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CREATIVITY BEYOND ENGINEERING

Wetland Delineation Report

Tumbledown Trail Golf Club

Town of Middleton
Dane County, Wisconsin

SWS PCP PWS THERAN P. STAUTZ 2570 PROFESSIONAL WETLAND SCIENTIST

raSmith Project No. 1180370

August 22, 2018

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CREATIVITY BEYOND ENGINEERING

August 22, 2018

1.0 INTRODUCTION

raSmith is pleased to provide this Wetland Delineation Report for Tumbledown Trail Golf Club in the Town of Middleton, Dane County, Wisconsin (Appendix 1, Figure 1) (Section 29, T7N, R8E). The delineation was completed at the request of the Haen Real Estate.

The purpose of the wetland delineation was to identify the proximity and extent of wetlands within the Study Area (0.47 acres) for proposed reconstruction of the access road and adjacent golf course. On June 29, 2018, Theran Stautz, delineated one wetland feature within the Study Area: a frequently flooded basin and swale (4,457 ft^2) (Appendix 1, Figure 2). The delineation is presented here in terms of qualifications, methodology, results, and conclusions.

2.0 STATEMENT OF QUALIFICATIONS

raSmith provides wetland and ecological services including wetland delineation, assessment, permitting, and restoration. raSmith ecologists offer a wide variety of technical experience in the natural resource field and have successfully completed projects throughout the Midwestern and Northeastern United States.

Mr. Stautz was the technical lead and author on this delineation project. Theran has a B.S. degree in Natural Resources from the University of Wisconsin – Madison and over 15 years of ecological experience, including wetland delineation, monitoring, native habitat restoration and forestry. He is a Professional Wetland Scientist (PWS) with the Society of Wetland Scientists and a Wisconsin Department of Natural Resources (WDNR) Assured Wetland Delineator.

3.0 WETLAND DETERMINATION METHODOLOGY

The wetland delineation consisted of a review of available maps and information followed by a site visit on June 29, 2018, to document field conditions. The presence and absence of hydrophytic vegetation, wetland hydrology and hydric soil indicators were documented using methodology defined in the *US Army Corps of Engineers* (USACE) *1987 Wetland Delineation Manual*, *Regional Supplement to the 1987 Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regions* (USACE ERDC, 2012) and *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources* (USACE St. Paul District, 2015). See References section for a complete list of guidance and sources utilized.

3.1 VEGETATION

At the sampling points, herbaceous, shrub/sapling, tree and vine strata were measured using 5-foot, 15-foot, and 30-foot radius plots, respectively. When necessary, plot sizes were adjusted to fit the plant community represented. Percent cover was visually estimated within the plots, and dominant species were determined by applying the 50/20 Rule and/or Prevalence Index. *The National Wetland Plant List: 2016 wetland ratings* (Lichvar, et al., 2016) was used to determine the wetland indicator status of observed vegetation.

3.2 HYDROLOGY

The nearest available Natural Resource Conservation Service (NRCS) WETS Table and the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) Advanced Hydrologic Prediction Service (AHPS) 90-day Percent of Normal Precipitation Map were analyzed to determine the antecedent hydrologic condition of the Study Area. Inundation, water table, and/or saturation were measured at the sampling points, if present. Soil pits were generally left open for at least one half hour to one hour prior to measurement to

allow for the normalization of the water level, if any. Primary and secondary indicators of wetland hydrology were investigated and if present were noted on the data sheets.

3.3 SOILS

At the sampling points, a soil pit was excavated to a depth of at least 20-24 inches, where possible. The color and texture of the soil matrix and associated mottling was recorded for each observed soil layer within the pit. The Munsell Soil Color Book was used to determine the color of observed moist soils. The soil was analyzed for hydric soil characteristics and, if met, hydric soil(s) was/were indicated on the data sheets.

3.4 SOURCES REVIEWED

The United States Geological Survey (USGS) topographic map (Appendix 1, Figure 1), a two-foot contour map (Appendix 1, Figure 3), an environmental features map (Appendix 1, Figure 4), a NRCS soils map (Appendix 1, Figure 5), aerial photos from the years 1995, 2000, 2010, 2014 and 2017 (Appendix 1, Figures 6A-E), and a NOAA 90-day percent of normal precipitation map (Appendix 1, Figure 7) were reviewed prior to the wetland delineation in order to gain familiarity with the site's topography, wetland history, soils, and past land uses.

3.5 SITE PHOTOS

Photos taken of the upland and wetland plant communities are located in Appendix 4.

4.0 RESULTS

4.1 EXISTING ENVIRONMENTAL MAPPING

The topographic/site location map shows the Study Area is located in a rural area of relatively complex topography within the Town of Middleton on the eastern edge of the Driftless Area. The contour map indicates elevations within the Study Area range from 1048 feet to 1056 feet.

The environmental features map does not indicate the presence of any wetlands mapped by the NWI. WDNR has not mapped any waterbodies within the Study Area.

The NRCS soil map shows four mapped soil types within the Study Area: Plano silt loam, till substratum, 2-6% slopes (non-hydric), Plano silt loam, till substratum, 0-2% slopes (non-hydric), Ringwood silt loam, 6-12% slopes, eroded (non-hydric), and Troxel silt loam, 0-3% slopes (non-hydric). None of the mapped soils are considered wetland indicator soils.

Based on a review of aerial photographs from 1995, 2000, 2010, 2014 and 2017, the Study Area changed significantly between 1995 and 2000 when the golf course was constructed. The 2000 photo shows an agricultural swale was impounded behind an access road and water control structure and the landscape around the swale was reshaped for the new golf course.

4.2 ANTECEDENT HYDROLOGIC CONDITION

Based on the WETS Analysis Worksheet in Appendix 3, precipitation was wetter than normal for the months of April-June, 2018. The NOAA AHPS precipitation map indicates the Study Area was within 150-200% of normal precipitation in the 90 days before the site visit, which is considered wetter than normal. According to the Daily Precipitation Table in Appendix 3, in the two weeks prior to conducting field work, 8.28 inches of precipitation was recorded. Climatic/hydrologic conditions were considered wetter than normal and not typical for the time of year for the June 29 site visit.

4.3 FIELD INVESTIGATION

All areas containing wetland indicators on the maps and analysis mentioned above were evaluated in the field on June 29, 2018. A follow-up site visit was conducted on July 11 to view the site after the precipitation had returned to normal. At this time, the wetland boundary was adjusted to reflect the ordinary high water mark within the basin and swale. To the best of our knowledge, there was no prior agency consultation or wetland delineation for this Study Area. A total of two sampling points were examined and one wetland feature was delineated within the Study Area: a frequently flooded basin and swale (4,457 ft^2). A Trimble Geo7X GPS unit with sub-meter accuracy was used to locate the wetland boundary and sampling points. Cursory sampling points in both upland and wetland areas were sampled in the field to determine the wetland boundaries. Data sheets were compiled and are included in Appendix 5.

4.3.1 UPLANDS

The uplands within the Study Area contained meadow dominated by Kentucky bluegrass (*Poa pratensis*) and common dandelion (*Taraxacum officinale*), Common timothy (*Phleum pratense*), red clover (*Trifolium pratense*), bird's-foot-trefoil (*Lotus corniculatus*), and prairie fleabane (*Erigeron strigosus*) were also present within the upland sampling plot, but not considered dominant species. Hydric soil indicators and wetland hydrology indicators were not present at the upland sampling point.

4.3.2 WETLANDS

Frequently Flooded Basin and Swale

The delineated wetland is a 4,457 ft^2 frequently flooded basin and swale. One sampling point (Point 2) was examined within the wetland. The wetland is not mapped by the NWI.

Vegetation was not present at the wetland sampling point due to standing water depth (>24 inches, June 29). Sparse hydrophytic vegetation including reed canary grass (*Phalaris arundinacea*), pampas grass (*Cortaderia selloana*), tall scouring-rush (*Equisetum hyemale*), and green ash (*Fraxinus pennsylvanica*), was present around the edges of the wetland. Dead reed canary grass that was underwater on June 29 can be seen the site photo from July 11.

The delineated wetland occurs at the low end of a long linear swale that acts as an overflow for a regional storm water pond, located north of Mineral Point Road. During heavy precipitation events, water from the storm water pond flows through the swale until it reaches the water control structure. Water impounds behind the structure until it overflows the swale, crosses the road and flows into the basin. The basin also collects surface water from the surrounding golf course. Three primary (Surface Water, High Water Table, and Saturation) and one secondary indicator of wetland hydrology (Geomorphic Position) was observed in the wetland.

The wetland occurs in mapped Troxel silt loam (non-hydric) and Ringwood silt loam (non-hydric). Soil within the wetland was not examined due to standing water depth (>24 inches). Soil was assumed to be hydric based on the presence of surface water and evidence of frequent flooding.

4.3.3 OTHER AQUATIC FEATURES

No other aquatic features were mapped within the Study Area.

5.0 CONCLUSION

Based on the wetland delineation completed by raSmith, one wetland feature was identified within the Study Area: a frequently flooded basin and swale (4,457 ft^2).

raSmith ecologists are required by the WDNR to provide their professional judgment on wetland susceptibility per revised NR 151 guidance (Guidance #3800-2015-02) (Appendix 6). It is our opinion that the susceptibility is *low* for the basin and swale.

Theran Stautz, lead delineator, is an Assured Delineator as explained on the WDNR web site, http://dnr.wi.gov/topic/wetlands/assurance.html. The WDNR considers Mr. Stautz's wetland determination/delineation work to be "Assured" for purposes of Wisconsin waterway and wetland permits, such that Mr. Stautz's clients do not need to wait for concurrence letters from the WDNR before relying on such determinations and delineations and may expect that wetland issues should not be the cause of delays in state waterway and wetland permit decisions. Per communication with USACE staff, concurrence from the United States Army Corps of Engineers is not necessary unless the project is associated with a wetland fill permit application.

The wetland boundary staked in the field by raSmith is a professional finding based on accepted USACE and WDNR methodology at the time the wetlands were delineated. This wetland delineation field work and the report are not intended to meet the requirements of a WDNR Endangered Species Review, a navigability determination, or the location of either the Ordinary High Water Mark or floodplain.

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 lie with the USACE. Additionally, 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. In addition, the USACE and WDNR have jurisdictional authority to determine which features are exempt including stormwater ponds and conveyance features. If the client proposes to modify an existing stormwater feature, an Artificial Determination Exemption would need to be submitted. See the form on the WDNR Wetland Identification website (fee involved), http://dnr.wi.gov/topic/wetlands/identification.html. Furthermore, municipalities, townships, and counties may have local zoning authority over certain areas or types of wetland and waterways. The determination that a wetland or waterway is subject to regulatory jurisdiction is made independently by the agencies.

Any activity in the delineated wetland may require U.S. Army Corps of Engineers permits and State of Wisconsin Department of Natural Resources Water Quality Certification and local government permits. If the Client proceeds to change, modify or utilize the property in question without obtaining authorization from the appropriate regulatory agency, it will be done at the Client's risk and raSmith shall not be responsible or liable for any resulting damages.

6.0 REFERENCES

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Appendices

Appendix 1: Figures

Appendix 2: NRCS Soil Report – All Components

Appendix 3: WETS Table Analysis, NRCS WETS Table & Daily Precipitation Table

Appendix 4: Site Photographs

Appendix 5: Wetland Determination Data Forms – Northcentral/Northeast Regions

Appendix 6: NR 151 Susceptibility Table

Appendix 1: Figures

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Figure 2:	Wetland Boundary Map
Figure 3:	Contour Map
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Figures 6A-E:	Aerial Photographs (1995, 2000, 2010, 2014 & 2017)
Figure 7:	90-day Percent of Normal Precipitation Map

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

Study Area (0.47 Acres)

Document Path: A:\1180370\GIS\Wetland Figures\Figure 1 - Topographic Map.mxd

Figure 1
Topographic/Site Location Map

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July 13, 2018
1180370

0 500 1,000
1 inch = 1,000 feet

Document Path: N:\1180370\GIS\Wetland Figures\Figure 2 - Wetland Boundary Map.mxd

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Sampling Point
- Outfall
- Water Control Structure
- Off-site wetland
- Delineated Wetland (4,457 sqft)
- Study Area (0.47 Acres)

Dane County GIS, raSmith

Figure 2
Wetland Boundary Map

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0 37.5 75
1 inch = 75 feet

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

Elevation
Dane County GIS, raSmith

Figure 3
Contour Map

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1180370

0 37.5 75
1 inch = 75 feet

Document Path: \\rasmith.com\madison\Municipal\1180370\GIS\Wetland Figures\Figure 3 - Contour Map.mxd

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- USDA Wetspots
- Intermittent Streams
- Off-site wetland
- Rivers and Streams
- Delineated Wetland (7,328.1 sqft)
- National Wetland Inventory
- Open Water
- Study Area (0.47 Acres)

Dane County GIS, raSmith

Figure 4
Environmental Features Map

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0 37.5 75
1 inch = 75 feet

Document Path: N:\1180370\GIS\Wetland Figures\Figure 5 - NRCS Soil Map.mxd

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- NRCS Wisconsin Soils
- Somewhat poorly drained
- Poorly Drained
- Very poorly drained
- Study Area (0.47 Acres)

Dane County GIS, NRCS, raSmith

Figure 5
NRCS Soil Map

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0 37.5 75
1 inch = 75 feet

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

NA
Dane County GIS, raSmith

Figure 6A
1995 Aerial Photo

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0 37.5 75
1 inch = 75 feet

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Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

NA
Dane County GIS, raSmith

Figure 6B
2000 Aerial Photo

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0 37.5 75
1 inch = 75 feet

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Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

NA
Dane County GIS, raSmith

Figure 6C
2010 Aerial Photo

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0 37.5 75
1 inch = 75 feet

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Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

NA
Dane County GIS, raSmith

Figure 6D
2014 Aerial Photo

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0 37.5 75
1 inch = 75 feet

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Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

Map Legend

- Off-site wetland
- Delineated Wetland (7,328.1 sqft)
- Study Area (0.47 Acres)

Dane County GIS, raSmith

Figure 6E
2017 Aerial Photo

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August 20, 2018
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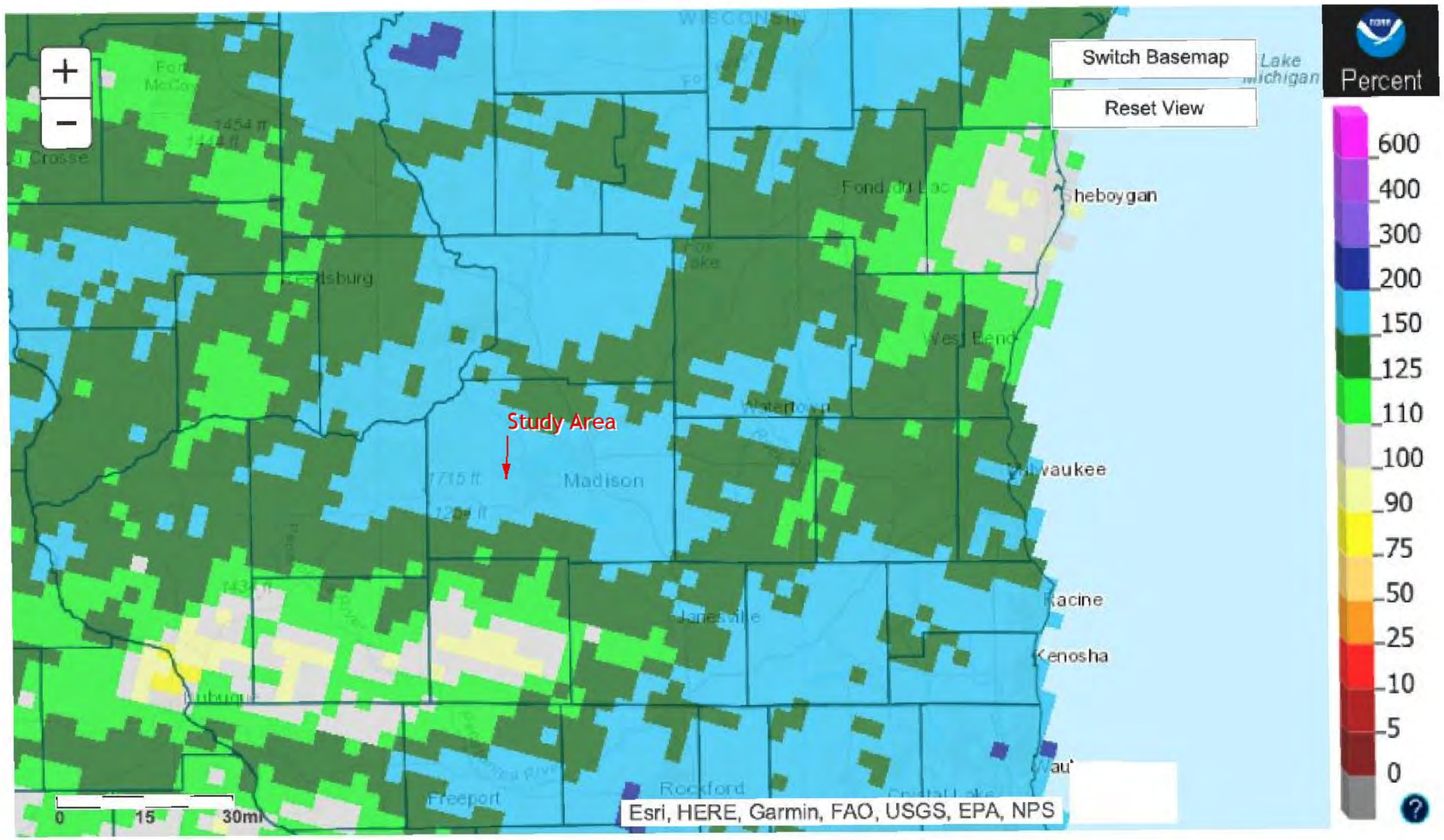
0 37.5 75
1 inch = 75 feet



Milwaukee/Sullivan, WI: Last 90-Day Percent of Normal Precipitation
Valid on: June 29, 2018 12:00 UTC

The Study Area falls within 150 - 200% of normal precipitation.

Document Path: A:\1180370\GIS\Wetland Figures\Figure 7 - NOAA Precipitation Map.mxd

Haen Real Estate
Tumbledown Trail Golf Club
Town of Middleton
Dane County, Wisconsin

NOAA AHPS website

Figure 7
90 Day % Normal Precipitation Map

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Appendix 2:

NRCS Soil Report – All Components

Report — Hydric Soil List - All Components

Collapse WI025-Dane County, Wisconsin
WI025-Dane County, Wisconsin

Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
PnA: Plano silt loam, till substratum, 0 to 2 percent slopes	Plano-Till substratum	85-95	Till plains	No	—
	Elburn	5-15	Till plains	No	—
PnB: Plano silt loam, till substratum, 2 to 6 percent slopes	Plano-Till substratum	80-90	Till plains	No	—
	Griswold	5-11	Till plains	No	—
	Elburn	5-9	Till plains	No	—
RnC2: Ringwood silt loam, 6 to 12 percent slopes, eroded	Ringwood-Eroded	85-95	Moraines	No	—
	Griswold-Eroded	3-9	Till plains	No	—
	Plano-Till substratum	2-6	Moraines	No	—
TrB: Troxel silt loam, 0 to 3 percent slopes	Troxel-Wet substratum	80-90	Depressions,moraines	No	—
	Elburn	5-11	Drainageways	No	—
	Plano	5-9	Till plains	No	—

Appendix 3:

WETS Table Analysis, NRCS WETS Table & Daily Precipitation Table

WETS Analysis Worksheet

Project Name: Tumbledown Trail Golf Club
Project Number: 1180370
Period of interest: April - June, 2018
County: Dane

Long-term rainfall records (from WETS table)

	Month	3 years in 10 less than	Normal	3 years in 10 greater than
1st month prior:	June	3.02	5.19	6.31
2nd month prior:	May	2.82	4.07	4.84
3rd month prior:	April	3.10	4.20	4.93
		Sum =	**13.46**	

Site determination

Site Rainfall (in)	Condition Dry/Normal*/Wet	Condition** Value	Month Weight	Product
11.03	Wet	3	3	9
9.59	Wet	3	2	6
2.60	Dry	1	1	1
Sum = **23.22**			Sum*** =	**16**

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

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

**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: WETS Table: ARBORETUM UNIV WIS, WI

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.

WETS Table

WETS Station: ARBORETUM UNIV WIS, WI

Requested years: 1987 - 2017

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	28.4	10.0	19.2	1.38	0.91	1.66	4	8.3
Feb	32.2	12.2	22.2	1.56	0.89	1.89	4	9.1
Mar	44.6	23.2	33.9	2.31	1.30	2.82	5	5.0
Apr	58.3	34.3	46.3	4.20	3.10	4.93	7	0.8
May	69.7	45.4	57.6	4.07	2.82	4.84	8	0.0
Jun	79.2	55.4	67.3	5.19	3.02	6.31	7	0.0
Jul	82.6	59.6	71.1	4.55	3.12	5.42	7	0.0
Aug	81.2	57.9	69.5	4.12	2.77	4.93	6	0.0
Sep	74.4	48.5	61.5	3.46	2.29	4.15	6	0.0
Oct	61.7	37.1	49.4	2.66	1.71	3.21	6	0.0
Nov	46.8	27.1	37.0	2.44	1.50	2.95	5	1.0
Dec	32.8	15.5	24.2	1.88	1.10	2.28	5	7.8
Annual:					35.48	41.23		
Average	57.7	35.5	46.6	-	-	-	-	-
Total	-	-	-	37.82			71	31.9

GROWING SEASON DATES

Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 0
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 31	28 deg = 31	32 deg = 31
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/10 to 10/24: 197 days	4/28 to 10/12: 167 days	5/8 to 10/3: 148 days
70 percent *	4/4 to 10/30: 209 days	4/23 to 10/18: 178 days	5/3 to 10/8: 158 days

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

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1971										M1.70	4.38	3.89	9.97
1972	0.52	0.61	2.36	2.76	3.29	1.02	3.86	8.29	4.93	3.52	1.25	1.92	34.33
1973	1.72	1.66	5.15	8.11	7.36	2.25	1.84	2.18	4.98	3.21	1.90	2.43	42.79
1974	2.86	1.45	3.66	4.47	6.27	3.76	2.58	3.36	0.89	3.59	2.53	2.17	37.59
1975	1.28	1.87	3.49	4.69	4.38	7.71	5.19	4.49	1.25	0.76	3.34	0.34	38.79
1976	0.71	2.65	4.95	5.73	2.32	1.90	1.24	1.97	0.65	1.96	0.16	0.46	24.70
1977	0.44	1.24	4.05	3.21	1.85	3.20	8.66	3.63	2.79	2.56	2.70	1.69	36.02
1978	1.17	0.24	0.40	5.55	5.93	9.96	7.12	2.07	6.60	1.09	3.70	1.63	45.46
1979	2.81	1.00	3.17	2.47	1.90	3.05	2.23	8.19	0.	3.	2.40	1.86	32.

									08	19			35
1980	M1.11	0.51	0.44	M2.22	2.43	5.64	5.01	7.76		1.50	1.60	1.93	30.15
1981	0.58	2.78	0.42	3.55	0.67	5.73	5.38	6.04	5.33	4.08	1.99	1.09	37.64
1982	M1.57	M0.21	3.60	M2.96	6.08	4.45	3.39	3.31	0.71	1.81	5.12	3.34	36.55
1983	0.32	1.07	3.49	3.12	4.13	2.08	2.63	4.09	4.40	2.37	3.99	M2.19	33.88
1984	0.37	0.22	2.63	4.28	4.02	7.12	3.96	3.02	3.20	6.27	3.80	6.74	45.63
1985	1.25	1.45	1.13	1.37	3.70	2.66	2.14	2.71	6.74	5.58	5.55	3.49	37.77
1986	0.86	2.78	1.28	2.81	2.96	3.03	4.53	4.50	8.20	2.83	1.14	M0.66	35.58
1987	0.55	0.05	1.78	3.93	4.15	1.45	3.32	7.31	4.14	1.24	3.76	4.75	36.43
1988	1.10		1.33	3.45	1.33	2.18	2.63	2.75	4.29	2.25	3.18	1.74	26.23
1989	0.45	0.81	1.51	2.21	1.55	1.97	5.04	M5.59	2.55	1.88	1.17	M0.36	25.09
1990	M1.07	0.96	3.54	2.71	5.66	4.93	2.57	4.82	1.49	M2.70	2.23	3.02	35.70
1991	1.21	0.31	4.57	5.49	2.53	3.95	5.50	2.41	4.03	5.35	2.81	1.13	39.29
1992	1.27	M1.43	1.84	4.05	0.62	1.01	6.72	M3.91	5.64	1.82	M6.68	M2.39	37.38
1993	M1.56	M1.32	2.77	6.15	4.31	7.49	10.45	4.28	5.11	M0.90	M0.94	M0.39	45.67
1994	M1.93	2.70	0.27	1.72	M2.97	5.80	M3.02	4.89	8.30	0.71	2.92	1.03	36.26
1995	M1.44	T	2.57	5.35	4.37	1.43	4.41	3.40	2.34	5.11	M2.65	M0.53	33.60
1996	M2.14	M0.37	M0.15	2.02	3.58	12.07	4.38	1.49	1.43	3.57	1.07	M0.89	33.16
1997	M1.50	1.78	1.66	1.81	3.85	5.83	8.68	3.15	1.17	1.30	M1.52	M1.12	33.37
1998	2.79	2.07	5.48	5.25	4.78	8.12	2.71	2.97	2.14	M4.14	M2.37	0.37	43.19
1999	M3.00	M1.89	0.71	7.85	4.29	M4.67	6.32	M2.72	1.99	0.95	1.32	M1.15	36.86
2000	M1.16	M2.83	1.33	3.75	M7.16	9.61	2.83	5.66	3.97	0.69	2.03	M3.00	44.02
2001	M1.44	M2.16	M0.45	3.35	4.63	5.86	M0.98	M9.12	5.79	2.75	M2.25	M1.98	40.76
2002	0.47	M2.69	M1.41	M4.27	2.91	M5.18	M3.78	M2.48	M3.13	M2.65	0.90	M0.73	30.60
2003	0.28	0.37	1.84	2.77	6.97	3.61	3.86	1.11	4.29	M1.12	6.66	2.39	35.27
2004	M0.81	1.42	3.77	1.91	11.13	4.26	4.18	3.21	0.94	2.13	2.06	M1.69	37.51
2005	M2.66	M2.66	M1.73	1.92	M3.71	1.76	M2.62	1.71	1.93	0.82	M3.03	1.21	25.76
2006	M1.56	1.09	2.49	6.34	M5.04	2.16	M4.75	5.86	M3.56	2.88	2.80	M1.54	40.07
2007	M0.30	2.28	2.34	6.86	1.70	2.93	2.22	13.49	1.97	3.30	0.27	M3.39	41.05
2008	M2.03	3.74	1.91	7.64	M2.54	9.56	4.57	2.68	4.13	2.52	M1.48	M3.53	46.33
2009	M0.77	1.88	6.00	4.68	M3.54	4.60	2.33	3.55	3.20	5.00	1.54	M2.50	39.59
2010	1.05	1.16	0.97	4.52	4.19	8.64	8.14	4.94	5.60	3.07	1.37	2.27	45.92
2011	0.95	2.37	3.21	4.82	M2.86	3.10	2.12	3.94	4.50	1.85	3.76	2.45	35.93
2012	M1.07	1.11	3.28	2.91	4.40	0.51	4.67	2.42	1.24	5.90	0.97	3.35	31.83
2013	2.94	2.83	2.69	6.55	7.09	11.73	2.80	1.28	2.	M1.	3.89	1.13	47.

									56	55			04
2014	1.01	1.27	1.37	5.51	2.97	9.14	2.37	4.06	3.50	2.74	1.54	1.05	36.53
2015	0.70	1.88	0.91	3.65	4.05	3.72	4.68	4.30	6.11	2.46	5.25	4.52	42.23
2016	0.89	0.68	3.88	2.12	3.14	5.75	7.87	5.56	5.40	4.66	2.17	1.97	44.09
2017	3.01	1.92	3.87	4.64	4.04	7.92	10.49	2.70	0.85	4.51	0.99	0.58	45.52
2018	1.91	2.99	0.83	2.60	9.59	11.03	M0.58						29.53
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2016-07-22													

Climatological Data for ARBORETUM UNIV WIS, WI - June 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-06-01	85	63	74.0	34	24	0.00	M	M
2018-06-02	77	51	64.0	24	14	0.00	M	M
2018-06-03	71	54	62.5	23	13	0.16	M	M
2018-06-04	68	49	58.5	19	9	0.00	M	M
2018-06-05	79	58	68.5	29	19	0.09	M	M
2018-06-06	74	49	61.5	22	12	0.00	M	M
2018-06-07	74	54	64.0	24	14	0.30	M	M
2018-06-08	82	58	70.0	30	20	0.00	M	M
2018-06-09	72	57	64.5	25	15	0.35	M	M
2018-06-10	78	61	69.5	30	20	1.80	M	M
2018-06-11	67	59	63.0	23	13	0.04	M	M
2018-06-12	73	65	69.0	29	19	0.01	M	M
2018-06-13	77	64	70.5	31	21	0.00	M	M
2018-06-14	80	54	67.0	27	17	0.00	M	M
2018-06-15	73	58	65.5	26	16	0.34	M	M
2018-06-16	82	64	73.0	33	23	4.88	M	M
2018-06-17	87	74	80.5	41	31	0.02	M	M
2018-06-18	90	77	83.5	44	34	0.00	M	M
2018-06-19	88	62	75.0	35	25	1.54	M	M
2018-06-20	67	62	64.5	25	15	0.20	M	M
2018-06-21	70	60	65.0	25	15	0.05	M	M
2018-06-22	64	57	60.5	21	11	0.32	M	M
2018-06-23	73	56	64.5	25	15	0.03	M	M
2018-06-24	82	58	70.0	30	20	0.00	M	M
2018-06-25	84	57	70.5	31	21	0.00	M	M
2018-06-26	78	64	71.0	31	21	0.03	M	M
2018-06-27	70	64	67.0	27	17	0.86	M	M
2018-06-28	78	60	69.0	29	19	0.01	M	M
2018-06-29	85	66	75.5	36	26	0.00	M	M
2018-06-30	91	76	83.5	44	34	0.00	M	M
Average|Sum	77.3	60.4	68.8	873	573	11.03	M	M

Appendix 4:

Site Photographs

Photograph 1 (6/29/18): Flooded basin, looking south from access road. Sampling Point 1 is located on the slope to the left.

Photograph 2 (7/11/18): Previously flooded basin, now dry, looking south from access road.

Photograph 3 (6/29/18): Flooded swale, looking west from access road. Bent over vegetation can be seen in the foreground where water flowed over the road.

Photograph 4 (7/11/18): Previously flooded swale, looking south toward access road.

Photograph 5 (7/11/18): Water control structure on north side of access road, looking south.

Appendix 5:

Wetland Determination Data Forms –
Northcentral/Northeast Regions

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Tumbledown Trail Golf Club **City/County:** Town of Middleton/Dane **Sampling Date:** 29-Jun-18

Applicant/Owner: Haen Real Estate **State:** WI **Sampling Point:** 01

Investigator(s): Stautz **Section, Township, Range:** **S.** 29 **T.** 7N **R.** 8E

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR K **Lat.:** **Long.:** **Datum:**

Soil Map Unit Name: Troxel silt loam, 0 to 3 percent slopes **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

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

The sampling point is in an upland meadow.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

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

NRCS WETS Table (UW Arboretum); NOAA AHPS 90 day % Normal Precip Map; 1995, 2000, 2010, 2014 and 2017 aerial photos

Remarks:

Wetland hydrology not present. Hydrologic conditions wetter than normal for the time of year.

VEGETATION - Use scientific names of plants

Sampling Point: 01

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5'r)			
1. *Poa pratensis*	60	☑	FACU
2. *Taraxacum officinale*	50	☑	FACU
3. *Phleum pratense*	2	☐	FACU
4. *Trifolium pratense*	2	☐	FACU
5. *Lotus corniculatus*	2	☐	FACU
6. *Erigeron strigosus*	1	☐	FACU
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	117	**= Total Cover**	
Woody Vine Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	117	x 4 =	468
UPL species	0	x 5 =	0
Column Totals:	117 (A)		468 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **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.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) 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 (1m) tall..

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

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

Hydrophytic Vegetation Present? **Yes** ○ **No** ◉

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

Hydrophytic vegetation not present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: 01

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
0-7	10YR	3/1							Clay Loam	
7-20	10YR	5/4		10YR	4/6	10	C	M	Silty Clay Loam	

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ 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: N/A

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Rocks present within soil column below 18". Hydric soil not present.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Tumbledown Trail Golf Club **City/County:** Town of Middleton/Dane **Sampling Date:** 29-Jun-18

Applicant/Owner: Haen Real Estate **State:** WI **Sampling Point:** 02

Investigator(s): Stautz **Section, Township, Range:** S. 29 T. 7N R. 8E

Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR K **Lat.:** **Long.:** **Datum:**

Soil Map Unit Name: Troxel silt loam, 0 to 3 percent slopes **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

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

The sampling point is located in an frequently flooded basin. Vegetation is naturally problematic due to seasonally high water levels. It is assumed that when water level is low the species that surround the pond would be located within the wetland, but were underwater at the time of the site visit. The portion of the wetland located north of the access road is similar to this sampling point. Water is impounded behind a water control structure during the early growing season and during precipitation events.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	24
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

NRCS WETS Table (UW Arboretum); NOAA AHPS 90 day % Normal Precip Map; 1995, 2000, 2010, 2014 and 2017 aerial photos

Remarks:

Wetland hydrology present. Hydrologic conditions wetter than normal for the time of year.

VEGETATION - Use scientific names of plants

Sampling Point: 02

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	0	**= Total Cover**	
Herb Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	0	**= Total Cover**	
Woody Vine Stratum (Plot size: N/A)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0.000

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **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.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) 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 (1m) tall..

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

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

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Scattered reed canary grass, pampas grass, Equisetum hyemale, and green ash present around pond edges.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: 02

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

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ 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: N/A

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil not examined due to standing water depth. Soil assumed to be hydric based on the presence of early growing season ponding and frequent ponding due to precipitation events.

Appendix 6:

NR 151 Susceptibility Table

Wetland Category for Stormwater Permitting *			
Wetland	**Highly Susceptible**	**Moderately Susceptible**	**Less Susceptible**
Freq. flooded basin			X
Freq. flooded swale			X

Less Susceptible: Dominated by 90% or greater invasive species

Moderately Susceptible: Sedge meadows, fens, bogs, forested wetlands, fresh wet meadows, shallow/deep marshes, various swamps

Highly Susceptible: Trout streams, threatened and endangered species, fish and wildlife refuges, calcareous fens, wild and scenic rivers

* These designations apply to any project requiring NR 151 stormwater permitting and are based on wetland delineation field work and the professional opinion of R.A. Smith National, Inc. Final determination of wetland susceptibilty ress with the WDNR. Some of the characteristics of a Highly Suscetible wetland may not be apparent to RASN due to confidential data or data beyond the scope of this delineation (i.e. rare species, high quality trout stream etc). Navigable waterways may also be subject to NR 151 protective area standards.