

Wetland Delineation Report

LMRWD Dredge Site

Scott County, Minnesota

Prepared for
Lower Minnesota River Watershed District

January 2019



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Contents

1.0	Introduction	1
2.0	General Environmental Setting.....	1
2.1	Study Area Description.....	1
2.2	Site Topography.....	1
2.3	National Wetland Inventory	1
2.4	Water Resources	1
2.5	Soil Resources	2
3.0	Wetland Delineation.....	2
3.1	Wetland Delineation and Classification Methods.....	2
3.2	Wetland Description.....	2
4.0	Regulatory Overview	4
5.0	References	5

List of Figures

Figure 1	Site Location Map
Figure 2	Site Topography Map
Figure 3	National Wetland Inventory Map
Figure 4	Public Water Inventory Map
Figure 5	Soil Survey Map
Figure 6	Wetland Delineation Map

List of Appendices

Appendix A	Wetland Data Forms
Appendix B	Site Photographs
Appendix C	Antecedent Precipitation Conditions
Appendix D	Historic Aerial Photography Review

1.0 Introduction

Lower Minnesota River Watershed District (LMRWD) is proposing to modify an existing dredge material storage site (the Project). The Project is located adjacent to the Minnesota River in the city of Savage within Township 27 North, Range 24, Section 31 (**Figure 1**). LMRWD plans to modify the existing dredge material storage area by changing the configuration of existing berms on the site and making the berms permanent features on the site. The total area of the site is approximately 1 acres. The Project is located within Savage city limits and the designated land use is mixed industrial and undeveloped riverside.

Barr Engineering Co. (Barr) conducted a field wetland delineation on October 30, 2018 within a 17-acre study area to assist with Project planning and permitting activities. The study area included the dredge material storage site and the surrounding area. This Wetland Delineation Report has been prepared in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010) and the requirements of the Minnesota Wetland Conservation Act (WCA) of 1991.

2.0 General Environmental Setting

2.1 Study Area Description

The wetland delineation study area included the proposed expansion area as well as the surrounding area bounded by the Minnesota River on the north and east, a large berm to the south and Vernon Avenue on the west. The study area located in area of mixed industrial and undeveloped riverine habitat within the city of Savage, Minnesota (**Figure 1**).

2.2 Site Topography

The study area primarily has a flat topography, however there is a channel along the west side of the area with steep banks sloping toward the channel bottom. The topography is also modified by a large man-made berm which runs east – west along the southern edge of the study area and turns to run north – south approximately 250 feet west of the Minnesota River (**Figure 2**).

2.3 National Wetland Inventory

The western, northern and eastern edges of the study area are mapped as forested PFO1A type wetlands in the National Wetland Inventory. The southern and central portions are partially mapped as PEM1A emergent wetlands (**Figure 3**).

2.4 Water Resources

There are no named water resources within the immediate study area. The Minnesota River is adjacent to the study area on the north and east sides. There is an unnamed channel on the west side of the study area that provides hydraulic connectivity between the Minnesota River and a large, unnamed wetland complex south of the project area.

2.5 Soil Resources

Soil information for the project site was obtained from the Natural Resources Conservation Service SSURGO Database. One soil map unit, Dorchester silty clay loam, was identified within the study area (**Figure 5**). This soil unit is described as moderately well drained and commonly found in floodplains. It is assigned to hydrologic group C, defined by the Web Soil Survey as “Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.”

3.0 Wetland Delineation

3.1 Wetland Delineation and Classification Methods

Wetlands within the study area were delineated and classified during a site visit on October 30, 2018. The wetland delineation was established according to the Routine On-Site Determination Method specified in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Edition) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010). Delineated wetland boundaries and sample points were surveyed using a Global Positioning System (GPS) with sub-meter accuracy.

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) Cowardin System (Cowardin et al., 1979), the USFWS Circular 39 system (Shaw and Fredine, 1956), and the Eggers and Reed Wetland Classification System (Eggers and Reed, 1977).

Soil borings were placed in and around wetland areas, to a depth of at least 24 inches below the ground surface where possible. Representative soil samples from each boring were examined for the presence of hydric soil indicators using the Natural Resources Conservation Service (NRCS) hydric soil indicators (Version 8.1). Soil colors (e.g., 7.5YR 4/2, etc.) were determined using a Munsell® soil color chart and noted on the Wetland Data Forms **Appendix A**.

Hydrologic conditions were evaluated at each soil boring, and this information was also noted on the Wetland Data Forms. The dominant plant species were identified, and the corresponding wetland indicator status of each plant species was determined and noted on the Wetland Data Forms. Photographs taken at the time of the site visit are provided in **Appendix B**.

3.2 Wetland Description

Two wetlands were delineated within the study area. Wetland 1 runs along the western edge of the study area on either side of a channel connecting the Minnesota River to a large wetland complex south of the study area via a culvert below the access road onto the site. Wetland 2 makes up the southern boundary of much of the study area before turning northward and entering more fully into the study area, following the edge a constructed berm. A description of the wetlands is provided below, with representative photographs in **Appendix B**.

Wetland 1 is a fringe wetland adjacent to an including a channel connecting the Minnesota River to Wetland 2 to the south. The site visit was conducted 10/30/18. There was no identifiable herbaceous vegetation visible; however, decaying annual vegetation area noted in the area indicates it is likely present during the spring and summer months. The area is forested by a mix of species typical of moist areas including *Populus deltoides* (Cottonwood), *Acer saccharinum* (Sugar Maple), *Ulmus rubra* (Slippery Elm), *Acer negundo* (Box Elder), and *Fraxinus pennsylvanica* (Green Ash). Soils within Wetland 1 met hydric criteria for the Depleted Matrix (F3) indicator. Indicators of wetland hydrology were also noted at this site. Primary indicators Saturation (A3) and Water Marks (B1) as well as secondary indicators Geomorphic Position (D2) and FAC- Neutral Test (D5) were documented. The transition to upland is demarcated by a rapid change in elevation from the lower part of the channel to rough terrace approximately 5 feet higher. This upland area lacks the hydrology indicators found within the wetland area though the soils and vegetative community are similar.

This wetland was classified as palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) in the Cowardin classification system; Type 1 (floodplain) in the USFWS Circular 39 system; and floodplain forest based on the Eggers and Reed Wetland Classification System.

Wetland 2 is a mixed sedge meadow and shallow marsh dominating much of the area south of the project area. The portions of this wetland which fall within the area of investigation are of the sedge meadow type with marsh characteristics farther south and deeper into the wetland. Vegetation noted at the sampling point taken within this wetland was identified as *Carex stricta* (Tussock Sedge) and *Carex vulpinoidea* (Fox Sedge). Soils at this location met hydric criteria due to the presence the indicators 2cm Muck (A10) and Depleted Matrix (F3). A number of indicators of wetland hydrology were also evident including Surface Water (A10), High Water Table (A2), Saturation (A3) and Inundation Visible on Aerial Imagery (B7). The upland transition is marked by an elevation change on the northern edge of Wetland 2 that has been further modified by the placement of a large berm. Dredge material has been placed on the northern side of this berm and that material was noted in the soil borings at this location.

This wetland was classified as palustrine, emergent, persistent and temporarily flooded (PEM1A) in the Cowardin classification system; Type 2 (wet meadow) in the USFWS Circular 39 system; and Sedge Meadow based on the Eggers and Reed Wetland Classification System.

A third area was noted during a follow up site visit on November 30, 2018 with representatives of Barr Engineering and the city of Savage present. A wetland sampling transect was conducted at this location to determine whether or not wetland criteria would be met, as well as a historic aerial photography review and assessment of current site conditions. Data sheets for this third location are at SP E in the data forms found in **Appendix A**. Aerial photography was reviewed with this location identified as Potential Wetland 3 and can be found in **Appendix D**. Potential Wetland 3 does not meet wetland criteria though there are a number of factors which make assessing this location problematic.

Vegetation at SP E consisted of a similar mixed deciduous tree canopy, though far less dense than observed at Wetland 1, with a dense herbaceous layer dominated by *Phalaris arundinacea* (Reed Canary Grass). Soils at this location did not meet hydric criteria but were also problematic in that they appeared significantly disturbed with a mixing of horizons and topsoil – subsoil blending. Secondary hydrology indicators were noted, sufficient for this site to meet wetland hydrology criteria, however there is also a constructed berm immediately adjacent to and higher in elevation than this area. The berm is part of a system to drain and dry dredge material removed from the Minnesota River, and the dredge material has a high water content when placed into the bermed area. During the site visit in October there was some seeping water noted from the berm which likely is contributing to the ambiguous nature of this area displaying both wetland and upland characteristics. Photographs of this structure from October can be seen in **Appendix B**. The site was frozen during the November site visit, so seepage features were not apparent. The historic aerial photography for this area does not indicate a discernible wetland signature in this area for most of the past ten years. It is largely unremarkable and homogenous with the surrounding upland landscape (see **Appendix D**)

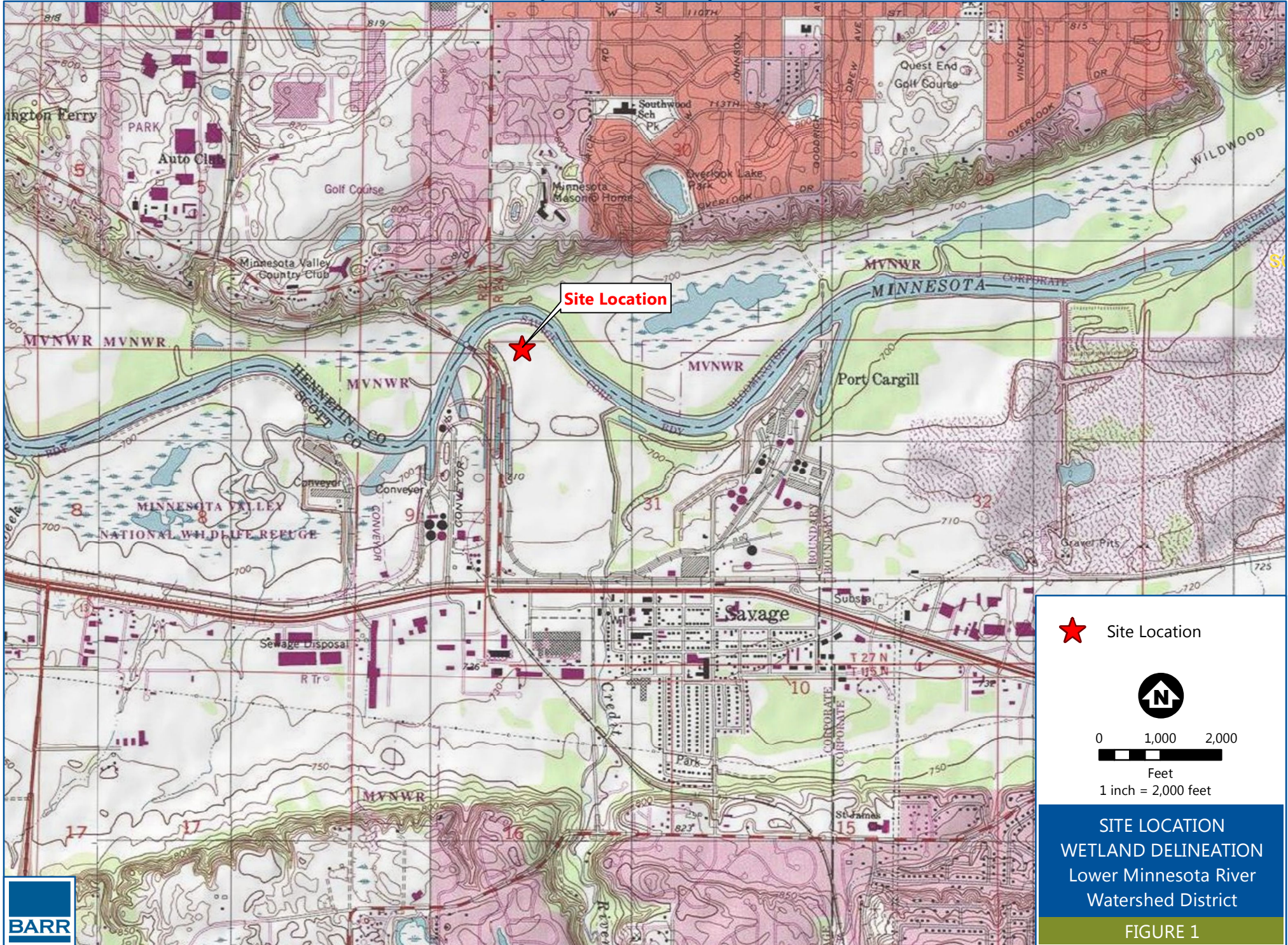
4.0 Regulatory Overview

The USACE regulates the placement of dredge or fill materials into waters or wetlands that are located adjacent to or are hydrologically connected to interstate or navigable waters under the authority of Section 404 of the Clean Water Act. If the USACE has jurisdiction over any portion of a project, they may also review impacts to wetlands under the authority of the National Environmental Policy Act. Based on previous communications with USACE around this project, the delineated wetland is assumed to be jurisdictional. LMRWD will coordinate permitting with the USACE as appropriate prior to project construction.

5.0 References


- Cowardin, L.M., V. Carter, F.C. Golet, and R.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, FWS/OBS079/31, 103 pp.
- Eggers, S.D. and Reed, D.M. 1997. *Wetland Plants and Plant Communities of Minnesota and Wisconsin*. U.S. Army Corps of Engineers, St. Paul District. St. Paul, Minnesota.
- 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.
- Shaw, S.P., and C.G. Fredine. 1956. *Wetlands of the United States*. U.S. Fish and Wildlife Service, Circular 39. 67pp.
- U.S. Department of Agriculture, Natural Resources Conservation Service. 2014. Soil Survey Geographic (SSURGO) Database, Version 1.1.
- U. S. Department of Agriculture, Natural Resources Conservation Service. 2017. *Field Indicators of Hydric Soils in the United States, Version 8.1*. G.W. Hurt and L.M. Vasilas (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- U.S. Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*. March 2010. Wetlands Regulatory Assistance Program.
- U.S. Army Corps of Engineers. 1987. *1987 U.S. Army Corps of Engineers Wetland Delineation Manual*. Wetlands Research Program Technical Report Y-87-1 (on-line edition). Waterways Experiment Station, Vicksburg, Mississippi.
- U.S. Fish and Wildlife Service. 1956. *Wetlands of the United States Circular 39*. U.S. Government Printing Office, Washington, D.C.

Figures







Imagery: Nearmap 9/2017

 Approximate Project Boundary

Surface Elevation

 10-Ft Index Contour
 2-Ft Intermediate Contour



0 100 200

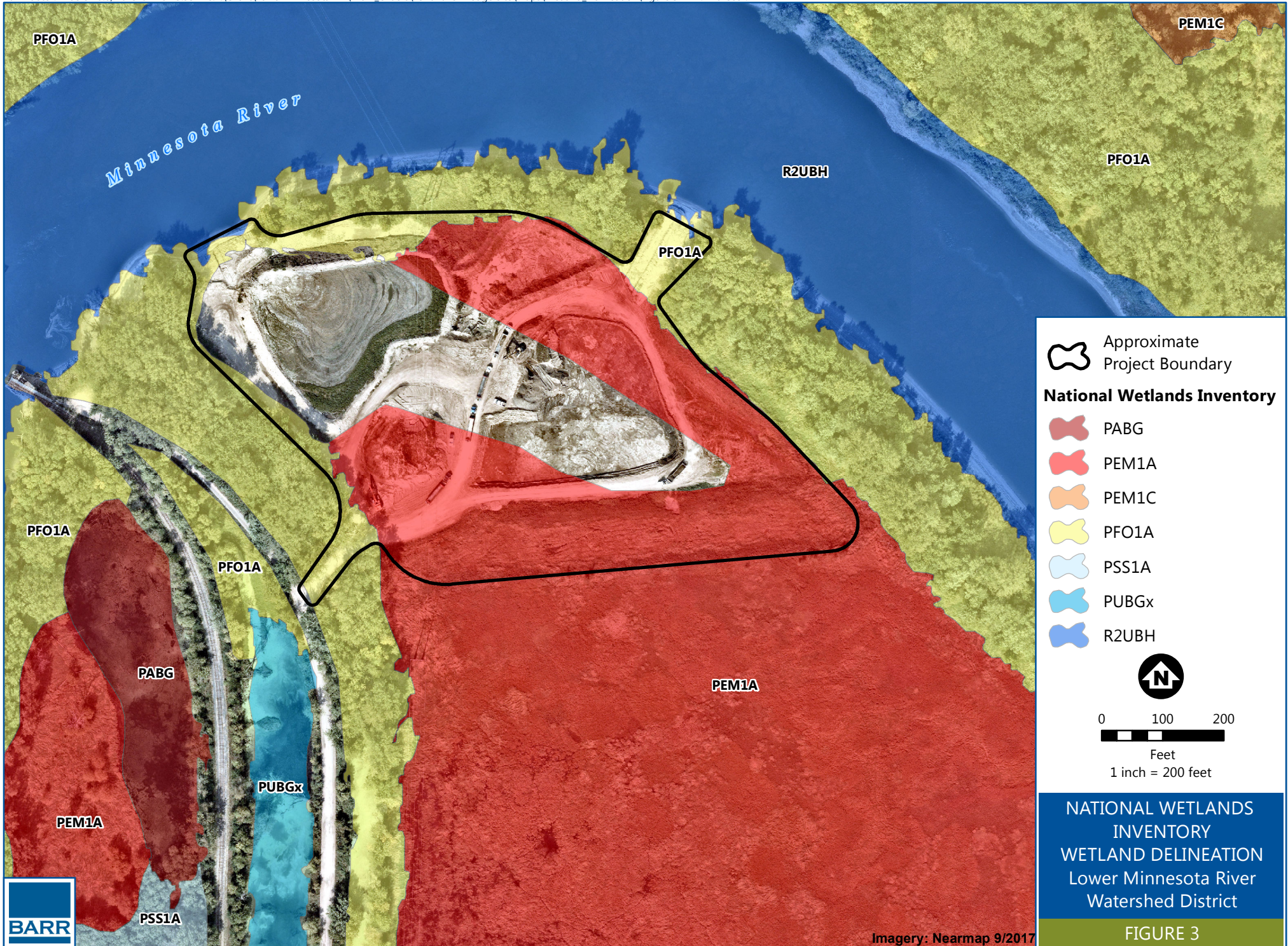


Feet

1 inch = 200 feet




SITE TOPOGRAPHY
WETLAND DELINEATION
Lower Minnesota River
Watershed District

FIGURE 2





Minnesota River

-  Approximate Project Boundary
-  Public Waters Basin
-  Public Waters Watercourse



0 100 200



Feet

1 inch = 200 feet

PUBLIC WATERS INVENTORY
WETLAND DELINEATION
Lower Minnesota River
Watershed District






FIGURE 4





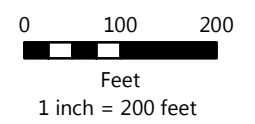
 Approximate Project Boundary

Soil Hydric Rating*

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)

*Soil Data: USDA-NRCS Soil Survey Geographic (SSURGO)

Map Unit Symbol	Map Unit Name
AaA	Alluvial land, 0 to 2% slopes
Dd	Dorchester silty clay loam
L12A	Muskego, Blue Earth, and Houghton soils, ponded, 0 to 1% slopes, frequently flooded
L39A	Minneiska fine sandy loam, 0 to 2% slopes, occasionally flooded
W	Water



SOIL SURVEY
WETLAND DELINEATION
Lower Minnesota River
Watershed District





Appendices

Appendix A

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: LMRWD Savage Dredge Site Applicant/Owner: Lower Minnesota River Watershe City/County: Savage / Scott State: MN Sampling Date: 10/30/18

Investigator(s): DSH Section: 31 Township: 27 Range: 24 Sampling Point: SP A

Land Form: Toeslope Local Relief: Concave Slope %: 8 Soil Map Unit Name: Dorchester silty clay loam

Subregion (LRR): M Latitude: 44.789147 Longitude: -93.349858 Datum: WGS84

Cowardin Classification: PF01A Circular 39 Classification: Type1 Mapped NWI Classification: PF01A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary): Floodplain Forest

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks (explain any answers if needed):	
Hydric soil present?	<u>Yes</u>		
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>Yes</u>		

VEGETATION

	<u>Tree Stratum</u>	(Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.	Populus deltoides		35	Yes	FAC
2.	Acer saccharinum		35	Yes	FACW
3.	Fraxinus pennsylvanica		5	No	FACW
4.			0		
Total Cover:			75		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)					
1.			0		
2.			0		
3.			0		
4.			0		
5.			0		
Total Cover:			0		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)					
1.			0		
2.			0		
3.			0		
4.			0		
5.			0		
6.			0		
7.			0		
8.			0		
Total Cover:			0		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)					
1.			0		
2.			0		
Total Cover:			0		

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	15	37.5
Sapling/Shrub Stratum	0	0
Herb Stratum	0	0
Woody Vine Stratum	0	0

<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>2</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>2</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>	(A/B)

<u>Prevalence Index Worksheet:</u>			
	<u>Total % Cover of:</u>		<u>Multiply by:</u>
OBL Species	<u>0</u>	X 1	<u>0</u>
FACW Species	<u>40</u>	X 2	<u>80</u>
FAC Species	<u>35</u>	X 3	<u>105</u>
FACU Species	<u>0</u>	X 4	<u>0</u>
UPL Species	<u>0</u>	X 5	<u>0</u>
Column Totals:	<u>75</u> (A)		<u>185</u> (B)
Prevalence Index = B/A =			<u>2.47</u>

<u>Hydrophytic Vegetation Indicators:</u>	
<u>No</u>	Rapid Test for Hydrophytic Vegetation
<u>Yes</u>	Dominance Test is >50%
<u>Yes</u>	Prevalence Index ≤ 3.0 [1]
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)

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

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

Sub canopy vegetation absent from site due to late season field visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

SP A

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

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 2	10yr 3/1	100					silty clay loam	
2.	2 - 12	10yr 4/2	97	10yr 3/3	3	C	M	sandy clay loam	
3.	12 - 20	10yr 4/2	90	10yr 4/6	10	C	M	sandy clay loam	
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

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

Restrictive Layer (if present):	Type: Not observed	Depth (inches): -	Hydric soil present? <u>Yes</u>
Soil Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** 0

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: LMRWD Savage Dredge Site Applicant/Owner: Lower Minnesota River Watershe City/County: Savage / Scott State: MN Sampling Date: 10/30/18

Investigator(s): DSH Section: 31 Township: 27 Range: 24 Sampling Point: SP B

Land Form: Terrace Local Relief: None Slope %: 2 Soil Map Unit Name: Dorchester silty clay loam

Subregion (LRR): M Latitude: 44.789196 Longitude: -93.349772 Datum: WGS84

Cowardin Classification: Circular 39 Classification: Mapped NWI Classification: PF01A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary):

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (quaternary):

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

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks (explain any answers if needed):	
Hydric soil present?	<u>Yes</u>		
Indicators of wetland hydrology present?	<u>No</u>		
Is the sampled area within a wetland?	<u>No</u>		

VEGETATION

	<u>Tree Stratum</u>	(Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.	Populus deltoides		30	Yes	FAC
2.	Acer saccharinum		25	Yes	FACW
3.	Fraxinus pennsylvanica		5	No	FACW
4.			0		
Total Cover:			60		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)					
1.	Acer saccharinum		10	Yes	FACW
2.			0		
3.			0		
4.			0		
5.			0		
Total Cover:			10		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)					
1.			0		
2.			0		
3.			0		
4.			0		
5.			0		
6.			0		
7.			0		
8.			0		
Total Cover:			0		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)					
1.			0		
2.			0		
Total Cover:			0		

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	12	30
Sapling/Shrub Stratum	2	5
Herb Stratum	0	0
Woody Vine Stratum	0	0

<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>3</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>3</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>	(A/B)

<u>Prevalence Index Worksheet:</u>			
	<u>Total % Cover of:</u>		<u>Multiply by:</u>
OBL Species	0	X 1	0
FACW Species	40	X 2	80
FAC Species	30	X 3	90
FACU Species	0	X 4	0
UPL Species	0	X 5	0
Column Totals:	70	(A)	170 (B)
Prevalence Index = B/A =			2.43

<u>Hydrophytic Vegetation Indicators:</u>	
<u>No</u>	Rapid Test for Hydrophytic Vegetation
<u>Yes</u>	Dominance Test is >50%
<u>Yes</u>	Prevalence Index ≤ 3.0 [1]
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

Herbaceous vegetation absent from site due to late season field visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

SP B

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

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 2	10yr 3/1	100					silty clay loam	
2.	2 - 10	10yr 4/2	97	10yr 3/3	3	C	M	sandy clay loam	
3.	10 - 21	10yr 4/2	90	10yr 4/6	10	C	M	sandy clay loam	
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

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

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present?	<u>Yes</u>
Soil Remarks:				

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Sampling point taken on terrace above area normally prone to inundation.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: LMRWD Savage Dredge Site Applicant/Owner: Lower Minnesota River Watershe City/County: Savage / Scott State: MN Sampling Date: 10/30/18

Investigator(s): DSH Section: 31 Township: 27 Range: 24 Sampling Point: SP C

Land Form: Terrace Local Relief: None Slope %: 6 Soil Map Unit Name: Dorchester silty clay loam

Subregion (LRR): M Latitude: 44.789006 Longitude: -93.348162 Datum: WGS84

Cowardin Classification: Circular 39 Classification: Mapped NWI Classification: PEM1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary):

Are vegetation Yes Soil Yes Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (quaternary):

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

Hydrophytic vegetation present?	<u>No</u>	General Remarks (explain any answers if needed):	Soils on man made berm directly adjacent to dredge material.
Hydric soil present?	<u>No</u>		
Indicators of wetland hydrology present?	<u>No</u>		
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetland Site ID:	

VEGETATION

	<u>Tree Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
3.		0		
4.		0		
Total Cover:		0		
	<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
Total Cover:		0		
	<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.	Setaria faberi	55	Yes	FACU
2.	Xanthium strumarium	5	No	FAC
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
Total Cover:		60		
	<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
Total Cover:		0		

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	12	30
Woody Vine Stratum	0	0

<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>0</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>0.00%</u>	(A/B)

<u>Prevalence Index Worksheet:</u>			
<u>Total % Cover of:</u>		<u>Multiply by:</u>	
OBL Species	0	X 1	0
FACW Species	0	X 2	0
FAC Species	5	X 3	15
FACU Species	55	X 4	220
UPL Species	0	X 5	0
Column Totals:	60	(A)	235 (B)
Prevalence Index = B/A =			3.92

<u>Hydrophytic Vegetation Indicators:</u>	
<u>No</u>	Rapid Test for Hydrophytic Vegetation
<u>No</u>	Dominance Test is >50%
<u>No</u>	Prevalence Index ≤ 3.0 [1]
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)
[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.	
Hydrophytic vegetation present?	<u>No</u>

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: _____

SP C

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

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 20	5yr 7/1	100					loamy sand	
2.	-								
3.	-								
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

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

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present? <u>No</u>
Soil Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: LMRWD Savage Dredge Site Applicant/Owner: Lower Minnesota River Watershe City/County: Savage / Scott State: MN Sampling Date: 10/30/18

Investigator(s): DSH Section: 31 Township: 27 Range: 24 Sampling Point: SP D

Land Form: Depression Local Relief: None Slope %: 0 Soil Map Unit Name: Dorchester silty clay loam

Subregion (LRR): M Latitude: 44.788873 Longitude: -93.348216 Datum: WGS84

Cowardin Classification: PEM1A Circular 39 Classification: Type 1 Mapped NWI Classification: PEM1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary): Shallow Marsh

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks (explain any answers if needed):	
Hydric soil present?	<u>Yes</u>		
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>Yes</u>		

VEGETATION

	<u>Tree Stratum</u> (Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.		0		
2.		0		
3.		0		
4.		0		
Total Cover:		0		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)				
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
Total Cover:		0		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)				
1.	Carex stricta	70	Yes	OBL
2.	Carex vulpinoidea	5	No	FACW
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
Total Cover:		75		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)				
1.		0		
2.		0		
Total Cover:		0		

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet)

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	15	37.5
Woody Vine Stratum	0	0

<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>1</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>	(A/B)

<u>Prevalence Index Worksheet:</u>			
	<u>Total % Cover of:</u>		<u>Multiply by:</u>
OBL Species	<u>70</u>	X 1	<u>70</u>
FACW Species	<u>5</u>	X 2	<u>10</u>
FAC Species	<u>0</u>	X 3	<u>0</u>
FACU Species	<u>0</u>	X 4	<u>0</u>
UPL Species	<u>0</u>	X 5	<u>0</u>
Column Totals:	<u>75</u> (A)		<u>80</u> (B)
Prevalence Index = B/A =			<u>1.07</u>

<u>Hydrophytic Vegetation Indicators:</u>	
<u>No</u>	<u>Rapid Test for Hydrophytic Vegetation</u>
<u>Yes</u>	<u>Dominance Test is >50%</u>
<u>Yes</u>	<u>Prevalence Index ≤ 3.0 [1]</u>
<u>No</u>	<u>Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)</u>
<u>No</u>	<u>Problematic Hydrophytic Vegetation [1] (Explain)</u>

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

Hydrophytic vegetation present? Yes

Due to late season of site visit there are likely more diverse species at this location than could be identified.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point:

SP D

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

	Depth (inches)	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]		
1.	0 - 3	10yr 2/1	100					muck	
2.	3 - 12	10yr 4/1	90	10yr 4/6	10	C	PL	sandy clay loam	
3.	-								
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

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

Restrictive Layer (if present):	Type: Not observed	Depth (inches): -	Hydric soil present? <u>Yes</u>
Soil Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present?** **Surface Water Depth (inches):** 2
- Water table present?** **Water Table Depth (inches):** 12+
- Saturation present? (includes capillary fringe)** **Saturation Depth (inches):** 12+

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: LMRWD Savage Dredge Site Applicant/Owner: Lower Minnesota River Watershe City/County: Savage / Scott State: MN Sampling Date: 11/30/18

Investigator(s): DSH Section: 31 Township: 27 Range: 24 Sampling Point: SP E

Land Form: Depression Local Relief: None Slope %: 1 Soil Map Unit Name: Dorchester silty clay loam

Subregion (LRR): M Latitude: 44.790435 Longitude: -93.348834 Datum: WGS84

Cowardin Classification: Circular 39 Classification: Mapped NWI Classification: PEM1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks) Eggers & Reed (primary):

Are vegetation No Soil Yes Hydrology Yes significantly disturbed? Are "normal circumstances" present? Yes Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks (explain any answers if needed):	Hydrology at this location appears to be modified by adjacent man made water retaining structures. Soils at this location also appear to have been disturbed with mixed horizons and sandy deposits.
Hydric soil present?	<u>No</u>		
Indicators of wetland hydrology present?	<u>Yes</u>		
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetland Site ID:	

VEGETATION

	<u>Tree Stratum</u>	(Plot Size: <u>30 ft</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>
1.	Populus deltoides		10	Yes	FAC
2.	Acer saccharinum		5	Yes	FACW
3.	Ulmus rubra		2	No	FAC
4.			0		
Total Cover:			<u>17</u>		
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15 ft</u>)					
1.			0		
2.			0		
3.			0		
4.			0		
5.			0		
Total Cover:			<u>0</u>		
<u>Herb Stratum</u> (Plot Size: <u>5 ft</u>)					
1.	Phalaris arundinacea		45	Yes	FACW
2.	Poa pratensis		20	Yes	FAC
3.			0		
4.			0		
5.			0		
6.			0		
7.			0		
8.			0		
Total Cover:			<u>0</u>		
<u>Woody Vine Stratum</u> (Plot Size: <u>30 ft</u>)					
1.			0		
2.			0		
Total Cover:			<u>0</u>		

<u>50/20 Thresholds:</u>	<u>20%</u>	<u>50%</u>
Tree Stratum	3.4	8.5
Sapling/Shrub Stratum	0	0
Herb Stratum	0	0
Woody Vine Stratum	0	0

<u>Dominance Test Worksheet:</u>		
Number of Dominant Species That Are OBL, FACW or FAC:	<u>4</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>4</u>	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	<u>100.00%</u>	(A/B)

<u>Prevalence Index Worksheet:</u>		
<u>Total % Cover of:</u>		<u>Multiply by:</u>
OBL Species	<u>0</u>	X 1 = <u>0</u>
FACW Species	<u>50</u>	X 2 = <u>100</u>
FAC Species	<u>32</u>	X 3 = <u>96</u>
FACU Species	<u>0</u>	X 4 = <u>0</u>
UPL Species	<u>0</u>	X 5 = <u>0</u>
Column Totals:	<u>82</u> (A)	<u>196</u> (B)
Prevalence Index = B/A =		<u>2.39</u>

<u>Hydrophytic Vegetation Indicators:</u>	
<u>No</u>	Rapid Test for Hydrophytic Vegetation
<u>Yes</u>	Dominance Test is >50%
<u>Yes</u>	Prevalence Index ≤ 3.0 [1]
<u>No</u>	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
<u>No</u>	Problematic Hydrophytic Vegetation [1] (Explain)
<small>[1] Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.</small>	

% Bare Ground in Herb Stratum: _____ % Sphagnum Moss Cover: _____

Vegetation Remarks: (include photo numbers here or on a separate sheet) Hydrophytic vegetation present? Yes

Late season vegetation likely does not represent the full set of species which may be identified at this location earlier in the growing season.

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: _____

SP E

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

	Depth (inches)	Matrix		Redox Features			Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type [1]		
1.	0 - 4	10yr 6/1	75	10yr 3/1	25		sandy loam	
2.	4 - 13	10yr 4/2	85	10yr 4/4	10		sandy clay loam	10yr 3/1 5%
3.	13 - 21	10yr 4/2	80	10yr 3/1	15		sandy clay loam	10yr 4/6 5%
4.	-							
5.	-							
6.	-							

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (explain in soil remarks)

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

Restrictive Layer (if present):	Type: _____	Depth (inches): _____	Hydric soil present? <u>No</u>
--	-------------	-----------------------	---------------------------------------

Soil Remarks: Soils appear modified by the work that has taken place at this site and appear mixed and inconsistent.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (explain in remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

- Surface water present? **Surface Water Depth (inches):** _____
- Water table present? **Water Table Depth (inches):** _____
- Saturation present? (includes capillary fringe) **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: Aerial Photo Monitoring Well Stream Gauge Previous Inspections

Hydrology Remarks: Large man made earthen water retaining ponds have been constructed adjacent and above this location topographically. The depression located at this sampling point is suited to collect seeping water from these structures.

Appendix B

Site Photographs

**Appendix B – Savage Dredge Site Wetland Delineation
Site Photos October 30, 2018**

Photo 1

Representative photo of the channel area west of the project, taken at SP A.



Photo 2

Delineated edge of Wetland 2 following berm edge.



Photo 3

Representative photo of conditions at Potential Wetland 3, water retention structure located adjacent and above the area.



**Appendix B – Savage Dredge Site Wetland Delineation
Site Photos October 30, 2018**

Photo 4

Modified hydrology near Potential
Wetland 3.




Appendix C

Antecedent Precipitation Conditions

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources University of Minnesota

home | current conditions | journal | past data | summaries | agriculture | other sites | about us 

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Scott** township number: **115N**
 township name: **unnamed** range number: **21W**
 nearest community: **Port Cargill** section number: **9**

Aerial photograph or site visit date:

Tuesday, October 30, 2018

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates .	first prior month: September 2018	second prior month: August 2018	third prior month: July 2018
estimated precipitation total for this location:	6.45	2.35	3.19
there is a 30% chance this location will have less than:	2.09	3.49	2.89
there is a 30% chance this location will have more than:	4.58	5.58	4.67
type of month: dry normal wet	wet	dry	normal
monthly score	3 * 3 = 9	2 * 1 = 2	1 * 2 = 2
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	13 (Normal)		

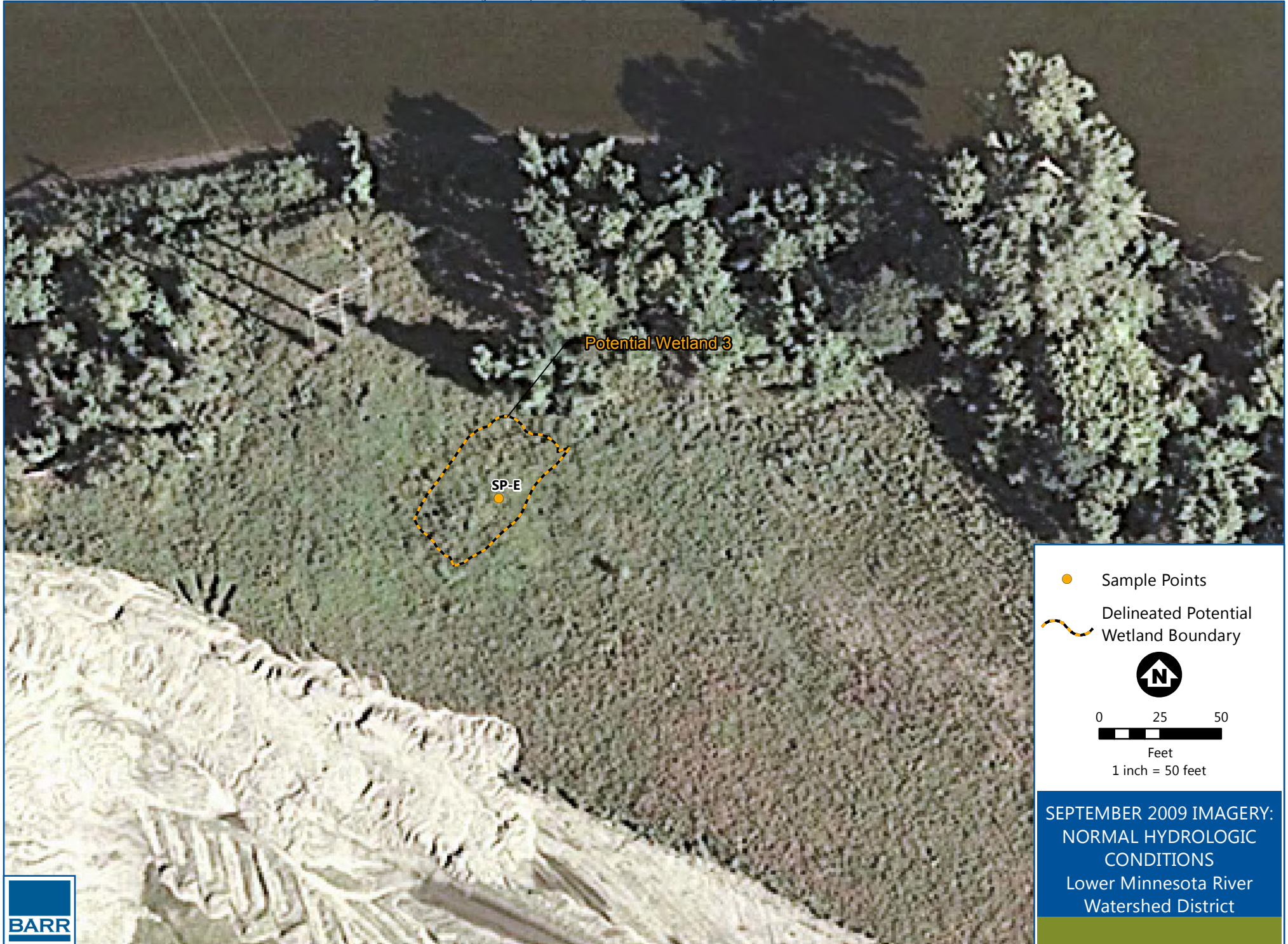
Other Resources:

- [retrieve daily precipitation data](#)
- [view radar-based precipitation estimates](#)
- [view weekly precipitation maps](#)
- [Evaluating Antecedent Precipitation Conditions](#) (BWSR)

Appendix D


Historic Aerial Photography Review







- Sample Points
- Delineated Potential Wetland Boundary



0 50 100
Feet
1 inch = 100 feet


SEPTEMBER 2010 IMAGERY:
NORMAL HYDROLOGIC
CONDITIONS
Lower Minnesota River
Watershed District







- Sample Points
- Delineated Potential Wetland Boundary




0 25 50
Feet
1 inch = 50 feet

APRIL 2012 IMAGERY:
NORMAL HYDROLOGIC
CONDITIONS
Lower Minnesota River
Watershed District

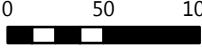




- Sample Points
- Delineated Potential Wetland Boundary



0 50 100



Feet

1 inch = 100 feet

SEPTEMBER 2013 IMAGERY:
NORMAL HYDROLOGIC
CONDITIONS
Lower Minnesota River
Watershed District









