wetland occupies the area on the west side of Phase I.

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

VEGETATION

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

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

SOILS
Series and phase: Sawmill silty clay loam (Cumulic Endoaquoll)

On county hydric soils list?	Yes:	No: X	
Is the soil a histosol?	Yes:	No: X	
Histic epipedon present?	Yes:	No: X	
Redox Concentrations?	Yes: X	No:	Color: 7.5YR 4/4, 10YR 4/6, and 4/4
Redox Depletions?	Yes:	No: X	Color: N/A

Matrix color: 10YR 3/1 over strata of 10YR 3/1 and 6/1
Other indicators: None.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service identifies Sawmill silty clay loam as a Cumulic Endoaquoll which is poorly drained. This soil possesses redox concentrations within a low chroma matrix, which indicates saturated or reduced conditions for extended duration. Therefore, the soil at this site meets the hydric soil criterion. This soil meets NRCS hydric soil indicator F6 – Redox dark surface.

ROUTINE ONSITE WETLAND DETERMINATION
West area (page 2 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Wet meadow
Legal Description: SE/4, NW/4, Section 16, T. 17 N., R. 1 E
Location: This wetland occupies the area on the west side of Phase I.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: N/A
Depth to saturated soil: >0.91 m (36 in)
Overview of hydrological flow through the system: This area is hydrologically influenced by overflow from the Green River and Mosquito Creek, sheet flow from surrounding uplands, some directed drainage from Interstate 280/74, and precipitation. Water leaves the area via evapotranspiration, possible groundwater recharge, and drainage into the creek and river.
Size of watershed: 2596 km^2 (1003 mi^2) for the Green River at Geneseo, IL (Wicker, et al. 1996)
Other field evidence observed: The ISGS estimated that a portion of this area met the wetland hydrology criterion (Fucciolo et al. 2007). The majority of this site was inundated during site visit.

Wetland hydrology: Yes: X No:
Rationale: Field evidence cited above and ISGS data indicate that a majority of this area is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the area a wetland? Yes: X No:
Rationale: Hydric soil, dominant hydrophytic vegetation, and wetland hydrology are present at this area; therefore, we determined that this area is a wetland.

ROUTINE ONSITE WETLAND DETERMINATION
West area (page 3 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Wet meadow
Legal Description: SE/4, NW/4, Section 16, T. 17 N., R. 1 E
Location: This wetland occupies the area on the west side of Phase I.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Abutilon theophrasti	velvet-leaf	herb	FACU-	*+
Acer negundo	box elder	herb	FACW-	1+
Amaranthus tuberculatus	tall waterhemp	herb	OBL	1+
Ambrosia artemisiifolia	common ragweed	herb	FACU	0+
Ambrosia trifida	giant ragweed	herb	FAC+	0+
Apocynum cannabinum	dogbane	herb	FAC	2
Apocynum sibiricum	Indian hemp	herb	FAC+	2
Asclepias syriaca	common milkweed	herb	UPL	0+
Aster lateriflorus	side-flowered aster	herb	FACW-	2
Aster simplex	panicled aster	herb	FACW	3
Barbarea vulgaris	winter cress	herb	FAC	*+
Bidens frondosa	common beggar’s ticks	herb	FACW	1
Bidens tripartita	beggar’s ticks	herb	OBL	2
Brassica nigra	black mustard	herb	UPL	*+
Bromus inermis	awnless brome grass	herb	UPL	*+
Calystegia sepium	American bindweed	herb	FAC	1+
Chamaesyce maculata	nodding spurge	herb	FACU-	0+
Chenopodium album	lamb's quarters	herb	FAC-	*+
Conyza canadensis	horseweed	herb	FAC-	0+
Cyperus esculentus	yellow nut-sedge	herb	FACW	0+
Daucus carota	Queen Anne's lace	herb	UPL	*+
Echinochloa muricata	barnyard grass	herb	OBL	0+
Echinochloa walteri	salt-marsh cockspur grass	herb	OBL	5
Echinocystis lobata	wild balsam-apple	herb	FACW-	4
Elymus canadensis	Canada wild rye	herb	FAC-	4
Eragrostis hypnoides	creeping love grass	herb	OBL	5
Erechtites hieracifolia	fire weed	herb	FACU	2
Hordeum jubatum	squirrel-tail	herb	FAC+	*+
Impatiens capensis	jewelweed	herb	FACW	2
Lactuca serriola	prickly lettuce	herb	FAC	*+
Mentha arvensis villosa	field mint	herb	FACW	4
Panicum capillare	witch grass	herb	FAC	0+
Panicum virgatum	prairie switchgrass	herb	FAC+	4
Phalaris arundinacea	reed canary grass	herb	FACW+	*+
Phyla lanceolata	fog-fruit	herb	OBL	1
Physostegia virginiana	false dragonhead	herb	FACW	6
Plantago rugelii	red-stalked plantain	herb	FAC	0+

Species list continued on next page.

ROUTINE ONSITE WETLAND DETERMINATION
West area (page 4 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Wet meadow
Legal Description: SE/4, NW/4, Section 16, T. 17 N., R. 1 E
Location: This wetland occupies the area on the west side of Phase I.

SPECIES LIST (Cont.)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Poa pratensis	Kentucky bluegrass	herb	FAC-	*+
Polygonum amphibium	water smartweed	herb	OBL	3
Polygonum aviculare	knotweed	herb	FAC-	*+
Polygonum lapathifolium	curttop lady's thumb	herb	FACW+	0+
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1+
Rumex altissimus	pale dock	herb	FACW-	2
Rumex crispus	curly dock	herb	FAC+	*+
Sambucus canadensis	common elder	shrub, herb	FACW-	2
Senecio pauperculus	balsam groundsel	herb	FAC+	3
Setaria faberi	giant foxtail	herb	FACU+	*+
Setaria glauca	pigeon grass	herb	FAC	*+
Sicyos angulatus	bur cucumber	herb	FACW-	3
Sida spinosa	prickly sida	herb	FACU	*+
Solanum carolinense	horse nettle	herb	FACU-	0+
Taraxacum officinale	common dandelion	herb	FACU	*+
Trifolium pratense	red clover	herb	FACU+	*+
Ulmus americana	American elm	herb	FACW-	5
Urtica dioica	stinging nettle	herb	FAC+	2
Xanthium strumarium	cocklebur	herb	FAC	0+

Coefficient of Conservatism (Taft et al. 1997) + weedy native or non-native species, *non-native species

$FQI = \sum C/\sqrt{N} = 73/\sqrt{39} = 11.7 \quad \bar{C} = \sum C/N = 73/39 = 1.9$

Planted Saplings
SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Carya illinoensis	pecan	sapling(p)	FACW	6
Fraxinus pennsylvanica	green ash	sapling(p)	FACW	2
Platanus occidentalis	sycamore	sapling(p)	FACW	3
Quercus bicolor	swamp white oak	sapling(p)	FACW+	7
Quercus lyrata	overcup oak	sapling(p)	OBL	7
Quercus palustris	pin oak	sapling(p)	FACW	4

Coefficient of Conservatism (Taft et al. 1997) (p) planted species

$FQI^* = \sum C/\sqrt{N} = 102/\sqrt{45} = 15.2 \quad \bar{C}^* = \sum C/N = 102/45 = 2.3$

*These calculations include the complete species list above, as well as the planted trees.

ROUTINE ONSITE WETLAND DETERMINATION
West area (page 5 of 5)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase I) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Wet meadow
Legal Description: SE/4, NW/4, Section 16, T. 17 N., R. 1 E
Location: This wetland occupies the area on the west side of Phase I.

Determined by:

Scott Wiesbrook (soils and hydrology)
Brian Wilm, Valerie Sivicek, and Jason Zylka
(vegetation and hydrology)
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Appendix B

Photographs of Wetland Mitigation Site:
Green Rock Phase I

Picture 1. Facing west from photostation 1 (located on east side of east area).

Picture 2. Facing south from photostation 2 (located northern side of east area).

Picture 3. Facing north from photostation 3 (located on southwest corner of east area).

Picture 4. Facing northwest from photostation 4 (located on southeast corner of west area).

Picture 5. Facing east from photostation 5 (located on west side of west area).

Picture 6. Facing southwest from photostation 6 (located on northeast corner of west area).

Appendix C

Wetland Determination Forms of Wetland Mitigation Site: Green Rock Phase II

ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 1 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase II) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland includes the entire Phase II area.

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

VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. *Poa pratensis*	Herb	FAC-
2. *Setaria faberi*	Herb	FACU+

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

SOILS
Series and phase: NRCS mapped as Sawmill, Radford, Tice, and Plano;
Revised to Sawmill (Cumulic Endoaquoll)
On county hydric soils list? Yes: No: X
Is the soil a histosol? Yes: No: X
Histic epipedon present? Yes: No: X
Redox Concentrations? Yes: X No: Color: 7.5YR 4/4, 10YR 4/6, and 4/4
Redox Depletions? Yes: No: X Color: N/A
Matrix color: 10YR 3/1 over strata of 10YR 3/1 and 6/1
Other indicators: None.
Hydric soils? Yes: X No:
Rationale: The Natural Resources Conservation Service identifies Sawmill silty clay loam as a Cumulic Endoaquoll which is poorly drained. This soil possesses redox concentrations within a low chroma matrix, which indicates saturated or reduced conditions for extended duration. Therefore, the soil at this site meets the hydric soil criterion. This soil meets NRCS hydric soil indicator F6 – Redox dark surface.

ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 2 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase II) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland includes the entire Phase II area.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: N/A
Depth to saturated soil: >0.91 m (36 in)
Overview of hydrological flow through the system: This area is hydrologically influenced by overflow from the Green River and Mosquito Creek, sheet flow from surrounding uplands, and precipitation. Water leaves the area via evapotranspiration, possible groundwater recharge, and drainage into the creek and river.
Size of watershed: 2596 km^2 (1003 mi^2) for the Green River at Geneseo, IL (Wicker, et al. 1996)
Other field evidence observed: The ISGS estimated that this area met the wetland hydrology criterion (Fucciolo et al. 2007). This site was inundated during site visit.

Wetland hydrology: Yes: X No:
Rationale: Field evidence cited above and ISGS data indicate that this area is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the area a wetland? Yes: No: X
Rationale: While hydric soil and wetland hydrology are present at this area, dominant hydrophytic vegetation is not; therefore, we determined that this area is not a wetland.

ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 3 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase II) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland includes the entire Phase II area.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Abutilon theophrasti	velvet-leaf	herb	FACU-	*+
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0+
Agrostis alba	red top	herb	FACW	0+
Ambrosia artemisiifolia	common ragweed	herb	FACU	0+
Ambrosia trifida	giant ragweed	herb	FAC+	0+
Avena sativa	cultivated oats	herb	UPL	*+
Bidens tripartita	beggar's ticks	herb	OBL	2
Calystegia sepium	American bindweed	herb	FAC	1+
Chamaesyce maculata	nodding spurge	herb	FACU-	0+
Chenopodium album	lamb's quarters	herb	FAC-	*+
Cyperus strigosus	straw-colored flatsedge	herb	FACW	0+
Digitaria ischaemum	smooth crab grass	herb	FACU	*+
Echinochloa muricata	barnyard grass	herb	OBL	0+
Echinochloa walteri	salt-marsh cockspur grass	herb	OBL	5
Eclipta prostrata	yerba de tajo	herb	FACW	2
Elymus canadensis	Canada wild rye	herb	FAC-	4
Eragrostis hypnoides	creeping love grass	herb	OBL	5
Lotus corniculatus	birdsfoot-trefoil	herb	FAC-	*+
Panicum dichotomiflorum	fall panicum	herb	FACW-	0+
Poa pratensis	Kentucky bluegrass	herb	FAC-	*+
Polygonum lapathifolium	curttop lady's thumb	herb	FACW+	0+
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1+
Polygonum persicaria	spotted lady's thumb	herb	FACW	*+
Rumex altissimus	pale dock	herb	FACW-	2
Rumex crispus	curly dock	herb	FAC+	*+
Salix exigua	sandbar willow	shrub	OBL	1+
Senecio pauperculus	balsam groundsel	herb	FAC+	3
Setaria faberi	giant foxtail	herb	FACU+	*+
Setaria glauca	pigeon grass	herb	FAC	*+
Xanthium strumarium	cocklebur	herb	FAC	0+

Coefficient of Conservatism (Taft et al. 1997) + weedy native or non-native species, *non-native species

$FQI = \sum C/\sqrt{N} = 26/\sqrt{20} = 5.8$ $\bar{C} = \sum C/N = 26/20 = 1.3$

ROUTINE ONSITE WETLAND DETERMINATION
Site 1 (page 4 of 4)

Field Investigators: Wiesbrook, Wilm, Sivicek, and Zylka **Date:** Aug. 7 & Sep. 18, 2007
Project Name: FAU 5822 (Milan Beltway Green Rock Phase II) **Section No.:** 1-3
State: Illinois **County:** Henry **Applicant:** IDOT Dist. 2
Area Name: Non-native grassland
Legal Description: SW/4, NE/4 Section 16, T. 17 N., R. 1 E
Location: This non-wetland includes the entire Phase II area.

Planted Saplings
SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism#
Carya illinoensis	pecan	sapling(p)	FACW	6
Fraxinus pennsylvanica	green ash	sapling(p)	FACW	2
Platanus occidentalis	sycamore	sapling(p)	FACW	3
Quercus bicolor	swamp white oak	sapling(p)	FACW+	7
Quercus palustris	pin oak	sapling(p)	FACW	4

Coefficient of Conservatism (Taft et al. 1997) (p) planted species

$FQI^* = \sum C/\sqrt{N} = 48/\sqrt{25} = 9.6$ $\bar{C}^* = \sum C/N = 48/25 = 1.9$

*These calculations include the complete species list above, as well as the planted trees.

Determined by: Scott Wiesbrook (soils and hydrology)
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Appendix D

Photographs of Wetland Mitigation Site:
Green Rock Phase II

Picture 1. Facing northeast from photostation 1 (located on east side of east area).

Picture 2. Facing southeast from photostation 1 (located on east side of east area).