Wetland Assessment Report

Fermi National Accelerator Laboratory

PIP-II

Prepared for:

Fermilab
P.O. Box 500
Mail Station 210
Batavia, IL 60510

July 29, 2016

Prepared by:

Natalie Paver, PWS
Senior Environmental Scientist

WBK engineering

116 West Main Street, Suite 201
St. Charles, Illinois 60174
P: 630.443.7755
F: 630.443.0533

www.wbkengineering.com

WETLAND ASSESSMENT REPORT
FERMILAB PIP-II
BATAVIA, ILLINOIS

TABLE OF CONTENTS

INTRODUCTION…….2
PERMIT REQUIREMENTS…….……..2
WETLAND DETERMINATION METHODOLOGY……...…..2
SITE CONDITIONS…….3
VEGETATION DATA……..4
REFERENCE MATERIALS……...6
CONCLUSIONS……..…...…….7
REFERENCES……...……...…….……..…….8

APPENDIX A: Reference Material

Exhibit 1: Aerial Photograph
Exhibit 2: Location Map
Exhibit 3A: National Wetlands Inventory
Exhibit 3B: DuPage County Wetlands Inventory
Exhibit 3C: ADID Wetlands
Exhibit 4: Soil Survey
Exhibit 5: Hydrologic Investigations Atlas
Exhibit 6A: Flood Insurance Rate Map
Exhibit 6B: DuPage County Regulatory Flood Map
Exhibit 7A: Site Photographs
Exhibit 7B: Site Photographs

APPENDIX B: USACE Data Sheets

Data Point 1A: Wetland 1
Data Point 1B: Upland
Data Point 2A: Wetland 2
Data Point 2B: Upland
Data Point 3A: Wetland 3
Data Point 3B: Upland
Data Point 4A: Wetland 1
Data Point 4B: Upland
Data Point 5A: Wetland 1
Data Point 6A: Wetland 4
Data Point 7A: Wetland 5

APPENDIX C: Vegetation Data

INTRODUCTION

WBK Engineering, LLC performed wetland delineation for the Fermi National Accelerator Laboratory (Fermilab), PIP-II project area on May 4, May 5, and July 25, 2016. The project area is located southeast of Wilson Hall, north of Holter Road and west of Feldott Road in the northwest section of the Outer Ring Road loop. A small portion of the project area extends west of Outer Ring Road and occupies the area east of Indian Road and south of Booster Road (Exhibit 1). Geographically, the study area is at 41.8357378 degrees North and 88.2608866 degrees West in Section 30, Township 39N, Range 9E in Batavia Township, IL (Exhibit 2). The wetland delineation was performed in accordance with the criteria and methods established by the U.S. Army Corps of Engineers (USACE) in their Corps of Engineers Wetlands Delineation Manual (1987), and Midwest Regional Supplement (2010). Based on the information obtained from the field visit, WBK identified 5 wetlands within the project area. The wetlands on-site appear to be connected to Fermilab's cooling water system and isolated wetlands.

PERMIT REQUIREMENTS

Under the current guidelines, a disturbance of a jurisdictional or isolated wetland area requires a permit (USACE Letter of No-Objection, Regional Permit, or Individual Permit). However, mitigation may or may not be required, depending on the overall impact (> 0.10) to the wetland or Waters of the United States. This determination is at the discretion of the Chicago District Corps of Engineers.

WETLAND DETERMINATION METHODOLOGY

The USACE Wetland Delineation Manual, dated January 1987, identifies the mandatory technical criteria for wetland identification. The three essential characteristics of a wetland are: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology. These characteristics are described below:

Hydrophytic Vegetation: The hydrophytic vegetation criterion is based on a separation of plants into five basic groups:

1) Obligate wetland plants (OBL) almost always occur (estimated probability >99%) in wetlands under natural conditions;
2) Facultative wetland plants (FACW) usually occur in wetlands (estimated probability 67-99%), but occasionally are found in non-wetlands;
3) Facultative plants (FAC) are equally likely to occur in wetland or non-wetlands (estimated probability 34-66%);
4) Facultative upland plants (FACU) usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands (estimated probability 1-33%); and
5) Obligate upland plants (UPL) almost always occur (estimated probability >99%) in non-wetlands under natural conditions.

Within each data point, vegetation is sampled in plots of varying size based on the type of vegetation being sampled. The following plot sizes are recommended by the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Midwest Region:

Trees	- 30-ft radius
Saplings/Shrubs	- 15-ft radius
Herbaceous Plants	- 1-m^2 plot
Woody vines	- 30-ft radius

If greater than 50% of the plants present in each stratum or layer of the plant community are FAC, FACW, or OBL the subject area is considered a wetland in terms of vegetation (Dominance Test). If the vegetation does not meet the requirements of the Dominance Test, the Prevalence Index (PI) should be utilized.

The PI evaluates the coverage, on a weighted basis of coverage over all strata, of the vegetation within the plot. The PI ranges between 1.0 and 5.0, with a 3.0 or less indicating hydrophytic vegetation is present. If the PI is greater than 3.0, the dominance test is failed, but if there is also a hydric soil and wetland hydrology presence, the observation of morphological adaptations by vegetation can be used to indicate that the hydrophytic vegetation criteria is met.

Morphological adaptations are changes in the structure of vegetation in response to conditions outside the normal character of the plant. These adaptations include adventitious roots, multi-stemmed trunks, shallow root systems developed at or near the surface, and buttressing in tree species. To meet this indicator, more than 50% of the individuals of FACU species must exhibit the morphological adaptations. Care must be given that the adaptations observed are due to wetter conditions that the species is used to as opposed to other factors such as shallow roots present because of erosion of the surface.

Hydric Soils: Hydric soils are defined in the manual as "soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Hydric soil indicators are distinctive characteristics that persist in the soil during both wet and dry periods, and are used to identify hydric soils in the field. Field indicators include color, mottling, gleying, and sulfidic odor. A specific set of indicators has been developed by the USDA Natural Resource Conservation Service (NRCS) (Field Indicators of Hydric Soils in the United States), which provides a detailed description of how to identify the indicators during a site visit. A soil meets the definition of a hydric soil if it exhibits at least one of these indicators.

Wetland Hydrology: Indicators of hydric soil and hydrophytic vegetation typically reflect the middle and long-term conditions of a site but not the short term conditions. The wetland hydrology criterion is often the most difficult to determine because of climatological variation. Typically, the presence of water for a week or more during the growing season creates anaerobic conditions indicative of wetland hydrology. Anaerobic conditions lead to the prevalence of wetland plants. The 2010 USACE Regional Supplement for the Midwest Region provides specific indicators in four different groups for wetland hydrology: Observation of Surface Water or Saturated Soils, Evidence of Recent Inundation, Evidence of Current or Recent Soil Saturation, and Evidence from Other Site Conditions or Data. If a site exhibits 1 primary indicator or 2 secondary indicators, then it meets the hydrology criteria for a wetland.

SITE CONDITIONS

The Fermilab – PIP-II project site contains roadways, utilities, open space, and 5 wetland areas. Based on WBK's findings and the current guidelines, the wetlands on-site appear to be isolated. See Appendix A for the Wetland Delineation and Site Photograph exhibits.

VEGETATION DATA

A meander vegetation inventory was taken at the time of the field visit within the wetland plant communities. This inventory is entered into a Floristic Quality Assessment (FQA) program, which calculates a value for the Floristic Quality Index (FQI) and Coefficient of Conservatism (C-value). The FQI gives an idea of the quality of the community being inventoried. Swink and Wilhelm established C-values to quantify a community's native attributes for comparative purposes. The following is a brief description of the identified area with a list of the plant species observed and their corresponding indicator categories. Table 1 below shows the native FQI, native C-values, and native wetness coefficient values recorded for the wetlands' plant communities within the project area. Information collected on-site is listed in the USACE Data Forms located in Appendix B, and the complete Vegetation Data for the wetland plant community is located in Appendix C.

Table 1: Vegetation Quality

Delineated Resource	Type	Data Point	Size On-Site (Acres)	Native Mean C	Native FQI	Native Mean W
Wetland 1	Wetland	1A, 4A, 5A	16.28	4.20	45.22	-0.29
Wetland 2	Wetland	2A	0.18	2.72	13.60	-0.16
Wetland 3	Wetland	3A	0.02	2.95	13.19	0.05
Wetland 4	Wetland	6A	0.28	2.35	11.26	-0.78
Wetland 5	Wetland	7A	0.04	3.33	16.33	-1.00
TOTAL:			16.9			

Wetland 1

The Wetland 1 Complex is located east of Outer Ring Road, west of Feldott Road and north of Holter Road. The southern edge of the wetland runs along Holter Road and extends north throughout the middle of the project area. It is the largest of the 5 wetlands. There are stands of trees located at the north and south ends of the wetland. Wetland 1 has a Native Floristic Quality Index of 45.22, a Native Mean C of 4.20, and a Native Mean W of -0.29. The dominant species were Reed Canary Grass (*Phalaris arundinacea*), Uptight Sedge (*Carex stricta*), Indian-Hemp (*Apocynum cannabinum*), and Wand Panic Grass (*Panicum virgatum*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a Prevalence Index of less than or equal to 3. Wetland hydrology is met with the primary indicators Surface Water (A1) at Data Points 4A and 5A and Saturation (A3) at Data Points 1A and 4A. The soil survey data for USDA SSURGO shows the delineated area to be within the soil units Wauconda Silt Loam (697A) at Data Points 1A and 4A and Drummer Silty Clay Loam (Hydric) (152A) at Data Point 5A. Field observations show the presence of poorly drained hydric soils with the primary indicators 2 cm Muck (A10) at Data Points 4A and 5A and Redox Dark Surface (F6) at Data Point 1A. The delineated wetland complex fulfills all three indicators of a wetland; hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetland 2

Wetland 2 is located west of the Wetland 1 Complex and east of Outer Ring Road. It is approximately 800 feet north of Holter Road and runs along the cooling pond that is located on the inner edge of Outer Ring Road. Wetland 2 has a Native Floristic Quality Index of 13.60, a Native Mean C of 2.72, and a Native Mean W of -0.16. The dominant plant species is Reed Canary Grass (*Phalaris arundinacea*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a Prevalence Index of less than or equal to 3. Wetland Hydrology was met with the primary indicators Surface Water (A1), Saturation (A3), and Thin Muck Surface (C7). The soil survey data for USDA SSURGO shows the delineated area to be within the soil unit Wauconda Silt Loam (697A). Field observations show the presence of poorly drained hydric soils with the primary indicator 2 cm Muck (A10). The delineated wetland complex fulfills all three indicators of a wetland; hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetland 3

Wetland 3 is located north and slightly east of Wetland 2. It runs along the cooling pond that is located on the inner edge of Outer Ring Road. Wetland 3 has a Native Floristic Quality Index of 13.19, a Native Mean C of 2.95, and a Native Mean W of 0.05. Dominant plant species include Reed Canary Grass (*Phalaris arundinacea*) and Field Horsetail (*Equisetum arvense*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a Prevalence Index of less than or equal to 3. Wetland Hydrology was met with the primary indicators Surface Water (A1), Saturation (A3), and Thin Muck Surface (C7). The soil survey data for USDA SSURGO shows the delineated area to be within the soil unit Wauconda Silt Loam (697A). Field observations show the presence of poorly drained hydric soils with the primary indicator 2 cm Muck (A10). The delineated wetland complex fulfills all three indicators of a wetland; hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetland 4

Wetland 4 is located west of Outer Ring Road, just south of Booster Road, and east of Indian Road. Wetland 4 has a Native Floristic Quality Index of 11.26, a Native Mean C of 2.35, and a Native Mean W of -0.78. The dominant species is Reed Canary Grass (*Phalaris arundinacea*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a Prevalence Index of less than or equal to 3. Wetland Hydrology was met for the primary indicator Saturation (A3). The soil survey data for USDA SSURGO shows the delineated area to be within the soil unit Drummer Silty Clay Loam (Hydric) (152A). Field observations show the presence of poorly drained hydric soils with the primary indicator Depleted Matrix (F3).The delineated wetland complex fulfills all three indicators of a wetland; hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetland 5

Wetland 5 is located west of Outer Ring Road, just east of Indian Road, and south of Wetland 4. Wetland 5 has a Native Floristic Quality Index of 16.33, a Native Mean C of 3.33, and a Native Mean W of -1.00. The dominant species were Reed Canary Grass (*Phalaris arundinacea*) and Kentucky Bluegrass (*Poa pratensis*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a Prevalence

Index of less than or equal to 3. Wetland Hydrology was met for the primary indicator Surface Water (A1). The soil survey data for USDA SSURGO shows the delineated area to be within the soil unit Wauconda Silt Loam (697A). Field observations show the presence of poorly drained hydric soils with the primary indicator Depleted Below Dark Surface (A11).The delineated wetland complex fulfills all three indicators of a wetland; hydrophytic vegetation, hydric soils, and wetland hydrology.

REFERENCE MATERIALS

The following materials were reviewed and utilized to assist in the field reconnaissance and completion of this report. See Appendix A for the Reference Materials (Exhibits 1 through 7B).

Aerial Photograph

The aerial photograph of the Fermilab – PIP-II Wetland was reviewed to determine areas of inundation and saturation within the project boundary. Areas of inundation or saturation can indicate wetland areas. The aerial photograph (Exhibit 1) shows the limits of the field delineated wetlands and data points.

Location Map

The study area is located in Fermi National Accelerator Laboratory, southeast of Wilson Hall, north of Holter Road, and west of Feldott Road in the northwest section of the Outer Ring Road loop in Batavia, Illinois. Geographically, the study area is at 41.8357378 degrees North and 88.2608866 degrees West in the northwest ¼ of Section 30, Township 39N, Range 9E in Batavia Township, IL (Exhibit 2).

National Wetlands Inventory, DuPage County Wetlands Inventory, & ADID Wetlands Maps

The National Wetlands Inventory (NWI) for the North Aurora Quadrangle (1984) (Exhibit 3A), the DuPage County Wetlands Inventory for Winfield Township (2000) (Exhibit 3B), and the Kane County Advanced Identification (ADID) Wetlands Study of August 2004 (Exhibit 3C) were reviewed to determine the location of wetland areas on the study site. According to the DuPage County Wetlands Inventory, the majority of the project area is considered wetlands. Additionally, the ADID Wetlands Map shows that an Unrated Stream flows within the project area. It should be noted that these maps are only large scale guides, actual wetland locations and types may vary. The following wetland types were mapped on the NWI map:

PFOICh: Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded, Diked/Impounded
PEMCh: Palustrine, Emergent, Seasonally Flooded, Diked/Impounded

LIUBGx: Lacustrine, Limnetic, Unconsolidated Bottom, Intermittently Exposed, Excavated

Soil Survey Map

The USDA Soil Survey of September 2014 (Exhibit 4) was investigated to determine the location of hydric soils on the subject site. Mapped hydric soils can indicate wetland areas. The following soils are mapped in the project area:

152A Drummer Silty Clay Loam (Hydric)
697A Wauconda Silt Loam

Hydrological Investigations Atlas

The United States Geological Survey (USGS) Hydrological Investigations Atlas, Naperville Quadrangle, HA-70 of 1963 (Exhibit 5) was reviewed to determine the historical local drainage pattern. The atlas shows that the western corner of the project area was located within the 1954 flood limit.

Flood Insurance Rate & DuPage County Regulatory Flood Maps

The Flood Insurance Rate Map (F.I.R.M.) for DuPage County, Illinois, Community Panel No. 17043C0407H effective date December 16, 2004 and Kane County, Illinois, Community Panel No. 17089C0334H effective date August 3, 2009 (Exhibit 6A) and the Regulatory Flood Map for DuPage County, Illinois, Community Panel No. 17043C0109A effective date July 7, 2010 (Exhibit 6B) were reviewed to determine the location of regulatory floodplains and floodways within the subject site. Mapped floodplains can be indicative of wetland hydrology. Based on the F.I.R.M. Map and the Regulatory Flood Map, there are no areas of mapped floodplain within the project area.

CONCLUSIONS

WBK has identified that the Fermilab PIP-II project area contains 5 wetland areas totaling 16.9 acres. This is based on field reconnaissance conducted using techniques outlined in the USACE 1987 Delineation Manual, the 2010 Midwest Regional Supplement, historical maps, and aerial images depicting the condition of the site. The field determination for the presence of wetland supersedes all published maps as they are general guidance only. The wetlands are directly connected to Fermilab's cooling water system and appear to be isolated.

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Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Corps of Engineers, Waterways Experimental Station, Vicksburg, MS, USA. Technical Report Y-87 1.

Lichvar, Robert W. and John T. Kartesz. 2012. North American Digital Flora: National Wetland Plant List, version 3.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC.

Swink, F., and G. Wilhelm. 1994. *Plants of the Chicago Region, Fourth Edition*. Indianapolis, IN: Indiana Academy of Science.

United States Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

United States Department of Agriculture, Natural Resources Conservation Service (NRCS). 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

United States Department of Agriculture, Natural Resources Conservation Service (NRCS). 2012. *Field Book for Describing and Sampling Soils, Version 3.0*. ed. P. J. Schoeneberger, D. A. Wysocki, E. C. Benham, and W. D. Broderson. Lincoln, NE: National Soil Survey Center.

APPENDIX A

Reference Material

SOURCE(S): GOOGLE EARTH, DATE: April 30, 2015

SCALE: 1" = 400'

LEGEND

- WETLANDS (16.8 acres)
- DATA POINTS

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	AERIAL PHOTOGRAPH				DATE 5/6/2016 EXHIBIT 1

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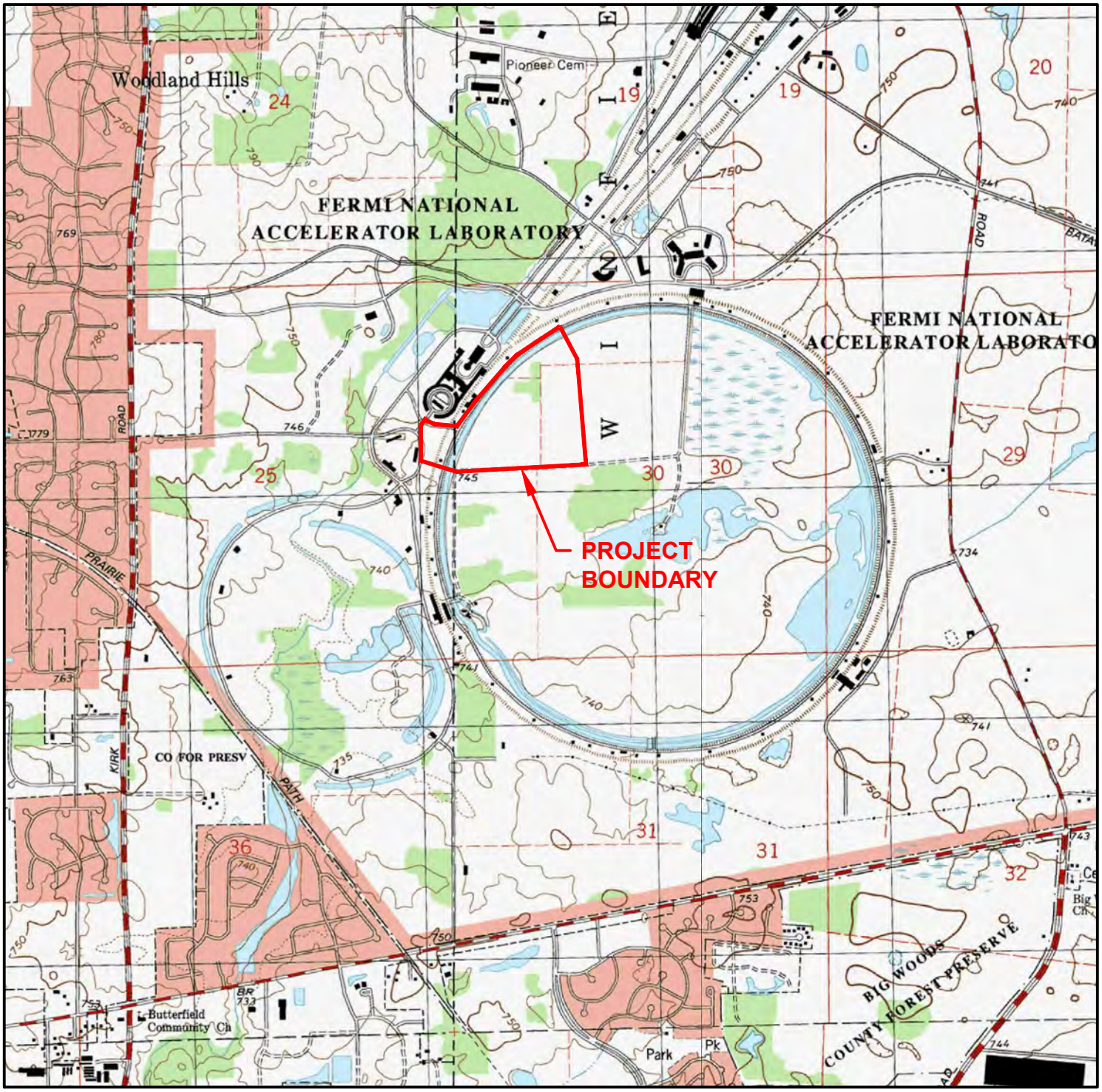

SOURCE: USGS 7.5' TOPOGRAPHIC MAP, NAPERVILLE (1998) AND NORTH AURORA (1998) QUADRANGLE

SCALE: 1" = 2000'

PLSS DESCRIPTION- NW 1/4 OF SECTION 30, TOWNSHIP 39N, RANGE 9E

LATITUDE: 41.8357378° N

LONGITUDE: 88.2608866° W

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	LOCATION MAP				DATE 5/6/2016 EXHIBIT 2

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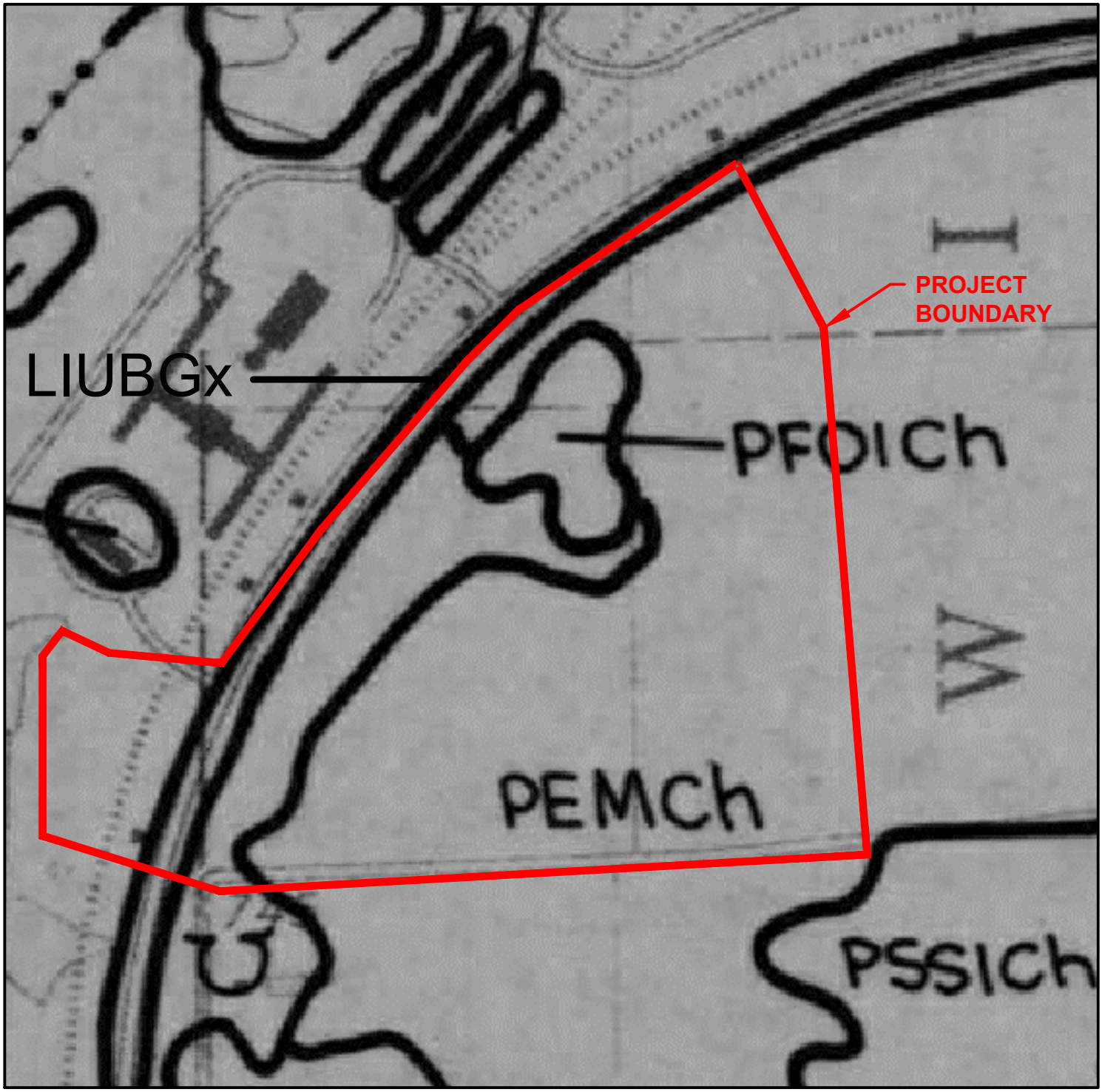

SOURCE: U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY MAP, NORTH AURORA QUADRANGLE, 1984 SCALE: 1" = 400'

LEGEND

U - Primarily represents upland areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

PFOICh - PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED, DIKED / IMPOUNDED
PEMCh - PALUSTRINE, EMERGENT, SEASONALLY FLOODED, DIKED / IMPOUNDED
LIUBGx - LACUSTRINE, LIMNETIC, UNCONSOLIDATED BOTTOM, INTERMITTENTLY EXPOSED, EXCAVATED

CLIENT	TITLE	DWN. LJL	CHKD. NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03	N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	NATIONAL WETLANDS INVENTORY		DATE 5/6/2016 EXHIBIT 3A

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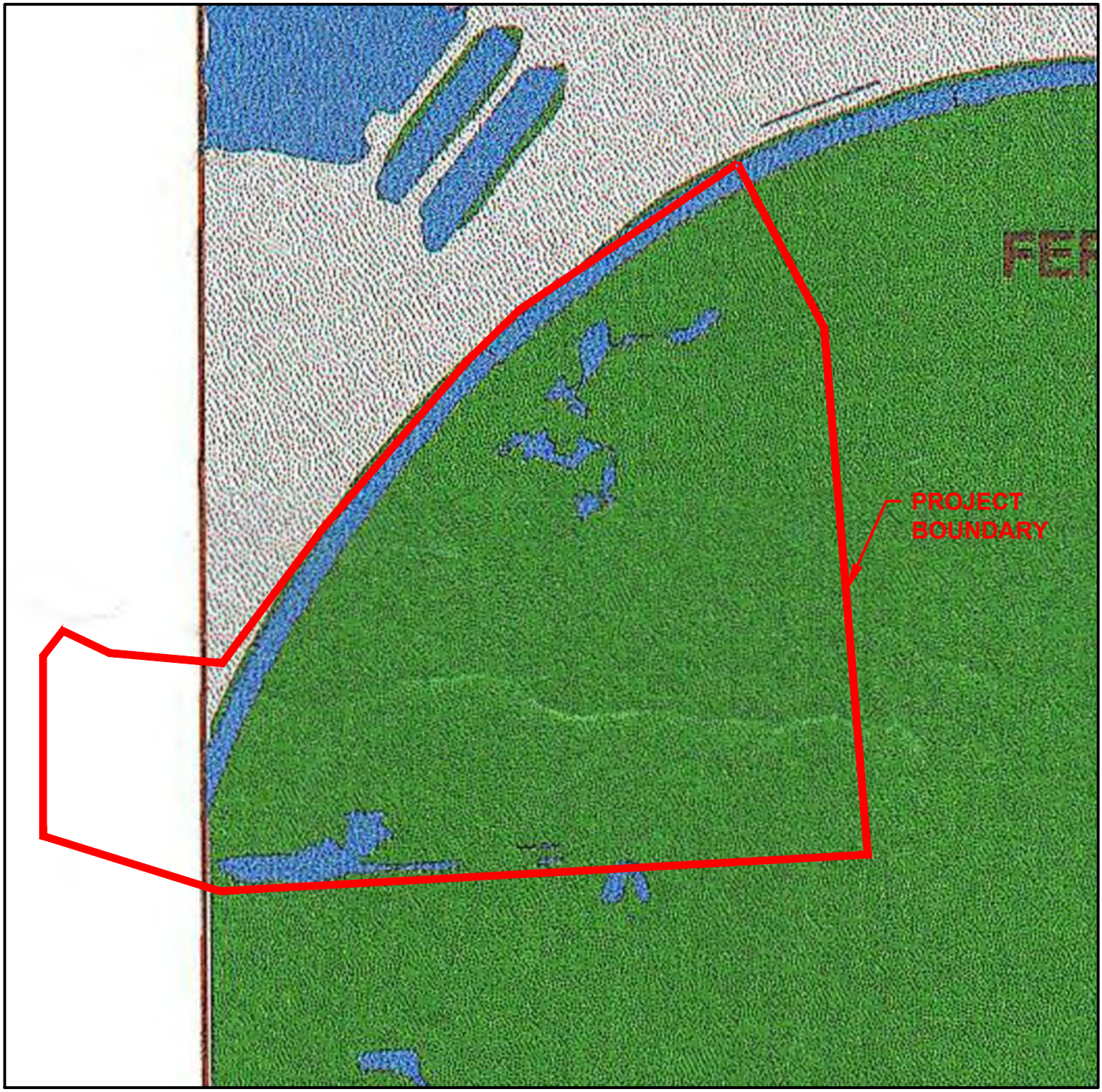

SOURCE: DUPAGE COUNTY DEVELOPMENT & ENVIRONMENTAL CONCERNS WETLAND INVENTORY MAP
WINFIELD TOWNSHIP, DATE: AUGUST 23, 2000

SCALE: 1" = 500'

LEGEND

- HYDRO
- WETLANDS

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	DUPAGE COUNTY WETLANDS INVENTORY				DATE 5/6/2016 EXHIBIT 3B

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SOURCE: KANE COUNTY ADVANCED IDENTIFICATION (ADID) STUDY, AUGUST 2004

SCALE: 1" = 500'

LEGEND

- HIGH HABITAT VALUE WETLAND
- ARTIFICIAL PONDS
- UNRATED STREAM

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	ADID WETLANDS				DATE 5/6/2016 EXHIBIT 3C

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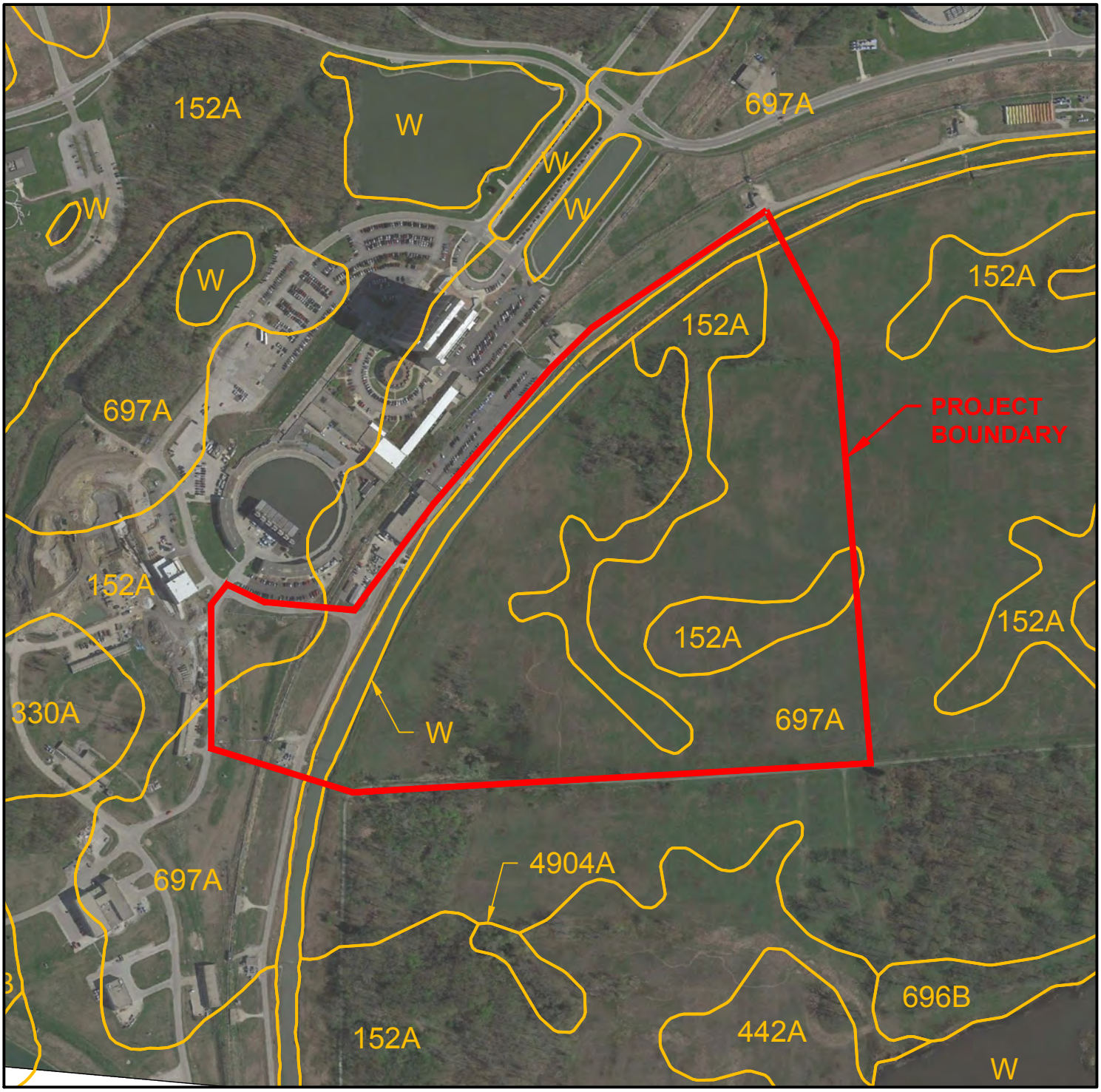

SOURCE: USDA-NRCS WEB SOIL SURVEY, SEPTEMBER 2014

SCALE: 1" = 500'

LEGEND

152A - DRUMMER SILTY CLAY LOAM, 0-2% SLOPES (HYDRIC)
697A - WAUCONDA SILT LOAM, 0-2% SLOPES
W - WATER

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	SOIL SURVEY				DATE 5/6/2016 EXHIBIT 4

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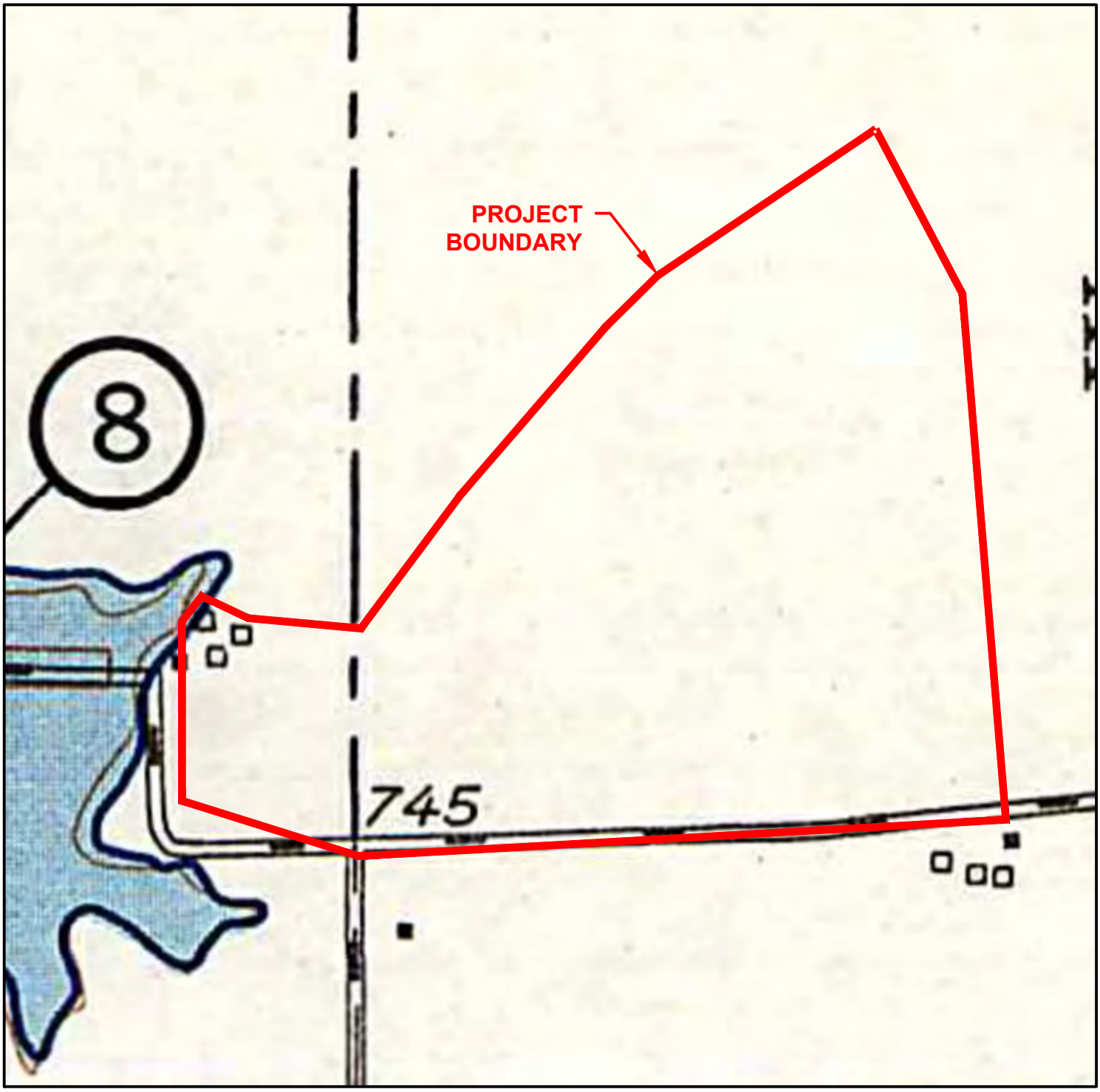

SOURCE: U.S. GEOLOGICAL SURVEY HYDROLOGIC INVESTIGATIONS ATLAS NAPERVILLE QUADRANGLE, 1963, HA-70

SCALE: 1" = 400'

EXPLANATION

Areas flooded in 1954 and 1957	
Flood limit 1954	1954
Flood limit 1957	1957
Drainage divide	
River mile measured along stream channel	4

CLIENT FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	TITLE FERMILAB - PIP 2	DWN.	LJL	CHKD. NMP
		JOB# 15-0215_03		N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	HYDROLOGIC INVESTIGATIONS ATLAS			DATE 5/6/2016 EXHIBIT 5

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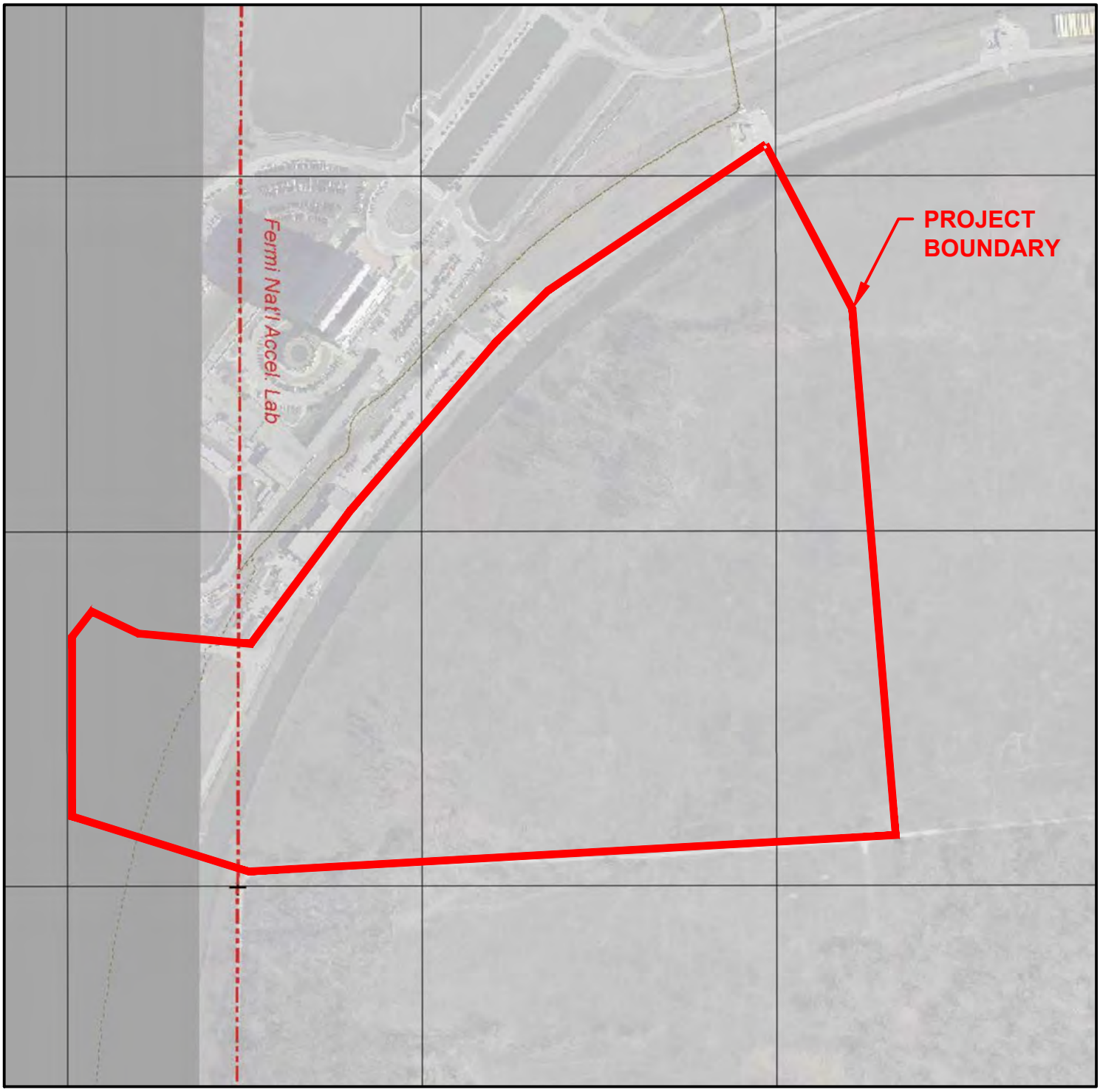
SOURCE(S): FEDERAL EMERGENCY MANAGEMENT, DIGITAL FLOOD INSURANCE RATE MAPS
DuPage County, Illinois - DATE: December 16, 2004 - MAP NUMBER: 17043C0407H
Kane County, Illinois - DATE: August 3, 2009 - MAP NUMBER: 17089C0334H

SCALE: 1" = 400'

CLIENT FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	TITLE FERMILAB - PIP 2	DWN. LJL	CHKD.	NMP
		JOB# 15-0215_03		N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	FLOOD INSURANCE RATE MAP			DATE 5/6/2016 EXHIBIT 6A

W:\Projects\2015\150215-3 WetlandSurveyPermitting\cadd\ACADCivil3D\150215_03\dwg\Exhibits\WetlandFIRM150215 PIP.dwg, EX6A, 5/13/2016 3:08:12 PM, llawrence



SOURCE(S): FEDERAL EMERGENCY MANAGEMENT AGENCY, REGULATORY FLOOD MAPS
DuPage County, Illinois - DATE: July 7, 2010 - MAP NUMBER: 17043C0109A

SCALE: 1" = 400'

CLIENT	TITLE	DWN.	LJL	CHKD.	NMP
FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	FERMILAB - PIP 2	JOB# 15-0215_03			N
WBK engineering WBK ENGINEERING, LLC 116 WEST MAIN STREET, SUITE 201 ST. CHARLES, ILLINOIS 60174 (630) 443-7755	DuPAGE COUNTY REGULATORY FLOOD MAP				DATE 5/6/2016 EXHIBIT 6B

W:\Projects\2015\150215-3 WetlandSurveyPermitting\cadd\ACADCivil3D\150215_03\dwg\Exhibits\Wetland\FIRM150215 PIP.dwg, EX6B, 5/13/2016 3:08:14 PM, llawrence

PHOTO 1: WETLAND 1, DATA POINT 1A

PHOTO 2: WETLAND 1, DATA POINT 4A

PHOTO 3: WETLAND 1, DATA POINT 5A

PHOTO 4: WETLAND 2, DATA POINT 2A

CLIENT FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	TITLE PIP-II WETLAND ASSESSMENT	DWN.	NMP	CHKD.	NMP
		JOB# 15-0215			N
WBK engineering 116 W. MAIN STREET SUITE 201 ST. CHARLES, IL 60174 (630) 443-7755	PHOTOGRAPHS				DATE 05-17-16
					EXHIBIT 7A

PHOTO 5: WETLAND 3. DATA POINT 3A

PHOTO 6: WETLAND 4, DATA POINT 6A

PHOTO 7: WETLAND 5, DATA POINT 7A

CLIENT FERMILAB P.O. BOX 500 MAIL STATION 210 BATAVIA, IL 60510	TITLE PIP-II WETLAND ASSESSMENT	DWN.	NMP	CHKD.	NMP
		JOB# 15-0215			N
WBK engineering 116 W. MAIN STREET SUITE 201 ST. CHARLES, IL 60174 (630) 443-7755	PHOTOGRAPHS				DATE 05-17-16
					EXHIBIT 7B

APPENDIX B

USACE Data Sheets

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 1A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	10	yes	OBL
2. *Populus deltoides*	10	yes	FAC
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 feet)			
1. *Fraxinus pensylvanica*	10	yes	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Apocynum cannabinum*	20	yes	FAC
2. *Solidago gigantea*	10	no	FACW
3. *Equisetum arvense*	5	no	FAC
4. *Lythrum salicaria*	10	no	OBL
5. *Helianthus grosseserratus*	5	no	FACW
6. *Carex stricta*	30	yes	OBL
7. *Glyceria striata*	20	yes	OBL
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	70	x 1 = 70
FACW species	25	x 2 = 50
FAC species	35	x 3 = 105
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	130 (A)	225 (B)

Prevalence Index = B/A = 1.73

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 1A

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[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100						
2-9	10YR 2/1	40	10YR 5/8	30			SCL	
			10YR 3/1	30				
9-24	10YR 2/1	100					SCL	

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

Hydric Soil Indicators:

___ Histosol (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)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

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)
___ 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 X No ___ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 1B

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Solidago altissima*	30	yes	FACU
2. *Rubus idaeus ssp. idaeus*	10	no	FACU
3. *Helianthus grosseserratus*	10	no	FACW
4. *Monarda fistulosa*	5	no	FACU
5. *Schizachyrium scoparium*	20	yes	FACU
6. *Symphyotrichum novae-angliae*	5	no	FACW
7. *Glyceria striata*	20	yes	OBL
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

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

SOIL

Sampling Point: 1B

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[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100						
6-12	10Y 5/1	70	10YR 5/8	20			SCL	
			10YR 2/1	10				
12-24	2.5N	100					SCL	

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

Hydric Soil Indicators:

___ Histosol (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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 12

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 2A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 feet)			
1. *Lonicera maackii*	5	no	UPL
2. *Salix interior*	20	yes	FACW
3. *Cornus racemosa*	10	yes	FAC
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	120	x 2 =	240
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	135 (A)		295 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 2A

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Muck	
1-4	10YR 2/1	100					Silt Loam	
4-12	10Y 5/1	80	10YR 5/8	15			Silt Loam	Gleyed
			10YR 2/1	5				
12-16	10YR 6/4	80	10Y 5/1	15			Silty Sand	
			10YR 2/1	5				

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- X 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 X No ___ Depth (inches): 1

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 2B

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	15	no	FACW
2. *Monarda fistulosa*	15	no	FACU
3. *Thalictrum dasycarpum*	15	no	FACW
4. *Helianthus grosseserratus*	15	no	FACW
5. *Coreopsis tripteris*	10	no	FAC
6. *Solidago altissima*	20	yes	FACU
7. *Sorghastrum nutans*	10	no	FACU
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	10	x 3 =	30
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

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

SOIL

Sampling Point: 2B

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[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					SCL	
18-24	10YR 4/2	88	10YR 4/1	10				
			10YR 5/6	2				

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

Hydric Soil Indicators:

___ Histosol (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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

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 _____ Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 3A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	40	yes	FACW
2. *Equisetum arvense*	30	yes	FAC
3. *Helianthus grosseserratus*	5	no	FACW
4. *Ratibida pinnata*	5	no	UPL
5. *Carex stricta*	15	no	OBL
6. *Poa pratensis*	5	no	FAC
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species	45	x 2 = 90
FAC species	35	x 3 = 105
FACU species	0	x 4 = 0
UPL species	5	x 5 = 25
Column Totals:	100 (A)	235 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 3A

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Muck	
1-2	10YR 2/1	85	10Y 5/1	10			Silty Clay Loam	
			10YR 6/6	5				
2-6	10YR 2/1	83	10Y 5/1	15			Silty Clay Loam	
			10YR 5/8	2				
6-12	10Y 5/1	85	10YR 5/8	10				
			10YR 2/1	5				

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- X 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 X No ___ Depth (inches): 0.5

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 3B

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Sorghastrum nutans*	40	yes	FACU
2. *Panicum virgatum*	30	yes	FAC
3. *Helianthus grosseserratus*	5	no	FACW
4. *Poa pratensis*	15	no	FAC
5. *Solidago altissima*	5	yes	FACU
6. *Eryngium yuccifolium*	5	yes	FAC
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	50	x 3 =	150
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	100 (A)		340 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

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

SOIL

Sampling Point: 3B

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[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					SCL	
3-6	10YR 3/2	50					SCL	
	10YR 3/1	50						
6-24	10YR 3/2	40					SCL	
	10YR 5/6	40	10YR 3/1	10				
			10YR 6/6	10				
24+							Gravel	

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

Hydric Soil Indicators:

___ Histosol (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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

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 _____ Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 4A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: PEMCh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Carex stricta*	50	yes	OBL
2. *Panicum virgatum*	20	yes	FAC
3. *Apocynum cannabinum*	20	yes	FAC
4. *Pycnanthemum virginianum*	5	no	FACW
5. *Symphyotrichum lanceolatum*	5	no	FAC
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	50	x 1 = 50
FACW species	5	x 2 = 10
FAC species	45	x 3 = 135
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	100 (A)	195 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 4A

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Muck	
1-6	10YR 2/1	100					SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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 X No ___ Depth (inches): 2

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 4B

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 152A-Drummer Silty Clay Loam NWI or WWI classification: _____

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	5	yes	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 feet)			
1. *Rhamnus cathartica*	5	yes	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Poa pratensis*	90	yes	FAC
2. *Melilotus albus*	5	no	UPL
3. *Nothocalais cuspidata*	5	no	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	110 (A)		355 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

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

SOIL

Sampling Point: 4B

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Silt Loam	
1-8	10YR 5/3	100					Clay Loam	
8							Gravel	

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

Hydric Soil Indicators:

___ Histosol (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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

X 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 X No ___ Depth (inches): 2

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 5A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 152A-Drummer Silty Clay Loam NWI or WWI classification: PFOICh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	5	yes	FACU
2. *Salix nigra*	15	yes	OBL
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 feet)			
1. *Cornus racemosa*	5	yes	FAC
2. *Rubus idaeus ssp. idaeus*	5	yes	FACU
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	100	x 2 =	200
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	130 (A)		270 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 5A

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Muck	
1-24	10YR 2/1	100					SCL	
24-30	10YR 2/1	60	10YR 3/2	40			SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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 X No ___ Depth (inches): 0.5

Water Table Present? Yes X No ___ Depth (inches): 24

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 6A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 152A-Drummer Silty Clay Loam NWI or WWI classification: _____

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	60	yes	FACW
2. *Salix interior*	5	no	FACW
3. *Poa pratensis*	35	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		235 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 6A

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[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	80	10YR 4/6	20			SCL	
6-24	10YR 4/1	40	10YR 3/1	30			SCL	
			10YR 5/6	30				

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

Hydric Soil Indicators:

___ Histosol (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)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

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)
___ 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 X No ___ Depth (inches): Surface

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fermilab PIP II City/County: Batavia Sampling Date: 5/5/16

Applicant/Owner: Fermilab State: IL Sampling Point: 7A

Investigator(s): Natalie Paver, Lacey J. Lawrence Section, Township, Range: Section 30, Township 39N, Range 9E

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

Slope (%): 0-2 Lat: 41.8357378 N Long: 88.2608866 W Datum: NAD87

Soil Map Unit Name: 697A-Wauconda Silt Loam NWI or WWI classification: _____

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 feet)			
1. *Populus deltoides*	5	yes	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 1 meter)			
1. *Phalaris arundinacea*	50	yes	FACW
2. *Carex sp.*	5	no	OBL
3. *Poa pratensis*	40	yes	FAC
4. *Eleocharis palustris*	5	no	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = 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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	50	x 2 =	100
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

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

SOIL

Sampling Point: 7A

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[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					SCL	
1-18	10YR 3/1	40					SCL	
	10YR 4/1	40	10YR 5/6	10				

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

Hydric Soil Indicators:

___ Histosol (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[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

X 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 X No ___ Depth (inches): 2

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

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

Remarks:

APPENDIX C

Vegetation Data

FLORISTIC INVENTORY: PIP-II, Fermilab

Wetland 1

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Nativity
aceneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Native
acesai	Acer saccharinum	Silver Maple	0	FACW	-1	Tree	Native
agralb	Agrostis gigantea	Black Bent	0	FACW	-1	Grass	Adventive
allpet	Alliaria petiolata	Garlic-Mustard	0	FAC	0	Forb	Adventive
ambtri	Ambrosia trifida	Great Ragweed	0	FAC	0	Forb	Native
andger	Andropogon gerardii	Big Bluestem	5	FAC	0	Grass	Native
apoand	Apocynum androsaemifolium	Spreading Dogbane	5	UPL	2	Forb	Native
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Native
ascinc	Asclepias incarnata	Swamp Milkweed	4	OBL	-2	Forb	Native
ascsyr	Asclepias syriaca	Common Milkweed	0	FACU	1	Forb	Native
bapalb	Baptisia alba var. macrophylla	White Wild Indigo	8	FACU	1	Forb	Native
barvul	Barbarea vulgaris	Garden Yellow-Rocket	0	FAC	0	Forb	Adventive
brojap	Bromus arvensis	Field Brome	0	FACU	1	Grass	Adventive
calcan	Calamagrostis canadensis	Bluejoint	3	OBL	-2	Grass	Native
camame	Campanulastrum americanum	American-Bellflower	3	FAC	0	Forb	Native
cxbebb	Carex bebbii	Bebb's Sedge	6	OBL	-2	Sedge	Native
cxcris	Carex cristatella	Crested Sedge	4	FACW	-1	Sedge	Native
cxgrav	Carex gravida	Heavy Sedge	4	FACU	1	Sedge	Native
cxlupn	Carex lupulina	Hop Sedge	7	OBL	-2	Sedge	Native
cxmole	Carex molesta	Troublesome Sedge	2	FAC	0	Sedge	Native
cxnorm	Carex normalis	Greater Straw Sedge	5	FACW	-1	Sedge	Native
cxpell	Carex pellita	Woolly Sedge	4	OBL	-2	Sedge	Native
cxstri	Carex stricta	Uptight Sedge	5	OBL	-2	Sedge	Native
cxvulp	Carex vulpinoidea	Common Fox Sedge	2	FACW	-1	Sedge	Native
carovt	Carya ovata	Shag-Bark Hickory	5	FACU	1	Tree	Native
cepocc	Cephalanthus occidentalis	Common Buttonbush	5	OBL	-2	Shrub	Native
cicmac	Cicuta maculata	Spotted Water-Hemlock	6	OBL	-2	Forb	Native
ciralt	Cirsium altissimum	Tall Thistle	6	UPL	2	Forb	Native
cortri	Coreopsis tripteris	Tall Tickseed	5	FAC	0	Forb	Native
coralb	Cornus alba	Red Osier	6	FACW	-1	Shrub	Native
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Native
cracru	Crataegus crus-galli	Cock-Spur Hawthorn	2	FAC	0	Tree	Native

cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Native
petcan	Dalea candida	White Prairie-Clover	9	UPL	2	Forb	Native
descaa	Desmodium canadense	Showy Tick-Trefoil	4	FACU	1	Forb	Native
eleery	Eleocharis palustris	Common Spike-Rush	2	OBL	-2	Sedge	Native
elycan	Elymus canadensis	Nodding Wild Rye	4	FACU	1	Grass	Native
elyhys	Elymus hystrix	Eastern Bottle-Brush Grass	5	FACU	1	Grass	Native
elyvir	Elymus virginicus	Virginia Wild Rye	4	FACW	-1	Grass	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Native
eriann	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	1	Forb	Native
eryyuc	Eryngium yuccifolium	Button Eryngo	9	FAC	0	Forb	Native
eupalt	Eupatorium altissimum	Tall Boneset	0	UPL	2	Forb	Native
solgra	Euthamia graminifolia	Flat-Top Goldentop	4	FACW	-1	Forb	Native
eupmac	Eutrochium maculatum	Spotted Trumpetweed	4	OBL	-2	Forb	Native
eutpur	Eutrochium purpureum	Sweet-Scented Joe-Pye-Weed	7	FAC	0	Forb	Native
frapen	Fraxinus pennsylvanica	Green Ash	1	FACW	-1	Tree	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Native
galasp	Galium asprellum	Rough Bedstraw	10	OBL	-2	Forb	Native
galobt	Galium obtusum	Blunt-Leaf Bedstraw	5	FACW	-1	Forb	Native
genand	Gentiana andrewsii	Closed Bottle Gentian	8	FACW	-1	Forb	Native
germac	Geranium maculatum	Spotted Crane's-Bill	4	FACU	1	Forb	Native
glystr	Glyceria striata	Fowl Manna Grass	4	OBL	-2	Grass	Native
helaut	Helenium autumnale	Fall Sneezeweed	5	FACW	-1	Forb	Native
helgro	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	-1	Forb	Native
hellae	Helianthus X laetiflorus	0	3	UPL	2	Forb	Native
helhel	Heliopsis helianthoides	Smooth Oxeye	5	FACU	1	Forb	Native
jugnig	Juglans nigra	Black Walnut	5	FACU	1	Tree	Native
juneff	Juncus effusus ssp. solutus	Lamp Rush	7	OBL	-2	Forb	Native
junten	Juncus tenuis	Lesser Poverty Rush	0	FAC	0	Forb	Native
juntor	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Native
laccan	Lactuca canadensis	Canadian Blue Lettuce	2	FACU	1	Forb	Native
leeory	Leersia oryzoides	Rice Cut Grass	4	OBL	-2	Grass	Native
lescap	Lespedeza capitata	Round-Head Bush-Clover	4	FACU	1	Forb	Native
liapyc	Liatris pycnostachya	Cat-Tail Gayfeather	8	FAC	0	Forb	Native
lycame	Lycopus americanus	Cut-Leaf Water-Horehound	5	OBL	-2	Forb	Native
lytala	Lythrum alatum	Wing-Angle	7	OBL	-2	Forb	Native

		Loosestrife					
lytsal	Lythrum salicaria	Purple Loosestrife	0	OBL	-2	Forb	Adventive
melalb	Melilotus albus	White Sweet-Clover	0	UPL	2	Forb	Adventive
menarv	Mentha arvensis	American Wild Mint	5	FACW	-1	Forb	Native
mimrin	Mimulus ringens	Allegheny Monkey-Flower	6	OBL	-2	Forb	Native
monfis	Monarda fistulosa	Oswego-Tea	4	FACU	1	Forb	Native
panvir	Panicum virgatum	Wand Panic Grass	5	FAC	0	Grass	Native
pedlan	Pedicularis lanceolata	Swamp Lousewort	9	OBL	-2	Forb	Native
pendig	Penstemon digitalis	Foxglove Beardtongue	4	FAC	0	Forb	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Adventive
phylac	Phyla lanceolata	Northern Frogfruit	6	OBL	-2	Forb	Native
phyvir	Physostegia virginiana	Obedient-Plant	6	FACW	-1	Forb	Native
pilpum	Pilea pumila	Canadian Clearweed	5	FACW	-1	Forb	Native
plamaj	Plantago major	Great Plantain	0	FAC	0	Forb	Adventive
poapra	Poa pratensis	Kentucky Blue Grass	0	FAC	0	Grass	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Native
pruser	Prunus serotina	Black Cherry	1	FACU	1	Tree	Native
pycvir	Pycnanthemum virginianum	Virginia Mountain-Mint	5	FACW	-1	Forb	Native
queell	Quercus ellipsoidalis	Hill's Oak	4	UPL	2	Tree	Native
quemac	Quercus macrocarpa	Burr Oak	5	FAC	0	Tree	Native
querub	Quercus rubra	Northern Red Oak	7	FACU	1	Tree	Native
ratpin	Ratibida pinnata	Yellow Coneflower	4	UPL	2	Forb	Native
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Adventive
ribame	Ribes americanum	Wild Black Currant	7	FACW	-1	Shrub	Native
rubida	Rubus idaeus ssp. idaeus	Common Red Raspberry	0	FACU	1	Shrub	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Native
rudhir	Rudbeckia hirta	Black-Eyed-Susan	1	FACU	1	Forb	Native
rudlac	Rudbeckia laciniata	Green-Head Coneflower	5	FACW	-1	Forb	Native
rudsub	Rudbeckia subtomentosa	Sweet Coneflower	9	FACU	1	Forb	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Native
salnig	Salix nigra	Black Willow	4	OBL	-2	Tree	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Native
sanmar	Sanicula marilandica	Maryland Black-Snakeroot	6	FACU	1	Forb	Native
sciatv	Scirpus atrovirens	Dark-Green	4	OBL	-2	Sedge	Native

		Bulrush					
scicyp	Scirpus cyperinus	Cottongrass Bulrush	6	OBL	-2	Sedge	Native
corvar	Securigera varia	Crown Vetch	0	UPL	2	Forb	Adventive
silint	Silphium integrifolium	Entire-Leaf Rosinweed	5	UPL	2	Forb	Native
sillac	Silphium laciniatum	Compass-Plant	5	UPL	2	Forb	Native
silper	Silphium perfoliatum	Cup-Plant	5	FACW	-1	Forb	Native
silter	Silphium terebinthinaceum	Prairie Dock	5	FAC	0	Forb	Native
siusua	Sium suave	Hemlock Water-Parsnip	7	OBL	-2	Forb	Native
smieci	Smilax ecirrhata	Upright Carrion Flower	5	UPL	2	Forb	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Native
solpat	Solidago patula	Round-Leaf Goldenrod	9	OBL	-2	Forb	Native
astpta	Solidago ptarmicoides	Stiff Goldenrod	10	UPL	2	Forb	Native
spapec	Spartina pectinata	Freshwater Cord Grass	4	FACW	-1	Grass	Native
stapal	Stachys palustris	Woundwort	0	OBL	-2	Forb	Adventive
symlan	Symphyotrichum lanceolatum	White Panicled American-Aster	3	FAC	0	Forb	Native
astnov	Symphyotrichum novae-angliae	New England American-Aster	4	FACW	-1	Forb	Native
astpil	Symphyotrichum pilosum	White Oldfield American-Aster	0	FACU	1	Forb	Native
tanvul	Tanacetum vulgare	Tansy	0	UPL	2	Forb	Adventive
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Adventive
teucan	Teucrium canadense	American Germander	3	FACW	-1	Forb	Native
thadas	Thalictrum dasycarpum	Purple Meadow-Rue	5	FACW	-1	Forb	Native
tilame	Tilia americana	American Basswood	5	FACU	1	Tree	Native
toxrad	Toxicodendron radicans	Eastern Poison-Ivy	2	FAC	0	Vine	Native
traohi	Tradescantia ohiensis	Bluejacket	2	FACU	1	Forb	Native
tripra	Trifolium pratense	Red Clover	0	FACU	1	Forb	Adventive
typang	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	-2	Forb	Adventive
typlat	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	-2	Forb	Native
ulmame	Ulmus americana	American Elm	3	FACW	-1	Tree	Native
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Native
verurt	Verbena urticifolia	White Vervain	5	FAC	0	Forb	Native
verfas	Vernonia fasciculata	Prairie Ironweed	5	FACW	-1	Forb	Native
vervir	Veronicastrum virginicum	Culver's-Root	7	FAC	0	Forb	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Native

Wetland 1

Conservatism-Based Metrics	
Mean C (native species)	4.20
Mean C (all species)	3.63
Mean C (native trees)	3.14
Mean C (native shrubs)	3.29
Mean C (native herbaceous)	4.47
FQAI (native species)	45.22
FQAI (all species)	42.07
Adjusted FQAI	39.06
% C value 0	20%
% C Value 1-3	21%
% C value 4-6	46%
% C value 7-10	13%

Additional Metrics	
Species Richness (all)	134
Species Richness (native)	116
% Non-native	13%
Wet Indicator (all)	-0.24
Wet Indicator (native)	-0.29
% hydrophyte (Midwest)	68%
% native perennial	81%
% native annual	3%
% annual	4%
% perennial	92%

Wetland 2

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Nativity
aceneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Native
agrgig	Agrostis gigantea	Black Bent	0	FACW	-1	Grass	Adventive
andger	Andropogon gerardii	Big Bluestem	5	FAC	0	Grass	Native
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Native
ascsyr	Asclepias syriaca	Common Milkweed	0	FACU	1	Forb	Native
cxbebb	Carex bebbii	Bebb's Sedge	6	OBL	-2	Sedge	Native
cxcris	Carex cristatella	Crested Sedge	4	FACW	-1	Sedge	Native
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Native
frapen	Fraxinus pennsylvanica	Green Ash	1	FACW	-1	Tree	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Native
helgro	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	-1	Forb	Native
junten	Juncus tenuis	Lesser Poverty Rush	0	FAC	0	Forb	Native
juntor	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Native
monfis	Monarda fistulosa	Oswego-Tea	4	FACU	1	Forb	Native
panvir	Panicum virgatum	Wand Panic Grass	5	FAC	0	Grass	Native
passat	Pastinaca sativa	Parsnip	0	UPL	2	Forb	Adventive
phaaru	Phalaris arundinacea	Reed Canary	0	FACW	-1	Grass	Adventive

		Grass					
poapra	Poa pratensis	Kentucky Blue Grass	0	FAC	0	Grass	Adventive
pycvir	Pycnanthemum virginianum	Virginia Mountain-Mint	5	FACW	-1	Forb	Native
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Native
silint	Silphium integrifolium	Entire-Leaf Rosinweed	5	UPL	2	Forb	Native
sillac	Silphium laciniatum	Compass-Plant	5	UPL	2	Forb	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Native
astsim	Symphyotrichum lanceolatum	White Panicled American-Aster	3	FAC	0	Forb	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Adventive
viosor	Viola sororia	Hooded Blue Violet	3	FAC	0	Forb	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Native

Wetland 2

Conservatism-Based Metrics	
Mean C (native species)	2.72
Mean C (all species)	2.27
Mean C (native trees)	0.50
Mean C (native shrubs)	1.00
Mean C (native herbaceous)	3.15
FQAI (native species)	13.60
FQAI (all species)	12.42
Adjusted FQAI	24.83
% C value 0	30%
% C Value 1-3	33%
% C value 4-6	37%
% C value 7-10	0%

Additional Metrics	
Species Richness (all)	30
Species Richness (native)	25
% Non-native	17%
Wet Indicator (all)	-0.10
Wet Indicator (native)	-0.16
% hydrophyte (Midwest)	73%
% native perennial	80%
% native annual	3%
% annual	3%
% perennial	93%

Wetland 3

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Nativity
agrgig	Agrostis gigantea	Black Bent	0	FACW	-1	Grass	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Native
ascsyr	Asclepias syriaca	Common Milkweed	0	FACU	1	Forb	Native
cxcris	Carex cristatella	Crested Sedge	4	FACW	-1	Sedge	Native
cxstri	Carex stricta	Uptight Sedge	5	OBL	-2	Sedge	Native
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Native
daucar	Daucus carota	Queen Anne's Lace	0	UPL	2	Forb	Adventive
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Native
eriann	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	1	Forb	Native
helgro	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	-1	Forb	Native
junten	Juncus tenuis	Lesser Poverty Rush	0	FAC	0	Forb	Native
melalb	Melilotus albus	White Sweet-Clover	0	UPL	2	Forb	Adventive
monfis	Monarda fistulosa	Oswego-Tea	4	FACU	1	Forb	Native
panvir	Panicum virgatum	Wand Panic Grass	5	FAC	0	Grass	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Adventive
ratpin	Ratibida pinnata	Yellow Coneflower	4	UPL	2	Forb	Native
rudlac	Rudbeckia laciniata	Green-Head Coneflower	5	FACW	-1	Forb	Native
rudsub	Rudbeckia subtomentosa	Sweet Coneflower	9	FACU	1	Forb	Native
silint	Silphium integrifolium	Entire-Leaf Rosinweed	5	UPL	2	Forb	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Native
astsim	Symphyotrichum lanceolatum	White Panicled American-Aster	3	FAC	0	Forb	Native
ulmame	Ulmus americana	American Elm	3	FACW	-1	Tree	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Native

Wetland 3

Conservatism-Based Metrics	
Mean C (native species)	2.95
Mean C (all species)	2.46
Mean C (native trees)	3.00
Mean C (native shrubs)	1.00
Mean C (native herbaceous)	3.12
FQAI (native species)	13.19
FQAI (all species)	12.04
Adjusted FQAI	26.93
% C value 0	33%
% C Value 1-3	29%
% C value 4-6	33%
% C value 7-10	4%

Additional Metrics	
Species Richness (all)	24
Species Richness (native)	20
% Non-native	17%
Wet Indicator (all)	0.13
Wet Indicator (native)	0.05
% hydrophyte (Midwest)	63%
% native perennial	79%
% native annual	0%
% annual	0%
% perennial	88%

Wetland 4

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Nativity
agrgig	Agrostis gigantea	Black Bent	0	FACW	-1	Grass	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Native
ascinc	Asclepias incarnata	Swamp Milkweed	4	OBL	-2	Forb	Native
brojap	Bromus arvensis	Field Brome	0	FACU	1	Grass	Adventive
calsep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Native
cxbebb	Carex bebbii	Bebb's Sedge	6	OBL	-2	Sedge	Native
cxcris	Carex cristatella	Crested Sedge	4	FACW	-1	Sedge	Native
cxtrib	Carex tribuloides	Blunt Broom Sedge	3	OBL	-2	Sedge	Native
cxvulp	Carex vulpinoidea	Common Fox Sedge	2	FACW	-1	Sedge	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Adventive
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Native
daucar	Daucus carota	Queen Anne’s Lace	0	UPL	2	Forb	Adventive
eleery	Eleocharis palustris	Common Spike-Rush	2	OBL	-2	Sedge	Native
frapen	Fraxinus pennsylvanica	Green Ash	1	FACW	-1	Tree	Native
helgro	Helianthus grosseserratus	Saw-Tooth Sunflower	2	FACW	-1	Forb	Native
junten	Juncus tenuis	Lesser Poverty Rush	0	FAC	0	Forb	Native
juntor	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Native

linvul	Linaria vulgaris	Butter-and-Eggs	0	UPL	2	Forb	Adventive
melalb	Melilotus albus	White Sweet-Clover	0	UPL	2	Forb	Adventive
mellof	Melilotus officinalis	Yellow Sweet-Clover	0	FACU	1	Forb	Adventive
panvir	Panicum virgatum	Wand Panic Grass	5	FAC	0	Grass	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Adventive
phlpra	Phleum pratense	Common Timothy	0	FACU	1	Grass	Adventive
phrausm	Phragmites australis ssp. americanus	Common Reed	1	FACW	-1	Grass	Native
plamaj	Plantago major	Great Plantain	0	FAC	0	Forb	Adventive
poapra	Poa pratensis	Kentucky Blue Grass	0	FAC	0	Grass	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Native
salnig	Salix nigra	Black Willow	4	OBL	-2	Tree	Native
corvar	Securigera varia	Crown Vetch	0	UPL	2	Forb	Adventive
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Native
astsim	Symphyotrichum lanceolatum	White Panicled American-Aster	3	FAC	0	Forb	Native
sympil	Symphyotrichum pilosum	White Oldfield American-Aster	0	FACU	1	Forb	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Adventive
typang	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	-2	Forb	Adventive
typlat	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	-2	Forb	Native
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Native

Wetland 4

Conservatism-Based Metrics	
Mean C (native species)	2.35
Mean C (all species)	1.42
Mean C (native trees)	2.33
Mean C (native shrubs)	1.00
Mean C (native herbaceous)	2.50
FQAI (native species)	11.26
FQAI (all species)	8.76
Adjusted FQAI	18.27
% C value 0	45%
% C Value 1-3	37%
% C value 4-6	18%
% C value 7-10	0%

Additional Metrics	
Species Richness (all)	38
Species Richness (native)	23
% Non-native	39%
Wet Indicator (all)	-0.24
Wet Indicator (native)	-0.78
% hydrophyte (Midwest)	71%
% native perennial	61%
% native annual	0%
% annual	3%
% perennial	89%

Wetland 5

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Nativity
agrgig	Agrostis gigantea	Black Bent	0	FACW	-1	Grass	Adventive
agrsto	Agrostis stolonifera	Spreading Bent	10	FACW	-1	Grass	Native
alisub	Alisma subcordatum	American Water-Plantain	4	OBL	-2	Forb	Native
ambart	Ambrosia artemisiifolia	Annual Ragweed	0	FACU	1	Forb	Native
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Native
barvul	Barbarea vulgaris	Garden Yellow-Rocket	0	FAC	0	Forb	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Native
cxbebb	Carex bebbii	Bebb's Sedge	6	OBL	-2	Sedge	Native
cxfran	Carex frankii	Frank's Sedge	8	OBL	-2	Sedge	Native
cxmole	Carex molesta	Troublesome Sedge	2	FAC	0	Sedge	Native
cxstri	Carex stricta	Uptight Sedge	5	OBL	-2	Sedge	Native
cxvulp	Carex vulpinoidea	Common Fox Sedge	2	FACW	-1	Sedge	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Adventive
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Native
daucar	Daucus carota	Queen Anne’s Lace	0	UPL	2	Forb	Adventive
eleery	Eleocharis palustris	Common Spike-Rush	2	OBL	-2	Sedge	Native
epicol	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	-2	Forb	Native
juneff	Juncus effusus ssp. solutus	Lamp Rush	7	OBL	-2	Forb	Native
junten	Juncus tenuis	Lesser Poverty Rush	0	FAC	0	Forb	Native
lacser	Lactuca serriola	Prickly Lettuce	0	FACU	1	Forb	Adventive
linvul	Linaria vulgaris	Butter-and-Eggs	0	UPL	2	Forb	Adventive
lolper	Lolium perenne	Perennial Rye Grass	0	FACU	1	Grass	Adventive
mellof	Melilotus officinalis	Yellow Sweet-Clover	0	FACU	1	Forb	Adventive
mimrin	Mimulus ringens	Allegheny Monkey-Flower	6	OBL	-2	Forb	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACW	-1	Forb	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Adventive
phlpra	Phleum pratense	Common Timothy	0	FACU	1	Grass	Adventive
plamaj	Plantago major	Great Plantain	0	FAC	0	Forb	Adventive
poapra	Poa pratensis	Kentucky Blue Grass	0	FAC	0	Grass	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Adventive
salnig	Salix nigra	Black Willow	4	OBL	-2	Tree	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Native

scicyp	Scirpus cyperinus	Cottongrass Bulrush	6	OBL	-2	Sedge	Native
corvar	Securigera varia	Crown Vetch	0	UPL	2	Forb	Adventive
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Native
sympil	Symphyotrichum pilosum	White Oldfield American-Aster	0	FACU	1	Forb	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Adventive
trihyb	Trifolium hybridum	Alsike Clover	0	FACU	1	Forb	Adventive
typang	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	-2	Forb	Adventive
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Native

Wetland 5

Conservatism-Based Metrics	
Mean C (native species)	3.33
Mean C (all species)	1.95
Mean C (native trees)	3.00
Mean C (native shrubs)	1.00
Mean C (native herbaceous)	3.48
FQAI (native species)	16.33
FQAI (all species)	12.49
Adjusted FQAI	25.50
% C value 0	51%
% C Value 1-3	22%
% C value 4-6	20%
% C value 7-10	7%

Additional Metrics	
Species Richness (all)	41
Species Richness (native)	24
% Non-native	41%
Wet Indicator (all)	-0.37
Wet Indicator (native)	-1.00
% hydrophyte (Midwest)	68%
% native perennial	51%
% native annual	7%
% annual	7%
% perennial	83%