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WETLAND DELINEATION FOR A PROPOSED STORM SEWER CONSTRUCTION
CORRIDOR IN PORTIONS OF WILLOW GLEN GOLF COURSE THE COMMONWEALTH
EDISON RIGHT OF WAY AND NORTHERN AVENUE AND BETWEEN BUCKLEY ROAD AND
MARTIN LUTHER KING DRIVE NS GREAT LAKES IL

11/13/2009

JAMES ANDERSON COMPANY

ERN Sites 1+4

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ESTABLISHED IN 1891

JAMES ANDERSON COMPANY
ENGINEERS, PLANNERS, AND SURVEYORS

920 WEST NORTH SHORE DRIVE
LAKE BLUFF, ILLINOIS, 60044

847-295-3322
847-295-0734 (FAX)

Order No. 10117

November 13, 2009

**WETLAND DELINEATION FOR A PROPOSED STORM SEWER
CONSTRUCTION CORRIDOR IN PORTIONS OF WILLOW GLEN GOLF
COURSE, THE COMMONWEALTH EDISON RIGHT-OF-WAY, AND
NORTHERN AVENUE AND BETWEEN BUCKLEY ROAD
AND MARTIN LUTHER KING DRIVE IN
NORTH CHICAGO, ILLINOIS**

For
Mr. Larry Bridges, Chairman
Mr. William Green, Commissioner
Mr. Anthony Bilotti, Commissioner
East Skokie Drainage District
C/O Law Offices of Fuqua, Winter & Stiles
9 North County Street
Waukegan, Illinois, 60085

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Introduction

James Anderson Company delineated wetlands along an approximately 3,880 foot long corridor extending south to north from Buckley Road (Route 137) to Martin Luther King Jr. Drive. Said corridor extends westward for a distance of 50 feet from the west lines of the northeast quarter of Section 7 and southeast quarter of Section 6, T-44, R-12 (Commonwealth Edison Right-of-Way) and eastward of said lines for a distance of 200 feet (Willow Glen Golf Course and Northern Avenue and into adjacent undeveloped land). The corridor also contains a roughly triangular area extending for approximately 1,250 feet east of said section line along the northern edge of Buckley Road. Details showing the delineated corridor are included as Exhibit No. 1 in this report.

Site Description

The delineated corridor contains a total of nine wetlands and one detention pond. Wetland Nos. 1, 2 and 4 and a small portion of Wetland No. 3 lie within Willow Glen Golf Course. The remaining wetlands lie partially within the Commonwealth Edison Right-of-Way and Northern Avenue. Wetland Nos. 3, 7, 8 and the detention pond extend past the limits of the investigated corridor. See Exhibit 10.

Open water areas within the investigated corridor include a rock-lined detention pond at the corridor's far northern end, a ditch that follows part of the eastern edge of the Commonwealth Edison Right-of-Way and a segment of the east fork of the North Branch of the Chicago River (E. Skokie) that emerges from a culvert at the approximate center of Willow Glen Golf Course.

In general, the areas around the ditch along the eastern edge of the Commonwealth Edison Right-of-Way, the daylighted portion of the East Skokie River in the middle of the Willow Glen golf course and the undeveloped areas adjacent to Northern Avenue at the northern portion of the corridor are unmanaged and dominated by woody vegetation – in particular common buckthorn. The portions of the corridor lying within the golf course are maintained as mowed turf-grass. Management throughout the Commonwealth Edison Right-of-Way is restricted to limited periodic trimming and / or herbicide application to control woody vegetation.

Map Review

Location Maps (Exhibit 1)

Maps showing the site's location are included as Exhibit 1.

Watershed and USGS Quadrangle Maps (Exhibit 2)

The subject property lies within the watershed of the East Skokie ditch (Skokie River), which is a tributary to the Chicago River.

Topography (Exhibit 3)

Topographic relief within the investigated corridor ranges from approximately 674 feet MSL in the ditch bottom at its far south end (Skokie River) to approximately 690 feet on the ground at its far northern end. Slopes in the vicinity of most wetland features is nearly zero percent. The steepest slopes are along the banks of the exposed portion of the Skokie River. These ranged from 4:1 to 3:1 along most of the streams length to as much as 1:1 at the far south end of the property.

Floodplains (Exhibit 4)

The northern half of the corridor and the area around the exposed portion of the Skokie River are mapped as floodway. All of the wetland features – with the exception of Wetland No. 3 – lie partially or entirely within areas mapped as floodway.

Lake County Wetland Inventory (Exhibit 5)

Lake County wetland maps shows a total of seven wetlands within the corridor.

Lake County ADID Wetlands (Exhibit 6)

No ADID wetlands were found within the corridor.

Soil Survey (Exhibit 7)

A total of seven soil series were found within the investigated corridor. These soil series, along with their drainage class and hydric status are shown below:

Ashkum silty clay loam (232A) is a poorly drained, hydric soil that formed under wetland conditions. Wetlands within the investigated corridor that are mapped as Ashkum silty clay loam include portions of Wetland Nos. 1, and 3.

Pella silty clay loam (153A) is a poorly drained, hydric soil that formed under wetland conditions. Wetlands within the investigated corridor that are mapped as Pella silty clay loam include all, or portions of Wetland Nos. 8 and 9.

Beecher silt loam (298A) is a somewhat poorly drained soil. Wetland Nos. 4, 6 and the northern end of Wetland No. 3 and southern portion of Wetland No. 7 are located in areas mapped as Beecher silt loam.

Wauconda and Frankfort silt loams (981A) are somewhat poorly drained soils. Wetlands within the investigated corridor that are mapped as these series include Wetland Nos. 5 and 6.

Peotone silty clay loam (330A) is a very poorly drained soil. A portion of Wetland No. 1 is the only area mapped as this series.

Orthents (802B) are recently formed soils (Entisols) that lack significant horizon development either due to natural factors (steepness of slope) or human activities such as cutting and filling. Wetland No. 2 is located within an area mapped as Orthents.

Grays silt loam (698A and B) is a moderately well drained soil. The detention area at the far northern end of the corridor was excavated in an area mapped as Grays silt loam.

Pre-settlement Vegetation Map (Exhibit 8)

Chicago Wilderness' "An Atlas of Biodiversity" (1997), was compiled based on historical and soil data. According to this exhibit, the investigated corridor lies within an area where prairie, savanna and wetland habitats converged.

Historical Aerials (Exhibit 9)

Available aerial photographs indicate that by 1939, the area had been cleared and electrical lines had been installed along the western edge of the property. The remainder of the property is cleared, probably for agriculture. The Navy's portion of the property appears disturbed in the 1946 photograph. By 1974 the property had been converted into a golf-course. The adjacent areas appear fallow. A detention basin was constructed at the far northern end of the property some time between 1993 and 2000.

Aerial Photograph with Wetland and Data-point Locations (Exhibit 10)

A recent aerial photograph (Google Earth) with Wetland and Data-point locations is included as Exhibit 10.

Photos of Data-point Locations (Exhibit 11)

A series of eighteen photographs illustrating each of the wetland features is included as Exhibit 11.

Permitting Considerations

All of the wetlands within the investigated corridor appear to maintain hydrological connections with the East Skokie Ditch. Since the East Skokie ditch is recognized as a "Water of the United States" any activities within this ditch or its associated wetlands are subject to federal regulations established and enforced by the U.S. Army Corps of Engineers.

Areas immediately adjacent to wetlands and other waters of the U.S. or Lake County (i.e. "buffers") encompassing more than 1/3 acre are subject to regulation under Lake County's Stormwater Management Commission. Wetlands between 1/3 and 1 acre require a buffer width of 30 feet. Wetlands between 1 and 2 1/2 acres require a buffer width of 40 feet. Wetlands encompassing more than 2 1/2 acres require a 50 foot buffer. High quality wetlands (FQI(native)>20) or wetlands with an "Advanced Identification" (ADID) designation require a 100 foot buffer regardless of size. Wetland size, quality and anticipated buffer width are summarized below.

Table 1. Wetland quality, size and anticipated buffer width.

| Wetland | FQI(native) | Size (acres) | Anticipated Buffer width (feet) |
|----------------|-------------|-----------------------|---------------------------------|
| 1 | 14.2 | 0.84 | 30 |
| 2 | 4.9 | 0.01 | -- |
| 3 | 17.3 | >2.5 (Not determined) | 50 |
| 4 | 2.4 | 0.01 | -- |
| 5 | 10.5 | 0.20 | -- |
| 6 | 15.2 | 0.01 | -- |
| 7 | 14.8 | 5.01 | 50 |
| 8 | 13.4 | 3.37 | 50 |
| 9 | 11.7 | 0.10 | -- |
| Detention area | --- | 0.67 | 30 |

Results and Discussion

Wetlands

A total of nine wetland areas were found within the investigated corridor.

Wetland No. 1 (Data-points 1-2, 1-4, 1-5)

Wetland No. 1 is a 0.84(±) acre wetland located at the far south end of the Willow Glen golf course. This wetland includes the banks and floodplains of the East Skokie ditch (Data-point 1-2 and 1-4), and a shallow tributary swale entering the ditch from the west (Data-point No. 1-5). The East Skokie ditch continues northward from the delineated portion of the wetland for a distance of approximately 800 feet.

Vegetation

Vegetation throughout Wetland No. 1 is moderate quality (FQI(native) = 14.2). Reed Canary Grass is dominant at all three of the data-points within this feature. Additional dominants include Sand-bar Willow (DP 1-2), Purple Loosestrife (DP 1-4) and Cut-leaved Teasel (DP 1-2). All of these species are low quality, invasive weeds.

In general, the wetland is dominated by herbaceous vegetation. Although trees make up a relatively small portion of the wetland flora (0% at DPs 1-2 and 1-5 and 22% at DP 1-4) the easternmost portion of the wetland is well shaded by Silver Maples, Eastern Cottonwoods, Green Ash and Box Elder – which prevail along the edges and immediately upslope of the wetland areas.

Hydrology

Most of Wetland No. 1 lies on land that is mapped as floodway or floodplain (Data-point Nos. 1-2 and 1-4). Although the western portion of this feature (Data-point No. 1-5) lies outside of mapped floodway / floodplain, it is topographically depressed and functions as a swale.

Primary wetland hydrology indicators include the presence of drift-lines (DP 1-2 and 1-4), watermarks (DP 1-4)

and sediment deposits (DP 1-4). Secondary indicators include the presence of crayfish burrows (DP 1-5), a preponderance of hydrophytic vegetation ("positive FAC-neutral test") (DP 1-2, 1-4, and 1-5) and geomorphic position (DPs 1-2, 1-4, and 1-5).

Soils

The soils at each of the three data-points taken throughout Wetland No. 1 vary markedly.

The soil at Data-point 1-4, which was taken along the ditch's east bank and south of a pedestrian bridge, are mapped as "Peotone silty clay loam", which is a hydric soil. In general, the soil displayed clear and regular stratification (indicator A5). The upper 10 inches consists of gray (10 YR 4/1) to very dark gray (10 YR 3/1) silty clay loam. At approximately 10 inches the soil consisted of saturated, unconsolidated and non-retrievable material that was, most likely, deposited following a recent bank collapse. Below 15 inches the soil consists of a mixture of fine, black (10 YR 2/1), silt and sand (indicator S1 "sandy, mucky mineral").

The soil at Data-point No. 1-2, which was taken near the eastern edge of the wetland feature, is also mapped as "Peotone silty clay loam". The upper 12 inches of the sample taken at this site consisted of black sand and silt to a depth of 12 inches (indicator S1 "sandy, mucky mineral", A12 "thick dark surface"). Below this, the soil consists of gray to dark gray sand (A11 "depleted below thick dark surface").

Data-point No. 1-5 was taken within a narrow swale in the western portion of the wetland. The soil at this data-point is mapped as "Orthents", which is not a hydric designation. The soil consists of very dark gray to dark brown, silty clay loam to a depth of 12 inches. Below 12 inches, the soil is dominated by yellowish-brown concentrations surrounded by gray (10 YR 6/1) to light gray (10 YR 7/1) depleted silty clay matrix with coarse, white (10 YR 8/1) carbonate deposits and fine, black (10YR 2/1) iron-manganese masses. Hydric soil indicators include the presence of redox concentrations (S5) within a depleted matrix (F3) and presence of iron manganese masses (F12).

Table No. 2. Floristic Quality Assessment for Wetland No. 1

| FLORISTIC QUALITY DATA | | Native | | 30 | | 69.80% | | Adventive | | 13 | | 30.20% | |
|------------------------|------------------|-----------|----|--------|---------|--------|-------|-----------|--|----|--|--------|--|
| 30 | NATIVE SPECIES | Tree | 5 | 11.60% | Tree | 2 | 4.70% | | | | | | |
| 43 | Total Species | Shrub | 6 | 14.00% | Shrub | 4 | 9.30% | | | | | | |
| 2.6 | NATIVE MEAN C | Wd-Vine | 1 | 2.30% | Wd-Vine | 0 | 0.00% | | | | | | |
| 1.8 | W/Adventives | H-Vine | 0 | 0.00% | H-Vine | 0 | 0.00% | | | | | | |
| 14.2 | NATIVE FQI | P-Forb | 13 | 30.20% | P-Forb | 2 | 4.70% | | | | | | |
| 11.9 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 1 | 2.30% | | | | | | |
| -1.5 | NATIVE MEAN Wt | A-Forb | 0 | 0.00% | A-Forb | 2 | 4.70% | | | | | | |
| -0.8 | W/Adventives | P-Grass | 1 | 2.30% | P-Grass | 2 | 4.70% | | | | | | |
| AVG: | Fac. Wetland (-) | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% | | | | | | |
| | | P-Sedge | 4 | 9.30% | P-Sedge | 0 | 0.00% | | | | | | |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% | | | | | | |
| | | Cryptogam | 0 | 0.00% | | | | | | | | | |

ABBREVIATIONS:

Floristic Quality Statistics:
 C = Coefficient of conservatism
 Wt = Coefficient of wetness

Physiognomy:
 Nt = Native
 Ad = Adventive
 A = Annual
 P = Perennial
 Wd = Woody
 H = Herbaceous

Wetness:
 UPL = upland
 FACU = facultative upland
 FAC = facultative
 FACW = facultative wetland
 OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 1

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------------|----|---------|-------------|--------------------|
| 0 | <i>Acer negundo</i> | -2 | FACW- | Nt Tree | BOX ELDER |
| 0 | <i>ALNUS GLUTINOSA</i> | -2 | FACW- | Ad Tree | EUROPEAN ALDER |
| 4 | <i>Aster novae-angliae</i> | -3 | FACW | Nt P-Forb | NEW ENGLAND ASTER |
| 0 | <i>Aster pilosus</i> | 2 | FACU+ | Nt P-Forb | HAIRY ASTER |
| 2 | <i>Aster sagittifolius drummondii</i> | 3 | [FACU] | Nt P-Forb | DRUMMOND'S ASTER |
| 3 | <i>Aster simplex</i> | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 4 | <i>Carex cristatella</i> | -4 | FACW+ | Nt P-Sedge | CRESTED OVAL SEDGE |
| 2 | <i>Carex vulpinoidea</i> | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 1 | <i>Cornus racemosa</i> | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |

| | | | | | |
|---|---------------------------------------|----|--------|------------|-----------------------|
| 6 | Cornus stolonifera | -3 | FACW | Nt Shrub | RED-OSIER DOGWOOD |
| 5 | Corylus americana | 4 | FACU- | Nt Shrub | AMERICAN HAZELNUT |
| 0 | Cyperus esculentus | -1 | [FAC+] | Nt P-Sedge | FIELD NUT SEDGE |
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 2 | Eleocharis erythropoda | -5 | OBL | Nt P-Sedge | RED-ROOTED SPIKE RUSH |
| 4 | Erigeron philadelphicus | -3 | FACW | Nt P-Forb | MARSH FLEABANE |
| 1 | Fragaria virginiana | 1 | FAC- | Nt P-Forb | WILD STRAWBERRY |
| 1 | Fraxinus pennsylvanica subintegerrima | 0 | FAC | Nt Tree | GREEN ASH |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 0 | HESPERIS MATRONALIS | 5 | UPL | Ad P-Forb | DAME'S ROCKET |
| 5 | Iris virginica shrevei | -5 | OBL | Nt P-Forb | BLUE FLAG |
| 5 | Juglans nigra | 3 | FACU | Nt Tree | BLACK WALNUT |
| 0 | LONICERA TATARICA | 5 | [UPL] | Ad Shrub | TARTARIAN HONEYSUCKLE |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 5 | Panicum virgatum | -1 | FAC+ | Nt P-Grass | SWITCH GRASS |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | POLYGONUM PERSICARIA | 1 | [FAC-] | Ad A-Forb | LADY'S THUMB |
| 2 | Populus deltoides | -1 | FAC+ | Nt Tree | EASTERN COTTONWOOD |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 0 | ROSA MULTIFLORA | 3 | FACU | Ad Shrub | MULTIFLORA ROSE |
| 0 | SALIX FRAGILIS | -1 | FAC+ | Ad Tree | CRACK WILLOW |
| 1 | Salix interior | -5 | OBL | Nt Shrub | SANDBAR WILLOW |
| 1 | Sambucus canadensis | -2 | FACW- | Nt Shrub | ELDERBERRY |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 0 | STELLARIA MEDIA | 3 | FACU | Ad A-Forb | COMMON CHICKWEED |
| 5 | Thalictrum dasycarpum hypoglaucum | -2 | FACW- | Nt P-Forb | SMOOTH MEADOW RUE |
| 1 | Typha angustifolia | -5 | OBL | Nt P-Forb | NARROW-LEAVED CATTAIL |
| 1 | Typha latifolia | -5 | OBL | Nt P-Forb | BROAD-LEAVED CATTAIL |
| 3 | Ulmus americana | -2 | FACW- | Nt Tree | AMERICAN ELM |
| 5 | Vernonia fasciculata | -3 | FACW | Nt P-Forb | COMMON IRONWEED |
| 2 | Vitis riparia | -2 | FACW- | Nt Wd-Vine | RIVERBANK GRAPE |

Wetland No. 2 (Data-point No. 2-2)

Wetland No. 2 is a 0.01(±) acre, weed-dominated area with negligible floristic quality (FQI(native) = 4.9) that runs east to west along the southernmost mowed portion of the golf course.

Vegetation

Reed Canary Grass, which is a hydrophyte, composed over half of the vegetation. Both the "dominance test" and "prevalence index" for hydrophytic vegetation are met.

Hydrology

Primary wetland hydrology indicators observed within Wetland No. 2 (DP 2-2) include:

- Presence of oxidized rhizospheres on living roots,
- Hydrogen sulfide odor, which was present in a black, silty layer beginning at 28 inches.

Secondary indicators include:

- Geomorphic position (the area is a swale and lies within an area mapped as floodway)
- Preponderance of hydrophytic vegetation (positive FAC-neutral test)

Soils

The soil throughout Wetland No. 2 is mapped as “orthents”, which is not a hydric designation. The soil sample taken in this area, however, display indicators A12 (thick dark surface) and A11 (depleted matrix below a thick dark surface). Although too deep to serve as primary hydric soil indicators, it is worth noting that a stripped matrix was observed between 12 and 28 inches and a grayed matrix (N2.5) smelling of hydrogen sulfide was detected starting at a depth of 28 inches.

Table No. 3. Floristic Quality Assessment for Wetland No. 2

| FLORISTIC QUALITY DATA | | Native | 6 | 60.00% | Adventive | 4 | 40.00% |
|------------------------|------------------|-----------|---|--------|-----------|---|--------|
| 6 | NATIVE SPECIES | Tree | 0 | 0.00% | Tree | 0 | 0.00% |
| 10 | Total Species | Shrub | 0 | 0.00% | Shrub | 1 | 10.00% |
| 2 | NATIVE MEAN C | Wd-Vine | 0 | 0.00% | Wd-Vine | 0 | 0.00% |
| 1.2 | W/Adventives | H-Vine | 0 | 0.00% | H-Vine | 0 | 0.00% |
| 4.9 | NATIVE FQI | P-Forb | 5 | 50.00% | P-Forb | 1 | 10.00% |
| 3.8 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 1 | 10.00% |
| -2.83 | NATIVE MEAN Wt | A-Forb | 0 | 0.00% | A-Forb | 0 | 0.00% |
| -1.8 | W/Adventives | P-Grass | 0 | 0.00% | P-Grass | 1 | 10.00% |
| AVG: | Fac. Wetland (+) | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 1 | 10.00% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | | | | |

ABBREVIATIONS:

Floristic Quality Statistics:
 C = Coefficient of conservatism
 Wt = Coefficient of wetness

Physiognomy:

Nt = Native
 Ad = Adventive
 A = Annual
 P = Perennial
 Wd = Woody
 H = Herbaceous

Wetness:

UPL = upland
 FACU = facultative upland
 FAC = facultative
 FACW = facultative wetland
 OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 2

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------|----|---------|-------------|------------------------------|
| 3 | Aster simplex | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 2 | Carex vulpinoidea | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 1 | Typha angustifolia | -5 | OBL | Nt P-Forb | NARROW-LEAVED CATTAIL |

Wetland No. 3 (3-2, 3-4, 3-6, 3-8)

Wetland No. 3 extends off site for an indeterminate distance. It is, however, clearly greater than 2.5 acres in area. This feature lies mostly within the Commonwealth Edison Right-of-Way. It is, overall, the highest quality wetland area (FQI(native) = 17.3). A review of historical aerial photographs reveals that although the eastern portion of this wetland is maintained, in part, as ditch, the western portion has remained relatively undisturbed. Specific habitat types within this area include: wet meadow (western portion), cattail marsh (Data-points 3-2 and 3-6), scrub-shrub (Data-point 3-4) and forested floodplain / ephemeral stream (Data-point 3-8).

Vegetation

The disturbed, eastern portion of Wetland No. 3 is dominated by weedy species – in particular Reed Canary Grass (data-points 3-4, 3-6, and 3-8), Narrow-leaved Cattail (data-points 3-2, 3-4, 3-6), Buckthorn (data-point 3-4) and mature Silver Maples (data-point 3-8). The dominants throughout the western portion of this wetland include a mix of both weedy and non-weedy species; in particular, Brown Fox Sedge, Common Buckthorn, Saw-toothed Sunflower, Gray Dogwood, Canada Goldenrod and Cut-leaved Teasel.

Hydrology

Primary wetland hydrology indicators observed within Wetland No. 3 included:

- High water table / saturation within 12 inches of the soil's surface (Data-points 2, 4, 6)
- Water marks (Data-point 3-8)
- Sediment deposits (Data-points 3-2, 3-4, and 3-8)
- Drift deposits (Data-points 3-2, and 3-8)
- Water-stained leaves (Data-points 3-2, 3-4, and 3-8)
- Oxidized rhizospheres on living roots (Data-point 3-4)

Secondary indicators include:

- Crayfish burrows (Data-point 3-2 and 3-4)
- Low relative geomorphic position (Data-points 3-2, 3-4, 3-6, and 3-8)
- Preponderance of hydrophytic vegetation (positive FAC-neutral test) (Data-points 3-2, 3-4, 3-6, and 3-8)

Soils

The soil throughout Wetland No. 3 are mapped as "Ashkum silty clay loam", which is recognized as a hydric series. Specific hydric indicators varied from point to point. Data-points 3-2, 3-4, and 3-6 all displayed "thick dark surfaces" (A12) "depleted below dark surface" (A11). The soil at Data-point 3-8 underlies an ephemeral stream and, as such, consists primarily of dark colored sand (10 YR 2/1 and 4/2) with redox features (S5) (yellowish brown (10 YR 5/6) mottling between 5 and 16 inches) and conspicuous black (10 YR 2/1) organic streaking (S1) beginning at approximately 10 inches.

Table No. 4. Floristic Quality Assessment for Wetland No. 3

| FLORISTIC QUALITY DATA | | Native | 36 | 73.50% | Adventive | 13 | 26.50% |
|------------------------|----------------|-----------|----|--------|-----------|----|--------|
| 36 | NATIVE SPECIES | Tree | 1 | 2.00% | Tree | 0 | 0.00% |
| 49 | Total Species | Shrub | 4 | 8.20% | Shrub | 3 | 6.10% |
| 2.9 | NATIVE MEAN C | Wd-Vine | 1 | 2.00% | Wd-Vine | 0 | 0.00% |
| 2.1 | W/Adventives | H-Vine | 0 | 0.00% | H-Vine | 0 | 0.00% |
| 17.3 | NATIVE FQI | P-Forb | 22 | 44.90% | P-Forb | 6 | 12.20% |
| 14.9 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 2 | 4.10% |
| -1.5 | NATIVE MEAN Wt | A-Forb | 1 | 2.00% | A-Forb | 0 | 0.00% |
| -0.6 | W/Adventives | P-Grass | 3 | 6.10% | P-Grass | 2 | 4.10% |
| AVG: | Faculative (+) | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 4 | 8.20% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:

C = Coefficient of conservatism

Wt = Coefficient of wetness

Physiognomy:

Nt = Native

Ad = Adventive

A = Annual

P = Perennial

Wd = Woody

H = Herbaceous

Wetness:

UPL = upland

FACU = facultative upland

FAC = facultative

FACW = facultative wetland

OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 3

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---|----|---------|-------------|---------------------|
| 2 | Apocynum sibiricum | -1 | FAC+ | Nt P-Forb | PRAIRIE INDIAN HEMP |
| 4 | Asclepias incarnata | -5 | OBL | Nt P-Forb | SWAMP MILKWEED |
| 0 | Asclepias syriaca | 5 | UPL | Nt P-Forb | COMMON MILKWEED |
| 4 | Aster novae-angliae | -3 | FACW | Nt P-Forb | NEW ENGLAND ASTER |
| 7 | Aster puniceus firmus | -5 | OBL | Nt P-Forb | SHINING ASTER |
| 2 | Aster sagittifolius drummondii | 3 | [FACU] | Nt P-Forb | DRUMMOND'S ASTER |
| 3 | Aster simplex | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 1 | Carex blanda | 0 | FAC | Nt P-Sedge | COMMON WOOD SEDGE |
| 4 | Carex cristatella | -4 | FACW+ | Nt P-Sedge | CRESTED OVAL SEDGE |
| 2 | Carex vulpinoidea | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | CHRYSANTHEMUM LEUCANTHEMUM PINNATIFIDUM | 5 | UPL | Ad P-Forb | OX-EYE DAISY |
| 0 | CIRSIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 0 | CIRSIUM VULGARE | 4 | FACU- | Ad B-Forb | BULL THISTLE |
| 1 | Cornus racemosa | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |

| | | | | | |
|---|---------------------------------------|----|-------|------------|------------------------------|
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 0 | DUCHESNEA INDICA | 4 | FACU- | Ad P-Forb | INDIAN STRAWBERRY |
| 0 | ELAEAGNUS UMBELLATA | 5 | UPL | Ad Shrub | AUTUMN OLIVE |
| 1 | Fragaria virginiana | 1 | FAC- | Nt P-Forb | WILD STRAWBERRY |
| 1 | Fraxinus pennsylvanica subintegerrima | 0 | FAC | Nt Tree | GREEN ASH |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 4 | Leersia oryzoides | -5 | OBL | Nt P-Grass | RICE CUT GRASS |
| 5 | Lycopus americanus | -5 | OBL | Nt P-Forb | COMMON WATER HOREHOUND |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 4 | Monarda fistulosa | 3 | FACU | Nt P-Forb | WILD BERGAMOT |
| 5 | Panicum virgatum | -1 | FAC+ | Nt P-Grass | SWITCH GRASS |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | Potentilla norvegica | 0 | FAC | Nt A-Forb | NORWAY CINQUEFOIL |
| 0 | PRUNELLA VULGARIS | 5 | [UPL] | Ad P-Forb | LAWN PRUNELLA |
| 5 | Pycnanthemum virginianum | -4 | FACW+ | Nt P-Forb | COMMON MOUNTAIN MINT |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 1 | Rudbeckia hirta | 3 | FACU | Nt P-Forb | BLACK-EYED SUSAN |
| 0 | RUMEX CRISPUS | -1 | FAC+ | Ad P-Forb | CURLY DOCK |
| 1 | Salix interior | -5 | OBL | Nt Shrub | SANDBAR WILLOW |
| 1 | Sambucus canadensis | -2 | FACW- | Nt Shrub | ELDERBERRY |
| 6 | Scirpus cyperinus | -5 | OBL | Nt P-Sedge | WOOL GRASS |
| 5 | Smilacina stellata | 1 | FAC- | Nt P-Forb | STARRY FALSE SOLOMON'S SEAL |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 4 | Spartina pectinata | -4 | FACW+ | Nt P-Grass | PRAIRIE CORD GRASS |
| 1 | Typha angustifolia | -5 | OBL | Nt P-Forb | NARROW-LEAVED CATTAIL |
| 1 | Typha latifolia | -5 | OBL | Nt P-Forb | BROAD-LEAVED CATTAIL |
| 5 | Vernonia fasciculata | -3 | FACW | Nt P-Forb | COMMON IRONWEED |
| 7 | Veronicastrum virginicum | 0 | FAC | Nt P-Forb | CULVER'S ROOT |
| 3 | Viola sororia | 1 | FAC- | Nt P-Forb | COMMON BLUE VIOLET |
| 2 | Vitis riparia | -2 | FACW- | Nt Wd-Vine | RIVERBANK GRAPE |

Wetland No. 4 (Data-point 4-2)

Wetland No. 4 is a 0.009(±) acre feature that was, at one time, contiguous with Wetland No. 3. The areas separating this feature from Wetland No. 3 appear subject to periodic filling and compaction. This feature is low quality (FQI(native) = 2.4) and dominated by Reed Canary Grass and Canada Goldenrod.

Vegetation

The vegetation throughout Wetland No. 4 is marginally hydrophytic. Since only one of the two dominant species is hydrophytic, this area fails the dominance test. However the vegetation criterion is met on the basis of the prevalence index.

Hydrology

Two wetland hydrology indicators were observed. These were the presence of oxidized rhizospheres (root zones) on living roots (C3), which is a primary indicator, and a preponderance of hydrophytic vegetation (positive FAC-

neutral test) (D5), which is a secondary indicator.

Soils

The soils throughout Wetland No. 4 are mapped as “Beecher silt loam”, which is classified as a “somewhat poorly drained” soil. It is important to notice, however, that the soil within this feature displays a thick, dark A-horizon (10 YR 2/1 to a depth of 28 inches), which is more typically associated with the closely associated Ashkum silty clay loam, which is a poorly drained, hydric soil. In either case, the hydric soil criterion is met on the basis of this thick dark surface (indicator A12).

Table No. 5. Species Inventory and Floristic Quality Assessment for Wetland No. 4

| FLORISTIC QUALITY DATA | | Native | 6 | 42.90% | Adventive | 8 | 57.10% |
|------------------------|----------------|-----------|---|--------|-----------|---|--------|
| 6 | NATIVE SPECIES | Tree | 3 | 21.40% | Tree | 1 | 7.10% |
| 14 | Total Species | Shrub | 0 | 0.00% | Shrub | 1 | 7.10% |
| 1 | NATIVE MEAN C | Wd-Vine | 0 | 0.00% | Wd-Vine | 0 | 0.00% |
| 0.4 | W/Adventives | H-Vine | 0 | 0.00% | H-Vine | 0 | 0.00% |
| 2.4 | NATIVE FQI | P-Forb | 2 | 14.30% | P-Forb | 2 | 14.30% |
| 1.6 | W/Adventives | B-Forb | 1 | 7.10% | B-Forb | 2 | 14.30% |
| 0 | NATIVE MEAN Wt | A-Forb | 0 | 0.00% | A-Forb | 1 | 7.10% |
| 0.7 | W/Adventives | P-Grass | 0 | 0.00% | P-Grass | 1 | 7.10% |
| AVG: | Faculative | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 0 | 0.00% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:

C = Coefficient of conservatism

Wt = Coefficient of wetness

Physiognomy:

Nt = Native

Ad = Adventive

A = Annual

P = Perennial

Wd = Woody

H = Herbaceous

Wetness:

UPL = upland

FACU = facultative upland

FAC = facultative

FACW = facultative wetland

OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 4

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------------|----|---------|-------------|-------------------------|
| 0 | Acer saccharinum | -3 | FACW | Nt Tree | SILVER MAPLE |
| 0 | ALLIARIA PETIOLATA | 0 | FAC | Ad B-Forb | GARLIC MUSTARD |
| 0 | CIRSIIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 1 | Fraxinus pennsylvanica subintegerrima | 0 | FAC | Nt Tree | GREEN ASH |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 0 | NEPETA CATARIA | 1 | FAC- | Ad P-Forb | CATNIP |
| 0 | Oenothera biennis | 3 | FACU | Nt B-Forb | COMMON EVENING PRIMROSE |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 2 | Populus deltoides | -1 | FAC+ | Nt Tree | EASTERN COTTONWOOD |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 0 | ROBINIA PSEUDOACACIA | 4 | FACU- | Ad Tree | BLACK LOCUST |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 0 | XANTHIUM STRUMARIUM | 0 | FAC | Ad A-Forb | COCKLEBUR |

Wetland No. 5 (Data-point 5-2)

Wetland No. 5 is a small (0.20(±) acre), relatively low quality (FQI(native) = 10.5) wetland feature located within the Commonwealth Edison Right-of-Way. Its vegetation is characteristic of a degraded wet meadow. Dominants included Reed Canary Grass, Saw-toothed Sunflower, and Brown Fox Sedge.

Vegetation

The vegetation throughout Wetland No. 5 meets Dominance and Prevalence tests for hydrophytic vegetation.

Hydrology

Although saturated conditions were not detected within the sample taken at Wetland No. 5, oxidized rhizospheres on living roots (C3) were clearly visible. Secondary indicators include the presence of crayfish burrows (C8) and a

preponderance of hydrophytic vegetation (positive FAC-neutral test) (D5).

Soils

The soils throughout Wetland No. 5 are mapped as Wauconda and Frankfort Silty Clay Loam. These series are classed as "somewhat poorly drained" provided suitable hydric indicators are present (see Appendix I). Hydric soil indicators observed within the field include criteria A12 (thick dark surface) and A11 (depleted below dark surface).

Table No. 6. Floristic Quality Assessment for Wetland No. 5

| FLORISTIC QUALITY DATA | | Native | 16 | 64.00% | Adventive | 9 | 36.00% |
|------------------------|----------------|-----------|----|--------|-----------|---|--------|
| 16 | NATIVE SPECIES | Tree | 0 | 0.00% | Tree | 0 | 0.00% |
| 25 | Total Species | Shrub | 2 | 8.00% | Shrub | 3 | 12.00% |
| 2.6 | NATIVE MEAN C | W-Vine | 1 | 4.00% | W-Vine | 0 | 0.00% |
| 1.7 | W/Adventives | H-Vine | 1 | 4.00% | H-Vine | 0 | 0.00% |
| 10.5 | NATIVE FQI | P-Forb | 8 | 32.00% | P-Forb | 3 | 12.00% |
| 8.4 | W/Adventives | B-Forb | 1 | 4.00% | B-Forb | 1 | 4.00% |
| 0 | NATIVE MEAN Wt | A-Forb | 3 | 12.00% | A-Forb | 0 | 0.00% |
| 0.5 | W/Adventives | P-Grass | 0 | 0.00% | P-Grass | 2 | 8.00% |
| AVG: | Faculative | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 0 | 0.00% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:

C = Coefficient of conservatism

Wt = Coefficient of wetness

Physiognomy:

Nt = Native

Ad = Adventive

A = Annual

P = Perennial

Wd = Woody

H = Herbaceous

Wetness:

UPL = upland

FACU = facultative upland

FAC = facultative

FACW = facultative wetland

OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 5

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------|----|---------|-------------|------------------------------|
| 0 | Ambrosia artemisiifolia elatior | 3 | FACU | Nt A-Forb | COMMON RAGWEED |
| 2 | Apocynum sibiricum | -1 | FAC+ | Nt P-Forb | PRAIRIE INDIAN HEMP |
| 1 | Bidens frondosa | -3 | FACW | Nt A-Forb | COMMON BEGGAR'S TICKS |
| 0 | CICHOBIUM INTYBUS | 5 | UPL | Ad P-Forb | CHICORY |
| 0 | CIRSIIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 1 | Cornus racemosa | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 3 | Epilobium coloratum | -5 | OBL | Nt P-Forb | CINNAMON WILLOW HERB |
| 2 | Erechtites hieracifolia | 3 | FACU | Nt A-Forb | FIREWEED |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 2 | Lactuca canadensis | 2 | FACU+ | Nt B-Forb | WILD LETTUCE |
| 5 | Lycopus americanus | -5 | OBL | Nt P-Forb | COMMON WATER HOREHOUND |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 5 | Smilax lasioneura | 5 | [UPL] | Nt H-Vine | COMMON CARRION FLOWER |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 7 | Veronicastrum virginicum | 0 | FAC | Nt P-Forb | CULVER'S ROOT |
| 0 | VIBURNUM OPULUS | 3 | [FACU] | Ad Shrub | EUROPEAN Highbush CRANBERRY |
| 2 | Vitis riparia | -2 | FACW- | Nt W-Vine | RIVERBANK GRAPE |

Wetland No. 6 (Data-point 6-2)

Wetland No. 6 is a small (0.006(±) acre), moderate quality (FQI(native) = 15.20) wetland feature located within the Commonwealth Edison Right-of-Way. Its floristic composition is typical of a degraded wet meadow. Dominants included Reed Canary Grass , Hairy Aster and Saw-toothed Sunflower.

Vegetation

The vegetation throughout Wetland No. 6 meets both the Dominance and Prevalence tests for hydrophytic vegetation.

Hydrology

Although saturated conditions were not detected within the sample taken at Wetland No. 5, oxidized rhizospheres on living roots (C3) were clearly visible. Secondary indicators included the presence of crayfish burrows (C8) and a preponderance of hydrophytic vegetation (positive FAC-neutral test) (D5).

Soils

The soils throughout Wetland No. 5 are mapped as Wauconda and Frankfort Silty Clay Loam. These series are classed as "somewhat poorly drained" provided suitable hydric indicators are present (see Appendix I). Hydric soil indicators observed within the field include criteria A12 ("thick dark surface") and A11 ("depleted below dark surface").

Table No. 7. Floristic Quality Assessment for Wetland No. 6

| FLORISTIC QUALITY DATA | | Native | 25 | 80.60% | Adventive | 6 | 19.40% |
|------------------------|----------------|-----------|----|--------|-----------|---|--------|
| 25 | NATIVE SPECIES | Tree | 1 | 3.20% | Tree | 0 | 0.00% |
| 31 | Total Species | Shrub | 1 | 3.20% | Shrub | 1 | 3.20% |
| 3 | NATIVE MEAN C | Wd-Vine | 0 | 0.00% | Wd-Vine | 0 | 0.00% |
| 2.5 | W/Adventives | H-Vine | 1 | 3.20% | H-Vine | 0 | 0.00% |
| 15.2 | NATIVE FQI | P-Forb | 16 | 51.60% | P-Forb | 2 | 6.50% |
| 13.7 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 1 | 3.20% |
| -0.4 | NATIVE MEAN Wt | A-Forb | 0 | 0.00% | A-Forb | 0 | 0.00% |
| 0.2 | W/Adventives | P-Grass | 4 | 12.90% | P-Grass | 2 | 6.50% |
| AVG: | Faculative | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 2 | 6.50% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:
 C = Coefficient of conservatism
 Wt = Coefficient of wetness

Physiognomy:

Nt = Native
 Ad = Adventive
 A = Annual
 P = Perennial
 Wd = Woody
 H = Herbaceous

Wetness:

UPL = upland
 FACU = facultative upland
 FAC = facultative
 FACW = facultative wetland
 OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 6

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------------|----|---------|-------------|-------------------------|
| 0 | Asclepias syriaca | 5 | UPL | Nt P-Forb | COMMON MILKWEED |
| 0 | Aster pilosus | 2 | FACU+ | Nt P-Forb | HAIRY ASTER |
| 2 | Aster sagittifolius drummondii | 3 | [FACU] | Nt P-Forb | DRUMMOND'S ASTER |
| 3 | Aster simplex | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 1 | Carex blanda | 0 | FAC | Nt P-Sedge | COMMON WOOD SEDGE |
| 2 | Carex vulpinoidea | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | CIRSIIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 0 | DAUCUS CAROTA | 5 | UPL | Ad B-Forb | QUEEN ANNE'S LACE |
| 4 | Elymus canadensis | 1 | FAC- | Nt P-Grass | CANADA WILD RYE |
| 1 | Fragaria virginiana | 1 | FAC- | Nt P-Forb | WILD STRAWBERRY |
| 1 | Fraxinus pennsylvanica subintegerrima | 0 | FAC | Nt Tree | GREEN ASH |
| 8 | Gentiana andrewsii | -3 | FACW | Nt P-Forb | BOTTLE GENTIAN |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 4 | Hypericum punctatum | 3 | [FACU] | Nt P-Forb | SPOTTED ST. JOHN'S WORT |

| | | | | | |
|---|---------------------------------|----|-------|------------|------------------------------|
| 4 | Leersia oryzoides | -5 | OBL | Nt P-Grass | RICE CUT GRASS |
| 5 | Lycopus americanus | -5 | OBL | Nt P-Forb | COMMON WATER HOREHOUND |
| 3 | Muhlenbergia frondosa | -3 | FACW | Nt P-Grass | COMMON SATIN GRASS |
| 5 | Penthorum sedoides | -5 | OBL | Nt P-Forb | DITCH STONECROP |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | PRUNELLA VULGARIS | 5 | [UPL] | Ad P-Forb | LAWN PRUNELLA |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 1 | Rudbeckia hirta | 3 | FACU | Nt P-Forb | BLACK-EYED SUSAN |
| 5 | Smilax lasioneura | 5 | [UPL] | Nt H-Vine | COMMON CARRION FLOWER |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 4 | Solidago gigantea | -3 | FACW | Nt P-Forb | LATE GOLDENROD |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 4 | Spartina pectinata | -4 | FACW+ | Nt P-Grass | PRAIRIE CORD GRASS |
| 7 | Veronicastrum virginicum | 0 | FAC | Nt P-Forb | CULVER'S ROOT |

Wetland No. 7 (Data-points 7-1, 7-2)

Wetland No. 7 is a 5.01(±) acre, moderate quality (FQI(native) = 14.8) wetland that is generally dominated by weedy species, in particular Reedy Canary Grass (Data-points 19 and 20) and Crack Willow (Data-point 20). Herbaceous species make up approximately 70% of the wetland, and woody species approximately 30%

Vegetation

The vegetation throughout Wetland No. 7 meets both the Dominance and Prevalence tests for hydrophytic vegetation.

Hydrology

Wetland hydrology indicators observed within Wetland No. 7 include oxidized rhizospheres on living roots, which is a primary wetland hydrology indicator. Secondary wetland hydrology indicators include the presence of crayfish burrows, a preponderance of hydrophytic vegetation (positive FAC-neutral test) and geomorphic position (i.e., Wetland No. 7 is located within an area that is mapped as floodway)

Soils

The soil throughout Wetland No. 7 is mapped as Pella Silty Clay Loam, which is recognized as a hydric series. In general, the soil description corresponds closely to the official series description for this soil. The A-horizon, which extends for a depth of 28 inches, consists of black (10 YR 2/1), granular silty clay loam. Below this, the soil becomes blocky and is composed of very dark grayish brown (10 YR 3/2) silty clay loam with dark yellowish brown (10 YR 4/6) mottling. The hydric soil criterion is met on the basis of its thick dark surface (A12).

Table No. 8. Floristic Quality Assessment for Wetland No. 7

| FLORISTIC QUALITY DATA | | Native | 38 | 67.90% | Adventive | 18 | 32.10% |
|------------------------|----------------|---------|----|--------|-----------|----|--------|
| 38 | NATIVE SPECIES | Tree | 5 | 8.90% | Tree | 0 | 0.00% |
| 56 | Total Species | Shrub | 5 | 8.90% | Shrub | 2 | 3.60% |
| 2.4 | NATIVE MEAN C | Wd-Vine | 2 | 3.60% | Wd-Vine | 1 | 1.80% |
| 1.6 | W/Adventives | H-Vine | 1 | 1.80% | H-Vine | 0 | 0.00% |
| 14.8 | NATIVE FQI | P-Forb | 16 | 28.60% | P-Forb | 7 | 12.50% |
| 12.2 | W/Adventives | B-Forb | 1 | 1.80% | B-Forb | 3 | 5.40% |
| -1.1 | NATIVE MEAN Wt | A-Forb | 4 | 7.10% | A-Forb | 3 | 5.40% |
| -0.4 | W/Adventives | P-Grass | 0 | 0.00% | P-Grass | 2 | 3.60% |
| AVG: | Faculative (+) | A-Grass | 0 | 0.00% | A-Grass | 0 | 0.00% |

ABBREVIATIONS:

Floristic Quality Statistics:
C = Coefficient of conservatism
Wt = Coefficient of wetness

Physiognomy:
Nt = Native
Ad = Adventive
A = Annual
P = Perennial
Wd = Woody
H = Herbaceous

Wetness:

UPL = upland
FACU = facultative upland
FAC = facultative
FACW = facultative wetland
OBL = obligate

These terms are explained in further detail in Appendix I of this report.

| | | | | | | |
|--|-----------|---|-------|---------|---|-------|
| | P-Sedge | 4 | 7.10% | P-Sedge | 0 | 0.00% |
| | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | Cryptogam | 0 | 0.00% | | | |

Species Inventory for Wetland No. 7

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---------------------------------------|----|---------|-------------|---------------------------|
| 0 | Acer negundo | -2 | FACW- | Nt Tree | BOX ELDER |
| 0 | ALLIARIA PETIOLATA | 0 | FAC | Ad B-Forb | GARLIC MUSTARD |
| 0 | Ambrosia artemisiifolia elatior | 3 | FACU | Nt A-Forb | COMMON RAGWEED |
| 0 | Ambrosia trifida | -1 | FAC+ | Nt A-Forb | GIANT RAGWEED |
| 2 | Apocynum sibiricum | -1 | FAC+ | Nt P-Forb | PRAIRIE INDIAN HEMP |
| 0 | ARCTIUM MINUS | 5 | UPL | Ad B-Forb | COMMON BURDOCK |
| 0 | Aster pilosus | 2 | FACU+ | Nt P-Forb | HAIRY ASTER |
| 2 | Aster sagittifolius drummondii | 3 | [FACU] | Nt P-Forb | DRUMMOND'S ASTER |
| 3 | Aster simplex | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 1 | Carex blanda | 0 | FAC | Nt P-Sedge | COMMON WOOD SEDGE |
| 4 | Carex cristatella | -4 | FACW+ | Nt P-Sedge | CRESTED OVAL SEDGE |
| 4 | Carex pellita | -5 | OBL | Nt P-Sedge | BROAD-LEAVED WOOLLY SEDGE |
| 2 | Carex vulpinoidea | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | CIRSIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 1 | Cornus racemosa | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |
| 6 | Cornus stolonifera | -3 | FACW | Nt Shrub | RED-OSIER DOGWOOD |
| 2 | Crataegus crus-galli | 0 | FAC | Nt Tree | COCKSPUR HAWTHORN |
| 0 | DAUCUS CAROTA | 5 | UPL | Ad B-Forb | QUEEN ANNE'S LACE |
| 1 | Fraxinus pennsylvanica subintegerrima | 0 | FAC | Nt Tree | GREEN ASH |
| 8 | Gentiana andrewsii | -3 | FACW | Nt P-Forb | BOTTLE GENTIAN |
| 1 | Geum canadense | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 4 | Juncus dudleyi | 0 | [FAC] | Nt P-Forb | DUDLEY'S RUSH |
| 4 | Juncus torreyi | -3 | FACW | Nt P-Forb | TORREY'S RUSH |
| 2 | Lactuca canadensis | 2 | FACU+ | Nt B-Forb | WILD LETTUCE |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 2 | Parthenocissus quinquefolia | 1 | FAC- | Nt Wd-Vine | VIRGINIA CREEPER |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | PLANTAGO LANCEOLATA | 0 | FAC | Ad P-Forb | ENGLISH PLANTAIN |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | Polygonum lapathifolium | -4 | FACW+ | Nt A-Forb | HEARTSEASE |
| 0 | POLYGONUM PERSICARIA | 1 | [FAC-] | Ad A-Forb | LADY'S THUMB |
| 2 | Populus deltoides | -1 | FAC+ | Nt Tree | EASTERN COTTONWOOD |
| 0 | Potentilla norvegica | 0 | FAC | Nt A-Forb | NORWAY CINQUEFOIL |
| 0 | PRUNELLA VULGARIS | 5 | [UPL] | Ad P-Forb | LAWN PRUNELLA |
| 0 | RANUNCULUS ACRIS | -2 | FACW- | Ad P-Forb | TALL BUTTERCUP |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 0 | RUMEX CRISPUS | -1 | FAC+ | Ad P-Forb | CURLY DOCK |
| 1 | Salix interior | -5 | OBL | Nt Shrub | SANDBAR WILLOW |

| | | | | | |
|---|---------------------------------|----|-------|------------|------------------------------|
| 4 | Salix nigra | -5 | OBL | Nt Tree | BLACK WILLOW |
| 1 | Sambucus canadensis | -2 | FACW- | Nt Shrub | ELDERBERRY |
| 5 | Silphium terebinthinaceum | 3 | FACU | Nt P-Forb | PRAIRIE DOCK |
| 5 | Smilacina stellata | 1 | FAC- | Nt P-Forb | STARRY FALSE SOLOMON'S SEAL |
| 5 | Smilax lasioneura | 5 | [UPL] | Nt H-Vine | COMMON CARRION FLOWER |
| 0 | SOLANUM DULCAMARA | 0 | FAC | Ad Wd-Vine | BITTERSWEET NIGHTSHADE |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 4 | Solidago gigantea | -3 | FACW | Nt P-Forb | LATE GOLDENROD |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 0 | STELLARIA MEDIA | 3 | FACU | Ad A-Forb | COMMON CHICKWEED |
| 0 | TARAXACUM OFFICINALE | 3 | FACU | Ad P-Forb | COMMON DANDELION |
| 1 | Typha angustifolia | -5 | OBL | Nt P-Forb | NARROW-LEAVED CATTAIL |
| 1 | Typha latifolia | -5 | OBL | Nt P-Forb | BROAD-LEAVED CATTAIL |
| 2 | Vitis riparia | -2 | FACW- | Nt Wd-Vine | RIVERBANK GRAPE |
| 0 | XANTHIUM STRUMARIUM | 0 | FAC | Ad A-Forb | COCKLEBUR |

Wetland No. 8 (Data-points 8-1, 8-2)

Wetland No. 8 is a 3.37(±) acre wetland feature that was, historically, contiguous with Wetland No. 7 but has been cut-off through disturbance – in particular clearing, compaction, possibly filling and vehicular traffic. This area is moderately low quality (FQI = 13.4). Dominants include Reed Canary Grass, Pasture Rose, Sand-bar Willow, and Switch Grass.

Vegetation

The vegetation throughout Wetland No. 8 meets both the Dominance and Prevalence tests for hydrophytic vegetation.

Hydrology

Wetland hydrology indicators observed within Wetland No. 8 include oxidized rhizospheres on living roots, which is a primary wetland hydrology indicator. Secondary wetland hydrology indicators include the presence of crayfish burrows, a preponderance of hydrophytic vegetation (positive FAC-neutral test) and geomorphic position (i.e., Wetland No. 8 is located within an area that is mapped as floodway)

Soils

The soil throughout Wetland No. 8 is mapped as Pella Silty Clay Loam, which is a hydric series.

Table No. 9. Floristic Quality Assessment for Wetland No. 8

| FLORISTIC QUALITY DATA | | Native | 33 | 70.20% | Adventive | 14 | 29.80% |
|------------------------|------------------|-----------|----|--------|-----------|----|--------|
| 33 | NATIVE SPECIES | Tree | 3 | 6.40% | Tree | 0 | 0.00% |
| 47 | Total Species | Shrub | 3 | 6.40% | Shrub | 3 | 6.40% |
| 2.3 | NATIVE MEAN C | Wd-Vine | 2 | 4.30% | Wd-Vine | 0 | 0.00% |
| 1.6 | W/Adventives | H-Vine | 0 | 0.00% | H-Vine | 0 | 0.00% |
| 13.4 | NATIVE FQI | P-Forb | 13 | 27.70% | P-Forb | 7 | 14.90% |
| 11.2 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 2 | 4.30% |
| -1.7 | NATIVE MEAN Wt | A-Forb | 4 | 8.50% | A-Forb | 0 | 0.00% |
| -1 | W/Adventives | P-Grass | 3 | 6.40% | P-Grass | 2 | 4.30% |
| AVG: | Fac. Wetland (-) | A-Grass | 2 | 4.30% | A-Grass | 0 | 0.00% |
| | | P-Sedge | 3 | 6.40% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:

C = Coefficient of conservatism

Wt = Coefficient of wetness

Physiognomy:

Nt = Native

Ad = Adventive

A = Annual

P = Perennial

Wd = Woody

H = Herbaceous

Wetness:

UPL = upland

FACU = facultative upland

FAC = facultative

FACW = facultative wetland

OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 8

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|--|----|---------|-------------|------------------------------|
| 0 | <i>Acer negundo</i> | -2 | FACW- | Nt Tree | BOX ELDER |
| 0 | <i>Acer saccharinum</i> | -3 | FACW | Nt Tree | SILVER MAPLE |
| 0 | ALLIARIA PETIOLATA | 0 | FAC | Ad B-Forb | GARLIC MUSTARD |
| 0 | <i>Ambrosia artemisiifolia elatior</i> | 3 | FACU | Nt A-Forb | COMMON RAGWEED |
| 0 | <i>Ambrosia trifida</i> | -1 | FAC+ | Nt A-Forb | GIANT RAGWEED |
| 0 | <i>Aster pilosus</i> | 2 | FACU+ | Nt P-Forb | HAIRY ASTER |
| 3 | <i>Aster simplex</i> | -5 | OBL | Nt P-Forb | PANICLED ASTER |
| 1 | <i>Carex blanda</i> | 0 | FAC | Nt P-Sedge | COMMON WOOD SEDGE |
| 4 | <i>Carex cristatella</i> | -4 | FACW+ | Nt P-Sedge | CRESTED OVAL SEDGE |
| 2 | <i>Carex vulpinoidea</i> | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | CIRSIIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |
| 1 | <i>Cornus racemosa</i> | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |
| 0 | DIPSACUS LACINIATUS | 5 | UPL | Ad B-Forb | CUT-LEAVED TEASEL |
| 0 | <i>Echinochloa crusgalli</i> | -3 | FACW | Nt A-Grass | BARNYARD GRASS |
| 4 | <i>Elymus canadensis</i> | 1 | FAC- | Nt P-Grass | CANADA WILD RYE |
| 4 | <i>Erigeron philadelphicus</i> | -3 | FACW | Nt P-Forb | MARSH FLEABANE |
| 8 | <i>Gentiana andrewsii</i> | -3 | FACW | Nt P-Forb | BOTTLE GENTIAN |
| 1 | <i>Geum canadense</i> | 0 | FAC | Nt P-Forb | WOOD AVENS |
| 2 | <i>Helianthus grosseserratus</i> | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 5 | <i>Iris virginica shrevei</i> | -5 | OBL | Nt P-Forb | BLUE FLAG |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 0 | NEPETA CATARIA | 1 | FAC- | Ad P-Forb | CATNIP |
| 1 | <i>Panicum capillare</i> | 0 | FAC | Nt A-Grass | OLD WITCH GRASS |
| 5 | <i>Panicum virgatum</i> | -1 | FAC+ | Nt P-Grass | SWITCH GRASS |
| 2 | <i>Parthenocissus quinquefolia</i> | 1 | FAC- | Nt Wd-Vine | VIRGINIA CREEPER |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 1 | <i>Phragmites australis</i> | -4 | FACW+ | Nt P-Grass | COMMON REED |
| 5 | <i>Pilea pumila</i> | -3 | FACW | Nt A-Forb | CLEARWEED |
| 0 | PLANTAGO LANCEOLATA | 0 | FAC | Ad P-Forb | ENGLISH PLANTAIN |
| 0 | PLANTAGO MAJOR | -1 | FAC+ | Ad P-Forb | COMMON PLANTAIN |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | <i>Polygonum lapathifolium</i> | -4 | FACW+ | Nt A-Forb | HEARTSEASE |
| 2 | <i>Populus deltoides</i> | -1 | FAC+ | Nt Tree | EASTERN COTTONWOOD |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 0 | RHAMNUS FRANGULA | -1 | FAC+ | Ad Shrub | GLOSSY BUCKTHORN |
| 5 | <i>Rosa carolina</i> | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 0 | ROSA MULTIFLORA | 3 | FACU | Ad Shrub | MULTIFLORA ROSE |
| 0 | RUMEX CRISPUS | -1 | FAC+ | Ad P-Forb | CURLY DOCK |
| 1 | <i>Salix interior</i> | -5 | OBL | Nt Shrub | SANDBAR WILLOW |
| 5 | <i>Silphium terebinthinaceum</i> | 3 | FACU | Nt P-Forb | PRAIRIE DOCK |
| 7 | <i>Sium suave</i> | -5 | OBL | Nt P-Forb | TALL WATER PARSNIP |
| 1 | <i>Solidago canadensis</i> | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 3 | <i>Solidago graminifolia nuttallii</i> | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 0 | TARAXACUM OFFICINALE | 3 | FACU | Ad P-Forb | COMMON DANDELION |

| | | | | | |
|---|--------------------|----|-------|------------|-----------------------|
| 1 | Typha angustifolia | -5 | OBL | Nt P-Forb | NARROW-LEAVED CATTAIL |
| 1 | Typha latifolia | -5 | OBL | Nt P-Forb | BROAD-LEAVED CATTAIL |
| 2 | Vitis riparia | -2 | FACW- | Nt Wd-Vine | RIVERBANK GRAPE |

Wetland No. 9 (Data-points 9-2, 9-3)

Wetland No. 9 is the most northerly of the wetlands. It is a small (0.10(±) acre), relatively low quality (FQI(native) = 11.7) feature dominated by Reed Canary Grass and Common Buckthorn.

Vegetation

Although the data collected at Wetland No. 9 shows a negative dominance test (only one of the two dominant species is a hydrophyte), the prevalence test is positive, therefore the vegetation criterion is met.

Hydrology

Wetland hydrology indicators observed within Wetland No. 9 include a preponderance of hydrophytic vegetation (positive FAC-neutral test) and geomorphic position (i.e., Wetland No. 9 is located within an area that is mapped as floodway). Both of these are secondary wetland hydrology indicators.

Soils

The soil throughout Wetland No. 9 is mapped as Peotone Silty Clay Loam, which is recognized as a hydric series. The soil's A-horizon consists of black (10 YR 2/1), granular silty loam extending for a depth of 22 inches and contains coarse, brownish-yellow nodules. Below this the soil consists of yellowish brown (10 YR 5/4) silty clay loam with some gray (10 YR 5/1) mottles and some brownish yellow (10 YR 6/6) nodules. The soil criterion is met on the basis of criterion A12 ("thick dark surface").

Table No. 10. Floristic Quality Assessment for Wetland No. 9

| FLORISTIC QUALITY DATA | | Native | 23 | 65.70% | Adventive | 12 | 34.30% |
|------------------------|----------------|-----------|----|--------|-----------|----|--------|
| 23 | NATIVE SPECIES | Tree | 0 | 0.00% | Tree | 0 | 0.00% |
| 35 | Total Species | Shrub | 3 | 8.60% | Shrub | 1 | 2.90% |
| 2.4 | NATIVE MEAN C | Wd-Vine | 1 | 2.90% | Wd-Vine | 1 | 2.90% |
| 1.6 | W/Adventives | H-Vine | 1 | 2.90% | H-Vine | 0 | 0.00% |
| 11.7 | NATIVE FQI | P-Forb | 9 | 25.70% | P-Forb | 7 | 20.00% |
| 9.5 | W/Adventives | B-Forb | 0 | 0.00% | B-Forb | 0 | 0.00% |
| -0.6 | NATIVE MEAN Wt | A-Forb | 2 | 5.70% | A-Forb | 0 | 0.00% |
| -0.2 | W/Adventives | P-Grass | 3 | 8.60% | P-Grass | 2 | 5.70% |
| AVG: | Faculative (+) | A-Grass | 1 | 2.90% | A-Grass | 1 | 2.90% |
| | | P-Sedge | 3 | 8.60% | P-Sedge | 0 | 0.00% |
| | | A-Sedge | 0 | 0.00% | A-Sedge | 0 | 0.00% |
| | | Cryptogam | 0 | 0.00% | | | |

ABBREVIATIONS:

Floristic Quality Statistics:
C = Coefficient of conservatism
Wt = Coefficient of wetness

Physiognomy:
Nt = Native
Ad = Adventive
A = Annual
P = Perennial
Wd = Woody
H = Herbaceous

Wetness:
UPL = upland
FACU = facultative upland
FAC = facultative
FACW = facultative wetland
OBL = obligate

These terms are explained in further detail in Appendix I of this report.

Species Inventory for Wetland No. 9

| C | SCIENTIFIC NAME | Wt | WETNESS | PHYSIOGNOMY | COMMON NAME |
|---|---|----|---------|-------------|---------------------|
| 0 | Ambrosia artemisiifolia elatior | 3 | FACU | Nt A-Forb | COMMON RAGWEED |
| 0 | Ambrosia trifida | -1 | FAC+ | Nt A-Forb | GIANT RAGWEED |
| 2 | Apocynum sibiricum | -1 | FAC+ | Nt P-Forb | PRAIRIE INDIAN HEMP |
| 0 | Aster pilosus | 2 | FACU+ | Nt P-Forb | HAIRY ASTER |
| 2 | Aster sagittifolius drummondii | 3 | [FACU] | Nt P-Forb | DRUMMOND'S ASTER |
| 1 | Carex blanda | 0 | FAC | Nt P-Sedge | COMMON WOOD SEDGE |
| 4 | Carex cristatella | -4 | FACW+ | Nt P-Sedge | CRESTED OVAL SEDGE |
| 2 | Carex vulpinoidea | -5 | OBL | Nt P-Sedge | BROWN FOX SEDGE |
| 0 | CHRYSANTHEMUM LEUCANTHEMUM PINNATIFIDUM | 5 | UPL | Ad P-Forb | OX-EYE DAISY |
| 0 | CIRSIIUM ARVENSE | 5 | UPL | Ad P-Forb | FIELD THISTLE |

| | | | | | |
|---|---------------------------------|----|-------|------------|------------------------------|
| 1 | Cornus racemosa | -2 | FACW- | Nt Shrub | GRAY DOGWOOD |
| 0 | Echinochloa crusgalli | -3 | FACW | Nt A-Grass | BARNYARD GRASS |
| 4 | Elymus canadensis | 1 | FAC- | Nt P-Grass | CANADA WILD RYE |
| 2 | Helianthus grosseserratus | -2 | FACW- | Nt P-Forb | SAWTOOTH SUNFLOWER |
| 5 | Lycopus americanus | -5 | OBL | Nt P-Forb | COMMON WATER HOREHOUND |
| 0 | LYTHRUM SALICARIA | -5 | OBL | Ad P-Forb | PURPLE LOOSESTRIFE |
| 5 | Panicum virgatum | -1 | FAC+ | Nt P-Grass | SWITCH GRASS |
| 0 | PHALARIS ARUNDINACEA | -4 | FACW+ | Ad P-Grass | REED CANARY GRASS |
| 0 | PLANTAGO LANCEOLATA | 0 | FAC | Ad P-Forb | ENGLISH PLANTAIN |
| 0 | PLANTAGO MAJOR | -1 | FAC+ | Ad P-Forb | COMMON PLANTAIN |
| 0 | POA PRATENSIS | 1 | FAC- | Ad P-Grass | KENTUCKY BLUE GRASS |
| 0 | RHAMNUS CATHARTICA | 3 | FACU | Ad Shrub | COMMON BUCKTHORN |
| 5 | Rosa carolina | 4 | FACU- | Nt Shrub | PASTURE ROSE |
| 0 | RUMEX CRISPUS | -1 | FAC+ | Ad P-Forb | CURLY DOCK |
| 1 | Sambucus canadensis | -2 | FACW- | Nt Shrub | ELDERBERRY |
| 0 | SETARIA GLAUCA | 0 | FAC | Ad A-Grass | YELLOW FOXTAIL |
| 5 | Smilax lasioneura | 5 | [UPL] | Nt H-Vine | COMMON CARRION FLOWER |
| 0 | SOLANUM DULCAMARA | 0 | FAC | Ad Wd-Vine | BITTERSWEET NIGHTSHADE |
| 1 | Solidago canadensis | 3 | FACU | Nt P-Forb | CANADA GOLDENROD |
| 4 | Solidago gigantea | -3 | FACW | Nt P-Forb | LATE GOLDENROD |
| 3 | Solidago graminifolia nuttallii | 0 | [FAC] | Nt P-Forb | HAIRY GRASS-LEAVED GOLDENROD |
| 4 | Spartina pectinata | -4 | FACW+ | Nt P-Grass | PRAIRIE CORD GRASS |
| 0 | TARAXACUM OFFICINALE | 3 | FACU | Ad P-Forb | COMMON DANDELION |
| 3 | Viola sororia | 1 | FAC- | Nt P-Forb | COMMON BLUE VIOLET |
| 2 | Vitis riparia | -2 | FACW- | Nt Wd-Vine | RIVERBANK GRAPE |

Non-wetlands

The principle non-wetland features within the investigated corridor include uplands and a 0.667 acre detention pond at the far northern end of the corridor.

The detention pond possesses minimal vegetation and is lined with limestone rip-rap. Although this feature is not a wetland, it will require a 30-foot buffer.

Uplands communities in and around the investigated corridor include mowed turf grass, shrub land and a few stands of trees. Species observed as dominant throughout the uplands are as follows:

Trees

White poplar (*Populus alba*) (Data-point Nos. 3-3, 3-5)

Eastern Cottonwood (*Populus deltoides*) (Data-point Nos. 1-3, 4-1)

Shrubs

Common Buckthorn (*Rhamnus cathartica*) (Data-point Nos. 1-3, 3-3, 3-5; 6-1, 8-2, 9-2)

Meadow Rose (*Rosa carolina*) (Data-point No. 1-1,)

Black Raspberry (*Rubus occidentalis*) (Data-point No. 5-1)

Herbaceous

Canada Goldenrod (*Solidago canadensis*) (Data-point Nos. 3-7, 5-1, 8-2, 9-2)

Cut-leaved Teasel (*Dipsacus laciniatus*) (Data-point Nos. 1-1, 4-1)

Kentucky Bluegrass (*Poa pratensis*) (Data-point Nos. 1-3, 2-1)

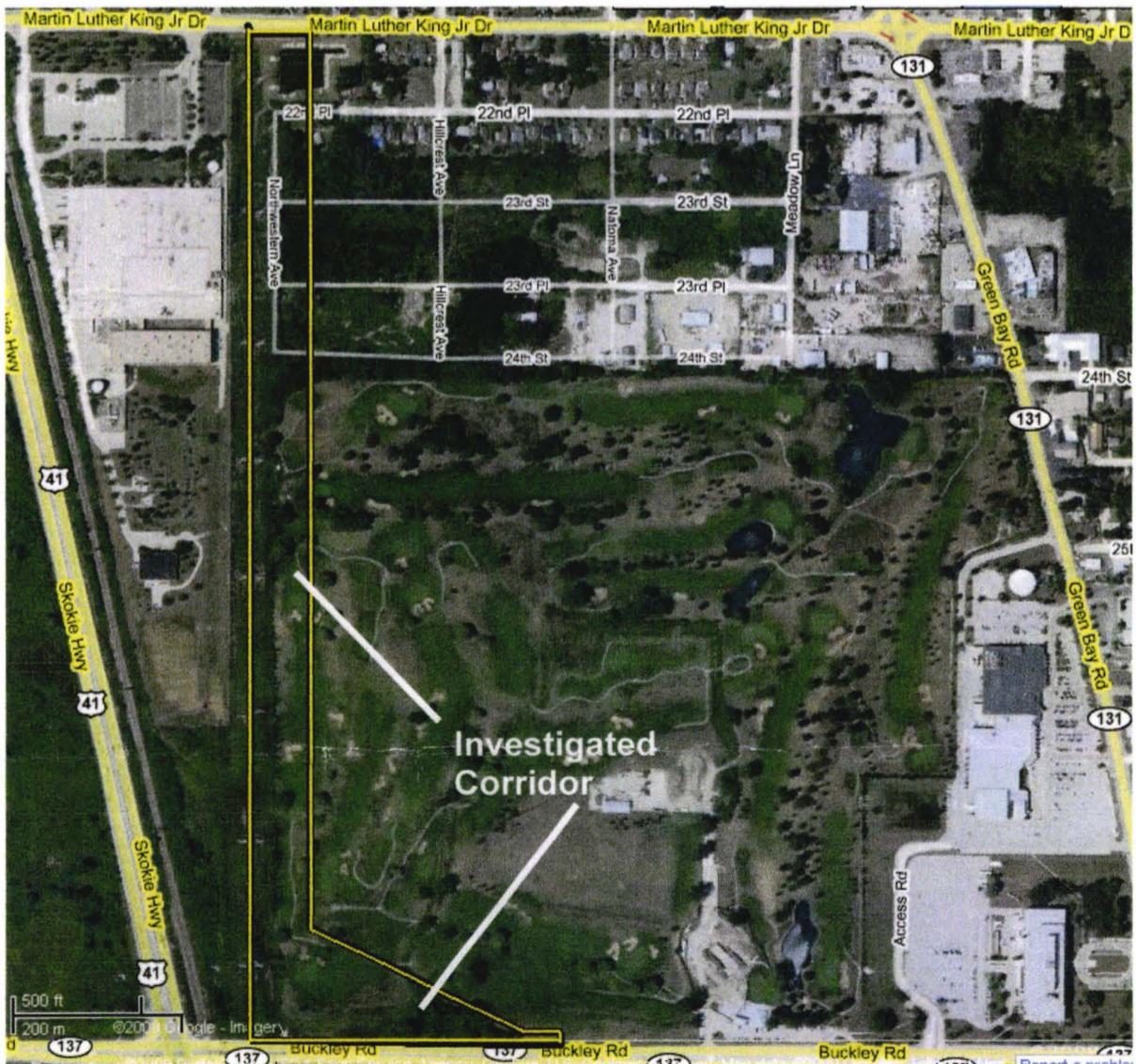
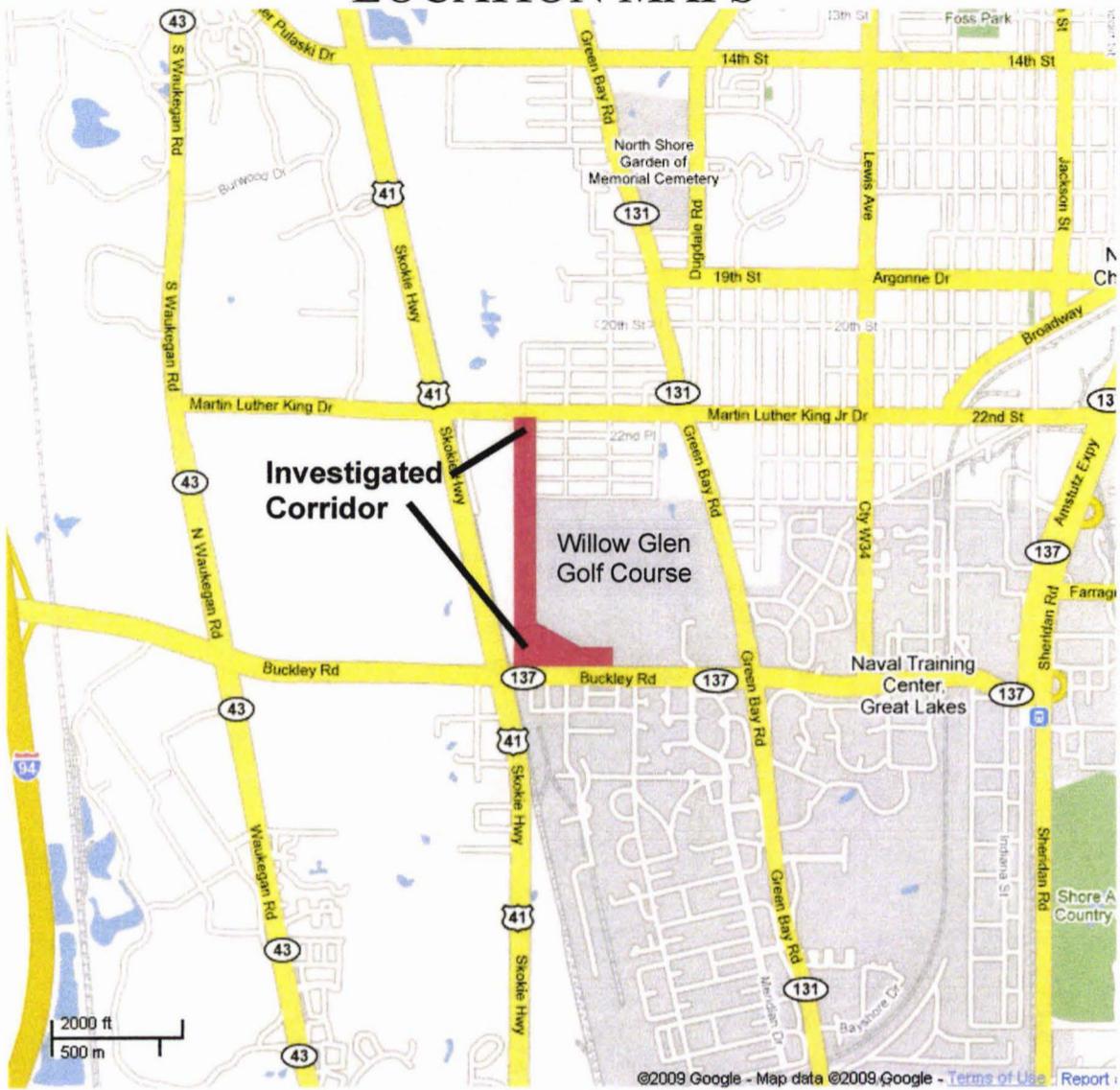
Reed Canary Grass (*Phalaris arundinacea*) (Data-point Nos. 2-1, 9-2)

Wild Strawberry (*Fragaria virginiana*) (Data-point Nos. 1-1, 3-3)

Garlic Mustard (*Alliaria petiolata*) (Data-point No. 3-7)
Hairy Aster (*Aster pilosus*) (Data-point No. 3-7)
Field Thistle (*Cirsium arvense*) (Data-point No. 4-1)
Canada Rye Grass (*Elymus canadensis*) (Data-point No. 6-1)
Common Chickweed (*Stellaria media*) (Data-point No. 1-1)
Cocklebur (*Xanthium strumarium*) (Data-point No. 3-7)

EXHIBIT 1

LOCATION MAPS



North Branch of the Chicago River Watershed

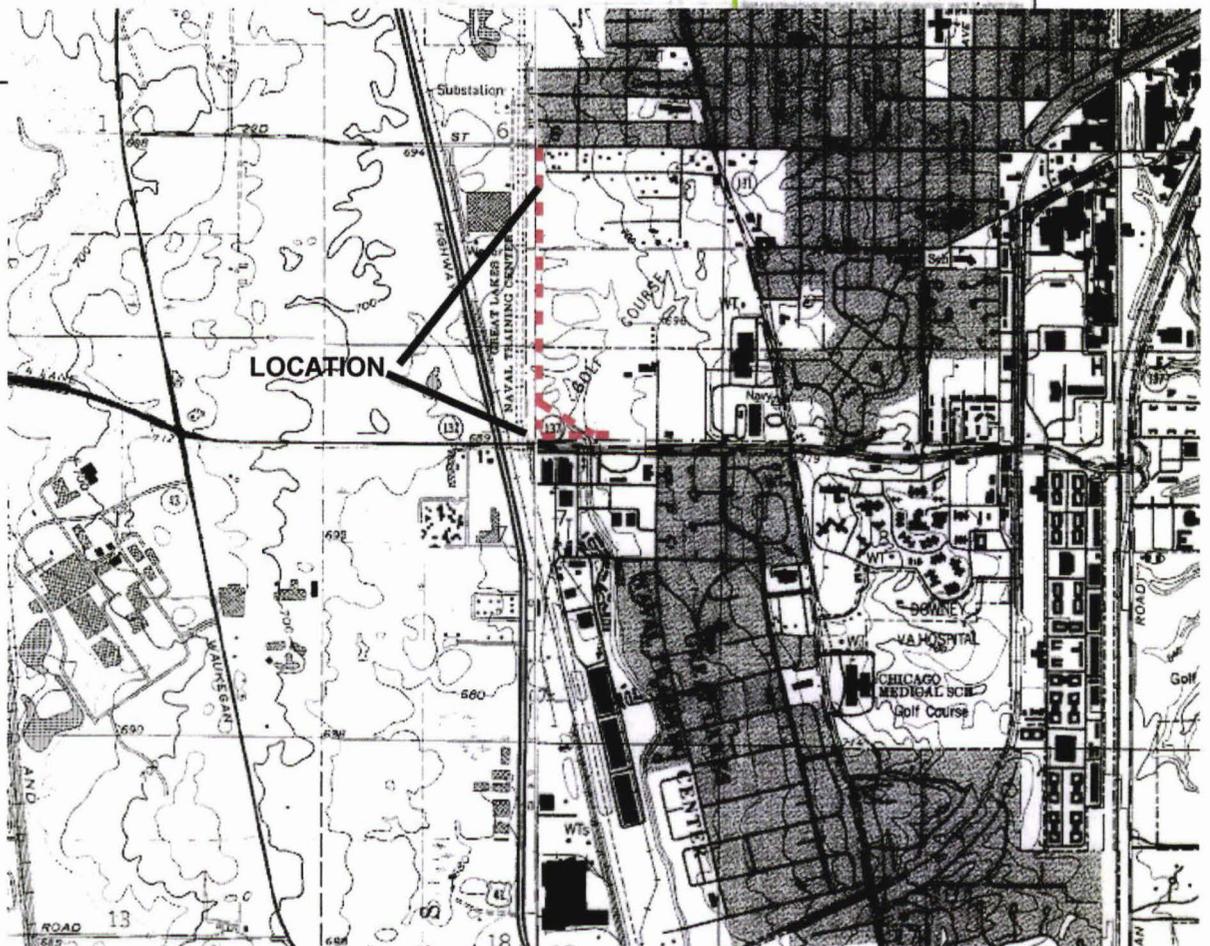
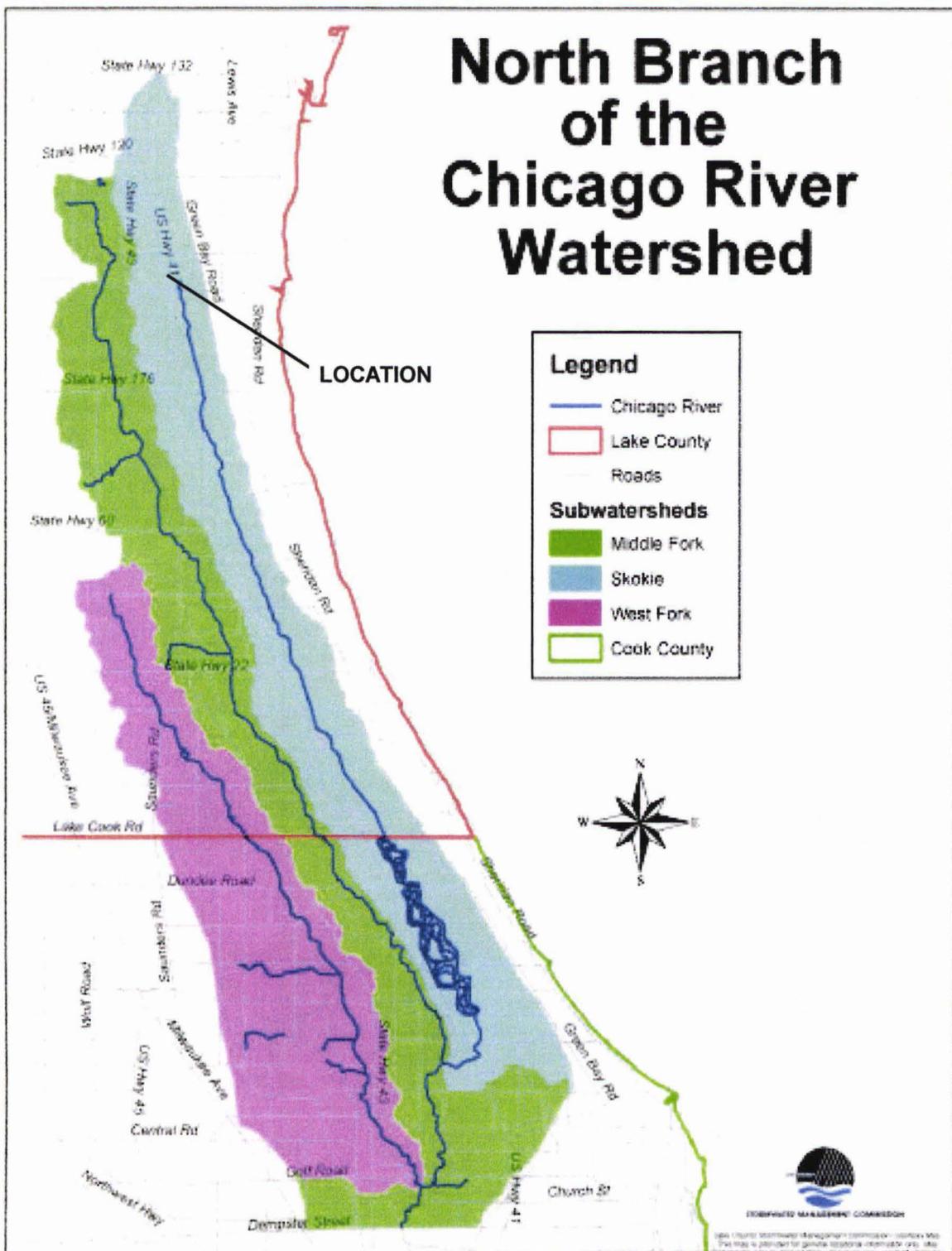
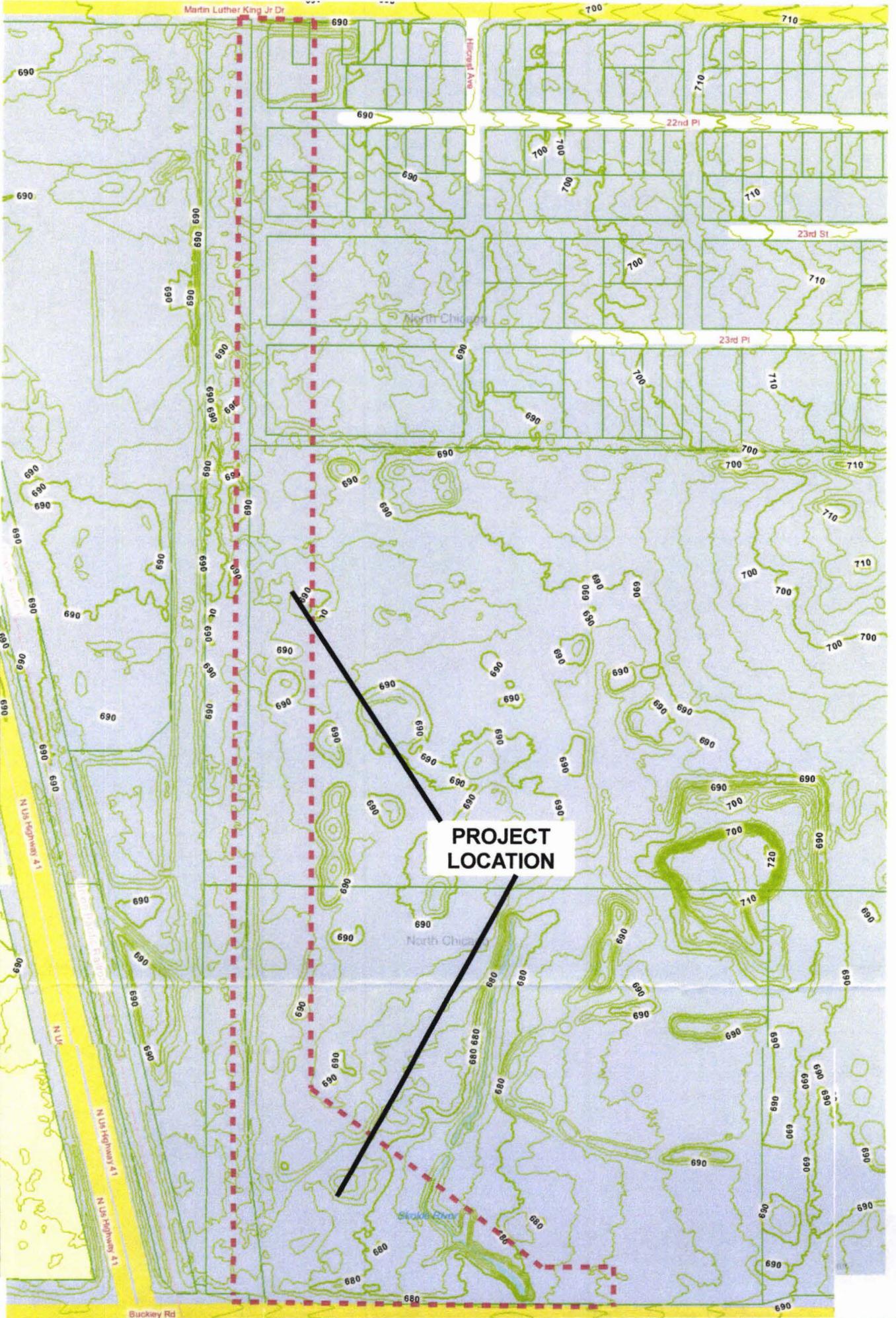


EXHIBIT 2 – WATERSHED AND USGS QUADRANGLE 20



Lake County
Geographic Information System

Lake County Department of
Information Technology
18 N County St
Waukegan IL 60085

Map Printed on 10/9/2009



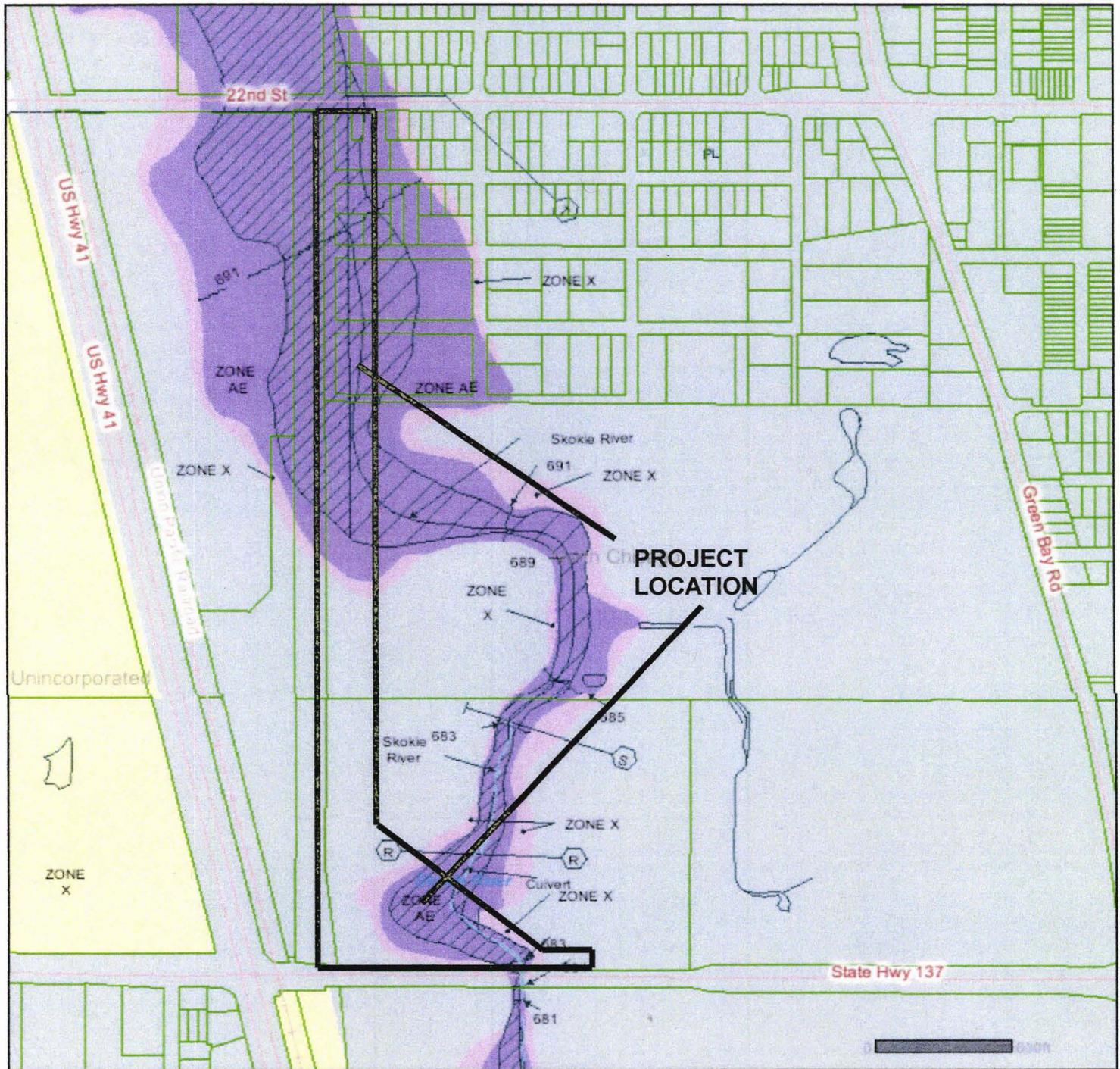
- Topography
- Municipalities
- Railroads
- Major Water
- Parcels

EXHIBIT 3 TOPOGRAPHY

Disclaimer:

This map is for general information purposes only. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

Locations of Mapped FEMA Floodplains in Lake County, Illinois





LakeCounty
Geographic Information System

Lake County Department of Information Technology
18 N County St
Waukegan IL 60085

Map Printed on 10/6/2009



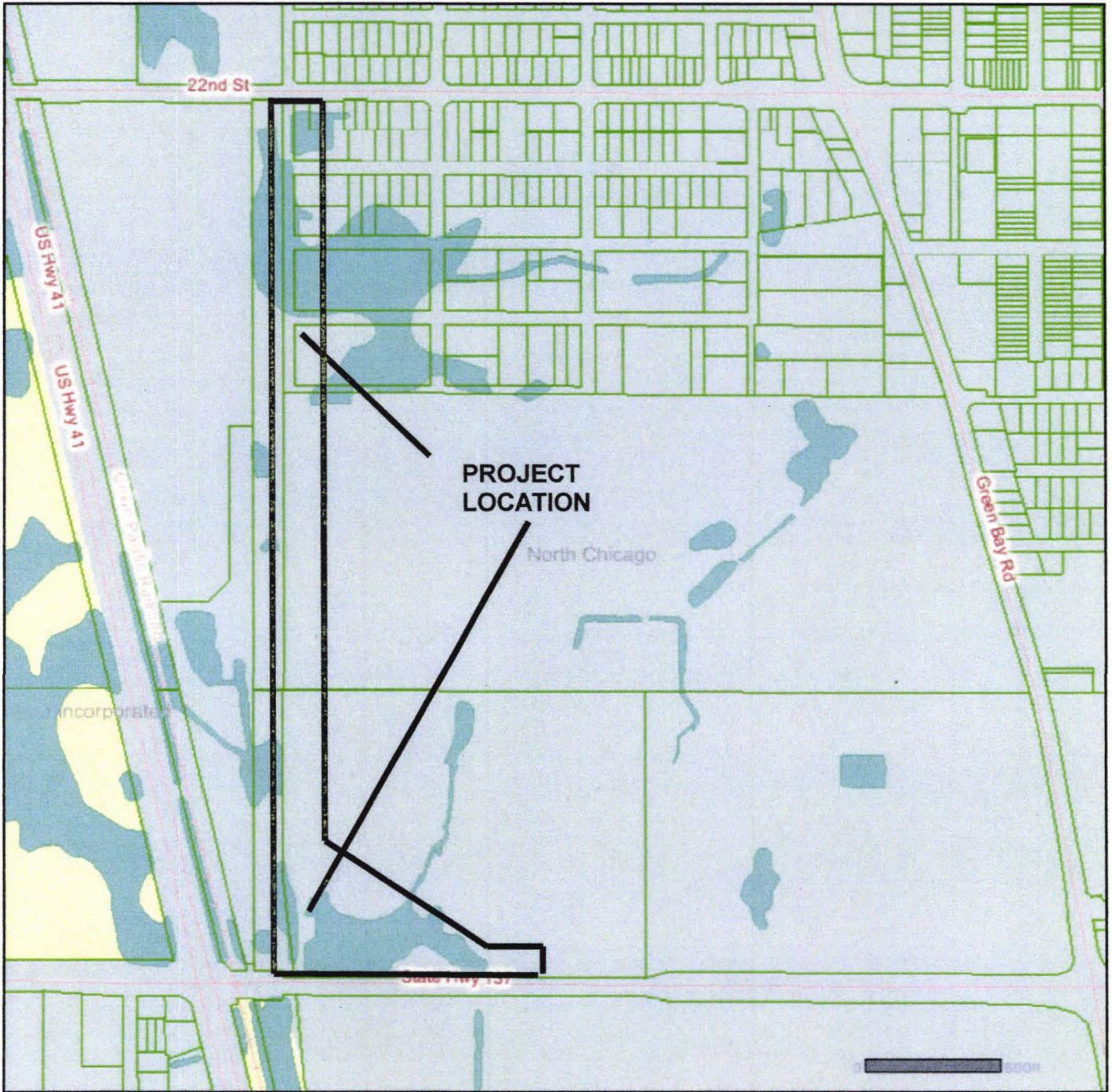
N

| | |
|-----------------------|----------------|
| Parcels | Municipalities |
| Zone X | Major Roads |
| Zone X - 500 Yr Flood | Railroads |
| SFHA - 100 Yr Flood | Major Water |
| Floodway | Parcels |

Disclaimer: Property boundaries indicated are provided as a courtesy for general locational purposes. Floodplain limits shown are approximate and should not be used to determine setbacks for structures or as a basis for purchasing property. A topographic survey is required to determine existing floodplain boundaries. This map is intended to be viewed and printed in color.

EXHIBIT 4 FLOODPLAIN / FLOODWAY MAP

Lake County, Illinois Wetland Inventory



Lake County
Geographic Information System

Lake County Department of
Information Technology
18 N County St
Waukegan IL 60085

Map Printed on 10/12/2009
Parcel 1206408003 is shaded.



- Wetlands
- Municipalities
- Major Roads
- Railroads
- Parcels

Disclaimer:

This map is for general information purposes only. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

Advance Identification Wetlands (ADID) in Lake County, Illinois



Lake County
Geographic Information System
Map Printed on 10/12/2009

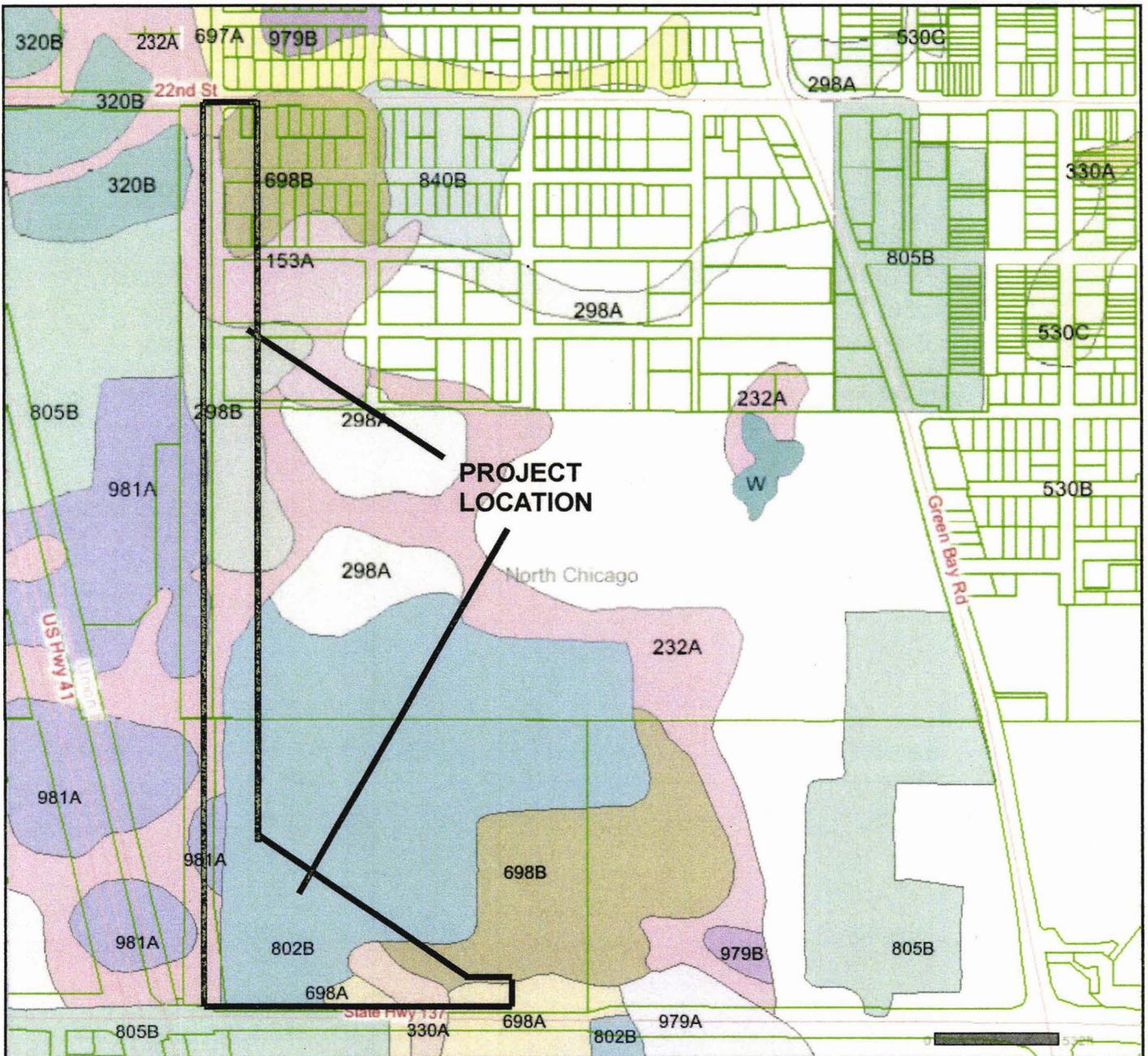
N

- ADID
- Municipalities
- Major Roads
- Railroads
- Major Water

Disclaimer: This map is for general information purposes only. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

EXHIBIT 6 LAKE COUNTY ADID WETLANDS

U.S.D.A. Soil Survey, Lake County, Illinois



Lake County
Geographic Information System

Lake County Department of
Information Technology
18 N County St
Waukegan IL 60085

Map Printed on 10/20/2009

- 2004 Soils
- Municipalities
- Major Roads
- Railroads
- Parcels

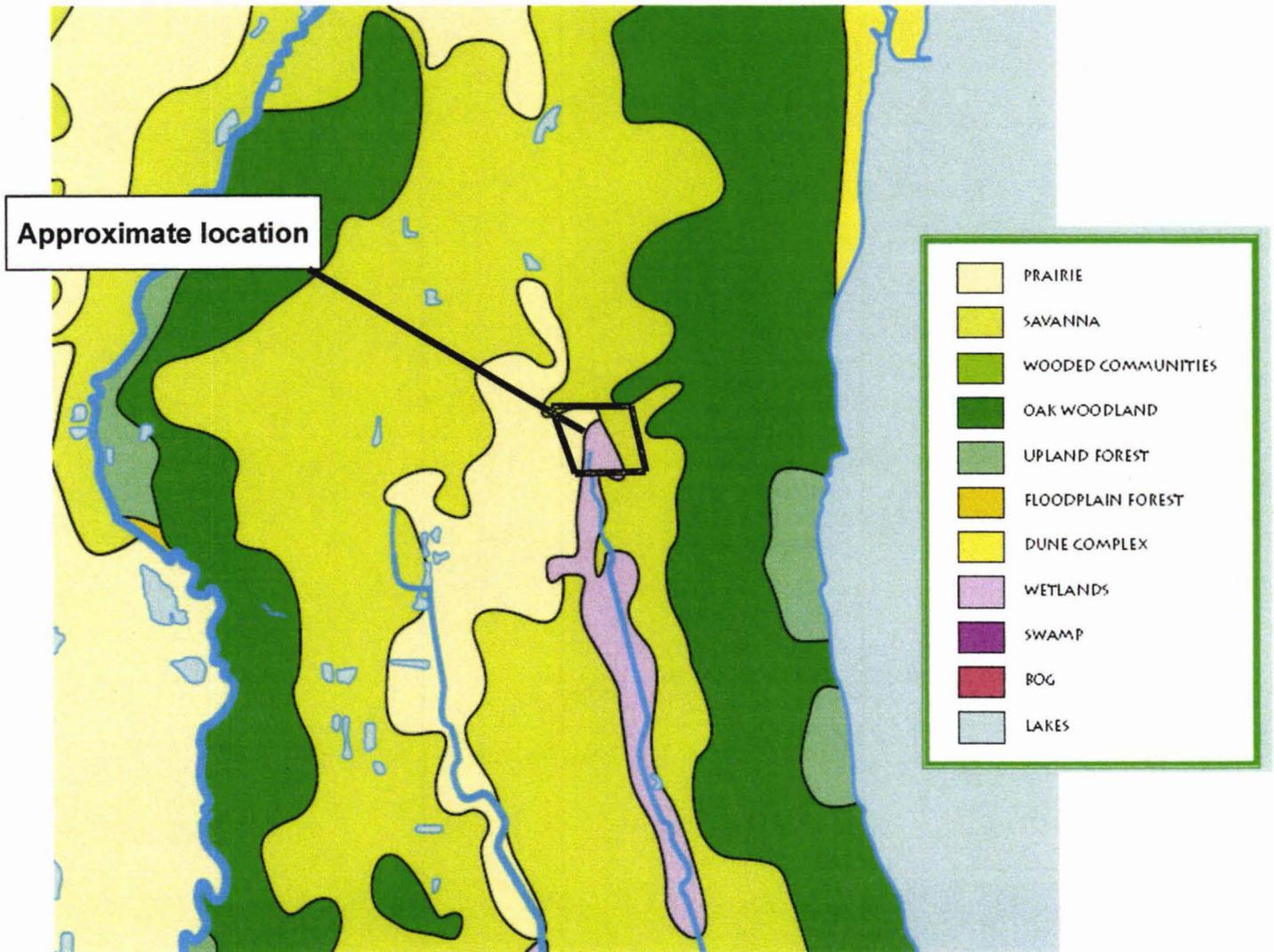
- 153A – Pella silty clay loam
- 232A – Ashkum silty clay loam
- 298A – Beecher silt loam 0-2% slope
- 298B – Beecher silt loam 2-4% slope
- 330A – Peotone silty clay loam
- 698A – Grays silt loam 0-2% slope
- 698B – Grays silt loam 2-4% slope
- 802B – Orthents, loamy, undulating
- 981A – Wauconda and Frankfort silt loams

Disclaimer: The selected soil feature layer may not occur anywhere in the current map extent. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

EXHIBIT 7

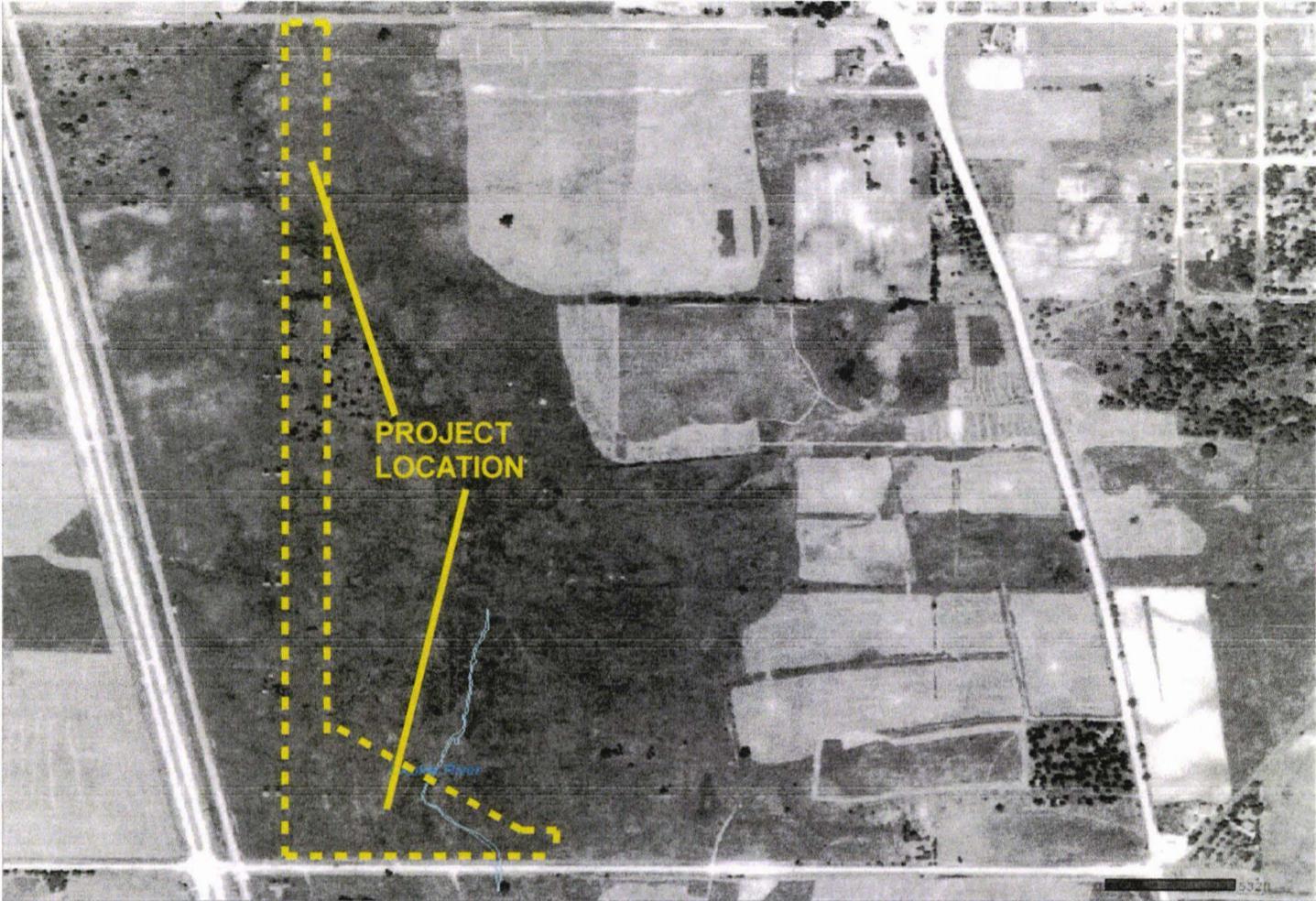
SOIL SURVEY

EXHIBIT 8 PRESETTLEMENT VEGETATION

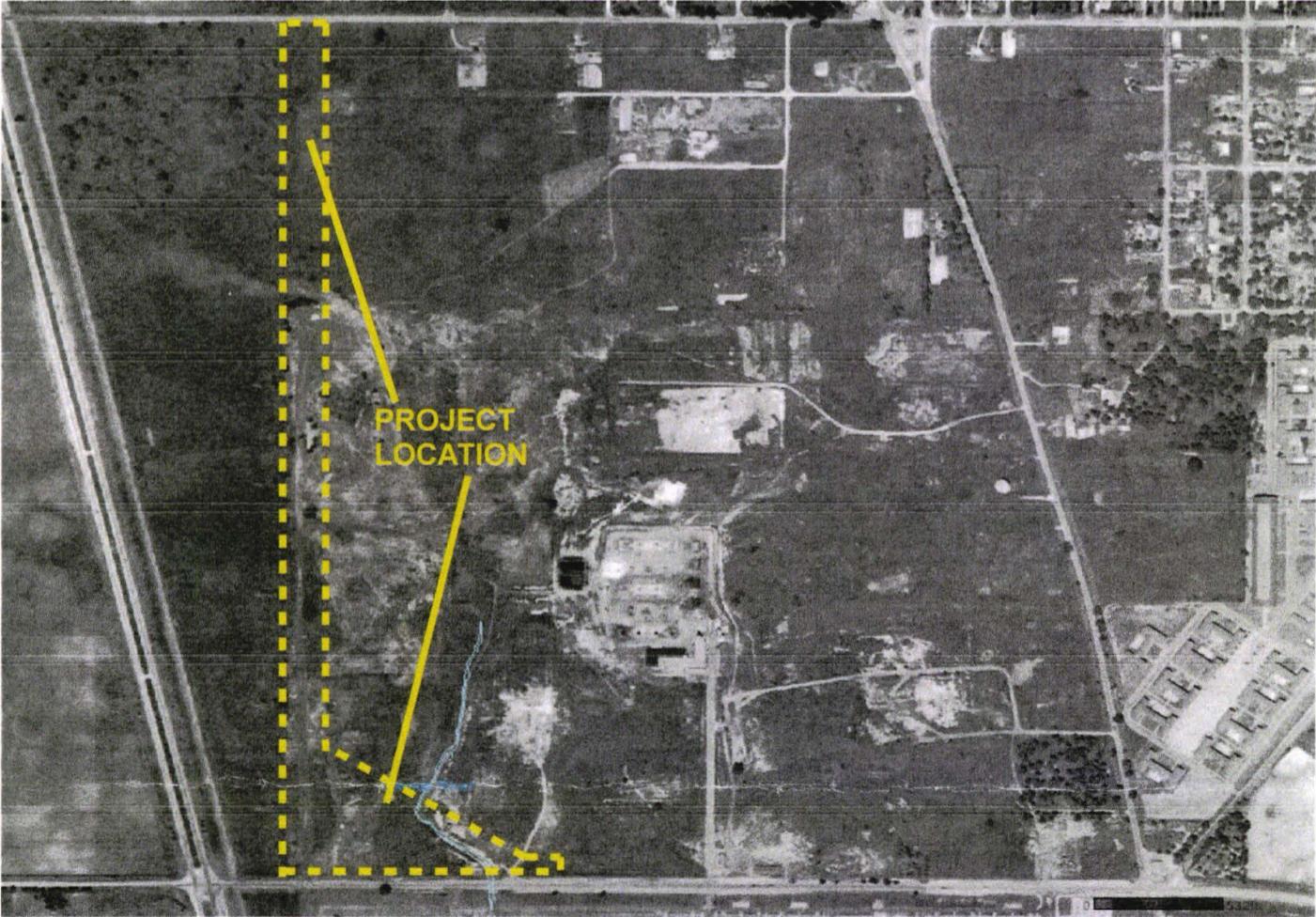


From: An Atlas of Biodiversity, 1997, Chicago Wilderness, Chicago Biodiversity Council.
(www.chicagowilderness.org/)

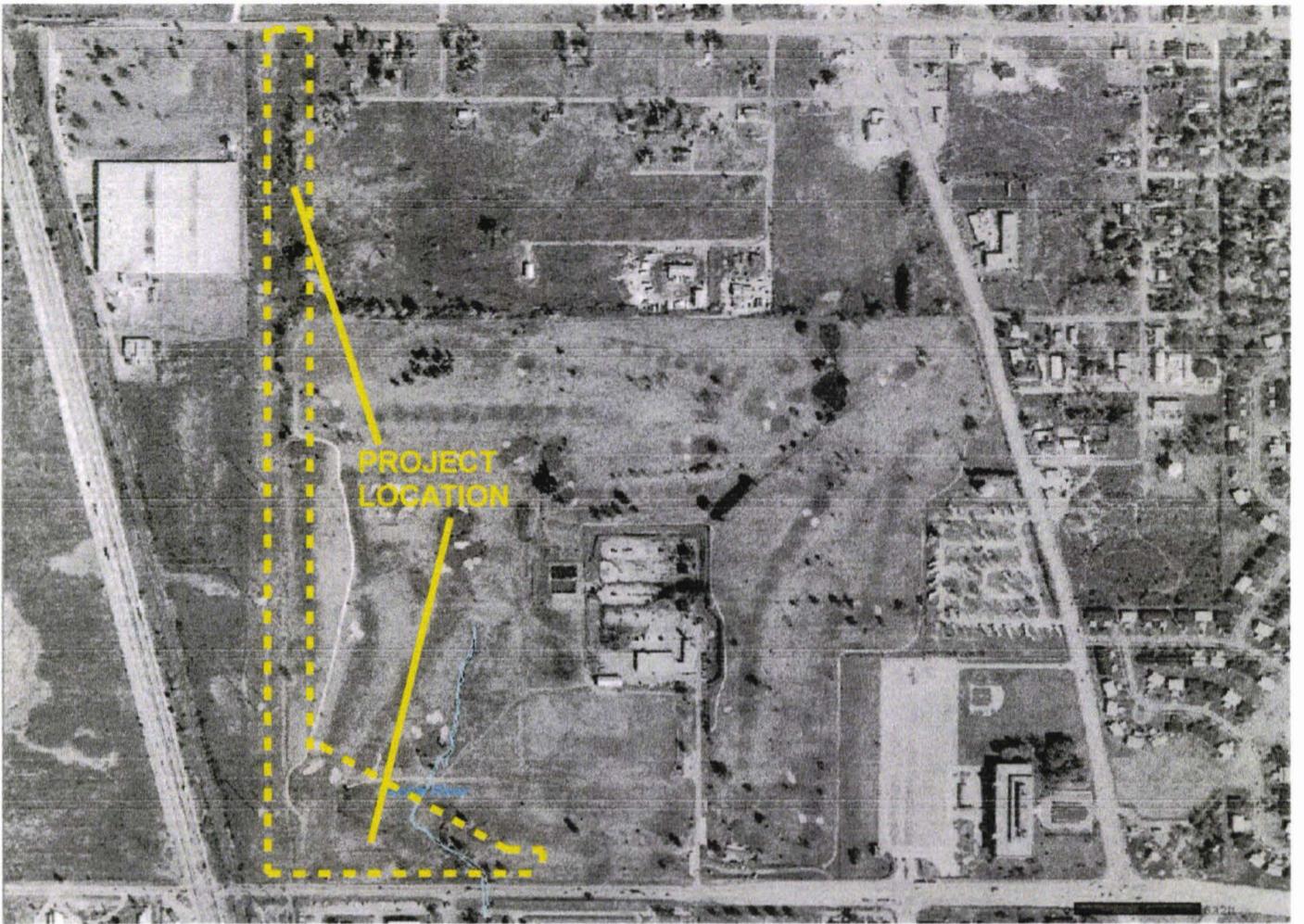
EXHIBIT 9 HISTORICAL AERIAL PHOTOGRAPHS



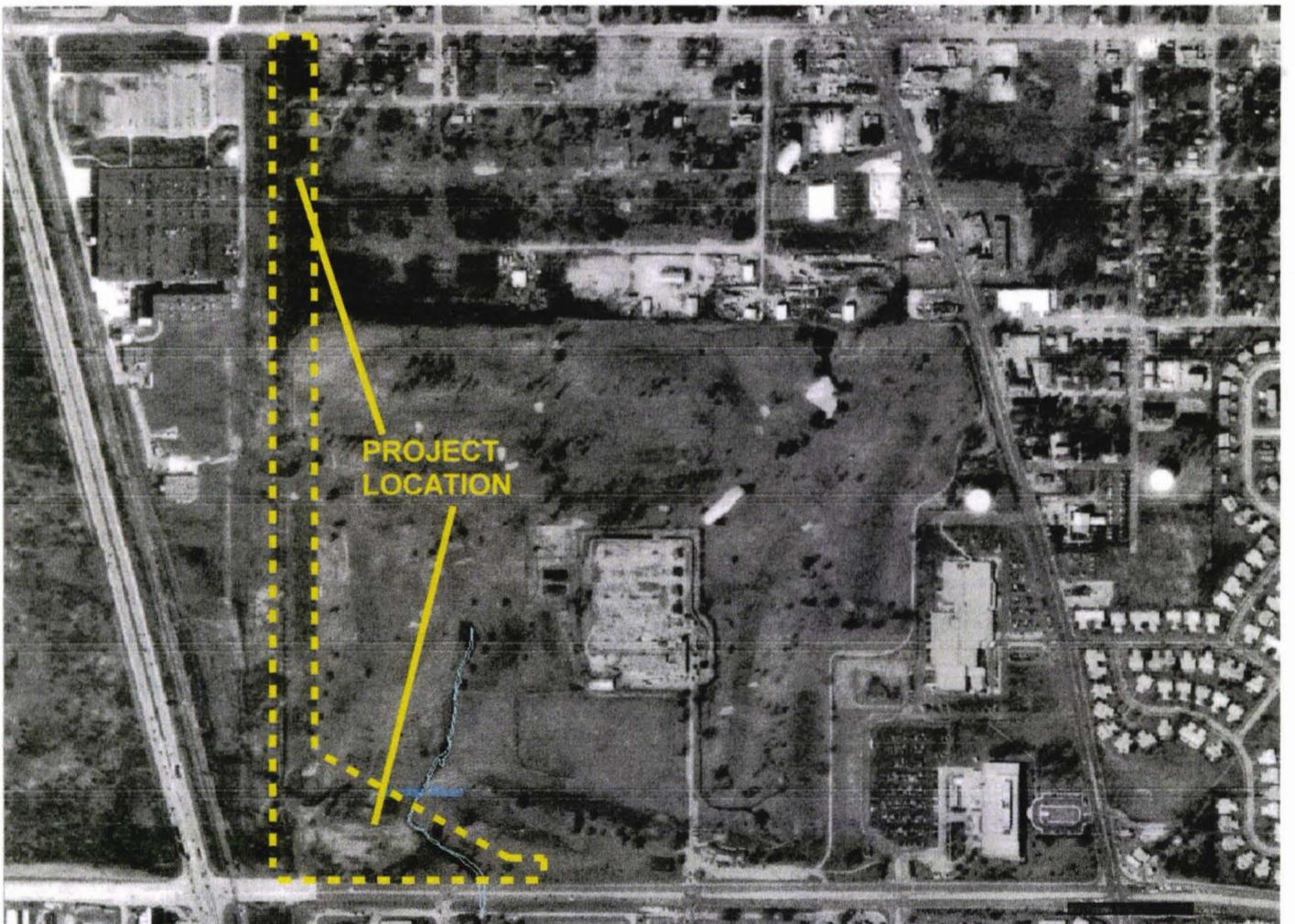
1939 AERIAL PHOTOGRAPH



1946 AERIAL PHOTOGRAPH



1974 AERIAL PHOTOGRAPH



1993 AERIAL PHOTOGRAPH

EXHIBIT 10 Aerial Photograph with Wetland and Data-point Locations





| LEGEND | |
|--|---|
|  | Wetland boundary delineated by James Anderson Company |
|  | Estimated wetland boundary |
|  | Wetland buffer |
|  | Wetland boundary delineated by others |
|  | Proposed sewer main route |
|  | DP 1-3 Approximate data-point location |

EXHIBIT 11 PHOTOS OF DATA-POINT LOCATIONS

Photo Nos. 1A – 1D. These photos were taken at Wetland No. 1 on September 22, 2009. Approximate data-point locations are shown

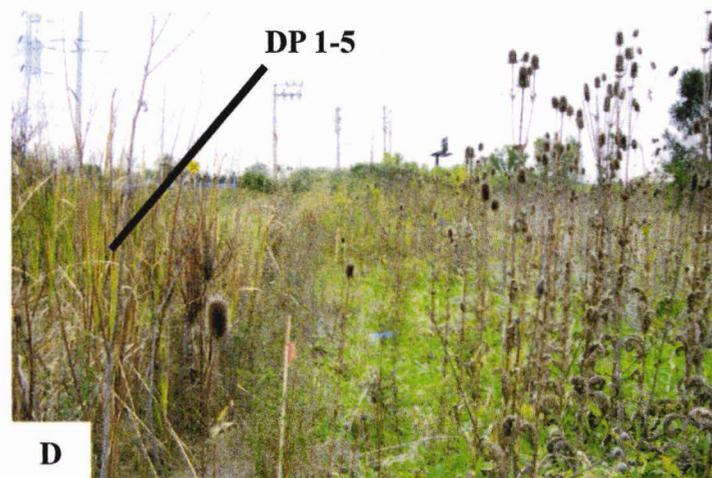
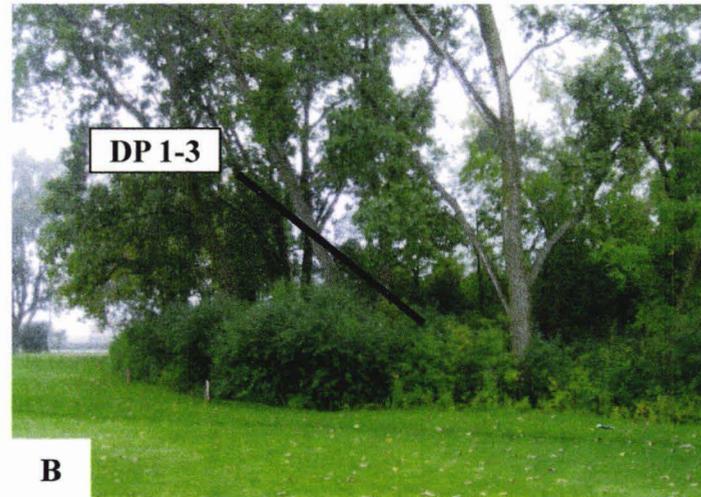
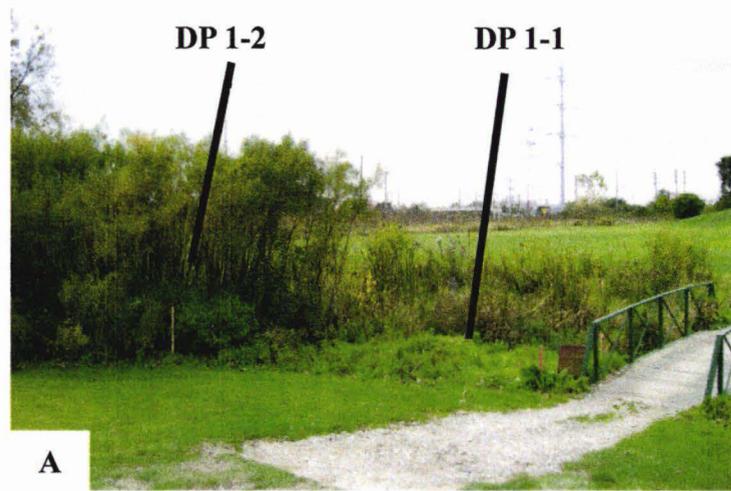
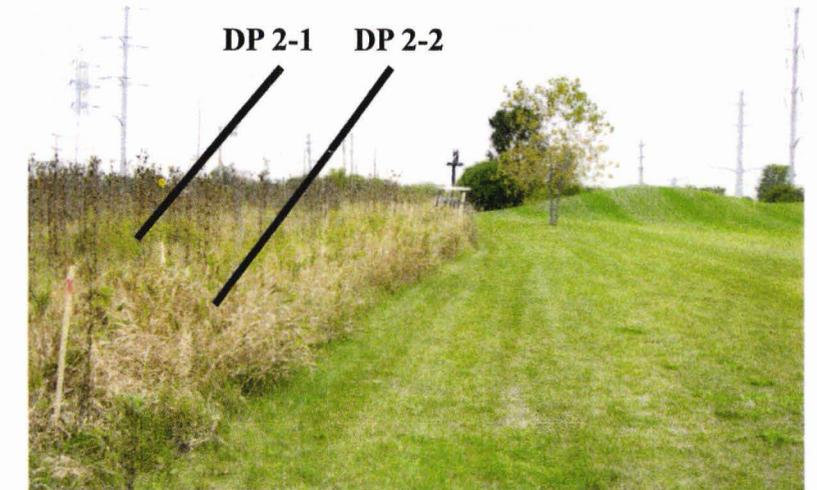


Photo No. 2

This photo was taken facing westward along Wetland No. 2 on October 1, 2009. Approximate data-point locations are shown.



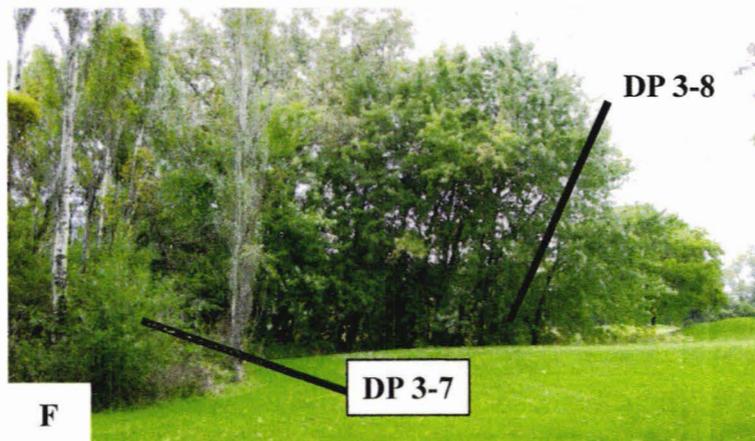
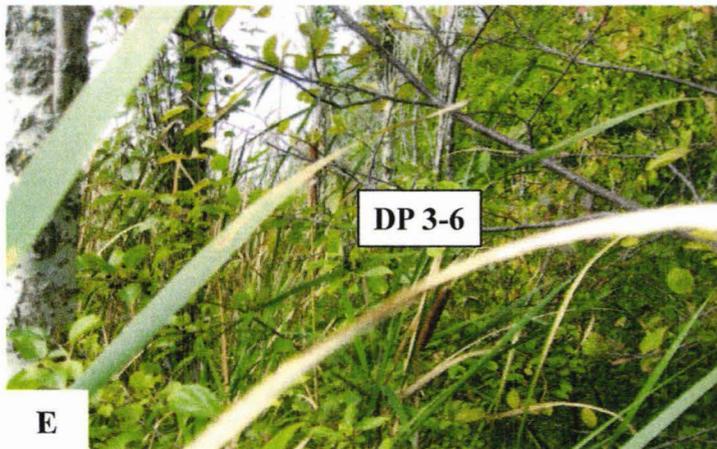
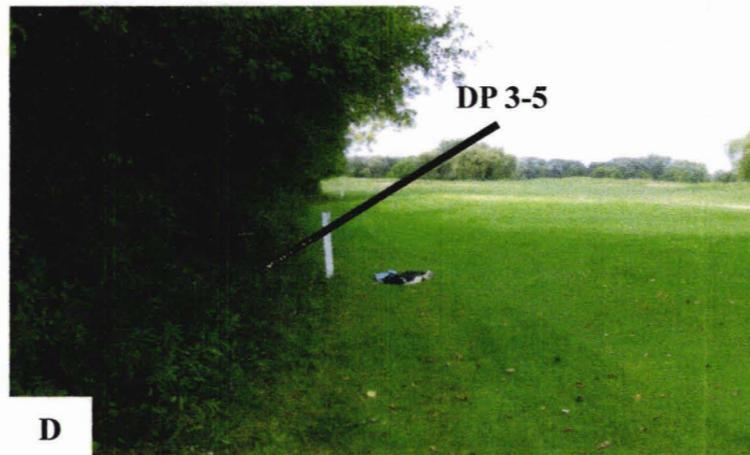
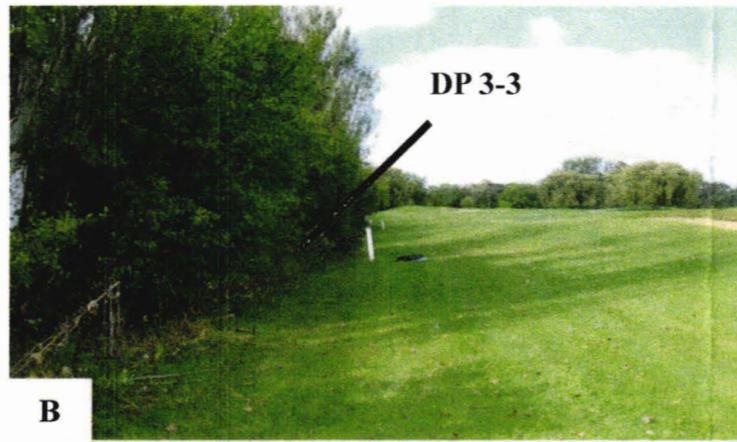
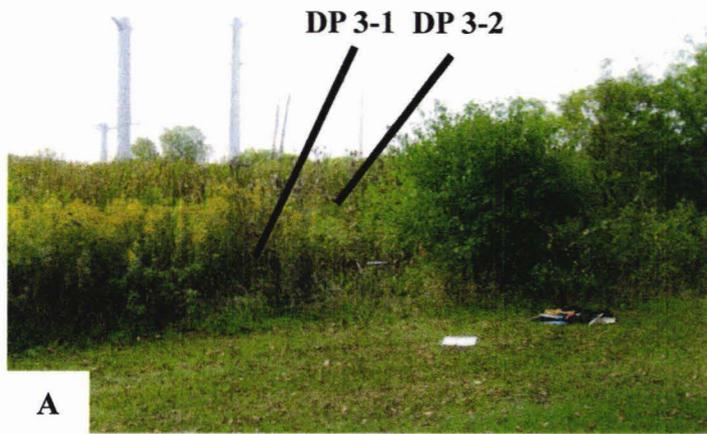


Photo Nos. 3A – 3F. These photos were taken at Wetland No. 3 on September 21, 2009. Approximate data-point locations are shown.

Photo No. 4. This photo was taken at Wetland No. 4 on September 22, 2009. Approximate data-point locations are shown.

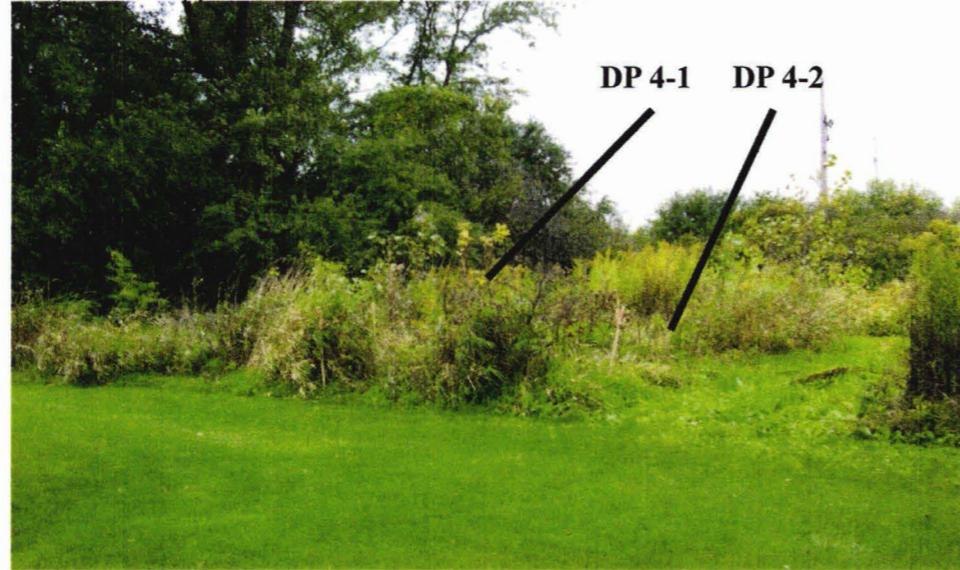


Photo No. 6. This photo was taken at Wetland No. 5 on September 28, 2009. Approximate data-point locations are shown.

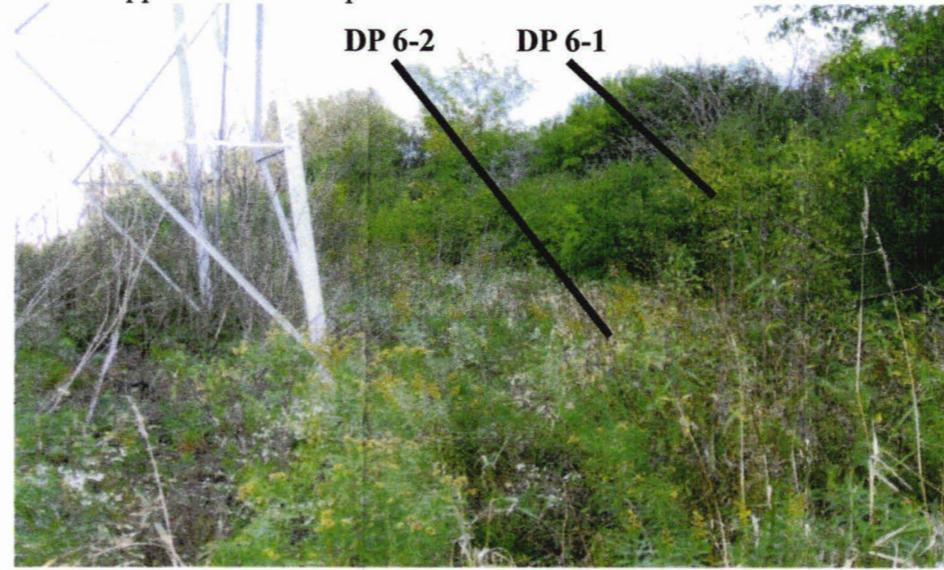


Photo No. 5. This photo was taken at Wetland No. 5 on September 28, 2009.

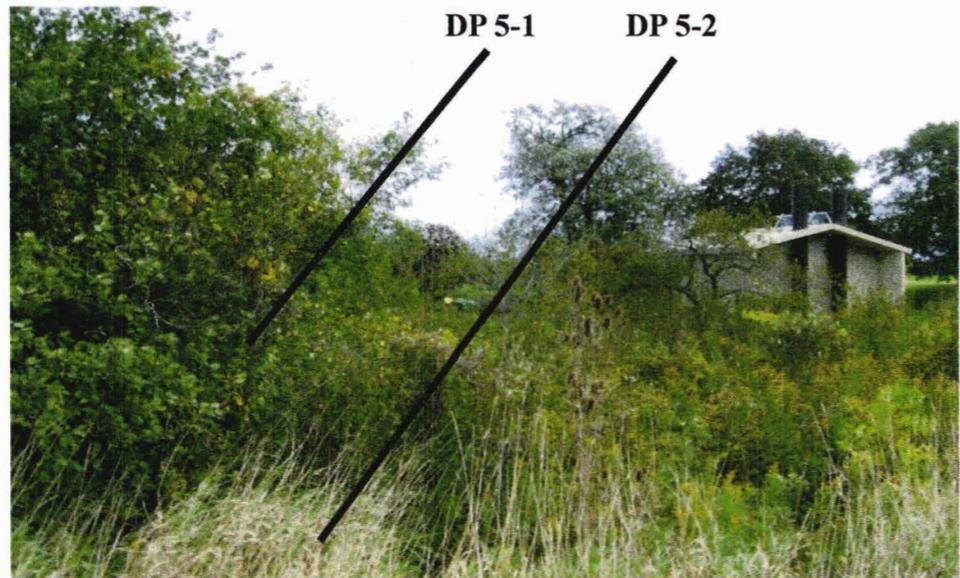


Photo No. 7. This photo was taken at Wetland No. 7 on September 29, 2009. Approximate data-point locations are shown.

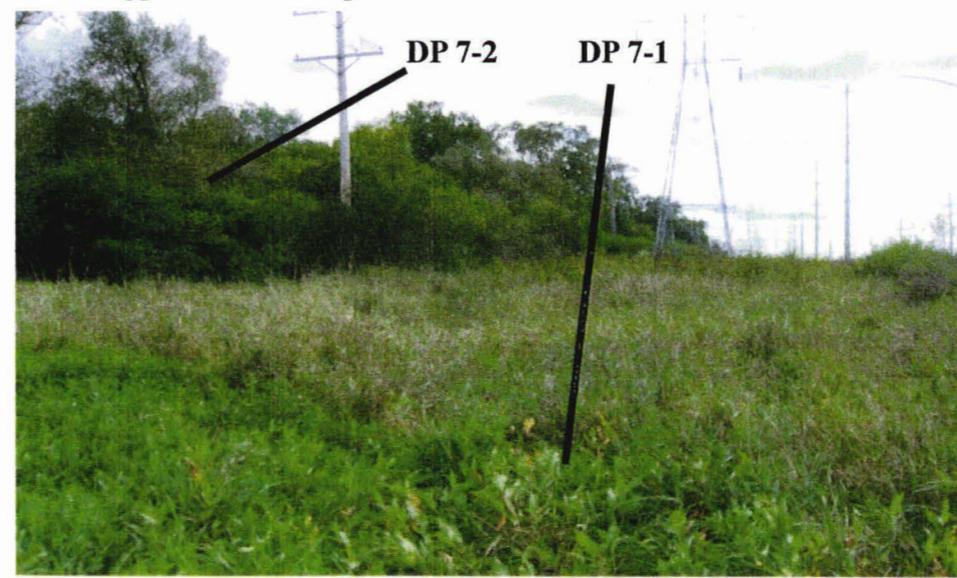
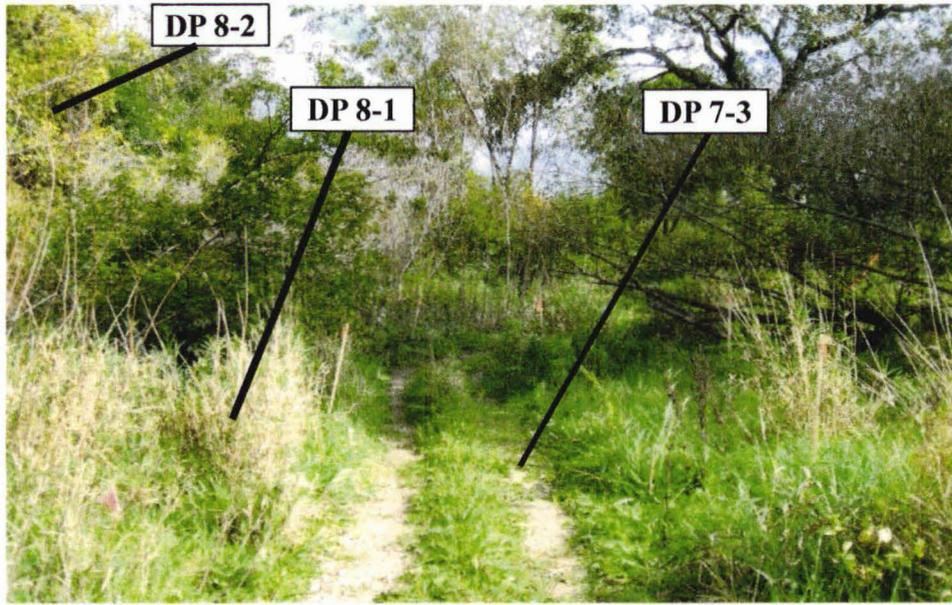


Photo No. 8. This photo was taken between Wetland No. 7 (right) and Wetland No. 8 (left) on September 29, 2009. Approximate data-point locations are shown.



Wetland No. 9. This photo was taken at Wetland No. 9 on September 29, 2009. Approximate data-point locations are shown.

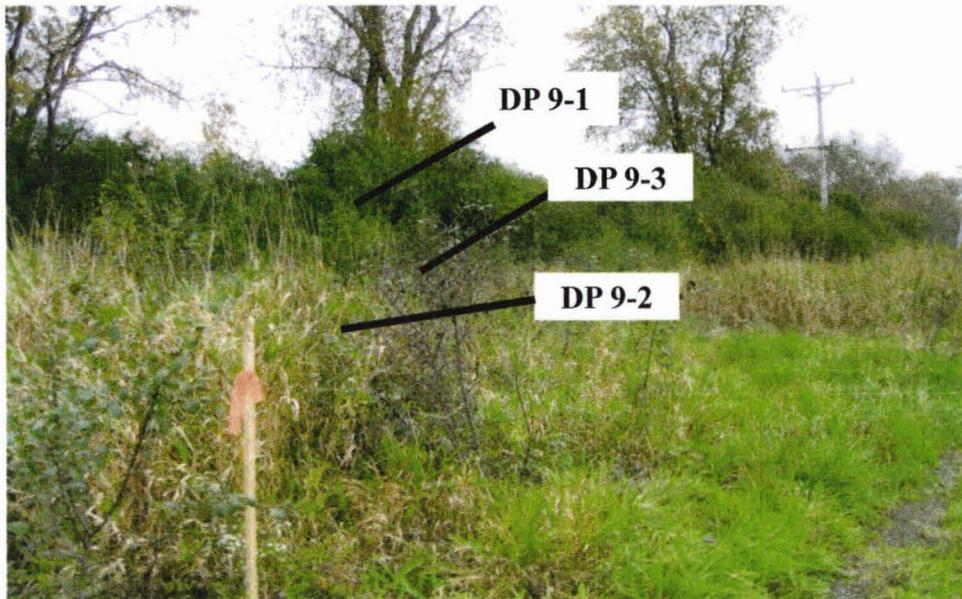


Photo No. 10. This photo was taken on October 19, 2009 at the detention basin at the far north end of the corridor.



WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State IL Sampling Point: 1-1
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 6 and 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): STREAM BANK Local relief (concave, convex, none): NONE
 Slope (%): 1-2 Lat: 42°18'35" Long: -87°52'25" Datum: NAD83

Soil Map Unit Name: PROTONIC SILTY CLAY LOAM NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | | | | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) |
| _____ = Total Cover | | | | Total Number of Dominant Species Across All Strata: <u>4</u> (B) |
| Sapling/Shrub stratum (Plot size: _____) | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>0</u> (A/B) |
| 1. <u>ROSA CAROLINA</u> | <u>19</u> | <u>Y</u> | <u>4</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>19</u> x 2 = <u>38</u> FAC species <u>17</u> x 3 = <u>51</u> FACU species <u>50</u> x 4 = <u>200</u> UPL species <u>13</u> x 5 = <u>65</u> Column Totals: <u>101</u> (A) <u>356</u> (B) Prevalence Index = B/A = <u>3.52</u> |
| 2. <u>CORNUS RACEMOSA</u> | <u>5</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>RHAMNUS CATHARTICA</u> | <u>4</u> | <u>N</u> | <u>3</u> | |
| 4. <u>ROSA MULTIFLORA</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 5. <u>SALIX INTERIOR</u> | <u>2</u> | <u>N</u> | <u>-5</u> | |
| <u>33</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 1. <u>STELLARIA MEDIA</u> | <u>15</u> | <u>Y</u> | <u>3</u> | |
| 2. <u>DIPSACUS LACINIATUS</u> | <u>11</u> | <u>Y</u> | <u>5</u> | |
| 3. <u>FRAGARIA VIRGINIANA</u> | <u>10</u> | <u>Y</u> | <u>1</u> | |
| 4. <u>PHACELIS ARUNDINACEA</u> | <u>8</u> | <u>N</u> | <u>4</u> | |
| 5. <u>FESTUCA FLATIDR</u> | <u>4</u> | <u>N</u> | <u>2</u> | |
| 6. <u>POA PRATENSIS</u> | <u>3</u> | <u>N</u> | <u>1</u> | |
| 7. <u>TRIFOLIUM REPENS</u> | <u>3</u> | <u>N</u> | <u>2</u> | |
| 8. <u>SOLIDAGO CANADENSIS</u> | <u>2</u> | <u>N</u> | <u>3</u> | |
| 9. <u>CAREX CRISTATELLA</u> | <u>2</u> | <u>N</u> | <u>-4</u> | |
| 10. <u>THALICTRUM DASYCARPUM HYP.</u> | <u>2</u> | <u>N</u> | <u>-2</u> | |
| 11. <u>CIRSIIUM ARVENSE</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 12. <u>RUMEX CRISPUS</u> | <u>2</u> | <u>N</u> | <u>-1</u> | |
| 13. <u>PLANTAGO MAJOR</u> | <u>2</u> | <u>N</u> | <u>-1</u> | |
| 14. <u>ERIGLOM PHILADELPHICUS</u> | <u>2</u> | <u>N</u> | <u>-3</u> | |
| <u>68</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|----------------------------------|----|----------------------------------|---|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-8 | 10YR ² / ₂ | 50 | | | | | SCL | |
| | 10YR ² / ₁ | 50 | | | | | | |
| 8-30 | 10YR ⁴ / ₂ | 70 | 10YR ⁵ / ₄ | 3 | | | SL | |
| | 10YR ⁵ / ₁ | 25 | 10YR ⁴ / ₆ | 2 | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histoc Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tiled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: AREA IS LOCATED ON A BANK, APPEARS DRAINED

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 1-2
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 6 and 7, T44N, R12E
 Landform (hillslope, terrace, etc.): STREAM BANK - FLOODWAY Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 42°18'25" Long: -87°52'25" Datum: WGS 84
 Soil Map Unit Name: PEPTONE SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>67%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>SALIX INTERIOR</u> | <u>13</u> | <u>Y</u> | <u>-5</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>24</u> x 1 = <u>24</u> FACW species <u>45</u> x 2 = <u>90</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species <u>17</u> x 4 = <u>68</u> UPL species <u>11</u> x 5 = <u>55</u> Column Totals: <u>101</u> (A) <u>249</u> (B) Prevalence Index = B/A = <u>2.47</u> |
| 2. <u>CORNUS RACEMOSA</u> | <u>5</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>ALNUS GLUTINOSA</u> | <u>4</u> | <u>N</u> | <u>-2</u> | |
| 4. <u>ROSA CAROLINA</u> | <u>3</u> | <u>N</u> | <u>4</u> | |
| 5. <u>RHAMNUS CATHARTICA</u> | <u>2</u> | <u>N</u> | <u>3</u> | |
| <u>27</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEAE</u> | <u>32</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>DIPSACUS LACINIATUS</u> | <u>11</u> | <u>Y</u> | <u>5</u> | |
| 3. <u>TYPHA ANGLUSTIFOLIA</u> | <u>9</u> | <u>N</u> | <u>-5</u> | |
| 4. <u>STELLARIA MEDIA</u> | <u>7</u> | <u>N</u> | <u>3</u> | |
| 5. <u>SOLIDAGO CANADENSIS</u> | <u>5</u> | <u>N</u> | <u>3</u> | |
| 6. <u>ERIGERON PHILADELPHICUS</u> | <u>2</u> | <u>N</u> | <u>-3</u> | |
| 7. <u>LYTHRUM SALICARIA</u> | <u>2</u> | <u>N</u> | <u>-5</u> | |
| 8. <u>GEUM CANADENSIS</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| 9. <u>ASTRO NOVAE-ANGLIAE</u> | <u>2</u> | <u>N</u> | <u>-3</u> | |
| 10. <u>POLYGONUM PERSICARIA</u> | <u>2</u> | <u>N</u> | <u>1</u> | |
| <u>74</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|---|----------------|---|-------------------|------------------|---------------------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-12 | 10YR 2/1 | | | | | | SILT AND SAND w/ ORGANICS | |
| 12-16 | 10YR 4/1-5/1 | | | | | | SAND | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| | | | |
|---|---|---|--|
| Hydric Soil Indicators: | | Indicators for Problematic Hydric Soils³: | |
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Coast Prairie redox (A16) | |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Iron-Manganese Masses (F12) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Other (Explain in Remarks) | |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | | |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | | |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) | | |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | | |
| <input checked="" type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | | | |

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| | |
|--|---|
| Wetland Hydrology Indicators: | |
| Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Surace Soil Cracks (B6) | |
| <input type="checkbox"/> Drainage Patterns (B10) | |
| <input type="checkbox"/> Dry-Season Water Table (C2) | |
| <input type="checkbox"/> Crayfish Burrows (C8) | |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) | |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) | |
| <input type="checkbox"/> Geomorphic Position (D2) | |
| <input type="checkbox"/> FAC-Neutral Test (D5) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 16

Saturation Present? Yes No Depth (inches): 12(±)

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State IL Sampling Point: 1-3
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: Sec's 6 and 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): TOP OF SLOPE (W-FACINA) Local relief (concave, convex, none): _____
 Slope (%): 1-2 Lat: 42°18'33" Long: -87°52'21" Datum: NAD83

Soil Map Unit Name: PEATONE SILTY CLAY LOAM NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. <u>POPULUS DELTOIDES</u> | <u>10</u> | <u>Y</u> | <u>1</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. <u>ACER NEGUNDO</u> | <u>4</u> | <u>N</u> | <u>-2</u> | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. _____ | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>33%</u> (A/B) |
| 4. _____ | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>21</u> x 2 = <u>42</u> FAC species <u>28</u> x 3 = <u>84</u> FACU species <u>42</u> x 4 = <u>168</u> UPL species <u>9</u> x 5 = <u>45</u> Column Totals: <u>100</u> (A) <u>339</u> (B) Prevalence Index = B/A = <u>3.39</u> |
| 5. _____ | | | | |
| <u>14</u> = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>36</u> | <u>Y</u> | <u>3</u> | |
| 2. <u>CORNUS RACEMOSA</u> | <u>4</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>CORNUS STOLONIFERA</u> | <u>3</u> | <u>N</u> | <u>-4</u> | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| <u>43</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>POA PRATENSIS</u> | <u>12</u> | <u>Y</u> | <u>1</u> | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>DAUCUS CAROTA</u> | <u>9</u> | <u>N</u> | <u>5</u> | |
| 3. <u>VITIS RIPARIA</u> | <u>7</u> | <u>N</u> | <u>-2</u> | |
| 4. <u>SOLANUM OLIACIFOLIA</u> | <u>3</u> | <u>N</u> | <u>0</u> | |
| 5. <u>ERIGERON PHILADELPHICUS</u> | <u>3</u> | <u>N</u> | <u>-3</u> | |
| 6. <u>LACTUCA CANADENSIS</u> | <u>3</u> | <u>N</u> | <u>2</u> | |
| 7. <u>ASTER SAGITIFOLIUS DRUM.</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 8. <u>PARTHENISSUS QUINQUEFOLIA</u> | <u>3</u> | <u>N</u> | <u>-1</u> | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| <u>43</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 1-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|----|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-4 | 10YR 2/1 | 50 | | | | | SCL | granular |
| | 10YR 2/2 | 50 | | | | | | |
| 4-15 | 2.5Y 5/3 | 100 | | | | | SC | blocky |
| >15 | 10YR 4/6 | 90 | 10YR 6/1 | 10 | | | SC | blocky |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

Water Table Present? Yes _____ No Depth (inches): _____

Saturation Present? Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 1-4
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: Sec's 6 and 7 T. 44N. R. 12E
 Landform (hillslope, terrace, etc.): STREAMBANK-FLOODWAY Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 42°18'32" Long: -87°52'21" Datum: NAD83
 Soil Map Unit Name: PEATONE SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|-------------------|------------------|--|-------------------|--|--------------|--|-------------|-----------|-------|-----------|--------------|-----------|-------|------------|-------------|-----------|-------|-----------|--------------|-----------|-------|-----------|-------------|--|-------|--|----------------|---------------|--|----------------|--------------------------------------|--|--|--|
| 1. <u>FRAXINUS PENNSYLVANICA SUB.</u> | <u>11</u> | <u>N</u> | <u>0</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. <u>ACER NEGUNDO</u> | <u>11</u> | <u>N</u> | <u>-2</u> | Total Number of Dominant Species Across All Strata: <u>2</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100%</u> (A/B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>22</u> = Total Cover | | | | Prevalence Index worksheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Total % Cover of:</td> <td style="width:10%;"></td> <td style="width:10%;">Multiply by:</td> <td style="width:50%;"></td> </tr> <tr> <td>OBL species</td> <td align="center"><u>20</u></td> <td>x 1 =</td> <td align="center"><u>20</u></td> </tr> <tr> <td>FACW species</td> <td align="center"><u>50</u></td> <td>x 2 =</td> <td align="center"><u>100</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>15</u></td> <td>x 3 =</td> <td align="center"><u>45</u></td> </tr> <tr> <td>FACU species</td> <td align="center"><u>14</u></td> <td>x 4 =</td> <td align="center"><u>56</u></td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>99</u> (A)</td> <td></td> <td align="center"><u>221</u> (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>2.23</u></td> </tr> </table> | Total % Cover of: | | Multiply by: | | OBL species | <u>20</u> | x 1 = | <u>20</u> | FACW species | <u>50</u> | x 2 = | <u>100</u> | FAC species | <u>15</u> | x 3 = | <u>45</u> | FACU species | <u>14</u> | x 4 = | <u>56</u> | UPL species | | x 5 = | | Column Totals: | <u>99</u> (A) | | <u>221</u> (B) | Prevalence Index = B/A = <u>2.23</u> | | | |
| Total % Cover of: | | Multiply by: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OBL species | <u>20</u> | x 1 = | <u>20</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACW species | <u>50</u> | x 2 = | <u>100</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAC species | <u>15</u> | x 3 = | <u>45</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACU species | <u>14</u> | x 4 = | <u>56</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UPL species | | x 5 = | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Column Totals: | <u>99</u> (A) | | <u>221</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prevalence Index = B/A = <u>2.23</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. <u>SALIX NIGRA</u> | <u>4</u> | <u>N</u> | <u>-5</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>4</u> = Total Cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Herb stratum (Plot size: _____) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>39</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. <u>LYTHRUM SALICARIA</u> | <u>13</u> | <u>Y</u> | <u>-5</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. <u>ASTER SAGITIFOLIA DRUM.</u> | <u>7</u> | <u>N</u> | <u>3</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. <u>STELLARIA MEDIA</u> | <u>7</u> | <u>N</u> | <u>3</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <u>POA PRATENSIS</u> | <u>4</u> | <u>N</u> | <u>1</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. <u>ASTER SIMPLEX</u> | <u>3</u> | <u>N</u> | <u>-5</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>73</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 1-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|--|-----|----------------|---|-------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-3 | 10YR 3/1 | 50 | | | | SCL | |
| | 10YR 4/1 | 50 | | | | | |
| 3-10 | 10YR 5/1 | 100 | | | | SCL | |
| 10-15 | (Unconsolidated material - not retrievable) | | | | | | |
| >15 | 10YR 2/1 / 4/1 (silty/sandy deposition w/ organic streaking) | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input checked="" type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input checked="" type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks: Collapsed bank

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 9

Saturation Present? Yes No Depth (inches): 5

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area next to stream.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 10/1/09
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: 1-5
 Investigator(s): DAVID JOHANNESON Section, Township, Range: SEC 5 G AND 7 T - 44W R-12E
 Landform (hillslope, terrace, etc.): SWALE - EDGE OF FLOODPLAIN Local relief (concave, convex, none): CONCAVE
 Slope (%): 0% Lat: 42°18'32" Long: -87°52'28" Datum: NAD83
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No

Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | | | | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | | | | Total Number of Dominant Species Across All Strata: <u>1</u> (B) |
| 3. _____ | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 4. _____ | | | | |
| 5. _____ | | | | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: |
| 1. _____ | | | | Total % Cover of: _____ Multiply by: _____ |
| 2. _____ | | | | OBL species <u>37</u> x 1 = <u>37</u> |
| 3. _____ | | | | FACW species <u>62</u> x 2 = <u>124</u> |
| 4. _____ | | | | FAC species _____ x 3 = _____ |
| 5. _____ | | | | FACU species _____ x 4 = _____ |
| _____ = Total Cover | | | | UPL species _____ x 5 = _____ |
| | | | | Column Totals: <u>99</u> (A) <u>161</u> (B) |
| | | | | Prevalence Index = B/A = <u>1.62</u> |
| Herb stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: |
| 1. <u>PHALARIS ARUNDAINACEA</u> | <u>62</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: |
| 2. <u>TYPHA ANGUSTIFOLIA</u> | <u>21</u> | <u>N</u> | <u>-5</u> | <input checked="" type="checkbox"/> Dominance Test is >50% |
| 3. <u>SALIX INTERIOR</u> | <u>6</u> | <u>N</u> | <u>-5</u> | <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 |
| 4. <u>ELDOCKHARIS ERYTHROPODA</u> | <u>6</u> | <u>N</u> | <u>-5</u> | _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 5. <u>LYTHRUM SALICARIA</u> | <u>4</u> | <u>N</u> | <u>-5</u> | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| <u>99</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 1-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---|------|----------------------------------|---|-------------------|------------------|---------|------------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-12 | 10YR 3/3 - 3/1 | 100% | | | | | SCL | |
| 12-20 | 10YR 5/4 | 80 | 10YR 2/1 (f.f) | 1 | | | | |
| | 10YR 6/6 | 10 | | | | | | |
| | 10YR 6/1 | 10 | | | | | | |
| 20-28 | 10YR 5/4 | 90 | 10YR 7/1, 8 } surrounding matrix | | | | | ← redox concentrations |
| | | | 10YR 6/2 } | | | | | |
| 28-32 | (same as 20-28, but at increasing carbonate (10YR 8/1)) | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)
- carbonates below 20"
- clear wetland hydrology indicators

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tiled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 10/1/89
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: Z-1
 Investigator(s): DAVID JOHANNSEN - CWS-33 Section, Township, Range: SECS 6 and 7, T-44N R-12E
 Landform (hillslope, terrace, etc.): EDGE OF FLOODPLAIN Local relief (concave, convex, none): _____
 Slope (%): 0-1 Lat: 42°18'33" Long: 87°52'28" Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Prevalence Index worksheet: | | | | |
| Total % Cover of: _____ Multiply by: _____ | | | | |
| OBL species <u>0</u> x 1 = <u>0</u> | | | | |
| FACW species <u>24</u> x 2 = <u>48</u> | | | | |
| FAC species <u>48</u> x 3 = <u>144</u> | | | | |
| FACU species <u>3</u> x 4 = <u>12</u> | | | | |
| UPL species <u>24</u> x 5 = <u>120</u> | | | | |
| Column Totals: <u>99</u> (A) <u>324</u> (B) | | | | |
| Prevalence Index = B/A = <u>3.27</u> | | | | |
| Hydrophytic Vegetation Indicators: | | | | |
| ____ Dominance Test is >50% | | | | |
| ____ Prevalence Index is ≤ 3.0 | | | | |
| ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | |
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO LAKE Sampling Date: 10/1/09
 Applicant/Owner: GREAT LAKES NAVY BASE State IL Sampling Point: 2-2
 Investigator(s): DAVID JUHANNESEN Section, Township, Range: SEC 5 GARD 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): VERY SLIGHT DEPRESSION Local relief (concave, convex, none): _____
 Slope (%): 0% Lat: 42° 18' 33" Long: -87° 52' 28" Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: <u>Contains elements of fill. Compaction evident.</u> | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>1</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>52</u> x 2 = <u>104</u> FAC species <u>32</u> x 3 = <u>96</u> FACU species <u>6</u> x 4 = <u>6</u> UPL species <u>11</u> x 5 = <u>55</u> Column Totals: <u>101</u> (A) <u>281</u> (B) Prevalence Index = B/A = <u>2.54</u> |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>52</u> | <u>N</u> | <u>4</u> | |
| 2. <u>POA PRATENSIS</u> | <u>29</u> | <u>N</u> | <u>1</u> | |
| 3. <u>DIPSACUS LACINIATUS</u> | <u>8</u> | <u>N</u> | <u>5</u> | |
| 4. <u>SOLIDAGO CANADENSIS</u> | <u>6</u> | <u>N</u> | <u>3</u> | |
| 5. <u>SOLIDAGO GRAMINIFOLIA NUT.</u> | <u>3</u> | <u>N</u> | <u>0</u> | |
| 6. <u>CIRSIMUM ARVENSE</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>101</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|----------------------------------|------|----------------------------------|---|-------------------|---------|------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-12 | 10YR ^{2.5} ₃ | 40 | 10YR ^{2.5} ₅ | 3 | | SCL | oxidized root |
| | 10YR ^{2.5} ₄ | 45 | 10YR ⁵ ₄ | 2 | | | channels evident |
| 12-28 | 10YR ³ ₂ | 60 | 10YR ⁵ ₄ | 2 | | | stripped matrix |
| | 10YR ² ₄ | 30 | | | | SL | |
| | 10YR ⁶ ₄ | 10 | | | | | |
| 28-30 | N2.5 | 100% | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

Gleying/mottling
 Stripped matrix (2)(2")

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) (~28") | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 24

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVY BASE State IL Sampling Point: 3.7
 Investigator(s): DAVID JOHANNES - CWS-33 Section, Township, Range: SECS 667, T-44N, R-12E
 Landform (hillslope, terrace, etc.): shallow W-FACING SLOPE Local relief (concave, convex, none): NONE
 Slope (%): 1-2 Lat: 42°18'33" Long: -87°52'31" Datum: WGS84
 Soil Map Unit Name: ORTHEUS NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>33</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>10</u> | <u>N</u> | <u>3</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>17</u> x 2 = <u>34</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>31</u> x 4 = <u>124</u> UPL species <u>31</u> x 5 = <u>155</u> Column Totals: <u>101</u> (A) <u>375</u> (B) Prevalence Index = B/A = <u>3.71</u> |
| 2. <u>ELEAGINUS UMBELLATUS</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 3. <u>RUBUS OCCIDENTALIS</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 4. <u>CORNUS RACEMOSA</u> | <u>2</u> | <u>N</u> | <u>-2</u> | |
| 5. _____ | _____ | _____ | _____ | |
| <u>17</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>SOLIDAGO CANADENSIS</u> | <u>21</u> | <u>Y</u> | <u>3</u> | Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |
| 2. <u>DIPSACUS LACINIATUS</u> | <u>20</u> | <u>Y</u> | <u>5</u> | |
| 3. <u>SOLIDAGO GRAMINIFOLIA NUTTAL.</u> | <u>14</u> | <u>Y</u> | <u>0</u> | |
| 4. <u>HELEANTHUS GROSSESPERATUS</u> | <u>10</u> | <u>N</u> | <u>-2</u> | |
| 5. <u>GEUM CANADENSIS</u> | <u>6</u> | <u>N</u> | <u>0</u> | |
| 6. <u>PHALARIS ARUNDINACEAE</u> | <u>5</u> | <u>N</u> | <u>-4</u> | |
| 7. <u>EPILOBIUM COLORATUM</u> | <u>2</u> | <u>N</u> | <u>-5</u> | |
| 8. <u>DAUCUS CAROTA</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 9. <u>CIRSIIUM ARVENSE</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 10. <u>ASTR PILOSUS</u> | <u>2</u> | <u>N</u> | <u>2</u> | |
| <u>84</u> = Total Cover | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | |

SOILS

Sampling Point: 3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|----|-------------------|------------------|---------|---|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-12 | 10YR2.5/1 | 100 | | | | | SCL | GRANULAR |
| 12-22 | 10YR2.5/1 | 90 | 10YR5.2 | 10 | | | SCL | GRANULAR (OXIDIZED ROOT CHANNELS) |
| 22-30 | 10YR5/4 | 40 | 10YR5.4 | 60 | | | SC | BLOCKY w/ CONCRETIONS |
| | | | 10YR2.5/1 | 2 | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| | | | |
|---|---|---|---|
| Hydric Soil Indicators: | | Indicators for Problematic Hydric Soils³: | |
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Coast Prairie redox (A16) | |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Iron-Manganese Masses (F12) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Other (Explain in Remarks) | |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | | |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | | |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) | | |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | | | |

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

| | | | |
|--|--|--|--|
| Primary Indicators (minimum of one is required: check all that apply) | | Secondary Indicators (minimum of two required) | |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) | |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) | |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) | |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) | |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) | |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) | |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) | |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) | |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): 26

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 3-2
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 6&7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): FLAT
 Slope (%): 0% Lat: 42°18'33" Long: -87°52'31" Datum: WGS84
 Soil Map Unit Name: ORTHEUS NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>1</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>90</u> x 1 = <u>90</u> FACW species <u>6</u> x 2 = <u>12</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>102</u> (A) <u>123</u> (B) Prevalence Index = B/A = <u>1.21</u> |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>1</u> | <u>N</u> | <u>3</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>1</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>TYPHA ANGUSTIFOLIA</u> | <u>52</u> | <u>Y</u> | <u>-5</u> | |
| 2. <u>LYTHRUM SALICARIA</u> | <u>29</u> | <u>N</u> | <u>-5</u> | |
| 3. <u>CAREX VULPINOIDEA</u> | <u>8</u> | <u>N</u> | <u>-5</u> | |
| 4. <u>RYALARIS ARUNDINACEA</u> | <u>3</u> | <u>N</u> | <u>-4</u> | |
| 5. <u>HAEANTHUS GROSSESERRATUS</u> | <u>3</u> | <u>N</u> | <u>-2</u> | |
| 6. <u>SOLIDAGO GRAMINIFOLIA NUT.</u> | <u>3</u> | <u>N</u> | <u>0</u> | |
| 7. <u>ASTER SIMPLEX</u> | <u>1</u> | <u>N</u> | <u>-5</u> | |
| 8. <u>GEUM CANADENSE</u> | <u>1</u> | <u>N</u> | <u>0</u> | |
| 9. <u>DIPSACUS LACINIATUS</u> | <u>1</u> | <u>N</u> | <u>5</u> | |
| 10. _____ | _____ | _____ | _____ | |
| <u>101</u> = Total Cover | | | | |
| Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | |
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 3-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|----|----------------|---|-------------------|------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-15 | 10YR 3/2 | 95 | 10YR 2 1/2 | 5 | | SANDY | |
| >15 | 10YR 4 1/2 | 50 | | | | SANDY-CLAY | |
| | 10YR 4 1/2 | 50 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | |
| <input checked="" type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

| Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Iron Deposits (B5) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Aquatic Fauna (B13) | |
| <input type="checkbox"/> True Aquatic Plants (B14) | |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | |
| <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | |
| <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | |
| <input type="checkbox"/> Thin Muck Surface (C7) | |
| <input type="checkbox"/> Gauge or Well Data (D9) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 12

Saturation Present? Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: STANDING WATER WAS OBSERVED A FEW FEET WEST OF THE SAMPLE SITE

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 3-3
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 6 & 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): shallow W-facing slope Local relief (concave, convex, none): _____
 Slope (%): 1-2% Lat: 42°18'36" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: ORTHEUTS NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. <u>POPULUS ALBA</u> | <u>29</u> | <u>Y</u> | <u>5</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>0</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>6</u> x 2 = <u>12</u> FAC species <u>17</u> x 3 = <u>51</u> FACU species <u>39</u> x 4 = <u>156</u> UPL species <u>39</u> x 5 = <u>195</u> Column Totals: <u>101</u> (A) <u>414</u> (B) Prevalence Index = B/A = <u>4.10</u> |
| 5. _____ | _____ | _____ | _____ | |
| Sapling/Shrub stratum (Plot size: _____) <u>29</u> = Total Cover | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>23</u> | <u>Y</u> | <u>3</u> | |
| 2. <u>CORNUS RACEMOSA</u> | <u>4</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>LONICERA TATARICA</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 4. <u>ROSA CAROLINA</u> | <u>2</u> | <u>N</u> | <u>4</u> | |
| 5. _____ | _____ | _____ | _____ | |
| _____ <u>31</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>FRAGARIA VIRGINIANA</u> | <u>10</u> | <u>Y</u> | <u>1</u> | Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |
| 2. <u>POA PRATENSIS</u> | <u>5</u> | <u>N</u> | <u>1</u> | |
| 3. <u>ASTER PILOSUS</u> | <u>5</u> | <u>N</u> | <u>2</u> | |
| 4. <u>ASTER SAGITTIFOLIUS DRUM.</u> | <u>4</u> | <u>N</u> | <u>3</u> | |
| 5. <u>TARAXACUM OFFICINALE</u> | <u>4</u> | <u>N</u> | <u>3</u> | |
| 6. <u>DAUCUS CAROTA</u> | <u>4</u> | <u>N</u> | <u>5</u> | |
| 7. <u>DIPSACUS LACINIATUS</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 8. <u>CICHORIUM INTYBUS</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 9. <u>RANUNCULUS ACRIS</u> | <u>2</u> | <u>N</u> | <u>-2</u> | |
| 10. <u>XANTHIUM STRumarium</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| _____ <u>41</u> = Total Cover | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | |

SOILS

Sampling Point: 3-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|----|----------------|----|-------------------|------------------|-----------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-8 | 10YR 3/2 | 90 | | | | | SILT LOAM | |
| | 10YR 3/1 | 10 | | | | | | |
| 8-15 | 7.5YR 4/3 | 94 | 10YR 5/6 | 5 | B | C | SILTY CLAY LOAM | |
| | | | 10YR 2/1 | 1 | coats | M, PL | | |
| >15 | 10YR 5/4 | 90 | 10YR 4/1 | 10 | coats | M, PL | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes _____ No

Remarks: SOIL COLORS AND TEXTURES ARE IRREGULAR. SAMPLED AREA IS PROBABLY FILL MATERIAL

HYDROLOGY

Wetland Hydrology Indicators:

| Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|---|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |
| | <input type="checkbox"/> Surface Soil Cracks (B6) |
| | <input type="checkbox"/> Drainage Patterns (B10) |
| | <input type="checkbox"/> Dry-Season Water Table (C2) |
| | <input type="checkbox"/> Crayfish Burrows (C8) |
| | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| | <input type="checkbox"/> Geomorphic Position (D2) |
| | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

Water Table Present? Yes _____ No Depth (inches): _____

Saturation Present? Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: 3-4
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: SEC 6 & 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 42°18'35" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: ASHKUM SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>23</u> | <u>Y</u> | <u>3</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>53</u> x 1 = <u>53</u> FACW species <u>14</u> x 2 = <u>28</u> FAC species <u>9</u> x 3 = <u>27</u> FACU species <u>23</u> x 4 = <u>92</u> UPL species _____ x 5 = _____ Column Totals: <u>99</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.02</u> |
| 2. <u>CORNUS RACEMOSA</u> | <u>11</u> | <u>N</u> | <u>-2</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>34</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>31</u> | <u>Y</u> | <u>-5</u> | Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>TYPHA ANGSTIFOLIA</u> | <u>8</u> | <u>N</u> | <u>-5</u> | |
| 3. <u>ASTER SIMPLEX</u> | <u>9</u> | <u>N</u> | <u>-5</u> | |
| 4. <u>POLYGONUM PERSICARIA</u> | <u>3</u> | <u>N</u> | <u>-4</u> | |
| 5. <u>CAREX VULPINOIDEA</u> | <u>3</u> | <u>N</u> | <u>-5</u> | |
| 6. <u>FRAGARIA VIRGINIANA</u> | <u>3</u> | <u>N</u> | <u>1</u> | |
| 7. <u>ALISMA SUBCORDATUM</u> | <u>2</u> | <u>N</u> | <u>-5</u> | |
| 8. <u>RUMEX CRISPUS</u> | <u>2</u> | <u>NN</u> | <u>-1</u> | |
| 9. <u>GEUM CAROLINENSIS</u> | <u>2</u> | <u>NN</u> | <u>0</u> | |
| 10. <u>JUNCUS DUDLEYI</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| <u>65</u> = Total Cover | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) _____ | | | | |

SOILS

Sampling Point: 3-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|----|----------------|---|-------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-12 | 10YR 4/1 | 45 | 10YR 5/3 | 5 | | SCL | |
| | 10YR 3/1 | 50 | | | | | |
| 12-20 | 10YR 5/2 | 60 | | | | SCL | |
| | 10YR 5/4 | 40 | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tiled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No _____ Depth (inches): _____
 Water Table Present? Yes No _____ Depth (inches): 20
 Saturation Present? Yes No _____ Depth (inches): 12

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: *DATAPOINT IS LOCATED 3' EAST OF FLOWING WATER IN DITCH

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 3-5
 Investigator(s): DAVID JOHANNESEN CWS-33 Section, Township, Range: SEC'S 6&7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): SHALLOW SLOPE Local relief (concave, convex, none): NONE
 Slope (%): 0-2 Lat: 42°18'42" Long: 87°52'32" Datum: WGS84
 Soil Map Unit Name: ORTHEMS NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. <u>POPULUS ALBA</u> | 17 | Y | 5 | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) |
| | 17 = Total Cover | | | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| Sapling/Shrub stratum (Plot size: _____) | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>0%</u> (A/B) |
| 1. <u>RHAMNUS CATHARTICA</u> | 25 | Y | 3 | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>6</u> x 2 = <u>12</u> FAC species <u>6</u> x 3 = <u>18</u> FACU species <u>17</u> x 4 = <u>68</u> UPL species <u>12</u> x 5 = <u>60</u> Column Totals: <u>41</u> (A) <u>158</u> (B) Prevalence Index = B/A = <u>3.85</u> |
| 2. <u>CORNUS RACEMOSA</u> | 2 | N | -2 | |
| | 27 = Total Cover | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>DIPSACUS LACINIATUS</u> | 9 | N | 5 | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |
| 2. <u>SOLIDAGO CANADENSIS</u> | 5 | N | 3 | |
| 3. <u>ASTER PILOSUS</u> | 5 | N | 2 | |
| 4. <u>PHALARIS ARUNDINACEAE</u> | 4 | N | -4 | |
| 5. <u>POA PRATENSIS</u> | 3 | N | 1 | |
| 6. <u>DAUCUS CAROTA</u> | 3 | N | 5 | |
| 7. <u>FESTUCA FLATIOR</u> | 3 | N | 2 | |
| 8. <u>LACTUCA CANADENSIS</u> | 3 | N | 2 | |
| 9. <u>GEUM CANADENSIS</u> | 3 | N | 0 | |
| 10. <u>MORILLOTUS ALBA</u> | 2 | N | 3 | |
| 11. <u>FRAGARIA VIRGINIANA</u> | 2 | N | 1 | |
| 12. <u>SOLIDAGO GRAMINIFOLIA NUT.</u> | 2 | N | 0 | |
| 13. <u>CICORIUM INTIBUS</u> | 2 | N | 5 | |
| 14. <u>CIRSIIUM ARVENSE</u> | 2 | N | 5 | |
| 15. <u>ASCEPIAS SYRIACA</u> | 2 | N | 5 | |
| 16. <u>TARAXACUM OFFICINALE</u> | 2 | N | 3 | |
| | 52 = Total Cover | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 3-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|------------------|-------|------------------|-----|-------------------|------------------|---------|----------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-8 | 10YR 3/2 / 3/1 | 60/40 | | | | | | silty clay |
| 8-12 | 10YR 3/2 | 95 | 10YR 7/1 | 5 | | | | scuffed gravel |
| 12-24 | 10YR 4/3 | 90 | 10YR 7/1 | 10 | | | | |
| 24-30 | 10YR 4 1/2 - 5/3 | 40/60 | 10YR 7/1 | 2 | | | | |
| 30-36 | 10YR 3/3 | 90 | 10YR 4 1/2 / 3/1 | 8/2 | | | | |
| 36-40 | 10YR 3/1 / 3/3 | 30/40 | 10YR 8/1 | 20% | | | | Clay w/ sand |
| | | | 10YR 6/4 | 2 | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____
Water Table Present? Yes _____ No _____ Depth (inches): _____
Saturation Present? Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: _____ Sampling Point: 3-6
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 687, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 42°18'42" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: ASHKUM SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>9</u> | <u>N</u> | <u>3</u> | OBL species <u>40</u> x 1 = <u>40</u> |
| 2. <u>CORNUS RACEMOSA</u> | <u>5</u> | <u>N</u> | <u>2</u> | FACW species <u>34</u> x 2 = <u>68</u> |
| 3. <u>ROSA MULTIFLORA</u> | <u>3</u> | <u>N</u> | <u>3</u> | FAC species <u>0</u> x 3 = <u>0</u> |
| 4. <u>SALIX DISCOLOR</u> | <u>3</u> | <u>N</u> | <u>3</u> | FACU species <u>21</u> x 4 = <u>84</u> |
| 5. <u>LONICERA TATARICA</u> | <u>3</u> | <u>N</u> | <u>5</u> | UPL species <u>6</u> x 5 = <u>30</u> |
| <u>23</u> = Total Cover | | | | Column Totals: <u>101</u> (A) <u>222</u> (B) |
| Herb stratum (Plot size: _____) | | | | Prevalence Index = B/A = <u>2.20</u> |
| 1. <u>TYPHA ANGSTIFOLIA</u> | <u>37</u> | <u>Y</u> | <u>5</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>PHALARIS ARUNDINACEA</u> | <u>23</u> | <u>Y</u> | <u>4</u> | |
| 3. <u>SOLIDAGO CANADENSIS</u> | <u>6</u> | <u>N</u> | <u>3</u> | |
| 4. <u>ASTER NOVAE-ANGLIAE</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 5. <u>LYTHRUM SALICARIA</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 6. <u>ASTER SAGITIFOLIA DRUM</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 7. <u>DIPSACUS LACINIATUS</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>78</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: **3-6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|----------|---------------------------|-----|-------------------|------------------|-----------|-----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-3 | 10YR 2/1 | 3/1 100% | | | | | organic | D-horizon |
| 3-12 | 10YR 2/1 | 3/1 90% | 10YR 5/6 | 10% | | | SCL | |
| 12-24 | 10YR 4/2 | 98% | 10YR 3/1 (1-8 mm nodules) | | 2% | | sand/clay | |
| 24-30 | 10YR 6/1 | 40% | | | | | | |
| | 10YR 4/6 | 60% | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|---|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input checked="" type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input checked="" type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 22

Saturation Present? Yes No Depth (inches): 12

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 3-7
 Investigator(s): DAVID JOHANSSON Section, Township, Range: SEC'S 6&7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): SHALLOW N-FACING SLOPE Local relief (concave, convex, none): NONE
 Slope (%): 1-2 Lat: 42° 18' 52" Long: -87° 52' 32" Datum: NAD 83
 Soil Map Unit Name: ORTHOPTS NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ___ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes No ___
 Are vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes ___ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No ___ Wetland Hydrology Present? Yes ___ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes ___ No <input checked="" type="checkbox"/> |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|---|
| 1. <u>POPULUS ALBA</u> | <u>8</u> | <u>N</u> | <u>5</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>4</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>19</u> x 2 = <u>38</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>46</u> x 4 = <u>184</u> UPL species <u>8</u> x 5 = <u>40</u> Column Totals: <u>103</u> (A) <u>352</u> (B) Prevalence Index = B/A = <u>3.42</u> |
| 5. _____ | _____ | _____ | _____ | |
| <u>8</u> = Total Cover | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>10</u> | <u>N</u> | <u>3</u> | |
| 2. <u>CORNUS RACEMOSA</u> | <u>6</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>ROSA MULTIFLORA</u> | <u>6</u> | <u>N</u> | <u>3</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>22</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | _____ | _____ | _____ | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 1. <u>ASTER PILOSUS</u> | <u>19</u> | <u>Y</u> | <u>2</u> | |
| 2. <u>ALLIARIA PETIOLATA</u> | <u>13</u> | <u>Y</u> | <u>0</u> | |
| 3. <u>XANTHIUM STRAMARIUM</u> | <u>12</u> | <u>Y</u> | <u>0</u> | |
| 4. <u>SOLIDAGO CANADENSIS</u> | <u>11</u> | <u>Y</u> | <u>3</u> | |
| 5. <u>PHALARIS ARUNDINACEAE</u> | <u>8</u> | <u>N</u> | <u>-4</u> | |
| 6. <u>POA PRATENSIS</u> | <u>5</u> | <u>N</u> | <u>1</u> | |
| 7. <u>HELIANTHUS GROSSESERRATUS</u> | <u>5</u> | <u>N</u> | <u>-2</u> | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>73</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes ___ No <input checked="" type="checkbox"/> |
| Remarks: (Include photo numbers here or on a separate sheet.) _____ _____ | | | | |

SOILS

Sampling Point: 3-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|---|--------------------------|---|-------------------|---------|-----------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-14 | 10YR 2/1 | | (NOTE - CINDERS PRESENT) | | | SCL | coarse granular |
| 14-20 | 10YR 4/1 | | | | | SCL | blocky |
| 20-26 | 10YR 4/3 | | | | | SC | blocky |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|---|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks: UNSPECIFIED FILL MATERIAL PRESENT. APPEARS TO BE CINDERS.

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/21/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 3-8
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SEC'S 627, T-44N R-12E
 Landform (hillslope, terrace, etc.): EPHOMERAL STREAM Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 42°18'52" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: ASHKUM SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. <u>ACER SACCHARINUM</u> | <u>32</u> | <u>Y</u> | <u>-3</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>32</u> = Total Cover | | | | Prevalence Index worksheet: |
| Sapling/Shrub stratum (Plot size: _____) | | | | Total % Cover of: _____ Multiply by: _____ |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>8</u> | <u>N</u> | <u>3</u> | OBL species <u>4</u> x 1 = <u>4</u> |
| 2. <u>CORNUS RACEMOSA</u> | <u>3</u> | <u>N</u> | <u>-2</u> | FACW species <u>62</u> x 2 = <u>124</u> |
| 3. <u>RHAMNUS FRANGULA</u> | <u>3</u> | <u>N</u> | <u>-2</u> | FAC species <u>19</u> x 3 = <u>57</u> |
| 4. _____ | _____ | _____ | _____ | FACU species <u>12</u> x 4 = <u>48</u> |
| 5. _____ | _____ | _____ | _____ | UPL species <u>3</u> x 5 = <u>15</u> |
| <u>14</u> = Total Cover | | | | Column Totals: <u>100</u> (A) <u>248</u> (B) |
| | | | | Prevalence Index = B/A = <u>2.48</u> |
| Herb stratum (Plot size: _____) | | | | Hydrophytic Vegetation Indicators: |
| 1. <u>RHIZANTHUS ARIANINACEAE</u> | <u>24</u> | <u>Y</u> | <u>-4</u> | <input checked="" type="checkbox"/> Dominance Test is >50% |
| 2. <u>SOLANUM DULCAMARA</u> | <u>10</u> | <u>N</u> | <u>0</u> | <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 |
| 3. <u>ALLIARIA PETIOLATA</u> | <u>6</u> | <u>N</u> | <u>0</u> | _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 4. <u>ELEOCHARIS ERYTHROPODA</u> | <u>4</u> | <u>N</u> | <u>-5</u> | |
| 5. <u>ASTER PILOSUS</u> | <u>4</u> | <u>N</u> | <u>2</u> | |
| 6. <u>USTIS RIPARIA</u> | <u>3</u> | <u>N</u> | <u>-2</u> | |
| 7. <u>DIPSACUS CACINIATUS</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>54</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 3-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|----|----------------|---|---------------------|--------------------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-5 | 10YR 2/1 | | | | | SCL w/ sand and organics | |
| 5-16 | 10YR 4/2 | 90 | 10YR 5/6 | 5 | | sand/clay | |
| | | | 10YR 2/1 | 2 | (organic streaking) | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | |
| <input checked="" type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input checked="" type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
 Type: _____
 Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|---|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True-Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input checked="" type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

| | | |
|------------------------|--|-----------------------|
| Surface Water Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ |
| Water Table Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ |
| Saturation Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ |

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: AREA IS AN EPHEMERAL STREAMBED W/ WELL DEFINED BANKS. WAS DRY AT TIME OF OBSERVATIONS.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State IL Sampling Point: 4-1
 Investigator(s): DAVID JOHANNESSEN, CWS-33 Section, Township, Range: SEC'S 6 & 7 T-44N, R-12E
 Landform (hillslope, terrace, etc.): COMPACTED FILL Local relief (concave, convex, none): NONE
 Slope (%): 0-1 Lat: 42°18'52" Long: -87°52'31" Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
|--|--|

Remarks:

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | | | | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| = Total Cover | | | | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| Sapling/Shrub stratum (Plot size: _____) | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>33%</u> (A/B) |
| 1. <u>POPULUS DELTOIDES</u> | <u>16</u> | <u>Y</u> | <u>-1</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>8</u> x 2 = <u>16</u> FAC species <u>21</u> x 3 = <u>63</u> FACU species <u>22</u> x 4 = <u>88</u> UPL species <u>48</u> x 5 = <u>240</u> Column Totals: <u>99</u> (A) <u>407</u> (B) Prevalence Index = B/A = <u>4.11</u> |
| 2. <u>RHAMNUS CATHARTICA</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 3. <u>ELAEAGNUS sp.</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 4. <u>RHAMNUS FRANGULA</u> | <u>3</u> | <u>N</u> | <u>1</u> | |
| 5. <u>ROBINIA PSEUDOACACIA</u> | <u>2</u> | <u>N</u> | <u>4</u> | |
| <u>27</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 1. <u>DIPSACUS LACINIATUS</u> | <u>20</u> | <u>Y</u> | <u>5</u> | |
| 2. <u>CIRSIMUM ARVENSE</u> | <u>20</u> | <u>Y</u> | <u>5</u> | |
| 3. <u>SOLIDAGO CANADENSIS</u> | <u>12</u> | <u>N</u> | <u>3</u> | |
| 4. <u>ASTER PILOSUS</u> | <u>5</u> | <u>N</u> | <u>2</u> | |
| 5. <u>ACER SACCHARINUM</u> | <u>4</u> | <u>N</u> | <u>-3</u> | |
| 6. <u>ASCLEPIAS SYRIACA</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 7. <u>PHACELIS ARUNDINACEA</u> | <u>2</u> | <u>N</u> | <u>-1</u> | |
| 8. <u>POA PRATENSE</u> | <u>2</u> | <u>N</u> | <u>1</u> | |
| 9. <u>HELIANTHUS GROSSEBERRATUS</u> | <u>2</u> | <u>N</u> | <u>-2</u> | |
| 10. <u>DAUCUS CAROTA</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 11. _____ | | | | |
| 12. _____ | | | | |
| 13. _____ | | | | |
| 14. _____ | | | | |
| <u>72</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 4-J

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|---------------------------|----------------|---|-------------------|---------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-10 | 10YR 2/1 | (Some gravel at 8" - 10") | | | | SCL | |
| 10-14 | 10YR 3/2 | 90 | 10YR 5/4 | 5 | | SCL | |
| | | | 7.5YR 4/4 | 3 | | | |
| | | | 2.5YR 4/6 | 1 | | | |
| 14-32 | 10YR 2/1 | 100 | | | | silt and sand | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

| | | |
|--|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | | |

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

| | | |
|--|---|--|
| Primary Indicators (minimum of one is required: check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

| | | | |
|------------------------|--|-----------------------|--|
| Surface Water Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
| Water Table Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ | |
| Saturation Present? | Yes _____ No <input checked="" type="checkbox"/> | Depth (inches): _____ | |

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: PROBABLY SUBJECT TO ARTIFICIAL DRAINAGE

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/22/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 4-2
 Investigator(s): DAVID JOHANNESSEN, CWS-33 Section, Township, Range: Sec's 6&7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 41°18'52" Long: -87°52'31" Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | Prevalence Index worksheet: |
| Sapling/Shrub stratum (Plot size: _____) | | | | Total % Cover of: _____ Multiply by: _____ |
| 1. <u>POPULUS DELTOIDES</u> | <u>7</u> | <u>N</u> | <u>-1</u> | OBL species <u>0</u> x 1 = <u>0</u> |
| 2. <u>RHAMNUS FRANGULA</u> | <u>5</u> | <u>N</u> | <u>-1</u> | FACW species <u>40</u> x 2 = <u>80</u> |
| 3. <u>ROBINIA PSEUDOACACIA</u> | <u>4</u> | <u>N</u> | <u>4</u> | FAC species <u>27</u> x 3 = <u>81</u> |
| 4. <u>ACER SACCHARINUM</u> | <u>3</u> | <u>N</u> | <u>-3</u> | FACU species <u>21</u> x 4 = <u>84</u> |
| 5. <u>FRAXINUS PENNSYLVANICA SUB</u> | <u>3</u> | <u>N</u> | <u>0</u> | UPL species <u>9</u> x 5 = <u>45</u> |
| <u>22</u> = Total Cover | | | | Column Totals: <u>97</u> (A) <u>290</u> (B) |
| | | | | Prevalence Index = B/A = <u>2.98</u> |
| Herb stratum (Plot size: _____) | | | | Hydrophytic Vegetation Indicators: |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>37</u> | <u>Y</u> | <u>-4</u> | _____ Dominance Test is >50% |
| 2. <u>SOLIDAGO CANADENSIS</u> | <u>15</u> | <u>Y</u> | <u>3</u> | <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 |
| 3. <u>DIPLODENDON LACINIATUS</u> | <u>1</u> | <u>N</u> | <u>5</u> | _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 4. <u>XANTHIUM STRumarium</u> | <u>5</u> | <u>N</u> | <u>0</u> | |
| 5. <u>ALCIARIA PETIOLATA</u> | <u>5</u> | <u>N</u> | <u>0</u> | |
| 6. <u>OENOTHERA BIENNIS</u> | <u>2</u> | <u>N</u> | <u>3</u> | |
| 7. <u>CIRSIIUM ARVENSE</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 8. <u>NEPETA CATARIA</u> | <u>2</u> | <u>N</u> | <u>1</u> | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>75</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 4-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|----------------------------------|-----|----------------------------------|---|-------------------------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-10 | 10YR ² / ₁ | 100 | | | | | SCL | granular |
| 10-20 | 10YR ² / ₁ | 95 | 10YR ³ / ₁ | 4 | (coarse carbonates 5-10mm diameter) | | | |
| 20-28 | 10YR ³ / ₁ | 95 | 10YR ⁵ / ₄ | 5 | (nodules up to 10mm in diameter) | | | |
| | | | | | Sandy loam | | | |
| 28-34 | 10YR ⁴ / ₄ | | | | SC | | | blocky |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histoc Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/28/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State IL Sampling Point: 5-1
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: SEC'S 637, T-44N, R-12E
 Landform (hillslope, terrace, etc.): FLOODWAY Local relief (concave, convex, none): CONCAVE
 Slope (%): 0-1 Lat: 42°18'54" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: WAUCONDA & FRANKFORT SILT LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>0</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>23</u> x 2 = <u>46</u> FAC species <u>11</u> x 3 = <u>33</u> FACU species <u>26</u> x 4 = <u>104</u> UPL species <u>41</u> x 5 = <u>205</u> Column Totals: <u>101</u> (A) <u>388</u> (B) Prevalence Index = B/A = <u>3.84</u> |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RUBUS OCCIDENTALIS</u> | <u>41</u> | <u>Y</u> | <u>5</u> | |
| 2. <u>CORNUS RACEMOSA</u> | <u>6</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>ULMUS RUBRA</u> | <u>5</u> | <u>N</u> | <u>0</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>52</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>SOLIDAGO CANADENSIS</u> | <u>26</u> | <u>Y</u> | <u>3</u> | |
| 2. <u>SOLIDAGO GRAMINIFOLIA NUT.</u> | <u>6</u> | <u>N</u> | <u>-2</u> | |
| 3. <u>VITIS RIPARIA</u> | <u>6</u> | <u>N</u> | <u>-2</u> | |
| 4. <u>ALLIARIA PETIOLATA</u> | <u>6</u> | <u>N</u> | <u>0</u> | |
| 5. <u>SOLIDAGO GIGANTEA</u> | <u>5</u> | <u>N</u> | <u>-3</u> | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>49</u> = Total Cover | | | | |
| Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | |
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: S-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|-----------------------------------|-----|-----------------------------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-20 | 10YR2 ¹ / ₁ | 100 | | | | | SCL | granular |
| 20-27 | 10YR3 ¹ / ₂ | 80 | 10YR4 ¹ / ₃ | 5 | | | SCL | blocky |
| | 10YR2 ¹ / ₁ | 25 | | | | | | |
| 27-32 | 10YR4 ¹ / ₂ | 85 | | | | | SCL | blocky |
| | 10YR4 ¹ / ₁ | 15 | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tiled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SUBJECT TO ARTIFICIAL DRAINAGE

SOILS

Sampling Point: S-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|-----------------------------------|-----|----------------------------------|---|-------------------|------------------|---------|-------------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-6 | 10YR ² / ₁ | 95 | (gravel) | 5 | | | SCL | loose, granular - lots of gravel |
| 6-14 | 10YR ² / ₁ | 100 | | | | | SCL | granular |
| 14-22 | 7.5YR ⁴ / ₂ | 98 | 10YR ⁴ / ₄ | 2 | | | | blocky ↖ mostly around roots |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tiled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO / LAKE Sampling Date: 9/28/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 6-1
 Investigator(s): DAVID JOHANNES CWS-33 Section, Township, Range: SECS 6 & 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): FLOODPLAIN / FLOODWAY Local relief (concave, convex, none): NONE
 Slope (%): 0-1 Lat: 42°18'58" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: WAUKONDA & FRANKFURT SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
|--|--|

Remarks: _____

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>33</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>33</u> | <u>Y</u> | <u>3</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>19</u> x 2 = <u>38</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>61</u> x 4 = <u>244</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>99</u> (A) <u>366</u> (B) Prevalence Index = B/A = <u>3.70</u> |
| 2. <u>ROSA CAROLINA</u> | <u>4</u> | <u>N</u> | <u>4</u> | |
| 3. <u>QUERCUS ALBA</u> | <u>3</u> | <u>N</u> | <u>0</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>40</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>ELYMUS CANADENSIS</u> | <u>16</u> | <u>Y</u> | <u>-1</u> | Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>SOLIDAGO CANADENSIS</u> | <u>12</u> | <u>Y</u> | <u>3</u> | |
| 3. <u>DAUCUS CAROTA</u> | <u>7</u> | <u>N</u> | <u>5</u> | |
| 4. <u>ASTER SAGITIFOLIA DRUMMONDII</u> | <u>7</u> | <u>N</u> | <u>3</u> | |
| 5. <u>TARAXACUM OFFICINALE</u> | <u>5</u> | <u>N</u> | <u>3</u> | |
| 6. <u>ASTER PILOSUS</u> | <u>5</u> | <u>N</u> | <u>5</u> | |
| 7. <u>GENTIANA ANDREWSII</u> | <u>3</u> | <u>N</u> | <u>-3</u> | |
| 8. <u>ASCLEPIAS SYRIACA</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 9. <u>MULLENBERGIA PLOMPOSA</u> | <u>1</u> | <u>N</u> | <u>-3</u> | |
| 10. _____ | _____ | _____ | _____ | |
| <u>59</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.) _____

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/28/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State IL Sampling Point: 6-2
 Investigator(s): DAVID JOHANNSEN Section, Township, Range: SEC'S 6&7, T44N, R-12E
 Landform (hillslope, terrace, etc.): FLOODWAY Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 42°18'58" Long: -87°52'32" Datum: WGS 84
 Soil Map Unit Name: WAUCONDA & FRANKFORT SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) |
| _____ = Total Cover | | | | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| Sapling/Shrub stratum (Plot size: _____) | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>67%</u> (A/B) |
| 1. <u>CORNUS RACEMOSA</u> | <u>4</u> | <u>N</u> | <u>-2</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>3</u> x 1 = <u>3</u> FACW species <u>48</u> x 2 = <u>96</u> FAC species <u>19</u> x 3 = <u>57</u> FACU species <u>21</u> x 4 = <u>84</u> UPL species <u>11</u> x 5 = <u>55</u> Column Totals: <u>102</u> (A) <u>295</u> (B) Prevalence Index = B/A = <u>2.89</u> |
| 2. <u>CORYLUS AMERICANA</u> | <u>4</u> | <u>N</u> | <u>4</u> | |
| 3. <u>FRAXINUS PENNSYLVANICA SUB.</u> | <u>3</u> | <u>N</u> | <u>0</u> | |
| 4. <u>RHAMNUS CATHARTICA</u> | <u>3</u> | <u>N</u> | <u>3</u> | |
| 5. _____ | _____ | _____ | _____ | |
| <u>14</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>31</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>ASTER PILOSUS</u> | <u>11</u> | <u>Y</u> | <u>2</u> | |
| 3. <u>HELIANTHUS GROSSIFERRATUS</u> | <u>10</u> | <u>Y</u> | <u>-2</u> | |
| 4. <u>CAREX SCANDIA</u> | <u>7</u> | <u>N</u> | <u>0</u> | |
| 5. <u>SOLIDAGO GRAMINIFOLIA NUT.</u> | <u>5</u> | <u>N</u> | <u>0</u> | |
| 6. <u>Daucus CAROTA</u> | <u>5</u> | <u>N</u> | <u>5</u> | |
| 7. <u>POA PRATENSIS</u> | <u>4</u> | <u>N</u> | <u>1</u> | |
| 8. <u>PRUNELLA VULGARIS</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 9. <u>BIDENS FRONDOSA</u> | <u>3</u> | <u>N</u> | <u>-3</u> | |
| 10. <u>CIRSIIUM ARVENSE</u> | <u>3</u> | <u>N</u> | <u>5</u> | |
| 11. <u>FESTUCA FLATIOR</u> | <u>3</u> | <u>N</u> | <u>2</u> | |
| 12. <u>ACCIPITIS INCARNATA</u> | <u>3</u> | <u>N</u> | <u>-5</u> | |
| 13. _____ | _____ | _____ | _____ | |
| 14. _____ | _____ | _____ | _____ | |
| <u>88</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 62

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-17 | 10YR2/1 | 100 | | | | | SCL | granular |
| 17-20 | 10YR5/4 | 99 | 10YR3/1 | 1 | | | SCL | |
| 20-28 | 10YR4/2 | 98 | 10YR4/6 | 2 | | | SCL | blocky |
| 28-32 | 10YR5/1 | 94 | 10YR2/1 | 1 | | | SL | ↓ |
| | | | 10YR4/4 | 4 | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Much (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO / LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 7-1
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: SEC'S 6-7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION IN FLOODWAY Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 42°19'01" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: PELLA SILTY CLAY COAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>1</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>100</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>81</u> x 2 = <u>162</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species <u>9</u> x 4 = <u>36</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>99</u> (A) <u>235</u> (B) Prevalence Index = B/A = <u>2.30</u> |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | |
| 1. <u>CORNUS RACEMOSA</u> | <u>5</u> | <u>N</u> | <u>-2</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>5</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>61</u> | <u>Y</u> | <u>-4</u> | |
| 2. <u>POLYGONUM LAPATHIFOLIUM</u> | <u>10</u> | <u>N</u> | <u>-4</u> | |
| 3. <u>SOLIDAGO CANADENSIS</u> | <u>9</u> | <u>N</u> | <u>3</u> | |
| 4. <u>HELIANTHUS GROSSSEPERATUS</u> | <u>5</u> | <u>N</u> | <u>-2</u> | |
| 5. <u>DIASACUS LACINIATUS</u> | <u>5</u> | <u>N</u> | <u>5</u> | |
| 6. <u>RUMEX CRISPS</u> | <u>4</u> | <u>N</u> | <u>-1</u> | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>94</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 7-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | Texture | Remarks |
|-------------------|---------------|----|----------------|----|-------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 0-28 | 10YR 3/1 | | | | | SCL | Granular |
| 28-32 | 10YR 3/2 | 60 | 10YR 4/6 | 40 | | SCL | Blocky |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): 25

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 7-2
 Investigator(s): DAVID JOHANNESSEN CWS-33 Section, Township, Range: SECTIONS 6 AND 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): DEPRESSION-FLOODPLAIN Local relief (concave, convex, none): NONE
 Slope (%): 0(±) Lat: 42°18'60" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: POLLA SILTY CLAY LOAM NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. <u>SALIX FRAGILIS</u> | <u>20</u> | <u>Y</u> | <u>-1</u> | Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Area OBL, FACW, or FAC: _____ (A/B) |
| 2. <u>POPULUS DELTOIDES</u> | <u>16</u> | <u>N</u> | <u>-1</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| <u>36</u> = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>63</u> x 2 = <u>126</u> FAC species <u>36</u> x 3 = <u>108</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>238</u> (B) Prevalence Index = B/A = <u>2.38</u> |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>CORNUS STOLONIFERA</u> | <u>18</u> | <u>N</u> | <u>-2</u> | |
| 2. <u>RHAMNUS CATHARTICA</u> | <u>1</u> | <u>N</u> | <u>3</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| <u>19</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>45</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| <u>45</u> = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 7-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|------|----------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-18 | 10YR2/1 | 100% | | | | | SCC | granular |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

| | |
|---|---|
| Restrictive Layer (if observed): Type: _____ Depth: _____ | Hydric Soil Present? Yes _____ No _____ |
|---|---|

Remarks: (overall, similar to D.P. 8-1)

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

| | |
|---|---|
| Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ | Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ |
|---|---|

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVAL BASE State: IL Sampling Point: 7-3
 Investigator(s): DAVID JOHANSEN Section, Township, Range: SECTIONS 6 AND 7, T.44N, R.12E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ___ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology ___ significantly disturbed? YES Are "Normal Circumstances" present? Yes No ___
 Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes ___ No ___ Hydric Soil Present? Yes ___ No ___ Wetland Hydrology Present? Yes ___ No ___ | Is the Sampled Area within a Wetland? Yes ___ No <input checked="" type="checkbox"/> |
| Remarks: <u>VEHICLE ACCESS ROUTE. COMPACTED, MINIMAL VEGETATION</u> | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: _____ (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: _____ (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: 8-1
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: Sec's 6 and 7 T-44N R-12E
 Landform (hillslope, terrace, etc.): FLOODPLAIN Local relief (concave, convex, none): NONE
 Slope (%): 0% Lat: 42°19'01" Long: -87°52'32" Datum: NAD 84
 Soil Map Unit Name: POLY SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
|--|--|

Remarks:

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|-------------------|------------------|---|-------------------|--|--------------|-------------|----------|----------------|--------------|-----------|------------------|-------------|-----------|-----------------|--------------|-----------|-----------------|-------------|----------|-----------------|----------------|---------------|----------------|--------------------------------------|--|--|
| 1. <u>ACER NIGRUM</u> | <u>4</u> | <u>N</u> | <u>-2</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>4</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>75%</u> (A/B) | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center"><u>8</u></td> <td>x 1 = <u>8</u></td> </tr> <tr> <td>FACW species</td> <td align="center"><u>54</u></td> <td>x 2 = <u>108</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species</td> <td align="center"><u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species</td> <td align="center"><u>8</u></td> <td>x 5 = <u>40</u></td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>95</u> (A)</td> <td align="center"><u>246</u> (B)</td> </tr> <tr> <td colspan="3">Prevalence Index = B/A = <u>2.59</u></td> </tr> </table> | Total % Cover of: | | Multiply by: | OBL species | <u>8</u> | x 1 = <u>8</u> | FACW species | <u>54</u> | x 2 = <u>108</u> | FAC species | <u>10</u> | x 3 = <u>30</u> | FACU species | <u>15</u> | x 4 = <u>60</u> | UPL species | <u>8</u> | x 5 = <u>40</u> | Column Totals: | <u>95</u> (A) | <u>246</u> (B) | Prevalence Index = B/A = <u>2.59</u> | | |
| Total % Cover of: | | Multiply by: | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OBL species | <u>8</u> | x 1 = <u>8</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACW species | <u>54</u> | x 2 = <u>108</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAC species | <u>10</u> | x 3 = <u>30</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACU species | <u>15</u> | x 4 = <u>60</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UPL species | <u>8</u> | x 5 = <u>40</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Column Totals: | <u>95</u> (A) | <u>246</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prevalence Index = B/A = <u>2.59</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>4</u> = Total Cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. <u>ROSA CAROLINA</u> | <u>7</u> | <u>Y</u> | <u>4</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. <u>SALIX INTERIOR</u> | <u>6</u> | <u>Y</u> | <u>-5</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. <u>CORNUS RACEMOSA</u> | <u>3</u> | <u>N</u> | <u>-2</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. <u>SAMBUCUS CANADENSIS</u> | <u>2</u> | <u>N</u> | <u>-2</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <u>RHAMNUS CATHARTICA</u> | <u>2</u> | <u>N</u> | <u>3</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>20</u> = Total Cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Herb stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>42</u> | <u>Y</u> | <u>-4</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. <u>PANICUM VIRGATUM</u> | <u>6</u> | <u>Y</u> | <u>-1</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. <u>DIPSACUS LACINIATUS</u> | <u>6</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. <u>ASTER PILOSUS</u> | <u>3</u> | <u>N</u> | <u>4</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <u>SOLIDAGO CANADENSIS</u> | <u>3</u> | <u>N</u> | <u>3</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. <u>CIRSIMUM APUENSE</u> | <u>2</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. <u>HELIANTHUS GROSSIFOLATUS</u> | <u>2</u> | <u>N</u> | <u>-2</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. <u>SOLIDAGO GRAMINIFOLIA MUT.</u> | <u>2</u> | <u>N</u> | <u>0</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. <u>ELYMUS CANADENSIS</u> | <u>2</u> | <u>N</u> | <u>1</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. <u>ASCLEPIAS INCARNATA</u> | <u>2</u> | <u>N</u> | <u>-5</u> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>71</u> = Total Cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: - 8-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-18 | 10YR 2/1 | 100 | | | | | SCL | granular |
| 18-20 | 10YR 4/3 | 98 | 10YR 3/1 | 2 | | | SCL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): 20

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/COOK Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: 8-2
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: SECS 6 and 7, T-44N R-12E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: 42°19'01" Long: -87°52'32" Datum: WGS84
 Soil Map Unit Name: PELLA SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|--|------------------|-------------------|------------------|---|-------------------------------------|
| 1. <u>SALIX FRAGILIS</u> | <u>18</u> | <u>N</u> | <u>-1</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>0</u> (B) | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>0</u> (AVB) | |
| 4. _____ | _____ | _____ | _____ | | |
| 5. _____ | _____ | _____ | _____ | | |
| | <u>18</u> | = Total Cover | | | |
| Sapling/Shrub stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>47</u> | <u>Y</u> | <u>3</u> | Total % Cover of: _____ Multiply by: _____ | |
| 2. <u>RHUS GLABRA</u> | <u>2</u> | <u>N</u> | <u>5</u> | OBL species <u>0</u> x 1 = <u>0</u> | |
| 3. <u>CONIOGATA TATARICA</u> | <u>1</u> | <u>N</u> | <u>5</u> | FACW species <u>6</u> x 2 = <u>12</u> | |
| 4. _____ | _____ | _____ | _____ | FAC species <u>18</u> x 3 = <u>54</u> | |
| 5. _____ | _____ | _____ | _____ | FACU species <u>69</u> x 4 = <u>276</u> | |
| | <u>50</u> | = Total Cover | | | UPL species <u>3</u> x 5 = <u>3</u> |
| | | | | Column Totals: <u>96</u> (A) <u>345</u> (B) | |
| | | | | Prevalence Index = B/A = <u>3.59</u> | |
| Herb stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: | |
| 1. <u>SOLIDAGO CANADENSIS</u> | <u>22</u> | <u>Y</u> | <u>3</u> | _____ Dominance Test is >50% | |
| 2. <u>HELIANTHUS GROSSEFERATUS</u> | <u>4</u> | <u>N</u> | <u>-2</u> | _____ Prevalence Index is ≤ 3.0 | |
| 3. <u>VITIS RIBBRIA</u> | <u>2</u> | <u>N</u> | <u>-2</u> | _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | |
| 4. _____ | _____ | _____ | _____ | | |
| 5. _____ | _____ | _____ | _____ | | |
| 6. _____ | _____ | _____ | _____ | | |
| 7. _____ | _____ | _____ | _____ | | |
| 8. _____ | _____ | _____ | _____ | | |
| 9. _____ | _____ | _____ | _____ | | |
| 10. _____ | _____ | _____ | _____ | | |
| | <u>28</u> | = Total Cover | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) _____ _____ _____ | | | | | |

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVY BASE State IL Sampling Point: 9-1
 Investigator(s): DAVID JOHANNESSEN - CWS-33 Section, Township, Range: SECS 6 and 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: 42°19'04" Long: -87°52'32" Datum: WGS 84
 Soil Map Unit Name: PELLE SILTY CLAY COAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | | | | | | | | | | | | | | | | |
|--|------------------|-------------------|------------------|---|-------------------|--------------|----------------------|----------------|------------------------|-----------------|-----------------------|-----------------|------------------------|------------------|-----------------------|------------------|-------------------------------|----------------|--------------------------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>33%</u> (A/B) | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>26</u></td> <td>x 2 = <u>52</u></td> </tr> <tr> <td>FAC species <u>11</u></td> <td>x 3 = <u>33</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x 5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>102</u> (A)</td> <td><u>365</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.58</u></td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species <u>0</u> | x 1 = <u>0</u> | FACW species <u>26</u> | x 2 = <u>52</u> | FAC species <u>11</u> | x 3 = <u>33</u> | FACU species <u>45</u> | x 4 = <u>180</u> | UPL species <u>20</u> | x 5 = <u>100</u> | Column Totals: <u>102</u> (A) | <u>365</u> (B) | Prevalence Index = B/A = <u>3.58</u> | |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | | | |
| OBL species <u>0</u> | x 1 = <u>0</u> | | | | | | | | | | | | | | | | | | | |
| FACW species <u>26</u> | x 2 = <u>52</u> | | | | | | | | | | | | | | | | | | | |
| FAC species <u>11</u> | x 3 = <u>33</u> | | | | | | | | | | | | | | | | | | | |
| FACU species <u>45</u> | x 4 = <u>180</u> | | | | | | | | | | | | | | | | | | | |
| UPL species <u>20</u> | x 5 = <u>100</u> | | | | | | | | | | | | | | | | | | | |
| Column Totals: <u>102</u> (A) | <u>365</u> (B) | | | | | | | | | | | | | | | | | | | |
| Prevalence Index = B/A = <u>3.58</u> | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| _____ = Total Cover | | | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>22</u> | <u>Y</u> | <u>3</u> | | | | | | | | | | | | | | | | | |
| 2. <u>LONICERA TATARICA</u> | <u>6</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | |
| 3. <u>ROSA CAROLINA</u> | <u>4</u> | <u>N</u> | <u>4</u> | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| <u>32</u> = Total Cover | | | | | | | | | | | | | | | | | | | | |
| Herb stratum (Plot size: _____) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>SOLIDAGO CANADENSIS</u> | <u>19</u> | <u>Y</u> | <u>3</u> | | | | | | | | | | | | | | | | | |
| 2. <u>PHALARIS ARUNDINACEA</u> | <u>17</u> | <u>Y</u> | <u>4</u> | | | | | | | | | | | | | | | | | |
| 3. <u>HELEANTHUS GROSSOSESERATUS</u> | <u>9</u> | <u>N</u> | <u>2</u> | | | | | | | | | | | | | | | | | |
| 4. <u>DIASACUS CACINIATUS</u> | <u>6</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | |
| 5. <u>SOLIDAGO GRAMINIFOLIA MUR.</u> | <u>6</u> | <u>N</u> | <u>0</u> | | | | | | | | | | | | | | | | | |
| 6. <u>PLANTAGO LANCEOLATA</u> | <u>5</u> | <u>N</u> | <u>0</u> | | | | | | | | | | | | | | | | | |
| 7. <u>DAUCUS CAROTA</u> | <u>4</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | |
| 8. <u>CICHORIUM INTYBUS</u> | <u>4</u> | <u>N</u> | <u>5</u> | | | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| <u>70</u> = Total Cover | | | | | | | | | | | | | | | | | | | | |
| Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤ 3.0 ___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | | | | | | | | | | | | | | | | | |
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) _____ | | | | | | | | | | | | | | | | | | | | |

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GLEN GOLF COURSE City/County: NORTH CHICAGO/LAKE Sampling Date: 9/29/09
 Applicant/Owner: GREAT LAKES NAVY BASE State IL Sampling Point: 9-2
 Investigator(s): DAVID JOHANNESSEN Section, Township, Range: SEC'S 6 AND 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: 42°19'04" Long: -87°52'33" Datum: WGS 84
 Soil Map Unit Name: PELLA SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
|--|--|

Remarks:

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| _____ = Total Cover | | | | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| Sapling/Shrub stratum (Plot size: _____) | | | | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50%</u> (A/B) |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>8</u> | <u>Y</u> | <u>3</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>5</u> x 1 = <u>5</u> FACW species <u>47</u> x 2 = <u>94</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>27</u> x 4 = <u>108</u> UPL species <u>2</u> x 5 = <u>10</u> Column Totals: <u>96</u> (A) <u>262</u> (B) Prevalence Index = B/A = <u>2.73</u> |
| 2. <u>ROSA MULTIFLORA</u> | <u>7</u> | <u>N</u> | <u>3</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>15</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS ARUNDINACEA</u> | <u>42</u> | <u>Y</u> | <u>-4</u> | Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) |
| 2. <u>ASTER DUMOSUS</u> | <u>6</u> | <u>N</u> | <u>-1</u> | |
| 3. <u>ASTER PILOSUS</u> | <u>5</u> | <u>N</u> | <u>2</u> | |
| 4. <u>SOLIDAGO CANADENSIS</u> | <u>5</u> | <u>N</u> | <u>3</u> | |
| 5. <u>LYTHRUM SALICARIA</u> | <u>3</u> | <u>N</u> | <u>-5</u> | |
| 6. <u>HELIANTHUS GROSSESERIATUS</u> | <u>3</u> | <u>N</u> | <u>-2</u> | |
| 7. <u>PANICUM VIRGATUM</u> | <u>3</u> | <u>N</u> | <u>-1</u> | |
| 8. <u>PLANTAGO CANADOLATA</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| 9. <u>CAREX VULPINOIDEA</u> | <u>2</u> | <u>N</u> | <u>-5</u> | |
| 10. <u>SOLIDAGO GIGANTEA</u> | <u>2</u> | <u>N</u> | <u>-3</u> | |
| 11. <u>SOLIDAGO GRAMINIFOLIANA</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| 12. <u>ASCEPIAS SYRIACA</u> | <u>2</u> | <u>N</u> | <u>5</u> | |
| 13. <u>GEUM CANADENSIS</u> | <u>2</u> | <u>N</u> | <u>0</u> | |
| 14. <u>DUCHESNEA INDICA</u> | <u>2</u> | <u>N</u> | <u>4</u> | |
| <u>81</u> = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 9-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|----|----------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-18 | 10YR7/1 | 98 | | | | | SCC | GRANULAR |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | | Indicators for Problematic Hydric Soils ³ : | |
|--|---|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Coast Prairie redox (A16) | |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Iron-Manganese Masses (F12) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Other (Explain in Remarks) | |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | | |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | | |
| <input type="checkbox"/> 2 cm Much (A10) | <input type="checkbox"/> Depleted Matrix (F3) | | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | | | |

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | |
|---|---|
| Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |
| | <input type="checkbox"/> Surface Soil Cracks (B6) |
| | <input type="checkbox"/> Drainage Patterns (B10) |
| | <input type="checkbox"/> Dry-Season Water Table (C2) |
| | <input type="checkbox"/> Crayfish Burrows (C8) |
| | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WILLOW GREEN GOLF COURSE City/County: NORTH CHICAGO LAKE Sampling Date: 10/1/09
 Applicant/Owner: GREAT LAKES NAVY BASE State: IL Sampling Point: 9-3
 Investigator(s): DAVID JOHANNESEN Section, Township, Range: SEC'S 6 and 7, T-44N, R-12E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: 42°19'04" Long: -87°52'33" Datum: WGS84
 Soil Map Unit Name: PELLE SILTY CLAY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes No _____
 Are vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Remarks: _____ _____ _____ | |

VEGETATION – Use scientific names of plants.

| Tree stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Area OBL, FACW, or FAC: <u>50</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>9</u> x 1 = <u>9</u> FACW species <u>49</u> x 2 = <u>98</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>40</u> x 4 = <u>166</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>102</u> (A) <u>267</u> (B) Prevalence Index = B/A = <u>2.61</u> |
| 5. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| Sapling/Shrub stratum (Plot size: _____) | | | | |
| 1. <u>RHAMNUS CATHARTICA</u> | <u>15</u> | <u>Y</u> | _____ | |
| 2. <u>ROSA CAROLINA</u> | <u>7</u> | <u>2</u> | _____ | |
| 3. <u>SAMBUCUS CANADENSIS</u> | <u>4</u> | <u>2</u> | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>26</u> = Total Cover | | | | |
| Herb stratum (Plot size: _____) | | | | |
| 1. <u>PHALARIS NEUNDIACCA</u> | <u>45</u> | <u>Y</u> | _____ | |
| 2. <u>SOLIDAGO CANADENSIS</u> | <u>10</u> | <u>2</u> | _____ | |
| 3. <u>CAREX ULCINOIDEA</u> | <u>3</u> | <u>2</u> | _____ | |
| 4. <u>ASTRO SAGITIFOLIA DRUMMONDII</u> | <u>4</u> | <u>2</u> | _____ | |
| 5. <u>DIPSACUS LACINIATUS</u> | <u>4</u> | <u>2</u> | _____ | |
| 6. <u>ASTER SIMPLEX</u> | <u>4</u> | <u>2</u> | _____ | |
| 7. <u>HELIANTHUS GROSSERATUS</u> | <u>4</u> | <u>2</u> | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| <u>76</u> = Total Cover | | | | |
| Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 _____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) | | | | |
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ | | | | |

Remarks: (Include photo numbers here or on a separate sheet.)

SOILS

Sampling Point: 9-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (Inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|----|----------------|---|-------------------|------------------|---------|----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-12 | 10YR 2/1 | 98 | (10YR 6/6) | 2 | | | SCL | granular |
| 12-22 | " | | (coarse) | | | | " | " |
| >22 | 10YR 5/4 | 95 | 10YR 5/1 | 4 | | | SCL | blocky |
| | | | 10YR 5/6 | 1 | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils ³ : |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Coast Prairie redox (A16) |
| <input type="checkbox"/> Histoc Epipedon (A2) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | |
| <input type="checkbox"/> Stratified Layers (A5) | |
| <input type="checkbox"/> 2 cm Much (A10) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

Restrictive Layer (if observed):

Type: _____

Depth: _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | Primary Indicators (minimum of one is required: check all that apply) | Secondary Indicators (minimum of two required) |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tiled Soils (C6) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): 20

Wetland Hydrology Present? Yes No

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX I

WETLAND DELINEATION METHODOLOGIES

The wetland delineation methodology used for this report is outlined in the U.S. Army Corps of Engineers' 1987 Wetland Delineation Manual (Technical Report Y-87-1) and its 2008 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. (ERDC/EL TR-08-27). The protocol outlined in these sources requires that **vegetation**, **hydrology** and **soils** be described in detail for a series of points taken in and around all areas likely to be considered "wetlands". In order for an area to be considered "wetland" it must meet all of the following criteria:

Vegetation

In order for an area to meet the wetland vegetation criterion, at least 50% of the dominant species must be hydrophytes (see "Dominants Test" below) or hydrophytes must compose at least 50% of the total cover (see "Prevalence Index" below). The term "hydrophytes" refers to plants which grow preferentially under moist or saturated conditions (see "hydrophytic vegetation descriptors" below).

Hydrophytic Vegetation Descriptors

Swink and Wilhelm's Plants of the Chicago Region, (4nd edition, 1994) rates plants within the Chicago Region using the five descriptors shown in Table 1. These descriptors may be expanded using a "+" or "-" designation to indicate exaggerated tendencies for particular species. For example, a species with a "FAC+" designator would have a higher probability of occurring under wetland conditions than a species designated as "FAC", while a species with a "FAC-" designation would be less likely to occur under those circumstances than one with a designation of "FAC".

Table 1. Hydrophytic vegetation descriptors.

| | | |
|------|---------------------|---|
| OBL | Obligate Wetland | Occurs almost always in wetlands under natural conditions (estimated >99% probability). |
| FACW | Facultative Wetland | Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67%-99%). |
| FAC | Facultative | Equally likely to occur in wetlands or non-wetlands (estimated 34%-66% probability). |
| FACU | Facultative Upland | Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1%-33% probability). |
| UPL | Upland | Occurs almost never in wetlands under natural conditions (estimated <1% probability). |

Dominants Test

The following process is used to assess the vegetation at each data-point:

- 1) Species within the vicinity of each data-point are identified and classed by "strata". The U.S. Army Corps of Engineer's methodology recognizes four discrete strata: Trees, Shrubs, Herbs and Vines.
- 2) Species dominance is assessed using the "50/20" rule. According to this rule a species is considered dominant if it comprises more that 50% of the total cover, count, or presence for each strata or includes more than 20% of the total cover if none of the species present compose 50% or more of the total cover.

- 3) Each of the dominant plants is assigned a value reflecting its probability of occurring in a wetland (see Table 1). If more than 50% of the dominant species within a given area are classified as hydrophytes (i.e., species growing preferentially under wetland conditions), the vegetation criterion is met.
- 4) In cases where the dominant vegetation is FAC-neutral, or the dominant species are half hydrophytes and half non-hydrophytes, a "prevalence index" is used to determine the status of the vegetation. The procedure for calculating this index is included below.

Prevalence Index

The Prevalence Index (PI) is used to determine the hydric status of vegetation when the vegetation is FAC-neutral, or the dominant species are half hydrophytes and half non-hydrophytes. In order to calculate the PI, the investigated area is sampled using quadrat or transect methodologies to determine frequency or percent coverage (F) for each of the represented species. The F-values are then multiplied by a value representing the coefficient of wetness (OBL = 1, FACW = 2, FAC = 3, FACU = 4, UPL = 5). The resulting values are then added and the resulting sum is divided by the total coverage.

$$PI = \frac{F(OBL) + 2F(FACW) + 3F(FAC) + 4F(FACU) + 5F(UPL)}{F(OBL) + F(FACW) + F(FAC) + F(FACU) + F(UPL)}$$

Where:

- PI = Prevalence Index
- F(OBL) = Frequency of obligate (OBL) plant species
- F(FACW) = Frequency of facultative wet (FACW) plant species
- F(FAC) = Frequency of facultative (FAC) species
- F(FACU) = Frequency of facultative upland (FACU) plant species
- F(UPL) = Frequency of upland (UPL) plant species

Hydrology

In order for an area to meet the hydrology criterion, it must exhibit one or more "primary indicators" and / or a minimum of two "secondary indicators". Common primary and secondary wetland hydrology indicators are summarized in Table 2.

Table 2. Common primary and secondary wetland hydrology indicators

| PRIMARY INDICATORS: | |
|----------------------------|---|
| Descriptor | Explanation |
| Surface water | Standing water is present at the time of the field visit. (note: it is important to consider whether normal conditions exist as non-wetland areas may be inundated following significant precipitation events). |
| High water table | An area may be considered to have a high water table if water remains within 12 inches of the soils surface for a significant period during a typical year. Confirmation of a high water table may require multiple site visits and / or installation of a monitoring well. |
| Saturation | This indicator requires observation of soil saturation within 12 inches of the soil's surface. Soil is said to be saturated if water can be seen glistening on the surfaces and broken interior faces of soil samples removed from a soil pit or auger hole. This condition may reflect a high water table or presence of a restrictive soil layer or bedrock within 12 inches of the soil's surface. |
| Water-marks | High water events will leave water-marks on trees, vegetation and / or debris. |
| Sediment deposits | Past inundation is implied by the presence of water-borne sediments on the surfaces of leaves and other debris. |
| Drift-deposits | High water events will cause leaves, twigs and / or debris to accumulate along discrete lines. |

| | |
|--|---|
| Algal mats or crusts | Mats or dried crusts of algae on or near the soil surface are indicative of past inundation. |
| Iron deposits | Iron deposits may appear as a thin orange or yellow crust or as a gel of oxidized iron on the soil surface or on objects near the surface. |
| Inundation visible on aerial imagery | Aerial imagery may be used to determine the presence of inundation. When using this indicator, it is important to consider the conditions under which the photograph was taken. In some cases NRCS offices may have sets of photographs that are considered to represent "normal" conditions. |
| Sparsely vegetated concave surfaces | Prolonged inundation on concave land surfaces (e.g., depressions and swales) will often leave the soil unvegetated or sparsely vegetated. |
| Water-stained leaves | Fallen leaves will turn gray or blackish after prolonged inundation. |
| Aquatic fauna | Aquatic fauna, such as clams, aquatic snails, aquatic insects, ostracods, or shrimps, either living or dead, are indicative of inundation or saturation. |
| True aquatic plants | The term "true aquatic plants" refers to plants that are normally submerged, such as watershield, water-milfoil, pondweed or duckweed. The presence of such plants are indicative of inundation. |
| Hydrogen sulfide odor | Hydrogen sulfide is a metabolic byproduct of bacteria that thrive under anaerobic (saturated) conditions. This gas, if detected within 12 inches of the soil's surface indicates recent inundation and / or saturation. |
| Oxidized rhizospheres along living roots | Under reducing soil conditions, oxygen will leak from living roots into the surrounding anoxic soil. This, in turn, will cause iron within the soil to oxidize and form rust colored concentrations or plaques in the vicinity of living roots. |
| Presence of reduced iron | Presence of a layer containing reduced (ferrous) iron in the upper 12 inches (30 cm) of the soil profile, as indicated by a ferrous iron test or by the presence of a soil that changes color upon exposure to air. |
| Recent iron reduction in tilled soils | Presence of a layer containing 2 percent or more redox concentrations as pore linings or soft masses in the tilled surface layer of soils cultivated within the last two years. The layer containing redox concentrations must be within the tilled zone or within 12 inches (30 cm) of the soil surface, whichever is shallower. |
| Thin muck surface | This indicator consists of a layer of muck 1 inch (2.5 cm) or less thick on the soil surface. |
| <u>SECONDARY INDICATORS:</u> | |
| <i>Descriptor</i> | <i>Explanation</i> |
| Surface soil cracks | Fine grained mineral or organic sediments will shrink and form a network of cracks as they dry out. It is important, however, to consider that these structures may form in non-wetland areas following an intense rain. |
| Drainage patterns | Water, as it moves over a surface, leaves distinct signatures, such as bent vegetation, or soil erosion. |
| Dry-season water table | During the dry season, or during dry years, a water table that would normally be within 12 inches of the soil's surface may be between 12 and 24 inches. |
| Crayfish burrows | Crayfish require contact with water in order to keep their gills moist. Although crayfish burrows generally extend to the water table, it is important to consider that these burrows may extend as deep as 10 feet. |
| Saturation visible on aerial imagery | One or more recent aerial photographs or satellite images indicate soil saturation. Saturated soil signatures must correspond to field-verified hydric soils, depressions or drainage patterns, differential crop management, or other evidence of a seasonal high water table. |
| Stunted or stressed plants | In agricultural settings or other situations where non-wetland plants may be grown, saturated conditions will result in smaller stature, reduced vigor or a generally stressed condition. |
| Geomorphic position | This indicator is present if the immediate area in question is located in a depression, drainage-way, concave position within a floodplain, at the toe of a slope, on the low-elevation fringe of a pond or other water body, or in an area where groundwater discharges. |
| FAC-Neutral test | This means that the vegetation is, on average, hydrophytic. |

Soils

Definition

The Corps of Engineers Wetlands Delineation Manual (USACE, 1987) defines hydric soils as soils that are "...saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation" (US Department of Agriculture (USDA) Soil Conservation Service (SCS) 1985, as amended by the National Technical Committee for Hydric Soils (NTCHS) in December 1986).

Field Indicators

In order to rapidly assess the status of potential hydric soils in the field, the USACE data-sheets include a series of common hydric soil indicators. These indicators are summarized below in Table 3.

Table 3. Common hydric soil indicators.

| DESCRIPTOR | EXPLANATION |
|----------------------------------|--|
| Histosol | Organic soils that have organic materials in more than 50% of the upper 80 centimeters, or any thickness if overlying rock or fragmental materials. This includes peats, mucky peats and mucks. |
| Histic Epipedon | A thin organic soil horizon that is saturated with water at some period of the year. |
| Black Histic | A layer of darkly colored peat, mucky peat, or muck (hue 10 YR 2/1 or yellower, value ≤ 3 and chroma ≤ 1) that lies within six inches of the soil's surface and is at least eight inches thick. |
| Hydrogen Sulfide (Sulfidic Odor) | Hydrogen sulfide is a gas produced under anaerobic conditions. This, and other "marsh gases" have a distinct and somewhat unpleasant odor. This odor may serve as a hydric soil indicator if evident within 12 inches (30 cm) of the soil's surface. |
| Muck | Muck is well decomposed organic soil. It typically feels greasy and is dark colored (value ≤ 3 and chroma ≤ 1). Muck may serve as a hydric indicator if a layer of at least one-half inch thickness is found within six inches of the soil's surface. If underlain by sandy soil, a minimum of two inches (5 cm) is required for hydric soil consideration. |
| Depleted Matrix | Soils with a depleted matrix are typically grayish in color (low chroma, high value) and form under conditions where iron has been removed or transformed through reduction and translocation. Horizons with a depleted matrix are often found underlying a dark surface. |
| Thick Dark Surface | The presence of a dark surface ($\geq 60\%$ matrix with chroma ≤ 2) twelve or more inches thick may be a hydric indicator, especially if overlying a depleted matrix. |
| Sandy Mucky Mineral | Sandy mucky mineral soil consists of sand that is darkly colored due to high concentrations of organic carbon (typically between 5% and 14% depending on clay content). |
| Sandy Gleyed Matrix | Gley colors are characteristically associated with the presence of reducing conditions and the virtual absence of oxidized iron. Gley colors typically have hues of N, 10Y, 5GY, 10GY, 5G, 10G, 5BG, 10 BG, or 5PB and values of 4 or more. In sandy soils, a gleyed matrix qualifies as a hydric soil indicator if it occupies 60% or more of a layer starting within 6 inches (15 cm) of the soil surface. Since soils with gleyed matrices are saturated for significant periods, no minimum thickness is required for the soil to qualify as hydric. |
| Sandy Redox | This refers to a layer starting within 6 inches (15 cm) of the soil surface that is at least 4 inches (10 cm) thick and has a matrix with 60 percent or more chroma of 2 or less with 2 percent or more distinct or prominent redox concentrations occurring as soft masses and/or pore linings. "Redox concentration" are soil discolorations resulting from the reduction, translocation and/or oxidation of iron and manganese oxides. |
| Stripped Matrix | A stripped matrix is characterized by the presence faint, diffuse, splotchy, roughly circular features approximately $\frac{1}{2}$ to 1 in (1 - 3 cm) in |

| | |
|---------------------|--|
| | diameter composing 10% or more of the soil volume. These features are formed through the translocation of oxides and or organic matter. This feature must begin within six inches of the soil surface in order to qualify as a hydric indicator. |
| Loamy Mucky Mineral | In order to qualify as "mucky", loamy material must contain at least 8% organic material (organic content requirements may be higher depending on clay content). In order to qualify as a hydric soil indicator, this material must be present in a layer at least 4 inches (10 cm) thick starting within 6 inches (15 cm) of the soil's surface. |
| Loamy Gleyed Matrix | Gley colors are characteristically associated with the presence of reducing conditions and the virtual absence of oxidized iron. Gley colors typically have hues of N, 10Y, 5GY, 10GY, 5G, 10G, 5BG, 10 BG, or 5PB and values of 4 or more. In sandy soils, a gleyed matrix qualifies as a hydric soil indicator if it occupies 60% or more of a layer starting within 6 inches (15 cm) of the soil surface. In order to qualify as a hydric soil indicator for loamy soils, a gleyed matrix must be present within 12 inches of the soil's surface. Since soils with gleyed matrices are saturated for significant periods, no minimum thickness is required for the soil to qualify as hydric. |
| Redox Dark Surface | A "Redox Dark Surface" is a dark (value ≤ 3 , chroma ≤ 1) layer at least 4 inches (10 cm) thick within 12 inches of a soil's surface that contains at least 2% distinct or prominent redox concentrations as soft masses or pore linings. |

Criteria

The USACE's criteria for hydric soils is as follows:

- a.) All Histosols¹ except Folists²
- b.) Soils in Aquic³ suborders, Aquic subgroups, Albolls⁴ suborder, Salorthis⁵ great group, or Pell great groups of Vertisols⁶ that are:
 - (1) Somewhat poorly drained and have a water table less than 0.5 feet from the surface for a significant period (usually a week or more) during the growing season, or
 - (2) Poorly drained or very poorly drained and have either:
 - (a) A water table less than 1.0 feet from the surface for a significant period (usually a week or more) during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within 20 inches; or
 - (b) A water table at less than 1.5 feet from the surface for a significant period (usually a week or more) during the growing season if permeability is less than 6.0 in / hr in any layer within 20 inches; or
- c.) Soils that are ponded for long or very long duration during the growing season; or
- d.) Soils that are frequently flooded for long duration or very long duration during the growing season.

1 Histosol: a soil comprised primarily of organic materials.

2 Folist: A suborder of the soil order Histosol, consisting of wet forest litter resting on rock or rubble.

3 Aquic: a type of soil that has features indicating it is saturated to near the surface for a significant portion of the growing season.

4 Albolls: A type of soil that contains distinct horizons, is wet for some part of the year; occurs mostly on upland.

5 Salorthis: A type of haline soil.

6 Vertisol: Clayey soils with high shrink/swell capacity.

FLORISTIC QUALITY INDEX

Delineations performed in Lake County require that a "Floristic Quality Index" be calculated for all delineated wetlands. The methodology used for calculating this index is outlined in Swink and Wilhelm's Plants of the Chicago Region, (4th edition, 1994). This index is calculated as follows:

- 1) Species lists for all wetland areas are compiled on the basis of time-meander searches.
- 2) Each of the species on this list is assigned a "coefficient of conservatism" ("C"). These values, which are between 0 and 10, are based on each specie's particular ecological amplitude. Plants with a rating of zero typically have wide ecological amplitudes (i.e., occur in a wide variety of habitats), while plants with a rating of ten typically have a narrow ecological amplitude (i.e. occur only under specific ecological conditions). Non-native species are designated with an asterisk (*). These species may either be assigned a "0" for calculating a sites overall floristic quality (FQI) or may be completely excluded for determination of a sites native floristic quality (FQI(native)).

The Native Floristic Quality Index (FQI(native)) is calculated as follows:

$$FQI(native) = \bar{C}(native) \sqrt{N(native)}$$

Where: C(native) = the average C value for all native species within the study site

N(native) = the total number of native species present within the study site

If an area contains an FQI(native) of 20 or more, the area may be classified as a "high quality aquatic resources" by Lake County's Stormwater Management Commission and the U.S. Army Corps of Engineers.

APPENDIX II

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