

**WETLAND DELINEATION REPORT
MacArthur Road Outlot - South End
Delineation # 16.2020**

October 28, 2020



**Alice Thompson
Aaron Menke
Thompson and Associates Wetland Services, LLC
1514 Menomonee Ave.
South Milwaukee, WI 53172
(414) 571-8383
www.thompsonwetlands.com**



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1. Introduction
 2. Site Description
 3. Resource Review
 4. Results and Conclusion
- Appendices



1. INTRODUCTION

The study area was delineated by Thompson and Associates Wetland Services at the request of Judy Fuller, Hollyhock Properties. Alice Thompson was the lead delineator, Aaron Menke was the field assistant. The site consists of approximately 1 acre project area and is located on the south end of Outlot 1326-999 on the north side of MacArthurs Road, east of S, Comanche Lane (see Figure 1). More specifically, the study area is located within the NW ¼ of Section 8, Township 6 North, Range 19 East in the City of Waukesha, Waukesha County, WI. This report is being submitted as an assured wetland delineation.

This delineation was conducted on October 28, 2020. This was the last week of the 2020 field season. The weather was mild ~45 degrees F and sunny. Green vegetation included common buckthorn, Galium and reed canary grass.

As shown in Figure 2, precipitation maps documenting the 90 day departure from normal precipitation as shown on the Advance Hydrologic Prediction Service Website of the National Weather Service (National Oceanic and Atmospheric Administration) indicated that precipitation during the 90 days prior to the field visit was approximately -1 to -2 inches below normal. Precipitation maps documenting the 90 day percent of mean departure from normal indicate that the mean departure from precipitation was **90-100 % or within normal limits** (75%-125% considered normal; <75% indicates drier conditions; >125% indicates wetter conditions). The Current Drought Condition as shown on the National Integrated Drought Information System- US Drought Portal is **No Drought**. The USDM uses a five-category system, labeled Abnormally Dry or D0, (a precursor to drought, not actually drought), and Moderate (D1), Severe (D2), Extreme (D3) and Exceptional (D4) Drought. Drought categories show experts' assessments of conditions related to dryness and drought including observations of how much water is available in streams, lakes, and soils compared to usual for the same time of year. U.S. Drought Monitor data go back to 2000.

As the precipitation was **normal** in the past 90 days, evidence of hydrology could include obvious primary indicators such as standing water, a high water table or saturation in the root zone. However, we also rely on more subtle primary and secondary indicators relying on indicators that persist even with local climatic variation or time of year and could include a positive FAC Neutral test that documents long term vegetation patterns due in part to moisture gradients; a concave basin at a geomorphic low point which indicates probable wet conditions; evidence of saturation or ponding on aerial photographs in multiple years; blackened leaves or water marks on trees indicating ponding etc. These are particularly useful if the local climate was drier in the 90 days prior to field work or in the drier season of the year.

2. SITE DESCRIPTION

The study area consists of the south end of a wooded outlot that contains an unnamed creek flowing on the west side. The wooded outlot contains a portion of upland adjacent Mac Arthur Road. The intent was to delineate this “usable” upland east of the creek. The outlot north of this “usable upland” was not a part of the project area.

The area east of the creek had a “lumpy” appearance with highs and lows, and a concrete structure similar to a farm spring house foundation. The appearance appeared human caused- not “microtopography” that is a natural formation.

3. RESOURCE REVIEW

The site is located on a **Topographic Map** in Figure 3.

According to the **NRCS Soil Survey** (Figure 4), the study area contains Ogden muck close to the creek and Brookstone silt loam, both are hydric soils. In addition; Hockheim loam was mapped which is an upland soil.

The **Wisconsin Wetland Inventory** (Figure 5) identifies one large wetland area on the site. The wetland is mapped as T3/E1K, or Forested Broad-leaved deciduous with persistent emergent / wet meadow vegetation and wet soil.

Historical maps (Figure 6) show the site changed over time in the following ways: in the 1941 aerial photo the area appears to be part of a larger agricultural farm field, and the creek is visible. The 1990 aerial shows residential development being built west of the creek. The 2000 aerial shows further residential development both west of the creek, and east of the outlot. The 2010 aerial appears similar to the present.

4. RESULTS AND CONCLUSION

- **One Wetland** was delineated within the study area (Figure 7). The study area contains “Significantly Disturbed” and “Problem” areas as outlined on Table 1 and shown on data sheets. This report does not presume to determine federal or

state jurisdiction or possible state wetland exemptions. The US Army Corps of Engineers and the Wisconsin Department of Natural Resources should be consulted with jurisdictional determination questions.

- **Wetland A** was ~0.7 acres located adjacent the stream.
- **The wetland community** type is Northern hardwoods forest and fresh wet meadow.
- **Vegetation** included box elder, cottonwood, stressed common buckthorn, red osier dogwood, reed canary grass and garlic mustard.
- **Soils** met the Redox Dark Surface hydric soil indicator.
- **Hydrology** included a positive FAC-neutral test & geomorphic position as well as stressed shallow roots.
- **The wetland line** was placed at a shift from hydric vegetation including stressed common buckthorn that was replaced by upland vegetation including honeysuckle, unstressed common buckthorn and burdock. This was concurrent with a rise in topography and a loss of hydric soil indicators and stress on trees and shrubs. The line close to Mac Arthur Road included some high areas within lower ground as the soil appeared disturbed. The concrete structure was omitted from the wetland boundary.

○ **Other Water Features:**

A stream was located on the west side of the project area, flowing south under Mac Arthur Road. It was approximately 5 ‘ wide with 2-3’ high banks. Silts, sands and pebbles were the substrate. The water was ~6 inches deep, fast flowing and clear. The un named stream is mapped by the WDNR as WBIC 3000120 that flows south to join Pebble Creek and then to the Fox River.

○ **Uplands**

- **Uplands** were characterized by a steep rise in topography above the floodplain. The vegetation included black walnut, crabapple, box elder, common buckthorn, honeysuckle and Canada goldenrod, Queen Anne’s lace, and garlic mustard.

Wetland Category for Stormwater Permitting *			
Wetland	Highly Susceptible	Moderately Susceptible	Less Susceptible
A		X floodplain forest, fresh wet meadow	

Less Susceptible: Degraded wetlands dominated by 90% or greater invasive species. Farmed wetlands, gravel pits, dredge material or fill material sites included.

Moderately Susceptible: Shrub wetlands, floodplain forest, fresh wet meadows,

deep/shallow marsh, forested wetlands. Perennial and Intermittent streams (USGS 7.5 series or County Soil Survey Map) and lakes.

Highly Susceptible: Threatened and endangered species, fish and wildlife refuges, calcareous fens, wild and scenic rivers, sedge meadows, open and coniferous bogs, low prairies, coniferous swamps, lowland hardwood swamps, and ephemeral ponds. Outstanding and exceptional resource waters including trout streams included.

* These designations are based on the WDNR language, wetland delineation field work and the professional opinion of Thompson and Associates. These are suggested categories however the WDNR may modify these in their permit review. For example, some of the characteristics of a Highly Susceptible wetland may not be apparent to Thompson due to confidential data or data beyond the scope of this delineation (e.g.: rare species, high quality trout stream etc.).

The wetland line staked in the field by Thompson and Associates Wetland Services is an estimate of the wetland boundary and the opinions presented in this report are best estimates of the conditions at the time the wetlands were delineated.

Alice Thompson, lead delineator, is an Assured Delineator as explained at the Wisconsin Department of Natural Resources' (the "WDNR") web site, at <http://www.dnr.state.wi.us/org/water/fhp/wetlands/boundaries.html>. The WDNR considers Thompson's wetland delineation work to be "Assured" for purposes of Wisconsin waterway and wetland permits, such that Thompson's clients do not need to wait for concurrence letters from the WDNR before relying on such delineations and may expect that wetland delineation issues should not be the cause of delays in state waterway and wetland permit decisions.

This report will be submitted to the WDNR Assured Delineation Report Portal electronically. Thompson's work is reviewed annually by the WDNR Wetland ID program and one site a year is field verified as part of Thompson's continued assurance status. A client will be notified if their site is going to be spot-checked, and no additional fees will be required. The Assurance Program has a code of ethics that includes high moral and ethical standards and clear and scientifically accurate reporting to the WDNR. All of Thompson's reports are filed with the WDNR Wetland ID program, unless the client does not want to utilize the report and findings, or refuses to pay for the report. Any of Thompson's delineation work not filed with the WDNR is invalid.

The wetlands identified 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 Wisconsin Department of Natural Resources (WDNR), and local jurisdiction under your local county, town, city or village. Municipalities, townships and counties may have local zoning authority over certain areas or types of wetland and waterways. The determination that a wetland or waterway is subject to federal, state or local regulatory jurisdiction is made independently by the agencies. As a result, there may be adjustments to boundaries or jurisdiction based upon review of a regulatory agency.

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

This field work and report is not intended to meet the requirements of an SEWRPC Environmental Corridor, WDNR Endangered Species Review, a navigability determination, or the location of either the Ordinary High Water Mark or floodplain.

APPENDICES:

1. Field Photographs

2. Figures

- Figure 1. Location Map
- Figure 2. NWS Departure from Mean Precipitation Maps
- Figure 3. 2-ft Contour Map
- Figure 4. Soil Map & Hydric Soil List with Minor Soils
- Figure 5. Wisconsin Wetland Inventory
- Figure 6. Historical Aerial Photographs
- Figure 7. Wetland and Data Point Locations

3. Field Data and Results

- Table 1. Significantly Disturbed and Problem Areas
- Data Sheets



ROUTINE METHODOLOGY FOR DELINEATING WETLANDS

This delineation was performed according to guidelines set by the U.S. Army Corps of Engineers 1987 Manual and either the 2012 Regional Supplement to the Corp of Engineers Wetland Delineation Manual: Northcentral and Northeastern Region, or the 2010 Regional Supplement to the Corp of Engineers Wetland Delineation Manual: Midwest Region, depending on which region the site occurs within per US Army Corps of Engineers guidance. Additional DNR requirements and guidance that were presented at wetland delineation training courses and workshops offered by UW-Extension have also been incorporated including the "Guidance for Submittal of Delineation Reports to the St Paul District USACOE and WDNR" dated July 14, 2014 and the St Paul District USACOE "Guidance for Offsite Hydrology/Wetland Determinations " dated July 1, 2016.

Maps used during the delineation included site location map, NRCS County soil maps, U.S.G.S. topographic map, Wisconsin Wetland Inventory Map, and aerial photography. NRCS Wetland Inventory Maps are provided when available and pertinent. Soil taxonomy is obtained from the NRCS Official Soil Series Descriptions (OSD). The indicator plant status was taken from the State of Wisconsin 2016 Wetland Plant List authored by Lichvar, R.W., D.L. Banks, W.N.Kirchner, and N.C. Melvin. The National Wetland Plant List: 2016 wetland ratings. U.S. Army Corps of Engineers. When an indicator was not given then the indicator listed in the Plants of the Chicago Region by Floyd Swink and Gerould Wilhelm (1994) was used. *Typha* plants area not identified to species level as recent research by Dr. Pamela Geddes documents the inability to accurately identify to species using current field characteristics. Similarly, Dr. Gary Fewless reports *Craetegus sp.* cannot be identified to species due to hybridization. The reference for landform descriptors is: Schoeneberger, P.J., Wysocki and Benham. 2012. Field Book for describing and sampling soils, Version 3.0, NRCS, Lincoln, NE. The NOAA Advanced Hydrologic Prediction Service Departure from Normal Map is used to calculate the 90-day departure from normal on the day of the delineation, and the 90 day percent of mean departure from normal. This NOAA data set uses radar, satellite data, and observed data from the 12 CONUS River Forecast Center. The NOAA "normal" precipitation is derived from PRISM climate data created at Oregon State University. As of 2015 the 30- year PRISM Normals have been updated utilizing the 1981-2010 dataset. The location of the project is geo-referenced on the map. The Current Drought Conditions Map is found on the National Integrated Drought Information System- US Drought Portal sponsored by the USDA, National Drought Mitigation Center and seven federal agencies including the U. S. Army Corps of Engineer and NOAA. It is updated weekly on www.drought.gov.

Data points were set in areas that exhibited obvious wetland and obvious upland characteristics. The location of each data point is in the midpoint of the number on the aerial map "Data Point Locations". At each data point, vegetation was identified, soils described, and hydrology noted. Vegetation was recorded as species and absolute percent cover. Herbaceous vegetation, shrub, and tree cover were estimated in circular plots of approximately 5, 15, and 30 feet in radius, respectively, with the center point being the soil pit. If the entire circular plot was not located within a single plant community, then the plot shape was adjusted accordingly with the total plot area remaining equivalent to the circular plot area. The absolute cover was estimated as precisely as possible with low cover estimated as 1%, 3%, or 5%. Vegetation greater than 5% absolute cover was estimated in additional increments of 5%. The appropriate test (Rapid Assessment, Dominance, Prevalence or Morphological Adaptations test) was used to determine dominant vegetation. All plots with a 50% dominance of hydrophytes were evaluated with the Prevalence Index. The wetland boundary was staked and located between the wetland and upland data points, at a consistent break in vegetation, topography, and soils.



BIOGRAPHIES OF FIELD INVESTIGATORS

Alice L. Thompson, Owner, Assured Wetland Delineator

Alice L. Thompson is an independent wetland consultant since 1989 and is certified by the Society of Wetland Scientists as a Senior Professional Wetland Scientist (SPWS). Thompson is a WDNR “assured” wetland delineator since 2006 (see WDNR letter as follows). She obtained a Master’s degree in biological sciences at the University of Wisconsin-Milwaukee in 1995. Her professional interests include wetland restoration, mitigation, and the control of invasive plant species, especially reed canary grass. Ms. Thompson has satisfactorily completed the Wetland Delineation course offered by the Wisconsin Department of Administration, Coastal Management Program in 1998; the Advanced Wetland Delineation Training Workshop offered by the University of Wisconsin-La Crosse in 2002, 2008 and again in 2014; Advanced Hydric Soils offered by the Wetland Training Institute in 2004; the Primary Environmental Corridor Delineation Workshop offered by the Southeastern Wisconsin Regional Planning Commission in 2004; Wetland Plant Identification offered by Dr. Mohlenbrock, Biotic Consultants, 2003 and 2004; Ecological Geology Workshop, UWM Field Station, 2006; the Midwest Supplement Training offered by the US Army Corp of Engineers in 2009, Native Mussel Identification Workshop, UWM Field Station, 2012; Northern Michigan Wetland Plant Identification offered by the Michigan Wetlands Association, 2019; and the Critical Methods in Wetland Delineation offered annually by the Wisconsin Department of Natural Resources in 2018 and eight previous years since 2006. Thompson has taught a 2 day field workshop on “Wetland Delineation for Beginners” at the UW-Milwaukee Field Station (Saukville, WI) in 2017 and 2019.

Aaron J. Menke, Wetland Ecologist

Aaron J. Menke earned a Bachelor’s degree in Applied Environmental Geography with a Biology minor and a Certificate in Geographic Information System (GIS) from the University of Wisconsin-Parkside in 2013. Menke has worked as a wetland consultant with Thompson and Associates for the past six years. His specialty includes utility environmental oversight and permitting, and construction environmental monitoring. Menke also assists on fieldwork including wetland delineation and wetland management. His professional interests include digital mapping techniques and modeling, wildlife management and wetland restoration. He attended the Wisconsin Wetlands Association Wetland Identification Workshop held in September, 2013 (Racine County). He has successfully completed the Basic Wetland Delineation course offered by the University of Wisconsin-La Crosse in 2014 and the Advanced Wetland Delineation course in 2018. He has annually attended Critical Methods in Wetland Delineation offered by the Wisconsin Department of Natural Resources from 2015 through 2020. He has also participated in a wide variety of webinars over the years offered by the Association of State Wetland Managers (ASWM); with notable topics including hydric soils, wetland restoration and mitigation, regulatory updates and tribal aquatic resource protection. He serves as a board member on the Kenosha - Racine Land Trust board of directors, and as President of the Friends of Hawthorn Hollow Nature Sanctuary and Arboretum board of directors.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1300 W Clairemont Avenue
Eau Claire, WI 54701

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 808-266-2821
Toll Free 1-888-036-7463
TTY Access via relay - 711



March 19, 2020

Alice Thompson
Thompson & Associates
1514 Menomonee Avenue
South Milwaukee, WI 53172

Subject: 2020 Assured Wetland Delineator Confirmation

Dear Ms. Thompson:

This letter provides Wisconsin Department of Natural Resources (WDNR) confirmation for the wetland delineations you conduct during the 2020 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.

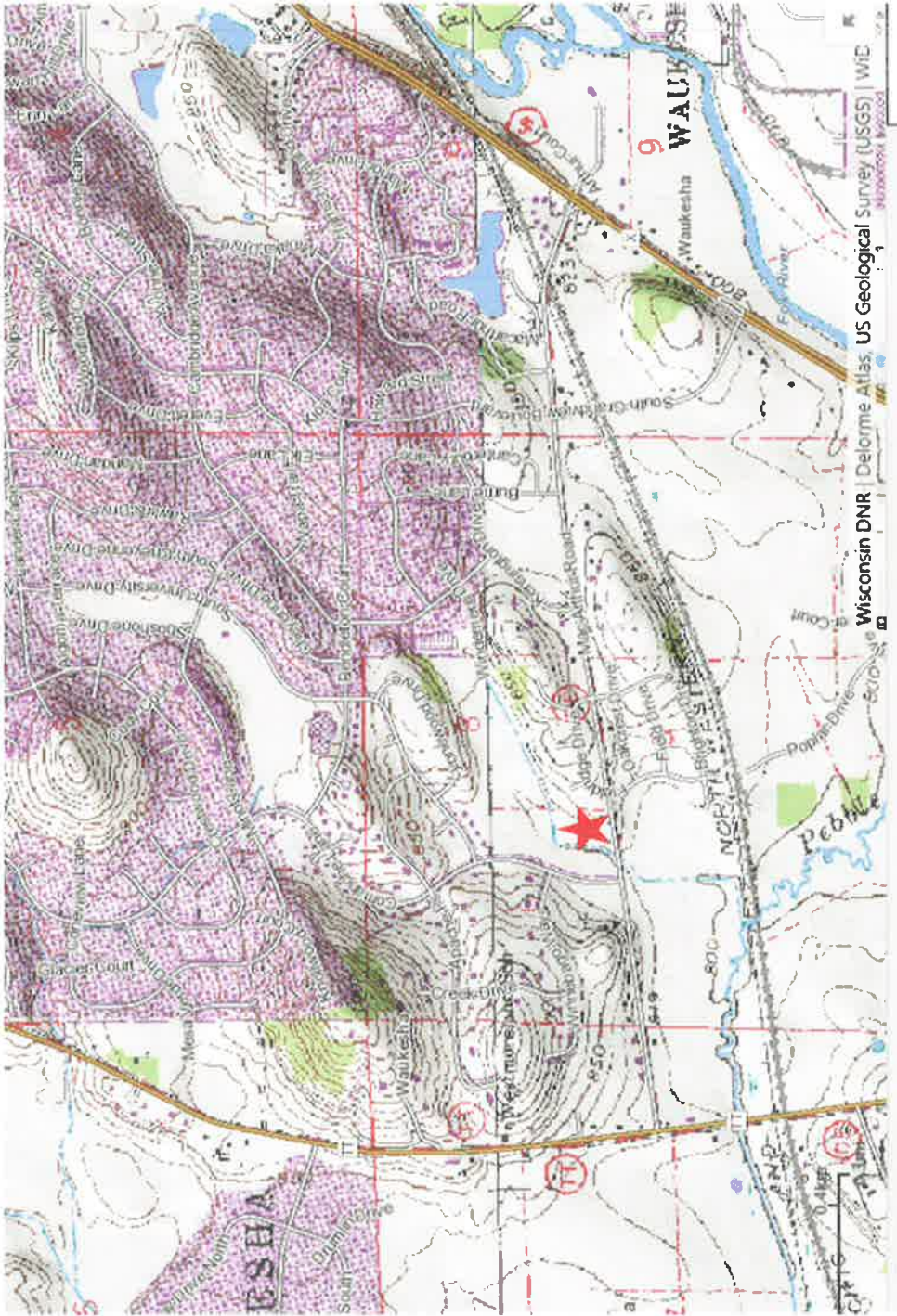
If you or any client has a question regarding your status in the Wetland Delineation Professional Assurance Program, contact me by email at kara.brooks@wisconsin.gov or phone at 414-308-6780. Thank you for all your hard work and best wishes for the upcoming field season.

Sincerely,

A handwritten signature in black ink that reads 'K Brooks'.

Kara Brooks
Wetland Identification Coordinator
Bureau of Watershed Management





MacArthur Road Outlot 1326-999- south end

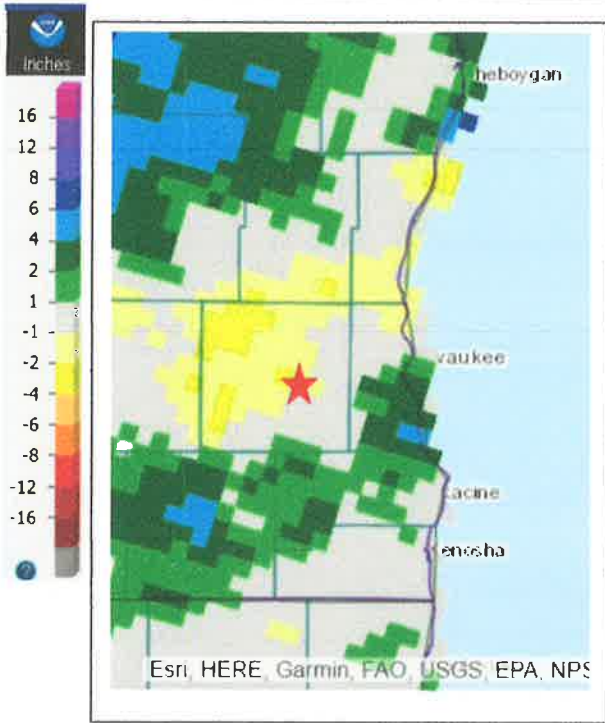
Location and USGS Topographic Map

Figure 1



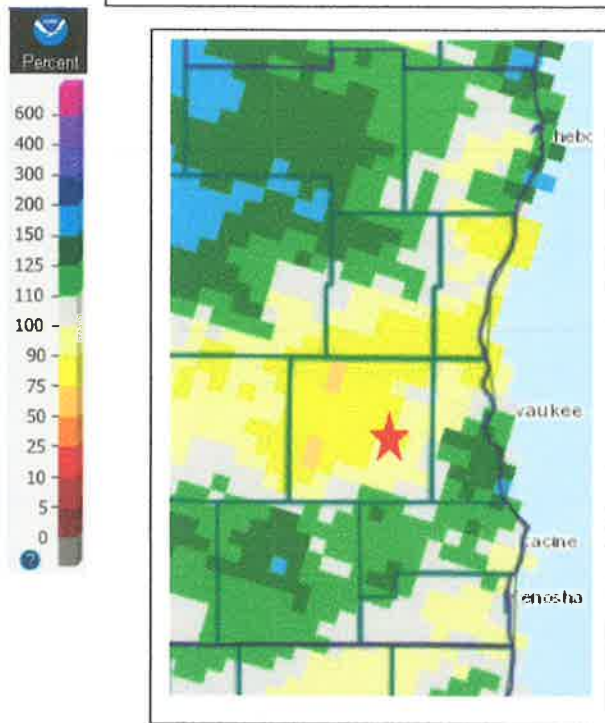
Project Area
in red

**90 Day Departure From Normal
Precipitation- inches**



90 Day Departure Percent of Normal Precipitation- per cent

0-75=Drier than Normal; 75-125=Normal; 125-600+ =Wetter than Normal

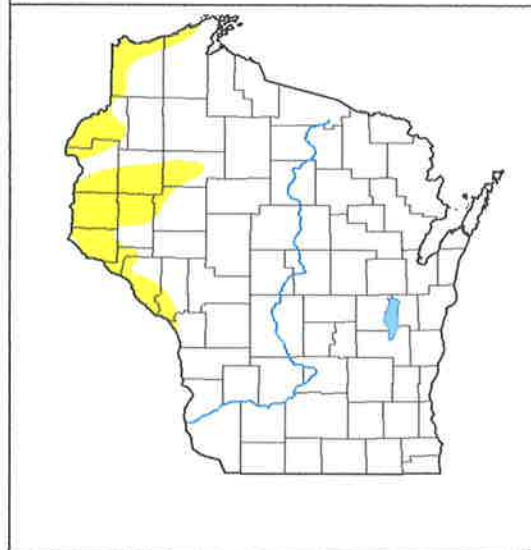


Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**U.S. Drought Monitor- Wisconsin
Current Conditions**



Sources: Advanced Hydrologic
Precipitation Service Website, National
Weather Service

National Integrated Drought Information
System, U.S. Drought Monitor-Wisconsin
(www.droughtmonitor.unl.edu)

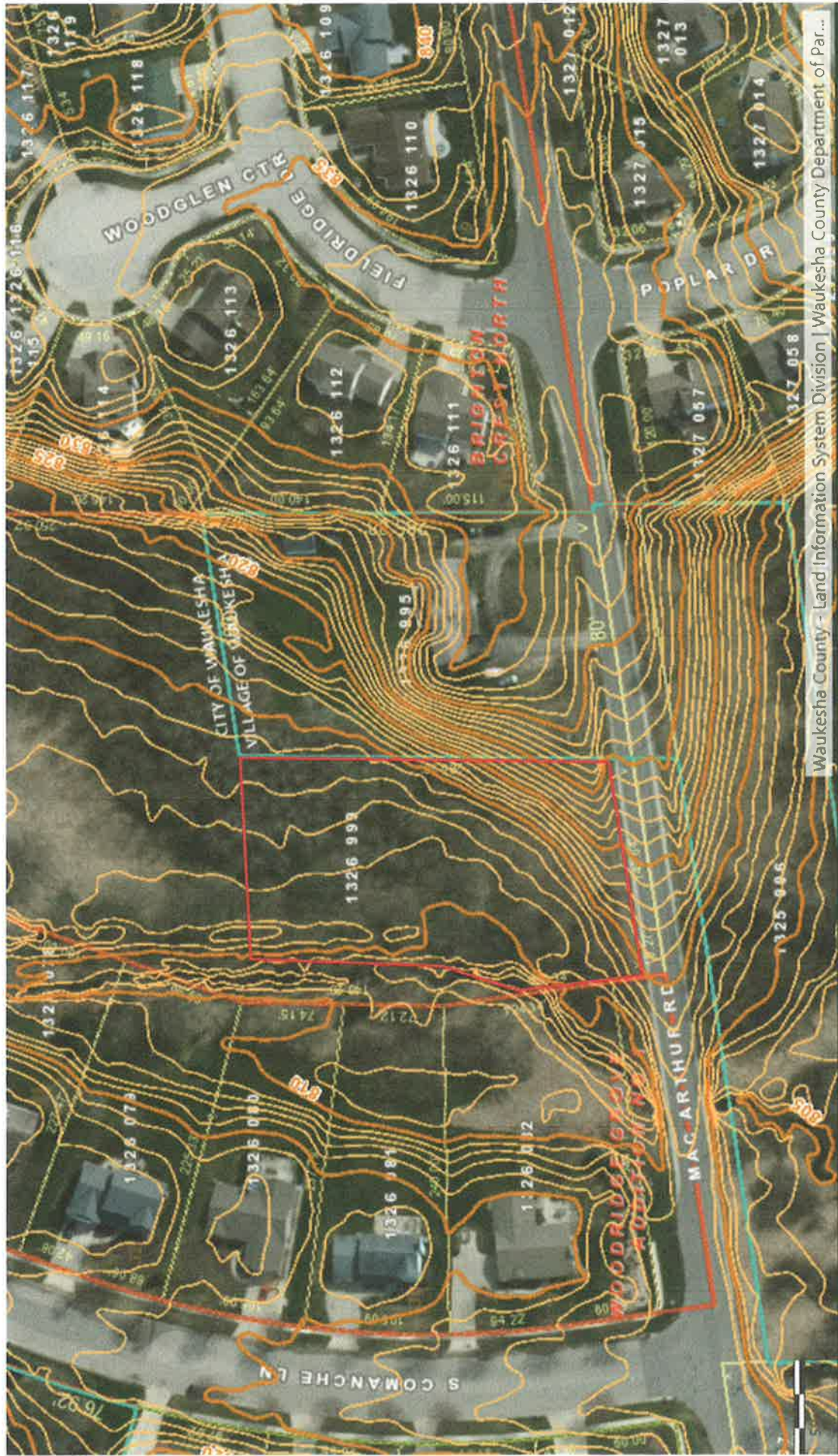
Project Area Starred in Red

MacArthur Road Outlot 1326-999- south end

**90- Day Departure from Normal and Percent of
Normal Precipitation & Current Drought Intensity**

Figure 2





Waukesha County - Land Information System Division | Waukesha County Department of Par...

MacArthur Road Outlot 1326-999- south end
Contour Topography

Figure 3



Source: Waukesha County
 GIS Website

Project Area
 outlined in red





MacArthur Road Outlot 1326-999- south end
 NRCS Soil Survey
 Figure 4

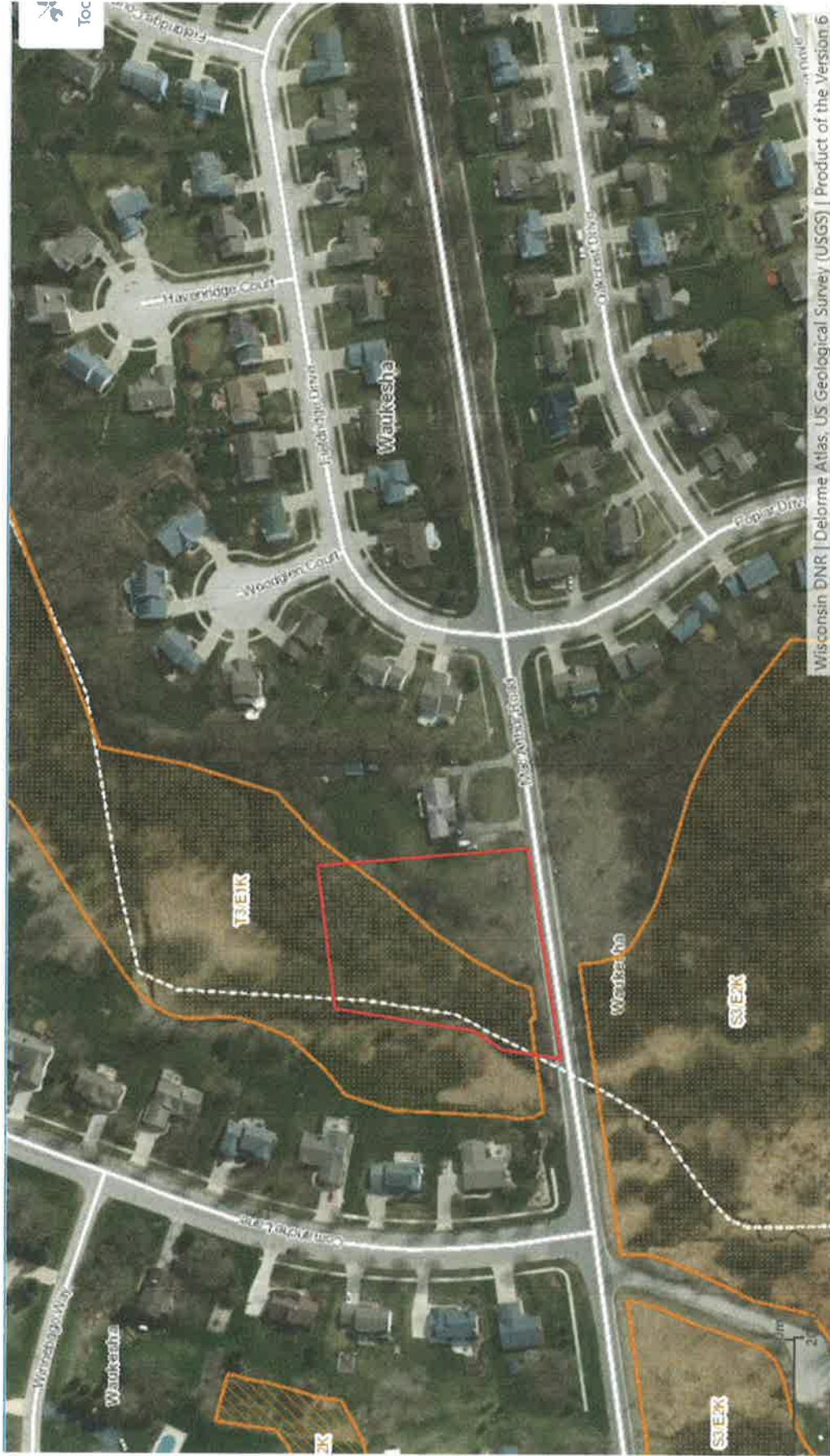
Project Area
 outlined in red

Source: NRCS Web Soil
 Survey, soils descriptions
 follow



Report—Hydric Soil List - All Components

Hydric Soil List - All Components—WI602-Milwaukee and Waukesha Counties, Wisconsin					
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
BsA: Brookston silt loam, 0 to 2 percent slopes	Brookston	85-95	Depressions	Yes	2
	Lamartine	2-6	Draws	No	—
	Pella	3-9	Drainageways	Yes	2,3
HmB2: Hochheim loam, 2 to 6 percent slopes, eroded	Hochheim-Eroded	80-91	Drumlins	No	—
	Theresa-Eroded	6-12	Till plains	No	—
	Lamartine	3-8	Drumlins	No	—
HmC2: Hochheim loam, 6 to 12 percent slopes, eroded	Hochheim-Eroded	85-92	Drumlins	No	—
	Theresa	4-8	Drumlins	No	—
	Hochheim	4-7	Drumlins	No	—
HmD2: Hochheim loam, 12 to 20 percent slopes, eroded	Hochheim-Eroded	80-91	Drumlins	No	—
	Theresa	6-12	Drumlins	No	—
	Hochheim	3-8	Drumlins	No	—
HoD3: Hochheim soils, 12 to 20 percent slopes, severely eroded	Hochheim	100	Drumlins,ground moraines	No	—
LmB: Lamartine silt loam, 0 to 3 percent slopes	Lamartine	80-91	Interdrumlins	No	—
	Pella	6-11	Drainageways	Yes	2,3
	Ossian	3-9	Depressions	Yes	2,3
Oc: Ogden muck	Ogden	100	Lakebeds,depressions	Yes	1,3
Ph: Pella silt loam, 0 to 2 percent slopes	Pella	80-91	Drainageways	Yes	2,3
	Kendall	5-9	Drainageways	No	—
	Lamartine	4-8	Drainageways	No	—
	Palms-Muck	1-3	Depressions	Yes	1,3
PrA: Pistakee silt loam, 1 to 3 percent slopes	Pistakee	90	Flood plains	No	—
	Wet alluvial land	4	Flood plains	Yes	2,3,4
	Juneau	3	Flood plains	No	—
	Pella	3	Depressions	Yes	2,3
Sm: Sebewa silt loam, 0 to 2 percent slopes	Sebewa	80-95	Depressions	Yes	2,3
	Adrian	3-12	Lakebeds (relict)	Yes	1,3



Wisconsin DNR | Delorme Atlas, US Geological Survey (USGS) | Product of the Version 6



MacArthur Road Outlot 1326-999- south end
Wisconsin Wetland Inventory
Figure 5

Project Area
 outlined in red
 Source: WDNR Surface Water
 Data Viewer



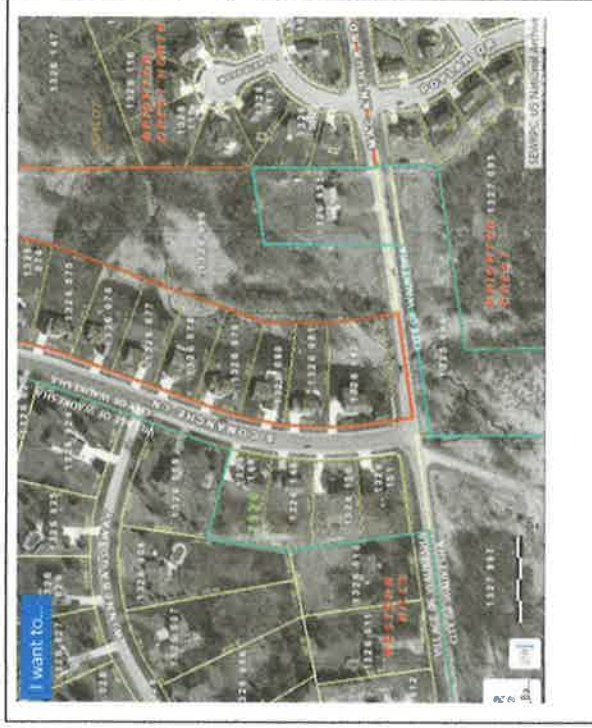


upper left
1941

upper right
2000

lower left
1990

lower right
2010



Source: Waukesha County
GIS Website



MacArthur Road Outlot 1326-999- south end
Historic Aerials
Figure 6



Key	
1	Data point (midpoint of #)
—	Approx. delineated wetland boundary
—	Culvert
—	Upland
—	Drainageway

MacArthur Road Outlot 1326-999- south end
Data Point Locations and Site Overview
Figure 7



Project Area outlined in red
 Source: Waukesha County
 GIS 2015 aerial



Wetland Delineation Photos taken on October 28, 2020



Upper left– Stream facing south

Center left– Stream from wetland facing west

Lower left– Stream flowing towards Mac Arthur Road in the background.

Center right– close up of stream

Lower right– Concrete structure on lumpy ground east of stream. Old spring house?



Wetland Delineation Photos taken on October 28, 2020



Upper left– Wetland A

Center left– Wetland boundary facing north-west at concrete structure, wetland to left of photo, upland to right

Lower left– Wetland A in background, Upland in foreground

Lower right– Wetland A in background, upland in foreground



Wetland Delineation Photos taken on October 28, 2020



Upper left– Mac Arthur Road on right facing east, upland in foreground, neighbors lot in background (at arrow beyond tree).

Center left– upland facing towards Mac Arthur Road.

Lower left- from Wetland A facing upland towards Mac Arthur Road

Lower right- from high point at Mac Arthur Road facing north—Wetland A in background



Table 1. Summary of "Significantly Disturbed" and "Problem" Areas

Site: MacArthur Road Outlot - South End

Significantly Disturbed Areas	Corresponding Data Points	Description	Justification for wetland with less than 3 parameters
<input type="checkbox"/> Farmed Field			
<input checked="" type="checkbox"/> Managed plant community	4	<i>mowed within past month- vegetation was identifiable.</i>	
<input type="checkbox"/> Soil Removal			
<input checked="" type="checkbox"/> Fill	2	<i>"lumpy ground", with a concrete structure close by- possible dredge fill or historic farm disturbance.</i>	
<input type="checkbox"/> Subsurface Plow			
<input type="checkbox"/> Surface Layer Removed			
<input type="checkbox"/> Man-Made Structure			
<input type="checkbox"/> Dam/Levee			
<input type="checkbox"/> Channelization			
<input type="checkbox"/> Drainage			
<input type="checkbox"/> Human-induced wetland			
<input type="checkbox"/> Change in River			
Problem Areas	Corresponding Data Points	Description	Justification for wetland with less than 3 parameters
<input type="checkbox"/> Highly seasonal wetland			
<input type="checkbox"/> Vegetated flats			
<input type="checkbox"/> FACU dominated wetland			
<input type="checkbox"/> Beaver impoundment			
<input type="checkbox"/> Problem soils- red parent material, sandy etc.			
<input type="checkbox"/> Fluvial Soils			
<input type="checkbox"/> Vernal pools			
<input type="checkbox"/> Multi-year wet/dry cycle			
<input type="checkbox"/> White pine swamp			
<input type="checkbox"/> Other			

Significantly disturbed and problem areas are found when one or more of three parameters (vegetation, soils, hydrology) are missing, obscured or misleading. Disturbed areas include human-caused disturbance or disturbance due to a significant, catastrophic natural event. Problem areas are due to natural, normal, seasonal, or annual variability or permanently due to the nature of soils or vegetation on site.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MacArthur Rd Outlot - S end City/County: Waukesha / Waukesha Sampling Date: 10/28 /2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 1
 Investigator(s): TAWS - Alice Thompson / Aaron Menke Section 8 Township 6 N, Range 19 (East) West
 Landform: Summit Shoulder Backslope Footslope Toeslope Urban Modified Other: _____ Local relief: concave, convex, linear, other: _____
 Soil Map Unit Name: Brookstone silt loam / Ogden silt loam WWI classification: T3 / E1 K
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ Reason: Previous 90 day Precipitation WET NORMAL DRY
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ <u>Wetland #</u> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr N, Hardwood Swamp Coniferous Swamp Riverine Ephemeral Basin Dunes Swale Farmed Wetland
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks: Stream shelf on edge of flowing stream
Last week of field season, 2020, sunny day 45°F, green includes buckthorn, Galium, reed canary grass

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rhamnus cathartica</u>	<u>100</u>	<u>N</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Cornus alba</u>	<u>30</u>	<u>N</u>	<u>FACW</u>	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
6. _____	_____	_____	_____	UPL species _____ x 5 = _____
7. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
<u>130</u> = Total Cover				Prevalence Index = B/A = <u>65/26</u>
Herb Stratum (Plot size: equiv to 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	_____ Rapid Test for Hydrophytic Vegetation
2. <u>Allaria petiolata</u>	<u>30</u>	<u>N</u>	<u>FAC</u>	<u>X</u> Dominance Test is >50%
3. _____	_____	_____	_____	_____ Prevalence Index is ≤3.0 ¹
4. _____	_____	_____	_____	_____ Morphological Adaptations ¹ (Provide supporting data in Remarks)
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	Definitions of Vegetation Strata:
9. _____	_____	_____	_____	Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.
10. _____	_____	_____	_____	Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) tall.
<u>40</u> = Total Cover				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Woody vines - All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
= Total Cover				

Remarks: _____

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-14	10YR 2/1	90	10YR 5/8	10	C	M	Silt loam w/ high organic matter	
14-26	10YR 2/1	70	10YR 4/6	30	C	M	Silt loam w/ high organic matter	

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

Hydric Soil Indicators: (For LRR K)

- 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)
- High Chroma Sands (S11) Great Lakes shores
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Dark Surface (S7)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)*
- Very Shallow Dark Surface (F22)*
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Is Hydric Soil Present? Yes No

Remarks: * approaches Loamy Mucky Mineral w/ high organic matter

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) (B1 or later)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1) *stooling*
- 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? Yes No Depth (inches): _____
 (includes capillary fringe)

Is Wetland Hydrology Present? Yes No

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

Remarks: stream 5' wide 2-3' high banks
silt + sands substrate + pebbles
6" water flows south - quick flow - clear water

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MacArthur Rd Outlet - S end City/County: Waukegan Waukegan Sampling Date: 10/28/2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 2
 Investigator(s): TAWS - Alice Thompson Aaron Menke Section 8 Township 6 N, Range 19 East West
 Landform: Summit Shoulder Backslope Foothlope Toeslope Urban Modified Other: _____ Local relief: concave, convex linear, other: _____
 Soil Map Unit Name: Brookstone Silt loam WWI classification: T3/E1K
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ Reason: Previous 90 day Precipitation WET/NORMAL DRY
 Are Vegetation _____, Soil 1, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic? _____ new normal

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ <u>Wetland A</u> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr N. Hardwood Swamp Coniferous Swamp Riverine Ephemeral Basin Dune & Swale Farmed Wetland
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	

Remarks: * some highs; lows "lumpy" old farm disturbance or creek dredging - concrete structure adjacent plot (see photos) old spring cooling?

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Acer negundo</u>	<u>20</u>	<u>M</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____
5. _____	<u>20</u> = Total Cover	_____	<u>10/4</u>	
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)				FACW species _____ x 2 = _____
1. <u>Lonicera hartwegii</u>	<u>30</u>	<u>M</u>	<u>FACU</u>	FAC species _____ x 3 = _____
2. <u>Rhamnus cathartica</u>	<u>100</u>	<u>M</u>	<u>FAC</u>	FACU species _____ x 4 = _____
3. _____	_____	_____	_____	UPL species _____ x 5 = _____
4. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
5. _____	_____	_____	_____	Prevalence Index = B/A = _____
6. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ____ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% ____ Prevalence Index is ≤3.0' ____ Morphological Adaptations' (Provide supporting data in Remarks) ____ Problematic Hydrophytic Vegetation' (Explain)
7. _____	<u>130</u> = Total Cover	_____	<u>65</u>	
Herb Stratum (Plot size: equiv to 5' radius)				Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) 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.
1. <u>Panicum serotinum</u>	<u>5</u>	_____	<u>FACU</u>	Is Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. <u>Hackelia virginiana</u>	<u>10</u>	_____	<u>FACU</u>	
3. <u>Aristida minus</u>	<u>10</u>	_____	<u>FACU</u>	Remarks: <u>Mostly facultative disturbance vegetation with mix of FAC/FACU - disturbed area</u>
4. <u>Rhamnus cathartica</u>	<u>20</u>	<u>M</u>	<u>FAC</u>	
5. <u>Allania petiolata</u>	<u>50</u>	<u>M</u>	<u>FAC</u>	
6. <u>Circaea canadense</u>	<u>5</u>	_____	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	<u>100</u> = Total Cover	_____	<u>50/20</u>	
Woody Vine Stratum (Plot size: equiv to 30' radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____	_____	_____	_____ = Total Cover	

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	10YR 2/2	100					silty clay loam	
8-22	10YR 2/1	80	10YR 5/8	20	c	m	silt loam w/ high OM	

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

Hydric Soil Indicators: (For LRR K)

- 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)
- High Chroma Sands (S11) Great Lakes shores
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Dark Surface (S7)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)*
- Very Shallow Dark Surface (F22)*
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Is Hydric Soil Present? Yes No

Remarks: concrete structure nearby

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) (B/I or later)
- 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? Yes No Depth (inches): _____
 (includes capillary fringe)

Is Wetland Hydrology Present? Yes No

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

Remarks: * terrace above data point #1, but still in stream flood plain

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MacArthur rd outlot S-end City/County: Waukesha/Waukesha Sampling Date: 10/28/2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 3
 Investigator(s): TAWS - Alice Thompson Aaron Menke Section 8 Township 6 N, Range 19 (East) West
 Landform: Summit Shoulder Backslope Foothills Tpeslope Urban Modified Other: _____ Local relief: concave, (convex) linear, other: _____
 Soil Map Unit Name: Brookstone Silt loam WWI classification: boundary of T3/E1K5
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ Reason: Previous 90 day Precipitation WET(NORMAL) DRY no wetland
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr N. Hardwood Swamp Coniferous Swamp Riverine Ephemeral Basin Dune&Swale Farmed Wetland
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

REMARKS:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57</u> (A/B)
1. <u>Juglans nigra</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Acer negundo</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>60</u> = Total Cover		<u>30/12</u>	
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Rhamnus cathartica</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Lonicera tatarica</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
	<u>50</u> = Total Cover		<u>25/10</u>	
Herb Stratum (Plot size: equiv to 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation <u>X</u> Dominance Test is >50% Prevalence Index is ≤3.0* Morphological Adaptations* (Provide supporting data in Remarks) Problematic Hydrophytic Vegetation* (Explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Allaria petiolata</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Pastinaca sativa</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Angelica ^{sp.} purpurea</u>	<u>5</u>	_____	<u>Obl</u>	
4. <u>Galium asperellum</u>	<u>30</u>	<u>Y</u>	<u>Obl</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>155</u> = Total Cover		<u>78/31</u>	
Woody Vine Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) 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. Is Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
	_____ = Total Cover		_____	

REMARKS:

SOIL

Sampling Point: **3**

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-3	10YR2/1	100					Silt loam	
3-11	10YR2/1	100					silty clay loam	
11-22	10YR 5/2	100					Sandy clay loam	
22-33	10YR 5/3	100					Sandy clay loam	
33-34	10YR 5/3	95	10YR 5/6 5		c m		sandy clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (For LRR K)

- 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)
- High Chroma Sands (S11) Great Lakes shores
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Dark Surface (S7)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)*
- Very Shallow Dark Surface (F22)*
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Is Hydric Soil Present? Yes No

Remarks:

0-11 " 11-22 " 22-33 " : no redox - looked very closely at multiple samples, redox at 33"

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) (B1 or later)
- 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? Yes No Depth (inches): _____
 (includes capillary fringe)

Is Wetland Hydrology Present? Yes No

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

Remarks:

on slight slope - not low point
left hole open 1 hour - no hydrology in pit

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: NackArthur Rd Outlet - Sand City/County: Waukesha/Waukesha Sampling Date: 10/28 /2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 4
 Investigator(s): TAWS - Alice Thompson Aaron Menke Section 8 Township 6 N., Range 19 East West
 Landform: Summit Shoulder Backslope Footslope Toeslope Urban Modified Other: _____ Local relief: concave convex linear, other: _____
 Soil Map Unit Name: Hochheim Loam WWI classification: 3
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ Reason: Previous 90 day Precipitation WET NORMAL DRY
 Are Vegetation , Soil _____, or Hydrology _____ significantly disturbed? mowed Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr N. Hardwood Swamp Coniferous Swamp Riverine Ephemeral Basin Dune& Swale Farmed Wetland
N O R T H Remarks: <u>mowed w/in last month - possible to ID vegetation</u>	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Tuglens nigra</u>	<u>30</u>	<u>M</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. <u>Acer negundo</u>	<u>30</u>	<u>M</u>	<u>FAC</u>	
3. _____				Total Number of Dominant Species Across All Strata: <u>6</u> (B)
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
5. _____				
<u>60</u> = Total Cover			<u>30/12</u>	
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rhamnus cathartica</u>	<u>30</u>	<u>M</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Viburnum lentago</u>	<u>10</u>	<u>M</u>	<u>FAC</u>	
3. _____				OBL species _____ x 1 = _____
4. _____				FACW species _____ x 2 = _____
5. _____				FAC species _____ x 3 = _____
6. _____				FACU species _____ x 4 = _____
7. _____				UPL species _____ x 5 = _____
<u>40</u> = Total Cover			<u>20/8</u>	Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: equiv to 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Solidago canadensis</u>	<u>60</u>	<u>M</u>	<u>FACU</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Pastinaca sativa</u>	<u>5</u>		<u>FACU</u>	
3. <u>Taraxacum officinale</u>	<u>5</u>		<u>FACU</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. <u>Allaria petiolata</u>	<u>2.0</u>	<u>M</u>	<u>FAC</u>	
5. <u>Daucus carota</u>	<u>10</u>		<u>FACU</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover			<u>50/20</u>	
Woody Vine Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. _____				Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.
2. _____				Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) tall.
3. _____				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
_____ = Total Cover				Woody vines - All woody vines greater than 3.28 ft in height.
				Is Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Dominated by facultative disturbance vegetation</u>				

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-14	10YR 2/2	100					silty clay loam	
14-20	10YR 3/4	100					silty clay loam	

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

Hydric Soil Indicators: (For LRR K)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> High Chroma Sands (S11) Great Lakes shores	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)*
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Marl (F10)	<input type="checkbox"/> Very Shallow Dark Surface (F22)*
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)		

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

Restrictive Layer (if observed):

Type: _____	Is Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2) (B1 or later)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Is Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

(includes capillary fringe)

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

Remarks:

oh slope

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MacArthur Road Outlet - S end City/County: Waukesha / Waukesha Sampling Date: 10/28/2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 5
 Investigator(s): TAWS - Alice Thompson, Aaron Menke Section 8 Township 6 N, Range 19 (East) West
 Landform: Summit Shoulder Backslope Footslope Toeslope Urban Modified Other: _____ Local relief: concave, convex, linear, other: _____
 Soil Map Unit Name: Brookstone silt loam WWI classification: T3/E1/K
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ Reason: Previous 90 day Precipitation WET/NORMAL/DRY
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ Wetland A Wetland Type: Marsh / Fresh Wet Meadow / Sedge Meadow / Shrub Carr. N. Hardwood Swamp / Coniferous Swamp / (Riverine) / Ephemeral Basin / Dune & Swale / Farmed Wetland
N O R T H Remarks: <u>low point but berm between here & stream</u>	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Acer negundo</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>80</u> = Total Cover				
<u>40/10</u>				
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Pharous cathartica</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
6. _____	_____	_____	_____	UPL species _____ x 5 = _____
7. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
<u>50</u> = Total Cover				Prevalence Index = B/A = _____
<u>25/10</u>				
Herb Stratum (Plot size: equiv to 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	_____ Rapid Test for Hydrophytic Vegetation
2. <u>Galium asperellum</u>	<u>60</u>	<u>Y</u>	<u>Obl</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Allaria petiolata</u>	<u>20</u>	_____	<u>FAC</u>	_____ Prevalence Index is ≤3.0'
4. <u>Hackelia virginiana</u>	<u>5</u>	_____	<u>FACU</u>	_____ Morphological Adaptations ¹ (Provide supporting data in Remarks)
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>155</u> = Total Cover				
<u>78/31</u>				
Woody Vine Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. _____	_____	_____	_____	Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.
2. _____	_____	_____	_____	Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) tall.
3. _____	_____	_____	_____	Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
_____ = Total Cover				Woody vines - All woody vines greater than 3.28 ft in height.
Remarks: _____				Is Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-14	10YR 2/1	98	10YR 5/8	2	C m		silt loam	
14-27	10YR 2/1	80	10YR 5/8	20	C m		silt loam with light OM	
27-30	10YR 3/2	80	10YR 4/6	20	C m		fine silty clay loam	

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

Hydric Soil Indicators: (For LRR K)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> High Chroma Sands (S11) Great Lakes shores	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)*
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Marl (F10)	<input type="checkbox"/> Very Shallow Dark Surface (F22)*
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)		

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Is Hydric Soil Present? Yes No

Remarks: very black soil - difficult to see redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2) (8/1 or later)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2) *	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:

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

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

Saturation Present? Yes No Depth (inches): _____

(includes capillary fringe)

Is Wetland Hydrology Present? Yes No

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

Remarks: * Slight berm to creek, however likely floods in high water, or water pools behind berm

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: McArthur Road Outlot 5 and City/County: Waukesha / Waukesha Sampling Date: 10/28/2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 6
 Investigator(s): TAWS - Alice Thompson / Jason Menke Section 8 Township 6 N, Range 19 (East) West
 Landform: Summit Shoulder Backslope Footslope Toeslope Urban Modified Other: _____ Local relief: concave, convex, linear, other: _____
 Soil Map Unit Name: Brookstone Silt Loam WWI classification: Ø
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ Reason: Previous 90 day Precipitation WET NORMAL DRY
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr N. Hardwood Swamp Coniferous Swamp Riverine Ephemeral Basin Dune & Swale Farmed Wetland
N O R T H Remarks: _____	

VEGETATION - Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
Tree Stratum (Plot size: equiv to 30' radius)				
1. <u>Malus coronaria</u>	<u>50</u>	<u>Y</u>	<u>Upl</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7</u> (A/B)
2. <u>Acer negundo</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
3. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
4. _____				
5. _____				
_____	<u>100</u> = Total Cover		<u>50/20</u>	
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)				
1. <u>Rhamnus cathartica</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: ____ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% ____ Prevalence Index is ≤3.0' ____ Morphological Adaptations ¹ (Provide supporting data in Remarks) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
_____	<u>30</u> = Total Cover		<u>15/6</u>	
Herb Stratum (Plot size: equiv to 5' radius)				
1. <u>Allaria petiolata</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) 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.
2. <u>Galium asperellum</u>	<u>40</u>	<u>Y</u>	<u>Obl</u>	
3. <u>Glechoma hederacea</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	

_____	<u>130</u> = Total Cover		<u>65/26</u>	
Woody Vine Stratum (Plot size: equiv to 30' radius)				
1. _____				Is Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____				
3. _____				
_____	= Total Cover			
Remarks: _____				

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-10	10YR 2/2	100					silt loam	
10-11	10YR 2/1	80	10YR 5/8	20	C	M	silty clay loam	
11-19	10YR 2/1	100					silty clay	

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

Hydric Soil Indicators: (For LRR K)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> High Chroma Sands (S11) Great Lakes shores	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)*
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Marl (F10)	<input type="checkbox"/> Very Shallow Dark Surface (F22)*
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)		

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Is Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2) (8/1 or later)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? Yes _____ No Depth (inches): _____

(includes capillary fringe)

Is Wetland Hydrology Present? Yes _____ No

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

Remarks: no stress on trees

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MacArthur Road Outlet - S end City/County: Waukesha/Waukesha Sampling Date: 10/28 /2020
 Applicant/Owner: Hollyhock Properties State: WI Sampling Point: 7
 Investigator(s): TAWS - Alice Thompson Aaron Mentke Section 8 Township 6 N. Range 19 East West
 Landform: Summit Shoulder Backslope Footslope Toeslope Urban Modified Other: _____ Local relief: concave, convex, linear, other: _____
 Soil Map Unit Name: Brookston Silt Loam WWI classification: T3/EZK
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ Reason: Previous 90 day Precipitation WET, NORMAL, DRY
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ problematic?

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ <u>Wetland A</u> Wetland Type: Marsh Fresh Wet Meadow Sedge Meadow Shrub Carr <u>N. Hardwood Swamp</u> Coniferous Swamp Rivine Ephemeral Basin Dune & Swale Farmed Wetland
N O R T H Remarks: _____	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus deltoides</u>	<u>100</u>	<u>M</u>	<u>Fac</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. <u>Acer negundo</u>	<u>30</u>	<u>M</u>	<u>Fac</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>130</u> = Total Cover				
<u>65</u> / <u>26</u>				
Sapling/Shrub Stratum (Plot size: equiv to 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rhamnus cataractica</u>	<u>70</u>	<u>M</u>	<u>Fac</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
7. _____				Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: equiv to 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Alliaria petiolata</u>	<u>80</u>	<u>M</u>	<u>Fac</u>	_____ Rapid Test for Hydrophytic Vegetation
2. _____				<input checked="" type="checkbox"/> Dominance Test is >50%
3. _____				_____ Prevalence Index is ≤3.0'
4. _____				_____ Morphological Adaptations* (Provide supporting data in Remarks)
5. _____				_____ Problematic Hydrophytic Vegetation* (Explain)
6. _____				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				
9. _____				
10. _____				
<u>80</u> = Total Cover				<u>40</u> / <u>16</u>
Woody Vine Stratum (Plot size: equiv to 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. _____				Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.
2. _____				Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 (1m) tall.
3. _____				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
_____ = Total Cover				Woody vines - All woody vines greater than 3.28 ft in height.
				Is Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____				

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-9	10YR 2/2	95	10YR 4/6	10	C	m	fine silt loam	
9-20	10YR 4/2	100					silt loam	

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

Hydric Soil Indicators: (For LRR K)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> High Chroma Sands (S11) Great Lakes shores	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)*
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Marl (F10)	<input type="checkbox"/> Very Shallow Dark Surface (F22)*
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)		

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Is Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2) (8/1 or later)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input checked="" type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Is Wetland Hydrology Present? Yes No

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

Remarks: backform w/ shallow root
 flood plain of creek