WETLAND DELINEATION REPORT

WHITMORE LAKE LOT
WASHTENAW COUNTY, MICHIGAN

JULY 2015

PREPARED FOR:
WASHTENAW COUNTY PARKS AND RECREATION
2230 SOUTH PLATT ROAD
ANN ARBOR, MICHIGAN 48104

PREPARED BY:
THE MANNIK SMITH GROUP, INC.
1800 INDIAN WOOD CIRCLE
MAUMEE, OHIO 43537

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60 years
TECHNICAL SKILL.
CREATIVE SPIRIT.

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WASHTENAW COUNTY, MICHIGAN

*PREPARED BY: _____

KATIE L. SIMON
ENVIRONMENTAL SCIENTIST

REVIEWED BY: _____

KEITH CARR
ECOLOGICAL TEAM LEADER

Mannik Smith GROUP
60 years
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1.0 INTRODUCTION

On July 28, 2015, The Mannik & Smith Group, Inc. (MSG) performed a wetland delineation for a proposed parking area on the Whitmore Lake Preserve in Whitmore Lake, Washtenaw County, Michigan (Site) (Figure 1). The purpose of a wetland delineation is to identify any areas on the Site that could be considered a jurisdictional wetland or surface water.

Federal regulations define a jurisdictional wetland as an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. According to current wetland criteria, a wetland has: (1) hydric (i.e., wetland) soils, (2) evidence of inundated or saturated conditions (wetland hydrology), and (3) a predominance of wetland vegetation. When all three of these criteria are met, a wetland is present and is potentially subject to Federal and/or State regulations and permitting.

In a wetland delineation, data are collected concerning the vegetation, soils and hydrology present in representative plant communities to determine if the criteria for a jurisdictional wetland are met, and the wetland/non-wetland boundaries are then flagged. The wetland/non-wetland boundaries and the sample locations are surveyed and placed on a wetland delineation figure. From the wetland delineation figure, the acreage of each wetland can then be calculated. A preliminary determination is also made as to whether each wetland is regulated based on Michigan Department of Environmental Quality's (MDEQ) Part 301 and 303 guidelines.

2.0 METHODS

MSG performed the wetland delineation in accordance with the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest, Version 2.0*. Wetlands were defined as any area on the property that contained a predominance of wetland vegetation, hydric soils and positive indicators of wetland hydrology. Sample plots for vegetation, soils and hydrology were placed on either side of the wetland boundary. The wetland/upland boundary was surveyed using a Trimble Geo XH GPS receiver. The wetland and upland data sheets that describe each plot are included in Appendix A. Digital images of each wetland were taken of each wetland and are included in Appendix B. After the wetland has been delineated, MSG also described the regulatory status of each wetland based on MDEQ Part 301 and 303 guidelines. To finalize this wetland delineation, a field review by MDEQ will be necessary.

3.0 RESULTS

3.1 Agency Resource Information

The USGS Quadrangle map for Hamburg, MI (1965, Revised 1983) and South Lyon, MI (1965, Revised 1983) Quadrangles indicate that the study area has elevations varying from 910 to 930 (Figure 1).

A review of the National Wetland Inventory did not indicate the presence of any wetlands on the Site (Figure 2). Two soil units are mapped on the Site by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). Soils information for the Site is presented in Table 3.1 and mapped on Figure 2. One soil unit mapped for the Site is listed as having hydric inclusions in Washtenaw County, Michigan.

Table 3.1 Soil Types on the Site

Soil Type	Map Unit	Hydric?	With Hydric Inclusions?
Glynwood loam, 2 to 6 percent slopes	MoB	No	Yes
Morley loam, 6 to 12 percent slopes	MoC	No	No

3.2 Wetland Delineation

One wetland (Wetland A) comprised of 0.148-acre was identified on the Site (Figure 3). To define the wetland boundaries, two sample points were collected (SP-1 and SP-2). Wetland determination data forms are included in Appendix A and site photographs are included in Appendix B. Based on Wetland A's proximity to an observed stream, MSG has determined that Wetland A would be regulated in the State of Michigan. A field review by MDEQ will be necessary in order to finalize the regulatory status of the wetland.

Table 3.2 Summary of Wetlands

Wetland	Delineated Acreage within Study Area	Wetland Type[1]	Regulatory Status[2]
Wetland A	0.148	PEM	Regulated
Total	0.148		

1 wetland community type: PEM=palustrine emergent; PSS= palustrine scrub/shrub; PFO=palustrine forested and POW=palustrine open water

2 regulatory status determined based on MDEQ Part 301 and 303 guidelines

Wetland A

Wetland A was delineated as 0.148-acre and is located in the southwest portion of the Site (Figure 3). The soil profile consisted of a twelve inch layer of 10YR 3/2 silty clay loam soil with 50% dark yellowish brown (10YR 3/4) redox features. Positive indicators of wetland hydrology included saturation, geomorphic position and a positive FAC-neutral test. Dominant vegetation consisted of hydrophytic vegetation such as: reed canary grass (*Phalaris arundinacea*: FACW) and box elder (*Acer negundo*: FAC).

3.3 Uplands

One sample point was collected in an upland area (SP-2). SP-2 was dominated with autumn olive (*Elaegnus umbellata*: UPL), red fescue (*Festuca rubra*: FACU), goldenrod (*Solidago sp.*: FACU) and poison ivy (*Toxicodendron radicans*: FAC). The soil profile consisted of a six inch layer of 10YR 4/6 sandy silt soil. This was underlain by a six inch layer of 10YR 5/3 clayey silt soil with 50% dark yellowish brown (10YR 4/4) redox features. No signs of hydrology were observed.

4.0 SUMMARY

A wetland delineation was completed for a small proposed parking area on the Whitmore Lake Preserve on July 28, 2015. One wetland (Wetland A), comprised of 0.148-acre, was identified on the Site. Based on Wetland A's proximity to an observed stream, MSG has determined that Wetland A would be regulated in the State of Michigan. A field review by MDEQ will be necessary in order to finalize the regulatory status of each wetland.

FIGURES

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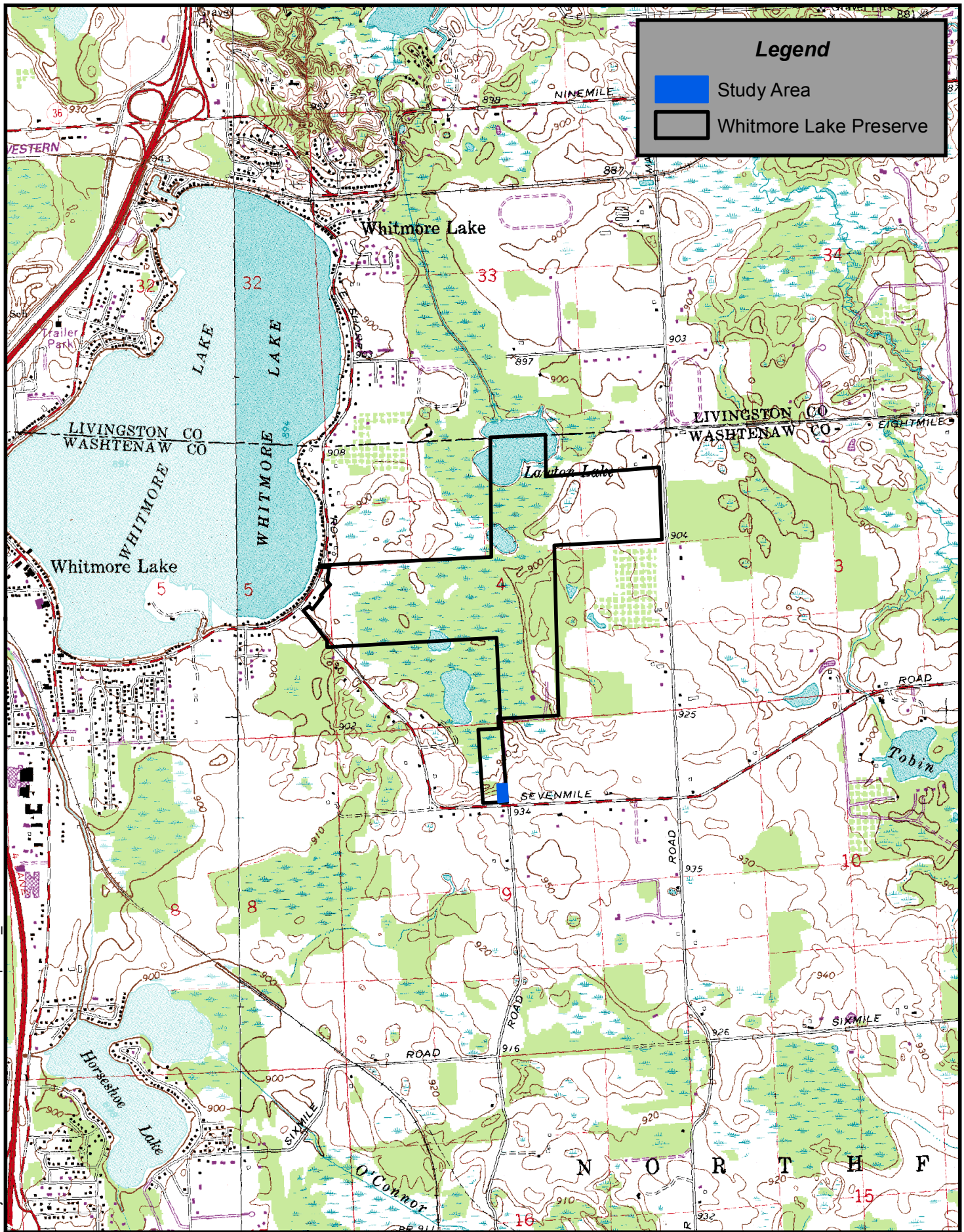

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Figure 1: Site Location
Whitmore Lake Preserve
Washtenaw County, Michigan

Notes
USGS Quadrangles, 7.5' Series Topographic
Hamburg, MI 1965 Revised 1983
South Lyon, MI 1965 Revised 1983

Feet
0 1,000 2,000

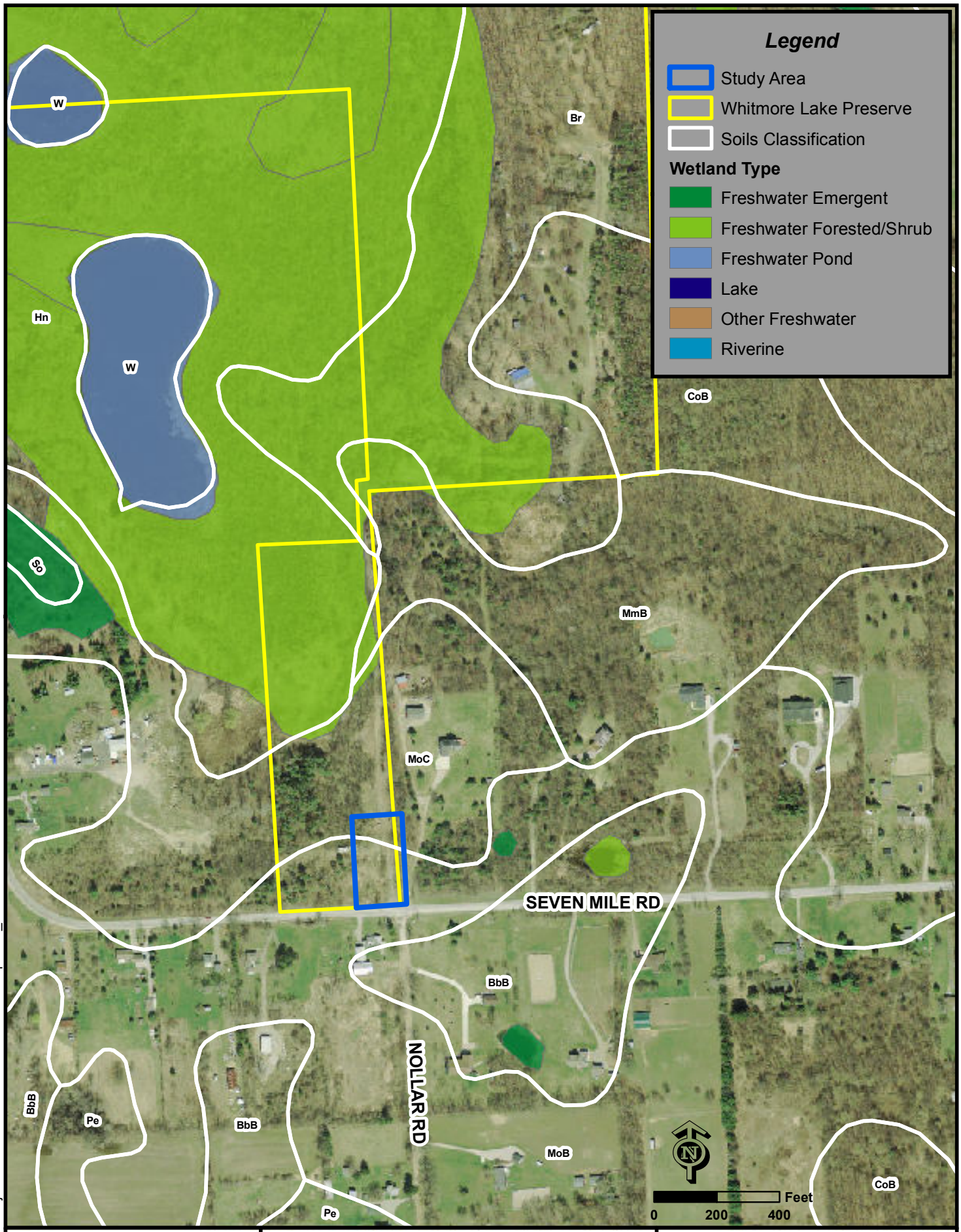

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Figure 2: NWI/Soils Classification
Whitmore Lake Preserve
Washtenaw County, Michigan

Notes

The Washtenaw County photography, dated April 2010, is provided by SEMCOG.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

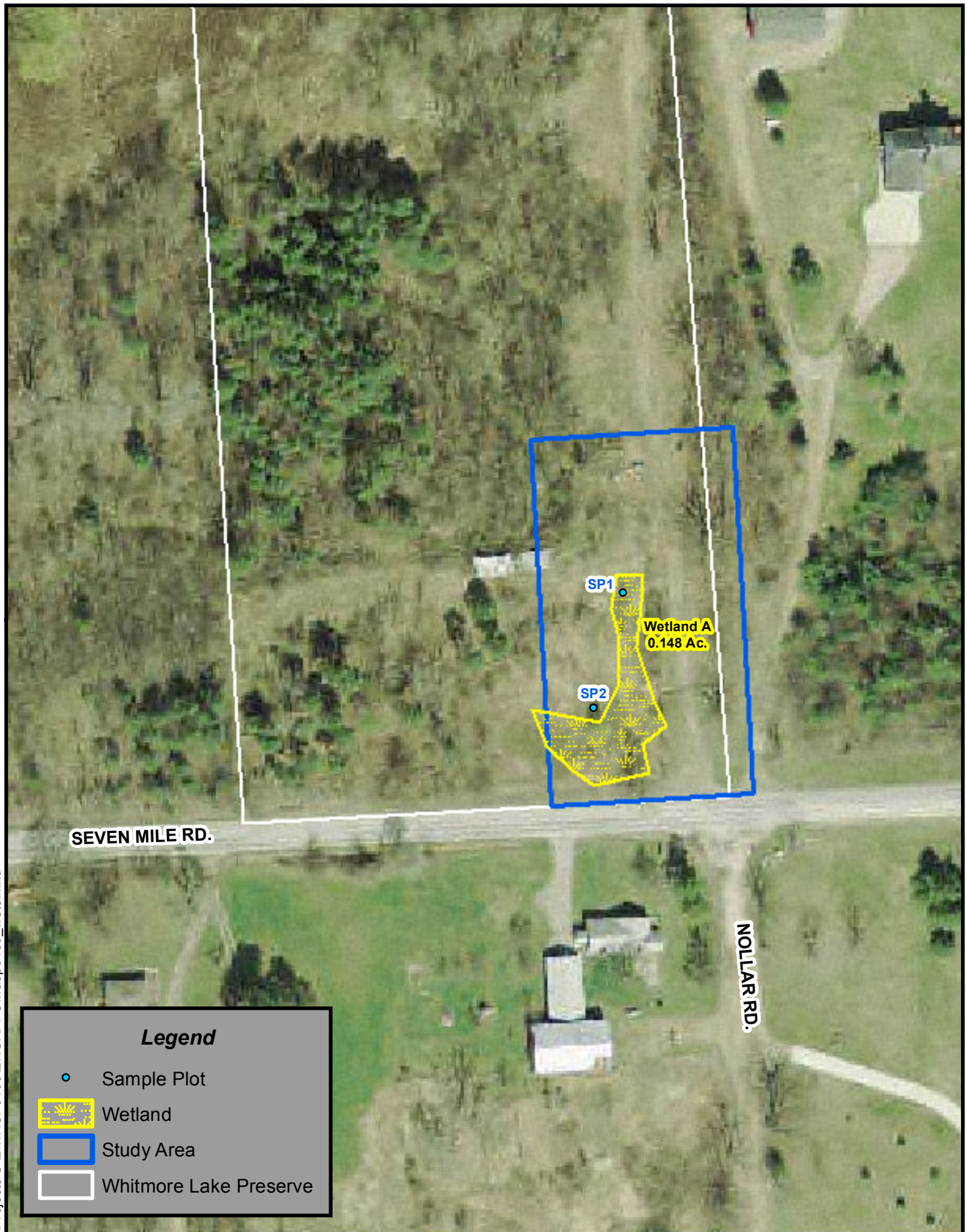

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Figure 3: Surface Water Delineation
Whitmore Lake Preserve
Washtenaw County, Michigan

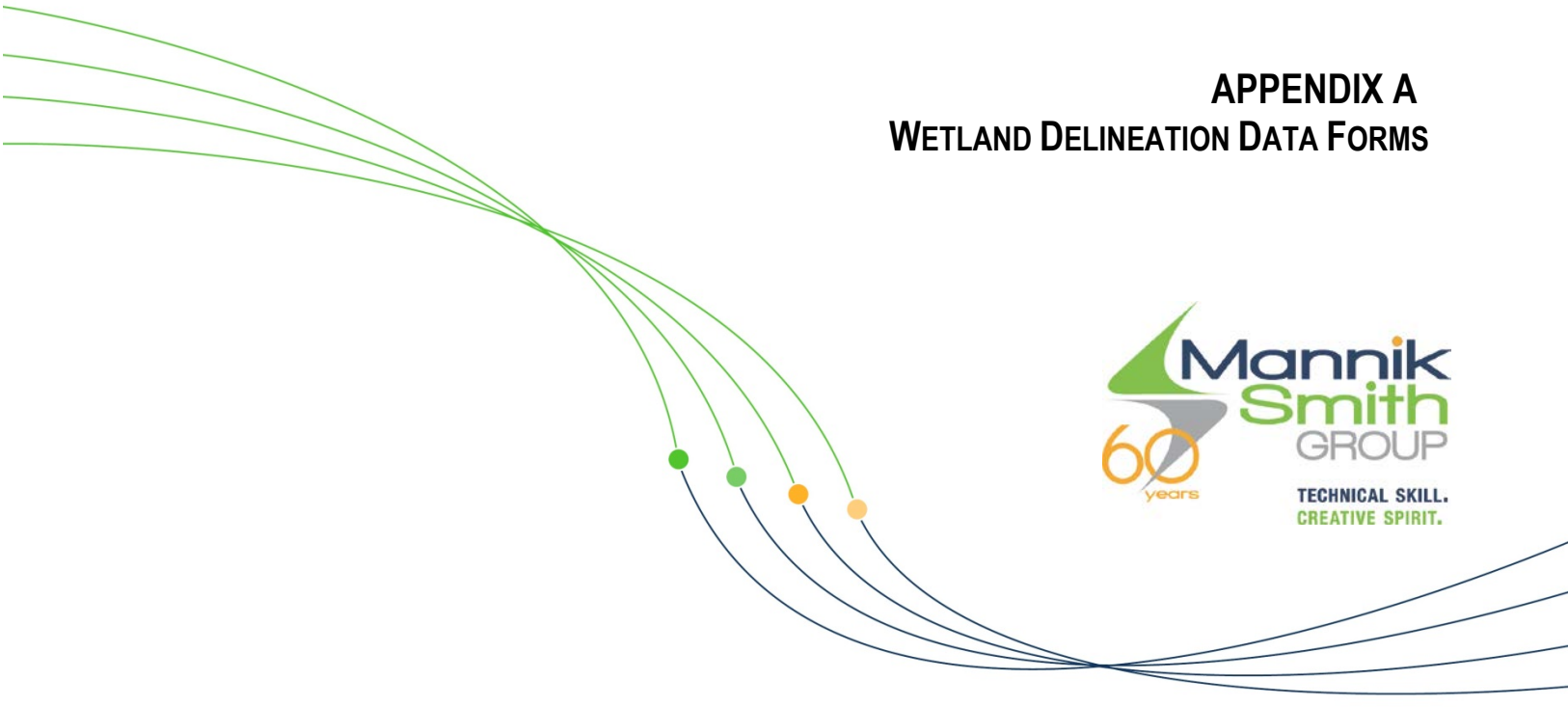
Notes

The Washtenaw County photography, dated April 2010, is provided by SEMCOG..

Feet
0 50 100

N

APPENDIX A
WETLAND DELINEATION DATA FORMS



WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WASP0109 City/County: Whitmore Lake/ Washtenaw Sampling Date: 7/28/15

Applicant/Owner: WASHTENAW COUNTY PARKS AND RECREATION State: MI Sampling Point: SP-1

Investigator(s): K. CARR, K. SIMON Section, Township, Range: S9 T1S R6E

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

Slope (%): _____ Lat: 42.413263362 Long: -83.734437449 Datum: _____

Soil Map Unit Name: Glynwood loam, 2 to 6 percent slopes NWI classification: NONE

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:

Wetland A

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	30	X	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Phalaris arundinacea*	85	X	FACW
2. *Typha latifolia*	10		OBL
3. *Lythrum salicaria*	5		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	50	10YR 3/4	50	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: WASP0109 City/County: Whitmore Lake/ Washtenaw Sampling Date: 7/28/15

Applicant/Owner: WASHTENAW COUNTY PARKS AND RECREATION State: MI Sampling Point: SP-2

Investigator(s): K. CARR, K. SIMON Section, Township, Range: S9 T1S R6E

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

Slope (%): _____ Lat: 42.413014453 Long: -83.734526243 Datum: _____

Soil Map Unit Name: Glynwood loam, 2 to 6 percent slopes NWI classification: NONE

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.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *Elaeagnus umbellata*	15	X	UPL
2. *Juniperus virginiana*	5		FACU
3. *Quercus alba*	5		FACU
4. *Fraxinus pennsylvanica*	5		FACW
5. *unknown birch*	5		
	35	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Festuca rubra*	70	X	FACU
2. *Solidago sp.*	45	X	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	115	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. *Toxicodendron radicans*	15	X	FAC
2.			
	15	= 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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: SP-2

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 Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/6	100					sandy silt	trace of clay and gravel, dry
6-12	10YR 5/3	50	10YR 4/4	59			clayey silt	some sand and gravel, dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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:

APPENDIX B
SITE PHOTOGRAPHS

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Photo 1: Sample point 1 (SP-1).

Photo 2: Wetland A looking northeast.

Photo 3: Wetland A looking south.

Photo 4: Sample point 2 (SP-2).