Wetland Determination Report

Windsor Blue Housing Plat
Wetland Determination
Town of Windsor, Dane County, WI
Stantec Project #: 193703022

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Sign-off Sheet

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Prepared by  (signature)

Kate Remus, Environmental Scientist

Reviewed by  (signature)

Eric C. Parker, PWS

Senior Scientist

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LIST OF APPENDICES

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) performed a wetland determination and delineation of the Windsor Blue Housing Plat (the "Study Area") on behalf of Windsor Golf Ventures, Inc. The Property is approximately 10.77 acres in size and located in Section 30, Township 9 North, Range 10 East, Town of Windsor, Dane County, Wisconsin. Specifically, the Property is located south of the intersection of Charlie Grimm Road and Golf Road (Figure 1).

The purpose and objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands within the Property. Field work was completed by Eric Parker and Kate Remus of Stantec on April 30, 2014. No wetland areas were identified in the Study Area.

Wetlands and waterways that are considered waters of the U.S. are subject to regulation under Section 404 of the Clean Water Act (CWA) and the jurisdictional regulatory authority lies with the U.S. Army Corps of Engineers (USACE). Additionally, the Wisconsin Department of Natural Resources (WDNR) has regulatory authority over wetlands, navigable waters, and adjacent lands under Chapters 30 and 281 Wisconsin State Statutes, and Wisconsin Administrative Codes NR 103, 299, 350 and 353. Finally counties, townships and municipalities may have local zoning authority over certain types of wetlands and waterways. Stantec recommends this report be submitted to local authorities, the WDNR and USACE for final jurisdictional review and concurrence.

2.0 METHODS

2.1 WETLANDS

Wetland determinations were based on the criteria and methods outlined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1 (1987) and subsequent guidance documents (USACE 1991, 1992), and the applicable Regional Supplement to the *Corps of Engineers Wetland Delineation Manual*.

The wetland determination involved the use of available resources to assist in the assessment such as U.S. Geological Survey (USGS) topographic maps, U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey, WDNR Wisconsin Wetland Inventory (WWI) mapping, and aerial photography.

On-site wetland determinations were made using the three criteria (vegetation, soil, and hydrology) and technical approach defined in the USACE 1987 Manual and applicable Regional Supplement. According to procedures described in the 1987 Manual and applicable Regional Supplement, areas that under normal circumstances reflect a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands.

Additionally, as climate plays an important role in the formation and identification of wetlands, the antecedent precipitation in the months leading up to the field investigation was reviewed. The current year's precipitation data was compared to long-term (30-year) precipitation averages and standard deviation to determine if precipitation was normal, wet, or dry for the area using a WETS analysis as developed by the NRCS.

Sampling points were identified and surveyed with a Global Positioning System (GPS) capable of sub-meter accuracy and mapped using Geographical Information System (GIS) software.

3.0 RESULTS

3.1 SITE DESCRIPTION

The Study Area is comprised of periodically mowed grass lawn with mature trees. Silver maple (*Acer saccharinum*) are planted along the outside border of the Study Area, with a mix of honey locust (*Gleditsia triacanthos*), white ash (*Fraxinus americana*), white spruce (*Picea glauca*), and red oak (*Quercus rubra*) present within the middle of the Study Area. The Study Area slopes from approximately 895 feet mean sea level (msl) on the eastern end of the site to approximately 870 feet msl in the southwestern portion of the site. The Study Area is bordered by Golf Road on the north, Birch Drive to the east, and East Oak Lane along half of the southern boundary. Open fallow land and the Yahara River are present beyond the southwestern corner of the Study Area.

Soils mapped on the Property by the *NRCS Soil Survey of Dane County* include Batavia silt loam (BbB), St. Charles silt loam (ScB), Virgil silt loam (VwA), and Wacousta silty clay loam (Wa) (Appendix A, Figure 2). According to the NRCS List of Hydric Soils for Dane County, the Wacousta series is listed as a hydric soil unit and the Virgil series may contain hydric inclusions.

The Wisconsin Wetland Inventory (WWI) map does not identify any wetland within the Study Area, although one wetland area is identified just north of the site (Appendix A, Figure 3).

Average precipitation for the investigation area was obtained from the Dane County Regional Airport weather station in Madison, WI (NWS station #WI4961) and used for the WETS analysis. Based on the WETS analysis, conditions were wetter than normal (Appendix D).

3.2 WETLANDS

No wetlands were identified within the Study Area. Wetland determination data forms were completed for two sample points and are contained in Appendix B. Sample point P1 was completed in mapped hydric soils and in a topographic low spot near the center of a swale where one may expect wetland conditions to develop. Sample point P2 was also placed in a low swale, but within mapped non-hydric soils unit. Photographs of the Study Area and land adjacent to the sample point locations are contained in Appendix C. The sample point locations are shown on Figure 4 (Appendix A).

3.3 UPLANDS

Uplands within the Study Area consisted of periodically mowed grass lawn with planted trees along the periphery and down the middle of the site. As noted above, two sample points were completed within areas where conditions were likely most suitable for wetland development based on topography and mapped soils; however upland conditions were confirmed. The Study Area was dominated by non-hydrophytic species and was higher in topography than potential wetland areas southwest of the site. Common species seen at sample points and observed throughout included Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), dandelion (*Taraxacum officinale*), and orchard grass (*Dactylis glomerata*). Additionally, wetland hydrology and hydric soils were not observed.

3.4 OTHER ENVIRONMENTAL CONSIDERATIONS

This report is limited to the identification of state and/or federally regulated wetlands within the Study Area. However, there may be other regulated environmental features within the Study Area, including, but not limited to, historical or archeological features, endangered or threatened species, and/or floodplains, etc. Federal, state, and local units of government and regional planning organizations may have regulatory authority to control or restrict land uses within or in close proximity to these features. Stantec can assist with identification and/or assessment of additional regulated resources at your request, to the extent that the work is within our range of expertise.

4.0 CONCLUSION

Stantec performed a wetland determination and delineation of the Windsor Blue Housing Plat on behalf of Windsor Golf Ventures, Inc. The approximately 10.77-acre Study Area is located in Section 30, Township 9 North, Range 10 East, Town of Windsor, Dane County, Wisconsin. The purpose and objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands within the Property.

No wetlands were identified within the Study Area. Sample points confirming upland conditions were surveyed with GPS, and mapped using GIS software. The site was dominated by periodically mowed grass lawn and mature trees.

The USACE has regulatory authority over Waters of the U.S. including adjacent wetlands, and the WDNR has regulatory authority over wetlands, navigable waters, and adjacent lands under Chapters 30 and 281 Wisconsin State Statutes, and Wisconsin Administrative Codes NR 103, 299, 350 and 353. Finally counties, townships and municipalities may have local zoning authority over certain types of wetlands and waterways.

Prior to beginning work at this site or disturbing or altering wetlands, waterways, or adjacent lands in any way, Stantec recommends that the owner obtain the necessary permits or other agency regulatory review and concurrence with regard to the proposed work to comply with applicable regulations. Stantec can assist with identification and/or assessment of additional regulated resources at your request, to the extent that the work is within our range of expertise.

The information provided by Stantec regarding wetland determinations and boundaries is a scientific-based analysis of the wetland and upland conditions present on the site at the time of the fieldwork. The determination was performed by experienced and qualified professionals using standard practices and sound professional judgment. The ultimate decision on wetland determinations and boundaries rests with the USACE and, in some cases, the WDNR or a local unit of government. As a result, there may be adjustments to determinations and boundaries based upon review by a regulatory agency. An agency determination can vary from time to time depending on various factors including, but not limited to recent precipitation patterns and the season of the year. In addition, the physical characteristics of the site can change over time, depending on the weather, vegetation patterns, drainage activities on adjacent parcels, or other events. Any of these factors can change the nature and extent of wetlands on the site.

5.0 REFERENCES

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Appendix A – Figures

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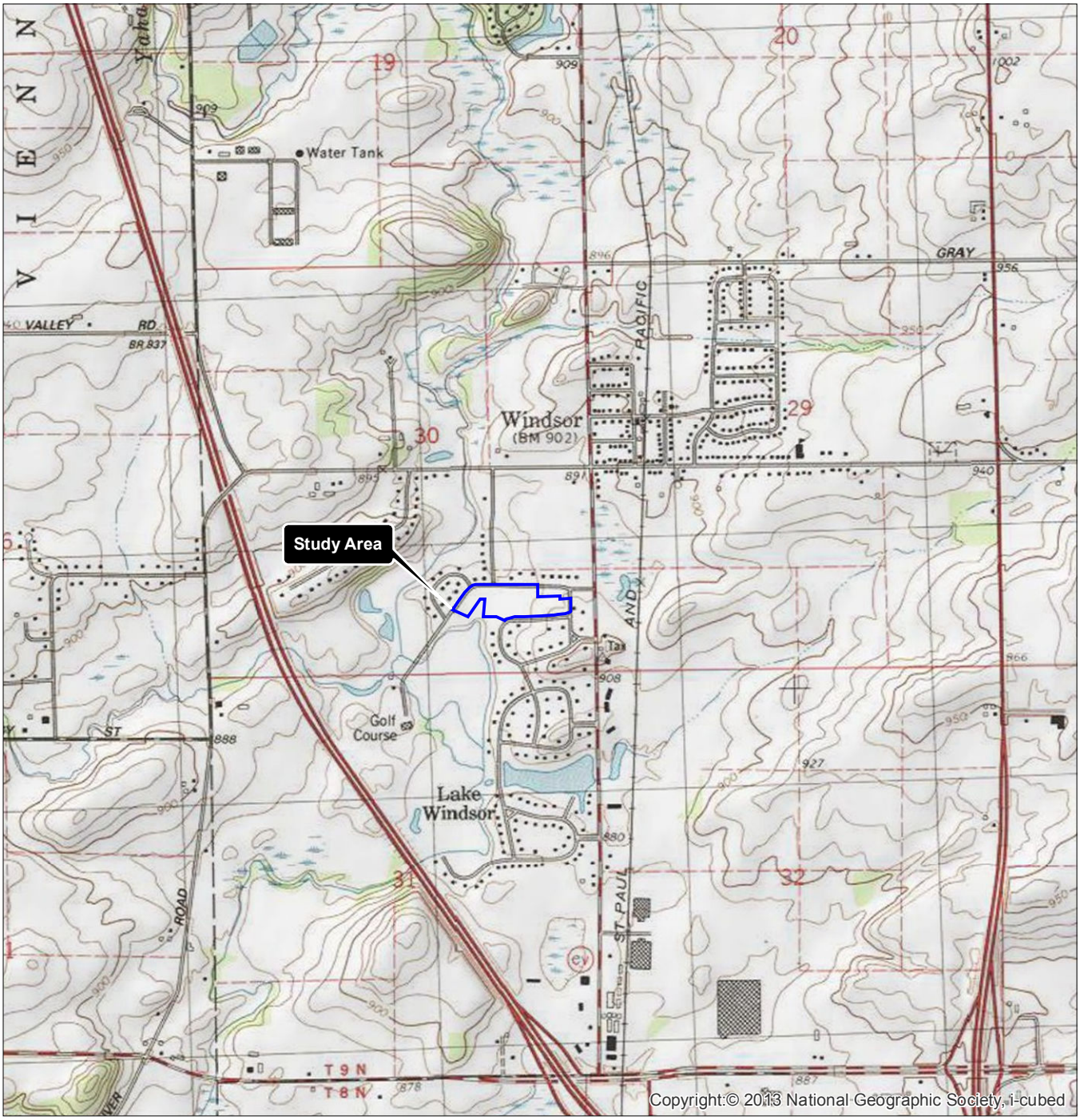
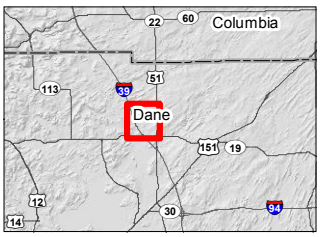




Legend

Study Area

0 1,000 2,000 Feet

1:24,000 (at original document size of 8.5x11)

N

Stantec

Project Location
T9N, R10E, S30
T. of Windsor, Dane Co., WI

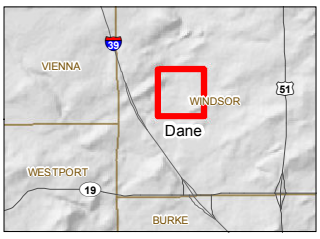
193703022
Prepared by KAS on 2014-04-08
Technical Review by MMP on 2014-04-08
Independent Review by KR on 2014-05-06

Client/Project
Windsor Golf Ventures, Inc.
Windsor Blue Housing Plat
Wetland Determination

Figure No.
1

Title
Project Location and Topography

Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec and USGS
3. Background: USGS 7.5' Topographic Quadrangles



Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WDNR, NRCS, and WDOT
3. Orthophotography: 2010 WROC

Legend

- Study Area

NRCS Soil Survey Data

- Hydric Soils
- Possible Hydric Inclusions
- Non-Hydric Soils

DNR 24k Hydrography

- Perennial Stream
- Intermittent Stream
- Waterbody

0 200 400 Feet

1:4,800 (at original document size of 8.5x11)

N

Stantec

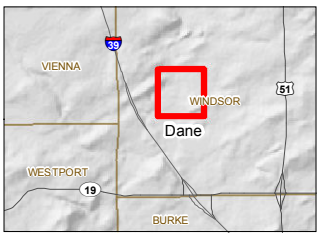
Project Location
T9N, R10E, S30
T. of Windsor, Dane Co., WI

193703022
Prepared by KAS on 2014-04-08
Technical Review by MMP on 2014-04-08
Independent Review by KR on 2014-05-06

Client/Project
Windsor Golf Ventures, Inc.
Windsor Blue Housing Plat
Wetland Determination

Figure No.
2

Title
NRCS Soil Survey Data



Legend

- Study Area
- Wisconsin Wetland Inventory

DNR 24k Hydrography

- Perennial Stream
- Intermittent Stream
- Waterbody

0 200 400 Feet

1:4,800 (at original document size of 8.5x11)

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WDNR, and WDOT
3. Orthophotography: 2010 WROC

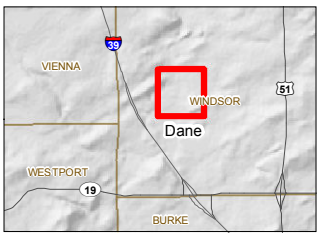
Project Location
T9N, R10E, S30
T. of Windsor, Dane Co., WI

193703022
Prepared by KAS on 2014-04-08
Technical Review by MMP on 2014-04-08
Independent Review by KR on 2014-05-06

Client/Project
Windsor Golf Ventures, Inc.
Windsor Blue Housing Plat
Wetland Determination

Figure No.
3

Title
Wisconsin Wetland Inventory



Legend

- Study Area
- Sample Points

DNR 24k Hydrography

- Perennial Stream
- Intermittent Stream
- Waterbody

0 200 400 Feet

1:4,800 (at original document size of 8.5x11)

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WDNR, and WDOT
3. Orthophotography: 2010 WROC

Project Location
T9N, R10E, S30
T. of Windsor, Dane Co., WI

193703022
Prepared by KAS on 2014-05-01
Technical Review by AB on 2014-05-01
Independent Review by KR on 2014-05-06

Client/Project
Windsor Golf Ventures, Inc.
Windsor Blue Housing Plat
Wetland Determination

Figure No.
4

Title
Field Collected Data

Appendix B – Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Windsor Blue Housing Plat	Stantec Project #:	193703022
Applicant:	Windsor Golf Ventures, Inc.		
Investigator #1:	E. Parker	Investigator #2:	K. Remus
Soil Unit:	Wacousta silty clay loam	NWI/WWI Classification:	---
Landform:	Depression	Local Relief:	Concave
Slope (%):	0-2	Latitude: N/A	Longitude: N/A Datum: N/A

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are normal circumstances present? ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Date:	04/30/14
County:	Dane
State:	Wisconsin
Wetland ID:	---
Sample Point:	P1
Community ID:	Upland
Section:	30
Township:	9N
Range:	10 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☐ Yes ☑ No

Wetland Hydrology Present? ☐ Yes ☑ No

Hydric Soils Present? ☐ Yes ☑ No

Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks: Based on a WETS analysis, conditions were wetter than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

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

Remarks:

SOILS

Map Unit Name: Wacousta silty clay loam — Series Drainage Class: very poorly

Taxonomy (Subgroup): Typic Endoaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	1	10YR	3/2	100	--	--	--	--	--	silt loam
10	18	2	10YR	4/4	60	10YR	5/2	40	--	--	sandy clay loam
18	20	3	10YR	4/4	50	10YR	5/2	50	--	--	sandy clay loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (LRR K, L)
- ☐ S9 - Thin Dark Surface (LRR K, L)
- ☐ F12 - Iron-Manganese Masses (LRR K, L, R)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 149B)
- ☐ F21 - Red Parent Material
- ☐ TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: Second and third horizons of mixed - likely historic fill materials

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Windsor Blue Housing Plat | Wetland ID: --- | Sample Point **P1**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*POA PRATENSIS*	90	Y	FACU
2.	*BROMUS INERMIS*	10	N	UPL
3.	*Cornus obliqua*	10	N	FACW
4.	*DACTYLIS GLOMERATA*	10	N	FACU
5.	*TARAXACUM OFFICINALE*	5	N	FACU
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	125		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

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: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	10	x 2 =	20
FAC spp.	0	x 3 =	0
FACU spp.	105	x 4 =	420
UPL spp.	10	x 5 =	50
Total	125 (A)		490 (B)

Prevalence Index = B/A = ***3.920***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

Sample point located within lowest landscape position within shallow swale.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Windsor Blue Housing Plat	Stantec Project #:	193703022	Date:	04/30/14
Applicant:	Windsor Golf Ventures, Inc.			County:	Dane
Investigator #1:	E. Parker	Investigator #2:	K. Remus	State:	Wisconsin
Soil Unit:	Batavia silt loam	NWI/WWI Classification:	---	Wetland ID:	---
Landform:	Depression	Local Relief:	Concave	Sample Point:	P2
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: Upland
					Section: 30
					Township: 9N
					Range: 10 Dir: E

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are normal circumstances present? ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☐ Yes ☑ No

Wetland Hydrology Present? ☐ Yes ☑ No

Hydric Soils Present? ☐ Yes ☑ No

Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks: Based on a WETS analysis, conditions were wetter than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present? ☐ Yes ☑ No Depth: (in.)

Water Table Present? ☐ Yes ☑ No Depth: (in.)

Saturation Present? ☐ Yes ☑ No Depth: (in.)

Wetland Hydrology Present? ☐ Yes ☑ No

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

Remarks:

SOILS

Map Unit Name: Batavia silt loam Series Drainage Class: well

Taxonomy (Subgroup): Mollic Hapludalfs

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	14	1	10YR	3/2	100	--	--	--	--	--	silt loam
14	22	2	10YR	4/2	98	10YR	4/3	2	C	M	sandy clay loam
--	--	--	--	--	--	--	--	--	--	--	sandy clay loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (LRR K, L)
- ☐ S9 - Thin Dark Surface (LRR K, L)
- ☐ F12 - Iron-Manganese Masses (LRR K, L, R)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 149B)
- ☐ F21 - Red Parent Material
- ☐ TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Windsor Blue Housing Plat | Wetland ID: --- | Sample Point **P2**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*POA PRATENSIS*	100	Y	FACU
2.	*TARAXACUM OFFICINALE*	5	N	FACU
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	105		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

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: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	0	x 3 =	0
FACU spp.	105	x 4 =	420
UPL spp.	0	x 5 =	0
Total	105 (A)		420 (B)

Prevalence Index = B/A = ***4.000***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

Sample point located within lowest landscape position within shallow swale.

Appendix C – Site Photographs

Photo 1. Sample point P1; view facing northeast

Photo 2. Sample point P1; view facing southwest

Photo 3.Sample point P1; view facing east

Photo 4. Sample point P1; view facing west

Photo 5. Sample point P2; view facing west

Photo 6. Sample point P2; view facing east

Photo 7. Sample point P2 looking towards sample point P1; view northwest

Photo 8. Overview of western end of Study Area towards topographic low area; view west

Photo 9. Overview of eastern end of Study Area from west end; view east

Photo 10. View from eastern end of Study Area; view west

Appendix D – WETS Analysis

WETS Analysis Worksheet

Project Name: Windsor Blue Housing Plat Wetland Delineation
Project Number: 193703022
Period of interest: February-April
Station: Madison Dane Couty Regional Airport (WI4961)
County: Dane County, WI

Long-term rainfall records (from WETS table)

	Month	3 years in 10 less than	Normal	3 years in 10 greater than
1st month prior:	April	2.54	3.35	3.91
2nd month prior:	March	1.22	2.28	2.78
3rd month prior:	February	0.66	1.28	1.56
		Sum =	**6.91**	

Site determination

Site Rainfall (in)	Condition Dry/Normal*/Wet	Condition** Value	Month Weight	Product
5.12	Wet	3	3	9
1.26	Normal	2	2	4
1.24	Normal	2	1	2
Sum = **7.62**			Sum*** =	**15**

***Normal** precipitation with 30% to 70% probability of occurrence

Determination: **X** Wet
_____ Dry
_____ Normal

****Condition value:**
Dry = 1
Normal = 2
Wet = 3

*****If sum is:**

6 to 9	then period has been drier than normal
10 to 14	then period has been normal
15 to 18	then period has been wetter than normal

Precipitation data source: Midwest Regional Climate Center, cli-MATE: MRCC Application Tools Environment

Reference: Donald E.Woodward, ed. 1997. *Hydrology Tools for Wetland Determination* , Chapter 19. Engineering Field Handbook. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.

Monthly Data between Specific Months
MADISON DANE RGNL AP (WI)
USW00014837

	Monthly Sum / Averages
Date	**Precipitation (in)**
Feb-2014	1.24
Mar-2014	1.26
Apr-2014	5.12
Sum:	7.62
Count:	3
Average:	2.54
Median:	1.26
Low Value:	1.24
High Value:	5.12

M = Missing

T = Trace

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 4/30/2014 3:42:28 PM CDT

USDA Field Office Climate Data

WETS Station : MADISON DANE RGNL AP, WI837 Creation Date: 04/30/2014
Latitude: 4308 Longitude: 08921 Elevation: 00866
State FIPS/County(FIPS): 55025 County Name: Dane
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	Temperature (Degrees F.) avg daily min	Temperature (Degrees F.) avg	Precipitation (Inches) avg	Precipitation (Inches) 30% chance will have less than	Precipitation (Inches) 30% chance will have more than	avg # of days w/.1 or more	avg total snow fall
January	25.2	9.3	17.3	1.25	0.78	1.51	4	13.0
February	30.8	14.3	22.6	1.28	0.66	1.56	4	8.6
March	42.8	24.6	33.7	2.28	1.22	2.78	5	7.1
April	56.6	35.2	45.9	3.35	2.54	3.91	7	3.5
May	69.4	46.0	57.7	3.25	2.05	3.92	7	0.1
June	78.3	55.7	67.0	4.05	2.36	4.92	7	0.0
July	82.1	61.0	71.6	3.93	2.88	4.62	6	0.0
August	79.4	58.7	69.1	4.33	3.07	5.12	7	0.0
September	71.4	49.9	60.7	3.08	1.58	3.77	6	0.0
October	59.6	38.9	49.3	2.18	1.33	2.64	5	0.4
November	43.3	27.7	35.5	2.31	1.40	2.80	5	4.5
December	30.2	15.8	23.0	1.66	0.89	2.02	4	12.5
Annual	-----	-----	-----	------	29.96	35.52	--	----
Average	55.8	36.4	46.1	------	------	------	--	----
Average	-----	-----	-----	32.95	------	------	66	49.7

GROWING SEASON DATES

Probability	Temperature 24 F or higher	Temperature 28 F or higher	Temperature 32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	4/14 to 10/25 193 days	4/24 to 10/ 9 167 days	5/ 9 to 9/30 143 days
70 percent *	4/10 to 10/29 202 days	4/19 to 10/14 177 days	5/ 5 to 10/ 4 151 days

 * Percent chance of the growing season occurring between the Beginning
   and Ending dates.

total 1939-2014 prcp

Station : WI837, MADISON DANE RGNL AP
Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
39										1.67	0.24	0.29	2.20
40	0.91	0.76	1.07	2.40	2.70	5.04	2.88	6.76	0.81	2.39	2.49	1.21	29.42
41	2.72	0.78	1.82	1.93	3.03	3.42	2.93	1.29	9.87	2.86	0.93	1.29	32.87
42	1.16	0.50	1.46	0.81	4.49	4.26	3.58	4.14	3.43	2.44	3.27	2.55	32.09
43	2.15	0.76	2.48	0.99	2.88	2.33	1.54	2.31	0.37	0.83	3.15	0.99	20.78
44	1.40	1.69	2.46	3.74	2.33	3.42	2.77	1.54	3.05	0.29	1.54	1.14	25.37
45	0.31	1.40	1.40	2.89	5.27	2.81	2.65	4.07	6.27	0.78	2.34	1.47	31.66
46	1.97	0.88	2.88	0.94	2.14	2.81	0.95	1.63	1.28	1.79	2.08	1.54	20.89
47	2.26	0.29	1.73	3.68	4.35	3.98	2.17	1.58	6.03	1.85	2.82	1.72	32.46
48	0.49	2.13	2.85	2.97	2.90	2.55	2.55	0.70	1.87	1.29	3.56	1.75	25.61

49	1.97	1.26	2.35	1.10	2.22	6.43	5.76	2.20	1.12	1.86	1.04	1.70	29.01
50	2.43	1.65	2.34	2.67	3.43	6.24	10.93	2.69	2.09	1.23	1.04	1.97	38.71
51	1.44	1.70	2.13	4.42	3.00	2.55	3.08	3.08	1.56	5.37	2.17	1.47	31.97
52	2.21	0.60	2.92	1.21	3.18	4.08	7.60	4.73	0.49	0.06	2.94	1.67	31.69
53	0.64	2.77	2.58	3.12	1.02	5.15	4.28	3.49	2.11	1.81	0.52	2.17	29.66
54	0.76	0.63	1.19	4.09	2.98	7.36	5.73	2.78	3.82	3.72	0.81	1.20	35.07
55	0.65	1.67	0.96	3.65	2.10	2.78	3.93	1.55	0.80	3.24	0.57	0.59	22.49
56	0.43	1.00	2.53	3.54	5.11	3.24	4.50	5.64	1.42	0.31	2.78	1.01	31.51
57	0.41	0.38	1.19	2.40	5.80	6.41	4.00	4.86	0.95	2.14	2.91	1.41	32.86
58	0.52	0.08	0.38	2.73	3.93	2.16	1.69	2.06	2.44	2.50	2.29	0.31	21.09
59	1.40	1.58	2.90	4.01	3.06	3.86	4.12	5.68	3.44	5.55	2.29	2.45	40.34
60	2.19	1.14	1.93	4.02	6.26	2.09	6.04	6.18	3.90	3.32	1.47	0.25	38.79
61	0.19	1.01	3.42	1.33	1.17	1.84	3.67	1.78	7.92	3.75	3.94	1.02	31.04
62	1.12	1.39	1.73	1.43	3.01	2.09	4.39	2.04	1.31	1.68	0.34	0.90	21.43
63	0.76	0.39	2.33	1.67	1.82	8.15	2.29	3.23	2.30	0.64	1.96	0.65	26.19
64	0.93	0.26	2.12	3.15	3.87	2.28	4.28	2.52	1.85	0.08	1.94	0.34	23.62
65	1.80	0.74	2.51	2.94	1.86	2.31	3.30	6.77	9.22	1.69	1.96	2.50	37.60
66	1.07	1.36	2.11	1.54	4.31	2.91	3.24	3.83	0.51	1.65	1.28	2.62	26.43
67	1.63	1.17	1.49	2.57	3.53	6.46	2.51	2.71	2.68	5.52	1.83	1.89	33.99
68	0.56	0.49	0.59	4.18	2.02	7.82	2.54	2.58	4.45	0.85	1.74	2.89	30.71
69	2.26	0.18	1.47	2.72	3.45	7.96	4.28	0.96	1.35	2.65	0.70	1.66	29.64
70	0.44	0.16	1.17	2.53	6.09	2.26	2.42	0.97	8.82	2.65	1.06	2.12	30.69
71	1.48	2.59	1.52	2.42	0.98	2.27	1.65	3.96	1.87	1.30	3.48	3.64	27.16
72	0.40	0.42	2.23	2.02	2.83	1.65	3.49	7.47	5.26	2.42	0.86	1.91	30.96
73	1.54	1.20	5.04	7.11	5.27	0.81	2.68	2.53	3.59	2.30	1.48	1.98	35.53
74	2.45	1.17	3.43	4.24	5.77	3.86	2.69	4.60	1.08	3.18	1.79	1.80	36.06
75	0.98	1.54	3.09	4.19	4.57	4.30	6.05	5.25	0.84	0.64	2.79	0.29	34.53
76	0.56	1.72	4.75	4.80	1.95	1.38	1.46	1.99	0.50	1.49	0.11	0.37	21.08
77	0.53	1.44	3.03	2.59	2.52	2.63	6.63	5.19	2.84	1.41	2.12	1.60	32.53
78	1.03	0.24	0.28	3.50	3.96	9.95	4.54	1.63	5.44	1.11	3.05	1.71	36.44
79	1.69	0.90	2.67	2.46	2.70	2.53	2.80	4.96	0.11	3.10	2.27	1.93	28.12
80	1.11	0.64	0.68	2.36	2.08	3.43	2.67	9.49	7.84	1.13	1.33	1.62	34.38
81	0.14	2.47	0.33	3.42	0.64	4.99	4.81	7.06	3.10	2.68	1.71	0.75	32.10
82	1.42	0.17	2.11	3.26	4.34	3.40	3.47	2.67	1.42	1.46	4.21	3.65	31.58
83	0.53	2.26	2.70	2.23	4.21	1.85	1.92	5.05	2.85	2.59	3.18	2.30	31.67
84	0.36	1.26	1.15	3.86	3.32	7.01	1.96	1.89	2.79	5.63	1.83	2.66	33.72
85	1.43	1.89	3.13	1.52	3.35	3.06	4.48	2.98	5.00	4.58	5.13	2.39	38.94
86	1.02	2.72	1.55	2.27	1.97	3.24	4.31	4.38	6.82	1.85	1.03	0.69	31.85
87	0.68	0.62	1.99	2.46	3.90	1.17	3.26	7.16	3.61	1.24	3.24	4.09	33.42
88	1.82	0.46	1.20	2.65	0.92	2.06	2.44	2.95	3.33	1.60	3.58	1.56	24.57
89	0.61	0.57	1.69	1.69	1.72	1.67	4.97	6.46	0.89	1.88	0.98	0.26	23.39
90	1.60	0.99	4.18	1.90	5.35	4.88	2.61	6.03	1.64	2.25	1.65	3.46	36.54
91	1.17	0.44	4.24	4.89	2.20	3.75	5.18	2.34	3.96	5.35	3.86	1.71	39.09
92	0.78	1.34	1.90	3.17	1.12	1.53	5.54	2.48	5.99	1.06	4.83	2.39	32.13
93	1.60	1.18	3.29	5.33	3.81	6.67	9.34	5.57	3.74	0.91	1.55	0.35	43.34
94	1.46	2.76	0.46	2.57	1.33	5.66	4.10	4.56	6.14	0.65	2.77	1.08	33.54
95	2.12	0.06	2.17	4.14	3.92	1.22	4.36	5.58	1.78	4.29	3.17	0.77	33.58
96	2.53	0.53	0.82	2.76	2.95	9.69	4.08	1.84	1.07	3.14	1.01	1.27	31.69
97	1.24	2.52	1.54	2.50	1.94	5.23	6.23	2.33	1.38	1.23	1.25	1.25	28.64
98	2.24	1.44	5.46	4.10	4.58	7.46	2.50	4.24	2.48	3.20	1.95	0.29	39.94
99	2.10	0.91	0.47	6.91	3.72	5.57	4.49	3.26	1.55	0.88	1.21	0.86	31.93
0	0.91	1.95	1.17	3.18	9.63	8.63	3.27	3.94	3.59	0.68	2.00	1.39	40.34
1	0.99	2.64	0.59	3.07	4.16	5.40	3.09	7.64	5.53	2.62	1.59	1.13	38.45
2	0.63	2.17	1.70	3.45	2.92	3.70	2.06	3.04	2.74	2.10	1.01	0.67	26.19
3	0.36	0.50	1.72	2.95	3.67	2.10	4.24	0.87	4.24	1.60	7.49	2.00	31.74
4	0.62	1.44	3.61	1.76	10.84	3.93	6.05	3.96	1.00	3.20	1.51	1.46	39.38
5	2.20	1.45	1.56	1.68	3.96	1.65	3.92	1.22	1.95	0.76	3.36	0.99	24.70
6	1.96	0.81	2.34	5.04	4.61	2.29	4.45	5.43	3.33	2.87	2.24	1.36	36.73
7	0.84	1.59	3.39	4.68	1.40	4.82	2.69	15.18	2.45	3.35	0.39	3.63	44.41
8	2.17	3.30	2.47	6.43	2.55	10.93	5.62	1.41	2.23	2.20	1.46	3.29	44.06
9	0.54	1.91	6.19	4.43	3.68	4.17	1.94	2.49	4.68	3.80	1.32	3.20	38.35
10	0.88	1.02	0.71	3.65	3.79	8.38	7.98	3.92	2.65	2.30	1.09	1.49	37.86
11	1.28	1.59	2.96	3.61	2.40	3.55	1.85	3.06	3.31	1.35	3.35	2.23	30.54
12	1.40	1.03	2.61	2.85	3.19	0.31	4.00	1.58	1.33	4.56	0.90	2.60	26.36
13	2.87	2.41	2.41	5.83	6.57	10.86	4.00	1.53	3.19	1.89	2.20	1.62	45.38
14	0.65	1.24	1.26	M5.12									8.27

RESUMES

Eric C. Parker PWS

Senior Scientist - Botanist

Mr. Parker is a botanist and certified Professional Wetland Scientist, with 30 years of professional and project management experience assisting public and private clientele in Wisconsin, Illinois, Indiana, Michigan, Pennsylvania, Texas, Maryland, Virginia, and North Carolina. His work has supported thousands of transportation, commercial, utility, residential, industrial & institutional projects. Mr. Parker's natural resource specialties include wetland science, botany, endangered resources, restoration & mitigation, environmental regulations & permitting. Mr. Parker has a widespread understanding of the scientific, technical & regulatory aspects of natural resources projects. His interests also include floristic quality assessment (FQA) and wetness categorization of wetland plant species. In 2011 he completed a national study (all 50 states) where he interviewed regional scientists for the purpose of identifying mis-categorized plant species. This work was in response to a CFR public comment solicitation by the U.S. Army Corps of Engineers.

His experience includes the following: Botanical / Biological Surveys & Natural Resource Inventories; Rare Species Surveys, Conservation Plans & Monitoring; Habitat Restoration, Land Reclamation, Planning & Design; Wetland Determination, Delineation & Functional Assessment; Wetland Restoration, Mitigation, Banking & Monitoring; Environmental Assessments & Impact Statements (EA / EIS); Local / State / Federal Permit Applications & Environmental Documentation; Expert Witness Testimony; Wetland investigations and permitting; and Regulatory permit compliance.

EDUCATION

BS, Watershed Management, Soils Minor, University of Wisconsin - Stevens Point, Stevens Point, WI, 1983

US Army Terrain Analysis Course, Distinguished Graduate, Defense Mapping School, Fort Belvoir, VA, 1984

Basic Hydric Soils Identification Continuing Education Course, UW-La Crosse, La Crosse, Wisconsin, 2011

Federal Wetland/Waters Regulatory Policy Course, Wetland Training Institute, Cottage Grove, WI, 2010

Regional Supplement Field Practicum, Wetland Training Institute, Portage, Wisconsin, 2011

Sedges ID & Ecology, UWM Cedarburg Bog Field Station, Saukville, WI, 2006

Critical Methods in Wetland Delineation, Madison, WI, 2006

Advanced Wetland Delineation, UW-LaCrosse, Bayfield County, WI, 2001

Basic Processes in Hydric Soils, NC State University, Greenville, NC, 2000

Grasses ID & Ecology, UWM Cedarburg Bog Field Station, Saukville, WI, 1998

Vegetation Description, UWM Cedarburg Bog Field Station, Saukville, WI, 1998

Basic Wetland Delineatin Training, WI Department of Administration, Waukesha, WI, 1997

Field Oriented Wetland Delineation Course (1987 Corps Manual), Wetlands Training Institute, St. Paul, MN, 1994

WI Wetlands Regulation Course, CLE International, Milwaukee, WI, 1993

Understanding Wetlands and 404 Permitting, ASCE, Chicago, IL, 1992

Wetland Ecosystems (including delineation & assessment), USEPA Graduate School, Washington DC, 1988

Eric C. Parker PWS

Senior Scientist - Botanist

REGISTRATIONS

Professional Wetland Scientist #838, Society of Wetland Scientists Certification Program

Certified Wetland Scientist #C-058, Lake County, Illinois, Lake County Stormwater Management Commission

Certified Wetland Scientist #W-057, Kane County, Illinois, Kane County Stormwater Management

MEMBERSHIPS

Past Science Committee Member, Invasive Plants Association of Wisconsin

Board Member, Keep Greater Milwaukee Beautiful, Inc.

Representative, Chicago Wilderness

Past Board Member, Wisconsin Wetlands Association

PROJECT EXPERIENCE

Wetlands

Various Wetland Delineations 2013, Various Locations, Wisconsin, Illinois, Ohio, and Michigan

Performed various wetland delineations across Wisconsin in 2012 including the following projects: West Central Lateral - Eau Claire, Clark, Jackson & Monroe Counties, WI (April-May 2013); Murphy Farm Wetland & Primary Environmental Corridor, Pewaukee, WI (October 2013); Walker Cranberry 80-acre Parcel - Cranmoor, WI (Sept - Oct 2013); Citizens Bank Property – Oconomowoc,, WI (May 2013); Broken Hill Subdivision, Pewaukee, WI (May, 2013; Agri-Partners Coop Rail siding track, Calumet County, WI (June 2013); Basse Farm Wetland Delineation, City of Muskego, WI (June 2013); Fritz Parcel Wetland Delineation – New Berlin, WI (June 2013); Saltzman Parcel Wetland Investigation – New Berlin, WI (May 2013); Waukesha Gun Club Wetland Delineation- City of Pewaukee, WI (July 2013); Bark Lake Wetland Delineation – Town of Richfield, WI (Aug 2013); Fox River Christian Church Wetland Delineation – Town of Waukesha, WI (Aug 2013); Cedar Grove Warehouse Wetland Delineation – Oostburg, WI (Aug 2013); Waunakee Wetland Delineation – Dane County, WI (Sept 2013); Town of Fulton Wetland Delineation – Rock County, WI (Sept 2013); Berne to Natrium Pipeline, Monroe County, OH (Oct 2013); CNX Noble Pipeline – Noble County, OH (Oct 2013); 4950 Voges Rd Wetland Delineation – Madison, WI (Sept 2013); Pleasant View Subdivision Wetland Delineation – Middleton, WI (Oct 2013); Cherokee Country Club Wetland Delineation – Madison, WI (Oct 2013); Deer Grove Forest Preserve, (November 2013)

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

Various Wetland Delineations in 2010, Wisconsin

Performed various wetland delineations across Wisconsin in 2010 including the following projects: Substation Site, Cambridge, WI (November 2010); Lake Edge Rd Parcel, McFarland, WI (November 2010); DeBack Parcel, Muskego, WI (October 2010); I-94 at Fox River, Waukesha, WI (October 2010); USH 45, Racine County, WI (October, 2010); ECB Site I, Franklin, WI (October 2010); STH 11 Improvements, Burlington, WI (October, 2010); Glacier Hills Wind Farm, Friesland, WI (Sept-Oct 2010); ISB Site, New Berlin, WI (September 2010); Gilmore Parcel, New Berlin, WI (September 2010); Palmyra SW Park Site, Palmyra, WI (August 2010); Gateway Substation, Beloit, WI (August 2010); Casey Gas Main, Friesland, WI (August 2010); Oakhill Rd Electric Distribution, Deltona, WI (August 2010); Jefferson School District, Jefferson, WI (July 2010); Bothe Property Site, Kenosha, WI (July 2010); WDOT High Speed Rail, Dane, Jefferson and Waukesha Counties, WI (June-September 2010); USH 151 Sun Prairie, (June 2010); Lacy Road Interchange, Fitchburg, WI (May 2010); Sivyer Rd Parcel, St. Francis, WI (April 2010); Seljan Industries, Lake Mills, WI (April 2010); Retail Site, Whitewater, WI (April 2010); Summit Horse Farm Site, Summit, WI (March 2010); STH 11 Site, Walworth County, WI (March 2010);Scot Industries, East Troy, WI (March 2010)

Various Wetland Delineations 2011, Various Locations, Wisconsin, Illinois, Indiana, and Pennsylvania

Performed various wetland delineation projects throughout Wisconsin in 2011 including the following projects: Plum Creek Site Soil & Water Table Investigation, Oneida County, WI (Dec 2011); 6B Pipeline Porter County, IN (Nov 2011); STH 67 Sharon, Walworth County, WI (Nov 2011); STH 67 Geneva, Walworth County, WI (Nov 2011); STH 175 Germantown/Richfield, WI (Nov 2011); USH 12 Interchanges, Walworth County, WI (Oct 2011); I-43 Interchanges, Ozaukee County, WI (Oct 2011); STH 145 Germantown, WI (Oct 2011); STH 164 Town of Vernon, WI (Oct 2011); STH 20 Village of Waterford, WI (Oct 2011); Serosun Farms Verification, Kane County, IL (Oct 2011); Marcellus-Dominion Pipeline Clinton, Centre and Mifflin Counties, PA (Sept 2011); Big Eau Pleine Site, Marathon County, WI (Aug 2011)

Atlas Resins Site, Taylor, WI (Aug 2011); Reynolds Avenue Site, Westport, WI (Aug 2011); Westbridge Site, Waunakee, WI (Aug 2011); ECB Site II, City of Franklin, WI (Aug 2011); Springdale Rd Parcel, New Berlin, WI (Aug 2011); Belleville Industrial Park, Dane County, WI (Aug 2011); Didion Ethanol Plant, Cambria, WI (July 2011); Towns Property, Mukwonago, WI (July 2011); Bagstad Property, Marquette County, WI (June 2011; Life Church Site, Germantown, WI (June 2011); Sauk Prairie Memorial Hospital, Prairie du Sac, WI (June 2011)

Various Wetland Delineations 2012, Various Locations, Wisconsin, Illinois, Indiana, and Texas

Performed various wetland delineations across Wisconsin in 2012 including the following projects: West Central Lateral (190 miles), Eau Claire, Clark, Jackson & Monroe Counties, WI (Sept-Nov 2012); Schwaab Property Wetland & Primary Environmental Corridor, Nashotah, WI (Nov 2012); Trans-Load Rail Loop, Arcadia, WI (Oct 2012); Fiberdome Property Lake Mills, WI (Sept 2012); Morrison Cr Cranberry, Town of Knapp, WI (Aug 2012; London Mitigation Site, Jefferson County, WI (July 2012); Lathers Property Wetland & Primary Environmental Corridor, Waukesha County, WI (June 2012); Southern Access Pipeline, Sawyer and Washburn Counties, WI (June 2012); Reddick Station, Livingston County, IL (May 2012); Confidential Client Site, Jackson County, WI (April 2012); MATC West Parcel, Madison, WI (April 2012); Alpine Business Park, Oregon, WI (April 2012); I-80 Interchange, LaPorte County, IN (March 2012); Eagle-Ford Shale Wetland & Waterway Investigations, LaSalle and McMullen Counties, TX (Jan-Feb 2012)

Various Preliminary Wetland Identifications 2010-2012, Wisconsin

Performed various preliminary wetland identifications and delineations throughout Wisconsin which included these projects: I-43 Glendale to Grafton (34 miles) - Milwaukee and Ozaukee Counties, WI (May-Aug 2012); STH 60 Jackson to Grafton (9 miles) - Washington and Ozaukee Counties, WI (June-Nov 2012); UW All-Season Softball Site, Madison, WI (Dec 2011); Fiber-Optic Route (40 miles), Wausau, WI (Apr 2011); 27th Street Ponds, Franklin-Oak Creek, WI (July 2010); Burlington Bypass (15 miles), Burlington, WI (Aug 2010); STH 167, Germantown-Mequon, WI (Jul-Aug 2010); USH 45 (10 miles), Bristol, WI (November 2010) STH 20 Roundabout, Dover, WI (November 2010).

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

USH 41 Wetlands Investigation*, Township of Eldorado, WI (Project Manager and Lead Scientist)
Conducted an investigation to identify all wetlands and determine their boundaries along a 4.5-mile segment of highway. Located a rare tree species and delineated the location of the population. Prepared a report for use in a Section 404 Permit application and the environment document.

STH 67 Wetland Investigation*, Fond du Lac County, WI (Project Manager and Lead Scientist)
Conducted wetland delineation and assessment for WDOT Southeast Region associated with a 4.2-mile segment of highway proposed to be reconstructed. Coordinated the survey of the wetland boundary flags and prepared the report.

Rawson Avenue Wetlands Investigation*, Franklin, WI (Project Professional and Lead Scientist)
Delineated and assessed four wetland plant communities in a 3.4-mile segment of a road which was proposed to be expanded from two to four lanes. Prepared a report. Conducted a study to identify the most feasible location for a compensatory wetland mitigation site for impacts proposed to wetlands and satisfy the requirements of a Section 404 Permit from the U.S. Army Corps of Engineers and project concurrence from the Wisconsin Department of Natural Resources.

USH 151 Reconstruction and Bypass Wetlands Investigation*, Fond du Lac County, WI (Project Professional and Lead Scientist)
Conducted wetland delineation and assessment services for Wisconsin Department of Transportation Southeast Region associated with a highway reconstruction project. Identified, delineated, and assessed 103 wetlands within selected highway corridors totaling approximately 33 miles in length. Information from the investigations were used by the client to determine impacts to wetlands and to secure permits and approvals from jurisdictional agencies.

USH 10 Wetland and Waterway Mapping (I-39 to Marshfield)*, Portage and Wood Counties, WI (Project Manager, Principal-in-Charge, Lead Scientist)
Budgeted, scheduled, coordinated and participated in numerous tasks to map wetlands and waterways along two contiguous freeway corridor segments totaling approximately 35 miles in length during the growing seasons of 2005 and 2007; Supervised and participated in the final determination, delineation, classification and GPS survey of 174 wetlands; Reviewed and helped write the report.

I-94 Corridor Wetland and Primary Environmental Corridor Mapping and Endangered Species Study*, Milwaukee, Rachine, and Kenosha Counties, WI (Project Manager and Lead Scientist)
Budgeted, scheduled, coordinated and participated in numerous tasks to map wetlands, primary environmental corridor and waterways, and search for rare species in a freeway corridor approximately 34 miles long. Supervised and participated in the preliminary determination, delineation, GPS mapping, and classification of 171 wetlands and 19 separate plant communities within primary environmental corridor; Supervised and participated in the final determination, delineation, classification and surveying of 85 wetlands within seven interchange areas that were designated for significant improvements; Reviewed and helped write the report; Supervised and conducted a rare species survey during the 2006 growing season to search for plant species that were listed as special concern, threatened or endangered by the State of Wisconsin; Prepared the report; Mapped locations of rare species using a GPS, and coordinated with the client and regulatory agency staff; Prepared a plan to mitigate roadway improvement impacts to seaside crowfoot (Ranunculus cymbalaria) through transplantation to an on-site location and obtained concurrence from the WDNR.

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

PUBLICATIONS

Potentially Mis-Categorized Wetland Plant Species NC-NE & Midwest Land Resource Regions of the U.S.. *Wisconsin Wetlands Association Annual Conference*, 2012.

Presentation: Importance of Strategic Planning for Long Range Success in Natural Area Restoration and Management (Parker, Parish, Feggestad, Sellar, Wilhelm). *LTA Midwest Land Conservation Conference*, 2009.

Saving the Hines Emerald Dragonfly (Parker, Parish). *LTA Midwest Land Conservation Conference*, 2009.

Presentation: Arriving at a Workable Definition of Coastal Wetlands (Parker, Parish, Schumacher). *WWA*, 2006.

Presentation: General Wetland Functions. *American Public Works Association*, 2000.

Presentation. Wetland Permitting Primer. *WDNR Permitting Workshop*, 1996.

Katharine Remus

Environmental Scientist

Kate Remus is a project environmental scientist, with a background in wetlands and biological inventory work. Kate's experience includes wetland delineations, habitat assessments, flora and fauna surveys, endangered resources reviews, watershed assessments, invasive species inventory and management, ecological restoration, NEPA/Section 106 compliance documentation, and GIS data manipulation. She has experience working with a variety of clients across the private, government, and tribal sectors on multiple projects from small scale to major, linear utility projects.

EDUCATION

Master of Science, Water Resource Management, University of Wisconsin, Madison, Wisconsin, 2010

Bachelor of Science, Forestry Major (Ecosystem Restoration & Management), Soil Science Minor, University of Wisconsin, Stevens Point, Wisconsin, 2006

Critical Methods in Wetland Delineation, UW-La Crosse Extension, Madison, WI, 2014

Advanced Wetland Delineation, UW-La Crosse Extension, La Crosse, Wisconsin, 2012

Karner Blue Butterfly HCP Monitoring, Department of Natural Resources, Wisconsin, 2011

Wetland Plant Identification, Wetland Training Institute, Wisconsin, 2011

NHPA Section 106, National Preservation Institute, Wisconsin, 2011

NHI Endangered Resources Reviewer, Wisconsin Department of Natural Resources, Wisconsin, 2011

Wetland Delineation Training, Wetland Training Institute, Wisconsin, 2010

Certified S130/S190 Wildland Fire, Stevens Point, Wisconsin, 2006

PROJECT EXPERIENCE

Environmental Assessments

WisDOT STH 23 Corridor Preservation Plan, Sheboygan County, Wisconsin

Led wetland and waterway determination and delineation survey, and limited studies for wetland mitigation sites and potential T&E species habitat to identify natural resource impacts considered likely to result from alternative long-term transportation improvements along a 12.6 mile stretch of STH 23. Reviewed field collected data and prepared technical memorandum.

Metra Rail Wetland Investigation, Cook and Kane Counties, Illinois

Conducted two wetland determination and delineation surveys in support of proposed embankment stabilization and bridge repairs at two separate rail line properties. Led the data collection and survey of the wetland boundaries and sample points, including the review of GIS representation and preparation of the final report.

Confidential Client, Wetland Investigation, Jackson County, Wisconsin

Assisted in the completion of a wetland delineation survey for a proposed sand mine on a 178 acre parcel, including a wetland field-review and mapping based on readily visible wetland indicators on an adjacent secondary area of interest. Led one of two teams in the data collection and survey of the wetland boundaries present within the project area and prepared the final report.

WisDOT I-39 Central Segment Design: CTH O to Rock County Line, Rock County, Wisconsin

Completed wetland and waterway delineation and floristic T/E species surveys along a 13 mile stretch of Interstate 39. Led the data collection and survey of the wetland and waterway boundaries present within the project area and prepared the final report.

Katharine Lund

Environmental Scientist

Alliant Energy/WPL, Friesland Gas Main Extension, Columbia County, Wisconsin
Led wetland and waterway determination and delineation survey and GPS-based survey of environmental features along a three mile stretch of county road through the Village of Friesland. Led the data collection and survey of the wetland boundaries and waterways present within the project area and prepared the final report.

Wetland and Waterway Investigation, AllEnergy, Trempealeau County, Wisconsin
Conducted wetland delineation survey for proposed frac sand mine railroad spur and associated facilities and utilized GPS to map identified features. Also conducted visual assessment of wetlands and waterways within proposed mine footprint to identify potential resources under USACE jurisdiction. Assisted with preparation of final report.

Wetland Investigation, John's Disposal, Jefferson County, Wisconsin
Conducted wetland delineation within agricultural lands for proposed expansion of waste disposal facilities. This investigation included Farm Service Agency aerial slide review and GPS-based survey of environmental features. Prepared the final report.

Threatened and Endangered Species Assessment, West Central Lateral Project, Clark, Eau Claire, Jackson, and Monroe Counties, Wisconsin
In coordination with the Wisconsin Department of Natural Resources (WDNR), assisted with the assessment of the potential for threatened and endangered species to be present and assessed the potential of project related impacts for two proposed project corridors covering over 100 miles. Created assessment tables and prepared portions of final report for submittal to WDNR.

Threatened and Endangered Species Assessment, MG&E Gas Main Extension, Columbia County, Wisconsin
In coordination with the Wisconsin Department of Natural Resources (WDNR), assessed the potential for threatened and endangered species to be present and assessed the potential of project related impacts for a proposed 3 mile gas main extension. Prepared final report, submitted to WDNR, and received WDNR approval.

Threatened and Endangered Species Assessment, Domtar - Port Edwards Mill Transmission Line, Wood County, Wisconsin
In coordination with the Wisconsin Department of Natural Resources (WDNR), assessed the potential for threatened and endangered species to be present and assessed the potential of project related impacts for a proposed 1,800 foot transmission line and substation to connect to existing paper mill. Prepared final report, submitted to WDNR, and received WDNR approval.

Threatened and Endangered Species Assessment, ATC Paris to Albers 138kV Rebuild Project, Kenosha County, Wisconsin
In coordination with the Wisconsin Department of Natural Resources (WDNR), assessed the potential for threatened and endangered species to be present and assessed the potential of project related impacts from re-build construction activities along 12 miles of existing transmission line. Created assessment tables, prepared final report, submitted to WDNR, and received WDNR approval.

Telecommunications Compliance Assessments*, Various locations across Wisconsin, Minnesota, and Michigan
Facilitated NEPA/Section 106 compliance for over 500 telecommunications projects, including a large scale 4G LTE antenna upgrade for the primary client. Performed wetland delineations and determinations with accompanying reports, utilizing the Corps of Engineers Midwest and Northeast/Northcentral Regional supplements. Coordinated investigations and completed reliable reports for NEPA/Section 106 compliance submittals, based on consultation with various state historic preservation offices, Native tribes, US Fish and Wildlife Service, state natural resource departments, and local governments and newspapers for a variety of clients.

US Hwy 151 Wetland Investigation, Columbia, Dane, and Dodge Counties, Wisconsin
Led wetland determination and delineation survey and GPS-based survey of environmental features within a 30-mile stretch of US Hwy 151 at eight locations requiring guardrail repair and maintenance. Reviewed field collected data and prepared final report.

** denotes projects completed with other firms*

Katharine Lund

Environmental Scientist

Door Creek Watershed Assessment*, Madison, Wisconsin

Developed land management strategies for water quality improvement for the larger Yahara Lakes Watershed through analysis of land use and water quality within the Door Creek Watershed. Collected water quality samples in accordance with Wisconsin State Lab of Hygiene procedures in order to identify and assess nutrient concentrations. Compiled research and written analysis of urban and construction site runoff regulations and management practices to develop sound recommendations for watershed scale water quality improvement. Performed project management for groups of 2-4 people to coordinate writing and editing of major chapters for project report. Presented final recommendations and conclusions of study in both public and academic forums.

Endangered Species/Species at Risk Assessments

KBB Presence/Absence Surveys, West Central Lateral Project, Clark and Jackson Counties, Wisconsin

Conducted Karner blue butterfly habitat assessments and population surveys along portions of proposed project corridors where favored host plant was identified in compliance with the Wisconsin Department of Natural Resources Habitat Conservation Plan management protocol. Utilized GPS to identify and document areas of KBB presence or absence.

Environmental Management

Grassland Restoration*, Madison, Wisconsin

Conducted site surveys and analyses for future restoration of wetland and grassland habitats. Completed native seed orders and mixed customized seed blends for use in restoration projects. Revised prescription burn plans for 2010 season. Acquired geospatial data from local governments and compiled data in ArcMap for future habitat preservation plans.

Invasive Species Management, Wisconsin Department of Natural Resources*, SE Region, Wisconsin

Performed woody and herbaceous invasive species management utilizing power equipment, hand tools, and herbicide application. Participated in prescribed fire activities assisting with burns on over 2,500 acres of State Natural Area lands. Helped maintain and repair tools and power equipment, reorganize work garage for efficient use.

Geographic Information Systems (GIS)

Natural Heritage Inventory Mapping*, Madison, Wisconsin

Executed digital mapping of rare and endangered natural resources, utilizing ArcGIS in compliance with international Natural Heritage Inventory database protocol. Facilitated the continual progression of data and data access for conservation planning by synchronizing written records and field reports with computer and hardcopy database files.

Pipeline Services & Management

Enbridge – Southern Access Expansion Pipeline*, Douglas to Rock Counties, Wisconsin

Conducted post-construction wetland and waterway restoration monitoring, including vegetation surveys, wetland boundary determinations, and evaluation of disturbance areas along the 340+ miles of pipeline corridor. Assisted in office review of field collected data, including data analysis, compilation, QA/QC, and preparation of final report.

Enbridge, Sandpiper Pipeline, Cass, Crow Wing, and Aitkin Counties, Minnesota

Led wetland and waterway investigations and GPS-based survey of environmental features along a proposed new pipeline corridor in sensitive resource region of northern Minnesota. Assisted with QA/QC efforts of wetland delineation data and GIS mapping.

Power Transmission & Distribution

Re-build projects, American Transmission Company, Various Counties, Wisconsin

Led wetland and waterway determination and delineation surveys and GPS-based survey of environmental features along multiple existing transmission line ROWs and within potential construction laydown yards for transmission line re-build projects. Identified and assessed adjacent land use, habitats, and invasive species presence. Assisted with preparation of, or prepared, final wetland report for Wisconsin CPCN application.

** denotes projects completed with other firms*

Katharine Lund

Environmental Scientist

American Transmission Company, Bay Lake, Delta, and Menomonee Counties, Michigan

Conducted wetland and waterway determination and delineation surveys along portions of an existing 33-mile 138kV transmission line ROW. Identified and assessed adjacent land use, habitats, and invasive species presence, as well of extent of wetlands off-ROW for proposed new transmission ROW.

American Transmission Company Waukesha-Concord-St. Lawrence Rebuild, Multiple Counties, Wisconsin

Led wetland and waterway determination and delineation surveys and GPS-based mapping if environmental features along existing transmission line. Identified and assessed adjacent land use, habitats, and invasive species presence. Prepared final wetland report for Wisconsin CPCN application.

American Transmission Company, Badger-Coulee, Dane to La Crosse Counties, Wisconsin

Conducted wetland and waterway determination and delineation surveys within, and adjacent to, Interstate 39/90/94 right-of-way. Identified and assessed adjacent land use, habitats, and invasive species presence. Provided support for wetland, waterway, and upland habitat assessments for Wisconsin CPCN application and led QA/QC efforts of wetland delineation data.

** denotes projects completed with other firms*