Assured Wetland Delineation Report

Cherokee Parks Driving Range

City of Madison, Dane County, Wisconsin

May 1, 2023

Project Number: 20220861

506 Springdale Street | Mount Horeb, WI 53572 | www.heartlandecological.com

Cherokee Parks Driving Range

City of Madison, Dane County, Wisconsin

May 1, 2023

Prepared for:

Mr. Dennis Tiziani

Cherokee Parks Inc.

5000 N. Sherman Ave.

Madison, WI 53704

Prepared by:

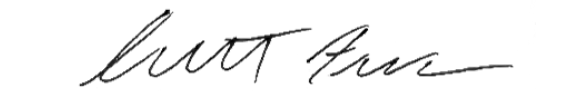
Heartland Ecological Group, Inc.

506 Springdale Street

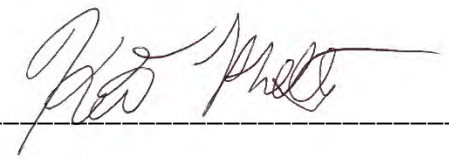
Mount Horeb, WI 53572

608-490-2450

www.heartlandecological.com



Prepared by: Scott Fuchs, Environmental Scientist



Reviewed by: Keith Phelps, Environmental Technician

Table of Contents

1.0 Introduction 4

2.0 Methods 5

2.1 Wetlands 5

3.0 Results and Discussion 6

3.1 Desktop Review 6

Table 1. Summary of NRCS Mapped Soils within the Study Area 7

3.2 Field Review 8

Table 2. Summary of Wetlands Identified within the Study Area 9

3.3 Other Considerations 10

4.0 Conclusion 11

5.0 References 12

Appendix A | Figures

Appendix B | APT Analysis

Appendix C | Wetland Determination Data Sheets

Appendix D | Site Photographs

Appendix E | Delineator Qualifications

Appendix F | NAIP Imagery

1.0 Introduction

Heartland Ecological Group, Inc. ("Heartland") completed an assured wetland determination and delineation on the Cherokee Parks Driving Range site on September 28, 2022 and April 19, 2023 at the request of Cherokee Parks Inc. Fieldwork was completed by Scott Fuchs, Environmental Scientist, an assured delineator qualified via the Wisconsin Department of Natural Resources' (WDNR's) Wetland Delineation Assurance Program (Appendix E, Qualifications). The 13.85-acre site (the "Study Area") is approximately ¼ mile northeast of the intersection of N Sherman Ave and Wheeler Rd, in the southwest ¼ of section 18 and northwest ¼ of Section 19, T8N, R10E, City of Madison, Dane County, WI (Figure 1, Appendix A). The purpose of the wetland delineation was to determine the location and extent of wetlands within the Study Area.

One (1) wetland area totaling approximately 1.44 acres was delineated and mapped within the Study Area (Figure 6, Appendix A). No waterways or waterbodies were observed within the Study Area. Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the WDNR, and local zoning authorities. Heartland recommends this report be submitted to local authorities, the WDNR, and USACE for final jurisdictional review and concurrence.

2.0 Methods

2.1 Wetlands

Wetlands were determined and delineated using the criteria and methods described in the USACE Wetlands Delineation Manual, T.R. Y-87-1 ("1987 Corps Manual") and the applicable *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*. In addition, the *Guidance for Submittal of Delineation Reports to the St. Paul District USACE and the WDNR* (WDNR, 2015) was followed in completing the wetland delineation and report.

Determinations and delineations utilized available resources including the U.S. Geological Survey's (USGS) *WI 7.5 Minute Series (Topographic) Map* (Figure 2, Appendix A), the Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO), U.S. Department of Agriculture's (USDA) *Web Soil Survey* (Figure 3, Appendix A), the WDNR's *Wetland Indicator* GIS data layer (Figure 4, Appendix A), the WDNR's *Wisconsin Wetland Inventory* GIS data layer (Figure 5, Appendix A), and aerial imagery available through the USDA Farm Service Agency's (FSA) National Agriculture Imagery Program (NAIP) and Dane County's Land Information Office. The USGS *National Hydrography Dataset* is included on Figures 2 and 5, Appendix A.

Wetland determinations were completed on-site at sample points, often along transects, using the three (3) criteria (vegetation, soil, and hydrology) approach per the 1987 Corps Manual and the Regional Supplement. Procedures in these sources were followed to demonstrate that, under normal circumstances, wetlands were present or not present based on a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

Recent weather conditions influence the visibility or presence of certain wetland hydrology indicators. An assessment of recent precipitation patterns helps to determine if climatic/hydrologic conditions were typical when the field investigation was completed. Therefore, a review of antecedent precipitation in the 90 days leading up to the field investigation was completed. Using an Antecedent Precipitation Tool (APT) analysis developed by the USACE (Deters & Gutenson 2021), the amount of precipitation over these 90 days was compared to averages and standard deviation thresholds observed over the past 30 years to generally represent if conditions encountered during the investigation were normal, wet, or dry. Recent precipitation events in the weeks prior to the investigation were

also considered while interpreting wetland hydrology indicators. Additionally, the Palmer Drought Severity Index was checked for long-term drought or moist conditions (NOAA, 2018).

The uppermost wetland boundary and sample points were identified and marked with wetland flagging and located with a Global Navigation Satellite System (GNSS) receiver capable of sub-meter accuracy. In some cases, wetland flagging was not utilized to mark the boundary and the location was only recorded with a GNSS receiver, particularly in active agricultural areas. The GNSS data was then used to map the wetlands using ESRI ArcGIS Pro™ 3.0.3 software.

3.0 Results and Discussion

3.1 Desktop Review

Climatic Conditions

According to the APT analysis using the previous 90 days of precipitation data, conditions encountered at the time of both the September 28, 2022 and the April 19, 2023 field investigations were expected to be wetter than normal for the time of year (Appendix B). The Palmer Drought Severity Index was checked as part of the APT analysis, and the long-term conditions at the time of the September 28, 2022 field investigation were in the mild wetness range, and in the severe wetness range at the time of the April 19, 2023 field investigation. Both field investigations were completed outside the dry-season based on long-term regional hydrology data utilized in the WebWIMP Climatic Water Balance and computed as part of the APT analysis. The growing season was determined to be underway during the April 19, 2023 field investigation based on *Rhamnus cathartica* and *Lonicera x bella* leaf-out and new *Phalaris arundinacea* shoots emerging.

General Topography and Land Use

The topography within the Study Area was generally sloping to the north. A topographic high of approximately 868 feet above mean sea level (msl) is present in the southwestern portion of the Study Area, and a topographic low of approximately 854 feet above msl is present along the northern boundary (Figures 2 and 6, Appendix A). Land use within the Study Area consists of tennis courts in the northwestern portion, a driveway and

embankment in the western portion, a parking lot and driving range in the central portion, and an oak-hickory woodland in the eastern portion. Surrounding areas consist of the TPC Wisconsin golf course to the west, urban areas to the southwest, agricultural lands to the south and east, and Cherokee Marsh to the north. General drainage is to the north and west toward the Yahara River.

Soil Mapping

Soils mapped by the NRCS Soil Survey within the Study Area and their hydric status are summarized in Table 1. Wetlands identified during the field investigation are located primarily within areas mapped as hydric or partially hydric soils including wetland indicator soils (Figures 3 and 4, Appendix A).

Table 1. Summary of NRCS Mapped Soils within the Study Area

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
Ev: Elvers silt loam	Elvers	85-95	Flood plains	Yes
	Otter	2-6	Depressions	Yes
	Orion	2-4	Flood plains	No
	Orion-Wet	1-5	Depressions	Yes
MdC2: McHenry silt loam, 6 to 12 percent slopes, eroded	McHenry-Eroded	85-95	Moraines	No
	Kidder-Eroded	3-8	Moraines	No
	Kendall	2-7	Drainageways	No
SaA: Sable silty clay loam, 0 to 2 percent slopes	Sable	85-100	Swales	Yes
	Ipava	0-7	Ground moraines	No
	Muscatune	0-6	Ground moraines	No
	Buckhart	0-4	Knolls	No
	Elburn	0-3	Outwash plains	No
ScB: St. Charles silt loam, 2 to 6 percent slopes	St. Charles	80-90	Till plains	No
	St. Charles-Moderately well drained	5-10	Till plains	No
	Virgil	3-5	Till plains	No
	Pella	2-5	Drainageways	Yes

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
VrB: Virgil silt loam, 1 to 4 percent slopes	Virgil	85-95	Interdrumlins	No
	Sable	3-8	Interdrumlins	Yes
	St. Charles	2-7	Drumlins	No

Wetland Mapping

The Wisconsin Wetlands Inventory (WWI) mapping (Figure 5, Appendix A) depicts one (1) wetland area within the Study Area. One (1) emergent/wet meadow complex is located along the northern boundary of the Study Area and continues offsite to the north.

Waterway Mapping

The National Hydrography Dataset 24k (NHD) mapping (Figure 5, Appendix A) does not depict any waterways or waterbodies within the Study Area.

Aerial Photography

Available NAIP imagery of the Study Area from the period of 2004-2020 (Appendix F) was reviewed for evidence of wetland signatures and to gain insight into the site's recent history. In 2005 a driveway, driving range tee area, and parking lot were constructed in the western and central portions of the Study Area. In 2006 tennis courts were constructed in the northwestern portion of the Study Area. No other conspicuous land use changes are evident over this period. In nearly all of the imagery, wetland signatures are evident along the northern boundary of the Study Area.

3.2 Field Review

One (1) wetland was identified and delineated within the Study Area. Wetland determination data sheets (Appendix C) were completed at eight (8) sample points that were representative of the wetland and upland conditions near the boundary and where potential wetlands may be present based on the desktop review and field reconnaissance. Appendix D provides photographs, typically at the sample point locations of the wetlands and adjacent uplands. Photographs providing evidence of growing season conditions are also included. The wetland boundary and sample point locations are shown on Figure 6 (Appendix A) and the wetland is summarized in Table 2 and detailed in the following sections.

Table 2. Summary of Wetlands Identified within the Study Area

Wetland ID	Wetland Description	*Surface Water Connections	*NR151 Protective Area	Acreage (on-site)
W-1	Wet Meadow/Shallow Marsh	Contiguous to the Yahara River	Less susceptible, 10-30 feet	1.44
*Classification based on Heartland's professional opinion. Jurisdictional authority of wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities may have additional restrictions. USACE has authority for determining federal jurisdiction of wetlands and waterways.				**1.44**

Wetland 1 (W-1)

Wetland 1 (W-1) is a 1.44-acre complex of wet meadow and shallow marsh located in the northern portion of the Study Area. This wetland consists of the fringes of a large wetland complex that is located offsite to the north.

Dominant vegetation observed in W-1 included reed canary grass (*Phalaris arundinacea,* FACW), narrow-leaved cattail (*Typha angustifolia,* OBL), and cottonwood (*Populus deltoides,* FAC). Therefore, the wetland vegetation parameter was met.

The Depleted Below Dark Surface (A11), Thick Dark Surface (A12), Loamy Mucky Mineral (F1), Depleted Matrix (F3), and Redox Dark Surface (F6) hydric soil indicators were noted in W-1. Thus, the hydric soil parameter was met.

The primary wetland hydrology indicators of Surface Water (A1) and Saturation (A3) were noted within W-1, while secondary indicators included Geomorphic Position (D2) and a positive FAC-Neutral Test (D5). Therefore, the wetland hydrology parameter was met.

Wetland W-1 continues offsite to the north and appears to be contiguous with the Yahara River via excavated drainage ditches. The boundary of W-1 followed a well-defined topographic break at the toe of the embankment of the driving range access driveway and parking lot, and a poorly-defined topographic break adjacent to the woodland in the eastern portion of the Study Area.

Waterways

No waterways or waterbodies were observed within the Study Area.

3.3 Other Considerations

This report is limited to the identification and delineation of wetlands within the Study Area. Other regulated environmental resources that result in land use restrictions may be present within the Study Area that were not evaluated by Heartland (e.g. navigable waterways, floodplains, cultural resources, and threatened or endangered species).

Wisconsin Act 183 provides exemptions to permitting requirements for certain nonfederal wetlands. Nonfederal wetlands are wetlands that are not subject to federal jurisdiction. Exemptions apply to projects in urban areas with wetland impacts up to 1-acre per parcel. An urban area is defined as an incorporated area; an area within ½ mile of an incorporated area; or an area served by a sewerage system. Exemptions for nonfederal wetlands also apply to projects in rural areas with wetland impacts up to three (3) acres per parcel. Exemptions in rural areas only apply to structures with an agricultural purpose such as buildings, roads, and driveways. The determination of federal and nonfederal wetlands MUST be made by the USACE through an Approved Jurisdictional Determination (AJD). This report may be submitted to the USACE to assist with their determination.

Wis. Adm. Code NR 151 (“NR 151”) requires that a “protective area” (buffer) be determined from the Ordinary High-Water Mark (OHWM) of lakes, streams and rivers, or at the delineated boundary of wetlands. Per NR 151.12, the protective area width for “less susceptible” wetlands is determined by using 10% of the average wetland width, no less than 10 feet or more than 30 feet. “Moderately susceptible” wetlands, lakes, and perennial and intermittent streams identified on recent mapping require a protective area width of 50 feet; while “highly susceptible wetlands” are associated with outstanding or exceptional resource waters in areas of special natural resource interest and require protective area width of 75 feet. Table 2 above lists the potential wetland buffers per NR 151 for each wetland identified based on Heartland’s professional opinion. Please note that jurisdictional authority on wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities and regional planning organizations may have additional land use restrictions within or adjacent to wetlands.

4.0 Conclusion

Heartland completed an assured wetland determination and delineation within the Cherokee Parks Driving Range site on September 28, 2022 and April 19, 2023 at the request of Cherokee Parks Inc. Fieldwork was completed by Scott Fuchs, Environmental Scientist, an assured delineator qualified via the WDNR Wetland Delineation Assurance Program (Appendix E). The Study Area lies in Sections 18 and 19, T8N, R10E, City of Madison, Dane County, WI (Figure 1, Appendix A).

One (1) wetland area was delineated and mapped within the 13.85-acre Study Area (Figure 6, Appendix A). The wetland, which may be classified as a complex of wet meadow and shallow marsh, totals approximately 1.44 acres within the Study Area.

Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the USACE, state regulation under the jurisdiction of the WDNR, and the local zoning authority. Heartland recommends this report be submitted to the USACE for final jurisdictional review and concurrence. Review by local authorities may be necessary for determination of any applicable zoning and setback restrictions.

Heartland recommends that all applicable regulatory agency reviews and permits are obtained prior to beginning work within the Study Area or within or adjacent to wetlands or waterways. Heartland can assist with evaluating the need for additional environmental reviews, surveys, or regulatory agency coordination in consideration of the proposed activity and land use as requested but is outside of the scope of the wetland delineation.

Experienced and qualified professionals completed the wetland determination and delineation using standard practices and professional judgment. Wetland boundaries may be affected by conditions present within the Study Area at the time of the fieldwork. All final decisions on wetlands and their boundaries are made by the USACE, the WDNR, and/or sometimes a local unit of government. Wetland determination and boundary reviews by regulatory agencies may result in modifications to the findings presented to the Client. These modifications may result from varying conditions between the time the wetland delineation was completed and the time of the review. Factors that may influence the findings may include but not limited to precipitation patterns, drainage modifications, changes or modification to vegetation, and the time of year.

5.0 References

Deters, J. & Gutenson, J. (2021). Antecedent Precipitation Tool (APT) [Electronic Source: python source code]. See: GitHub - jDeters-USACE/Antecedent-Precipitation-Tool:

Eggers, S. D., & D. M. Reed. (2014). *Wetland Plants and Plant Communities of Minnesota and Wisconsin* (V. 3.1). U.S. Army Corps of Engineers, Regulatory Branch, St. Paul, MN District. See: http://www.mvp.usace.army.mil/.

Environmental Laboratory (1987). *Corps of Engineers Wetlands Delineation Manual*, Tech. Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Lichvar, R.W., D. L. Banks, W. N. Kirchner, and N.C. Melvin. (2016). *The National Wetland Plant List:* 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X. See: http://www.phytoneuron.net/.

Midwestern Regional Climate Center. (2014). *cli-MATE* [climate data access tool]. See: http://mrcc.isws.illinois.edu/CLIMATE/.

National Oceanic and Atmospheric Administration (NOAA). (2015) Regional Climate Centers Applied Climate Information System. *WETS table*. See: http://agacis.rcc-acis.org.

NOAA National Center for Environmental Information. (2018) *Historic Palmer Drought Indices*. See: https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/201512-201601.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (USDA). (2018). *Soil Survey Geographic (SSURGO) Database*. See: http://websoilsurvey.nrcs.usda.gov/ or http://datagateway.nrcs.usda.gov/.

Soil Survey Staff, Natural Resources Conservation Service, USDA. (2018). *Web Soil Survey*. See: http://websoilsurvey.nrcs.usda.gov/.

U.S. Army Corps of Engineers (USACE) and Wisconsin Department of Natural Resources (WDNR). (March 2015). *"Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources"*. See: http://dnr.wi.gov/topic/wetlands/documents/FinalWisconsinDelineationGuidance.pdf.

USACE. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0*). (2011). ed. J.S. Wakely, R.W. Lichvar,

C.V. Nobel, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE St. Paul District & Minnesota Board of Water & Soil Resources. (July 2016). *Guidance for Offsite Hydrology/Wetland Determinations*. See: http://www.mvp.usace.army.mil/Missions/Regulatory/Delineation/.

United States Department of Agriculture (USDA), Farm Service Agency (FSA). (2004, 2005, 2006, 2008, 2010, 2013, 2015, 2017, 2018, 2020) [Dane County, Wisconsin aerial photographs]. National Agriculture Imagery Program (NAIP). Salt Lake City, UT: Aerial Photography Field Office.

USDA, Natural Resource Conservation Service (NRCS). (2010). *Field Indicators of Hydric Soils in the United States*, Version 8.2. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

United States Department of the Interior (USDI), U.S. Geological Survey (USGS). *Wisconsin 7.5 Minute Series (Topographic) Maps.* 1:24,000. Reston, VA.

USDI, USGS. National Hydrography Dataset (NHD) 24K scale data. See: https://nhd.usgs.gov/.

Wetland Training Institute, Inc (WTI). (2010*). Pocket guide to hydric soil field indicators.* (Robert J. Pierce, Ed.). (7th ed.). Glenwood, NM: Wetland Training Institute, Inc.

Willmott, C.J. and K. Matsuura. (2016). *Web-Based Water-Budget Interactive Modeling Program (WebWIMP).* University of Delaware Department of Geography. Newark, DE. See: climate.geog.udel.edu/~wimp/.

WDNR, Surface Water Data Viewer Interactive Web-mapping Tool. (2018). See: https://dnr.wi.gov/topic/surfacewater/swdv/.

WDNR, Division of Water. (2010). [24k hydrography geospatial data layer]. See: ftp://dnrftp01.wi.gov/geodata/hydro_24k/.

WDNR, WiDNR Open Data. (2019). [Wisconsin Wetland Inventory Geodatabase]. See: https://www.arcgis.com/home/item.html?id=16119ac2100c4286ab8219bf03377ebf.

Woodward, D.E. ed. (1997). *Hydrology Tools for Wetland Determination*, WETS Analysis, Chapter 19. Engineering Field Handbook. USDA, NRCS, Fort Worth, TX.

Cherokee Parks Inc.
Cherokee Parks Driving Range
Project #: 20220861
May 1, 2023

Appendix A | Figures

Study Area (13.85 ac)

Township

Section

0 1,000 2,000 Ft

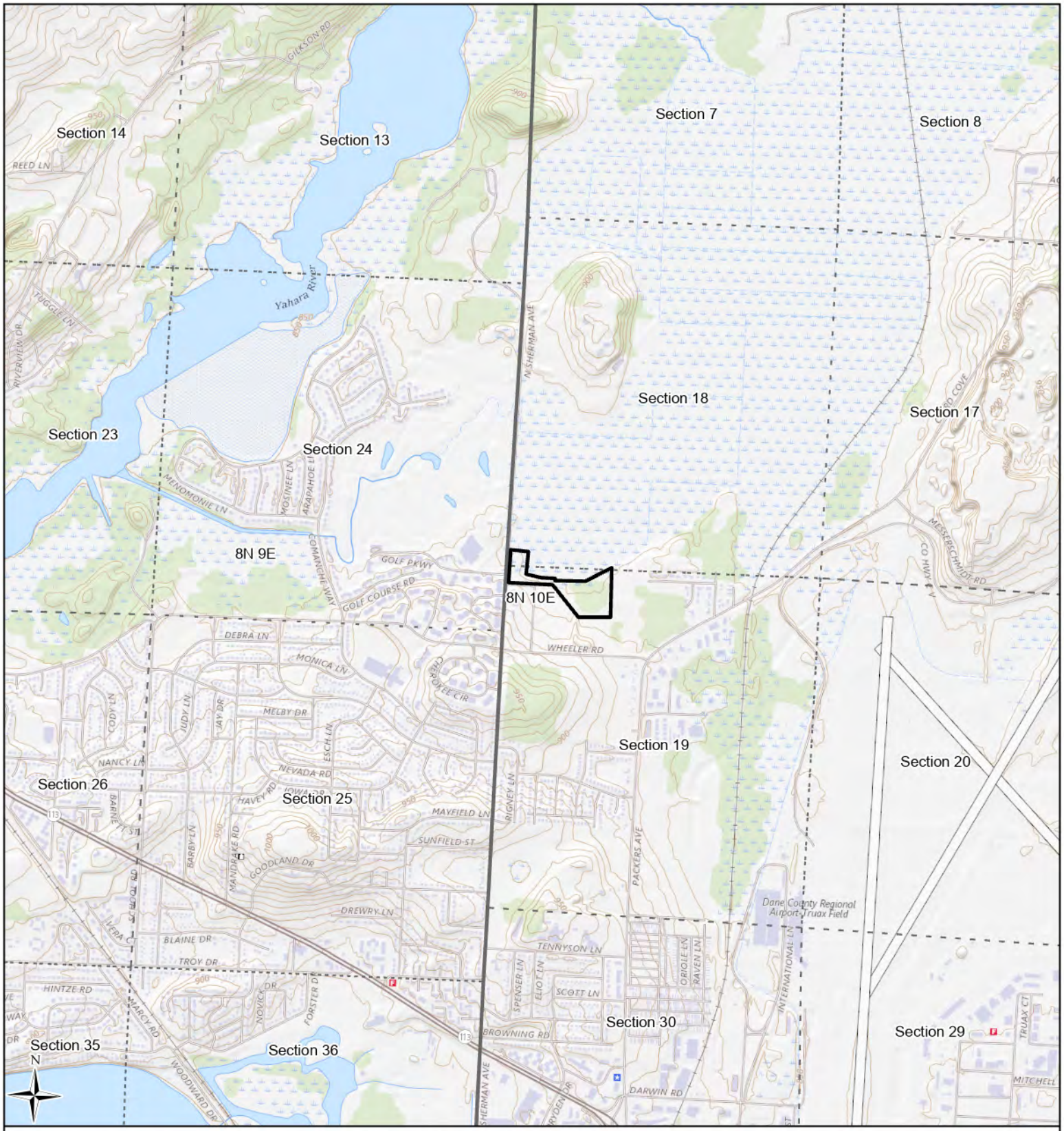
Heartland ECOLOGICAL GROUP INC

Figure 1. Project Location

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S18 & 19
C Madison, Dane Co

OpenStreetMap
ESRI

LRR: NCNE

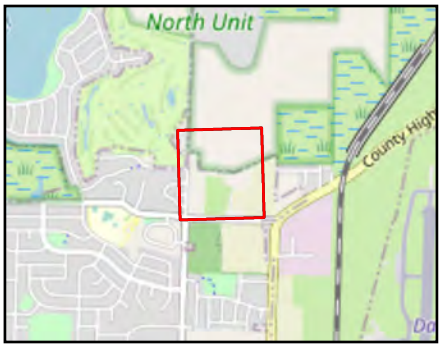


Heartland ECOLOGICAL GROUP INC

Figure 2. USGS Topography

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S18 & 19
C Madison, Dane Co

USGSTopo
USGS
LRR: NCNE



Study Area (13.85 ac)

NRCS Soil Survey Data

- Hydric (100%)
- Predominantly Hydric (85-99%)
- Partially Hydric (16-84%)
- Predominantly Non-Hydric (1-15%)
- Non-Hydric (0%)

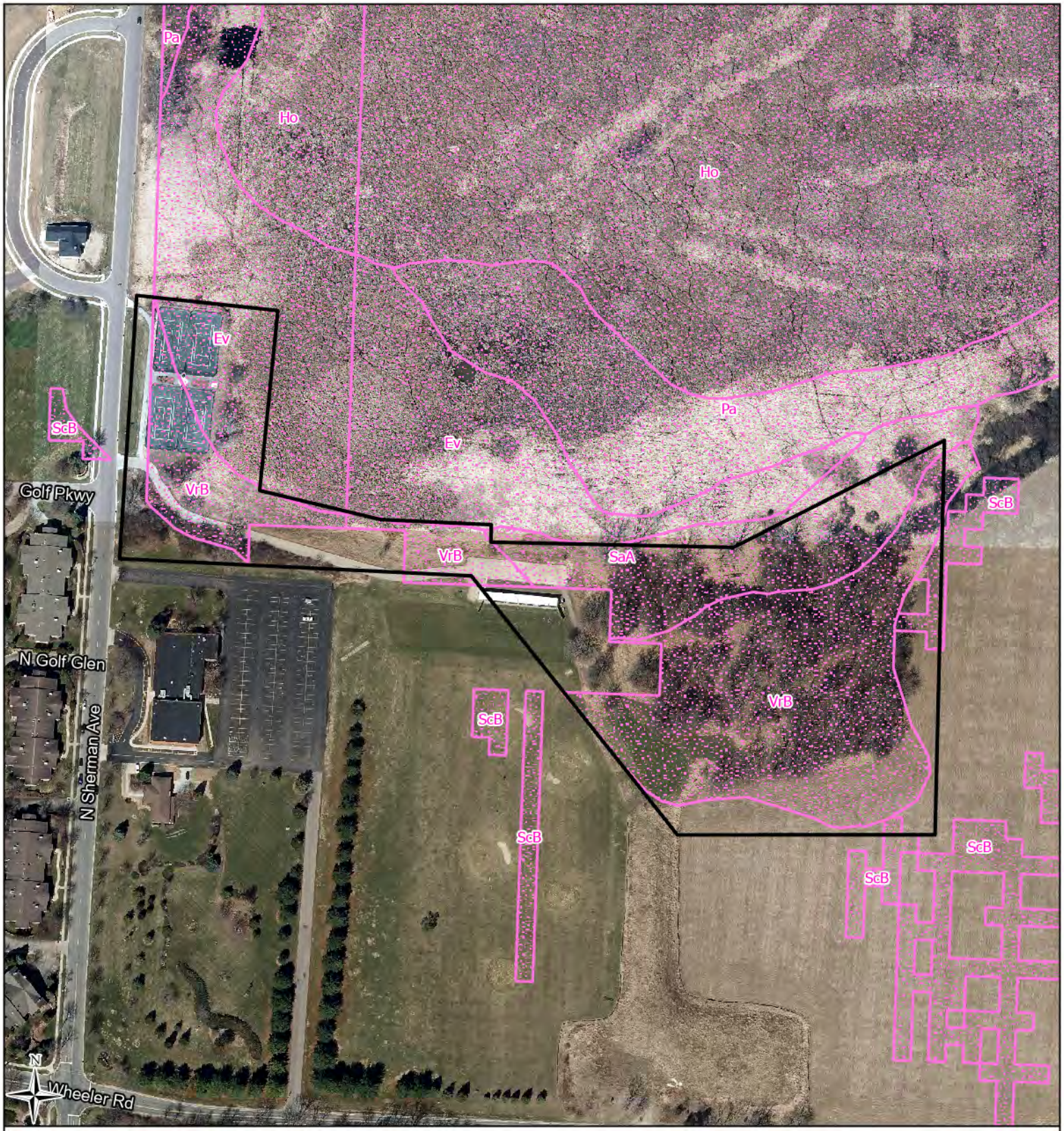
0 250 Ft

Heartland ECOLOGICAL GROUP INC

Figure 3. NRCS Hydric Soils

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2020 Dane Co Orthophoto
NRCS LRR: NCNE



Study Area (13.85 ac)

SWDV Wetland Indicators

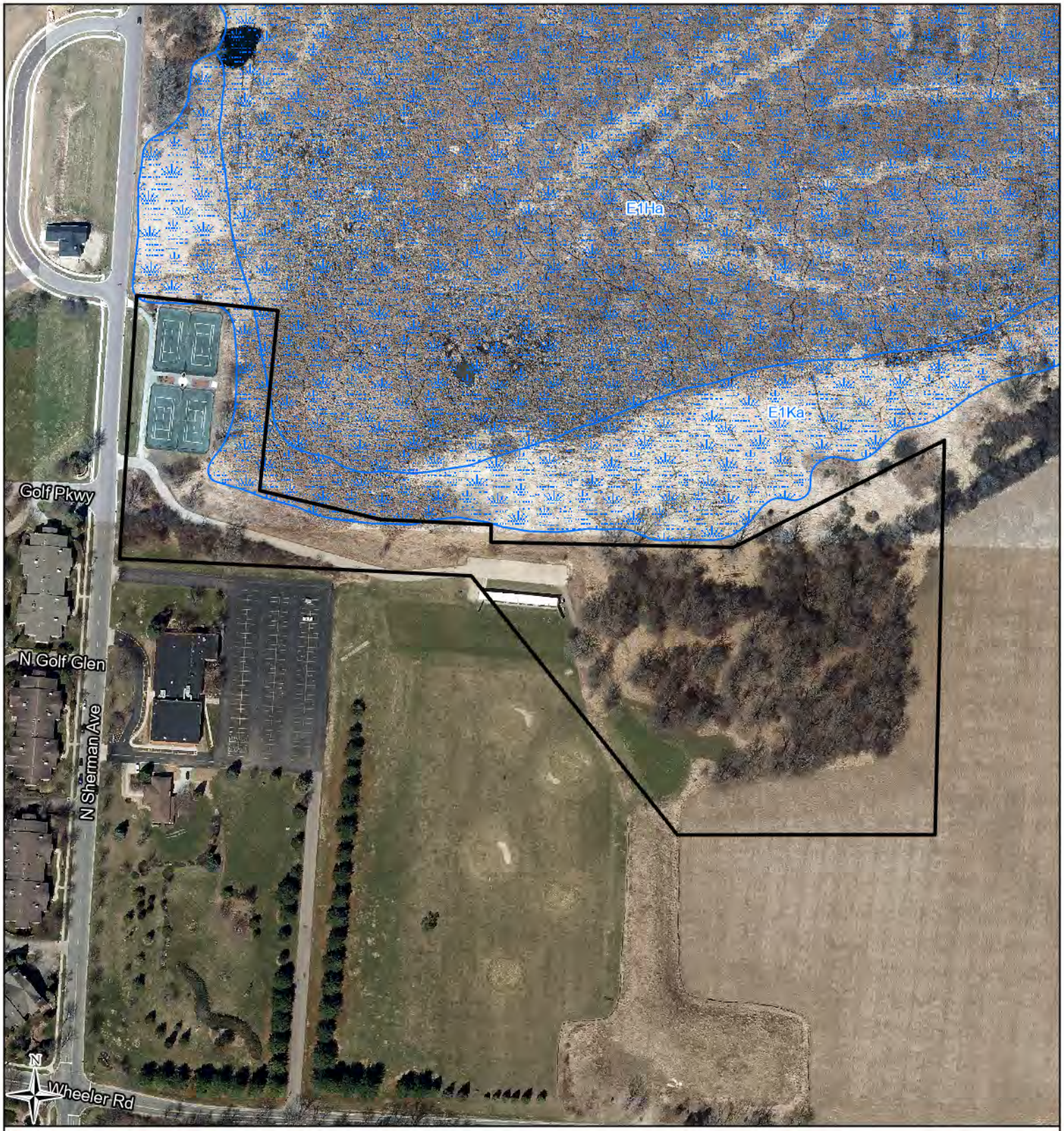
0 250 Ft

Heartland ECOLOGICAL GROUP INC

Figure 4. SWDV Wetland Indicators

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2020 Dane Co Orthophoto
WDNR LRR: NCNE



Study Area (13.85 ac)

WWI Wetland Polygons

WWI Wetland Points (No Features in Map Extent)

NHD Waterway (No Features in Map Extent)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Figure 5. Wisconsin Wetland Inventory
Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2020 Dane Co Orthophoto
WDNR, USGS LRR: NCNE

Study Area (13.85 ac)

Dane Co 1' Contours

Field Delineated Wetlands (1.44 ac)

Offsite Wetland Boundary

Sample Points

Upland

Wetland

0 250 Ft

Heartland ECOLOGICAL GROUP INC

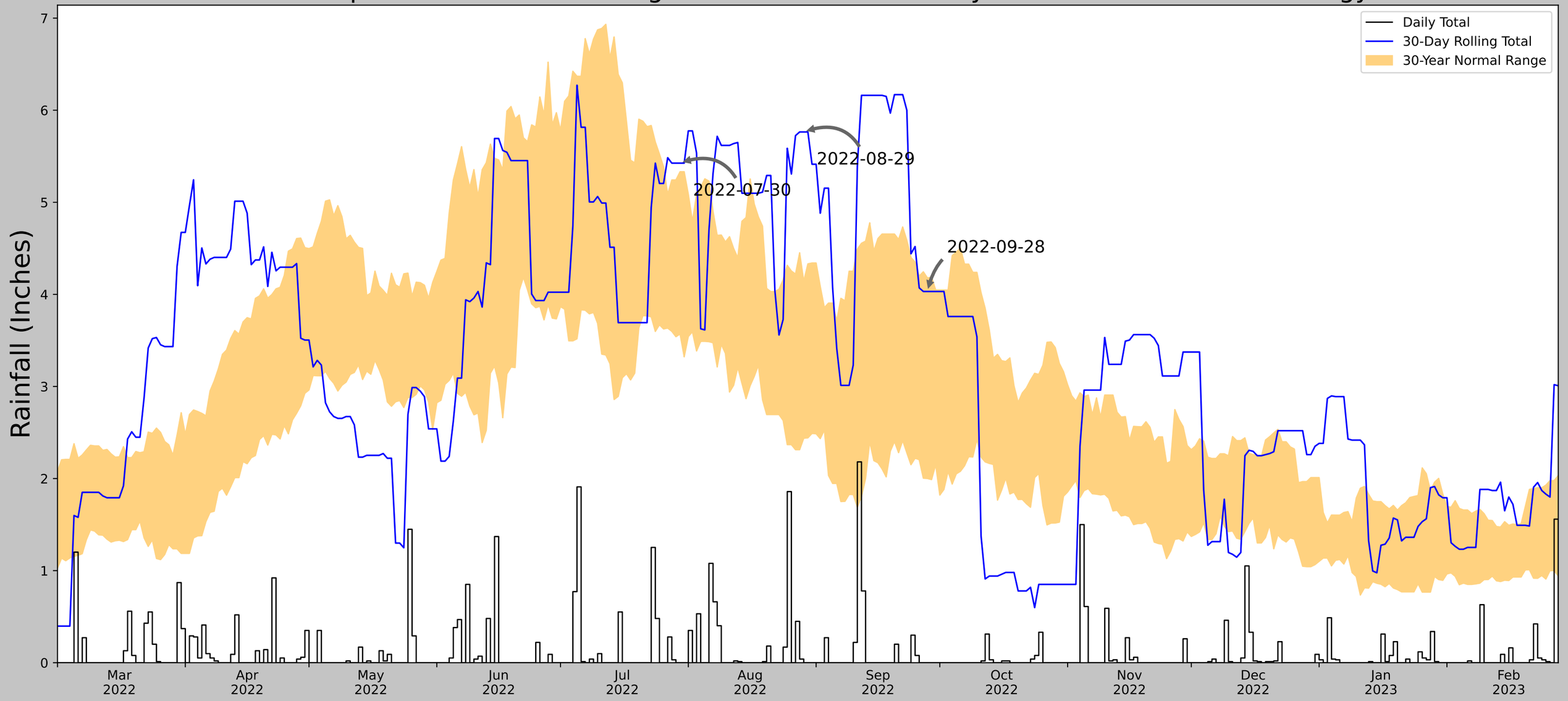
Figure 6. Field Delineated Wetlands

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2020 Dane Co Orthophoto
County Co, HEG LRR: NCNE

Appendix B | APT Analysis

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



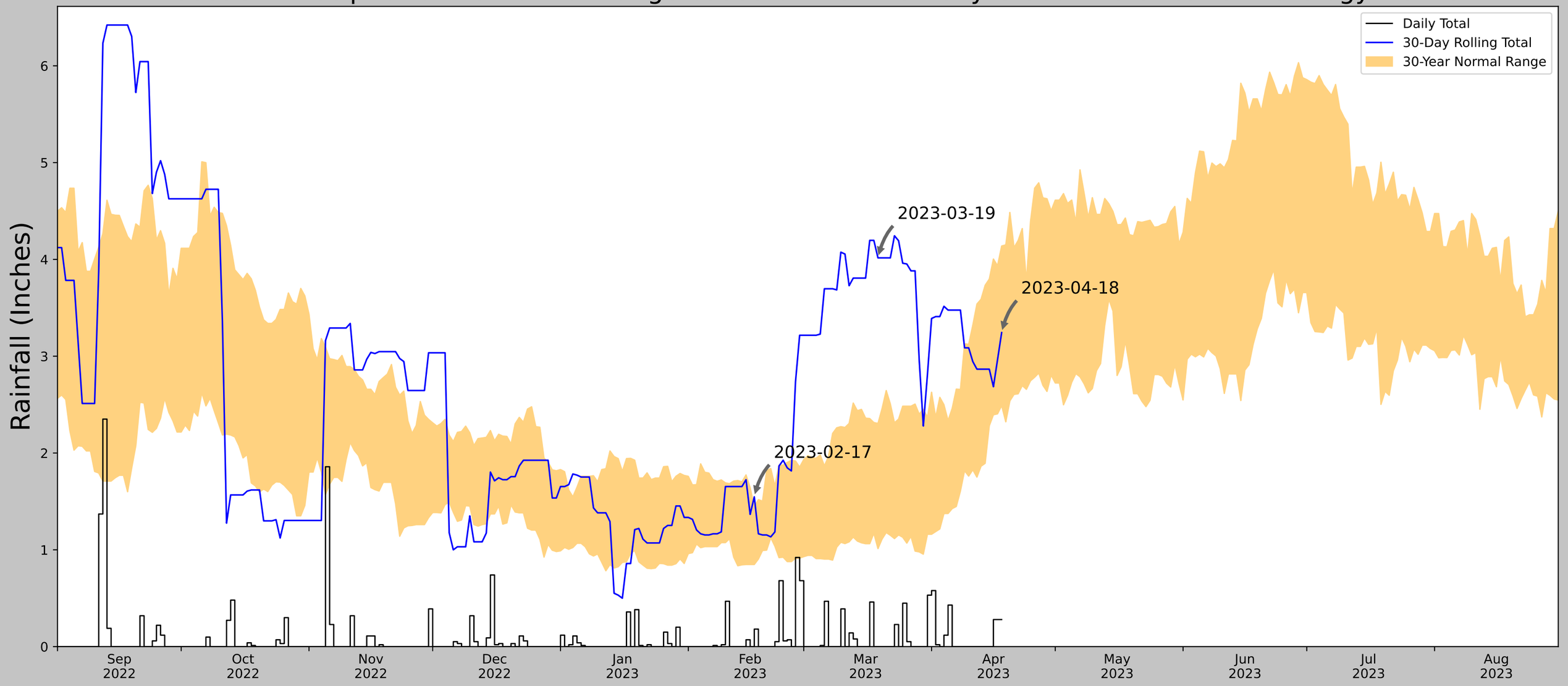
Coordinates	43.15025, -89.36114
Observation Date	2022-09-28
Elevation (ft)	859.941
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-28	2.000394	4.178347	4.031496	Normal	2	3	6
2022-08-29	2.438189	4.142126	5.76378	Wet	3	2	6
2022-07-30	3.569685	5.332284	5.425197	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MADISON DANE CO RGNL AP	43.1406, -89.3453	858.924	1.04	1.017	0.469	11353	90



Coordinates	43.15025, -89.36114
Observation Date	2023-04-18
Elevation (ft)	859.941
Drought Index (PDSI)	Severe wetness (2023-03)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-18	2.490158	4.138583	3.244095	Normal	2	3	6
2023-03-19	1.012205	2.305512	4.015748	Wet	3	2	6
2023-02-17	0.848032	1.444488	1.547244	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BEAVER DAM WWTP	43.4428, -88.8453	860.892	32.886	0.951	14.83	11319	87
BEAVER DAM 1.4 SSW	43.4472, -88.8526	871.063	0.476	10.171	0.219	0	1
TOWN OF WESTFORD	43.4719, -88.8825	875.0	2.743	14.108	1.273	6	0
WATERTOWN WWTP	43.1742, -88.7364	825.131	19.349	35.761	9.399	28	0
Linear Interpolation	N/A	N/A	N/A	N/A	N/A	0	1
Linear Interpolation	N/A	N/A	N/A	N/A	N/A	0	1

Appendix C | Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P01

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Driveway Embankment Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150412 Long: -89.361928 Datum: WGS84

Soil Map Unit Name: Virgil silt loam, 1 to 4 percent slopes NWI classification: N/A (WWI)

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 ✓	If yes, optional Wetland Site ID: ____

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

Sample point recorded on a small "plateau" between the driving range driveway and a wetland area to the north. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P01

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	70	Y	FACU
2. *Solidago canadensis*	15	N	FACU
3. *Phalaris arundinacea*	15	N	FACW
4. *Daucus carota*	5	N	UPL
5. *Symphyotrichum pilosum*	3	N	FACU
6. *Symphyotrichum novae-angliae*	2	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	110.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	17.00	x 2 =	34.00
FAC species	0.00	x 3 =	0.00
FACU species	88.00	x 4 =	352.00
UPL species	5.00	x 5 =	25.00
Column Totals:	110.00 (A)		411.00 (B)

Prevalence Index = B/A = 3.74

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ✓

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

Disturbed upland old field vegetation present within uplands adjacent to the existing driving range access driveway.

SOIL Sampling Point: P01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					SIL	
4-12	10YR 5/4	100					SCL	30% gravel, fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: Impenetrable gravel

Depth (inches): 12

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

Remarks:

No hydric soil indicators observed. Attempted sampling several locations in this vicinity. Compacted gravel encountered at 10-12 inches at all sampling locations. Soils consist of fill material likely introduced when the access lane to the driving range was constructed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P02

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150475 Long: -89.361811 Datum: WGS84

Soil Map Unit Name: Virgil silt loam, 1 to 4 percent slopes NWI classification: N/A (WWI)

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 ✓	If yes, optional Wetland Site ID: ____

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

Sample point recorded at the immediate toe of slope of the driving range driveway embankment. There is a small area of upland at the immediate toe of slope before the marsh area begins to the north. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year. A hydric soil was observed in this location, but hydrophytic vegetation and wetland hydrology was lacking.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No primary wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants.

Sampling Point: P02

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus alba*	3	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	3.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	75	Y	FACU
2. *Solidago canadensis*	20	N	FACU
3. *Solidago gigantea*	10	N	FACW
4. *Phalaris arundinacea*	10	N	FACW
5. *Carex stricta*	5	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5.00	x 1 =	5.00
FACW species	23.00	x 2 =	46.00
FAC species	0.00	x 3 =	0.00
FACU species	95.00	x 4 =	380.00
UPL species	0.00	x 5 =	0.00
Column Totals:	123.00 (A)		431.00 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ✓

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

Some very loosely cespitose culms of carex stricta present, but vegetation consists primarily of upland old field vegetation at the immediate toe of slope.

SOIL Sampling Point: P02

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
0-8	10YR 2/1	100					SIL	
8-16	10YR 2/1	92	10YR 4/1	5	D	M	SIL	
			10YR 4/6	3	C	M		
16-24	10YR 5/2	85	10YR 4/6	15	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P03

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150573 Long: -89.361716 Datum: WGS84

Soil Map Unit Name: Elvers silt loam NWI classification: E1Ka (WWI)

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 ____	If yes, optional Wetland Site ID: ____

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

Sample point recorded within shallow marsh vegetation approx 50 feet from the toe of slope of the driveway embankment. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No primary wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants.

Sampling Point: P03

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Typha angustifolia*	30	Y	OBL
3. *Solidago gigantea*	20	N	FACW
4. *Solidago canadensis*	10	N	FACU
5. *Carex stricta*	10	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40.00	x 1 =	40.00
FACW species	70.00	x 2 =	140.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	120.00 (A)		220.00 (B)

Prevalence Index = B/A = 1.83

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ___

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

Ruderal shallow marsh vegetation present.

SOIL Sampling Point: P03

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 2/1	95	10YR 4/6	5	C	M/PL	MMI	
7-16	10YR 2/1	65	10YR 4/6	5	C	M	SIC	
	10YR 4/1	30						
16-24	10YR 4/1	95	10YR 4/6	5	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

Surface layer has high organic content (mucky mineral soil).

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P04

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Gentle Sideslope Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150282 Long: -89.362691 Datum: WGS84

Soil Map Unit Name: St. Charles silt loam, 2 to 6 percent slopes NWI classification: N/A (WWI)

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 ✓	If yes, optional Wetland Site ID: _____

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

Sample point recorded within a heavily disturbed shrubby upland woodland within the southwestern corner of the Study Area. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P04

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera X bella*	50	Y	FACU
2. *Rhamnus cathartica*	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
	80.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rhamnus cathartica*	10	Y	FAC
2. *Circaea canadensis*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	40.00	x 3 =	120.00
FACU species	55.00	x 4 =	220.00
UPL species	0.00	x 5 =	0.00
Column Totals:	95.00 (A)		340.00 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ✓

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

Heavily disturbed shrubby upland woodland.

SOIL Sampling Point: P04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					SIL	
12-20	10R 4/3	60					SIL	
	10YR 5/4	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P05

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Driveway Embankment Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150169 Long: -89.360552 Datum: WGS84

Soil Map Unit Name: Virgil silt loam, 1 to 4 percent slopes NWI classification: N/A (WWI)

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 ✓	If yes, optional Wetland Site ID: ____

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

Sample point recorded on the embankment of the driving range access drive approximately 100 ft west of the parking lot. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P05

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Juglans nigra*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	60	Y	FACU
2. *Festuca rubra*	50	Y	FACU
3. *Phalaris arundinacea*	25	N	FACW
4. *Andropogon gerardii*	5	N	FACU
5. *Panicum virgatum*	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	143.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	3.00	x 3 =	9.00
FACU species	120.00	x 4 =	480.00
UPL species	0.00	x 5 =	0.00
Column Totals:	148.00 (A)		539.00 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ✓

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

Old field vegetation present on the driveway embankment.

SOIL Sampling Point: P05

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
0-13	7.5YR 2.5/1	100					SIL	
13-19	10YR 5/4	100					SL	30% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: Impenetrable gravel

Depth (inches): 19

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2022-09-28

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P06

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150348 Long: -89.360520 Datum: WGS84

Soil Map Unit Name: Virgil silt loam, 1 to 4 percent slopes NWI classification: E1Ka (WWI)

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 ____	If yes, optional Wetland Site ID: ____

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

Sample point recorded at the toe of the driveway embankment approximately 100 feet west of the parking lot. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No primary wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants.

Sampling Point: P06

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Typha angustifolia*	30	Y	OBL
3. *Symphyotrichum novae-angliae*	10	N	FACW
4. *Symphyotrichum puniceum*	5	N	OBL
5. *Carex stricta*	5	N	OBL
6. *Solidago gigantea*	5	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	105.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40.00	x 1 =	40.00
FACW species	65.00	x 2 =	130.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	105.00 (A)		170.00 (B)

Prevalence Index = B/A = 1.62

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ___

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

Ruderal shallow marsh vegetation present at the toe of slope of the driveway embankment.

SOIL Sampling Point: P06

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
0-16	10YR 2/1	75	10YR 4/1	20	D	M	MMI	
			10YR 4/6	5	C	M		
16-24	10YR 5/1	95	10YR 4/6	5	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

Uppermost soils have high organic content (mucky mineral soils).

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2023-04-19

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P07

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.150184 Long: -89.358384 Datum: WGS84

Soil Map Unit Name: Sable silty clay loam, 0 to 2 percent slopes NWI classification: N/A (WWI)

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 ____	If yes, optional Wetland Site ID: ____

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

Sample point recorded within a ruderal wet meadow located in the eastern portion of the Study Area. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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): 14
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 12

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

There is some surface water ponding present within tire ruts / small depressions near the sample point location.

VEGETATION – Use scientific names of plants. Sampling Point: P07

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Solidago gigantea*	3	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	103.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	103.00	x 2 =	206.00
FAC species	15.00	x 3 =	45.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	118.00 (A)		251.00 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** _____

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

RCG dominated wet meadow present at the toe of slope.

SOIL Sampling Point: P07

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
0-6	10YR 2/1	95	10YR 3/4	5	C	M	SIL	
6-15	2.5Y 5/1	97	10YR 4/6	3	C	M	C	
15-24	5Y 5/1	98	10YR 4/6	2	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Cherokee Parks Driving Range City/County: Dane County Sampling Date: 2023-04-19

Applicant/Owner: Cherokee Parks State: Wisconsin Sampling Point: P08

Investigator(s): Scott Fuchs Section, Township, Range: sec 19 T008N R010E

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR K, MLRA 95B Lat: 43.14989 Long: -89.35855 Datum: WGS84

Soil Map Unit Name: Sable silty clay loam, 0 to 2 percent slopes NWI classification: N/A (WWI)

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 ✓	If yes, optional Wetland Site ID: ____

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

Sample point recorded within a disturbed oak/hickory woodland approximately 250 feet east of the parking lot. An analysis of antecedent precipitation was performed using the USACE APT tool, which indicates that conditions are wetter than normal for the time of year.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two 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:

Remarks:

No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P08

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carya ovata*	75	Y	FACU
2. *Quercus macrocarpa*	25	Y	FACU
3. *Prunus serotina*	5	N	FACU
4.			
5.			
6.			
7.			
	105.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. *Rhamnus cathartica*	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	50.0 = Total Cover		

Herb Stratum (Plot size: 5)			
1. *Rhamnus cathartica*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5.0 = Total Cover		

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	55.00	x 3 =	165.00
FACU species	105.00	x 4 =	420.00
UPL species	0.00	x 5 =	0.00
Column Totals:	160.00 (A)		585.00 (B)

Prevalence Index = B/A = 3.66

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 or equal to 3.28 ft (1 m) 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** ✓

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

Disturbed oak/hickory open woodland present in the sample point location.

SOIL Sampling Point: P08

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
0-9	10YR 2/2	100					SIL	
9-16	2.5Y 3/2	97	10YR 5/6	3	C	M	SICL	
16-24	2.5Y 4/2	95	10YR 5/6	5	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky 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**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

Appendix D | Site Photographs

Photo #1 Sample point P01

Photo #2 Sample point P01

Photo #3 Sample point P01

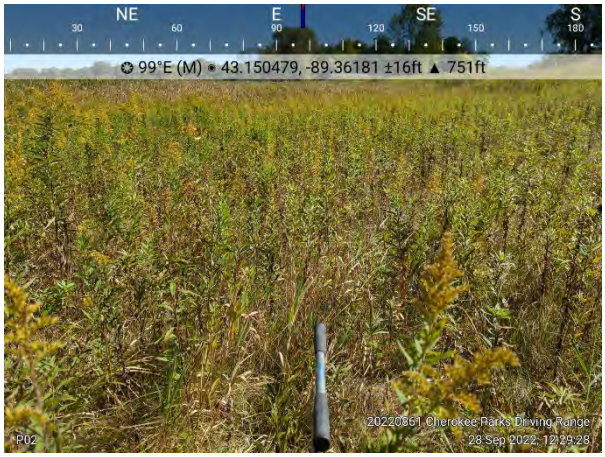


Photo #4 Sample point P01

Photo #5 Sample point P02

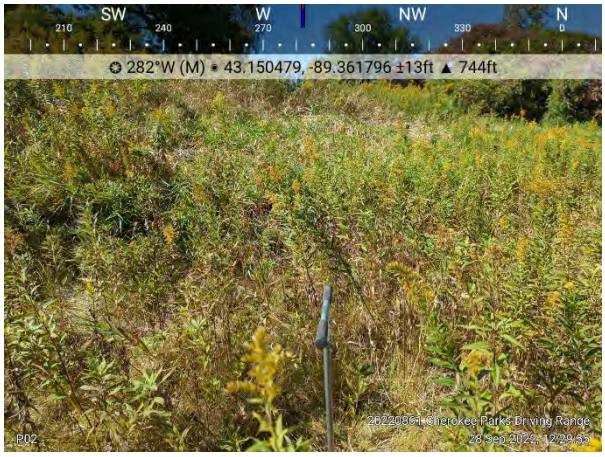


Photo #6 Sample point P02

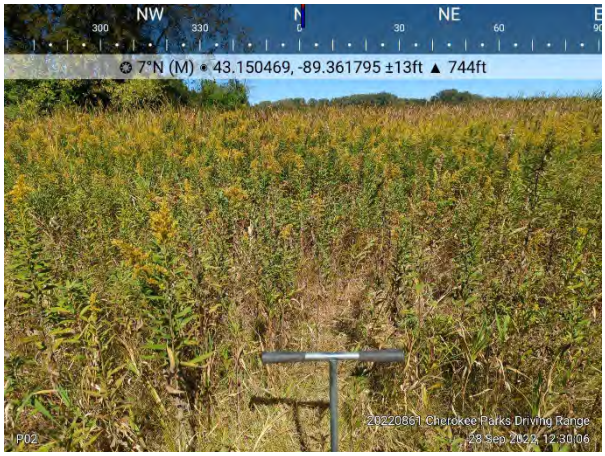


Photo #7 Sample point P02

Photo #8 Sample point P02

Photo #9 Sample point P03

Photo #10 Sample point P03

Photo #11 Sample point P03

Photo #12 Sample point P03

Photo #13 Sample point P04

Photo #14 Sample point P04

Photo #15 Sample point P04

Photo #16 Sample point P04

Photo #17 Sample point P05

Photo #18 Sample point P05

Photo #19 Sample point P05

Photo #20 Sample point P05

Photo #21 Sample point P06

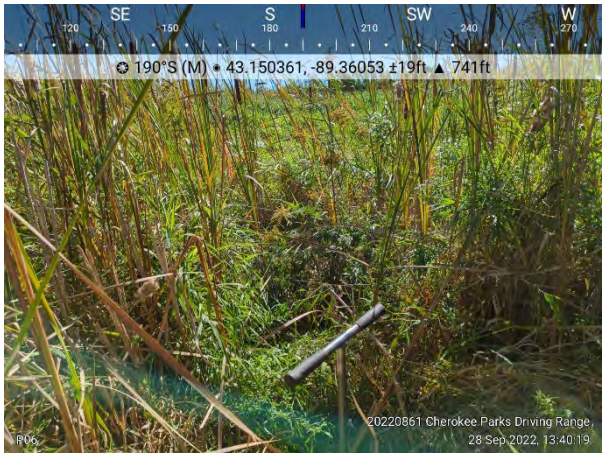


Photo #22 Sample point P06

Photo #23 Sample point P06

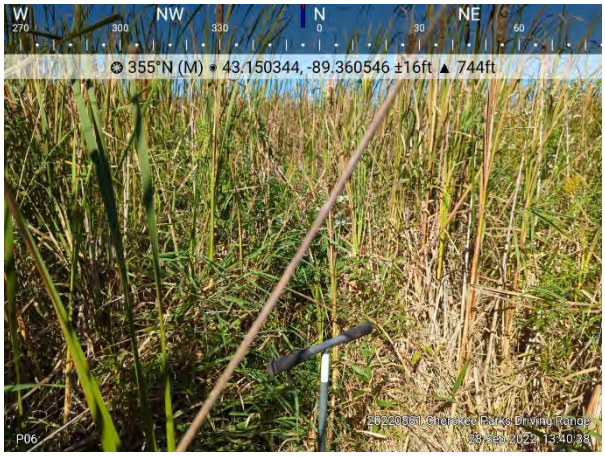


Photo #24 Sample point P06

Photo #25 Sample point P07

Photo #26 Sample point P07

Photo #27 Sample point P07

Photo #28 Sample point P07

Photo #29 Sample point P08

Photo #30 Sample point P08

Photo #31 Sample point P08

Photo #32 Sample point P08

Photo #33 Evidence of Growing Season

Photo #34 Evidence of Growing Season

Photo #35 Evidence of Growing Season

Photo #36 Evidence of Growing Season

Cherokee Parks Inc.
Cherokee Parks Driving Range
Project #: 20220861
May 1, 2023

Appendix E | Delineator Qualifications

Scott Fuchs, Environmental Scientist

506 Springdale Street, Mount Horeb, WI 53572
scott@heartlandecological.com
(608) 490-2450 ext. 4

Heartland ECOLOGICAL GROUP INC

Scott is a WDNR-assured wetland delineator and environmental scientist with expertise in wetland assessment and delineation, native plant communities of Wisconsin, botany, geographic information systems (GIS), and state/federal wetland regulations and permitting. Scott has been involved in the field of ecological conservation and restoration for over eight years working as a wetland delineator, environmental consultant, field restoration ecologist and crew leader, ecology research assistant, and GIS administrator. Since joining Heartland, Scott has completed tens of wetland delineations throughout Wisconsin, prepared wetland and waterway permit applications and obtained approval from the DNR and USACE, and performed vegetation and hydrology monitoring for wetland mitigation projects. Scott also provides technical support by assisting with natural area restoration planning, monitoring and management, developing GIS-based project mapping, collecting and interpreting historic aerial imagery, and performing analysis of GIS data sets. Scott implemented Heartland's current GIS workflow, which utilizes ArcGIS Pro, ArcGIS Online, sub-foot EOS Arrow GNSS receivers, and tablet devices to accurately record and view environmental data in the field. Scott achieved his professionally assured wetland delineator certification from the DNR in February 2022.

His experience includes: wetland determination and delineation, long-term vegetation and wildlife monitoring and reporting, collecting and processing monitoring well hydrology data, wetland mitigation bank viability analysis and planning, preparing state artificial and non-federal wetland exemption requests, preparing wetland and waterway permit applications, writing wetland delineation reports, rare species surveys, invasive species control, conducting prescribed burns, and invasive herbaceous, shrub, and tree removal.

Education

BS, Biology (Emphasis in Ecology), University of Wisconsin – Whitewater, Whitewater, WI, 2015

Basic Wetland Delineation Training, Continuing Education and Extension, UW – La Crosse, La Crosse, WI, 2019

Advanced Wetland Delineation Training, Continuing Education and Extension, UW – La Crosse, La Crosse, WI, 2019

Critical Methods in Wetland Delineation, Continuing Education and Extension, UW – La Crosse, 2019, 2020, 2021, 2022

Sedges: Identification and Ecology, UW – Milwaukee Field Station Workshop, Cedarburg, WI, 2022

Certifications and Training

Professionally Assured Wetland Delineator, Wisconsin Department of Natural Resources, 2022

Wildlife Fire Fighter Type 2, National Wildlife Coordinating Group, Incident Management Specialists, LLC, Madison, WI, 2017

Level One Chainsaw Safety Training, Forest Industry Safety & Training Alliance, Eau Claire, WI, 2016

Certified Pesticide Applicator (Category 6), Wisconsin Department of Trade and Consumer Protection, Madison, WI, 2016

Project Experience

Wetland Determinations and Delineations

Harmony Valley Farm, Vernon County, WI
Performed a wetland delineation within a 161-acre property containing organic vegetable farms fields, the Bad Axe River floodplain, old fields, woodlands, and coulees within Wisconsin's picturesque driftless area.

Morey Solar Field Wetland Delineation and Restoration, Dane County, WI
Assisted in the delineation of wetlands present on a 104-acre airport property, which was a proposed site for a solar field on the west side of Madison, WI. Following construction of the solar field, assisted in creating a native species planting and management plan.

Mallard Ridge and Glacier Ridge Landfill Pipelines: Walworth and Dodge Counties, WI
Performed wetland delineation along separate 1.5-mile and 3.6-mile corridors passing through savanna, upland prairie, wet prairie, hardwood swamps, agricultural fields, stream crossings, and highway right-of-way. Wetland delineation was necessary for construction of methane pipelines linking to nearby regional pipelines.

Nuemann Development: Port Washington Road Subdivision, Ozaukee County, WI
Performed a wetland determination and delineation within a 50-acre agricultural field. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

1520 LLC: Port Washington Road Commercial Development, Ozaukee County, WI
Performed a wetland determination and delineation within a highly disturbed 3-acre parcel containing clayey soils that was subsequently confirmed by WI DNR wetland regulatory staff. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

Private Landowner: Bear Creek Wetland Delineation and Driveway Crossing Permitting, Monroe County,
WI Performed a wetland determination and delineation along a section of Bear Creek with several old oxbows to support culvert installation and minor wetland disturbance permitting for the purposes of installation of a ruraldriveway. This wetland delineation was subsequently confirmed by WI DNR wetland regulatory staff and was utilized in obtaining necessary state and federal permits. Prepared and obtained culvert installation and generalwetland disturbance permits from the WI DNR and USACE.

Wetland and Waterway Permitting

TPC Wisconsin (Formerly Cherokee Country Club): TPC Wisconsin Golf Course Improvements, Dane County, WI
Performed a wetland delineation throughout the 153-acre golf course. Assisted senior Heartland staff in preparing and obtaining an individual permit application for wetland and waterway disturbance associated with course improvements. Assisted the Heartland team in planning ecological restoration of the course's 36 acres of wetland. Prepared GIS tools to guide ecological restoration crews in the field.

KL Engineering / Dane County Parks: Phase 2 Lower Yahara River Trail, Dane County, WI
Assisted senior Heartland staff in performing a wetland delineation along an unimproved recreational trail on the northern shore of Lake Kegonsa. Supported KL Engineering in their design of a boardwalk built on the footprint of the unimproved trail by recommending efforts to reduce impacts to wetlands. Drafted an individual wetland disturbance permit application for temporary and minor permanent impacts involved with the project. Facilitated the purchase of mitigation credits required by the permit approval to offset wetland impacts.

D'Onofrio, Kottke & Associates: Creek Crossing Development, Dane County, WI
Assisted residential developer and engineering firm by writing an application for, and obtaining, an individual permit needed for road crossings, culvert placement, and pedestrian bridge associated with a 32-acre residential development.

Epic: Epic Campus Expansion, Dane County, WI
Assisted in writing application materials for, and obtaining and individual permit for impacts to wetlands associated with an expansion of the Epic campus. Developed practicable alternatives analysis to minimize wetland impacts to the greatest extent practicable.

Hydrology Monitoring Well Data Analysis

Wisconsin DNR: Soik ILF Mitigation Site, Portage County, WI
Performed collection and processing of data from 14 monitoring wells present on a 60-acre ILF mitigation site. Performed analysis of hydrology data to determine if the site's wetland hydrology standard was met. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting tothe WDNR and USACE.

Wisconsin DNR: Evansville ILF Mitigation Site, Rock County, WI
Performed baseline hydrology monitoring of a proposed wetland mitigation site to guide restoration activities. Performed analysis of historic aerial imagery to determine the location and extent of drain tile within the proposed mitigation site. Following ditch filling and tile breaking associated with the restoration project, performed monitoring and analysis of hydrology data collected from 12 on-site hydrology monitoring wells. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting tothe WDNR and USACE.

Bear Development: Barnes Prairie Mitigation Bank Site, Kenosha County, WI
Performed collection and processing of data from 46 hydrology monitoring wells located throughout a 230-acre agricultural field. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells. Produced graphical representations of precipitation and ground water level data.

Wisconsin DNR: Evansville ILF Mitigation Bank Site, Rock County, WI
Performed collection and processing of data from 9 hydrology monitoring wells within agricultural fields, disturbed wet meadow, and shrub-carr communities across a 40-acre site. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells and to compile baseline information prior to wetland restoration work. Produced graphical representations of precipitation and ground water level data.

Vegetation, Wildlife, and Rare Species Monitoring

Wisconsin DNR: Soik ILF Mitigation Site, Portage County, WI
Established quantitative vegetation monitoring plots and performed vegetation monitoring of a 60-acre wetland mitigation bank in Wisconsin's central sands region. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards. Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics across a variety of wetland vegetative community and compensation types.

Kreyer Creek Compensatory Wetland Mitigation Bank Site, Monroe County, WI
Conducted quantitative vegetation monitoring of this 200+ acre compensatory wetland mitigation site. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards. Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics including florist quality assessments and diversity, invasive and noninvasive species relative cover, and prevalence indices of hydrophytic vegetation. The vegetation data and results were incorporate into the annual monitoring report required by the U.S. Army Corps of Engineers and Interagency Review Team.

Nantucket Conservation Foundation: Head of the Plains, Nantucket County, MA
Conducted vegetation monitoring, small mammal live-trapping, and insect pitfall trapping to collect data that is being used in a longitudinal study exploring the viability of different ecological management and restoration techniques in sandplain grassland habitat, a globally rare ecological community.

Nantucket Conservation Foundation: Head of the Plains, Nantucket County, MA
Installed acoustic bat monitoring devices and regularly downloaded the recorded data to determine the presence of different bat species. Assisted in mist-netting and radio telemetry tracking of federally threatened northern long-eared bats. Performed emergence counts of bat roosting locations discovered via radio telemetry tracking.

Nantucket Conservation Foundation: Coatue, Nantucket County, MA
Conducted vegetation monitoring for a graduate level study investigating the effects of cormorant nesting on plant communities in remote sand dune/shoal habitats.

Ecological Restoration and Invasive Species Management

Big Hollow Compensatory Wetland Mitigation Bank, Sauk County, WI
Assisted with the development of a Compensation Site Plan (CSP) for a nearly 200-acre compensatory wetland mitigation bank site as part of the Mitigation Banking Instrument (MBI). Completed various technical components of the CSP including assessment of the overall site characteristics and history, vegetation restoration plan, development of regulatory performance standards, and monitoring and management plan. Completed all site mapping and plans utilizing GIS.

Good Oak Ecological Services, Numerous Locations Throughout Dane County and Surrounding Areas, WI
Performed invasive species management and ecological restoration activities in prairie, oak savanna, and oak woodland habitats throughout Dane County and surrounding areas. Activities included chemical and mechanical control of invasive species, invasive brush and tree removal with chainsaws and brush cutters, prescribed burns on small to medium (1-15 acres) sized prairies and oak woodlands, native vegetation seeding, and erosion control installation.

UW-Madison, UW-Madison Lakeshore Preserve, Dane County, WI
Performed invasive species management on thistle, garlic mustard, dame's rocket, and porcelain berry via chemical spraying and cut-and-treat methods.

Nantucket Conservation Foundation: Head of the Plains, Sanford Farm / Ram Pasture, Madequecham Valley, Nantucket County, MA
Performed cut-and-treat management of invasive Phragmites in salt marsh habitats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

WISCONSIN
DEPT. OF NATURAL RESOURCES

April 3, 2023

Scott Fuchs
Heartland Ecological Group, Inc.
506 Springdale Street
Mt. Horeb, WI 53572

Subject: 2023 Assured Wetland Delineator Confirmation

Dear Mr. Fuchs:

This letter provides Wisconsin Department of Natural Resources (WDNR) confirmation for the wetland delineations you conduct during the 2023 growing season. You and your clients will not need to wait for the WDNR to review your wetland delineations before moving forward with project planning. This will help expedite the review process for WDNR's wetland regulatory program. Your name and contact information will continue to be listed on our website at: http://dnr.wi.gov/topic/wetlands/assurance.html.

In the instance where a municipality may require a letter of confirmation for your work prior to moving forward in the local regulatory process, this letter shall serve as that confirmation. Although your wetland delineations do not require WDNR field review, inclusion of a Wetland Delineation Report is required for projects needing State authorized wetland, waterway and/or storm water permit approvals.

To comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you or any client has a question regarding your status in the Wetland Delineation Professional Assurance Program, contact me by email at kara.brooks@wisconsin.gov or phone at 414-308-6780. Thank you for all your hard work and best wishes for the upcoming field season.

Sincerely,

Kara Brooks
Wetland Identification Coordinator
Bureau of Watershed Management

Appendix F | NAIP Imagery

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2004-07-28
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2004 NAIP
USDA

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2005-06-23
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2005 NAIP
USDA

Study Area (13.85 ac)

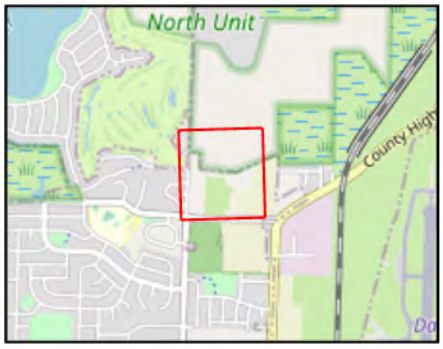
0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2006-07-15
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2006 NAIP
USDA



Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2008-08-10
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2008 NAIP
USDA

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2010-07-02
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2010 NAIP
USDA

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2013-07-04
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2013 NAIP
USDA

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2015-10-11
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2015 NAIP
USDA

Study Area (13.85 ac)

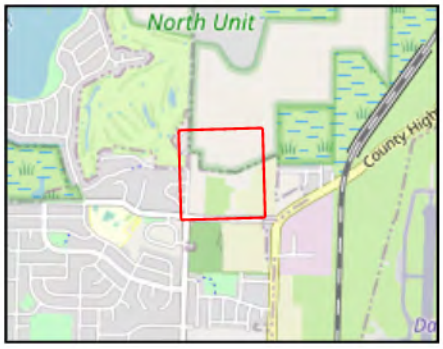
0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2017-09-03
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2017 NAIP
USDA



Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2018-03-19
Maxar Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2018 Sat. Imagery
Maxar

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2018-10-04
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2018 NAIP
USDA

Study Area (13.85 ac)

0 250 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2020-08-04
NAIP Aerial Imagery

Cherokee Parks Driving Range
Project #20220861
T8N, R10E, S19
C Madison, Dane Co

2020 NAIP
USDA