Appendix F

Hey Wetlands and Tree Survey Report – Northwest

CDM Smith

14-0055

WETLAND DELINEATION REPORT

CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY

NORTHWEST ROUTE

VILLAGES OF ROUND LAKE, ROUND LAKE BEACH, AND LAKE VILLA, LAKE COUNTY, ILLINOIS

PREPARED FOR:

Central Lake County Joint Action Water Agency
978 West Winchester Road
Lake Bluff, Illinois 60048

DECEMBER 17, 2014

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INTRODUCTION

A wetland delineation of Northwest Route corridor was conducted on July 31 (Legs 1 and 2), August 20 (Leg 3), August 22 (Leg 4), September 11 (Leg 5), and September 12 (Leg 6), 2014 for the Central Lake County Joint Action Water Agency. The corridor is located along Wood Street, Rollins Road, Hook Drive, Illinois Route 83, Monaville Road, and Cedar Lake Road in the Villages of Round Lake, Round Lake Beach, and Lake Villa as well as portions of unincorporated Lake County, Illinois (Exhibit 1). The corridor is further located in Section 1, Township 45 North, Range 9 East and in Sections 5, 6, 7, 8, 9, 15, and 16, Township 45 North, Range 10 East. The corridor contains areas of commercial, residential, agricultural, and open space including two sections of the Grant Woods Forest Preserve. The open space areas consist of woodlands, fields, and wetlands along with two crossings of Eagle Creek.

EXISTING DATA

The United States Geological Survey (USGS) topographic map depicts two blue line stream crossings and two wetlands within the corridor (Exhibit 2).

The Lake County Wetland Inventory map indicates several mapped wetlands within and adjacent to the corridor but no mapped Advanced Identification wetlands (Exhibit 3).

The National Wetland Inventory map indicates the presence of several wetlands in or near the corridor (Exhibit 4). The referenced numbered wetlands are further described in the Results section in this report. Wetland 1 is mapped as Palustrine Emergent Semipermanently Flooded (PEMF), Wetland 2 is mapped as a Palustrine Forested Deciduous Seasonally Flooded (PFO1C), Wetland 7 is mapped as a Palustrine Emergent Seasonally Flooded (PEMC), Wetland 9 is mapped as a Palustrine Emergent Semipermanently Flooded Partially Drained/Ditched (PEMFD), Wetland 10 is mapped as a PEMC, Wetland 14 is mapped as a PEMFD and a Palustrine Emergent Seasonally Flooded Partially Drained/Ditched (PEMCD), and Wetland 15 is mapped as PEMC.

The Flood Insurance Rate Map shows mapped floodplain at Wetlands 9, 14, and 15, but at no other locations within the corridor (Exhibit 5).

The USGS Hydrologic Atlas provides evidence for Wetlands 1 and 2 having a hydrologic connection to Mill Creek, a Waters of the U. S. and for Wetlands 9, 10, 14, and 15 having a hydrologic connection to Eagle Creek, a Waters of the U. S. (Exhibit 6).

The Lake County Soil Survey (Exhibit 7) indicates three hydric soils within the corridor: Houghton muck (103A and 1103A), Ashkum silty clay loam (232A) and Peotone silty clay loam (330A).

WETLAND DELINEATION

The wetland delineation was conducted by Steven Rauch (Certified Wetland Specialist-052) of Hey and Associates, Inc. using procedures outlined in the 1987 Corps of Engineers' (Corps) Wetland Delineation Manual and the 2010 Regional Supplement to the Corps Wetland Delineation Manual: Midwest Region. The corridor was inspected, with areas of mapped hydric soils prioritized for investigation. If inspection revealed that wetland plant species comprised more than 50 percent of the plant cover, the suspected wetland was further examined for field indicators of hydric soil and hydrology. The Corps-accepted field indicators of hydric soil include: gleyed and low chroma matrix and mottle colors, and iron and manganese concretions. Necessary hydric soil indicators were field verified in the wetland areas. The Corps-approved field indicators of hydrology include: visual observation or photographic evidence of soil inundation or saturation during the growing season, oxidized channels associated with living roots and rhizomes, water marks, drift lines, waterborne sediment deposits, waterstained leaves, surface scoured areas and drainage patterns. Wetland hydrologic criteria were met in all area delineated as wetland.

Lists of observed plant species in the wetland area were compiled and data were gathered to complete Corps jurisdictional dataforms. A native vegetative quality rating was calculated for wetland using the Chicago Region FQA Calculator version September 29, 2014 (Herman, B., Sliwinski, R. and S. Whitaker. 2013. Chicago Region FQA (Floristic Quality Assessment) Calculator. U.S. Army Corps of Engineers, Chicago, IL). The FQA method assigns to plant species a rating that reflects the fundamental conservatism that the species exhibits for natural habitats. A native species that exhibits specific adaptations to a narrow spectrum of the environment is given a high rating. Conversely, an introduced, ubiquitous species that exhibits adaptations to a broad spectrum of environmental variables is given a low rating. Utilizing this method, a Floristic Quality Index (FQI) is derived for a given area. The FQI is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.

RESULTS

Sixteen wetlands were identified and flagged within or adjacent to the corridor. The total acreage of the wetlands is 2.78-acres. The wetland boundaries are shown on an aerial photograph in Exhibit 8 and are

based on a survey provided by Greengard Inc. and Manhard Consulting, Ltd. Lists of the observed plant species for the wetland areas, except for Wetlands 3 and 5 which are non-regulated stormwater features, are given in Exhibit 9. The Corps' jurisdictional dataforms for upland and wetland areas, except for Wetlands 3 and 5 which are non-regulated stormwater features, are included as Exhibit 10. Representative color photographs of the upland and wetland areas, except for Wetlands 3 and 5 which are non-regulated stormwater features, are provided in Exhibit 11.

Following is a table that summarizes the delineated wetlands:

Wetland	Area in corridor (acres)	FQI[1]	Native Mean C[2]	HQAR[3]	Wetland Type	Dominant Vegetation
1	0.42	14.55	2.75	No	emergent marsh	narrow leaved cattail (*Typha angustifolia*) reed canary grass (*Phalaris arundinacea*) common reed (*Phragmites australis*)
2	0.40	17.07	2.89	No	wet meadow/emergent marsh	narrow leaved cattail reed canary grass common reed
3	N/A	N/A	N/A	No	emergent marsh (stormwater basin)	narrow leaved cattail common reed purple loosestrife (*Lythrum salicaria*)
4	0.07	6.53	2.67	No	wet meadow	hairy fruited lake sedge (*Carex trichocarpa*) purple loosestrife teasel (*Dipsacus sylveltris*)
5	N/A	N/A	N/A	No	wet meadow/emergent marsh (road side ditch)	reed canary grass narrow-leaved cattail purple loosestrife
6	0.38	16.06	3.04	No	wet meadow/scrub-shrub	tussock sedge (*Carex stricta*) common buckthorn (*Rhamnus cathartica*) gray dogwood (*Cornus racemosa*)
7	0.01	9.09	2.43	No	emergent marsh	reed canary grass narrow leaved cattail sawtooth sunflower (*Helianthus grosseserratus*)
8	0.04	3.54	2.50	No	wet meadow	Kentucky blue grass (*Poa pratensis*) reed canary grass long scaled nut sedge (*Cyperus strigosus*)
9	0.10	12.52	2.80	No	wet meadow/creek	reed canary grass crack willow (*Salix fragilis*) purple loosestrife
10	0.11	21.40	3.34	Yes	emergent marsh	narrow leaved cattail reed canary grass purple loosestrife
11	0.01	10.85	3.27	No	wet meadow	redtop (*Agrostis gigantea*) Kentucky blue grass Dudley's rush (*Juncus dudleyi*)
12	0.13	6.64	1.92	No	forested/wet meadow	box elder (Acer negundo) common buckthorn reed canary grass
13	0.01	4.00	2.00	No	forested/intermittent stream	Eastern cottonwood (*Populus deltoides*) common buckthorn moneywort (*Lysimachia nummularia*)

1 The Floristic Quality Index (FQI) is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.
2 The Native Mean C is an indication of native vegetative quality for an area. Areas with value of 3.5 or greater are considered high quality.
3 The Chicago District U.S. Army Corps of Engineers has designated various Waters of the United States to be high-quality aquatic resources (HQARs). This designation is based on the definitions found within the Regional Permit Program that became effective April 1, 2012.

Wetland	Area in corridor (acres)	FQI[1]	Native Mean C[2]	HQAR[3]	Wetland Type	Dominant Vegetation
14	0.67	15.30	3.00	No	wet meadow	reed canary grass sawtooth sunflower tussock sedge
15	0.42	10.25	3.09	No	emergent marsh	reed canary grass narrow-leaved cattail jewelweed (*Impatiens capensis*)
16	0.01	4.11	1.30	No	wet meadow	Eastern cottonwood reed canary grass box elder

1 The Floristic Quality Index (FQI) is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.
2 The Native Mean C is an indication of native vegetative quality for an area. Areas with value of 3.5 or greater are considered high quality.
3 The Chicago District U.S. Army Corps of Engineers has designated various Waters of the United States to be high-quality aquatic resources (HQARs). This designation is based on the definitions found within the Regional Permit Program that became effective April 1, 2012.

Wetland 1 is an emergent marsh located south of the intersection of Rollins Road and Hook Drive and continues south outside the corridor. Because of its acreage the wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 2 is a wet meadow/emergent marsh located northwest of the intersection of Rollins Road and Hook Drive and continues northwest outside the corridor. Wetland 2 is hydrologically connected through a culvert under Rollins Road to Wetland 1. Because of its acreage the wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 3 is an emergent marsh and a non-regulated stormwater basin constructed as part of the Hook Drive and Rollins Road intersection improvement project.

Wetland 4 is a wet meadow located on the east side of Illinois Route 83 and approximately 400 feet south of Fox Chase Drive. The wetland is completely within the corridor and no culvert was observed under Illinois Route 83. The wetland is small and therefore has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 5 is a wet meadow/emergent marsh and a non-regulated stormwater roadside ditch constructed as part of the Illinois Route 83 improvements.

Wetland 6 is a wet meadow/scrub-shrub located on the north side of Monaville Road and west of the Wisconsin Central railroad tracks. The wetland continues off-site to the north. The wetland drains through a culvert under Monaville Road and into a catch basin and the municipal stormsewer system. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 7 is an emergent marsh located north of Monaville Road and 700 west of Farmhill Lane and continues north outside the corridor. The wetland receives runoff from a wetland south of Monaville Road through a culvert. Because of its acreage the wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 8 is a wet meadow located on the north side of Monaville Road and approximately 500 feet east of Cedar Lake Road. The wetland continues off-site to the north and drains through a culvert under Monaville Road. The wetland is small and routinely and therefore has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 9 is a wet meadow on either side of Eagle Creek located on the north side of Monaville Road and approximately 500 feet west of Cedar Lake Road. The wetland continues off-site to the north and drains through a culvert under Monaville Road. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 10 is an emergent marsh on the north and south side of Monaville Road at the T-intersection with Old Monaville Road. The three complexes are connected by culverts under Monaville Road and Old Monaville Road with the entire complex draining to the south. The wetland continues off-site to the north and south. The wetland has moderate functional value for water quality and wildlife habitat and is of high vegetative quality based on the FQA.

Wetland 11 is a wet meadow located on the south side of Monaville Road and approximately 600 feet west of the Monaville Road and Old Monaville Road intersection. The wetland is small and therefore has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 12 is a forested/wet meadow on the south side of Monaville Road and approximately 300 feet east of the intersection of Monaville Road and Amber Lane. Wetland 12 receives water through a culvert from a wetland on the north side of Monaville Road and continues off-site to the south. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 13 is a forested/intermittent stream on the south side of Monaville Road and approximately 250 feet east of the multi-use trail underpass and located in the Grant Woods Forest Preserve. Wetland 12 receives water from a stormsewer pipe discharging from under Monaville Road and continues off-site to the south. The wetland has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 14 is an emergent marsh located on the west side of Cedar Lake Road and approximately 1,000 feet north of Monaville Road and located within the Grant Woods Forest Preserve. The wetland continues off-site to the west. The wetland is part of a wetland complex of Eagle Creek. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 15 is an emergent marsh located northwest side of the intersection Cedar Lake Road and Thompson Lane. The wetland continues off-site to the west and drains to the east through culverts under Cedar Lake Road. The wetland is part of a wetland complex of Eagle Creek. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

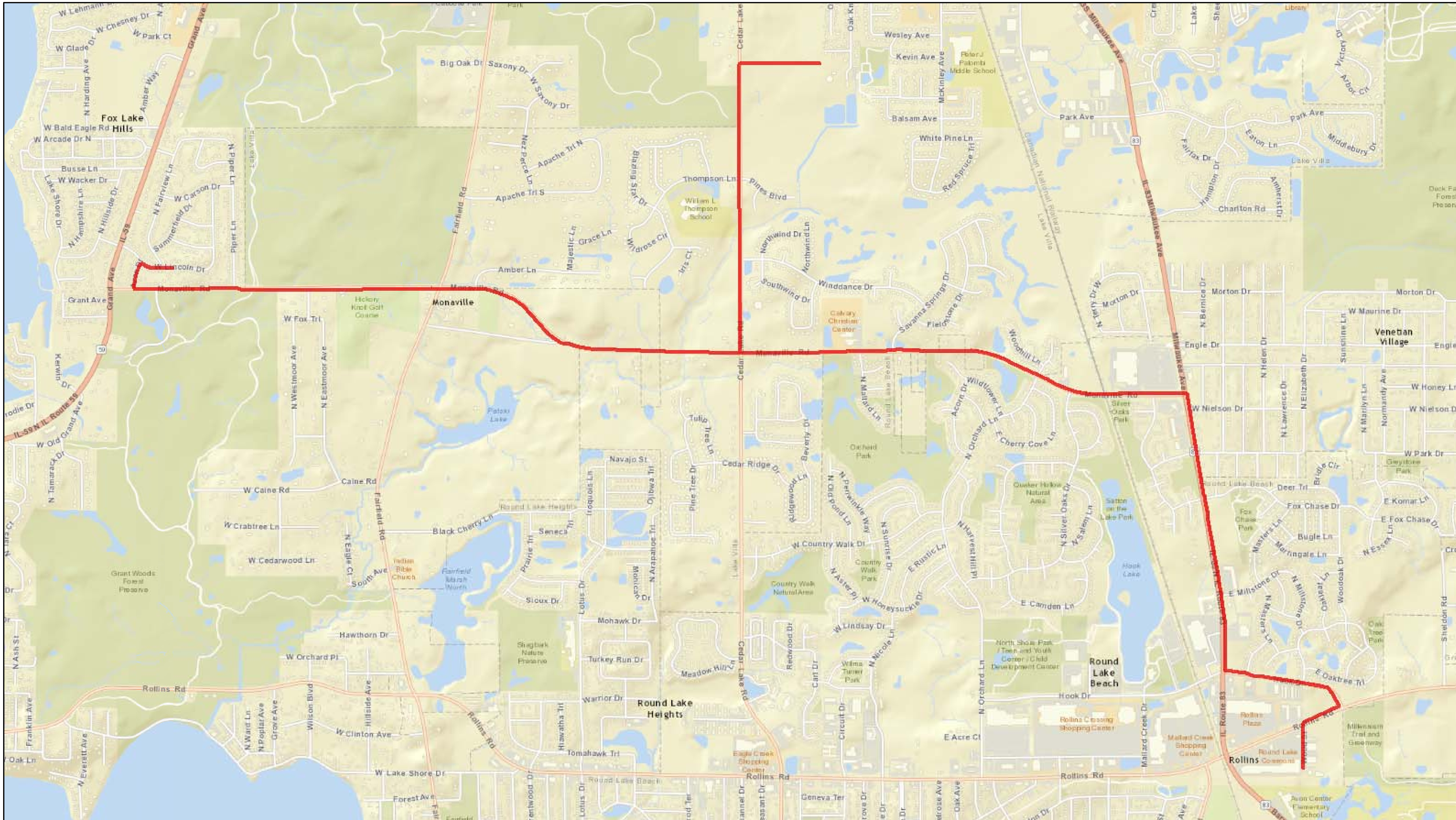
Wetland 16 is a wet meadow located approximately 1,200 feet east of the Cedar Lake Road and approximately 500 feet west Oak Knoll Drive. The wetland was subject to filling and other disturbances several years ago. The wetland is small and therefore has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Besides Wetland 10, there are no other high quality aquatic resources within or mapped adjacent to the corridor.

SUMMARY AND CONCLUSIONS

The wetland investigation of the corridor resulted in the delineation of sixteen wetlands. Lake County Stormwater Management Commission (LCSMC) provided a written Preliminary Jurisdictional Determination (PJD) letter dated October 17, 2014. The letter stated that "the WOUS include Wetlands 6, 7, 8, 9, 10, 12, 13, 14 and 15", "the IWLC include Wetlands 1, 2, 4, 11 and 16" and that Wetlands 3 and 5 are "excluded from regulatory status". The PJD letter is included as Appendix A. LCSMC provided a written verification of the isolated wetland boundaries of Wetlands 1, 2, 4, 11, and 16. This letter dated December 15, 2014 is included as Appendix B.

Wetlands cannot be filled or otherwise impacted without permit authorization. Generally, impacts under 0.10-acre for Corps and isolated wetlands do not require mitigation of wetland losses. Any impacts over this acreage threshold will require mitigation at a minimum of 1.5:1. No work which would result in wetland impacts or wetland buffer impacts should be undertaken unless project authorization is first obtained.



Prepared by:

Hey and Associates, Inc.

Engineering, Ecology and Landscape Architecture

Scale:

0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/8/2014

Legend:

Project Corridor

Project Name:

CLC JAWA

Route:

NW Route

Location Information:

T.45N.-R.9E. Sec. 1; T.45.-R10E. Sec. 5, 6, 7, 8, 9, 15, 16

Exhibit Title:

Project Location

Exhibit:

1

Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/8/2014

Legend:
Project Corridor

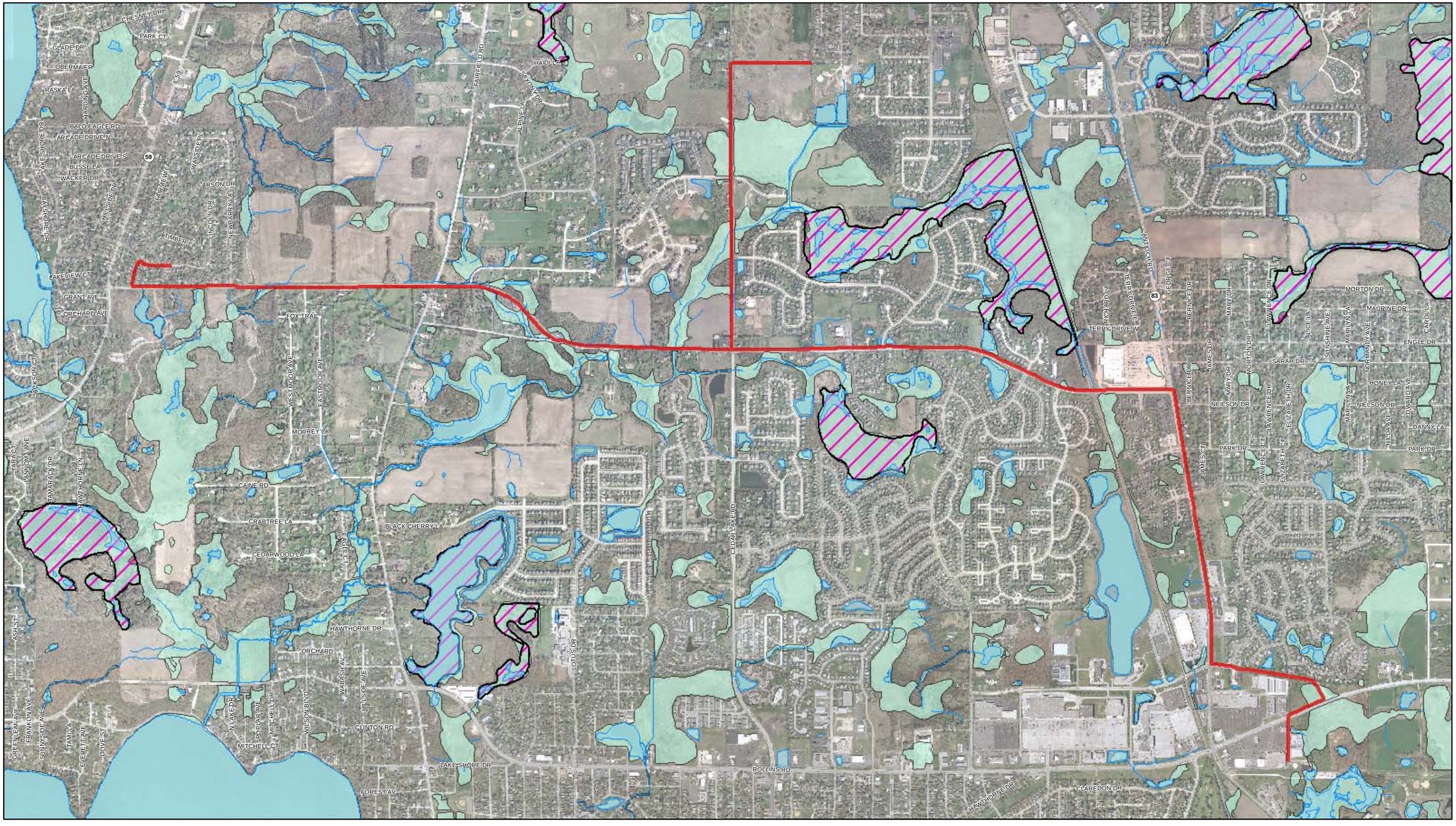
Project Name:
CLC JAWA

Route:
NW Route

Location Information:
Antioch and Fox Lake Quadrangles

Exhibit Title:
U.S.G.S. Topographic Map

Exhibit:
2



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
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Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
- Project Corridor
- Rivers and Streams
- Lakes and Ponds
- ADID Wetlands (1992)
- LCWI

Aerial Date: 2012

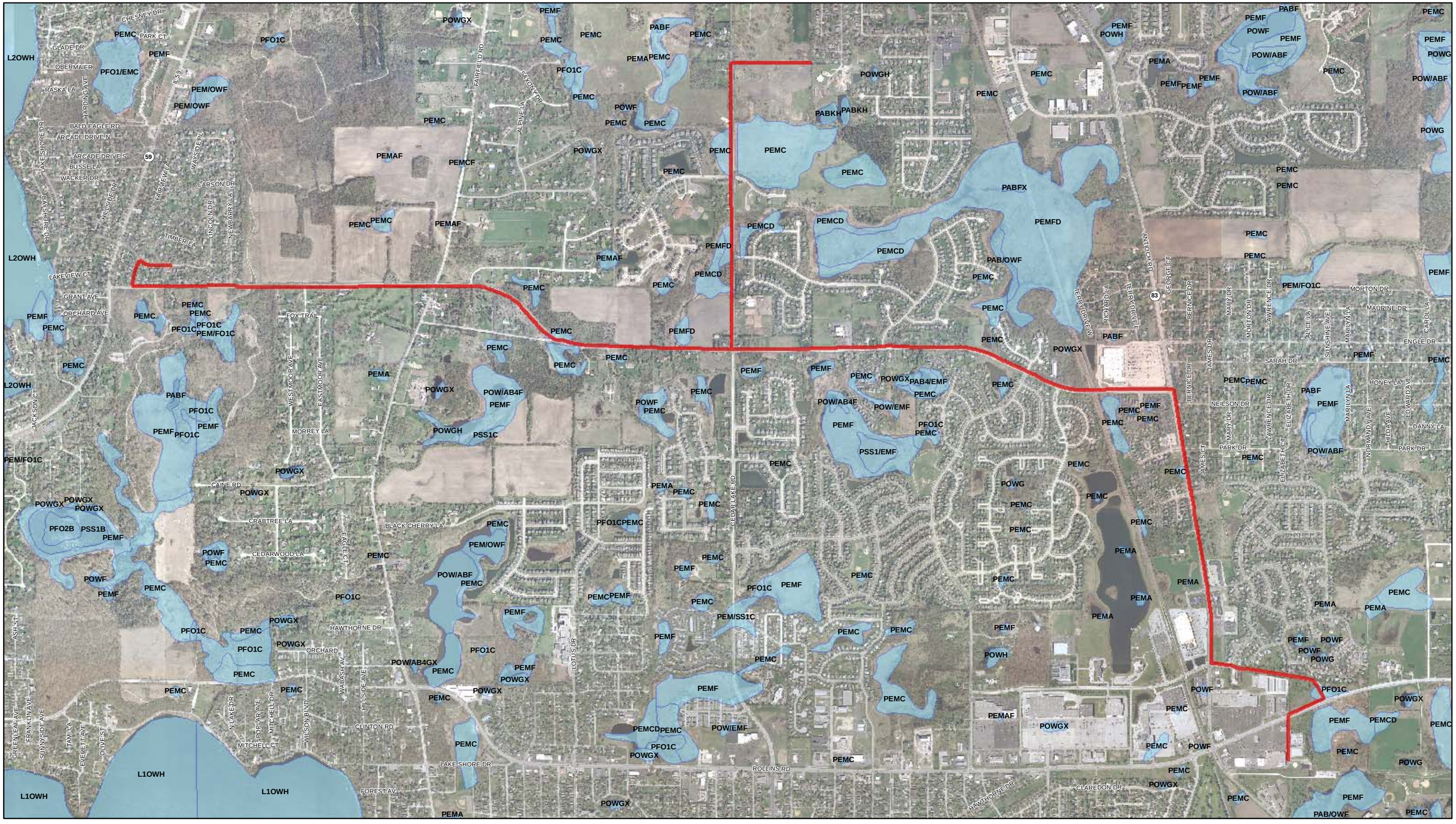
Project Name:
CLC JAWA

Route:
NW Route

LCWI Date:
2002

Exhibit Title:
Lake County Wetland Inventory

Exhibit:
3



Prepared by:

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Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Project Corridor
National Wetland Inventory

Aerial Date: 2012

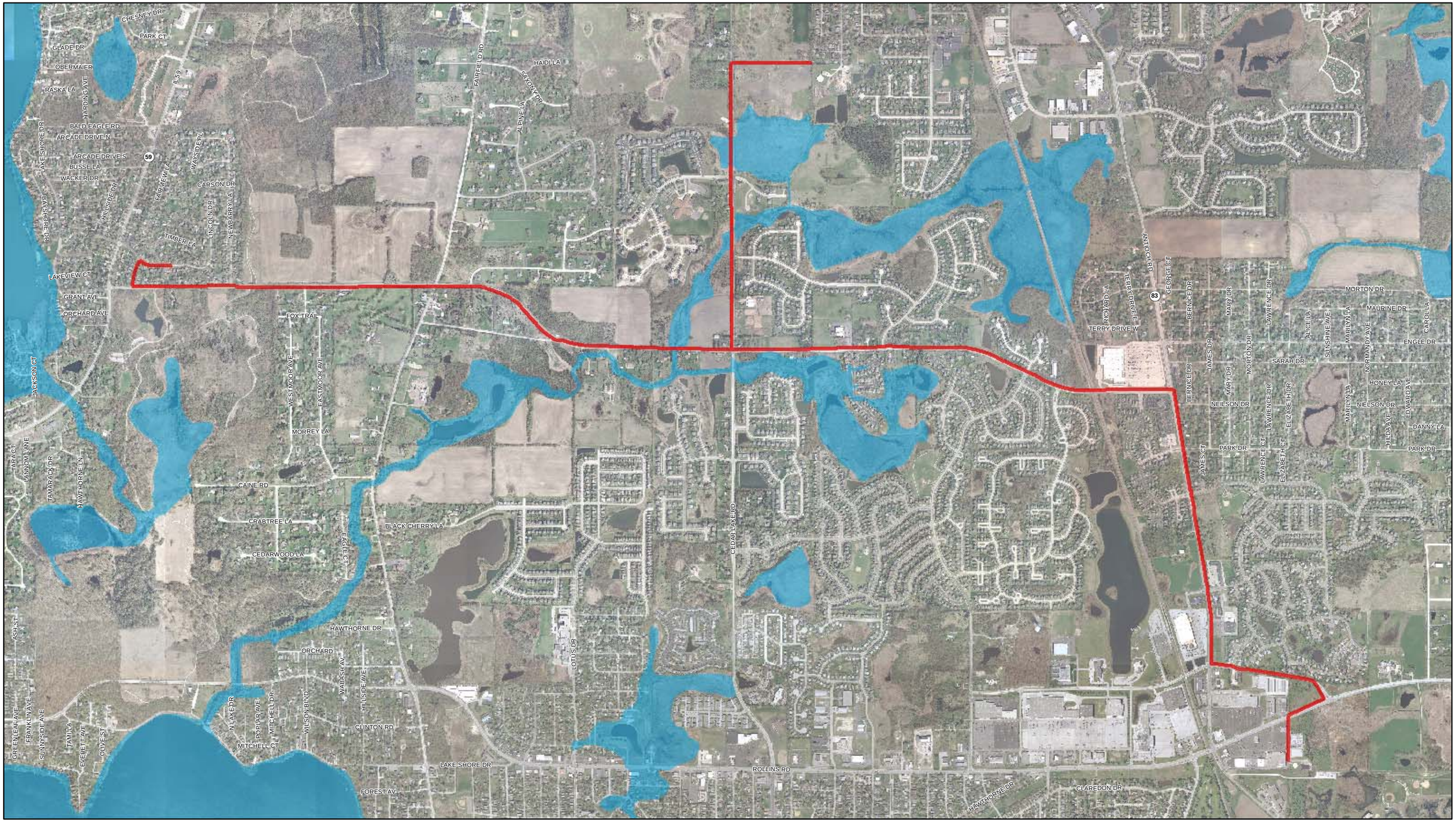
Project Name:
CLC JAWA

Route:
NW Route

NWI Date:
1980

Exhibit Title:
National Wetland Inventory

Exhibit:
4



Prepared by:

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Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Project Corridor
100 Year Flood Zones

Aerial Date: 2012

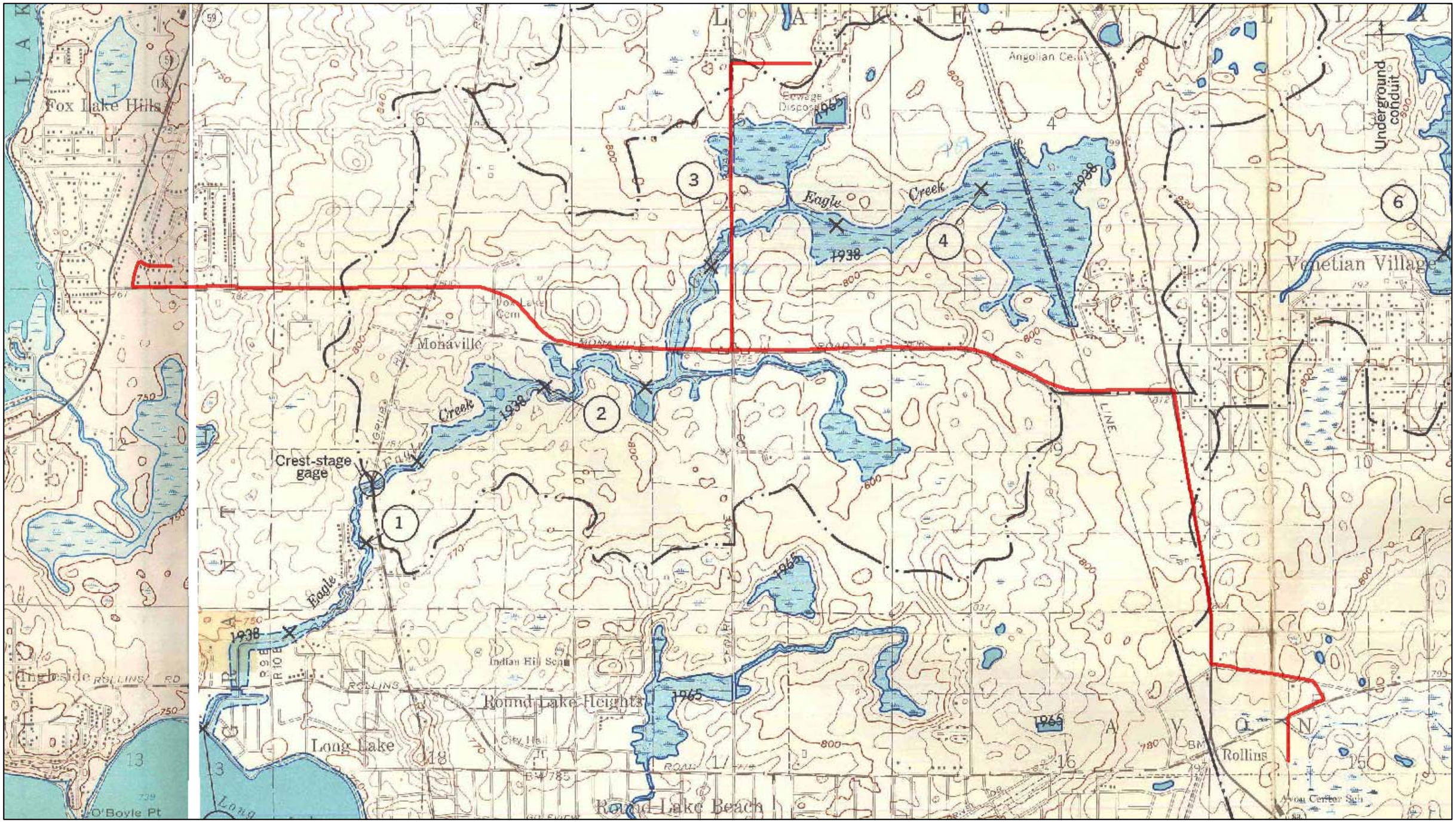
Project Name:
CLC JAWA

Route:
NW Route

Panel #:
17097C0019K, 17097C0038K, 17097C0039K, 17097C0043K

Exhibit Title:
Flood Insurance Rate Map

Exhibit:
5



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale: 0 — 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend: Project Corridor

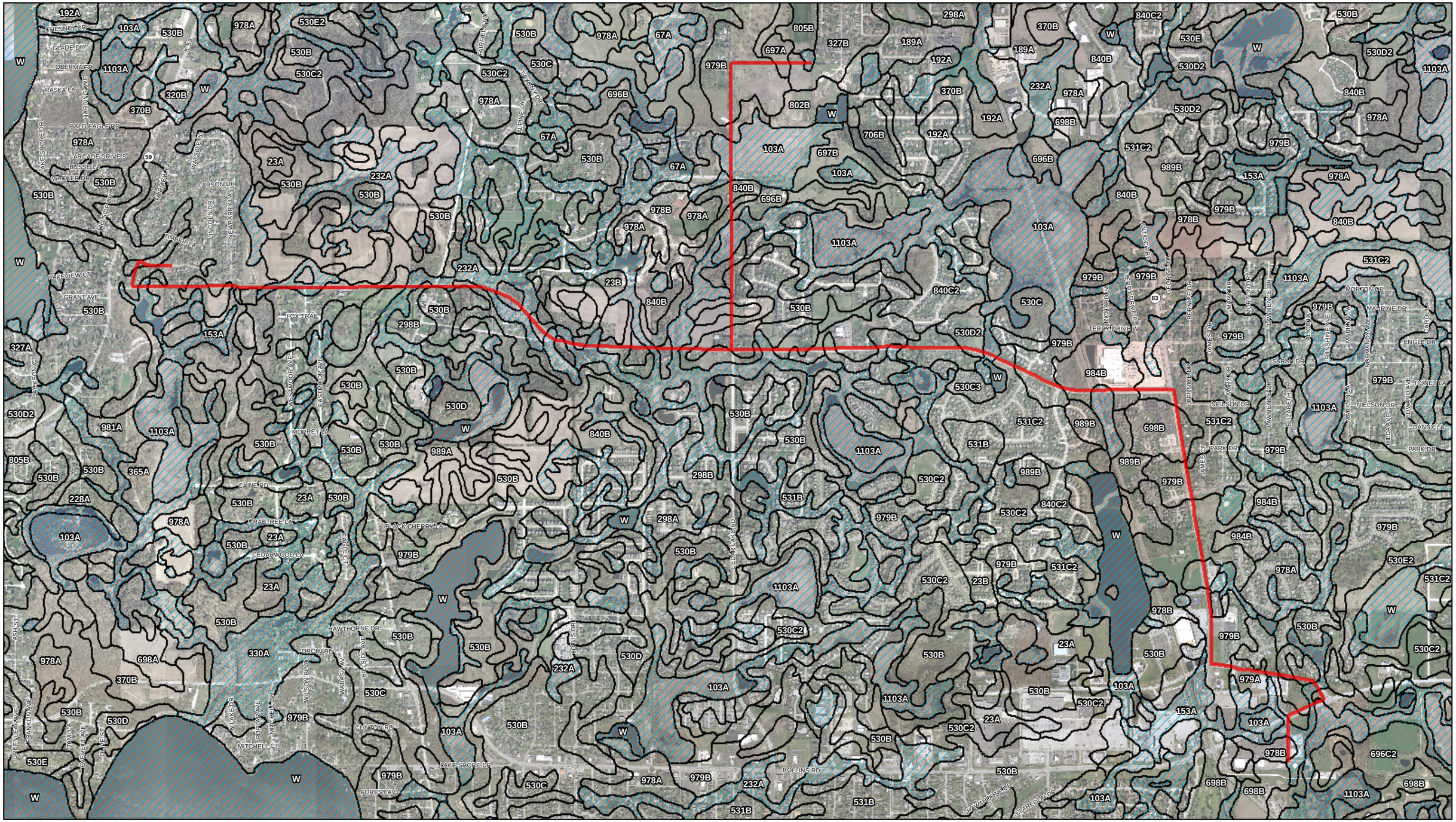
Project Name: CLC JAWA

Route: NW Route

Hydro Atlas Dates: Antioch: 1966, Fox Lake: 1965

Exhibit Title: **U.S.G.S. Hydrologic Atlas**

Exhibit: **6**



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale: 0 — 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
- Project Corridor
- Soil Units
- Hydric Soils

Aerial Date: 2012

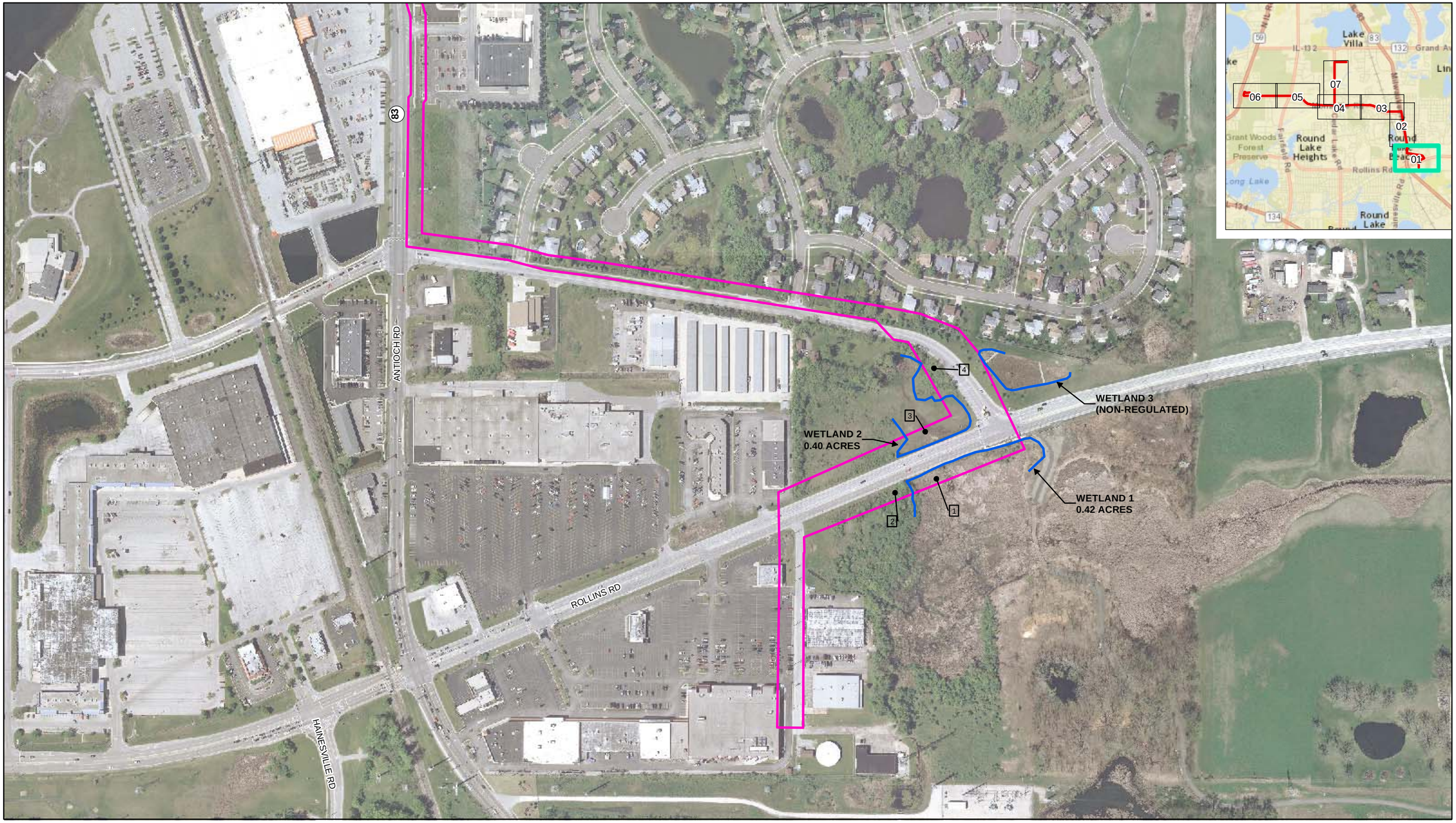
Project Name: CLC JAWA

Route: NW Route

Soil Survey Date: 2004

Exhibit Title: **Soil Survey**

Exhibit: **7**



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
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Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

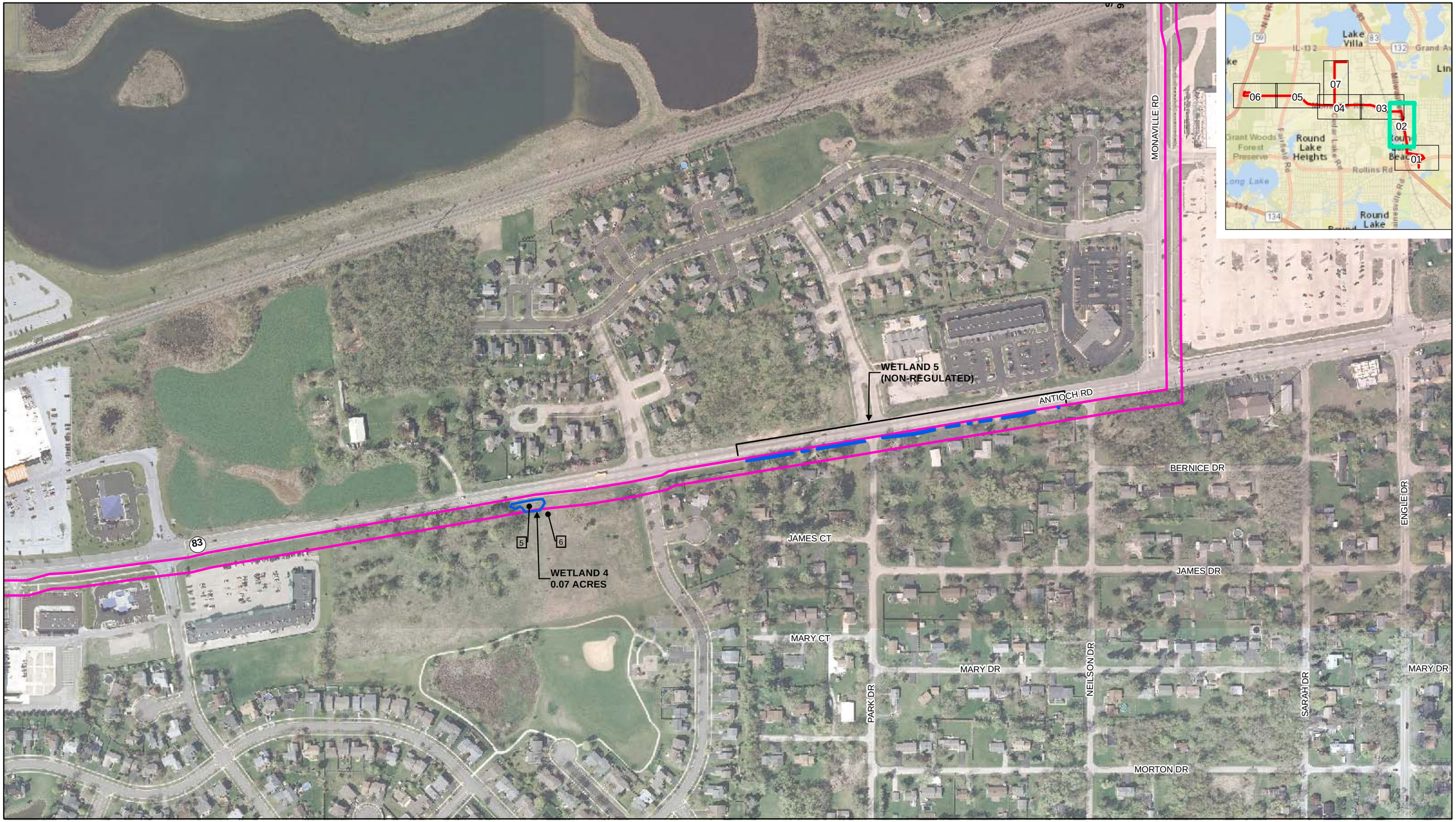
Route:
NW Route

Aerial Date:
2012

Sheet:
01 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8



Prepared by:

Hey and Associates, Inc.
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Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NW Route

Aerial Date:
2012

Sheet:
02 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
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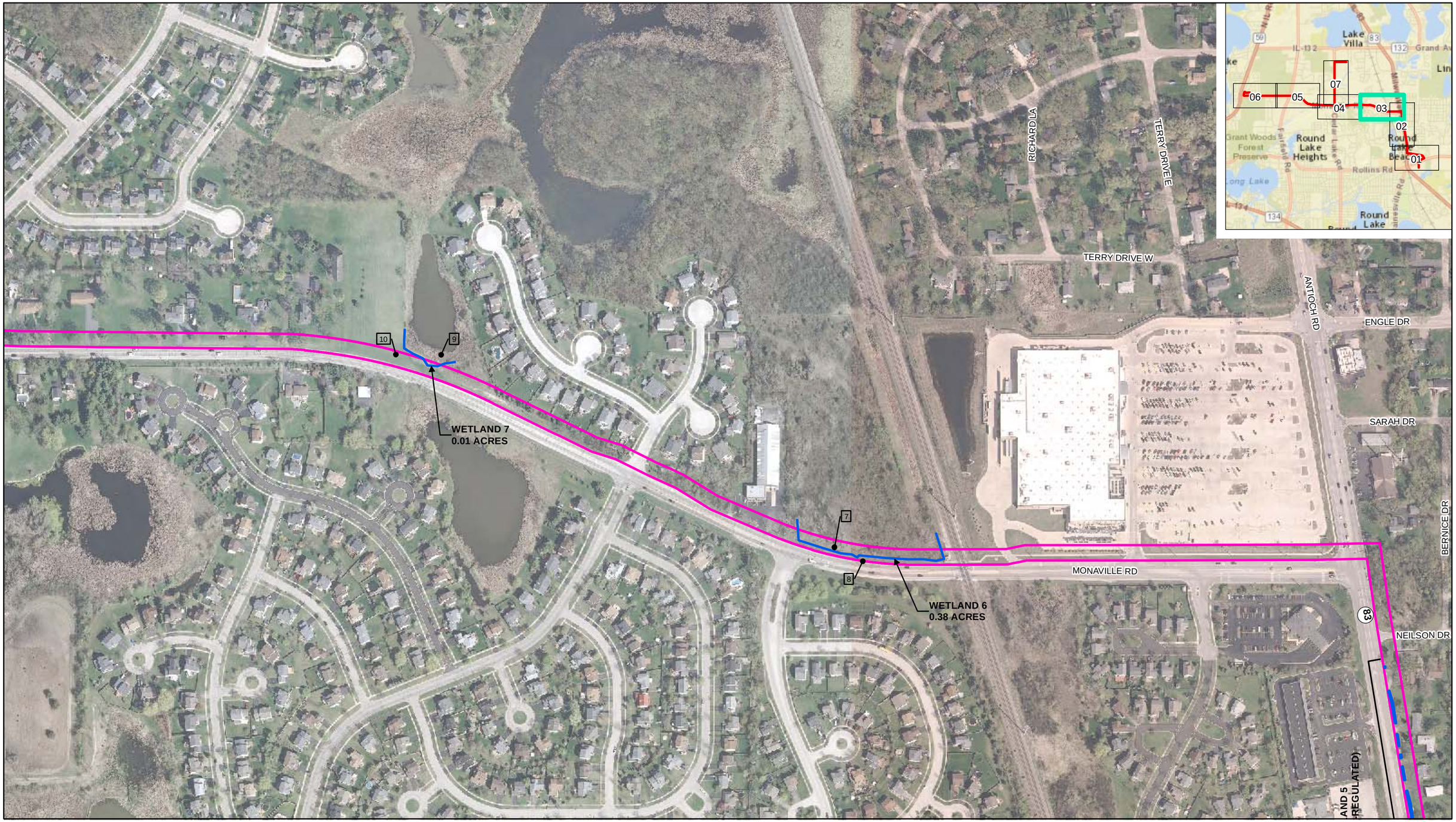

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Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

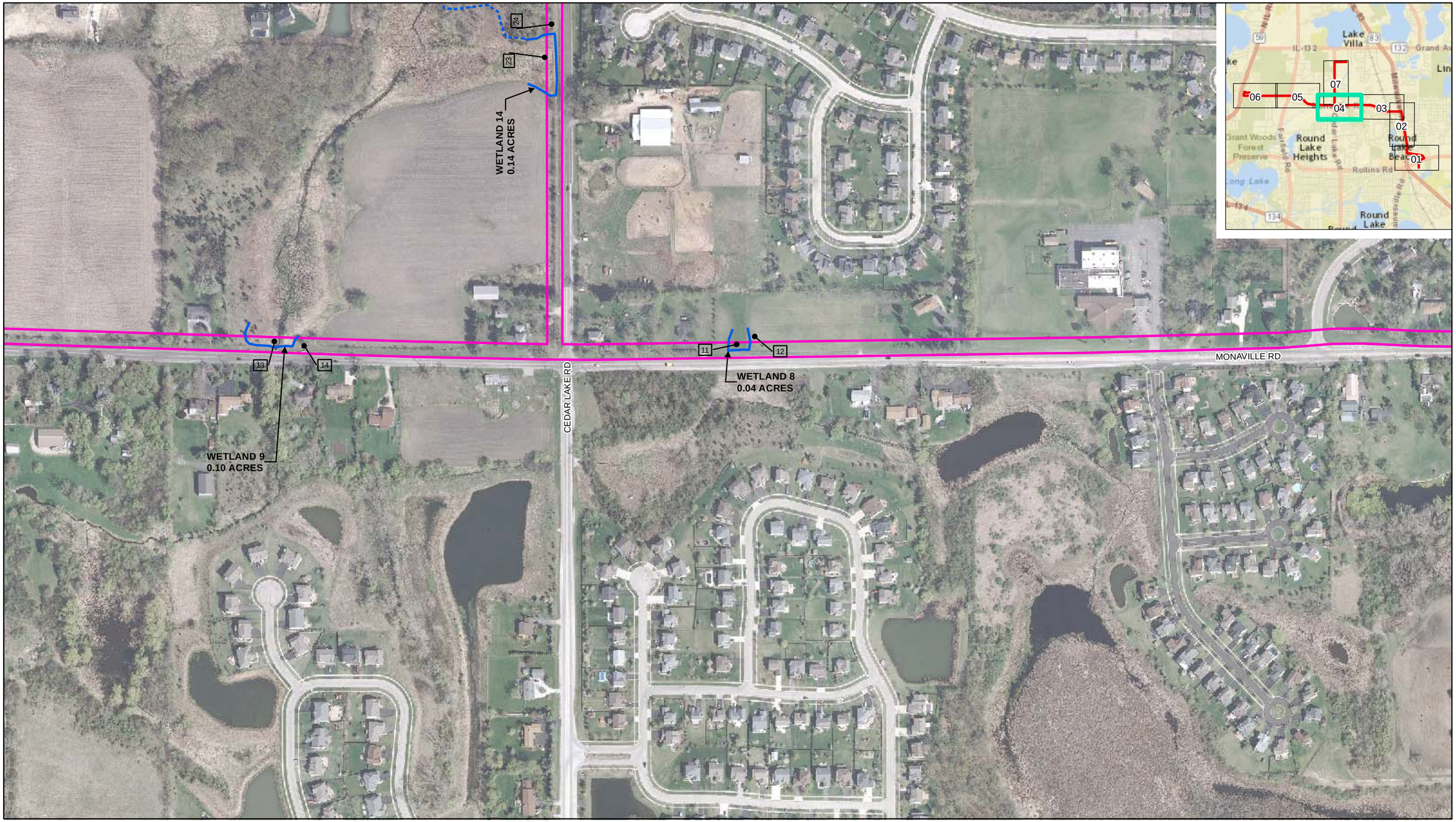
Route:
NW Route

Aerial Date:
2012

Sheet:
03 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NW Route

Aerial Date:
2012

Sheet:
04 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8

Prepared by:

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Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
X Data Point — Wetland Boundary — Study Area

Project Name:
CLC JAWA

Route:
NW Route

Aerial Date:
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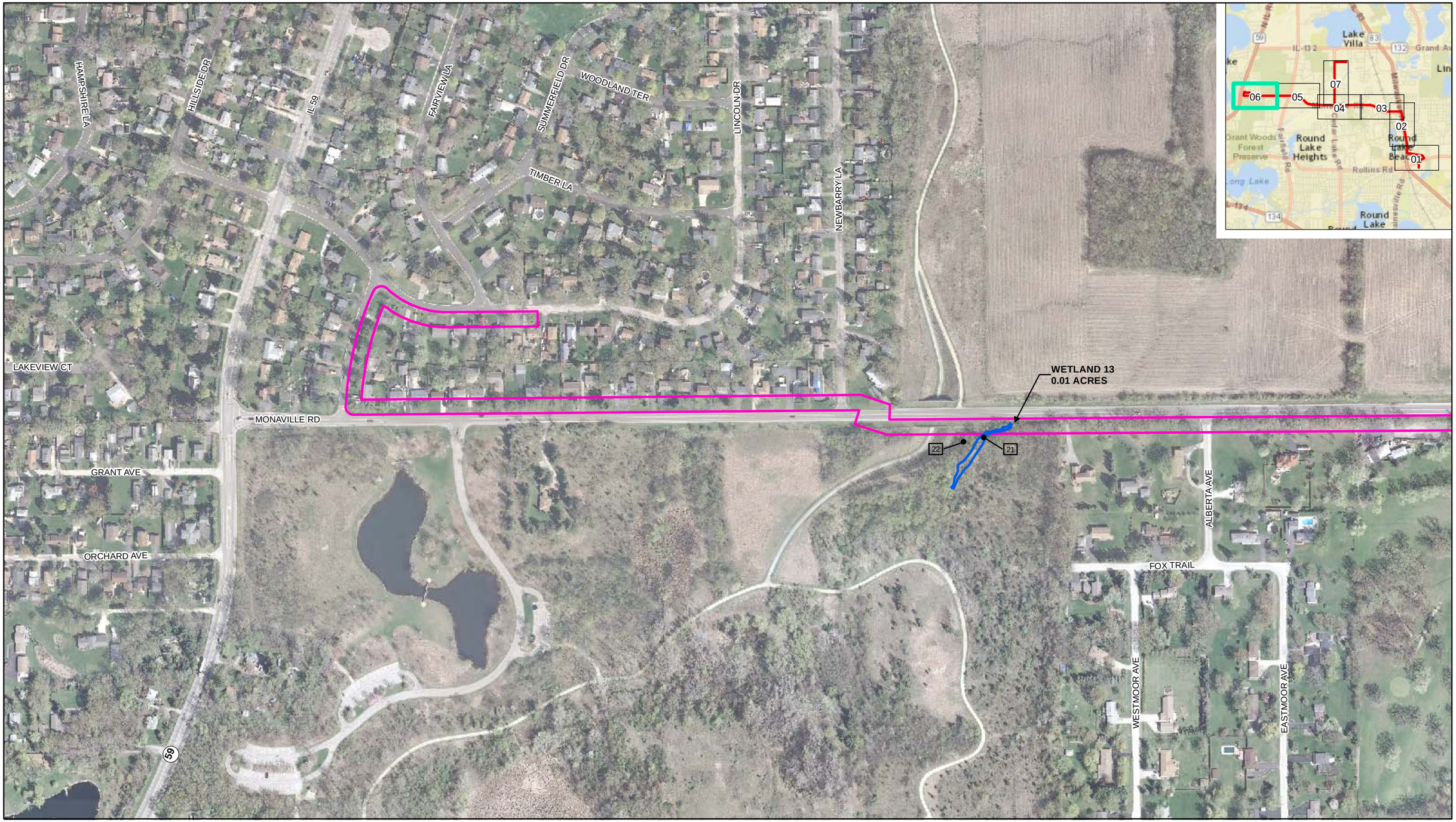
Sheet:
05 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

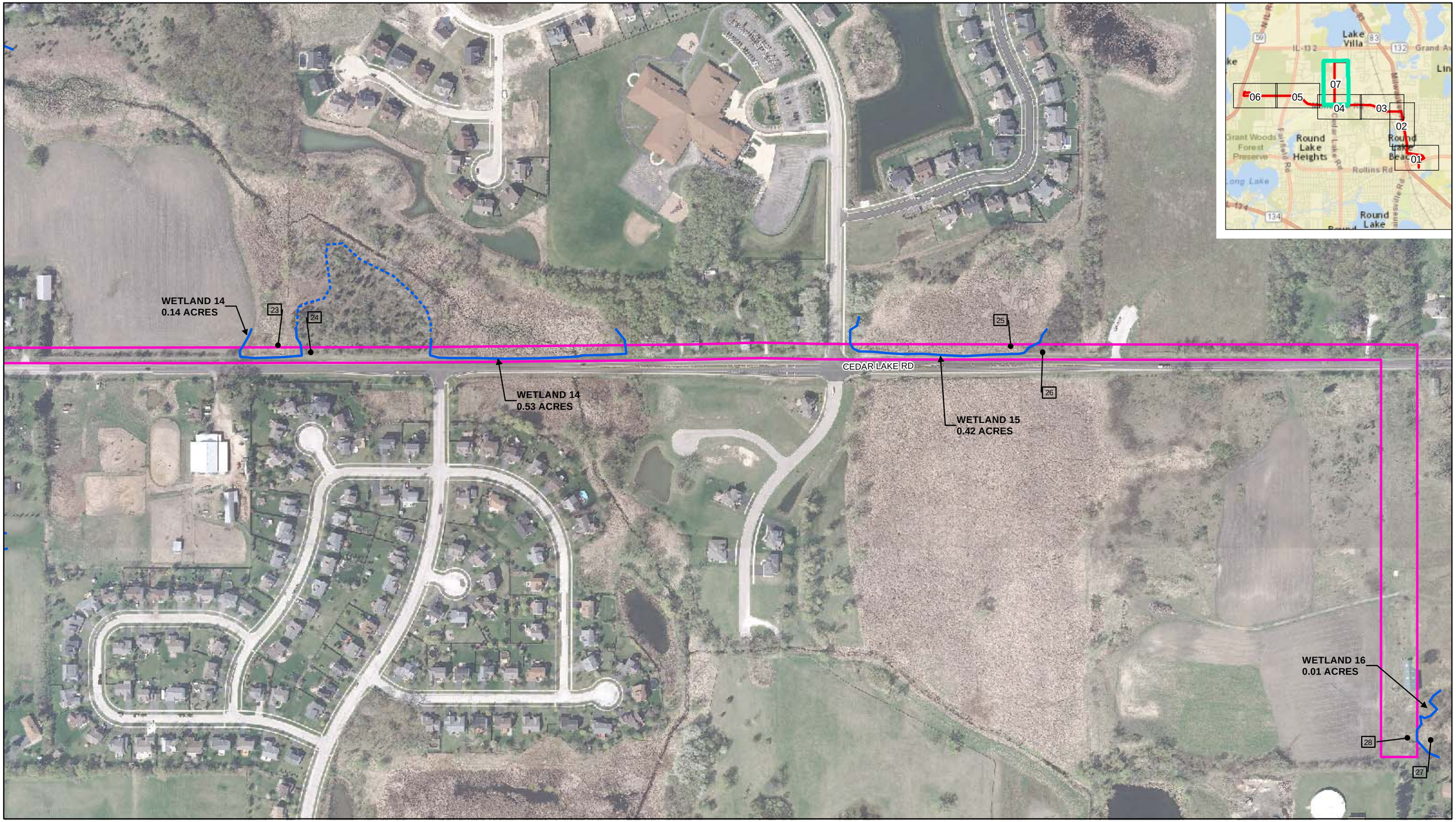
Route:
NW Route

Aerial Date:
2012

Sheet:
06 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/9/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NW Route

Aerial Date:
2012

Sheet:
07 of 07

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
8

EXHIBIT 9

CLC JAWA
NW ROUTE

OBSERVED PLANT
SPECIES LISTS

The following inventory, prepared by Hey and Associates, Inc., follows the nomenclature given in the National Wetland Plant List (NWPL)/Mohlenbrock 2014. Each species is provided with its database acronym and coefficient of conservatism (0 = weedy, 10 = conservative), and followed by its wetness coefficient (-2 = wet, +2 = dry), corresponding National Wetland Category (OBL = obligate wetland species, FACW = facultative wetland, FAC - facultative species, FACU = facultative upland, UPL = upland species), and physiognomy (A = annual, B = biennial, P = perennial, W = woody, H = herbaceous). Native taxa are those species believed to have been present in the Chicago region prior to settlement. Adventives, shown in ALL CAPS, include those species that have entered the region since settlement and are therefore not integral to any presettlement community.

The information above the species list provides analysis of the vegetative quality of the site. It shows the total number of species present (species richness), the mean coefficient of conservatism (Mean C), the index (FQAI), and mean wetness; calculated separately for native species only and then including the adventive species (W/Adventives). The MEAN C datum indicates the average coefficient of conservatism. The FQAI is derived by multiplying the MEAN C by the square root of the number of SPECIES. If the FQAI of an area registers in the middle 30's or higher, one can be relatively certain that there is sufficient native character to be of rather profound environmental importance in terms of a regional natural area prospective. The WETNESS datum indicates the mean wetness coefficient for all species present, natives only and then with adventives. The table also provides the number of species in each physiognomic class, NATIVE *versus* ADVENTIVE along with their percentage of the total inventory.

Source: Herman, B., Sliwinski, R. and S. Whitaker. 2013. Chicago Region FQA (Floristic Quality Assessment) Calculator. U.S. Army Corps of Engineers, Chicago, IL. Version September 29, 2014

SITE: NW Wetland 1
LOCALE: Round Lake, Lake County, IL
BY: Steven Rauch
DATE: 7/31/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.75**	SPECIES RICHNESS (ALL)	44
MEAN C (ALL SPECIES)	1.75	SPECIES RICHNESS (NATIVE)	28
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.36
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.57
MEAN C (NATIVE HERBACEOUS)	3.00	WET INDICATOR (NATIVE)	-0.75
FQAI (NATIVE SPECIES)	**14.55**	% HYDROPHYTE (MIDWEST)	0.77
FQAI (ALL SPECIES)	11.61	% NATIVE PERENNIAL	0.57
ADJUSTED FQAI	21.94	% NATIVE ANNUAL	0.05
% C VALUE 0	0.41	% ANNUAL	0.05
% C VALUE 1-3	0.32	% PERENNIAL	0.89
% C VALUE 4-6	0.27		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FAC	FACU	0	Forb	Biennial	Adventive
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cicmac	Cicuta maculata	Cicuta maculata	Spotted Water-Hemlock	6	OBL	OBL	-2	Forb	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne's Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
eriann	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	FACU	1	Forb	Biennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
rhafra	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn	0	FACW	FAC	-1	Shrub	Perennial	Adventive
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1	FACW	FACW	-1	Tree	Perennial	Native
galapa	Galium aparine	Galium aparine	Sticky-Willy	1	FACU	FACU	1	Forb	Annual	Native
glehed	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0	FACU	FACU	1	Forb	Perennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
horjub	Hordeum jubatum	HORDEUM JUBATUM	Fox-Tail Barley	0	FAC	FAC	0	Grass	Perennial	Adventive

juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
junvir	Juniperus virginiana	Juniperus virginiana crebra	Eastern Red-Cedar	2	FACU	FACU	1	Tree	Perennial	Native
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny	0	FACW	FACW	-1	Forb	Perennial	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
menarv	Mentha arvensis	Mentha arvensis villosa	American Wild Mint	5	FACW	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper	2	OBL	OBL	-2	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
plamaj	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
pruvla	Prunella vulgaris ssp. lanceolata	Prunella vulgaris lanceolata	Common Selfheal	0	FAC	FAC	0	Forb	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rudhir	Rudbeckia hirta	Rudbeckia hirta	Black-Eyed-Susan	1	FACU	FACU	1	Forb	Perennial	Native
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
sciflu	Schoenoplectus fluviatilis	Scirpus fluviatilis	River Club-Rush	4	OBL	OBL	-2	Sedge	Perennial	Native
scivac	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	5	OBL	OBL	-2	Sedge	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
spapec	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4	FACW	FACW	-1	Grass	Perennial	Native
staten	Stachys tenuifolia	Stachys tenuifolia hispida	Smooth Hedge-Nettle	5	OBL	FACW	-2	Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	FACW	-1	Tree	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NW Wetland 2
LOCALE: Round Lake, Lake County, IL
BY: Steven Rauch
DATE: 7/31/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.89**	SPECIES RICHNESS (ALL)	44
MEAN C (ALL SPECIES)	2.30	SPECIES RICHNESS (NATIVE)	35
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.20
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.52
MEAN C (NATIVE HERBACEOUS)	3.00	WET INDICATOR (NATIVE)	-0.66
FQAI (NATIVE SPECIES)	**17.07**	% HYDROPHYTE (MIDWEST)	0.70
FQAI (ALL SPECIES)	15.23	% NATIVE PERENNIAL	0.70
ADJUSTED FQAI	25.74	% NATIVE ANNUAL	0.05
% C VALUE 0	0.32	% ANNUAL	0.05
% C VALUE 1-3	0.27	% PERENNIAL	0.84
% C VALUE 4-6	0.41		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cicmac	Cicuta maculata	Cicuta maculata	Spotted Water-Hemlock	6	OBL	OBL	-2	Forb	Perennial	Native
corsto	Cornus alba	Cornus stolonifera	Red Osier	6	FACW	FACW	-1	Shrub	Perennial	Native
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne’s Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native
eriann	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	FACU	1	Forb	Biennial	Native
eupalt	Eupatorium altissimum	Eupatorium altissimum	Tall Boneset	0	UPL	UPL	2	Forb	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
fravir	Fragaria virginiana	Fragaria virginiana	Virginia Strawberry	1	FACU	FACU	1	Forb	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
horjub	Hordeum jubatum	HORDEUM JUBATUM	Fox-Tail Barley	0	FAC	FAC	0	Grass	Perennial	Adventive

irivir	Iris virginica var. shrevei	Iris virginica shrevei	Virginia Blueflag	5 OBL	OBL	-2 Forb	Perennial	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	4 FACW	FACW	-1 Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4 FACW	FACW	-1 Forb	Perennial	Native
junvir	Juniperus virginiana	Juniperus virginiana crebra	Eastern Red-Cedar	2 FACU	FACU	1 Tree	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0 OBL	OBL	-2 Forb	Perennial	Adventive
melalb	Melilotus albus	MELILOTUS ALBA	White Sweet-Clover	0 UPL	UPL	2 Forb	Biennial	Adventive
menarv	Mentha arvensis	Mentha arvensis villosa	American Wild Mint	5 FACW	FACW	-1 Forb	Perennial	Native
oenbie	Oenothera biennis	Oenothera biennis	King's-Cureall	0 FACU	FACU	1 Forb	Biennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper	2 OBL	OBL	-2 Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
phyvir	Physostegia virginiana	Physostegia virginiana	Obedient-Plant	6 FACW	FACW	-1 Forb	Perennial	Native
rhugla	Rhus glabra	Rhus glabra	Smooth Sumac	1 UPL	UPL	2 Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1 FACW	FACW	-1 Shrub	Perennial	Native
sciacu	Schoenoplectus acutus	Scirpus acutus	Hard-Stem Club-Rush	6 OBL	OBL	-2 Sedge	Perennial	Native
sciflu	Schoenoplectus fluviatilis	Scirpus fluviatilis	River Club-Rush	4 OBL	OBL	-2 Sedge	Perennial	Native
scival	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	5 OBL	OBL	-2 Sedge	Perennial	Native
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4 OBL	OBL	-2 Sedge	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4 FACW	FACW	-1 Forb	Perennial	Native
solrig	Solidago rigida	Solidago rigida	Hard-Leaf Flat-Top-Goldenrod	4 FACU	FACU	1 Forb	Perennial	Native
sonarv	Sonchus arvensis	SONCHUS ARVENSIS	Field Sow-Thistle	0 FACU	FACU	1 Forb	Perennial	Adventive
spapec	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4 FACW	FACW	-1 Grass	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0 FACU	FACU	1 Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1 OBL	OBL	-2 Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4 FACW	FACW	-1 Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

SITE: NW Wetland 4
LOCALE: Round Lake, Lake County, IL
BY: Steven Rauch
DATE: 8/22/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.67**	SPECIES RICHNESS (ALL)	14
MEAN C (ALL SPECIES)	1.14	SPECIES RICHNESS (NATIVE)	6
MEAN C (NATIVE TREES)	0.00	% NON-NATIVE	0.57
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	0.07
MEAN C (NATIVE HERBACEOUS)	3.00	WET INDICATOR (NATIVE)	-0.17
FQAI (NATIVE SPECIES)	**6.53**	% HYDROPHYTE (MIDWEST)	0.50
FQAI (ALL SPECIES)	4.28	% NATIVE PERENNIAL	0.36
ADJUSTED FQAI	17.46	% NATIVE ANNUAL	0.00
% C VALUE 0	0.64	% ANNUAL	0.00
% C VALUE 1-3	0.21	% PERENNIAL	0.79
% C VALUE 4-6	0.07		
% C VALUE 7-10	0.07		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FAC	FACU	0	Forb	Biennial	Adventive
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cxtric	Carex trichocarpa	Carex trichocarpa	Hairy-Fruit Sedge	7	OBL	OBL	-2	Sedge	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
oenbie	Oenothera biennis	Oenothera biennis	King's-Cureall	0	FACU	FACU	1	Forb	Biennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	FACU	1	Shrub	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
ulmpum	Ulmus pumila	ULMUS PUMILA	Siberian Elm	0	UPL	FACU	2	Tree	Perennial	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NW Wetland 6

LOCALE: Round Lake Beach, Lake County, IL
BY: Steven Rauch
DATE: 8/22/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.04**	SPECIES RICHNESS (ALL)	36
MEAN C (ALL SPECIES)	2.36	SPECIES RICHNESS (NATIVE)	28
MEAN C (NATIVE TREES)	1.50	% NON-NATIVE	0.22
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.97
MEAN C (NATIVE HERBACEOUS)	3.45	WET INDICATOR (NATIVE)	-1.18
FQAI (NATIVE SPECIES)	**16.06**	% HYDROPHYTE (MIDWEST)	0.92
FQAI (ALL SPECIES)	14.17	% NATIVE PERENNIAL	0.75
ADJUSTED FQAI	26.77	% NATIVE ANNUAL	0.03
% C VALUE 0	0.25	% ANNUAL	0.06
% C VALUE 1-3	0.33	% PERENNIAL	0.94
% C VALUE 4-6	0.42		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
calcan	Calamagrostis canadensis	Calamagrostis canadensis	Bluejoint	3	OBL	OBL	-2	Grass	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cxstri	Carex stricta	Carex stricta	Uptight Sedge	5	OBL	OBL	-2	Sedge	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
cypstr	Cyperus strigosus	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
elepal	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
eupper	Eupatorium perfoliatum	Eupatorium perfoliatum	Common Boneset	4	OBL	FACW	-2	Forb	Perennial	Native
rhafra	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn	0	FACW	FAC	-1	Shrub	Perennial	Adventive
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1	FACW	FACW	-1	Tree	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
irivir	Iris virginica var. shrevei	Iris virginica shrevei	Virginia Blueflag	5	OBL	OBL	-2	Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
leeory	Leersia oryzoides	Leersia oryzoides	Rice Cut Grass	4	OBL	OBL	-2	Grass	Perennial	Native

lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
peramp	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	OBL	-2	Forb	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
sonarv	Sonchus arvensis	SONCHUS ARVENSIS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
spapec	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4	FACW	FACW	-1	Grass	Perennial	Native
staten	Stachys tenuifolia	Stachys tenuifolia hispida	Smooth Hedge-Nettle	5	OBL	FACW	-2	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native
verfas	Vernonia fasciculata	Vernonia fasciculata	Prairie Ironweed	5	FACW	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native
xanstr	Xanthium strumarium	XANTHIUM STRUMARIUM	Rough Cockleburr	0	FAC	FAC	0	Forb	Annual	Adventive

SITE: NW Wetland 7

LOCALE: Round Lake Beach, Lake County, IL
BY: Steven Rauch
DATE: 8/22/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.43**	SPECIES RICHNESS (ALL)	23
MEAN C (ALL SPECIES)	1.48	SPECIES RICHNESS (NATIVE)	14
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.39
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.39
MEAN C (NATIVE HERBACEOUS)	2.58	WET INDICATOR (NATIVE)	-0.64
FQAI (NATIVE SPECIES)	**9.09**	% HYDROPHYTE (MIDWEST)	0.74
FQAI (ALL SPECIES)	7.09	% NATIVE PERENNIAL	0.52
ADJUSTED FQAI	18.95	% NATIVE ANNUAL	0.09
% C VALUE 0	0.48	% ANNUAL	0.13
% C VALUE 1-3	0.26	% PERENNIAL	0.78
% C VALUE 4-6	0.26		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
ascsyr	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	FACU	UPL	1	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne’s Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
horjub	Hordeum jubatum	HORDEUM JUBATUM	Fox-Tail Barley	0	FAC	FAC	0	Grass	Perennial	Adventive
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
lemmio	Lemna minor	Lemna minor	Common Duckweed	5	OBL	OBL	-2	Forb	Annual	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native

solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
xanstr	Xanthium strumarium	XANTHIUM STRUMARIUM	Rough Cockleburr	0	FAC	FAC	0	Forb	Annual	Adventive

SITE:	NW Wetland 8
LOCALE:	Lake Villa, Lake County, IL
BY:	Steven Rauch
DATE:	8/22/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.50**	SPECIES RICHNESS (ALL)	6
MEAN C (ALL SPECIES)	0.83	SPECIES RICHNESS (NATIVE)	2
MEAN C (NATIVE TREES)	n/a	% NON-NATIVE	0.67
MEAN C (NATIVE SHRUBS)	n/a	WET INDICATOR (ALL)	-0.17
MEAN C (NATIVE HERBACEOUS)	2.50	WET INDICATOR (NATIVE)	-1.50
FQAI (NATIVE SPECIES)	**3.54**	% HYDROPHYTE (MIDWEST)	0.67
FQAI (ALL SPECIES)	2.04	% NATIVE PERENNIAL	0.33
ADJUSTED FQAI	14.43	% NATIVE ANNUAL	0.00
% C VALUE 0	0.67	% ANNUAL	0.17
% C VALUE 1-3	0.17	% PERENNIAL	0.83
% C VALUE 4-6	0.17		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
cypstr	Cyperus strigosus	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	FACW	-1	Sedge	Perennial	Native
polcoc	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	OBL	-2	Forb	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
fesela	Schedonorus pratensis	FESTUCA ELATIOR	Meadow Fescue	0	FACU	FACU	1	Grass	Perennial	Adventive
setvir	Setaria viridis	SETARIA VIRIDIS	Green Foxtail	0	UPL	UPL	2	Grass	Annual	Adventive

SITE: NW Wetland 9
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.80**	SPECIES RICHNESS (ALL)	27
MEAN C (ALL SPECIES)	2.07	SPECIES RICHNESS (NATIVE)	20
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.26
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.52
MEAN C (NATIVE HERBACEOUS)	3.12	WET INDICATOR (NATIVE)	-0.75
FQAI (NATIVE SPECIES)	**12.52**	% HYDROPHYTE (MIDWEST)	0.74
FQAI (ALL SPECIES)	10.78	% NATIVE PERENNIAL	0.74
ADJUSTED FQAI	24.10	% NATIVE ANNUAL	0.00
% C VALUE 0	0.37	% ANNUAL	0.00
% C VALUE 1-3	0.22	% PERENNIAL	0.96
% C VALUE 4-6	0.41		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
alisub	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	4	OBL	OBL	-2	Forb	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
ascsyr	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	FACU	UPL	1	Forb	Perennial	Native
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cxstri	Carex stricta	Carex stricta	Uptight Sedge	5	OBL	OBL	-2	Sedge	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
irivir	Iris virginica var. shrevei	Iris virginica shrevei	Virginia Blueflag	5	OBL	OBL	-2	Forb	Perennial	Native
junvir	Juniperus virginiana	Juniperus virginiana crebra	Eastern Red-Cedar	2	FACU	FACU	1	Tree	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
saglat	Sagittaria latifolia	Sagittaria latifolia	Duck-Potato	4	OBL	OBL	-2	Forb	Perennial	Native
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
sciflu	Schoenoplectus fluviatilis	Scirpus fluviatilis	River Club-Rush	4	OBL	OBL	-2	Sedge	Perennial	Native
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native

solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
spapec	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4	FACW	FACW	-1	Grass	Perennial	Native
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NW Wetland 10
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.34**	SPECIES RICHNESS (ALL)	54
MEAN C (ALL SPECIES)	2.54	SPECIES RICHNESS (NATIVE)	41
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.24
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.98
MEAN C (NATIVE HERBACEOUS)	3.59	WET INDICATOR (NATIVE)	-1.20
FQAI (NATIVE SPECIES)	**21.40**	% HYDROPHYTE (MIDWEST)	0.89
FQAI (ALL SPECIES)	18.64	% NATIVE PERENNIAL	0.67
ADJUSTED FQAI	29.12	% NATIVE ANNUAL	0.09
% C VALUE 0	0.31	% ANNUAL	0.09
% C VALUE 1-3	0.26	% PERENNIAL	0.89
% C VALUE 4-6	0.37		
% C VALUE 7-10	0.06		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	0	FACW	FACW	-1	Tree	Perennial	Native
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
alisub	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	4	OBL	OBL	-2	Forb	Perennial	Native
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
calcan	Calamagrostis canadensis	Calamagrostis canadensis	Bluejoint	3	OBL	OBL	-2	Grass	Perennial	Native
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cxlacu	Carex lacustris	Carex lacustris	Lakebank Sedge	6	OBL	OBL	-2	Sedge	Perennial	Native
cxstri	Carex stricta	Carex stricta	Uptight Sedge	5	OBL	OBL	-2	Sedge	Perennial	Native
cxtric	Carex trichocarpa	Carex trichocarpa	Hairy-Fruit Sedge	7	OBL	OBL	-2	Sedge	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
echlob	Echinocystis lobata	Echinocystis lobata	Wild Cucumber	5	FACW	FACW	-1	Vine	Annual	Native
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
epicol	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native

solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
eupmac	Eutrochium maculatum	Eupatorium maculatum	Spotted Trumpetweed	4	OBL	OBL	-2	Forb	Perennial	Native
rhafra	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn	0	FACW	FAC	-1	Shrub	Perennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny	0	FACW	FACW	-1	Forb	Perennial	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
menarv	Mentha arvensis	Mentha arvensis villosa	American Wild Mint	5	FACW	FACW	-1	Forb	Perennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	8	FACW	FACW	-1	Fern	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
polcoc	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	OBL	-2	Forb	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	5	FACW	FACW	-1	Forb	Annual	Native
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
saglat	Sagittaria latifolia	Sagittaria latifolia	Duck-Potato	4	OBL	OBL	-2	Forb	Perennial	Native
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native
scival	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	5	OBL	OBL	-2	Sedge	Perennial	Native
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native
siusua	Sium suave	Sium suave	Hemlock Water-Parsnip	7	OBL	OBL	-2	Forb	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
spaeur	Sparganium eurycarpum	Sparganium eurycarpum	Broad-Fruit Burr-Reed	6	OBL	OBL	-2	Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NW Wetland 11
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.27**	SPECIES RICHNESS (ALL)	16
MEAN C (ALL SPECIES)	2.25	SPECIES RICHNESS (NATIVE)	11
MEAN C (NATIVE TREES)	n/a	% NON-NATIVE	0.31
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.56
MEAN C (NATIVE HERBACEOUS)	3.50	WET INDICATOR (NATIVE)	-0.73
FQAI (NATIVE SPECIES)	**10.85**	% HYDROPHYTE (MIDWEST)	0.75
FQAI (ALL SPECIES)	9.00	% NATIVE PERENNIAL	0.69
ADJUSTED FQAI	27.14	% NATIVE ANNUAL	0.00
% C VALUE 0	0.38	% ANNUAL	0.00
% C VALUE 1-3	0.19	% PERENNIAL	0.94
% C VALUE 4-6	0.38		
% C VALUE 7-10	0.06		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
fesela	Schedonorus pratensis	FESTUCA ELATIOR	Meadow Fescue	0	FACU	FACU	1	Grass	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
solrid	Solidago riddellii	Solidago riddellii	Riddell's Goldenrod	7	OBL	OBL	-2	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NW Wetland 12
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.92**	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.10	SPECIES RICHNESS (NATIVE)	12
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.43
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.33
MEAN C (NATIVE HERBACEOUS)	1.88	WET INDICATOR (NATIVE)	-0.42
FQAI (NATIVE SPECIES)	**6.64**	% HYDROPHYTE (MIDWEST)	0.76
FQAI (ALL SPECIES)	5.02	% NATIVE PERENNIAL	0.48
ADJUSTED FQAI	14.49	% NATIVE ANNUAL	0.10
% C VALUE 0	0.52	% ANNUAL	0.10
% C VALUE 1-3	0.33	% PERENNIAL	0.86
% C VALUE 4-6	0.14		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cxgran	Carex granularis	Carex granularis	Limestone-Meadow Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
dipsyl	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel	0	FACU	FACU	1	Forb	Biennial	Adventive
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny	0	FACW	FACW	-1	Forb	Perennial	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
moralb	Morus alba	MORUS ALBA	White Mulberry	0	FAC	FACU	0	Tree	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper	2	OBL	OBL	-2	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native

vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE:	NW Wetland 13
LOCALE:	Lake Villa, Lake County, IL
BY:	Steven Rauch
DATE:	9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.00**	SPECIES RICHNESS (ALL)	7
MEAN C (ALL SPECIES)	1.14	SPECIES RICHNESS (NATIVE)	4
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.43
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.29
MEAN C (NATIVE HERBACEOUS)	4.00	WET INDICATOR (NATIVE)	-0.75
FQAI (NATIVE SPECIES)	**4.00**	% HYDROPHYTE (MIDWEST)	0.86
FQAI (ALL SPECIES)	3.02	% NATIVE PERENNIAL	0.57
ADJUSTED FQAI	15.12	% NATIVE ANNUAL	0.00
% C VALUE 0	0.57	% ANNUAL	0.00
% C VALUE 1-3	0.29	% PERENNIAL	1.00
% C VALUE 4-6	0.14		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
glystr	Glyceria striata	Glyceria striata	Fowl Manna Grass	4	OBL	OBL	-2	Grass	Perennial	Native
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny	0	FACW	FACW	-1	Forb	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NW Wetland 14
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.00**	SPECIES RICHNESS (ALL)	39
MEAN C (ALL SPECIES)	2.00	SPECIES RICHNESS (NATIVE)	26
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.33
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.74
MEAN C (NATIVE HERBACEOUS)	3.32	WET INDICATOR (NATIVE)	-1.08
FQAI (NATIVE SPECIES)	**15.30**	% HYDROPHYTE (MIDWEST)	0.82
FQAI (ALL SPECIES)	12.49	% NATIVE PERENNIAL	0.56
ADJUSTED FQAI	24.49	% NATIVE ANNUAL	0.08
% C VALUE 0	0.41	% ANNUAL	0.08
% C VALUE 1-3	0.28	% PERENNIAL	0.90
% C VALUE 4-6	0.28		
% C VALUE 7-10	0.03		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
cxstri	Carex stricta	Carex stricta	Uptight Sedge	5	OBL	OBL	-2	Sedge	Perennial	Native
cxtric	Carex trichocarpa	Carex trichocarpa	Hairy-Fruit Sedge	7	OBL	OBL	-2	Sedge	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
epicol	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0	FACU	FACU	1	Forb	Perennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
laccan	Lactuca canadensis	Lactuca canadensis	Canadian Blue Lettuce	2	FACU	FACU	1	Forb	Biennial	Native
lemmio	Lemna minor	Lemna minor	Common Duckweed	5	OBL	OBL	-2	Forb	Annual	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive

polcoc	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	OBL	-2	Forb	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
sciflu	Schoenoplectus fluviatilis	Scirpus fluviatilis	River Club-Rush	4	OBL	OBL	-2	Sedge	Perennial	Native
scival	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	5	OBL	OBL	-2	Sedge	Perennial	Native
corvar	Securigera varia	CORONILLA VARIA	Crown Vetch	0	UPL	UPL	2	Forb	Perennial	Adventive
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
spaeur	Sparganium eurycarpum	Sparganium eurycarpum	Broad-Fruit Burr-Reed	6	OBL	OBL	-2	Forb	Perennial	Native
staten	Stachys tenuifolia	Stachys tenuifolia hispida	Smooth Hedge-Nettle	5	OBL	FACW	-2	Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NW Wetland 15
LOCALE: Lake Villa, Lake County, IL
BY: Stevern Rauch
DATE: 9/11/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.09**	SPECIES RICHNESS (ALL)	19
MEAN C (ALL SPECIES)	1.79	SPECIES RICHNESS (NATIVE)	11
MEAN C (NATIVE TREES)	3.00	% NON-NATIVE	0.42
MEAN C (NATIVE SHRUBS)	4.50	WET INDICATOR (ALL)	-0.53
MEAN C (NATIVE HERBACEOUS)	2.71	WET INDICATOR (NATIVE)	-0.82
FQAI (NATIVE SPECIES)	**10.25**	% HYDROPHYTE (MIDWEST)	0.79
FQAI (ALL SPECIES)	7.80	% NATIVE PERENNIAL	0.47
ADJUSTED FQAI	23.52	% NATIVE ANNUAL	0.11
% C VALUE 0	0.47	% ANNUAL	0.11
% C VALUE 1-3	0.26	% PERENNIAL	0.89
% C VALUE 4-6	0.21		
% C VALUE 7-10	0.05		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
popalb	Populus alba	POPULUS ALBA	White Poplar	0	UPL	UPL	2	Tree	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salbeb	Salix bebbiana	Salix bebbiana	Gray Willow	8	FACW	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native
corvar	Securigera varia	CORONILLA VARIA	Crown Vetch	0	UPL	UPL	2	Forb	Perennial	Adventive
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NW Wetland 16
LOCALE: Lake Villa, Lake County, IL
BY: Steven Rauch
DATE: 9/12/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.30**	SPECIES RICHNESS (ALL)	12
MEAN C (ALL SPECIES)	1.08	SPECIES RICHNESS (NATIVE)	10
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.17
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.33
MEAN C (NATIVE HERBACEOUS)	1.60	WET INDICATOR (NATIVE)	-0.30
FQAI (NATIVE SPECIES)	**4.11**	% HYDROPHYTE (MIDWEST)	0.92
FQAI (ALL SPECIES)	3.75	% NATIVE PERENNIAL	0.83
ADJUSTED FQAI	11.87	% NATIVE ANNUAL	0.00
% C VALUE 0	0.33	% ANNUAL	0.00
% C VALUE 1-3	0.58	% PERENNIAL	1.00
% C VALUE 4-6	0.08		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
aposib	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native
eutgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1	FACW	FACW	-1	Tree	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native

EXHIBIT 10

CLC JAWA
NW ROUTE

JURISDICTIONAL
DATAFORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: July 31, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP1-WL1

Investigator(s): Steven Rauch | Section, Township, Range: 15, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3816 | Long: -88.0563 | Datum: GPS decimal

Soil Map Unit Name: Pella silty clay loam (153A) | NWI Classification: PEMF

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 1

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	100	Y	OBL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	100	x 1 =	100
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP1-WL1

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 6/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	X	No	___	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: July 31, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP2-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 15, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3816 | Long: -88.0563 | Datum: GPS decimal

Soil Map Unit Name: Grays and Markham silt loams (979B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Prunus serotina*	10	Y	FACU
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Lonicera tatarica*	30	Y	FACU
2 *Rhamnus cathartica*	30	Y	FAC
3 *Crataegus crus-galli*	10	N	FAC
4			
5			
	70	= Total Cover	

Herb stratum (Plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: ____)			
1 *Vitis riparia*	10	Y	FACW
2			
	10	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	4	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	50.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	80 (A)		280 (B)
Prevalence Index = B/A =			3.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP2-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 3/2	100					silt loam	
12-20	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (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 Soils:

___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L)**
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Very Shallow Dark Surface (TF12)
___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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:

	Yes	No	Depth (inches)
Surface water present?		X	
Water table present?	X		20
Saturation present? (includes capillary fringe)	X		18

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: July 31, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP3-WL2

Investigator(s): Steven Rauch | Section, Township, Range: 15, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3826 | Long: -88.0566 | Datum: GPS decimal

Soil Map Unit Name: Pella silty clay loam (153A) | NWI Classification: POF1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 2

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	100	Y	OBL
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	100	x 1 =	100
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP3-WL2

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					silty clay loam	
12-20	10YR 4/1	90	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	X	No	___	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: July 31, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP4-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 15, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3826 | Long: -88.0566 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Juglans nigra*	30	Y	FACU
2 *Prunus serotina*	10	Y	FACU
3			
4			
5			
	40	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Lonicera tatarica*	20	Y	FACU
2 *Rhamnus cathartica*	20	Y	FAC
3 *Rubus occidentalis*	5	N	UPL
4			
5			
	45	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Poa pratensis*	30	Y	FAC
2 *Geum canadense*	15	Y	FAC
3 *Solidago canadensis*	10	N	FACU
4			
5			
6			
7			
8			
9			
10			
	55	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	70	x 4 =	280
UPL species	5	x 5 =	25
Column totals	140 (A)		500 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP4-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 4/2	100					silt loam	
10-18	10YR 5/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 20, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP5-WL4

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3903 | Long: -88.0637 | Datum: GPS decimal

Soil Map Unit Name: Markham silt loam (531C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 4

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carex trichocarpa*	50	Y	OBL
2 *Dipsacus fullonum subsp. sylvestris*	15	N	NI
3 *Phalaris arundinacea*	10	N	FACW
4 *Lythrum salicaria*	10	N	OBL
5 *Cirsium arvense*	10	N	FACU
6 *Asclepias syriaca*	5	N	UPL
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	60	x 1 =	60
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column totals	85 (A)		145 (B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP5-WL4

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	90	10YR 6/8	10	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 20, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP6-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3903 | Long: -88.0637 | Datum: GPS decimal

Soil Map Unit Name: Markham silt loam (531C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	90	Y	FAC
2 *Asclepias syriaca*	5	N	UPL
3 *Cirsium arvense*	5	N	FACU
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Parthenocissus quinquefolia*	10	Y	FAC
2 *Vitis riparia*	5	Y	FACW
	15	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column totals	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP6-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/2	100					silt loam	
14-20	10YR 45/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP7-WL6

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3963 | Long: -88.0713 | Datum: GPS decimal

Soil Map Unit Name: Barrington and Varna silt loams (984B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 6

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Rhamnus cathartica*	20	Y	FAC
2 *Cornus racemosa*	10	Y	FACW
3 *Salix exigua subsp. interior*	10	Y	OBL
4			
5			
	40	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carex stricta*	60	Y	OBL
2 *Poa pratensis*	20	Y	FAC
3 *Calamagrostis canadensis*	20	Y	OBL
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across all Strata:	6	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	140 (A)		230 (B)
Prevalence Index = B/A =			1.64

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP7-WL6

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 3/1	100					silty clay loam	
12-20	10YR 4/1	95	10YR 6/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	X	No	___	Depth (inches):	18
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	12

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP8-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3963 | Long: -88.0713 | Datum: GPS decimal

Soil Map Unit Name: Barrington and Varna silt loams (984B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	50	Y	FAC
2 *Festuca arundinacea*	50	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column totals	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP8-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP9-WL7

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.398 | Long: -88.0765 | Datum: GPS decimal

Soil Map Unit Name: Pella silty clay loam (153A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 7

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix exigua subsp. interior*			OBL
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	90	Y	OBL
2 *Phalaris arundinacea*	10	N	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP9-WL7

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-18	10YR 2/1	100					silty clay loam	
18-24	10YR 4/1	95	10YR 6/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP10-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 9, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 4-6 | Lat: 42.398 | Long: -88.0765 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530D2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	50	Y	FAC
2 *Festuca arundinacea*	50	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column totals	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP10-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP11-WL8

Investigator(s): Steven Rauch | Section, Township, Range: 8, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3982 | Long: -88.09 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 8

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	60	Y	FACW
2 *Poa pratensis*	20	Y	FAC
3 *Cyperus strigosus*	10	N	FACW
4 *Festuca arundinacea*	10	N	FACU
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP11-WL8

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 2/1	100					silty clay loam	
16-20	10YR 4/1	95	10YR 6/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface water present?	___	X	___
Water table present?	X	___	surface
Saturation present? (includes capillary fringe)	X	___	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: August 23, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP12-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 8, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 4-6 | Lat: 42.398 | Long: -88.0765 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	60	Y	FAC
2 *Festuca arundinacea*	20	Y	FACU
3 *Taraxacum officinale*	5	N	FACU
4 *Plantago major*	5	N	FAC
5 *Trifolium pratense*	5	N	FACU
6 *Setaria viridis*	5	N	NI
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column totals	95 (A)		315 (B)

Prevalence Index = B/A = 3.32

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP12-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP13-WL9

Investigator(s): Steven Rauch | Section, Township, Range: 8, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3982 | Long: -88.0957 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 9

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix fragilis*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	100	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		230 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP13-WL9

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 2/1	100					silty clay loam	
16-20	10YR 4/1	95	10YR 5/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 8
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 2

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Round Lake/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP14-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 8, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 4-6 | Lat: 42.398 | Long: -88.0765 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530B2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Rhamnus cathartica*	20	Y	FAC
2			
3			
4			
5			
	20	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Festuca arundinacea*	75	Y	FACU
2 *Poa pratensis*	20	Y	FAC
3 *Solidago canadensis*	5	N	FACU
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	4	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	75.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column totals	120 (A)		440 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP14-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP15-WL10

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3986 | Long: -88.1032 | Datum: GPS decimal

Soil Map Unit Name: Houghton muck (103A) | NWI Classification: PEMC

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 10

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	80	Y	OBL
2 *Phalaris arundinacea*	5	N	FACW
3 *Dipsacus fullonum subsp. sylvestris*	5	N	NI
4 *Carex trichocarpa*	5	N	OBL
5 *Asclepias syriaca*	5	N	UPL
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	85	x 1 =	85
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column totals	95 (A)		120 (B)

Prevalence Index = B/A = 1.26

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP15-WL10

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 5/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 12
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 4

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP16-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3986 | Long: -88.1032 | Datum: GPS decimal

Soil Map Unit Name: Wauconda and Beecher silt loam (978A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Festuca arundinacea*	40	Y	FACU
2 *Poa pratensis*	40	Y	FAC
3 *Dipsacus fullonum subsp. sylvestris*	20	Y	NI
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	80 (A)		280 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP16-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP17-WL11

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3996 | Long: -88.1048 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 11

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Agrostis gigantea*	30	Y	FACW
2 *Poa pratensis*	30	Y	FAC
3 *Festuca arundinacea*	10	N	FACU
4 *Juncus dudleyi*	10	N	NI
5 *Juncus torreyi*	10	N	FACW
6 *Solidago riddellii*	10	N	OBL
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	40	x 2 =	80
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	90 (A)		220 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP17-WL11

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 3/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	> 20

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP18-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3996 | Long: -88.1048 | Datum: GPS decimal

Soil Map Unit Name: Wauconda and Beecher silt loam (978A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Juniperus virginiana*	10	Y	FACU
2			
3			
4			
5			
	10	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Festuca arundinacea*	40	Y	FACU
2 *Poa pratensis*	40	Y	FAC
3 *Solidago canadensis*	10	N	FACU
4 *Solidago riddellii*	10	N	OBL
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column totals	110 (A)		370 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP18-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 3/2	100					silty clay loam	
14-20	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP19-WL12

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4007 | Long: -88.1068 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 12

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer negundo*	10	Y	FACW
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	20	Y	FAC
2			
3			
4			
5			
	20	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	90	Y	FACW
2 *Lysimachia nummularia*	5	N	FACW
3 *Rumex crispus*	5	N	FAC
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	130 (A)		285 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP19-WL12

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 12
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP20-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4007 | Long: -88.1068 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Quercus alba*	80	Y	FACU
2 *Prunus serotina*	20	Y	FACU
3			
4			
5			
	100	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	60	Y	FAC
2 *Lonicera tatarica*	30	Y	FACU
3 *Viburnum opulus*	10	N	FACW
4			
5			
	100	= Total Cover	

Herb stratum (Plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: ____)			
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	60	x 3 =	180
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column totals	200 (A)		720 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP20-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP21-WL13

Investigator(s): Steven Rauch | Section, Township, Range: 12, 45 N, 9 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4008 | Long: -88.1212 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 13

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Populus deltoides*			FAC
2 *Salix nigra*			OBL
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*			FAC
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Elymus virginicus*	20	Y	FACW
2 *Lysimachia nummularia*	10	Y	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	30	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	30 (A)		60 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP21-WL13

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	X	No	___	Depth (inches):	14
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	4

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11,2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP22-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 12, 45 N, 9 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4007 | Long: -88.1068 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carya ovata*	40	Y	FACU
2 *Acer negundo*	20	Y	FACW
3			
4			
5			
	60	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	40	Y	FAC
2 *Juniperus virginiana*	10	N	FACU
3 *Rubus occidentalis*	5	N	UPL
4 *Rosa multiflora*	5	N	FACU
5			
	60	= Total Cover	

Herb stratum (Plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	66.67%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	40	x 3 =	120	
FACU species	55	x 4 =	220	
UPL species	5	x 5 =	25	
Column totals	120	(A)	405	(B)
Prevalence Index = B/A =			3.38	

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP22-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP23-WL14

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4027 | Long: -88.0923 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: PEMCd/PEMFd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 14

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	30	Y	FACW
2 *Carex stricta*	20	Y	OBL
3 *Helianthus grosseserratus*	20	Y	FACW
4 *Solidago gigantea*	20	Y	FACW
5 *Euthamia graminifolia*	10	N	FAC
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20
FACW species	70	x 2 =	140
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		190 (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP23-WL14

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-18	10YR 2/1	100					silty clay loam	
18-24	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP24-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4027 | Long: -88.0923 | Datum: GPS decimal

Soil Map Unit Name: Zurich and Ozaukee silt loam (840C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Rhamnus cathartica*	40	Y	FAC
2 *Cornus racemosa*	30	Y	FACW
3 *Juniperus virginiana*	5	N	FACU
4			
5			
	75	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	40	Y	FAC
2 *Solidago canadensis*	15	Y	FACU
3 *Helianthus grosseserratus*	15	Y	FACW
4 *Aster sagittifolius*	10	N	UPL
5 *Aster pilosus*	10	N	FACU
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	80	x 3 =	240
FACU species	30	x 4 =	120
UPL species	10	x 5 =	50
Column totals	165 (A)		500 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP24-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP25-WL15

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4074 | Long: -88.0923 | Datum: GPS decimal

Soil Map Unit Name: Houghton muck (103A) | NWI Classification: PEMC

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 15

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	90	Y	OBL
2 *Phalaris arundinacea*	5	N	FACW
3 *Lythrum salicaria*	5	N	OBL
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	95	x 1 =	95
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		105 (B)

Prevalence Index = B/A = 1.05

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP25-WL15

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 2/1	100					silty clay loam	
16-22	10YR 4/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface water present?		X	
Water table present?	X		10
Saturation present? (includes capillary fringe)	X		surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 11, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP26-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4074 | Long: -88.0923 | Datum: GPS decimal

Soil Map Unit Name: Wauconda and Beecher silt loam (978A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Rhamnus cathartica*	30	Y	FAC
2 *Cornus racemosa*	30	Y	FACW
3 *Juniperus virginiana*	20	Y	FACU
4			
5			
	80	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	20	Y	FAC
2 *Aster novae-angliae*	15	Y	FACW
3 *Solidago canadensis*	15	Y	FACU
4			
5			
6			
7			
8			
9			
10			
	50	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across all Strata:	7	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	71.43%	(A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	50	x 3 =	150
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column totals	130 (A)		380 (B)
Prevalence Index = B/A =			2.92

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP26-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 12, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP27-WL16

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.411 | Long: -88.0877 | Datum: GPS Decimal

Soil Map Unit Name: Houghton muck (103A) | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 16

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer negundo*	25	Y	FACW
2 *Populus deltoides*	5	N	FAC
3			
4			
5			
	30	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	80	Y	FACW
2 *Solidago canadensis*	10	N	FACU
3 *Phragmites australis*	5	N	FACW
4 *Daucus carota*	5	N	UPL
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column totals	130 (A)		300 (B)
Prevalence Index = B/A =			2.31

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP27-WL16

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 4/3	100					silty clay loam	fill
4-18	10YR 2/1	100					silty clay loam	
18-24	10YR 4/1	95	10YR 4/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	> 20

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NW Route | City/County: Lake Villa/Lake | Sampling Date: September 12, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP28-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 5, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.411 | Long: -88.0877 | Datum: GPS Decimal

Soil Map Unit Name: Houghton muck (103A) | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Elytrigia repens*	60	Y	FACU
2 *Daucus carota*	20	Y	UPL
3 *Agrostis gigantea*	10	N	FACW
4 *Solidago canadensis*	5	N	FACU
5 *Bromus inermis*	5	N	UPL
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	65	x 4 =	260
UPL species	25	x 5 =	125
Column totals	100 (A)		405 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP28-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 5/4	100					silt loam	fill

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	> 20
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	> 20

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

EXHIBIT 11

CLC JAWA
NW ROUTE

REPRESENTATIVE
COLOR
PHOTOGRAPHS

Exhibit 11 Representative Color Photographs

Photograph 1: Data Point 1-Wetland 1 facing south.

Photograph 2: Data Point 2-Upland facing south.

Exhibit 11 Representative Color Photographs

Photograph 3: Data Point 3-Wetland 2 facing north.

Photograph 4: Data Point 4-Upland towards the south.

Exhibit 11 Representative Color Photographs

Photograph 5: Data Point 5-Wetland 4 facing south.

Photograph 6: Data Point 6-Upland facing northeast.

Exhibit 11 Representative Color Photographs

Photograph 7: Data Point 7-Wetland 6 facing west.

Photograph 8: Data Point 8-Upland facing east.

Exhibit 11 Representative Color Photographs

Photograph 9: Data Point 9-Wetland 7 facing north.

Photograph 10: Data Point 10-Upland facing west.

Exhibit 11 Representative Color Photographs

Photograph 11: Data Point 11-Wetland 8 facing north.

Photograph 12: Data Point 12-Upland facing north.

Exhibit 11 Representative Color Photographs

Photograph 13: Data Point 13-Wetland 9 facing north.

Photograph 14: Data Point 14-Upland facing northeast.

Exhibit 11 Representative Color Photographs

Photograph 15: Data Point 15-Wetland 10 facing south.

Photograph 16: Data Point 16-Upland facing west.

Exhibit 11 Representative Color Photographs

Photograph 17: Data Point 17-Wetland 11 facing east.

Photograph 18: Data Point 18-Upland facing west.

Exhibit 11 Representative Color Photographs

Photograph 19: Data Point 19-Wetland 12 facing east.

Photograph 20: Data Point 20-Upland towards south.

Exhibit 11 Representative Color Photographs

Photograph 21: Data Point 21-Wetland 13 facing north.

Photograph 22: Data Point 22-Upland towards west.

Exhibit 11 Representative Color Photographs

Photograph 23: Data Point 23-Wetland 14 facing west.

Photograph 24: Data Point 24-Upland towards west.

Exhibit 11 Representative Color Photographs

Photograph 25: Data Point 25-Wetland 15 facing northwest.

Photograph 26: Data Point 26-Upland towards northeast.

Exhibit 11 Representative Color Photographs

Photograph 27: Data Point 27-Wetland 16 facing north.

Photograph 28: Data Point 28-Upland towards east.

APPENDIX A

CLC JAWA NW ROUTE

LCSMC'S PRELIMINARY JURISDICTIONAL DETERMINATION LETTER

STORMWATER MANAGEMENT COMMISSION

October 17, 2014

Mr. Darrell Blenniss
CLCJAWA
200 Rockland Road
Lake Bluff, IL 60044

RE: SMC Watershed Development File # 14-99-082
CLCJAWA Northwest Route – Avon Drive & Lincoln Drive East to Hook Drive
Lake County, Illinois
PRELIMINARY WETLAND JURISDICTIONAL DETERMINATION

Dear Mr. Blenniss:

This letter responds to your request for a preliminary wetland jurisdictional determination (PJD) for the subject project area, received by the Lake County Stormwater Management Commission (SMC) on September 26, 2014. SMC reviewed source materials and performed a site reconnaissance on October 9, 2014 in the company of Mr. Michael Murphy of the U.S. Army Corps of Engineers, Chicago District (USACE). Note that the wetlands referenced in this letter are depicted on the enclosed Exhibits 9A-9K: "CLCJAWA NW Route, Estimated Wetland Boundaries on Aerial Photograph", prepared by Hey & Associates, Inc. (Hey), received by SMC on September 26, 2014.

Based on our findings, the CLCJAWA NW Route contains *Waters of the United States* (WOUS), which are subject to regulation by the USACE under Section 404 of the federal Clean Water Act, and *Isolated Waters of Lake County* (IWLC), which are subject to regulation by the SMC under the Lake County Watershed Development Ordinance (WDO), as follows:

- **The WOUS include Wetlands 6, 7, 8, 9, 10, 12, 13, 14 and 15.** These wetlands have a clearly discernible hydrologic connection to the navigable Fox River (Squaw Creek & Upper Fox River sub-watersheds).

- **The IWLC include Wetlands 1, 2, 4, 11 and 16.** These wetlands do not have a clearly discernible hydrologic connection to a navigable water. For planning purposes, note that Wetlands 1, 2 and 4 are located in the Des Plaines River watershed (Mill Creek sub-watershed) and Wetland 11 is located in the Fox River watershed (Squaw Creek sub-watershed).

This determination does not include a field verification of the wetland boundaries delineated and flagged by Hey. For the WOUS, you may request a boundary verification (BV) from the USACE (SMC is not authorized to verify WOUS boundaries). For the IWLC, you may request a BV from the SMC (request form is available on SMC's web site). The surveyed boundaries of all delineated wetlands will need to be included on the site development plans for permitting purposes.

Note that two potential wetland areas identified by Hey were determined to be excluded from regulatory status - Wetland 3 is a constructed stormwater management basin, and Wetland 5 is a

constructed roadside ditch.

For your information, SMC determined the jurisdiction of potential WOUS areas based on the guidance provided in the EPA/USACE Memorandum entitled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States" dated June 5, 2007 (revised December 2, 2008) and the USACE's *Jurisdictional Determination Form Instructional Guidebook* dated May 30, 2007. For areas not considered to be WOUS, we determined jurisdiction using the definition of *Isolated Waters of Lake County* (IWLC) contained in Appendix A of the WDO.

Permitting Considerations

This letter satisfies the WDO requirement for a written jurisdictional determination under Article IV, Section E.1.a. A Watershed Development Permit (WDP), including IWLC impacts approval, is required from the SMC for this multi-jurisdictional project. Please contact Mr. Bob Gardiner, SMC's permit engineer, at (847)377-7704 or rgardiner@lakecountyil.gov for the WDP submittal requirements, and Glenn Westman, SMC's wetland specialist, at (847)377-7718 or gwestman@lakecountyil.gov for the IWLC impacts submittal requirements.

If the proposed project will require impacts to the WOUS, a separate wetland permit from the USACE will be required. Please refer to the USACE-Chicago District's web site for the permit application submittal requirements: http://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/AppChecklist.aspx. SMC's technical review and approval of the soil erosion and sediment control plan (SE/SC) for the proposed development may be required as a condition of a USACE permit. We will advise you if our SE/SC review/approval is required.

SMC's Chief Engineer approved this PJD and the findings are valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7705 or e-mail Glenn Westman at the address above. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

If you would like to provide feedback regarding the SMC permit/inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx
www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

Kurt Woolford, P.E., CFM
Chief Engineer

Glenn H. Westman, PWS, CWS, CFM
Principal Wetland Specialist

Enclosure: Exhibits 9A-9K: Estimated Wetland Boundaries on Aerial Photograph (Hey)

cc: Kathy Chernich & Mike Murphy, USACE (LRC # pending)
Steve Rauch, Hey & Associates, Inc.
Bob Gardiner, SMC

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed be to you, please notify SMC at your earliest convenience.

Appendix B

CLC JAWA NW Route

LCSMC's Isolated Wetland Boundary Verification Letter

STORMWATER MANAGEMENT COMMISSION

December 15, 2014

Mr. Darrell Blenniss
CLCJAWA
200 Rockland Road
Lake Bluff, IL 60044

RE: SMC Watershed Development File # 14-99-082
USACE Reference #LRC-2014-783
CLCJAWA Northwest Route – Avon Drive & Lincoln Drive East to Hook Drive
Lake County, Illinois
ISOLATED WETLANDS BOUNDARY VERIFICATION

Dear Mr. Blenniss:

This letter is a follow-up to our preliminary wetland jurisdictional determination (PJD) letter for the subject project area dated October 17, 2014. The Lake County Stormwater Management Commission (SMC) re-visited the project area on November 13, 2014, in the company of Mr. Steven Rauch of Hey & Associates, Inc. (Hey) for the purpose of reviewing the boundaries of *Isolated Waters of Lake County* (IWLC).

Based on our field review, SMC concurs with the delineated boundaries of IWLC Wetlands 1, 2, 4, 11 and 16, as flagged by Hey and generally depicted on the enclosed Exhibits 9C, 9E, 9J, and 9K: "CLCJAWA NW Route, Estimated Wetland Boundaries on Aerial Photograph", prepared by Hey, received by SMC on September 26, 2014. <u>This isolated wetland boundary verification is valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date</u>.

Note that this letter does not include a verification of the boundaries of Wetlands 6, 7, 8, 9, 10, 12, 13, 14 and 15 delineated by Hey, as these wetlands are federal *Waters of the United States* (WOUS) under the jurisdiction of the U.S. Army Corps of Engineers (USACE). You may request a verification of the WOUS wetland boundaries from the USACE (SMC is not authorized to verify WOUS boundaries).

<u>Permitting Considerations</u>

A Watershed Development Permit (WDP), including IWLC impacts approval, is required from the SMC for this multi-jurisdictional project. Please coordinate with Mr. Bob Gardiner, SMC's permit engineer, at (847)377-7704 or rgardiner@lakecountyil.gov for the WDP submittal requirements, and Mr. Glenn Westman, SMC's principal wetland specialist, at (847)377-7718 or gwestman@lakecountyil.gov for the IWLC submittal requirements.

If the proposed project will require impacts to the WOUS, a separate wetland permit from the USACE will be required. Please refer to the USACE-Chicago District's web site

for the permit application submittal requirements: http://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/AppChecklist.aspx. SMC's technical review and approval of the soil erosion and sediment control plan (SE/SC) for the proposed project may be required as a condition of a USACE permit. We will advise you if our SE/SC review/approval is required.

Note that the surveyed boundaries of all delineated wetlands in the project area will need to be included on the site project engineering plans for permitting purposes.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7705 or e-mail Glenn Westman at the address above. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

If you would like to provide feedback regarding the SMC permit/inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx
www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

Kurt Woolford, P.E., CFM
Chief Engineer

Glenn H. Westman, PWS, CWS, CFM
Principal Wetland Specialist

Enclosures (4): Exhibits 9C, E, J & K: Estimated Wetland Boundaries on Aerial Photograph (Hey)

cc: Kathy Chernich & Mike Murphy, USACE
Steve Rauch, Hey & Associates, Inc.
Bob Gardiner, SMC

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed be to you, please notify SMC at your earliest convenience.

Appendix G

Hey Wetlands and Tree Survey Report – Northeast

CDM Smith

14-0055

WETLAND DELINEATION REPORT

CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY

NE ROUTE

VILLAGES OF GURNEE, LINDENHURST, AND OLD MILL CREEK, LAKE COUNTY, ILLINOIS

PREPARED FOR:

Central Lake County Joint Action Water Agency
978 West Winchester Road
Lake Bluff, Illinois 60048

DECEMBER 17, 2014

26575 W. COMMERCE DRIVE, SUITE 601, VOLO, ILLINOIS 60073
OFFICE (847) 740-0888 FAX (847) 740-2888

INTRODUCTION

A wetland delineation of Northeast Route corridor was conducted on August 6 (Leg 1A), August 13 (Leg 1), September 24 (Legs 2, 3, 4, and 5), September 30 (Legs 6 and 7), and October 27 (Leg 7A), 2014 for the Central Lake County Joint Action Water Agency. The corridor is located along Almond Road, Hutchins Road, Stearns School Road, U. S Route 45, and Falling Waters Boulevard in the Villages of Gurnee, Lindenhurst, and Old Mill Creek as well as portions of unincorporated Lake County, Illinois (Exhibit 1). The corridor is further located in Sections 1 and 12, Township 45 North, Range 10 East and Sections 6, 7, 17, 18, 20, 29, and 32, Township 45 North, Range 11 East. The corridor contains areas of commercial, residential, agricultural, golf course, and open space. The open space areas consist of woodlands, fields, and wetlands along with two crossings of Mill Creek. No Lake County Forest Preserve properties were within the corridor.

EXISTING DATA

The United States Geological Survey (USGS) topographic map depicts two blue line stream crossings and one wetland within the corridor (Exhibit 2).

The Lake County Wetland Inventory map indicates several mapped wetlands within and adjacent to the corridor and two mapped Advanced Identification (ADID) wetlands just outside the corridor (Exhibit 3). However, one ADID wetland is within the corridor and it is ADID 53 which is identified as a tributary to Mill Creek and has high functional value for water quality. The ADID Summary sheet is included as Exhibit 4.

The National Wetland Inventory map indicates the presence of several wetlands in or near the corridor (Exhibit 5). The referenced numbered waters and wetlands are further described in the Results section in this report. WOUS 1 and 2 drain to a wetland identified as a Palustrine Emergent Seasonally Flooded (PEMC), Wetland 4 is mapped as a PEMC, Wetland 5 is mapped as a Palustrine Emergent Temporary Flooded (PEMA), Wetland 9 is mapped as a PEMC and Farmed Wetland 13 is mapped as PEMA.

The Flood Insurance Rate Map shows mapped floodplain at Wetland 7, but at no other locations within the corridor (Exhibit 6).

The USGS Hydrologic Atlas provides evidence for Wetlands 7 and 8 having a hydrologic connection to Mill Creek, a Waters of the U. S. (Exhibit 7).

The Lake County Soil Survey (Exhibit 8) indicates five hydric soils within the corridor: Houghton muck (103A), Pella silty clay loam (153A), Ashkum silty clay loam (232A), Peotone silty clay loam (330A), and Sawmill silty clay loam (1107A).

WETLAND DELINEATION

The wetland delineation was conducted by Steven Rauch (Certified Wetland Specialist-052) for Legs 1A, 2, 3, 4, 5, 6, 7, and 7A and Robert Kerpec (Certified Wetland Specialist-094) for Legs 1A and 1 of Hey and Associates, Inc. using procedures outlined in the 1987 Corps of Engineers' (Corps) Wetland Delineation Manual and the 2010 Regional Supplement to the Corps Wetland Delineation Manual: Midwest Region. The corridor was inspected, with areas of mapped hydric soils prioritized for investigation. If inspection revealed that wetland plant species comprised more than 50 percent of the plant cover, the suspected wetland was further examined for field indicators of hydric soil and hydrology. The Corps-accepted field indicators of hydric soil include: gleyed and low chroma matrix and mottle colors, and iron and manganese concretions. Necessary hydric soil indicators were field verified in the wetland areas. The Corps-approved field indicators of hydrology include: visual observation or photographic evidence of soil inundation or saturation during the growing season, oxidized channels associated with living roots and rhizomes, water marks, drift lines, waterborne sediment deposits, waterstained leaves, surface scoured areas and drainage patterns. Wetland hydrologic criteria were met in all area delineated as wetland.

Lists of observed plant species in the wetland area were compiled and data were gathered to complete Corps jurisdictional dataforms. A native vegetative quality rating was calculated for wetland using the Chicago Region FQA Calculator version September 29, 2014 (Herman, B., Sliwinski, R. and S. Whitaker. 2013. Chicago Region FQA (Floristic Quality Assessment) Calculator. U. S. Army Corps of Engineers, Chicago, IL). The FQA method assigns to plant species a rating that reflects the fundamental conservatism that the species exhibits for natural habitats. A native species that exhibits specific adaptations to a narrow spectrum of the environment is given a high rating. Conversely, an introduced, ubiquitous species that exhibits adaptations to a broad spectrum of environmental variables is given a low rating. Utilizing this method, a Floristic Quality Index (FQI) is derived for a given area. The FQI is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.

Hey and Associates, Inc. also conducted a farmed wetland determination for the portions of the Leg 7A corridor under agricultural activities using the methodology outlined by the USDA-NRCS. Initially, Farm Service Agency (FSA) aerial photography is reviewed, including a minimum of five years of slides known to

have been taken during normal years of precipitation, based upon the WETS (Wetland Climate Analysis) climate data tables. From the differing signatures on this photography, areas that may be prone to ponding or seasonal flooding can be determined. These photographic signatures must be present in a majority of years reviewed to be considered. The farmed wetland determination is included as Appendix A.

RESULTS

Thirteen wetlands and two waters were identified and flagged within or adjacent to the corridor. The total acreage of the wetlands/waters is 1.75-acres within the corridor. The wetland boundaries are shown on an aerial photograph in Exhibit 9 and are based on a survey provided by Manhard Consulting, Ltd. Lists of the observed plant species for the wetland areas, except for Wetlands 3 and 10 which are non-regulated stormwater features, are given in Exhibit 10. The Corps' jurisdictional dataforms for upland and wetland areas, except for Wetlands 3 and 10 which are non-regulated stormwater features, are included as Exhibit 11. Representative color photographs of the upland and wetland areas, except for Wetlands 3 and 10 which are non-regulated stormwater features, are provided in Exhibit 12.

Following is a table that summarizes the delineated wetlands:

Waters/ Wetland	Area in corridor (acres)	FQI[1]	Native Mean C[2]	HQAR[3]	Wetland Type	Dominant Vegetation
WOUS 1	0.01	N/A	N/A	No	intermittent stream	N/A
WOUS 2	0.01	N/A	N/A	No	intermittent stream	N/A
1	0.08	5.30	1.88	No	wet meadow	box elder (*Acer negundo*) reed canary grass (*Phalaris arundinacea*) common buckthorn (*Rhamnus cathartica*)
2	0.01	14.09	3.15	No	scrub-shrub	silver maple (*Acer saccharinum*) common buckthorn (*Rhamnus cathartica*) gray dogwood (*Cornus racemosa*)
3	N/A	N/A	N/A	No	emergent marsh/pond (stormwater basin)	narrow leaved cattail common reed broad leaved cattail (*Typha latifolia*)
4	0.07	6.64	1.92	No	forested/wet meadow	silver maple common buckthorn gray dogwood
5	N/A, outside of corridor	1.58	0.50	No	wet meadow/emergent marsh	common reed narrow-leaved cattail purple loosestrife
6	0.14	6.15	1.64	No	wet meadow/forested	reed canary grass common buckthorn box elder
7	0.05	10.10	2.92	Yes	wet meadow/forested/creek	reed canary grass crack willow (*Salix fragilis*) common buckthorn

1 The Floristic Quality Index (FQI) is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.
2 The Native Mean C is an indication of native vegetative quality for an area. Areas with value of 3.5 or greater are considered high quality.
3 The Chicago District U.S. Army Corps of Engineers has designated various Waters of the United States to be high-quality aquatic resources (HQARs). This designation is based on the definitions found within the Regional Permit Program that became effective April 1, 2012.

Waters/ Wetland	Area in corridor (acres)	FQI[1]	Native Mean C[2]	HQAR[3]	Wetland Type	Dominant Vegetation
8	0.08	6.64	1.92	No	forested	crack willow reed canary grass box elder
9	0.30	14.67	2.59	No	forested/wet meadow/creek	reed canary grass American elm (*Ulmus americana*) common buckthorn
10	N/A	N/A	N/A	No	emergent marsh (roadside ditch)	broad leaved cattail reed canary grass river bulrush (*Scirpus fluviatilis*)
11	0.10	10.96	2.93	No	wet meadow/emergent marsh	sandbar willow (*Salix interior*) narrow leaved cattail reed canary grass
12	0.04	10.00	3.33	No	wet meadow/emergent marsh	common reed narrow leaved cattail reed canary grass
13	0.86	2.68	1.20	No	wet meadow/farmed	giant ragweed (*Ambrosia trifida*) reed canary grass common buckthorn

1 The Floristic Quality Index (FQI) is an indication of native vegetative quality for an area: generally 1-19 indicates low vegetative quality, 20-35 indicates high vegetative quality and above 35 indicates "Natural Area" quality.
2 The Native Mean C is an indication of native vegetative quality for an area. Areas with value of 3.5 or greater are considered high quality.
3 The Chicago District U.S. Army Corps of Engineers has designated various Waters of the United States to be high-quality aquatic resources (HQARs). This designation is based on the definitions found within the Regional Permit Program that became effective April 1, 2012.

Waters 1 and 2 are intermittent streams that receive stormwater discharges from municipal storm sewers and uplands and drain to a large wetland complex to the east of Almond Road.

Wetland 1 is a wet meadow located east of Almond Road and approximately 600 feet north of Gages Lake Road and continues east outside the corridor. Because of its small acreage the wetland has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 2 is a scrub-shrub located on the north side of Washington Street and approximately 1,300 feet east of Almond Road and the wetland continues north outside the corridor. The eastern portion of Wetland 2 is considered non-regulated roadside ditch. Because of its acreage the wetland has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 3 is an emergent marsh/pond and a non-regulated stormwater basin constructed as part of a residential subdivision.

Wetland 4 is a forested/wet meadow located on the north side of Washington Street and approximately 900 feet east of North White Oak Drive. The wetland continues outside the corridor to the north and drains under Washington Street through a culvert. The wetland has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 5 is a wet meadow/emergent marsh located northeast of the intersection of Hutchins Road and Illinois Route 132. The wetland continues to the north and east of the corridor and has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA

Wetland 6 is a wet meadow/forested located on the east side of Hutchins Road and approximately 500 south of North Edgewood Drive. The wetland continues off-site to the north and east. The wetland appears to receive stormwater discharge from a detention basin to the southwest and a storm sewer along the east side of Hutchins Road. The wetland drains through channelized ditch into a stormwater basin, back into a ditch and eventually discharges to Mill Creek. The wetland has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 7 is a wet meadow/forested wetland along a Mill Creek tributary located on the east side of Hutchins Road and approximately 400 feet south of North Grandwood Drive. The wetland/Mill Creek tributary continues off-site to the east and west. The drainage of Mill Creek is from west to east at this location. The wetland has been identified as having high functional value for water quality (ADID 53). The wetland has moderate functional value for wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 8 is a forested wetland located on the south side of Stearns School Road and approximately 2,500 feet east of U. S. Route 45. The wetland continues off-site to the north and south and drains north through a culvert under Stearns School Road. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 9 is a wet meadow/forested wetland on either side of a Mill Creek tributary located on the south side of Stearns School Road and approximately 500 feet east of U. S. Route 45. The wetland continues off-site to the north and south and drains north through a culvert under Stearns School Road. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 10 is an emergent marsh and a non-regulated stormwater roadside ditch constructed as part of the U. S. Route 45 and Stearns School Road intersection improvements.

Wetland 11 is a wet meadow/emergent march located southwest of the intersection of U. S. Route 45 and Falling Waters Drive. The wetland receives runoff from the large stormwater basin to the west and from the roadside ditches with the drainage continuing through a culver under U. S. Route 45. The wetland is small

and therefore has low functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

Wetland 12 is a wet meadow located southwest of the intersection of U. S. Route 45 and Falling Waters Boulevard. Wetland 12 receives water through a storm sewer discharge from U. S. Route 45 and drains north into a storm sewer. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

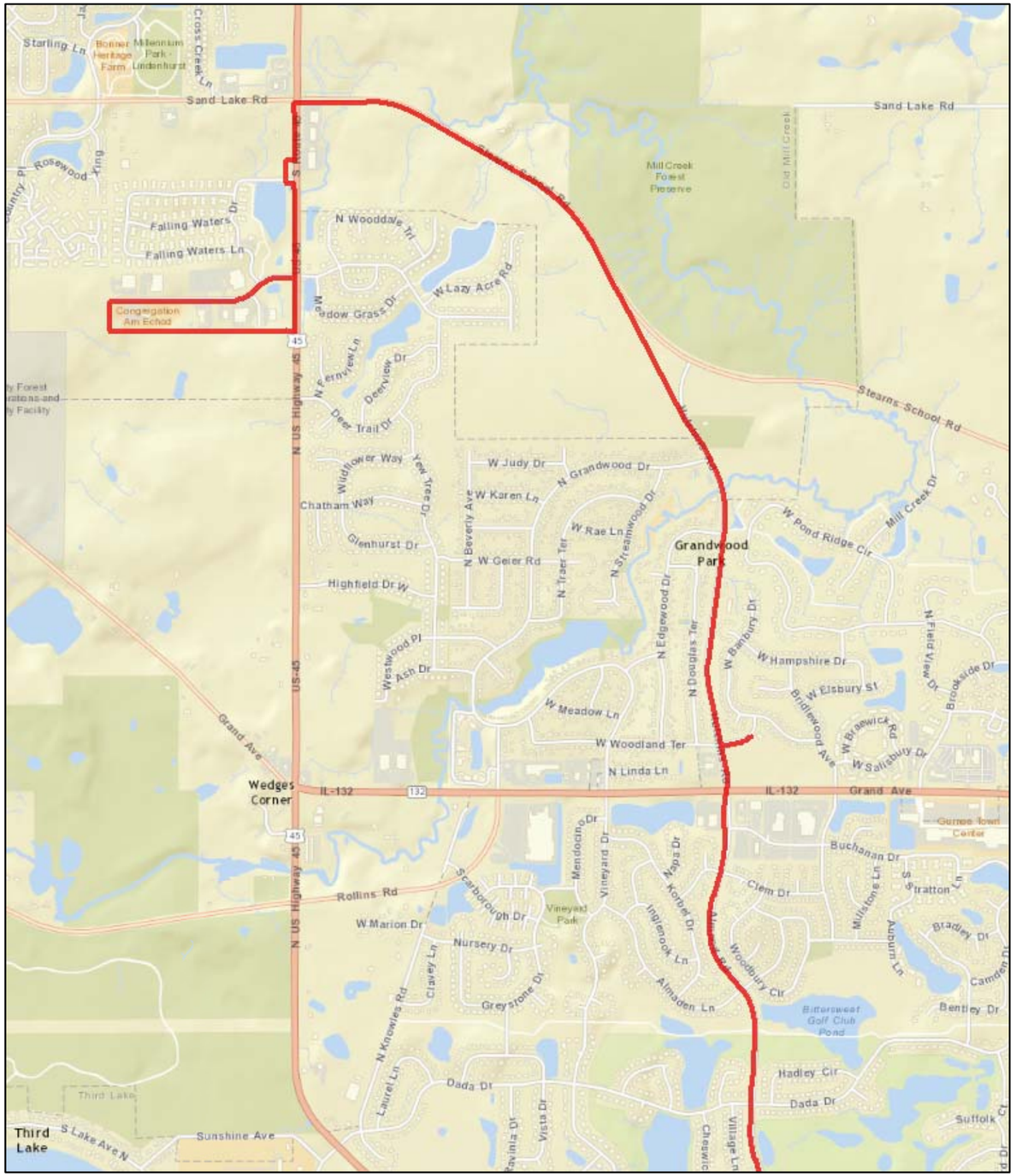
Wetland 13 is a wet meadow/farmed wetland on the south side of Falling Waters Boulevard and approximately 1,200 feet west of U. S. Route 45. Wetland 13 appears to be a closed depression and continues off-site to the south of Leg 7 and to the north of Leg 7A. The wetland has moderate functional value for water quality and wildlife habitat and is of low vegetative quality based on the FQA.

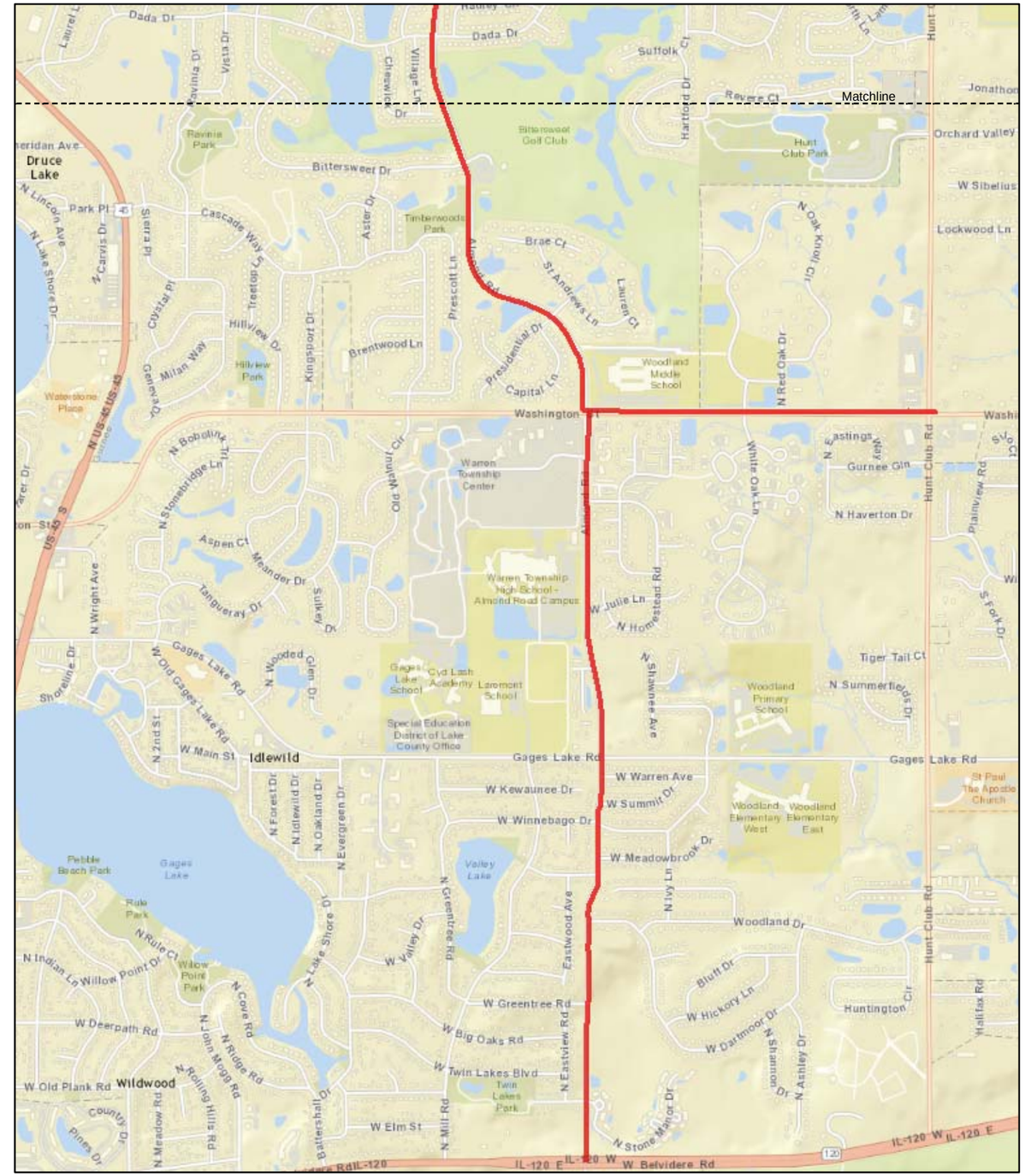
There is one high quality aquatic resource (ADID 53) in the corridor and two ADID wetlands mapped adjacent to the corridor on the north side of Hutchins Road and north of Wetland 9.

SUMMARY AND CONCLUSIONS

The wetland investigation of the corridor resulted in the delineation of thirteen wetlands and two waters. Lake County Stormwater Management Commission (LCSMC) provided a written Preliminary Jurisdictional Determination (PJD) letter dated November 18, 2014. The letter stated that "the WOUS include Wetlands 4, 6, 7, 8, 9, 11, and 12, and Waters WOUS 1 and WOUS 2", "the IWLC include Wetlands 1, 2 (western portion only), 5, and 13 (including Farmed Wetland FW 13)" and that the eastern portion of Wetland 2, Wetlands 3 and 10 are "excluded from regulatory status". The PJD letter is included as Appendix B. LCSMC provided a written verification of the isolated wetland boundaries of Wetlands 1, 2, 5, and 13. This letter dated December 15, 2014 is included as Appendix C.

Wetlands cannot be filled or otherwise impacted without permit authorization. Generally, permanent impacts under 0.10-acre and temporary impacts for jurisdictional and isolated wetlands do not require mitigation of wetland losses. Any permanent impacts over this acreage threshold will require mitigation at a minimum of 1.5:1. No work which would result in wetland impacts or wetland buffer impacts should be undertaken unless project authorization is first obtained.





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Project Corridor

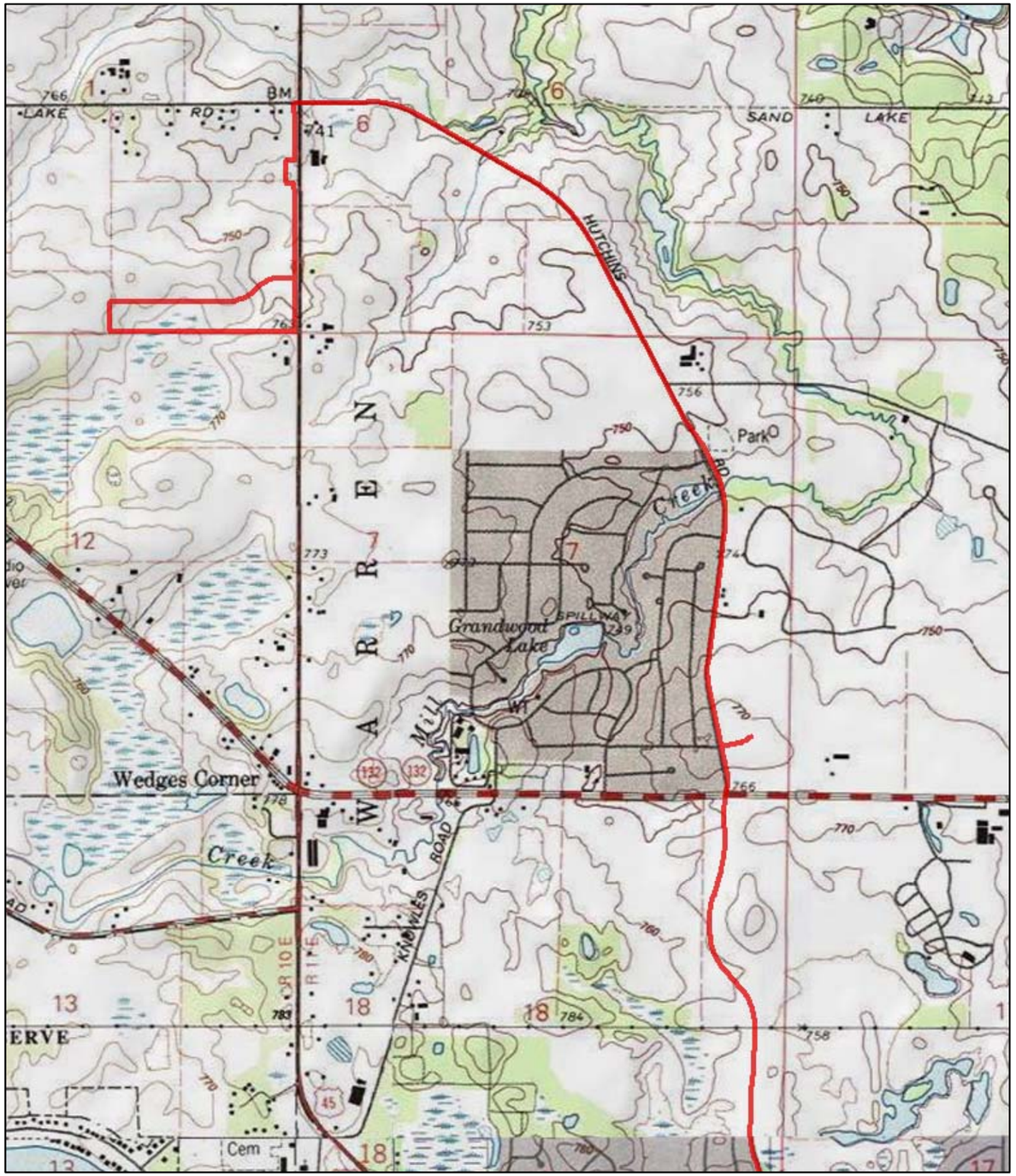
Project Name:
CLC JAWA

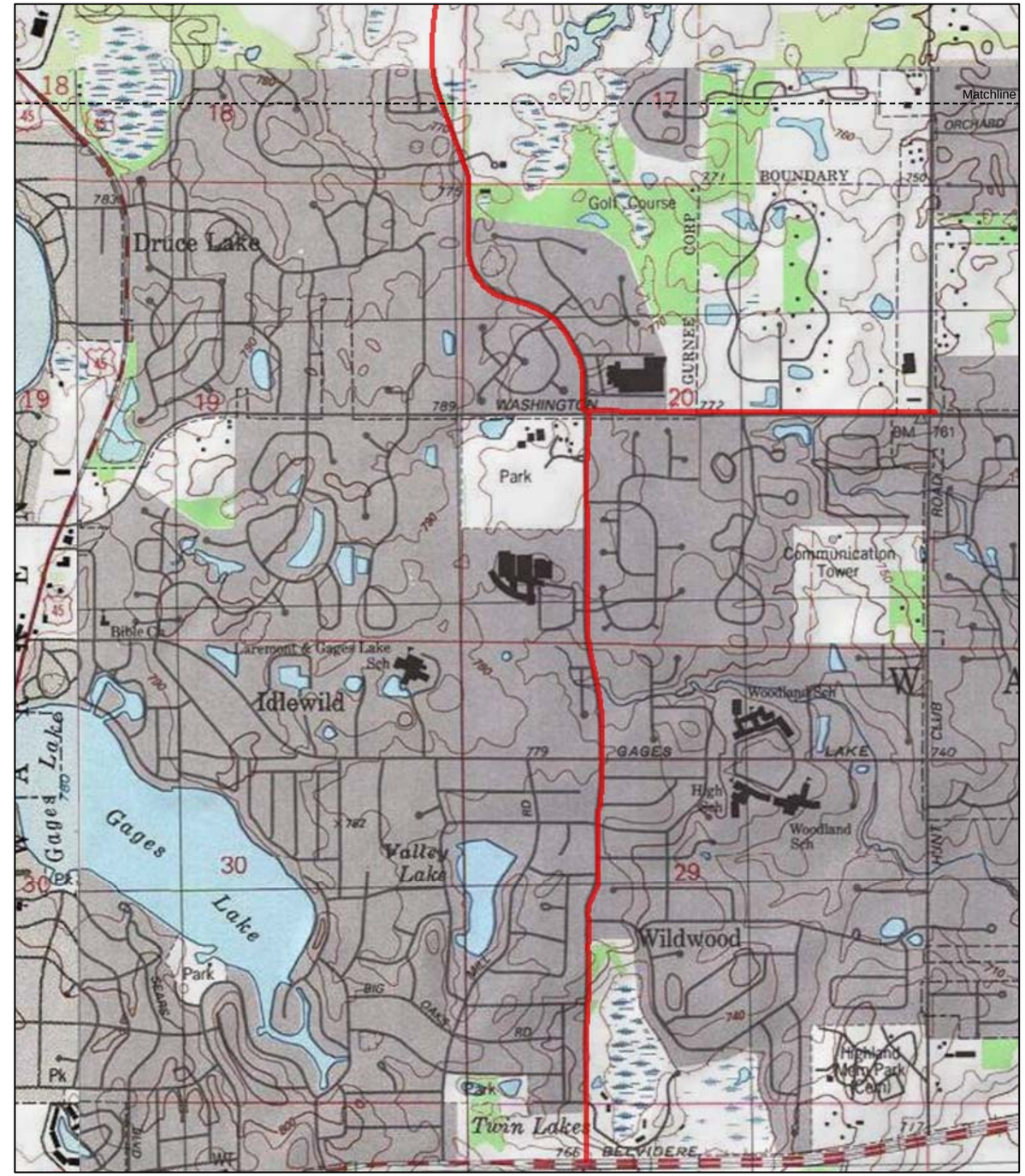
Route:
NE Route

Location Information:
T.45N.-R.10E. Sec. 1 & 12; T.45N.-R.11E. Sec. 6, 7, 17, 18, 20, 29, 32

Exhibit Title:
Project Location

Exhibit:
1





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Project Corridor

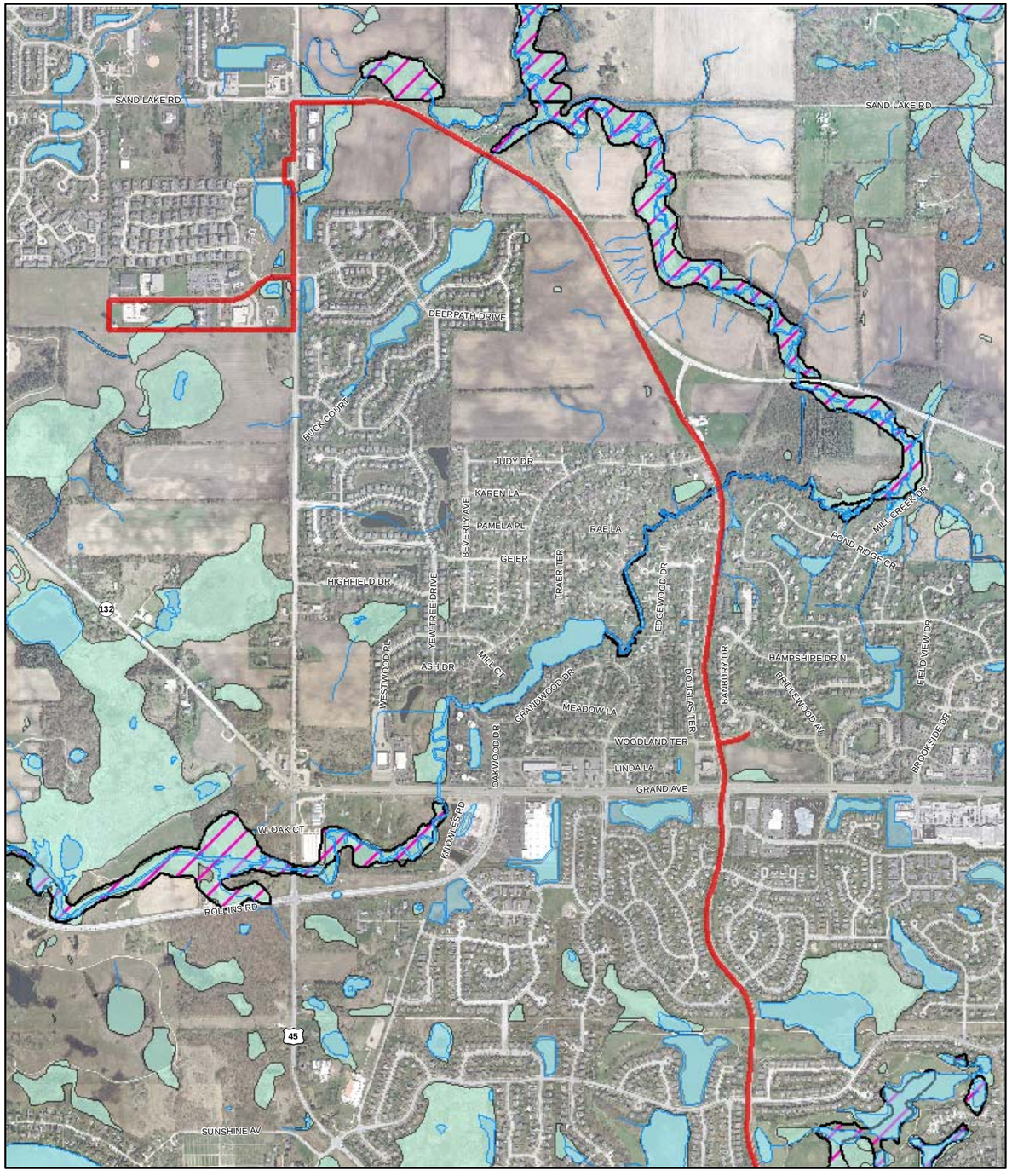
Project Name:
CLC JAWA

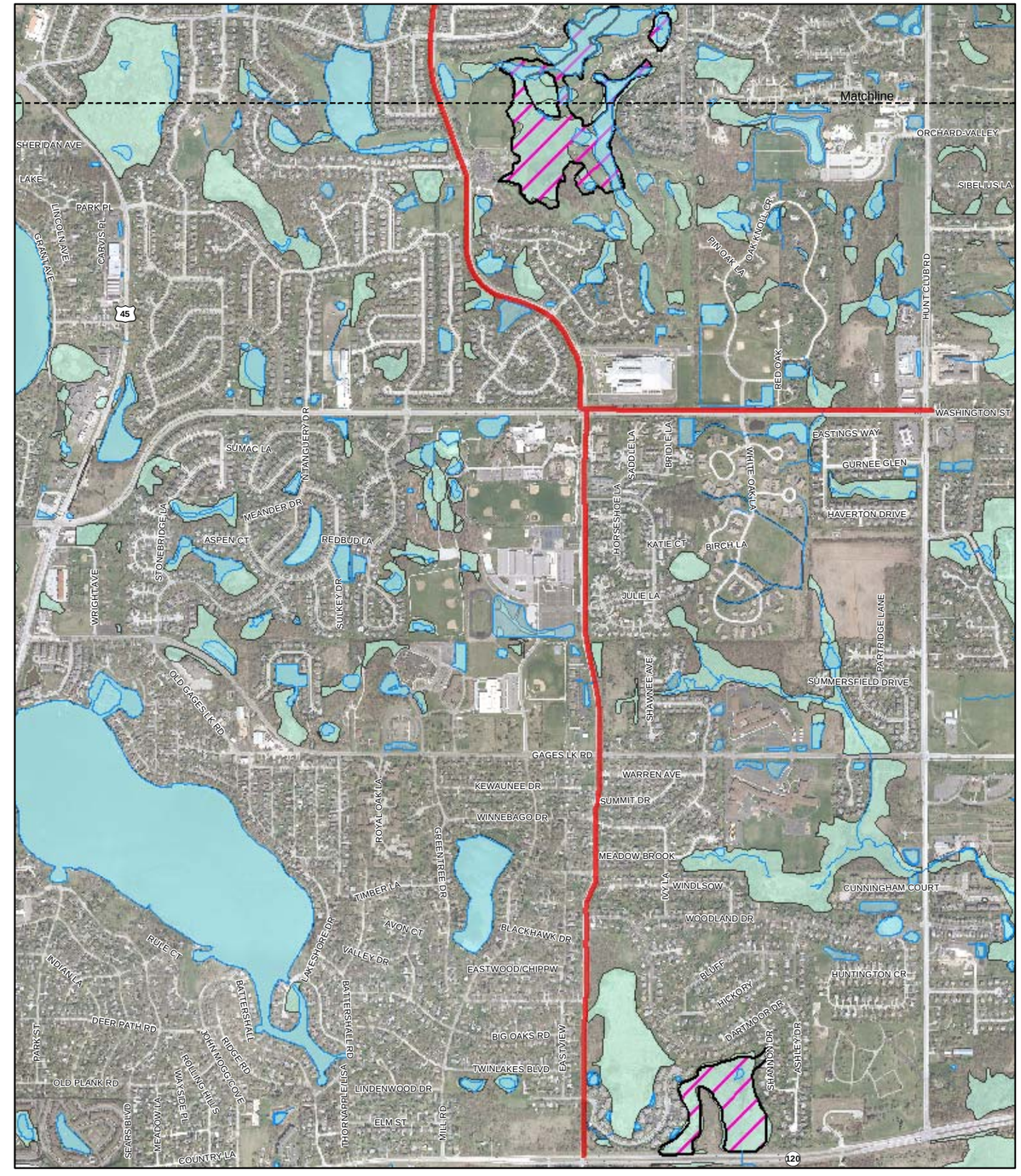
Route:
NE Route

Location Information:
Antioch, Grayslake, Libertyville and Wadsworth Quadrangles

Exhibit Title:
U.S.G.S. Topographic Map

Exhibit:
2





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Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
- Project Corridor
- Rivers and Streams
- Lakes and Ponds
- ADID Wetlands (1992)
- LCWI

Aerial Date: 2012

Project Name:
CLC JAWA

Route:
NE Route

LCWI Date:
2002

Exhibit Title:
Lake County Wetland Inventory

Exhibit:
3

EXHIBIT 4

CLC JAWA
NE ROUTE

ADID WETLAND
SUMMARY SHEET

Print | Save

ADID Site Number: 53

Acreage: 11.44

Name: Tributary to Mill Creek

Habitat: n

Water Quality: y

Threatened/Endangered Species: n

Illinois Natural Area Site: n

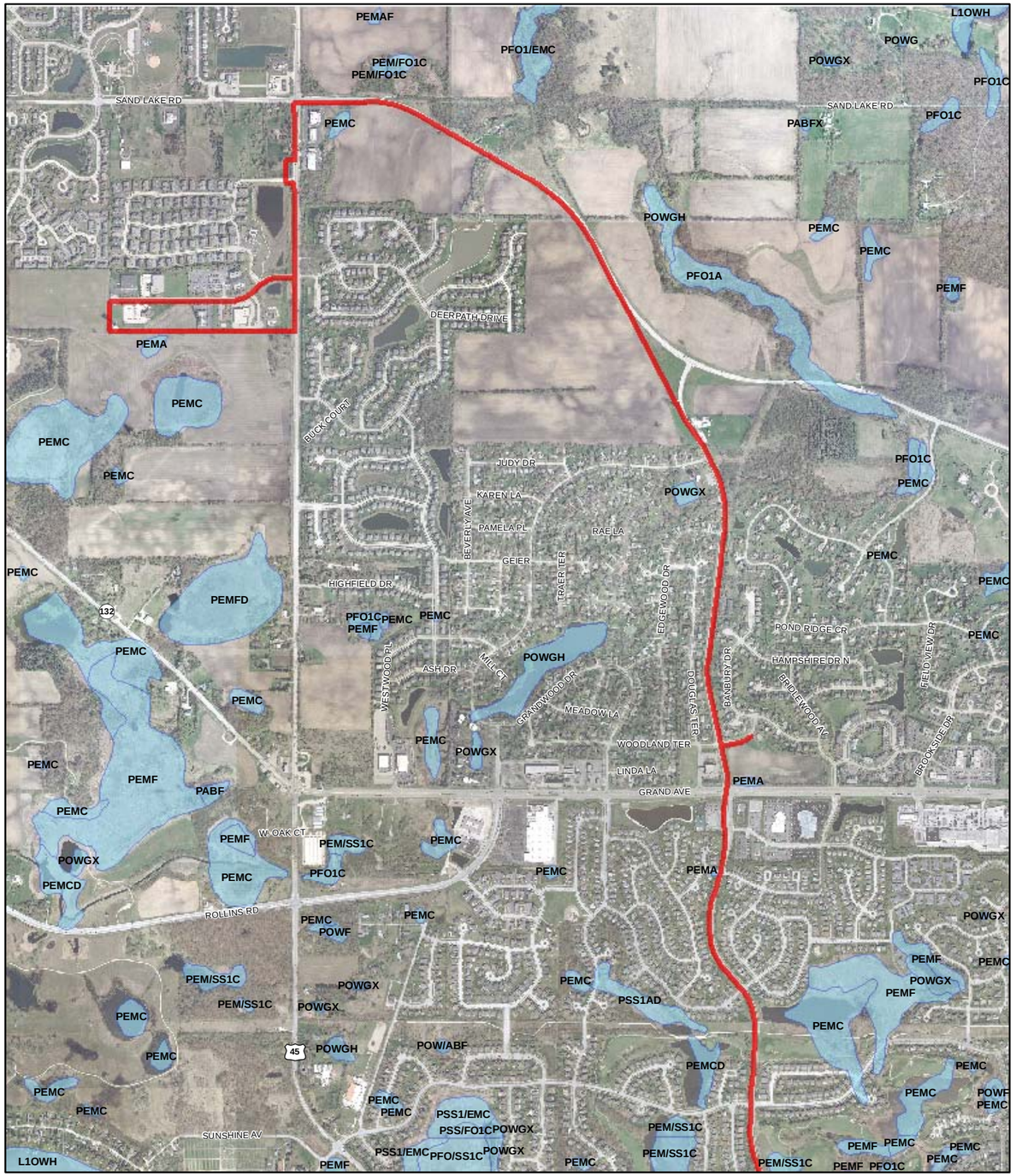
High Quality Plant Community: n

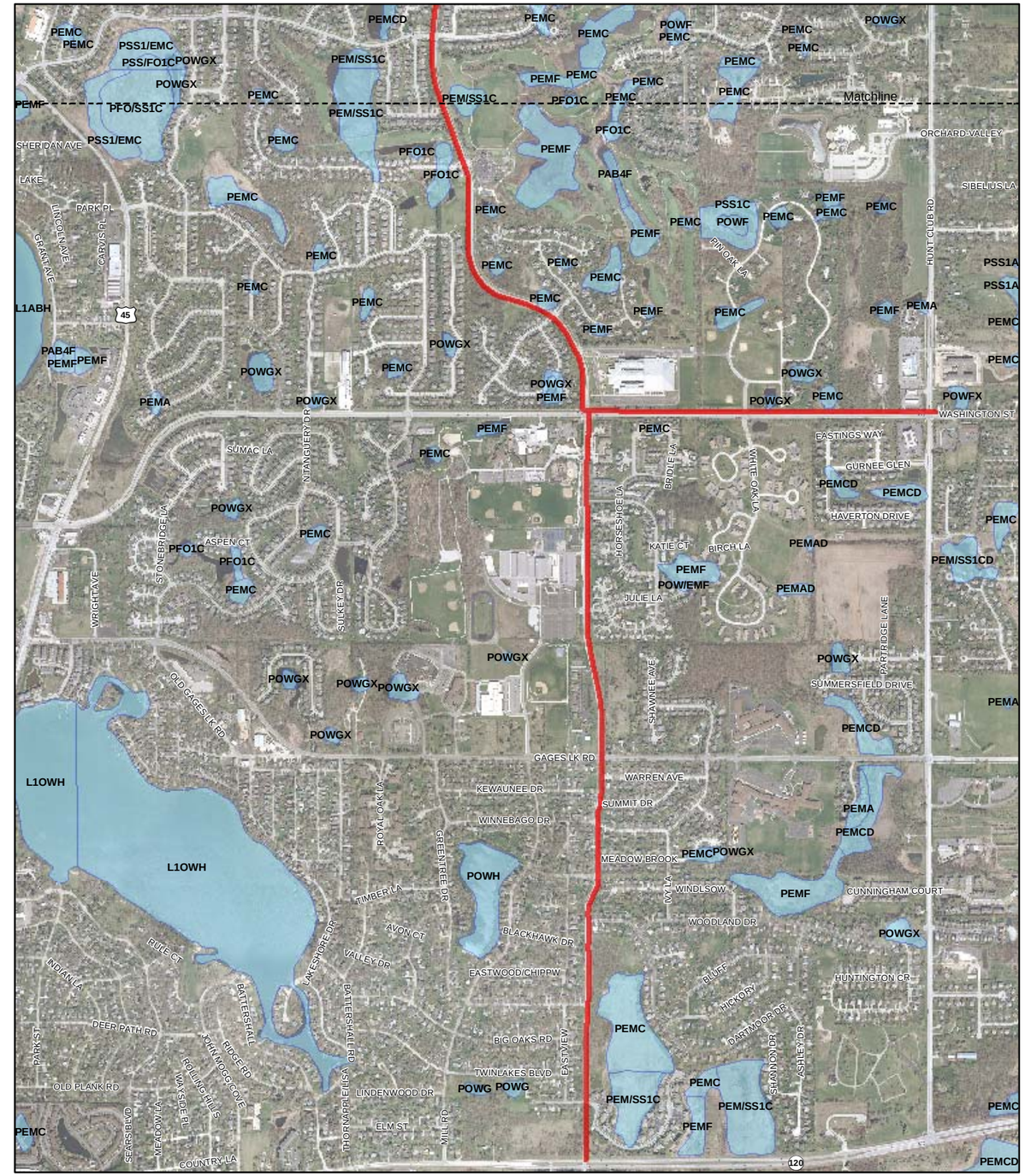
Stormwater Retention: n

Shoreline/Bank Stabilization: y

Sediment/Toxicant Retention: y

Nutrient Removal/Transformation: y





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale: 0 — 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend: Project Corridor; National Wetland Inventory

Aerial Date: 2012

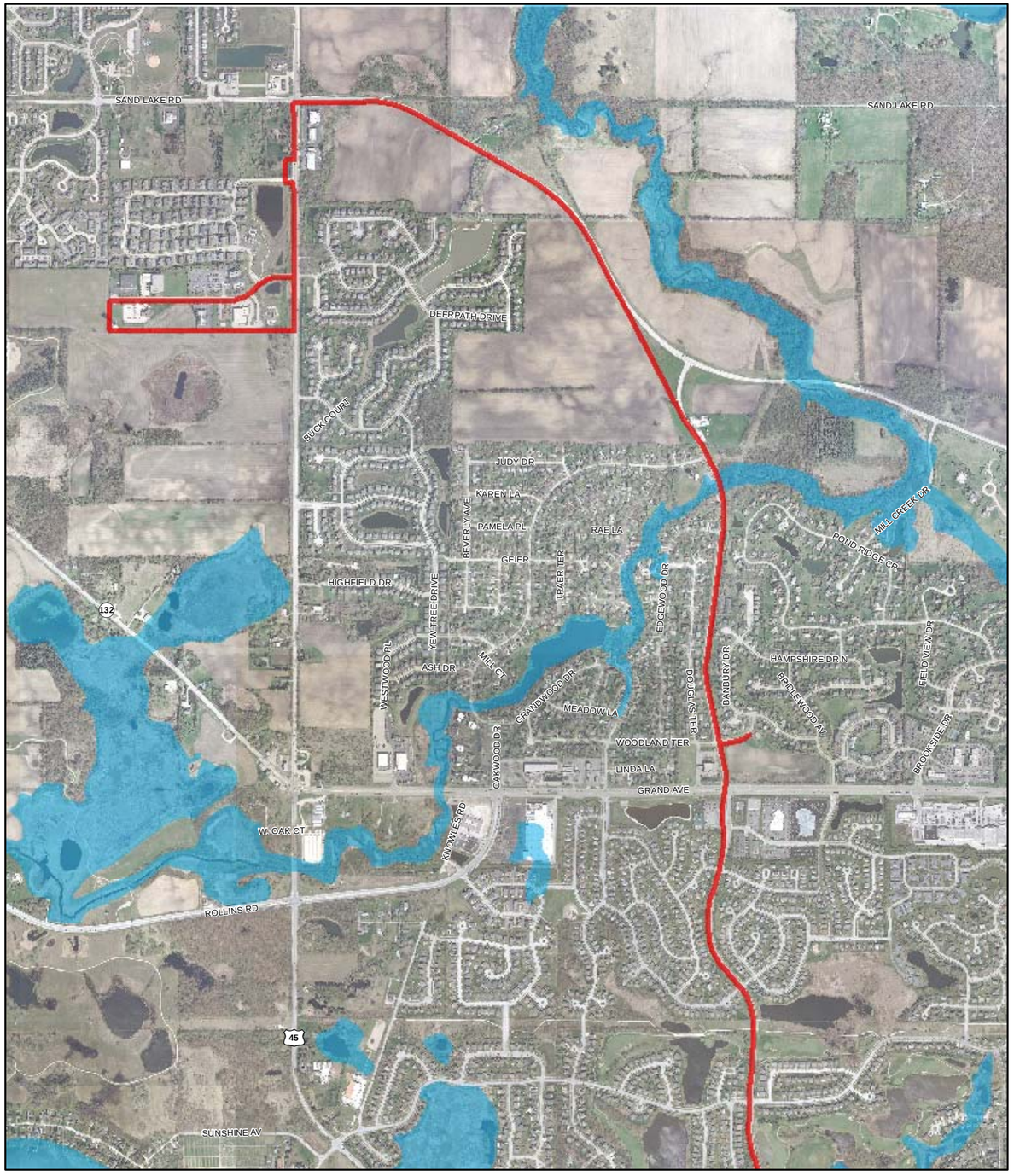
Project Name: CLC JAWA

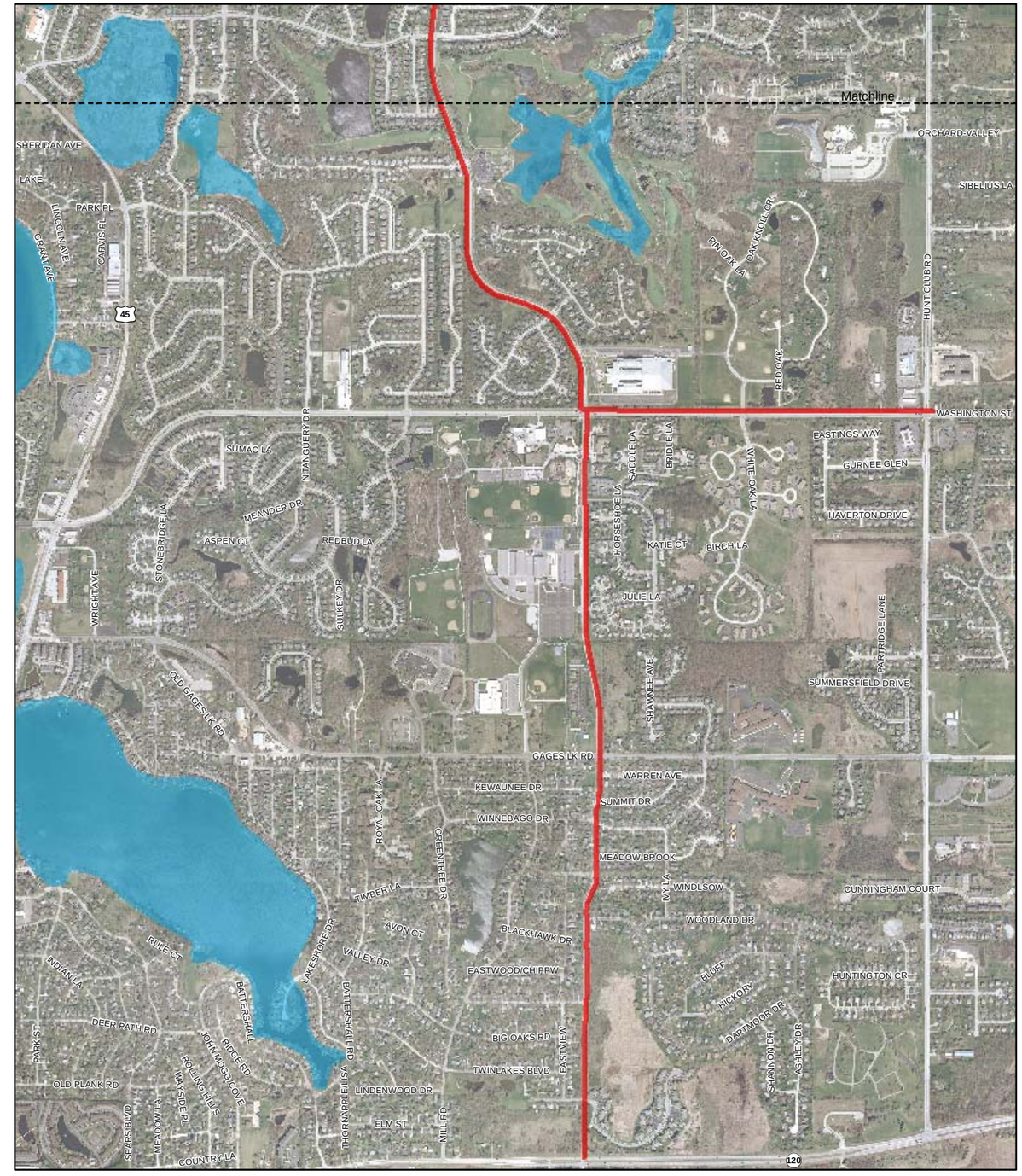
Route: NE Route

NWI Date: 1980

Exhibit Title: **National Wetland Inventory**

Exhibit: **5**





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Project Corridor
100 Year Flood Zones

Aerial Date: 2012

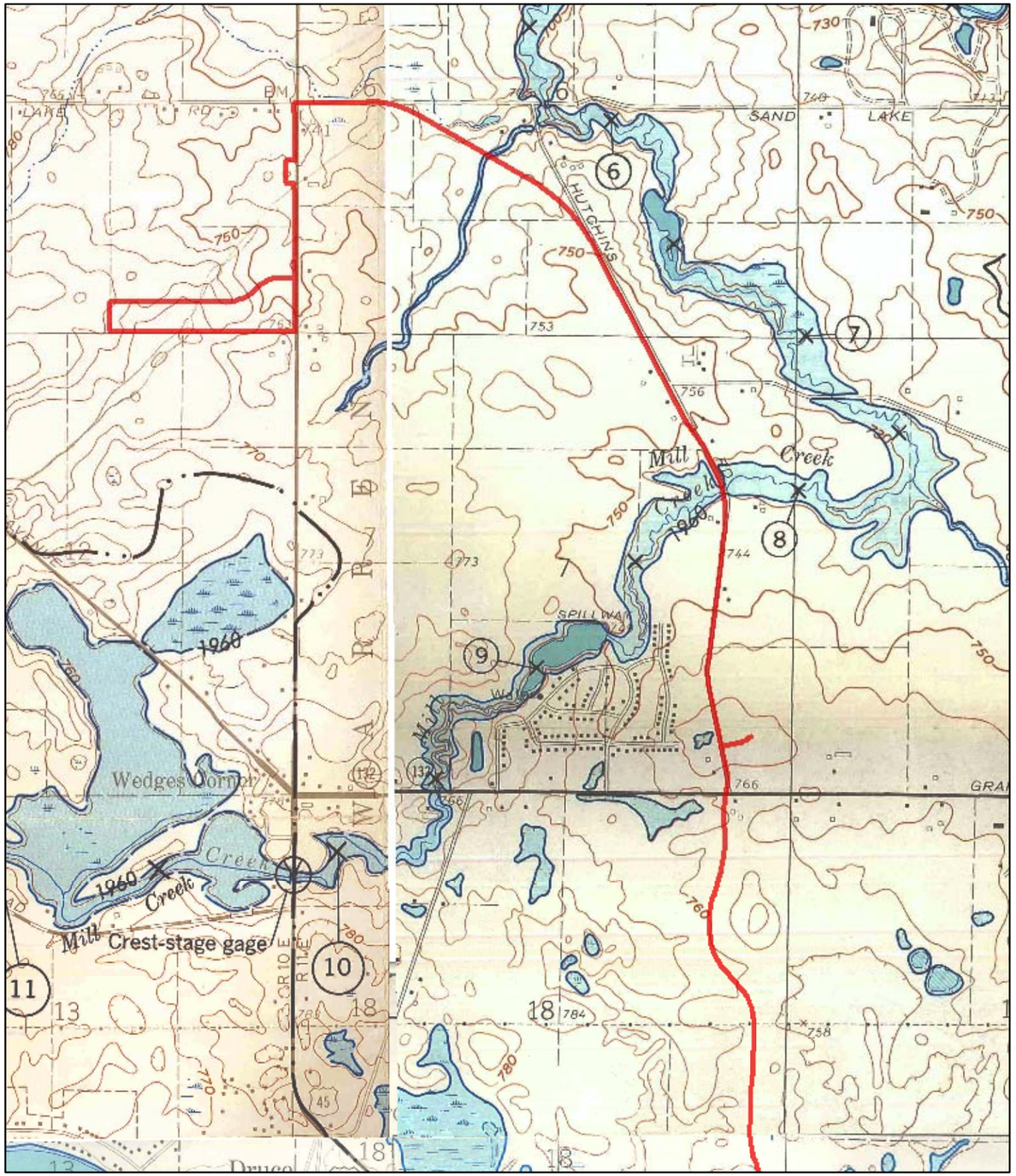
Project Name:
CLC JAWA

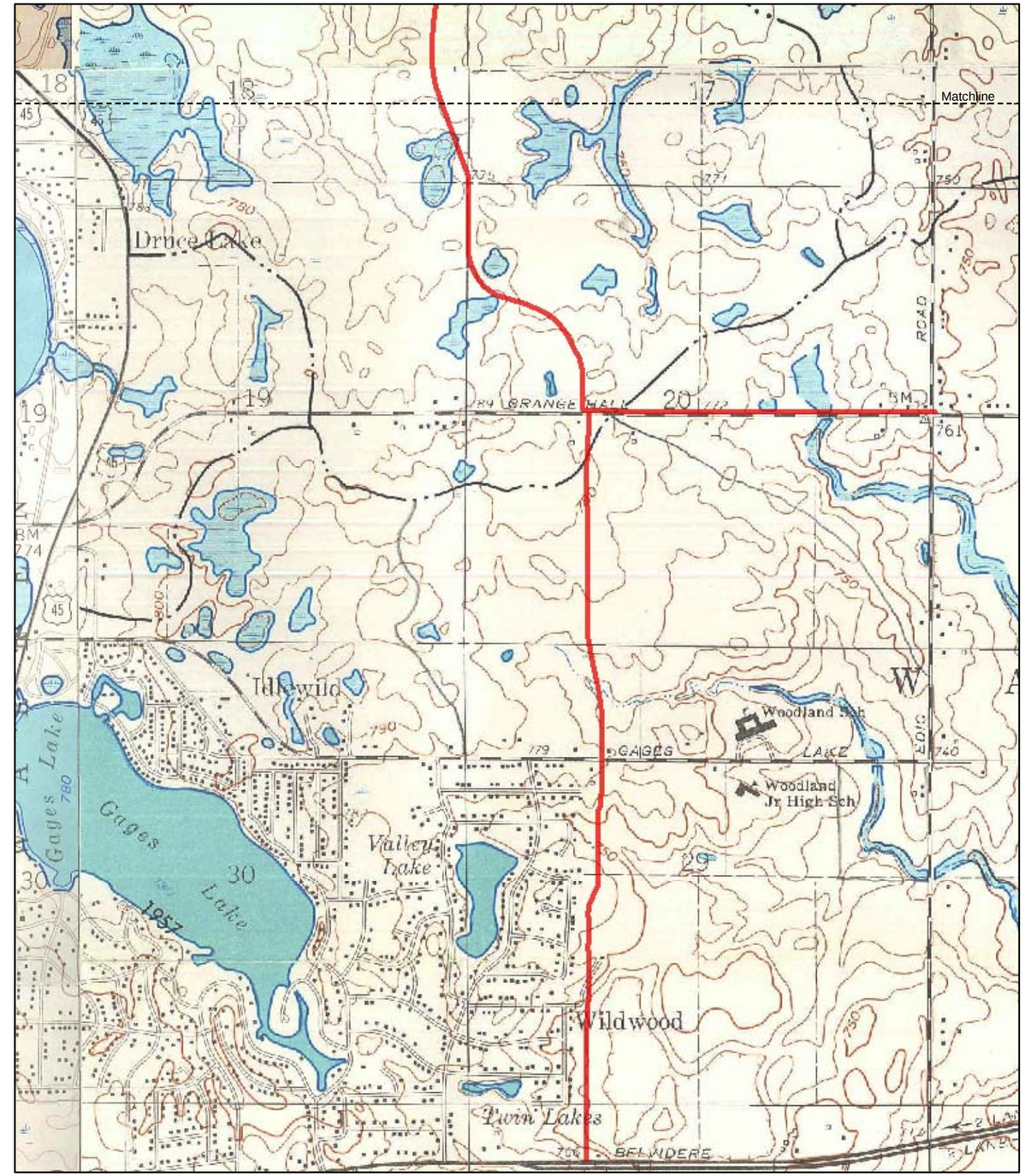
Route:
NE Route

Panel #:
17097C0042K, 0044K, 0061K, 0063K, 0151K, 0152K, 0153K

Exhibit Title:
Flood Insurance Rate Map

Exhibit:
6





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Project Corridor

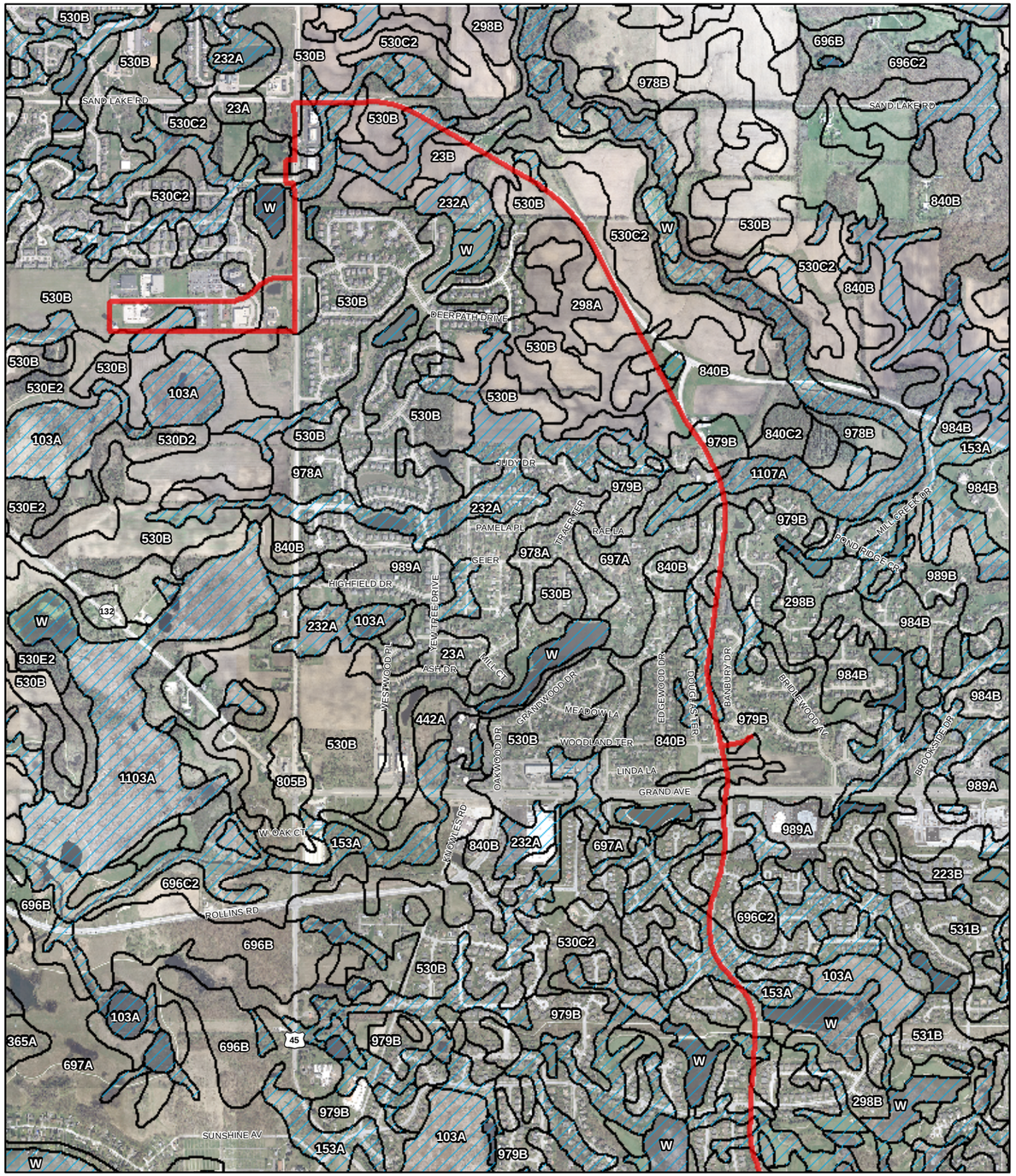
Project Name:
CLC JAWA

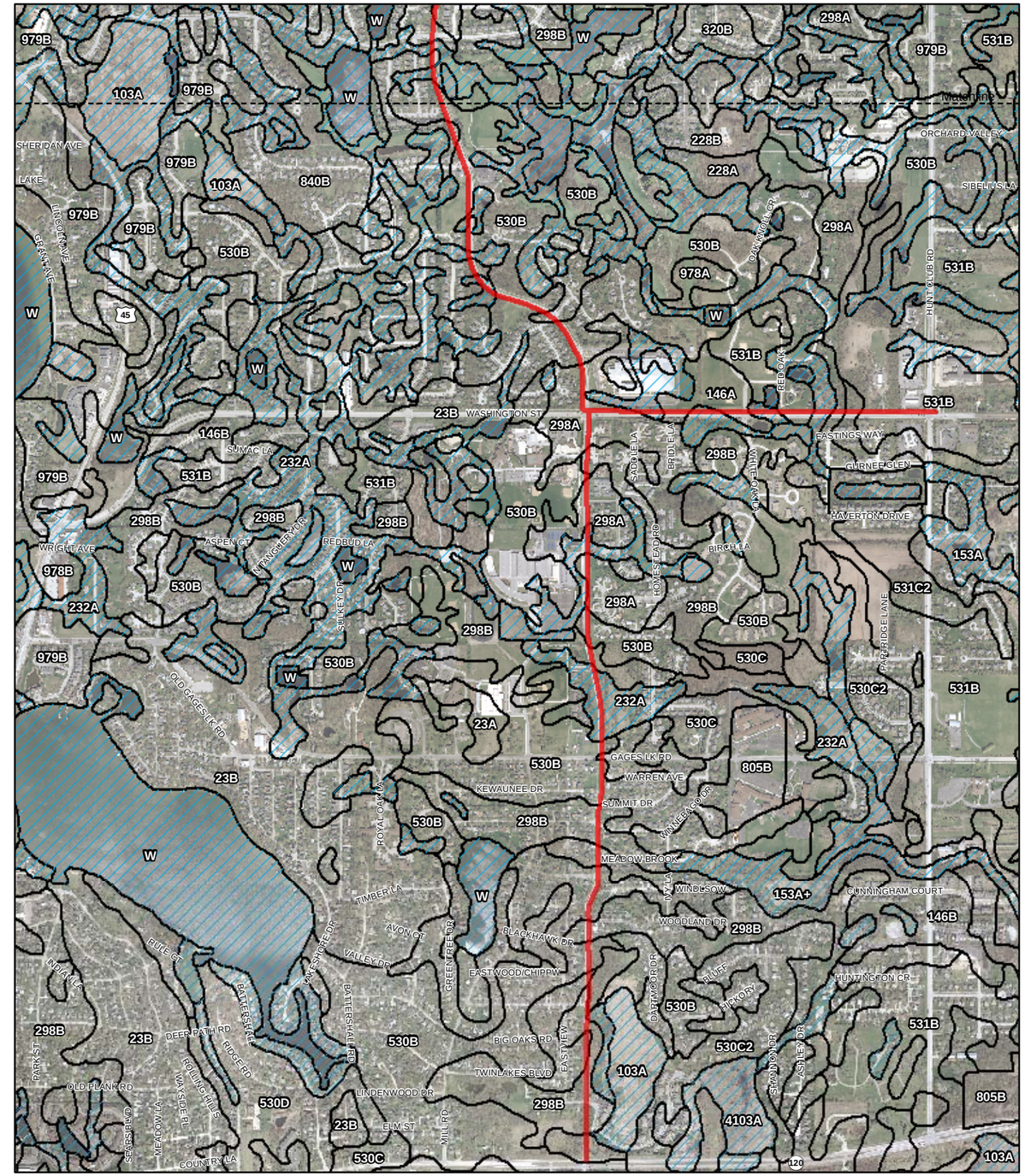
Route:
NE Route

Hydro Atlas Dates:
Antioch: 1966, Grayslake: 1967, Libertyville: 1964, Wadsworth: 1964

Exhibit Title:
U.S.G.S. Hydrologic Atlas

Exhibit:
7





Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 1,500 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Project Corridor
Soil Units
Hydric Soils

Aerial Date: 2012

Project Name:
CLC JAWA

Route:
NE Route

Soil Survey Date:
2004

Exhibit Title:
Soil Survey

Exhibit:
8

Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point — Wetland Boundary — Study Area

Project Name:
CLC JAWA

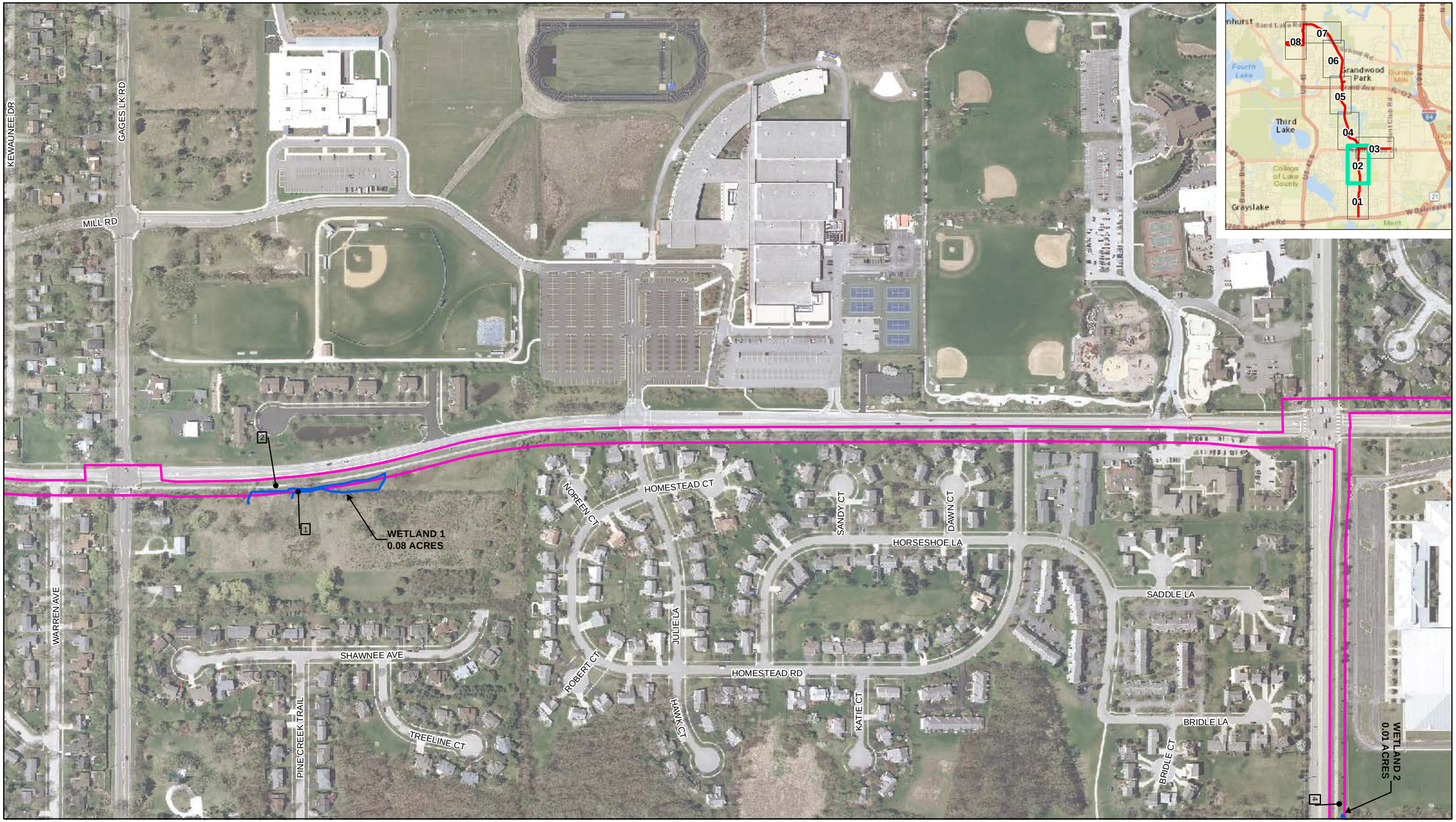
Route:
NE Route

Aerial Date:
2012

Sheet:
01 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale: 0 — 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend: [X] Data Point — Wetland Boundary — Study Area

Project Name: CLC JAWA

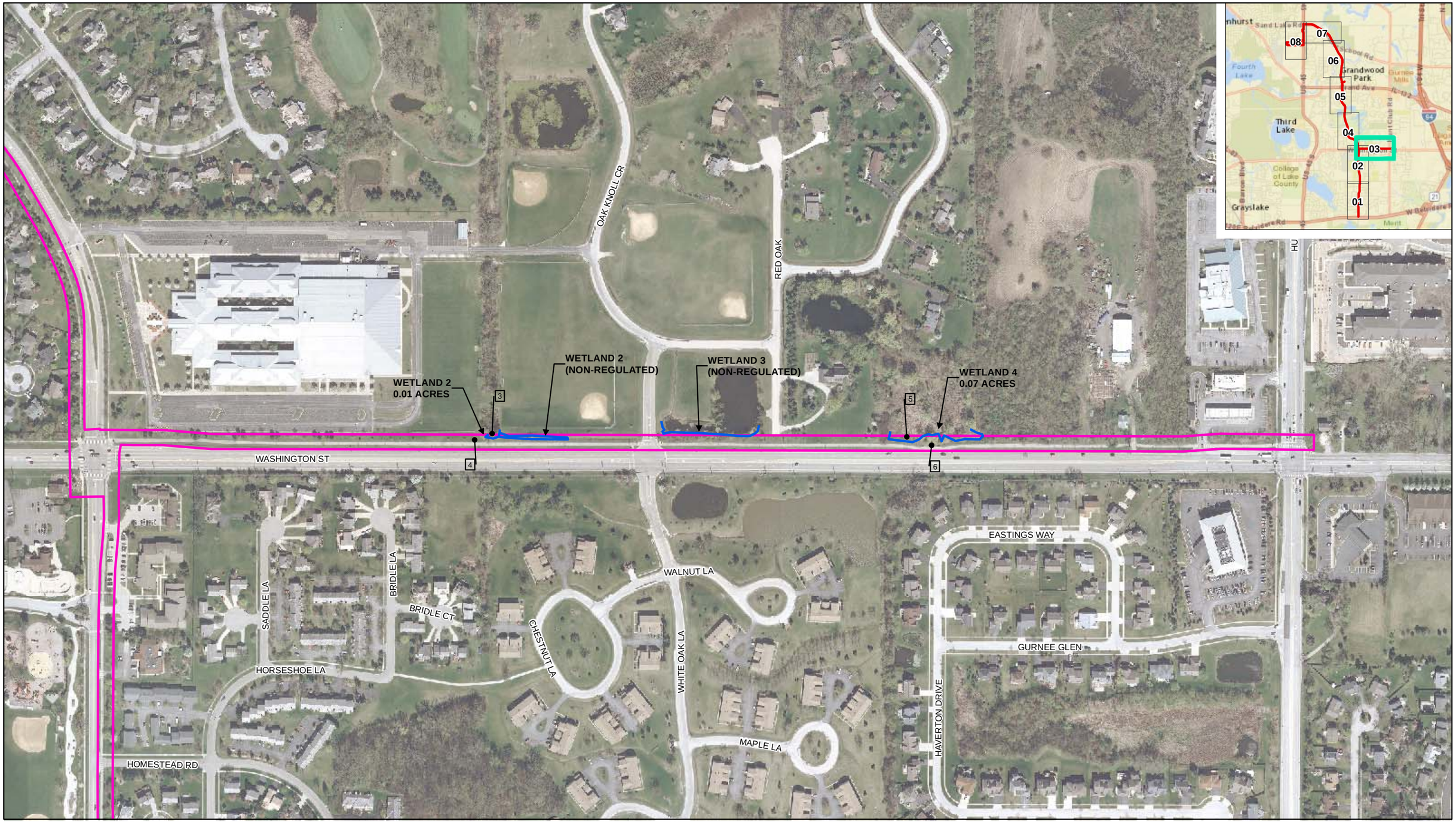
Route: NE Route

Aerial Date: 2012

Sheet: **02 of 08**

Exhibit Title: **Surveyed Wetland Boundaries on Aerial Photograph**

Exhibit: **9**



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NE Route

Aerial Date:
2012

Sheet:
03 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9

Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale: 0 — 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name: CLC JAWA

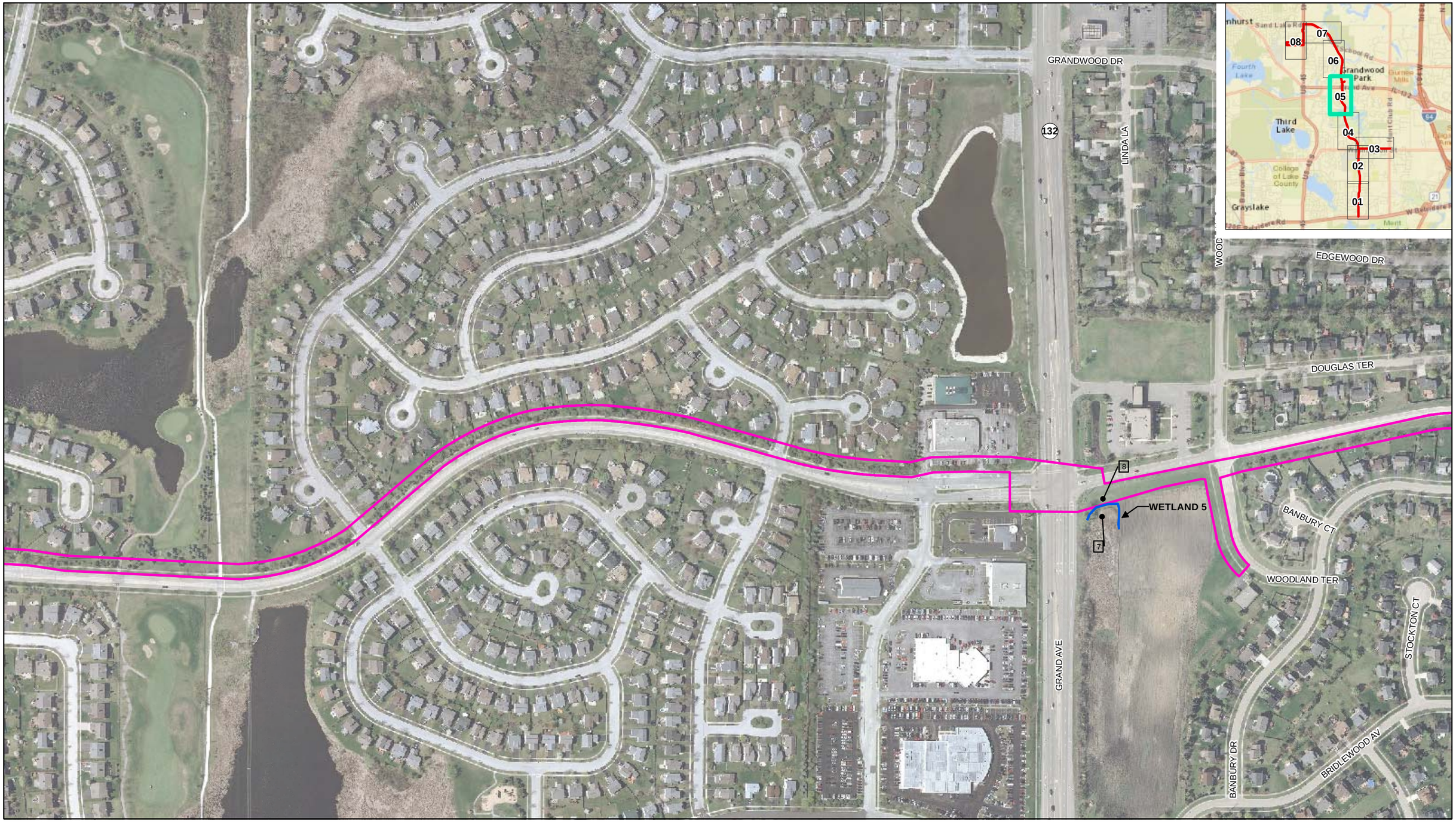
Route: NE Route

Aerial Date: 2012

Sheet: **04 of 08**

Exhibit Title: **Surveyed Wetland Boundaries on Aerial Photograph**

Exhibit: **9**



Prepared by:

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Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NE Route

Aerial Date:
2012

Sheet:
05 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9

Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

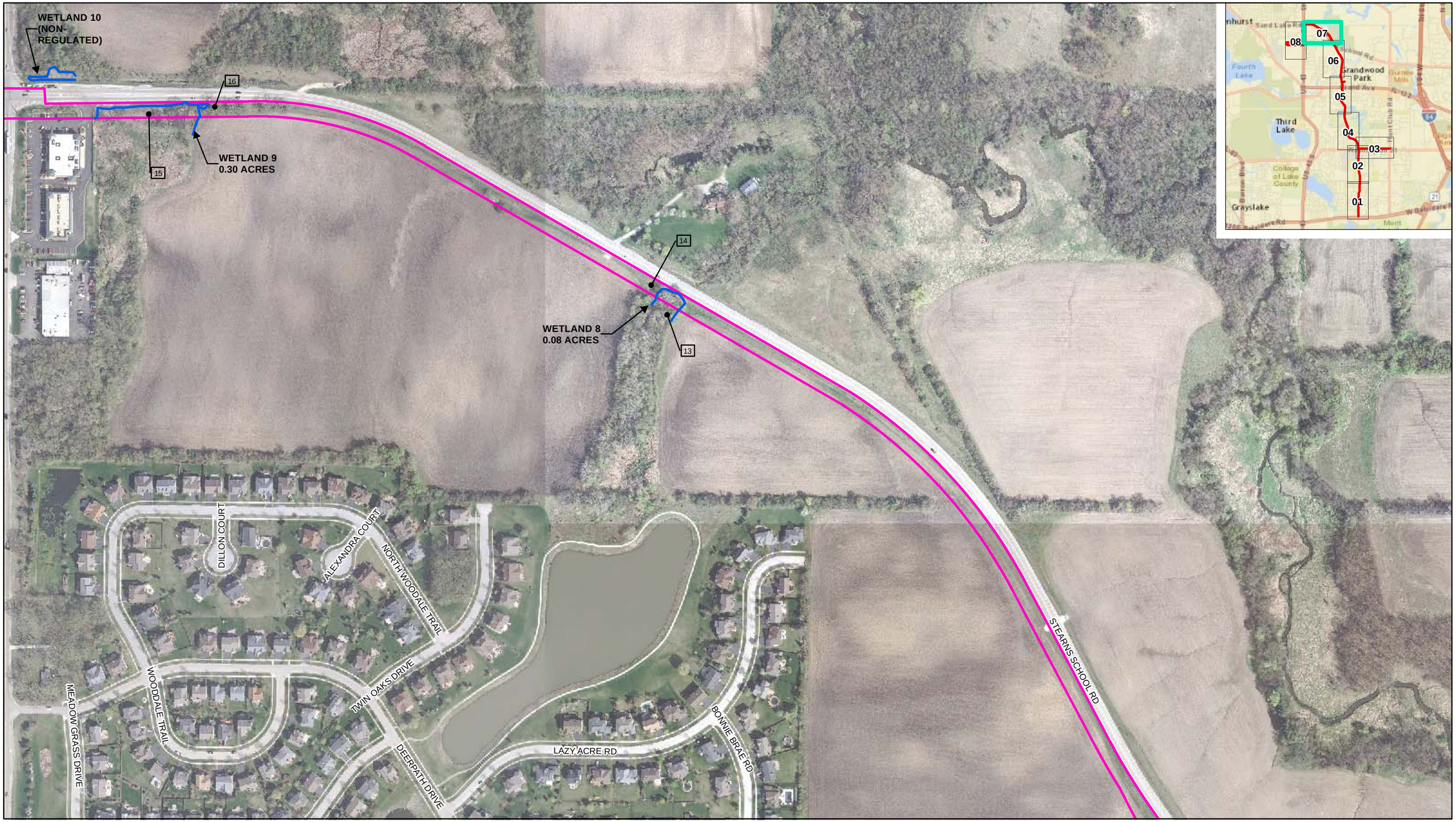
Route:
NE Route

Aerial Date:
2012

Sheet:
06 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

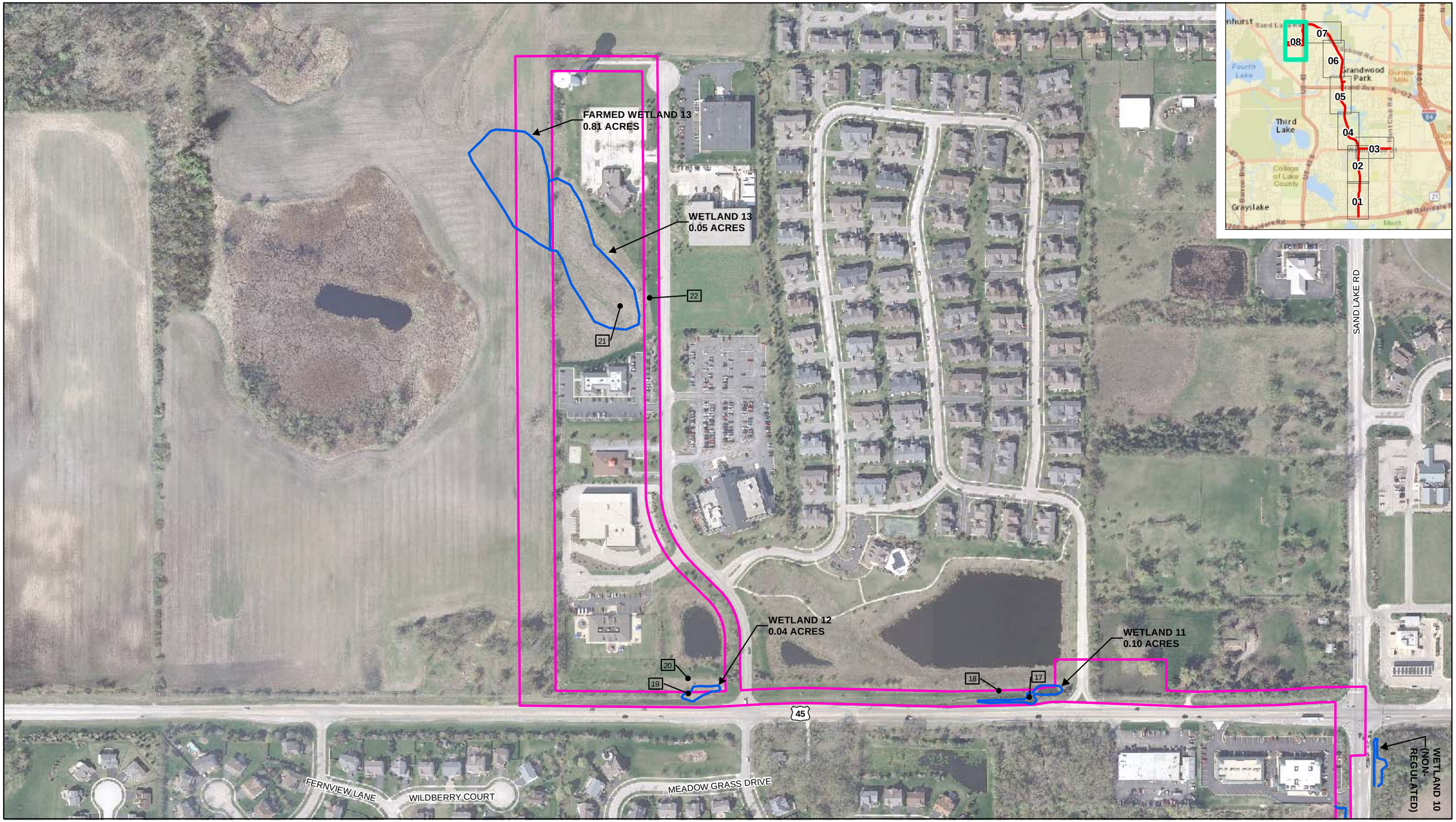
Route:
NE Route

Aerial Date:
2012

Sheet:
07 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9



Prepared by:

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Scale:
0 300 Feet

Project Number: 14-0055

Orientation:

Latest Revision: 12/5/2014

Legend:
Data Point
Wetland Boundary
Study Area

Project Name:
CLC JAWA

Route:
NE Route

Aerial Date:
2012

Sheet:
08 of 08

Exhibit Title:
Surveyed Wetland Boundaries on Aerial Photograph

Exhibit:
9

EXHIBIT 10

CLC JAWA
NE ROUTE

OBSERVED PLANT
SPECIES LISTS

The following inventory, prepared by Hey and Associates, Inc., follows the nomenclature given in the National Wetland Plant List (NWPL)/Mohlenbrock 2014. Each species is provided with its database acronym and coefficient of conservatism (0 = weedy, 10 = conservative), and followed by its wetness coefficient (-2 = wet, +2 = dry), corresponding National Wetland Category (OBL = obligate wetland species, FACW = facultative wetland, FAC - facultative species, FACU = facultative upland, UPL = upland species), and physiognomy (A = annual, B = biennial, P = perennial, W = woody, H = herbaceous). Native taxa are those species believed to have been present in the Chicago region prior to settlement. Adventives, shown in ALL CAPS, include those species that have entered the region since settlement and are therefore not integral to any presettlement community.

The information above the species list provides analysis of the vegetative quality of the site. It shows the total number of species present (species richness), the mean coefficient of conservatism (Mean C), the index (FQAI), and mean wetness; calculated separately for native species only and then including the adventive species (W/Adventives). The MEAN C datum indicates the average coefficient of conservatism. The FQAI is derived by multiplying the MEAN C by the square root of the number of SPECIES. If the FQAI of an area registers in the middle 30's or higher, one can be relatively certain that there is sufficient native character to be of rather profound environmental importance in terms of a regional natural area prospective. The WETNESS datum indicates the mean wetness coefficient for all species present, natives only and then with adventives. The table also provides the number of species in each physiognomic class, NATIVE *versus* ADVENTIVE along with their percentage of the total inventory.

Source: Herman, B., Sliwinski, R. and S. Whitaker. 2013. Chicago Region FQA (Floristic Quality Assessment) Calculator. U.S. Army Corps of Engineers, Chicago, IL. Version September 29, 2014

SITE: NE Wetland 1
LOCALE: Gurnee, Lake County, IL
BY: Steven Rauch
DATE: 08/06/14

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.88**	SPECIES RICHNESS (ALL)	13
MEAN C (ALL SPECIES)	1.15	SPECIES RICHNESS (NATIVE)	8
MEAN C (NATIVE TREES)	0.00	% NON-NATIVE	0.38
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.54
MEAN C (NATIVE HERBACEOUS)	2.60	WET INDICATOR (NATIVE)	-1.00
FQAI (NATIVE SPECIES)	**5.30**	% HYDROPHYTE (MIDWEST)	0.85
FQAI (ALL SPECIES)	4.16	% NATIVE PERENNIAL	0.54
ADJUSTED FQAI	14.71	% NATIVE ANNUAL	0.08
% C VALUE 0	0.54	% ANNUAL	0.08
% C VALUE 1-3	0.31	% PERENNIAL	0.92
% C VALUE 4-6	0.15		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	0	FACW	FACW	-1	Tree	Perennial	Native
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0	FACU	FACU	1	Forb	Perennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
polcoc	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	OBL	-2	Forb	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper	2	OBL	OBL	-2	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
taroff	Taraxacum officinale	TARAXACUM OFFICINALE	Common Dandelion	0	FACU	FACU	1	Forb	Perennial	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NE Wetland 2
LOCALE: Gurnee, Lake County, IL
BY: Robert Kerpec
DATE: 8/13/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.15**	SPECIES RICHNESS (ALL)	29
MEAN C (ALL SPECIES)	2.17	SPECIES RICHNESS (NATIVE)	20
MEAN C (NATIVE TREES)	2.33	% NON-NATIVE	0.31
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.86
MEAN C (NATIVE HERBACEOUS)	3.54	WET INDICATOR (NATIVE)	-1.15
FQAI (NATIVE SPECIES)	**14.09**	% HYDROPHYTE (MIDWEST)	0.90
FQAI (ALL SPECIES)	11.70	% NATIVE PERENNIAL	0.62
ADJUSTED FQAI	26.16	% NATIVE ANNUAL	0.03
% C VALUE 0	0.38	% ANNUAL	0.03
% C VALUE 1-3	0.24	% PERENNIAL	0.93
% C VALUE 4-6	0.38		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	0	FACW	FACW	-1	Tree	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
cxlacu	Carex lacustris	Carex lacustris	Lakebank Sedge	6	OBL	OBL	-2	Sedge	Perennial	Native
corsto	Cornus alba	Cornus stolonifera	Red Osier	6	FACW	FACW	-1	Shrub	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
rhafra	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn	0	FACW	FAC	-1	Shrub	Perennial	Adventive
hacvir	Hackelia virginiana	Hackelia virginiana	Beggar's-Lice	0	FACU	FACU	1	Forb	Biennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native

sciacu	Schoenoplectus acutus	Scirpus acutus	Hard-Stem Club-Rush	6	OBL	OBL	-2	Sedge	Perennial	Native
scival	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	5	OBL	OBL	-2	Sedge	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
sonarv	Sonchus arvensis	SONCHUS ARVENSIS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	FACW	-1	Tree	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native
vibopu	Viburnum opulus var. opulus	VIBURNUM OPULUS	Highbush-Cranberry	0	FAC	FACW	0	Shrub	Perennial	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NE Wetland 4
LOCALE: Gurnee, Lake County, IL
BY: Robert Kerpec
NOTES: 8/13/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.92**	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.10	SPECIES RICHNESS (NATIVE)	12
MEAN C (NATIVE TREES)	1.50	% NON-NATIVE	0.43
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.10
MEAN C (NATIVE HERBACEOUS)	1.67	WET INDICATOR (NATIVE)	-0.42
FQAI (NATIVE SPECIES)	**6.64**	% HYDROPHYTE (MIDWEST)	0.71
FQAI (ALL SPECIES)	5.02	% NATIVE PERENNIAL	0.52
ADJUSTED FQAI	14.49	% NATIVE ANNUAL	0.00
% C VALUE 0	0.57	% ANNUAL	0.00
% C VALUE 1-3	0.29	% PERENNIAL	0.86
% C VALUE 4-6	0.14		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	0	FACW	FACW	-1	Tree	Perennial	Native
arcmin	Arctium minus	ARCTIUM MINUS	Lesser Burrdock	0	FACU	FACU	1	Forb	Biennial	Adventive
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
corsto	Cornus alba	Cornus stolonifera	Red Osier	6	FACW	FACW	-1	Shrub	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne’s Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
rhafra	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn	0	FACW	FAC	-1	Shrub	Perennial	Adventive
hacvir	Hackelia virginiana	Hackelia virginiana	Beggar's-Lice	0	FACU	FACU	1	Forb	Biennial	Native
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salbab	Salix babylonica	SALIX BABYLONICA	Chinese Willow	0	FAC	FACW	0	Tree	Perennial	Adventive
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
rhurad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	FAC	0	Vine	Perennial	Native
vibopu	Viburnum opulus var. opulus	VIBURNUM OPULUS	Highbush-Cranberry	0	FAC	FACW	0	Shrub	Perennial	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NE Wetland 5
LOCALE: Gurnee, Lake County, IL
BY: Steven Rauch
DATE: 9/24/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**0.50**	SPECIES RICHNESS (ALL)	25
MEAN C (ALL SPECIES)	0.20	SPECIES RICHNESS (NATIVE)	10
MEAN C (NATIVE TREES)	0.00	% NON-NATIVE	0.60
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.12
MEAN C (NATIVE HERBACEOUS)	0.43	WET INDICATOR (NATIVE)	-0.30
FQAI (NATIVE SPECIES)	**1.58**	% HYDROPHYTE (MIDWEST)	0.76
FQAI (ALL SPECIES)	1.00	% NATIVE PERENNIAL	0.28
ADJUSTED FQAI	3.16	% NATIVE ANNUAL	0.12
% C VALUE 0	0.80	% ANNUAL	0.16
% C VALUE 1-3	0.20	% PERENNIAL	0.72
% C VALUE 4-6	0.00		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FAC	FACU	0	Forb	Biennial	Adventive
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
barvul	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket	0	FAC	FAC	0	Forb	Biennial	Adventive
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne’s Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	FAC	0	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
nepcat	Nepeta cataria	NEPETA CATARIA	Catnip	0	FACU	FACU	1	Forb	Perennial	Adventive
polpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0	FACW	FACW	-1	Forb	Annual	Native
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
plamaj	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive

sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
xanstr	Xanthium strumarium	XANTHIUM STRUMARIUM	Rough Cockleburr	0	FAC	FAC	0	Forb	Annual	Adventive

SITE: NE Wetland 6
LOCALE: Gurnee, Lake County, IL
BY: Steven Rauch
DATE: 9/24/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.64**	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.10	SPECIES RICHNESS (NATIVE)	14
MEAN C (NATIVE TREES)	1.40	% NON-NATIVE	0.33
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.38
MEAN C (NATIVE HERBACEOUS)	1.83	WET INDICATOR (NATIVE)	-0.50
FQAI (NATIVE SPECIES)	**6.15**	% HYDROPHYTE (MIDWEST)	0.76
FQAI (ALL SPECIES)	5.02	% NATIVE PERENNIAL	0.62
ADJUSTED FQAI	13.41	% NATIVE ANNUAL	0.05
% C VALUE 0	0.52	% ANNUAL	0.05
% C VALUE 1-3	0.38	% PERENNIAL	0.95
% C VALUE 4-6	0.10		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	0	FACW	FACW	-1	Tree	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
epicol	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1	FACW	FACW	-1	Tree	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
perpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0	FACW	FACW	-1	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	FACU	1	Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
salnig	Salix nigra	Salix nigra	Black Willow	4	OBL	OBL	-2	Tree	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive

astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	FACU	1	Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NE Wetland 7
LOCALE: Gurnee, Lake County, IL
BY: Steven Rauch
DATE: 9/24/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.92**	SPECIES RICHNESS (ALL)	18
MEAN C (ALL SPECIES)	1.94	SPECIES RICHNESS (NATIVE)	12
MEAN C (NATIVE TREES)	1.33	% NON-NATIVE	0.33
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.61
MEAN C (NATIVE HERBACEOUS)	4.00	WET INDICATOR (NATIVE)	-1.08
FQAI (NATIVE SPECIES)	**10.10**	% HYDROPHYTE (MIDWEST)	0.89
FQAI (ALL SPECIES)	8.25	% NATIVE PERENNIAL	0.39
ADJUSTED FQAI	23.81	% NATIVE ANNUAL	0.28
% C VALUE 0	0.44	% ANNUAL	0.28
% C VALUE 1-3	0.33	% PERENNIAL	0.67
% C VALUE 4-6	0.17		
% C VALUE 7-10	0.06		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
arcmin	Arctium minus	ARCTIUM MINUS	Lesser Burrdock	0	FACU	FACU	1	Forb	Biennial	Adventive
bidcor	Bidens trichosperma	Bidens coronata	Crowned Beggarticks	9	OBL	OBL	-2	Forb	Annual	Native
boecyl	Boehmeria cylindrica	Boehmeria cylindrica drummondiana	Small-Spike False Nettle	2	OBL	OBL	-2	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1	FACW	FACW	-1	Tree	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
lemmio	Lemna minor	Lemna minor	Common Duckweed	5	OBL	OBL	-2	Forb	Annual	Native
moralb	Morus alba	MORUS ALBA	White Mulberry	0	FAC	FACU	0	Tree	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	5	FACW	FACW	-1	Forb	Annual	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	FACW	-1	Tree	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2	FACW	FAC	-1	Vine	Perennial	Native

SITE: NE Wetland 8
LOCALE: Old Mill Creek, Lake County, IL
BY: Steven Rauch
DATE: 9/24/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.92**	SPECIES RICHNESS (ALL)	17
MEAN C (ALL SPECIES)	1.35	SPECIES RICHNESS (NATIVE)	12
MEAN C (NATIVE TREES)	1.67	% NON-NATIVE	0.29
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	0.18
MEAN C (NATIVE HERBACEOUS)	2.14	WET INDICATOR (NATIVE)	0.08
FQAI (NATIVE SPECIES)	**6.64**	% HYDROPHYTE (MIDWEST)	0.71
FQAI (ALL SPECIES)	5.58	% NATIVE PERENNIAL	0.59
ADJUSTED FQAI	16.10	% NATIVE ANNUAL	0.12
% C VALUE 0	0.47	% ANNUAL	0.12
% C VALUE 1-3	0.41	% PERENNIAL	0.88
% C VALUE 4-6	0.12		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	FACU	1	Vine	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1	FACW	FACW	-1	Shrub	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
astsag	Symphyotrichum urophyllum	Aster sagittifolius	Arrow-Leaf Aster	5	UPL	UPL	2	Forb	Perennial	Native
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	FACW	-1	Tree	Perennial	Native
verurt	Verbena urticifolia	Verbena urticifolia leiocarpa	White Vervain	5	FAC	FAC	0	Forb	Perennial	Native

SITE: NE Wetland 9
LOCALE: Old Mill Creek, Lake County, IL
BY: Steven Rauch
DATE: 9/29/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.59	SPECIES RICHNESS (ALL)	42
MEAN C (ALL SPECIES)	1.98	SPECIES RICHNESS (NATIVE)	32
MEAN C (NATIVE TREES)	3.20	% NON-NATIVE	0.24
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.67
MEAN C (NATIVE HERBACEOUS)	2.73	WET INDICATOR (NATIVE)	-0.81
FQAI (NATIVE SPECIES)	14.67	% HYDROPHYTE (MIDWEST)	0.83
FQAI (ALL SPECIES)	12.81	% NATIVE PERENNIAL	0.64
ADJUSTED FQAI	22.64	% NATIVE ANNUAL	0.12
% C VALUE 0	0.31	% ANNUAL	0.12
% C VALUE 1-3	0.40	% PERENNIAL	0.88
% C VALUE 4-6	0.29		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	4	OBL	OBL	-2	Forb	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	FAC	0	Forb	Perennial	Native
cxcris	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
cypstr	Cyperus strigosus	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
epicol	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	FACW	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
lontat	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0	FACU	FACU	1	Shrub	Perennial	Adventive
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
menarv	Mentha arvensis	Mentha arvensis villosa	American Wild Mint	5	FACW	FACW	-1	Forb	Perennial	Native

parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper	2 OBL	OBL	-2 Forb	Annual	Native
polpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0 FACW	FACW	-1 Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0 FACW	FACW	-1 Grass	Perennial	Adventive
poptre	Populus tremuloides	Populus tremuloides	Quaking Aspen	4 FAC	FAC	0 Tree	Perennial	Native
quemac	Quercus macrocarpa	Quercus macrocarpa	Burr Oak	5 FAC	FACU	0 Tree	Perennial	Native
ransep	Ranunculus hispidus var. nitidus	Ranunculus septentrionalis	Bristly Buttercup	5 FAC	FAC	0 Forb	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0 FAC	FAC	0 Shrub	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0 FACU	FACU	1 Shrub	Perennial	Adventive
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0 FAC	FAC	0 Forb	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1 FACW	FACW	-1 Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	4 OBL	OBL	-2 Tree	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1 FACW	FACW	-1 Shrub	Perennial	Native
sciflu	Schoenoplectus fluviatilis	Scirpus fluviatilis	River Club-Rush	4 OBL	OBL	-2 Sedge	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4 FACW	FACW	-1 Forb	Perennial	Native
sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0 FACU	FACU	1 Forb	Perennial	Adventive
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3 FAC	FACW	0 Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4 FACW	FACW	-1 Forb	Perennial	Native
astsag	Symphyotrichum urophyllum	Aster sagittifolius	Arrow-Leaf Aster	5 UPL	UPL	2 Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1 OBL	OBL	-2 Forb	Perennial	Native
ulmame	Ulmus americana	Ulmus americana	American Elm	3 FACW	FACW	-1 Tree	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

SITE: NE Wetland 11
LOCALE: Lindenhurst, Lake County, IL
BY: Steven Rauch
DATE: 9/30/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**2.93**	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.95	SPECIES RICHNESS (NATIVE)	14
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.33
MEAN C (NATIVE SHRUBS)	3.50	WET INDICATOR (ALL)	-1.00
MEAN C (NATIVE HERBACEOUS)	2.91	WET INDICATOR (NATIVE)	-1.29
FQAI (NATIVE SPECIES)	**10.96**	% HYDROPHYTE (MIDWEST)	0.90
FQAI (ALL SPECIES)	8.95	% NATIVE PERENNIAL	0.52
ADJUSTED FQAI	23.91	% NATIVE ANNUAL	0.14
% C VALUE 0	0.38	% ANNUAL	0.19
% C VALUE 1-3	0.29	% PERENNIAL	0.81
% C VALUE 4-6	0.33		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
alisub	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	4	OBL	OBL	-2	Forb	Perennial	Native
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
corsto	Cornus alba	Cornus stolonifera	Red Osier	6	FACW	FACW	-1	Shrub	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
eleery	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush	2	OBL	OBL	-2	Sedge	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
leeory	Leersia oryzoides	Leersia oryzoides	Rice Cut Grass	4	OBL	OBL	-2	Grass	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
polper	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0	FACW	FAC	-1	Forb	Annual	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
salfra	Salix fragilis	SALIX FRAGILIS	Crack Willow	0	UPL	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Salix interior	Sandbar Willow	1	FACW	FACW	-1	Shrub	Perennial	Native
scipun	Schoenoplectus pungens	Scirpus pungens	Three-Square	5	OBL	OBL	-2	Sedge	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native

typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
typlat	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	OBL	-2	Forb	Perennial	Native
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NE Wetland 12
LOCALE: Lindenhurst, Lake County, IL
BY: Steven Rauch
DATE: 9/30/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**3.33**	SPECIES RICHNESS (ALL)	15
MEAN C (ALL SPECIES)	2.00	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.40
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.60
MEAN C (NATIVE HERBACEOUS)	3.50	WET INDICATOR (NATIVE)	-0.44
FQAI (NATIVE SPECIES)	**10.00**	% HYDROPHYTE (MIDWEST)	0.87
FQAI (ALL SPECIES)	7.75	% NATIVE PERENNIAL	0.53
ADJUSTED FQAI	25.82	% NATIVE ANNUAL	0.07
% C VALUE 0	0.40	% ANNUAL	0.07
% C VALUE 1-3	0.27	% PERENNIAL	0.93
% C VALUE 4-6	0.33		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
cramol	Crataegus mollis	Crataegus mollis	Downy Hawthorn	2	FAC	FAC	0	Tree	Perennial	Native
solgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	FACW	-1	Forb	Annual	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	Phragmites australis	Common Reed	0	FACW	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
silter	Silphium terebinthinaceum	Silphium terebinthinaceum	Prairie Dock	5	FAC	FAC	0	Forb	Perennial	Native
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native
sonuli	Sonchus arvensis ssp. uliginosus	SONCHUS ULIGINOSUS	Field Sow-Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
verhas	Verbena hastata	Verbena hastata	Simpler's-Joy	4	FACW	FACW	-1	Forb	Perennial	Native

SITE: NE Wetland 13
LOCALE: Lindenhurst, Lake County, IL
BY: Steven Rauch
DATE: 9/30/2014

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	**1.20**	SPECIES RICHNESS (ALL)	9
MEAN C (ALL SPECIES)	0.67	SPECIES RICHNESS (NATIVE)	5
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.44
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.22
MEAN C (NATIVE HERBACEOUS)	1.33	WET INDICATOR (NATIVE)	-0.40
FQAI (NATIVE SPECIES)	**2.68**	% HYDROPHYTE (MIDWEST)	0.89
FQAI (ALL SPECIES)	2.00	% NATIVE PERENNIAL	0.33
ADJUSTED FQAI	8.94	% NATIVE ANNUAL	0.22
% C VALUE 0	0.78	% ANNUAL	0.22
% C VALUE 1-3	0.11	% PERENNIAL	0.67
% C VALUE 4-6	0.11		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FAC	FACU	0	Forb	Biennial	Adventive
ambtri	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
perpen	Persicaria pensylvanica	Polygonum pensylvanicum	Pinkweed	0	FACW	FACW	-1	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0	Shrub	Perennial	Adventive
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	FACW	-1	Forb	Perennial	Native

EXHIBIT 11

CLC JAWA
NE ROUTE

JURISDICTIONAL
DATAFORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: August 6, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP1-WL1

Investigator(s): Steven Rauch | Section, Township, Range: 29, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3545 | Long: -87.9774 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 1

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	95	Y	FACW
2 *Solanum dulcamara*	5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		205 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP1-WL1

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					silty clay loam	
14-20	10YR 4/1	95	10YR 6/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: August 6, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP2-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 29, 45 N, 11 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3545 | Long: -87.9774 | Datum: GPS decimal

Soil Map Unit Name: Ashkum silty clay loam (232A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N	If yes, optional wetland site ID:	
Wetland hydrology present?	N		

Remarks: (Explain alternative procedures here or in a separate report.)

DP is located between Almond Road and trail.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	40	Y	FAC
2 *Festuca arundinacea*	40	Y	FACU
3 *Trifolium pratense*	20	Y	FACU
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column totals	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP2-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: August 13, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP3-WL2

Investigator(s): Robert Kerpec | Section, Township, Range: 20, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3643 | Long: -87.9733 | Datum: GPS decimal

Soil Map Unit Name: Pella silty clay loam (153A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 2

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2 *Acer saccharinum*	30	Y	FACW
3			
4			
5			
	30	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Cornus racemosa*	60	Y	FACW
2 *Cornus stolonifera*	10	N	FACW
3 *Rhamnus cathartica*	5	N	FAC
4			
5			
	75	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Alliaria petiolata*	10	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
	10	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	115 (A)		245 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP3-WL2

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-18	10YR3/1	100					silty clay loam	
18-24	10YR3/2	100					silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X 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 Tilled 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	X	Depth (inches):	NONE
Water table present?	Yes	X	No		Depth (inches):	7
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	1

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: August 13, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP4-UPL

Investigator(s): Robert Kerpec | Section, Township, Range: 20, 45 N, 11 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3643 | Long: -87.9733 | Datum: GPS decimal

Soil Map Unit Name: Elliot silt loam (146A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer saccharinum*	10	Y	FACW
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Poa pratensis*	90	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		320 (B)

Prevalence Index = B/A = 2.91

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP4-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR4/2	100					silt loam	
10-20	10YR4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP7-WL5

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3864 | Long: -87.9852 | Datum: GPS decimal

Soil Map Unit Name: Zurich and Ozaukee silt loams (840B) | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 5

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix exigua subsp. interior*	20	Y	OBL
2			
3			
4			
5			
	20	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phragmites australis*	60	Y	FACW
2 *Typha angustifolia*	20	Y	OBL
3 *Lythrum salicaria*	5	N	OBL
4 *Rumex crispus*	5	N	FAC
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	45	x 1 =	45
FACW species	60	x 2 =	120
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		180 (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP7-WL5

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					silty clay loam	
12-18	10YR 3/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP8-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3864 | Long: -87.9852 | Datum: GPS decimal

Soil Map Unit Name: Zurich and Ozaukee silt loams (840B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	60	Y	FAC
2 *Festuca arundinacea*	20	Y	FACU
3 *Plantago major*	10	N	FAC
4 *Taraxacum officinale*	5	N	FACU
5 *Plantago lanceolata*	5	N	FAC
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column totals	100 (A)		325 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP8-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches): ___
Water table present?	Yes	___	No	X	Depth (inches): ___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP9-WL6

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3929 | Long: -87.9858 | Datum: GPS decimal

Soil Map Unit Name: Mundelein and Elloitt silt loams (989A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 6

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer negundo*	20	Y	FACW
2 *Salix nigra*	20	Y	OBL
3			
4			
5			
	40	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	20	Y	FAC
2 *Sambucus canadensis*	5	Y	FACW
3			
4			
5			
	25	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	90	Y	FACW
2 *Solanum dulcamara*	5	N	FAC
3 *Aster pilosus*	5	N	FACU
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20
FACW species	115	x 2 =	230
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	165 (A)		345 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP9-WL6

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					silty clay loam	
12-18	10YR 3/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP10-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3929 | Long: -87.9858 | Datum: GPS decimal

Soil Map Unit Name: Mundelein and Elloitt silt loams (989A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	80	Y	FAC
2 *Glechoma hederacea*	10	N	FACU
3 *Trifolium repens*	5	N	FACU
4 *Festuca arundinacea*	5	N	FACU
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column totals	100 (A)		320 (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP10-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/2	100					silt loam	
	10YR 3/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP11-DP7

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3956 | Long: -87.9857 | Datum: GPS decimal

Soil Map Unit Name: Sawmill silty clay loam (1107A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 7

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer negundo*	20	Y	FACW
2 *Salix fragilis*	20	Y	FAC
3			
4			
5			
	40	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	20	Y	FAC
2			
3			
4			
5			
	20	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	100	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1 *Vitis riparia*	5	Y	FACW
2			
	5	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	120	x 2 =	240
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	160 (A)		360 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP11-DP7

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 3/1	100					silty clay loam	
12-18	10YR 3/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	X	No	___	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP12-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 7, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.3956 | Long: -87.9857 | Datum: GPS decimal

Soil Map Unit Name: Sawmill silty clay loam (1107A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	40	Y	FACW
2 *Acer negundo*	20	Y	FACW
3			
4			
5			
	60	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	30	Y	FAC
2			
3			
4			
5			
	30	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Poa pratensis*	100	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	130	x 3 =	390
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	190 (A)		510 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP12-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

Remarks:

embankment fill

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 Tilled 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP13-WL8

Investigator(s): Steven Rauch | Section, Township, Range: 6, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4061 | Long: -87.9959 | Datum: GPS decimal

Soil Map Unit Name: Mundelein and Elliott silt loam (989A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 8

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer negundo*	40	Y	FACW
2 *Salix fragilis*	30	Y	FAC
3			
4			
5			
	70	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	20	Y	FAC
2			
3			
4			
5			
	20	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Phalaris arundinacea*	95	Y	FACW
2 *Solanum dulcamara*	5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across all Strata:	4	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	135	x 2 =	270
FAC species	55	x 3 =	165
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	190 (A)		435 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP13-WL8

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 2/1	100					silty clay loam	
10-18	10YR 3/1	95	10YR 5/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP14-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 6, 45 N, 11 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4061 | Long: -87.9959 | Datum: GPS decimal

Soil Map Unit Name: Mundelein and Elliott silt loam (989A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Juglans nigra*	20	Y	FACU
2 *Acer negundo*	10	Y	FACW
3			
4			
5			
	30	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	20	Y	FAC
2 *Rosa multiflora*	5	Y	FACU
3			
4			
5			
	25	= Total Cover	

Herb stratum (Plot size: ____)			
1 *Monarda fistulosa*	75	Y	FACU
2 *Solidago canadensis*	20	Y	FACU
3 *Poa pratensis*	5	N	FAC
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	6	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	33.33%	(A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	25	x 3 =	75
FACU species	120	x 4 =	480
UPL species	0	x 5 =	0
Column totals	155 (A)		575 (B)
Prevalence Index = B/A =			3.71

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP14-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/3	100					silt loam	
	10YR 3/1	95	10YR 5/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP15-WL9

Investigator(s): Steven Rauch | Section, Township, Range: 6, 45 N, 11 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4077 | Long: -88.0022 | Datum: GPS decimal

Soil Map Unit Name: Peotone silty clay loam (330A) | NWI Classification: PEMC

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 9

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Rhamnus cathartica*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Helianthus grosseserratus*	30	Y	FACW
2 *Lythrum salicaria*	25	Y	OBL
3 *Phragmites australis*	20	Y	FACW
4 *Aster novae-angliae*	15	N	FACW
5 *Carex cristatella*	10	N	FACW
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	25	x 1 =	25
FACW species	75	x 2 =	150
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		205 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP15-WL9

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					silty clay loam	
12-20	10YR 4/1	95	10YR 5/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X 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 Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 24, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP16-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 6, 45 N, 11 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.4077 | Long: -88.0022 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Quercus macrocarpa*	50	Y	FAC
2			
3			
4			
5			
	50	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)			
1 *Rhamnus cathartica*	50	Y	FAC
2 *Lonicera tatarica*	20	Y	FACU
3 *Rosa multiflora*	5	N	FACU
4			
5			
	75	= Total Cover	

Herb stratum (Plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	66.67%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	100	x 3 =	300	
FACU species	25	x 4 =	100	
UPL species	0	x 5 =	0	
Column totals	125	(A)	400	(B)
Prevalence Index = B/A =			3.20	

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP16-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 4/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP17-WL11

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.405 | Long: -88.0042 | Datum: GPS decimal

Soil Map Unit Name: Pella silty clay loam (153A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 11

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix exigua subsp. interior*	20	Y	OBL
2 *Cornus stolonifera*	10	Y	FACW
3			
4			
5			
	30	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	75	Y	FACW
2 *Typha angustifolia*	15	N	OBL
3 *Eleocharis erythropoda*	10	N	OBL
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	45	x 1 =	45
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	130 (A)		215 (B)

Prevalence Index = B/A = 1.65

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP17-WL11

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 2/1	100					silty clay loam	
10-20	10YR 4/1	95	10YR 4/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP18-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.405 | Long: -88.0042 | Datum: GPS decimal

Soil Map Unit Name: Oazukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	60	Y	FAC
2 *Festuca arundinacea*	40	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	100 (A)		340 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP18-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

Remarks:

road embankment

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP19-WL12

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.1019 | Long: -88.0043 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 12

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	90	Y	OBL
2 *Phalaris arundinacea*	5	N	FACW
3 *Phragmites australis*	5	N	FACW
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP19-WL12

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 2/1	100					silty clay loam	
10-20	10YR 4/1	95	10YR 4/6	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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 Tilled 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	4

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Gurnee/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP20-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.1019 | Long: -88.0043 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530C2) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Coronilla varia*	65	Y	NI
2 *Aster novae-angliae*	20	Y	FACW
3 *Monarda fistulosa*	5	N	FACU
4 *Daucus carota*	5	N	UPL
5 *Typha angustifolia*	5	N	OBL
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column totals	35 (A)		90 (B)

Prevalence Index = B/A = 2.57

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP20-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

Remarks:

embankment

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Lindenhurst/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP21-WL13

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.401408 | Long: -88.08898 | Datum: GPS decimal

Soil Map Unit Name: Houghton muck (103A) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 13

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ambrosia trifida*	100	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: DP21-WL13

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					silty clay loam	
12-18	10YR 3/1	95	10YR 5/8	5	RM	M	silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X 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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? Y

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)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X 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 Tilled 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ___	No	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NE Route | City/County: Lindenhurst/Lake | Sampling Date: September 30, 2014

Applicant/Owner: CLC JAWA | State: IL | Sampling Point: DP22-UPL

Investigator(s): Steven Rauch | Section, Township, Range: 1, 45 N, 10 E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave

Slope (%): 0-3 | Lat: 42.401408 | Long: -88.08898 | Datum: GPS decimal

Soil Map Unit Name: Ozaukee silt loam (530B) | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? N

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? N | Are "normal circumstances" present? Y

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	N	**Is the sampled area within a wetland?**	N
Wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Populus deltoides*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Herb stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ambrosia trifida*	50	Y	FAC
2 *Bromus inermis*	20	Y	UPL
3 *Daucus carota*	20	Y	UPL
4 *Aster pilosus*	10	N	FACU
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	40	x 5 =	200
Column totals	110 (A)		420 (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: DP22-UPL

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (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 Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

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

Hydric soil present? N

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 Tilled 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	X	Depth (inches):	___
Water table present?	Yes ___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

EXHIBIT 12

CLC JAWA
NE ROUTE

REPRESENTATIVE
COLOR
PHOTOGRAPHS

Exhibit 12 Representative Color Photographs

Photograph 1: Data Point 1-Wetland 1 facing east.

Photograph 2: Data Point 2-Upland facing south.

Exhibit 12 Representative Color Photographs

Photograph 3: Data Point 3-Wetland 2.

Photograph 4: Data Point 4-Upland towards the east.

Exhibit 12 Representative Color Photographs

Photograph 5: Data Point 5-Wetland 4 facing north.

Photograph 6: Data Point 6-Upland facing north.

Exhibit 12 Representative Color Photographs

Photograph 7: Data Point 7-Wetland 5 facing east.

Photograph 8: Data Point 8-Upland facing west.

Exhibit 12 Representative Color Photographs

Photograph 9: Data Point 9-Wetland 6 facing north.

Photograph 10: Data Point 10-Upland facing north.

Exhibit 12 Representative Color Photographs

Photograph 11: Data Point 11-Wetland 7 facing east.

Photograph 12: Data Point 12-Upland towards south.

Exhibit 12 Representative Color Photographs

Photograph 13: Data Point 13-Wetland 8 facing south.

Photograph 14: Data Point 14-Upland facing east.

Exhibit 12 Representative Color Photographs

Photograph 15: Data Point 15-Wetland 9 facing southeast.

Photograph 16: Data Point 16-Upland facing south.

Exhibit 12 Representative Color Photographs

Photograph 17: Data Point 17-Wetland 11 facing west.

Photograph 18: Data Point 18-Upland facing south.

Exhibit 12 Representative Color Photographs

Photograph 19: Data Point 19-Wetland 12 facing north.

Photograph 20: Data Point 20-Upland facing south.

Exhibit 12 Representative Color Photographs

Photograph 21: Data Point 21-Wetland 13 facing south.

Photograph 22: Data Point 22-Upland facing south.

APPENDIX A

CLC JAWA
NE ROUTE

FARMED WETLAND
DETERMINATION
REPORT

14-0055

WETLAND DETERMINATION UTILIZING NATURAL RESOURCES CONSERVATION SERVICE PROCEDURES

CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY

NE ROUTE

GURNEE, LINDENHURST, AND OLD MILL CREEK, LAKE COUNTY, ILLINOIS

PREPARED FOR:

Central Lake County Joint Action Water Agency
978 West Winchester Road
Lake Bluff, Illinois 60048

December 5, 2014

26575 WEST COMMERCE DRIVE, SUITE 601, VOLO, ILLINOIS 60067
OFFICE (847) 740-0888 FAX (847) 740-2888

INTRODUCTION

As a result of a modification to a Memorandum of Agreement between the Corps and the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), farmed wetland delineations are no longer conducted by USDA-NRCS for purposes other than the implementation of the Farm Bill.

Therefore, Hey and Associates Inc. conducts farmed wetland delineations using the methodology outlined by the USDA-NRCS. Initially Farm Service Agency (FSA) aerial photography is reviewed, including a minimum of five years of slides known to have been taken during normal years of precipitation, based upon the WETS (Wetland Climate Analysis) climate data tables. From the differing signatures on this photography, areas that may be prone to ponding or seasonal flooding can be determined. These photographic signatures must be present in majority of years reviewed to be considered.

The Lake County Soil Survey also was consulted for determining the presence of possible hydric soils in the area, and thorough on-site soil investigations are also conducted to validate this data. Additionally, if there are given hydrologic or vegetative indicators on-site to support or refute information gathered by other means, these are documented on the proper data forms and included in final reporting.

The Leg 7A corridor is located west of U. S. Route 45 and south of Falling Waters Boulevard in the Village of Lindenhurst (Exhibit 1 of the wetland report). The site is located in Section 1, Township 45 North, Range 10 East.

WETLAND DETERMINATION PROCEDURES

Farmed wetland boundaries are determined through use of several sources of existing data, including:

TABLE 1. SUMMARY OF EXISTING DATA SOURCES.

Wetland Report Exhibit	Title of data source	Wetland(s) and/or hydric soils indicated	Comments
3 & 5	Lake County Wetland Inventory Map, National Wetland Inventory Map	Yes	LCWI has one mapped wetland. NWI has a mapped PEMA wetland.
8	Lake County Soil Survey	Yes	Houghton muck (103A)
-	WETS tables for Antioch IL 110203 dated 7/11/2012	-	See Exhibit A
-	NRCS wetland spectral response criteria and category definitions used in the interpretation of Farm Service Agency Slides (FSA) from 1996-2011 (Not all years reviewed)	See Table 2	-

DETERMINATION RESULTS

All of the slides (Exhibit B) were examined and potential farmed wetlands (PFW) meeting the criteria were noted. Normal years reviewed were 2001, 2003, 2004, 2006, and 2007. Wet year reviewed was 2000. Each

PFW was evaluated year-by-year using the criteria set forth by FSA and USDA-NRCS standards. The results are summarized in Table 2.

Table 2: precipitation and slide analysis summary

Year	Precipitation evaluation	Spectral Signature of Potential Farmed Wetland Area
		13
2001	Normal	Y
2003	Normal	Y
2004	Normal	Y
2006	Normal	Y
2007	Normal	Y
NWI	-	Y

The spectral images for PFW 13 were visible in all of the normal years including the NWI. A review of the Lake County maps online aerial photographs documents that the PFW went from farmed to vegetated brtween 1980 and 1993 and back to farmed in 2009. No other PFWs were identified during the review. The spectral images are noted on the aerial photograph in Exhibit C. Utilizing the methodology described above it has been determined that there is a farmed wetland within the Leg 7A corridor.

EXHIBIT A

CLC JAWA
NE ROUTE

WETS TABLE-
ANTIOCH

WETS Station: Antioch 110203

Updated 7/11/2012, M. W. Bramstedt, NRCS

CLIMATIC EVALUATION OF PRECIPITATION
3 MONTHS BEFORE AERIAL CROP
HISTORY SLIDES

	Average	<30%	>30%
April	3.47	2.28	4.59
May	3.67	2.55	4.49
June	4.26	2.92	5.42

DATE: _____
COUNTY: _____
LANDOWNER: _____
TRACT NO. _____
PREPARED BY: _____

Year	April Percip-itation	Type of Month	May Percip-itation	Type of Month	June Percip-itation	Type of Month	April Score 1X	May Score 2X	June Score 3X	Score for Year	Type of Year	Year	RECORD OF WETLAND SIGNATURES OBSERVED ON AERIAL CROP HISTORY SLIDES
1980	3.66	Normal	1.80	Dry	4.92	Normal	2	2	6	10	NORMAL	1980	
1981	4.52	Normal	3.42	Normal	4.42	Normal	2	4	6	12	NORMAL	1981	
1982	3.10	Normal	4.28	Normal	2.12	Dry	2	4	3	9	DRY	1982	
1983	5.09	Wet	5.33	Wet	2.12	Dry	3	6	3	12	NORMAL	1983	
1984	5.22	Wet	4.23	Normal	3.43	Normal	3	4	6	13	NORMAL	1984	
1985	1.56	Dry	3.54	Normal	2.96	Normal	1	4	6	11	NORMAL	1985	
1986	1.74	Dry	4.61	Wet	5.69	Wet	1	6	9	16	WET	1986	
1987	5.32	Wet	3.63	Normal			3	4		7		1987	Precip data not available
1988												1988	Precipitation data not available
1989	1.59	Dry	2.59	Normal	1.21	Dry	1	4	3	8	DRY	1989	
1990	1.70	Dry	7.74	Wet	2.72	Dry	1	6	3	10	NORMAL	1990	
1991												1991	Precipitation data not available
1992	3.06	Normal	0.87	Dry	0.91	Dry	2	2	3	7	DRY	1992	
1993												1993	Precipitation data not available
1994	1.64	Dry	1.25	Dry	4.47	Normal	1	2	6	9	DRY	1994	
1995	4.22	Normal	3.41	Normal	0.63	Dry	2	4	3	9	DRY	1995	
1996	4.05	Normal	6.68	Wet	5.33	Normal	2	6	6	14	NORMAL	1996	
1997	0.74	Dry	5.24	Wet	5.80	Wet	1	6	9	16	WET	1997	
1998	0.27	Dry	3.00	Normal	4.84	Normal	1	4	6	11	NORMAL	1998	
1999	6.80	Wet	2.98	Normal	6.46	Wet	3	4	9	16	WET	1999	
2000	4.43	Normal	5.64	Wet	11.78	Wet	2	6	9	17	WET	2000	
2001	3.67	Normal	4.79	Wet	3.50	Normal	2	6	6	14	NORMAL	2001	
2002	4.43	Normal	2.82	Normal	3.67	Normal	2	4	6	12	NORMAL	2002	
2003	2.06	Dry	6.61	Wet	2.53	Dry	1	6	3	10	NORMAL	2003	
2004	1.93	Dry	9.10	Wet	5.39	Normal	1	6	6	13	NORMAL	2004	
2005	2.29	Normal	1.88	Dry	0.97	Dry	2	2	3	7	DRY	2005	
2006	2.48	Normal	3.74	Normal	3.00	Normal	2	4	6	12	NORMAL	2006	
2007	4.21	Normal	1.68	Dry	4.93	Normal	2	2	6	10	NORMAL	2007	
2008	4.25	Normal	2.91	Normal	6.04	Wet	2	4	9	15	WET	2008	

SCORE

Dry =	1
Normal =	2
Wet =	3

TYPE OF YEAR

Dry =	6 to 9
Normal	10 to 14
Wet =	14 to 18

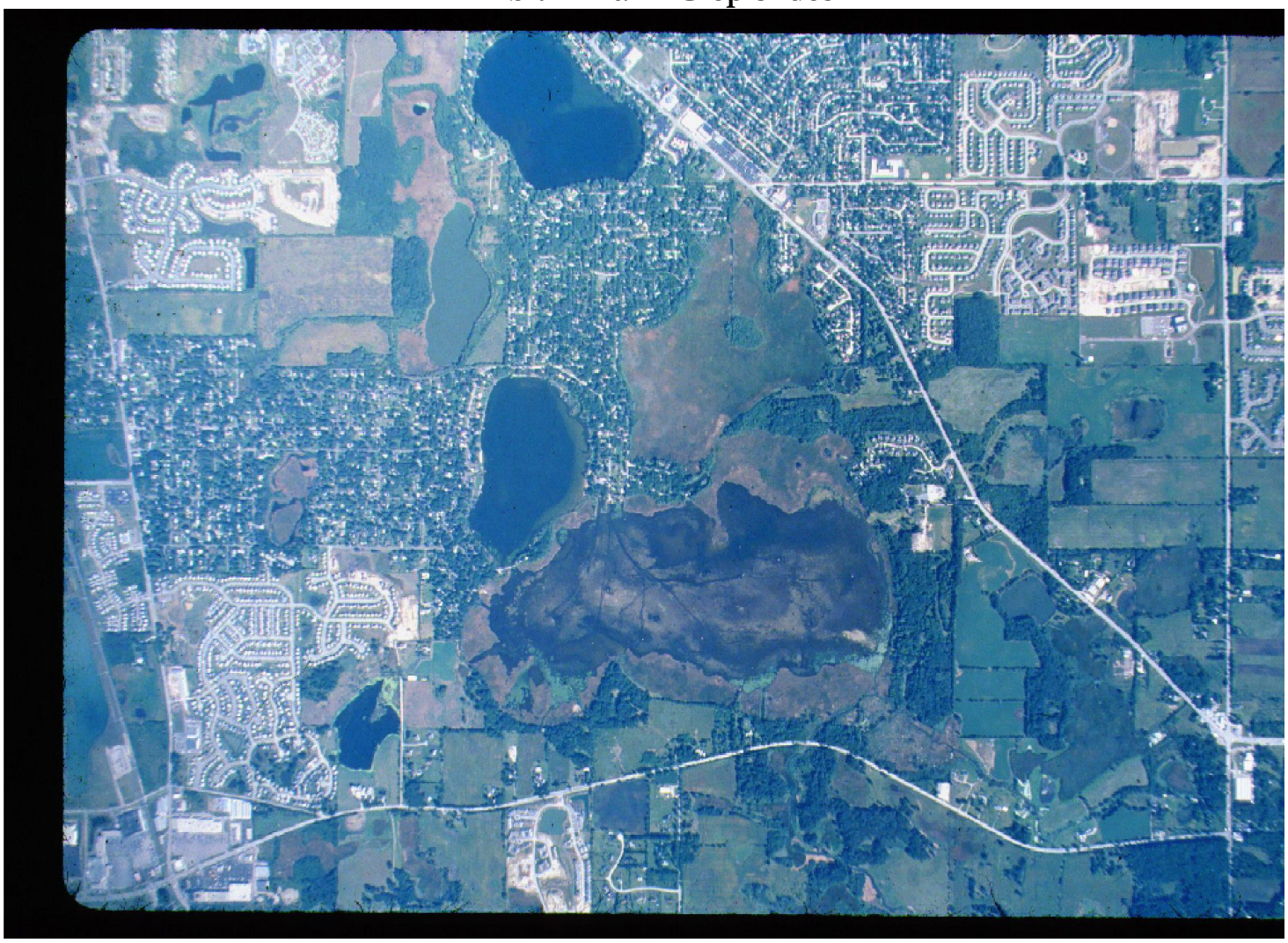
COMMENTS: Based on climate normals 1971-2000. Weather station data not published after 2008

EXHIBIT B

CLC JAWA
NE ROUTE

FARM CROP SLIDES

Exhibit B Farm Crop Slides



Photograph 1: 2000 crop slide-Wet.

Photograph 2: 2001 crop slide-Normal.

Photograph 3: 2003 crop slide-Normal.

Photograph 4: 2004 crop slide-Normal.

Photograph 5: 2006 crop slide-Normal.

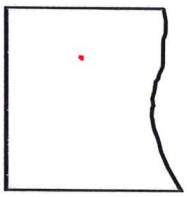
Photograph 6: 2007 crop slide-Normal.

EXHIBIT C

CLC JAWA
NE ROUTE

FARMED WETLAND
DETERMINATION
AERIAL

Lake County, Illinois



LakeCounty
Geographic Information System

Lake County Department
of Information Technology
18 N County St
Waukegan IL 60085
(847) 377-2373

Map Printed on 12/05/2014

N

Lake County Border

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.

APPENDIX B

CLC JAWA NE ROUTE

LCSMC'S PRELIMINARY JURISDICTIONAL DETERMINATION LETTER

STORMWATER MANAGEMENT COMMISSION

November 19, 2014

Mr. Darrell Blenniss
CLCJAWA
200 Rockland Road
Lake Bluff, IL 60044

RE: SMC Watershed Development File # 14-99-082A
CLCJAWA Northeast Route – Falling Waters Blvd. East & South to Almond Rd., South to Illinois Route 120, Lake County, Illinois
PRELIMINARY WETLAND JURISDICTIONAL DETERMINATION

Dear Mr. Blenniss:

This letter responds to your request for a preliminary wetland jurisdictional determination (PJD) for the subject project area, received by the Lake County Stormwater Management Commission (SMC) on October 10, 2014. SMC reviewed source materials and performed a site reconnaissance on October 30, 2014 in the company of Mr. Michael Murphy of the U.S. Army Corps of Engineers, Chicago District (USACE). Note that the wetlands referenced in this letter are depicted on the enclosed Exhibits 9A-9M: "CLCJAWA NE Route, Estimated Wetland Boundaries on Aerial Photograph", prepared by Hey & Associates, Inc. (Hey), dated September 30 and October 27, 2014.

Based on our findings, the CLCJAWA NE Route contains *Waters of the United States* (WOUS), which are subject to regulation by the USACE under Section 404 of the federal Clean Water Act, and *Isolated Waters of Lake County* (IWLC), which are subject to regulation by the SMC under the Lake County Watershed Development Ordinance (WDO), as follows:

- **The WOUS include Wetlands 4, 6, 7, 8, 9, 11 and 12, and Waters WOUS 1 and WOUS 2.** These wetlands/waters have a clearly discernible hydrologic connection to the traditionally navigable Des Plaines River (Mill Creek & Upper Des Plaines River sub-watersheds).

- **The IWLC include Wetlands 1, 2 (western portion only), 5, and 13 (including Farmed Wetland FW13).** These wetlands do not have a clearly discernible hydrologic connection to a navigable water. Wetlands 1, 2, 5, and 13/Farmed Wetland 13 are all located in the Des Plaines River watershed (Mill Creek & Upper Des Plaines River sub-watersheds).

Note that three potential wetland areas identified by Hey were determined to be excluded from regulatory status: **Wetland 2 (eastern portion) and Wetland 10** are roadside ditches constructed in uplands, and **Wetland 3** is a permitted, man-made stormwater detention basin.

This determination does not include a field verification of the wetland boundaries delineated and flagged by Hey. For the WOUS, you may request a boundary verification (BV) from the USACE (SMC is not authorized to verify WOUS boundaries). For the IWLC, you may request a BV from

the SMC (request form is available on SMC's web site). The surveyed boundaries of all delineated wetlands will need to be included on the site development plans for permitting purposes.

For your information, SMC determined the jurisdiction of potential WOUS areas based on the guidance provided in the EPA/USACE Memorandum entitled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States" dated June 5, 2007 (revised December 2, 2008) and the USACE's *Jurisdictional Determination Form Instructional Guidebook* dated May 30, 2007. For areas not considered to be WOUS, we determined jurisdiction using the definition of *Isolated Waters of Lake County* (IWLC) contained in Appendix A of the WDO.

Permitting Considerations

This letter satisfies the WDO requirement for a written jurisdictional determination under Article IV, Section E.1.a. A Watershed Development Permit (WDP), including IWLC impacts approval, is required from the SMC for this multi-jurisdictional project. Please contact Mr. Bob Gardiner, SMC's permit engineer, at (847)377-7704 or rgardiner@lakecountyil.gov for the WDP submittal requirements, and Glenn Westman, SMC's wetland specialist, at (847)377-7718 or gwestman@lakecountyil.gov for the IWLC impacts submittal requirements.

If the proposed project will require impacts to the WOUS, a separate wetland permit from the USACE will be required. Please refer to the USACE-Chicago District's web site for the permit application submittal requirements: http://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/AppChecklist.aspx. SMC's technical review and approval of the soil erosion and sediment control plan (SE/SC) for the proposed development may be required as a condition of a USACE permit. We will advise you if our SE/SC review/approval is required.

SMC's Chief Engineer approved this PJD and the findings are valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7705 or e-mail Glenn Westman at the address above. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

If you would like to provide feedback regarding the SMC permit/inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx
www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

Kurt Woolford, P.E., CFM
Chief Engineer

Glenn H. Westman, PWS, CWS, CFM
Principal Wetland Specialist

Enclosure: Exhibits 9A-9M: Estimated Wetland Boundaries on Aerial Photograph (Hey)

cc: Kathy Chernich & Mike Murphy, USACE (LRC # pending)
Steve Rauch, Hey & Associates, Inc.
Bob Gardiner, SMC

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed be to you, please notify SMC at your earliest convenience.

APPENDIX C

CLC JAWA NE ROUTE

LCSMC'S ISOLATED WETLAND BOUNDARY VERIFICATION LETTER

STORMWATER MANAGEMENT COMMISSION

December 15, 2014

Mr. Darrell Blenniss
CLCJAWA
200 Rockland Road
Lake Bluff, IL 60044

RE: SMC Watershed Development File # 14-99-082A
USACE Reference #LRC-2014-pending
CLCJAWA Northeast Route – Falling Waters Blvd. East & South to Almond Rd., South to Illinois Route 120, Lake County, Illinois
ISOLATED WETLANDS BOUNDARY VERIFICATION

Dear Mr. Blenniss:

This letter is a follow-up to our preliminary wetland jurisdictional determination (PJD) letter for the subject project area dated November 19, 2014. The Lake County Stormwater Management Commission (SMC) re-visited the project area on November 21, 2014, in the company of Mr. Steven Rauch of Hey & Associates, Inc. (Hey) for the purpose of reviewing the boundaries of *Isolated Waters of Lake County* (IWLC).

Based on our field review, SMC concurs with the delineated boundaries of IWLC Wetlands 1, 2, 5, and 13, as flagged by Hey and generally depicted on the enclosed Exhibits 9A, 9E, 9I, 9K, and 9L: "CLCJAWA NW Route, Estimated Wetland Boundaries on Aerial Photograph", prepared by Hey, received by SMC on October 10 and November 19, 2014. We also concur with the approximate boundary of IWLC Farmed Wetland 13, as determined by Hey and depicted on Exhibit 9A. <u>This isolated wetland boundary verification is valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date</u>.

Note that this letter does not include a verification of the boundaries of Wetlands 4, 6, 7, 8, 9, 11 and 12, and Waters WOUS 1 and WOUS 2 delineated by Hey, as these wetlands/waters are federal *Waters of the United States* (WOUS) under the jurisdiction of the U.S. Army Corps of Engineers (USACE). You may request a verification of the WOUS wetland/water boundaries from the USACE (SMC is not authorized to verify WOUS boundaries).

<u>Permitting Considerations</u>

A Watershed Development Permit (WDP), including IWLC impacts approval, is required from the SMC for this multi-jurisdictional project. Please coordinate with Mr. Bob Gardiner, SMC's permit engineer, at (847)377-7704 or rgardiner@lakecountyil.gov for the WDP submittal requirements, and Mr. Glenn Westman, SMC's principal wetland specialist, at (847)377-7718 or gwestman@lakecountyil.gov for the IWLC submittal requirements.

If the proposed project will require impacts to the WOUS, a separate wetland permit from the USACE will be required. Please refer to the USACE-Chicago District's web site

for the permit application submittal requirements: http://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/AppChecklist.aspx. SMC's technical review and approval of the soil erosion and sediment control plan (SE/SC) for the proposed project may be required as a condition of a USACE permit. We will advise you if our SE/SC review/approval is required.

Note that the surveyed boundaries of all delineated/flagged wetlands in the project area will need to be included on the project engineering plans for permitting purposes. In addition, the approximate boundary of IWLC Farmed Wetland 13 will need to be accurately transferred from Exhibit 9A to the engineering plans for permitting purposes.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7705 or e-mail Glenn Westman at the address above. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

If you would like to provide feedback regarding the SMC permit/inspection process please go to: (password – *survey*)
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx
www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

Kurt Woolford, P.E., CFM
Chief Engineer

Glenn H. Westman, PWS, CWS, CFM
Principal Wetland Specialist

Enclosures (5): Exhibits 9A, E, I, K & L: Estimated Wetland Boundaries on Aerial Photograph (Hey)

cc: Kathy Chernich & Mike Murphy, USACE
Steve Rauch, Hey & Associates, Inc.
Bob Gardiner, SMC

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed be to you, please notify SMC at your earliest convenience.

Appendix H

Environmental Approvals and Correspondence

CDM Smith

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
http://dnr.state.il.us

Pat Quinn, Governor
Marc Miller, Director

July 17, 2014

Patrick Dunn
CDM Smith
125 South Wacker Drive
Suite 600
Chicago, IL 60606

RE: Water System Expansion- Pipelines
Project Number(s): 1500709
County: Lake

Dear Applicant:

This letter is in reference to the project you recently submitted for consultation. The natural resource review provided by EcoCAT identified protected resources that may be in the vicinity of the proposed action. The Department has evaluated this information and concluded that adverse effects are unlikely. Therefore, consultation under 17 Ill. Adm. Code Part 1075 and 1090 is terminated.

Note: If wetlands will be disturbed, the project must meet certain construction conditions and incorporate 1:1 mitigation requirements (listed on the attached sheet) into the project plans. If the minimal impact criteria will not be met, you must notify the Department and the consultation will be re-opened. If wetlands will not be disturbed, no action is necessary.

Consultation for Part 1075 is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Consultation for Part 1090 (Interagency Wetland Policy Act) is valid for three years.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database and the Illinois Wetlands Inventory at the time of the project submittal, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, you must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action.

Please contact me if you have questions regarding this review.

Illinois Department of
Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
http://dnr.state.il.us

Pat Quinn, Governor
Marc Miller, Director

Karen Miller
Division of Ecosystems and Environment
217-785-5500

Wetland Mitigation Requirements
For Minimal Impacts

IDNR Project code: _____

The IWPA classifies wetland impacts as minimal if the affected wetland is located within a maintained road right-of-way **or** the area is zoned and utilized in its entirety for R1, R2, C1, C2, I1, I2 or other developed categories, **and** each of the following construction conditions exist.

Construction conditions:

- The trench width is less than 10 feet.
- Erosion control measures meet either
  - the specifications in the "Green" book for erosion control in construction sites, or
  - the requirements of the NPDES Construction Site Activities permit.
- Any wetland tree removal is less than 4" dbh.
- Soil stockpiles and construction equipment are stored outside of the wetland.

Mitigation for minimal impacts is 1:1. For example, if the wetland is a drainage ditch with cattails and 10 feet are disturbed to install a water main, the 10 feet of the ditch must be restored to the original contour with cattails re-established.

1:1 mitigation requirements:

1. Grade and contour the disturbed area to its original conditions within 30 days of project completion.
2. Reseed the area within seven days of completing step 1.
3. Restore any other pre-existing wetland condition.

Please notify the Department if these conditions cannot be incorporated into the construction plans.

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: CDM Smith
Contact: Patrick Dunn
Address: 125 South Wacker Drive
Suite 600
Chicago, IL 60606

IDNR Project Number: 1500709
Date: 07/17/2014

Project: Water System Expansion- Pipelines
Address: Grandwood Park, Almond Road

Description: CDM Smith is assisting Central Lake County Joint Action Water Agency (CLCJAWA) in preparing a preliminary engineering report for a northwest and a northeast pipeline to provide potable water to their northern group of customers. Detailed design and construction of the approximately 13 miles of pipeline will be completed following the preliminary engineering report. The hydraulic analysis has not been completed, but the final pipeline is assumed to be 30-inches in diameter or less, buried a minimum of 5-feet using a combination of open cut and trenchless installation. The pipeline will predominantly be installed in the right-of-way, but it is assumed that a portion of it may be installed within easements.

This submission is for the northeast pipeline route and is a resubmission as a result of revise routes for the water pipelines.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Almond Marsh INAI Site
Fourth Lake - Rollins Road Savanna INAI Site
Mcdonald Woods Marsh INAI Site
Almond Marsh Nature Preserve
Fourth Lake Fen Nature Preserve
Oak Openings Nature Preserve
Rollins Savanna Nature Preserve
Black-Crowned Night Heron *(Nycticorax nycticorax)*
Black-Crowned Night-Heron *(Nycticorax nycticorax)*
Black-Crowned Night-Heron *(Nycticorax nycticorax)*
Blanding's Turtle *(Emydoidea blandingii)*
Common Moorhen *(Gallinula chloropus)*
Forster's Tern *(Sterna forsteri)*
Least Bittern *(Ixobrychus exilis)*
Wilson's Phalarope *(Phalaropus tricolor)*
Yellow-Headed Blackbird *(Xanthocephalus xanthocephalus)*
Yellow-Headed Blackbird *(Xanthocephalus xanthocephalus)*

Wetland Review (Part 1090)

The National Wetlands Inventory shows wetlands within 250 feet of the project location.

An IDNR staff member will evaluate this information and contact you within 30 days to request additional information or to terminate consultation if adverse effects are unlikely.

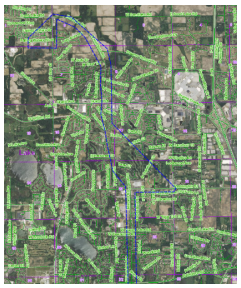
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Lake

Township, Range, Section:

45N, 10E, 1
45N, 10E, 12
45N, 11E, 6
45N, 11E, 7
45N, 11E, 17
45N, 11E, 18
45N, 11E, 19
45N, 11E, 20
45N, 11E, 21
45N, 11E, 29
45N, 11E, 32



IL Department of Natural Resources Contact
Karen Miller
217-785-5500
Division of Ecosystems & Environment

Local or State Government Jurisdiction
IL Environmental Protection Agency
Gary Bingenheimer
1021 N. Grand Avenue East
PO Box 19276
Springfield, Illinois 62794 -9276

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

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EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

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Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
http://dnr.state.il.us

Pat Quinn, Governor
Marc Miller, Director

July 17, 2014

Patrick Dunn
CDM Smith
125 South Wacker Drive
Suite 600
Chicago, IL 60606

RE: Water Pipelines—Northwest Route
IDNR Project #1500705
County: Lake

Dear Mr. Dunn:

This letter concerns a consultation for the engineering design of a water system expansion in Lake County. This project was submitted for consultation in accordance with the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and *Interagency Wetland Policy Act* [20 ILCS 830], Title 17 *Illinois Administrative Code* Part 1075 and 1090.

The Central Lake County Joint Action Water Agency (CLCJAWA) is preparing a preliminary engineering report for a pipeline to provide potable water to their northern group of customers. Approximately 13 miles of pipeline will be completed following the preliminary engineering report. The final pipeline is assumed to be 30-inches in diameter or less, buried a minimum of 5-feet using a combination of open cut and trenchless installation. Most of the pipeline will be installed in the right-of-way, but a portion may be installed within easements.

The state-endangered Blanding's Turtle (*Emydoidea blandingii*) has been recorded in the vicinity. To minimize potential adverse effects during construction, the Department recommends the following protective measures:

- Educate personnel working on site about Blanding's Turtle. Post photos of juvenile and adult Blanding's at a central location.
- Install exclusionary fencing (making sure it is dug into the ground) to prevent turtles from entering construction areas.

- Conduct daily inspections for transiting turtles. If a Blanding's Turtle is encountered, crews should stop work and allow the turtle to move out of the way or call IDNR at 815-675-2386, Ext. 216.
- Routinely inspect trenches and excavations before starting work each day to assure no turtles have become trapped within them. Make sure trenches and excavated areas are covered each evening to avoid trapping any amphibians or reptiles.

Wetland Review

The Illinois Wetland Inventory indicates that wetlands are in the vicinity. However, the proposed action is generally considered a minimal wetland impact. The Interagency Wetland Policy Act classifies impacts as minimal if the affected wetland is located within a maintained road right-of-way **or** the area is zoned and utilized in its entirety for R1, R2, C1, C2, I1, I2 or other developed categories, **and** each of the following construction conditions exist:

- The trench width is less than 10 feet
- Erosion control measures meet either
  - the specifications in the "Green" book for erosion control in construction sites, or
  - the requirements of the NPDES Construction Site Activities permit
- Any wetland tree removal is less than 4" dbh
- Soil stockpiles and construction equipment are stored outside of the wetland.

If wetlands will be disturbed, you must incorporate the following 1:1 mitigation requirements into the project plans:

1. Grade and contour the disturbed area to its original conditions within 30 days of project completion,
2. Reseed the area within seven days of completing step 1,
3. Restore any other pre-existing wetland condition.

For example, if the wetland is a drainage ditch with cattails and 10 feet are disturbed to install a water main, the 10 feet of the ditch must be restored to the original contour with cattails re-established.

If wetlands will be impacted and the minimal impact criteria will not be met, or if the 1:1 mitigation requirements cannot be incorporated into the construction plans, you must notify the Department and the consultation will be re-opened. If wetlands will not be disturbed, no action is necessary. "

Consultation under *17 Ill. Adm. Code Part 1075* and *1090* is completed. In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential

habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, you must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action.

Please contact me if you have questions regarding this review.

Sincerely,

Karen Miller
Division of Ecosystems and Environment
Phone (217) 785-5500
karen.m.miller@illinois.gov

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: CDM Smith
Contact: Patrick Dunn
Address: 125 South Wacker Drive
Suite 600
Chicago, IL 60606

IDNR Project Number: 1500705
Date: 07/17/2014

Project: Water System Expansion- Pipelines
Address: Monaville, Fox Lake Hills

Description: CDM Smith is assisting Central Lake County Joint Action Water Agency (CLCJAWA) in preparing a preliminary engineering report for a northwest and a northeast pipeline to provide potable water to their northern group of customers. Detailed design and construction of the approximately 13 miles of pipeline will be completed following the preliminary engineering report. The hydraulic analysis has not been completed, but the final pipeline is assumed to be 30-inches in diameter or less, buried a minimum of 5-feet using a combination of open cut and trenchless installation. The pipeline will predominantly be installed in the right-of-way, but it is assumed that a portion of it may be installed within easements.

This submission is for the northwest pipeline route and is a resubmission as a result of revise routes for the water pipelines.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Cedar Lake INAI Site
Deep Lake INAI Site
Fourth Lake - Rollins Road Savanna INAI Site
Gavin Bog And Prairie INAI Site
Windance Acres Marsh INAI Site
Cedar Lake Bog Nature Preserve
Gavin Bog And Prairie Nature Preserve
Banded Killifish *(Fundulus diaphanus)*
Black Tern *(Chlidonias niger)*
Black-Crowned Night-Heron *(Nycticorax nycticorax)*
Blackchin Shiner *(Notropis heterodon)*
Blacknose Shiner *(Notropis heterolepis)*
Blanding's Turtle *(Emydoidea blandingii)*
Blanding's Turtle *(Emydoidea blandingii)*
Common Moorhen *(Gallinula chloropus)*
Forster's Tern *(Sterna forsteri)*
Iowa Darter *(Etheostoma exile)*
Least Bittern *(Ixobrychus exilis)*
Small Sundrops *(Oenothera perennis)*
Wilson's Phalarope *(Phalaropus tricolor)*
Yellow-Headed Blackbird *(Xanthocephalus xanthocephalus)*

Wetland Review (Part 1090)

The National Wetlands Inventory shows wetlands within 250 feet of the project location.

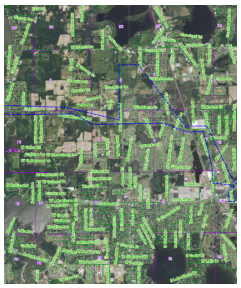
An IDNR staff member will evaluate this information and contact you within 30 days to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Lake

Township, Range, Section:
45N, 10E, 4
45N, 10E, 5
45N, 10E, 6
45N, 10E, 7
45N, 10E, 8
45N, 10E, 9
45N, 10E, 10
45N, 10E, 15
45N, 10E, 16
45N, 9E, 1
45N, 9E, 12



IL Department of Natural Resources Contact
Karen Miller
217-785-5500
Division of Ecosystems & Environment

Local or State Government Jurisdiction
IL Environmental Protection Agency
Gary Bingenheimer
1021 N. Grand Avenue East
PO Box 19276
Springfield, Illinois 62794 -9276

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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Illinois Historic Preservation Agency

1 Old State Capitol Plaza, Springfield, IL 62701-1512

FAX 217/524-7525
www.illinoishistory.gov

Lake County PLEASE REFER TO: IHPA LOG #006061013
Various cities
Fox Lake Hills, Lake Villa, Lindenhurst, Grandwood Park and Lake Bluff (200 Rockland Rd & 700 E. Blodgett Ave.)
IEPA LOAN
Water system expansion-Central Lake County Joint Action Water Agency ***Revised Routes***

July 29, 2014

Patrick Dunn
CDM Smith
125 S. Wacker Dr., Suite 600
Chicago, IL 60606

Dear Mr. Dunn:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance.

Sincerely,

Anne E. Haaker

Anne E. Haaker
Deputy State Historic
Preservation Officer

Appendix I

Pipeline Material Selection Workshop Results

CDM Smith

CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY

WATER SYSTEM EXPANSION - NORTH GROUP PRELIMINARY ENGINEERING REPORT

MATERIAL SELECTION EVALUATION MATRIX

September 29, 2014

PIPELINE MATERIAL EVALUATION MATRIX

PIPELINE MATERIAL/CRITERIA	IMPACT ON WATER QUALITY		CORROSION		C-VALUE/ ROUGHNESS		PIPE STIFFNESS		EASE OF CONSTRUCTION		ABILITY TO WITHSTAND FIELD CHANGES		OPERATION AND MAINTENANCE		IMPACT OF FAILURE		HYDROSTATIC TESTING/ QUALITY CONTROL		LEAKAGE		HISTORY OF PERFORMANCE/ LONGIVITY		APPROVED BY AWWA STANDARDS		TOTAL WEIGHTED SCORE - JAWA (7 people)	WEIGHTED SCORE PER PERSON
	Weight =	2	Weight =	2	Weight =	1	Weight =	1.5	Weight =	1.5	Weight =	1.5	Weight =	2	Weight =	2	Weight =	1	Weight =	1.5	Weight =	1.5	Weight =	1		
	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score		
PVC	13	26	20	40	18	18	13	19.5	15	22.5	14	21	14	28	12	24	12	12	14	21	14	21	13	13	**266**	**38.0**
HDPE	8	16	17	34	17	17	9	13.5	11	16.5	12	18	10	20	12	24	12	12	20	30	8	12	10	10	**223**	**31.9**
DUCTILE IRON	17	34	8	16	11	11	21	31.5	15	22.5	16	24	18	36	16	32	16	16	9	13.5	19	28.5	15	15	**280**	**40.0**

(1) Impact on Water Quality	Potential water contamination issues, intrusion of contaminants, etc.
(2) Corrosion	External corrosion of metallic pipe due to corrosive soils or other factors
(3) C-Value/Roughness	A measure of the smoothness of the pipe. C-value for PVC, HDPE, and DI is reported to be 150, 150, and 130, respectively.
(4) Stiffness	A measure of the pipe's ability to withstand direct hits.
(5) Ease of Construction	This is a measure of the flexibility of the pipe during installation, construction methods, and ease of installation.
(6) Ability to Withstand Field Changes	This is a measure of the pipe's ability to withstand temperature changes (coef. Of thermal expansion), and pipe's ability to withstand different depth covers over time.
(7) Operation and Maintenance	How easy is it to maintain the pipeline, install taps, access the pipe, repair the pipe, and also tools available for assessment of pipeline and inspection of pipeline over time.
(8) Impact of Failure	What's the failure mechanism and is it localized or systematic? What's the impact on the Agency's system during failure. How long does it take to repair such pipe.
(9) Hydrostatic Testing/QAQC	What kind of QAQC programs are available for the pipe material prior to shipment.
(10) Leakage	What's the pipe rate of leakage and impact on water loss
(11) History of Performance	How long has the pipe been used in the Midwest and what has the performance been?
(12) AWWA Standards	Are there AWWA standards approved for the pipeline material.

CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY
WATER SYSTEM EXPANSION - NORTH GROUP PRELIMINARY ENGINEERING REPORT
MATERIAL SELECTION EVALUATION MATRIX
September 29, 2014

PIPELINE MATERIAL EVALUATION MATRIX

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	Weight =	2	Weight =	2	Weight =	1	Weight =	1.5	Weight =	1.5	Weight =	1.5	Weight =	2	Weight =	2	Weight =	1	Weight =	1.5	Weight =	1.5	Weight =	1		
	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score	Score (1 to 3)	Weighted Score		
PVC	8	16	12	24	11	11	8	12	9	13.5	7	10.5	7	14	5	10	8	8	8	12	7	10.5	11	11	**152.5**	**38.1**
HDPE	5.5	11	12	24	11	11	4	6	7	10.5	6	9	6	12	8	16	8	8	12	18	5	7.5	6	6	**139**	**34.8**
DUCTILE IRON	12	24	4	8	6	6	12	18	11	16.5	12	18	11	22	12	24	10	10	6	9	10	15	11	11	**181.5**	**45.4**

(1) Impact on Water Quality	Potential water contamination issues, intrusion of contaminants, etc.
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CDM Smith

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