Appendix B:

# Wetland Delineations:

- Port Authority
- ADM Property
- . Winona Harbor

Pool 6 Dredged Material Management Plan – June 2022 Winona County, Minnesota; Buffalo & Trempealeau Counties, Wisconsin

# MEMORANDUM

# SUBJECT: Wetland Delineation for CMVP-PM-E Pool 2 Channel Management Project, Winona Riverfront, Winona County, Minnesota

### 1. Introduction.

The U.S. Army Corps of Engineers, St. Paul District – Regulatory Branch conducted the wetland delineation for CMVP PM-E in consideration of the site for dredge spoil disposal in the City of Winona, Winona County, Minnesota. The area of investigation (the Site) is shown on Figure 1 in Appendix A and is located in Section 22, T. 107N., R. 7W.

The purpose of this memorandum is to document the methods used, and conclusions made, regarding the extent of wetlands present within the Winona Riverfront site.

### 2. Methods and Materials.

On-site procedures were conducted in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual (Corps Manual)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). The Corps staff team conducted the on-site data collection on Wednesday, November 20, 2013.

The following resources were utilized for the wetland delineation:

- 6 May 1992, 8 September 2003, 18 April 2008 and 24 July 2011 true color aerial photographs, various sources provided at Google Earth;
- 30 June 1954 black & white historic aerial photograph, MnDNR Data Deli;
- Minnesota Climatology Working Group Website (http://climate.umn.edu/gridded\_data/precip/wetland/wetland.asp) "Wetland Delineation Precipitation Data Retrieval";
- National Wetlands Inventory (NWI) mapping;
- MN Department of Natural Resources (DNR) Public Waters Inventory;
- USDA Web Soil Survey digital soil mapping;
- A Trimble Geoexplorer XT GPS unit to record the locations of data points and wetland/upland boundaries during field investigation; and
- ArcMap GIS program to digitize and display the results of the investigation.

In addition to the field methodologies laid out in the Midwest Supplement, the following methods were used:

a. <u>Placing Observations of Hydrology in the Context of Antecedent Precipitation</u>. *Hydrology Tools for Wetland Determination* (Woodward *et al.* 1997) and *Assessing and Using Meteorological Data to Evaluate Wetland Hydrology* (Sprecher and Warne 2000) recommend evaluation of precipitation for the 3 months prior to the date of the aerial imagery to assist in making determinations regarding signatures noted on aerial photography. In addition, antecedent precipitation from the Minnesota Climatology Working Group website. Direct observations of hydrology indicators made during the site visit were then placed in the context of antecedent precipitation.

### 3. Soils and Landscape.

The site is directly within the floodplain of the Mississippi River, in an area designated as the Upper Mississippi National Wildlife and Fish Refuge. A significant part of the internal portion of the site is relatively undisturbed native floodplain forest, while the perimeter of the site has been affected by fill and excavation, including creation of a small dike on the north and east boundaries of the site, with a large (approx. 36") culvert connecting the site directly to the river. Development of the adjacent Winona Riverfront resulted in fill of the western and southern boundaries of the subject site.

The site is located along the toe of The Blufflands subsection of the Paleozoic Plateau section of the Eastern Broadleaf Forest Province of Minnesota, described in accordance with the Ecological Classification System. While The Blufflands subsection is defined by its lack of coverage by glaciers (i.e., the Driftless Area) during the last glaciation, the Winona Riverfront site formed following melting of the glaciers and development of the Mississippi River valley. Soil pits inspected during the field review confirmed the existence of undisturbed native floodplain soils.

Soils mapped on the project site are Comfrey silt loam, channeled (predominantly hydric) and Psamments, fill (nonhydric sandy fill material) and are shown in Appendix C. The soil survey for Winona County was completed prior to the development of the Winona Riverfront sites (see the 'larger area of Winona Riverfront' soil survey map in Appendix C), therefore, the extent of fill (psamments, fill) mapped along the western boundary of the site is not consistent with the current conditions.

### 4. NWI and DNR Mapping.

The site is mapped on the National Wetlands Inventory (NWI) as palustrine, deciduous forested/shrub wetland, seasonally flooded and diked/impounded (PFO1Ch), as indicated below.



The site itself is not designated on the DNR Public Waters Inventory (PWI) however it is adjacent to Public Water 2P, which is the Mississippi River.

### 5. Site Visit 20 November 2013.

Precipitation during the three months antecedent to the site visit on 20 November 2013 was essentially within the range of normal (see below). The months of August and September were significantly dryer than normal, October was wetter than normal, although most of the precipitation fell early in the month, and November had normal levels of precipitation. The site visit was conducted after the end of the growing season; temperatures through November had remained on the mild side, and the soils were not yet frozen, therefore, observations of critical wetland indicators were nonetheless accomplished.

#### Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location: county: Winona township name: Winona (wet) nearest community: Winona section number: 70 section number: 23

#### Aerial photograph or site visit date: Wednesday, November 20, 2013

#### Score using 1971-2000 normal period

(unlines and to both an)	first prior month:	second prior month:	third prior month:
(values are in inches)	October 2013	September 2013	August 2013
estimated precipitation total for this location:	5.25	1.21	1.40
there is a 30% chance this location will have less than: *	1.27	2.15	2.97
there is a 30% chance this location will have more than: "	2.69	4.45	5.24
type of month: dry normal wet	wet	dry	dry
monthly score	3 * 3 = 9	2 * 1 = 2	1 * 1 = 1
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)		12 (Normal)	
Score using 1981-2010 normal period			
	first prior month:	second prior month:	third prior month:
(values are in inches)	first prior month: October 2013	second prior month: September 2013	third prior month: August 2013
(values are in inches) estimated precipitation total for this location:	first prior month: October 2013 5.25	second prior month: September 2013 1.21	third prior month: August 2013 1.40
(values are in inches) estimated precipitation total for this location: there is a 30% chance this location will have less than:	first prior month: October 2013 5.25 1.34	second prior month: September 2013 1.21 2.42	third prior month: August 2013 1.40 3.11
(values are in inches) estimated precipitation total for this location: there is a 30% chance this location will have less than: " there is a 30% chance this location will have more than: "	first prior month: October 2013 5.26 1.34 2.83	second prior month: September 2013 1.21 2.42 4.60	third prior month: August 2013 1.40 3.11 5.67
(values are in inches) estimated precipitation total for this location: there is a 30%; chance this location will have less than: there is a 30%; chance this location will have more than: there is a 30%; chance this location will have more than:	first prior month.   October 2013   5.25   1.34   2.83   wet	second prior month: September 2013 1.21 2.42 4.60 dry	third prior month: August 2013 1,40 3.11 5.67 dry
(values are in inches) estimated precipitation total for this location: there is a 30% chance this location will have less than:" there is a 30% chance this location will have more than: "type of month: dry normal wet monthly score	first prior month:   October 2013   \$25   1.34   2.83   wet   3.3 = 9	second prior month: September 2013 1.21 2.42 4.60 dry 2.1 = 2	third prior month: August 2013 1.40 3.11 5.67 dry 1.*1 = 1
(values are in inches) estimated precipitation total for this location: there is a 30% chance this location will have less than: " there is a 30% chance this location will have more than: " type of month: dry normal wet monthly score	first prior month:   October 2013   5.25   1.34   2.83   wet   3 * 3 = 9	econd prior month: September 2013 1.21 2.42 4.60 dry 2.* 1 = 2	third prior month: August 2013 1.40 3.11 5.67 dry 1.*1 = 1

Data collection sample points were established (see Figure 1, Appendix A) and observations were documented on data sheets, which are part of the Corps administrative record and are included in Appendix B. The delineation was based on field documentation of the change in topography between the wetland and upland areas, where nonhydric sandy fill material became evident and indicators of wetland soils and hydrology were no longer observed.

#### 6. Results and Discussion.

One wetland area, Wetland 1, was identified and delineated within the subject site (Figure 1) and is a bottomland forest located within the Mississippi River floodplain. Dominant vegetation includes silver maple (*Acer saccharinum*, FACW) and wood-nettle (*Laportea canadensis*, FACW), with green ash (*Fraxinus pennsylvanica*, FACW), cottonwood (Populus deltoides, FAC) and box elder (*Acer negundo*, FACW) as sub-dominants. A very low percentage (less than 10%) non-native invasive species (Glossy buckthorn, *Frangula alnus*, FACW) was present. The soil profiles observed at Data Points 1, 2 and 5 (DP1, DP2 and DP5 on Figure 1) are generally consistent with official series description of the native soil, Comfrey silt loam, identified on the Winona County soil survey.

The floodplain forest community cited herein is based on the description and key in Eggers and Reed (1997, 2011). The site's boundaries adjacent to the river have been nearly unchanged since the construction of Lock and Dam 6 and creation of Pool 6, as observed in the following photographs.







Photograph 2: 6 May, 1992



Photograph 3: 24 July 2011

Despite the observed impacts around the perimeter from fill and excavation, the interior of the site maintains a high quality forest community with a very low percentage of invasive species. The site's location in The Blufflands subsection is important due to the DNR's identification of the highest number (156) of species in greatest conservation need (SGCN) in the state. Many fish, mollusk, amphibian and bird species make use of these types of native bottomland during their life cycles.

A MnRAM analysis conducted on the wetland resulted in an Exceptional rating for wildlife, due to the bonus score it receives for its location within the Upper Mississippi River Wildlife and Fish Refuge. Even without this human value judgment of the importance of the site, the functional analysis identified this floodplain forest to be providing a high level of flood/stormwater attenuation, maintenance of the hydrologic regime and water quality maintenance. It provides a moderate level of function for downstream water quality and shoreline protection.

#### 7. Conclusion.

Based on the procedures described above, the evidence demonstrates the extent of wetland area within the subject Winona Riverfront site, as shown on Figure 1.

Corps of Engineers, St. Paul District Regulatory Branch Team: Barbara Walther, Senior Ecologist (PWS #1750, WDC #1052), Project Lead Eric Hanson, Technical Services Specialist (WDCIT #5115) John Derinzy, Project Manager David Studenski, Lead Project Manager

### LITERATURE CITED

- Cowardin, L., V. Carter, F. Golet and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 103 pp.
- Eggers, S. and D. Reed. 2011. Wetland Plants and Plant Communities of Minnesota and Wisconsin -Third Edition. U.S. Army Corps of Engineers, St. Paul District, St. Paul, MN. 486 pp.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 98 pp. plus appendices.
- Lichvar, R. 2012. *National Wetland Plant List*. ERDC/CRREL TR-12-11. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.
- Sprecher, S. and A. Warne. 2000. *Accessing and Using Meteorological Data to Evaluate Wetland Hydrology*. ERDC/EL TR-WRAP-00-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Version 2.0, ed., J.S. Wakeley, R.W. Lichvar and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USDA, Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/
- Woodward, D. ed. 1997. *Hydrology Tools for Wetland Determination*. Chapter 19, Engineering Field Handbook. USDA, Natural Resources Conservation Service. Fort Worth, TX. 34 pp.

# Appendix A

# Figure 1



Figure 1 Pool 2 Management Project Winona Riverfront



US Army Corps of Engineers St. Paul District Regulatory Branch



SEC. 22, T. 107N., R. 7W., WINONA COUNTY, MINNESOTA

IMAGE: USDA NAIP, SUMMER 2003 PROJECTION: NAD83 UTM ZONE 15N

# Appendix B

# November 20, 2013 Site Visit Documentation

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Winona Riverfront	City/	County:	Winona/Wir	nona Samp	ling Date:	11-20-2013
Applicant/Owner: CEMVP-PM-E		State:	MN	Samp	ling Point:	1
Investigator(s): Walther, Hanson, Derinzy, Studenski		Sect	ion, Townshij	o, Range:	22, T. 10	7N., R. 7W.
Landform (hillslope, terrace, etc.): floodpl	ain	Local	relief (concav	e, convex, none	):	concave
Slope (%): 0-1 Lat:		Long:		Datur	n:	
Soil Map Unit Name Near boundary of Comfrey silt loar	n/psamme	ents, fill	NWI (	Classification:	F	PFO1Ch
Are climatic/hydrologic conditions of the site typical for	this time c	of the year?	Y (I	f no, explain in r	emarks)	
Are vegetation , soil , or hydrold	av	significantl	v disturbed?	Aro "r	, ormal circum	etances"
Are vegetation . soil . or hydrold	av X	naturally p	roblematic?	Ale I		present? Yes
SUMMARY OF FINDINGS	<u> </u>			(If needed. ex	plain anv ans	wers in remarks.)
Hydrophytic vegetation present? Y				(		
Hydric soil present?		Is the s	sampled area	a within a wetla	nd?	Y
Indicators of wetland hydrology present?		f ves or	otional wetlar	nd site ID <sup>.</sup>		<u> </u>
		1 900, 0		<u> </u>		
Remarks: (Explain alternative procedures here or in a s	separate re	eport.)				
Hydrology naturally problematic because the s	ite is a n	atural flood	lplain that h	has been dike	d and impo	unded, connected
to	Miss. R	iver via 36'	' culvert.			
VEGETATION Use scientific names of plants	s.					
	Absolute	Dominan	Indicator	Dominance T	est Workshe	eet
<u>Tree Stratum</u> (Plot size: <u>30' r</u> )	% Cover	t Species	Staus	Number of Dor	ninant Specie	S (A)
1 Acer saccharinum	50	Y	FACW	that are OBL, F	ACW, or FAC	: <u> </u>
2 Fraxinus perinsylvanica	10	 		Total Numb	er of Dominan	nt n: 1 (B)
4 Populus deltoides	8	N	FAC	Dercent of Der	ninont Spooio	
5	0		1710	that are OBL. F	ACW. or FAC	s : 100.00% (A/B)
	83	= Total Cove	r		,	(```,
Sapling/Shrub stratum (Plot size: N/A )				Prevalence Ir	ndex Worksh	leet
1				Total % Cove	of:	
2				OBL species	<u> </u>	= 0
3				FACW specie	s <u>65</u> x2	2 = 130
4				FAC species	<u>18</u> x3	3 = 54
5		Total Cave		FACU species	$\frac{0}{2}$	1 = 0
Herb stratum (Plot size: 5' r )	0		1	Column totals	<u> </u>	b = 0 (B) 184 (B)
1 None observed				Drovolonoo In		$\frac{104}{2.22}$ (B)
				Prevalence in	dex = D/A =	
3				Hydrophytic	Vegetation I	ndicators:
4				Rapid tes	for hydrophy	tic vegetation
5				X Dominand	e test is >50	%
6				X Prevalenc	e index is ≤3	.0*
7				Morphogi	cal adaptation	ns* (provide
8				supporting	g data in Rem	narks or on a
9				separates	sheet)	
10	0	= Total Cove		Problema (explain)	tic hydrophyti	c vegetation*
Woody vine stratum (Plot size: )				*Indicators of h	/dric soil and we	tland hydrology must be
1				present	unless disturbe	d or problematic
2				Hydrophy	/tiC n	
	0	= Total Cove	r	present?	Y	
Remarks: (Include photo numbers here or on a separat	te sheet)			-		
Late season delineation observed vegetation	on had al	lready serve	esced			

#### SOIL

Profile Des	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm	the absend	ce of indicators.)
Depth	Matrix		Rec	dox Featu	ures				-
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
0-5	10YR 2/1	90	10YR 4/2	10	D	М	SL		mixed fill
5-24+	10YR 3/1	80	10YR 4/4	20	С	М	SI		mixed fill
5241	1011( 0/1	00	1011( 4/4	20	0	101	0L		
									<b>D</b>
*Type: C = C	Concentration, D	= Depleti	on, RM = Reduce	ed Matrix	, MS = N	lasked S	and Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
Hydric So	oil Indicators:		-			<i>(</i> <b>-</b> .)	Indicators	s for Probl	ematic Hydric Soils:
Hist	tisol (A1)		San	dy Gleye	ed Matrix	: (S4)	Coast	Prairie Re	dox (A16) ( <b>LRR K, L, R</b> )
Hist	tic Epipedon (A2)		San	dy Redo	x (S5)		Dark	Surface (S7	7) (LRR K, L)
Blac	ck Histic (A3)		Stri	oped Ma	trix (S6)		Iron-N	langanese	Masses (F12) (LRR K, L, R)
Hyc	lrogen Sulfide (A	4)	Loa	my Mucł	ky Minera	al (F1)	Very	Shallow Da	rk Surface (TF12)
Stra	atified Layers (A5	)	Loa	my Gley	ed Matrix	k (F2)	Other	(explain in	remarks)
2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)				
	bleted Below Dark	Surface	(A11) <u>X</u> Rec	lox Dark	Surface	(F6)			
	ck Dark Surface (	A12)	Dep	leted Da	irk Surfa	ce (⊦7)	*Indicat	tors of hydr	ophytic vegetation and weltand
Sar	ndy Mucky Minera	al (S1)	Rec	lox Depr	essions (	(F8)	hydrol	ogy must b	e present, unless disturbed or
5 cr	m Mucky Peat or	Peat (S3	)						problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydric s	soil presen	t? Y
Depth (inche	es):				•				
Demerica					•				
HYDROLO	DGY								
Wetland Hy	drology Indicato	ors:							
Primary Indi	cators (minimum	of one is	required; check	all that a	(ylqq		Sec	condarv Ind	icators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plar	nts (B14)		Drainage	Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1	I) —	Dry-Sea	son Water Table (C2)
Water M	larks (B1)			Oxidized	l Rhizosp	heres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)				Saturatio	on Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presenc	e of Redu	uced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	iction in T	illed Soils	X Geomor	phic Position (D2)
Iron Dep	oosits (B5)			(C6)				X FAC-Nei	utral Test (D5)
Inundatio	on Visible on Aeria	al Imager	/ (B7)	Thin Mu	ck Surfac	e (C7)			
Sparsely	Vegetated Conca	ave Surfa	ce (B8) X	Gauge o	or Well Da	ata (D9)			
Water-S	tained Leaves (B9	)		Other (E	xplain in	Remarks	)		
Field Obser	vations:								
Surface wat	er present?	Yes	No	X	Depth (i	nches):			
Water table	present?	Yes	No	X	Depth (i	nches):		Inc	licators of wetland
Saturation p	resent?	Yes	No	Х	Depth (i	nches):		hy	/arology present? Y
(includes ca	piliary tringe)								
Describe rec	corded data (strea	am gaug	e, monitoring well	, aerial p	hotos, pi	revious ir	nspections), if a	available:	
Domorkov									
Remarks:									

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Winona Riverfront	City/	County:	Winona/Wir	nona Sampling Date:	11-20-2013
Applicant/Owner: CEMVP-PM-E		State:	MN	Sampling Point:	2
Investigator(s): Walther, Hanson, Derinzy, Studenski		Secti	on, Township	o, Range: 22, T.	107N., R. 7W.
Landform (hillslope, terrace, etc.): floodpl	ain	Local r	elief (concav	e, convex, none):	concave
Slope (%): 0-1 Lat:		Long:		Datum:	
Soil Map Unit Name Comfrey silt loam, channeled		· · ·	NWI (	Classification:	PFO1Ch
Are climatic/hydrologic conditions of the site typical for	this time o	f the year?	Y (I	f no, explain in remarks)	
Are vegetation , soil , or hydrold	av	significantly	v disturbed?	Are "normal circi	umetances"
Are vegetation . soil . or hydrold	av X	naturally pr	oblematic?	Are normal circl	present? Yes
SUMMARY OF FINDINGS				(If needed, explain any a	nswers in remarks.)
Hydrophytic vegetation present? Y				(	
Hydric soil present? Y		Is the s	ampled area	a within a wetland?	Y
Indicators of wetland hydrology present?		fves or	tional wetlan	nd site ID <sup>.</sup>	<u> </u>
		.)			
Remarks: (Explain alternative procedures here or in a s	separate re	eport.)			
Hydrology naturally problematic because the s	ite is a na	atural flood	plain that h	as been diked and imp	ounded, connected
to	Miss. Ri	iver via 36"	culvert.		
VEGETATION Use scientific names of plants	s.				
	Absolute	Dominan	Indicator	Dominance Test Works	sheet
<u>Tree Stratum</u> (Plot size: <u>30' r</u> )	% Cover	t Species	Staus	Number of Dominant Spec	cies
1 Acer saccharinum	50	Y	FACW	that are OBL, FACW, or F	AC: <u>3</u> (A)
2 Fraxinus perinsylvanica	10	<u> </u>		Total Number of Domin	ant ata: 3 (B)
4 Populus deltoides	8	N	FAC	Dereent of Dominant Spec	
5	0			that are OBL. FACW. or F	AC: 100.00% (A/B)
	83	= Total Cove	r	,,,,,	
Sapling/Shrub stratum (Plot size: N/A )				Prevalence Index Work	sheet
1				Total % Cover of:	
2				OBL species 0	x 1 = 0
3				FACW species 80	x 2 = <u>160</u>
4		. <u> </u>		FAC species 18	x 3 = <u>54</u>
5		Tatal O		FACU species 0	x = 0
Horb stratum (Plot size: 5' r )	0	= I otal Cove	r	UPL species 0	X 5 = 0
(FIOL SIZE. 51)	40	V		Drevelance ladev D/A	$(A) = \frac{214}{0.40}$ (B)
1 Frangula alnus	10	Y		Prevalence Index = B/A :	= 2.18
	5	I	FACW	Hydrophytic Vegetation	Indicators:
4				Rapid test for hydror	phytic vegetation
5				X Dominance test is >	50%
6				X Prevalence index is :	≤3.0*
7				Morphogical adaptat	ions* (provide
8				supporting data in R	emarks or on a
9				separate sheet)	
10	15	= Total Cove	r	Problematic hydroph (explain)	ytic vegetation*
Woody vine stratum (Plot size: N/A )				*Indicators of hydric soil and	wetland hydrology must be
1				present, unless distu	rbed or problematic
2				Hydrophytic	
	0	= Total Cove	r	present? Y	,
Remarks: (Include photo numbers here or on a separat	te sheet)				
Late season delineation observed vegetation	on had al	ready sene	esced		

#### SOIL

Profile Desc	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm the absen	ce of indicators.)
Depth	Matrix		Rec	dox Featu	ures			
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					SiCL	
2-18+	10YR 3/1	85	7.5YR 4/6	15	С	PI /M	SiCl	Blocky structure
2 101	1011(0/1	00	7.011(4/0	10	•	1 2/101	OIOL	
*Typo: C = (	Concontration D.	– Doploti	on PM - Poduce	d Matrix		laskod S	and Grains **Locati	op: PL – Poro Lining M – Matrix
Type. $C = C$	Uncentration, D	= Depieti		u watrix	, 1013 = 10	laskeu S	Indicators for Brob	In PL = Pole Lining, M = Maurix
			Sor	dy Clay	od Motriy	(\$4)		
	isul (A1) is Eningdon (A2)					(34)		$\frac{1}{2} (\mathbf{L} \mathbf{D} \mathbf{D} \mathbf{K} \mathbf{I})$
	IC Epipedon (A2)				(30)			$M_{2} = (ETR, E)$
	ragon Sulfido (A)	4)			uix (SO)			r = r = r = r = r = r = r = r = r = r =
	tified Levers (AF	+ <i>)</i>	Loa		cy Motrix	ац (ГТ) « (ГО)	Other (evolution in	ark Sullace (TFT2)
	m Muck (A10)	)	L0a	Iny Gley	eu Main	К (ГZ)		(Temarks)
	Noted Relew Dark	<pre>c Surface</pre>		lov Dork	Surface	(E6)		
	k Dark Surface (	( Sunace (A12)		lotod Da		(F0) co (E7)	*lastans of built	
	dy Mucky Minora	ATZ)					hydrology must	rophytic vegetation and weitand
5 cr	n Mucky Post or	Doot (S2			63310113 (	(10)	nyurology must	problematic
		real (00	)					problematic
Restrictive	Layer (if observe	ed):						
Type:					-		Hydric soil prese	nt? <u>Y</u>
Depth (inche	es):				-			
Remarks:								
Undistur	bed, native Co	mfrev s	ilt loam.					
	,	- , -						
HYDROLO	DGY							
Wetland Hy	drology Indicato	ors:						
Primary Indi	cators (minimum	of one is	required; check	all that a	pply)		Secondary In	dicators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B	13)	Surface	Soil Cracks (B6)
High Wa	iter Table (A2)			True Aq	uatic Plar	nts (B14)	Drainag	e Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1	) Dry-Sea	ason Water Table (C2)
X Water M	arks (B1)			Oxidized	I Rhizosp	heres on	Living Roots Crayfish	n Burrows (C8)
Sedimer	t Deposits (B2)			(C3)			Saturati	on Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presenc	e of Redu	uced Iron	(C4) Stunted	or Stressed Plants (D1)
	it or Crust (B4)			Recent I	ron Reau	Iction in 1		phic Position (D2)
	osiis (dd) on Visible on Aeris	al Imaner	(B7)	Thin Mu	ck Surfac			ultar fest (D5)
Sparsely	Vegetated Conca	ave Surfa	re (B8) X	Gauge o		e (C7) ata (D9)		
Water-S	tained Leaves (B9	)	<u> </u>	Other (F	xolain in	Remarks	)	
Field Obsor	vations:	,					, I	
Surface wate	er present?	Yes	No	х	Depth (i	nches):		
Water table	present?	Yes	No	X	Depth (i	nches):	In	dicators of wetland
Saturation p	resent?	Yes	No	X	Depth (i	nches):	h	ydrology present? Y
(includes ca	pillary fringe)				<u> </u>	,		
Describe rec	corded data (strea	am gaug	e, monitorina well	, aerial p	hotos. p	revious ir	spections), if available:	
		09		· · ·	- , F		, ,,	
Remarks:								
Site is co	onnected to rive	er flows	via 36" culvert	throug	h low be	erm, an	d river gauge data inc	licates water levels are
frequentl	y above the sit	e's elev	ation.					

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Winona Riverfront	City/C	County:	Winona/Wir	nona Sarr	pling Date:	11-20-2013
Applicant/Owner: CEMVP-PM-E	_	State:	MN	Sam	pling Point:	3 and 4
Investigator(s): Walther, Hanson, Derinzy, Studenski		Secti	ion, Township	o, Range:	22, T. 107	7N., R. 7W.
Landform (hillslope, terrace, etc.): floodpla	ain	Local ı	relief (concav	e, convex, nor	ne):	convex
Slope (%): 2+ Lat:		Long:		Datu	um:	
Soil Map Unit Name Psamments, fill			NWI C	Classification:	P	FO1Ch
Are climatic/hydrologic conditions of the site typical for t	his time of	the year?	Y (I	f no, explain in	remarks)	
Are vegetation , soil , or hydrolog	av	significantl	v disturbed?	Aro	"normal circum	stances"
Are vegetation . soil . or hydrolog	av X	naturally p	roblematic?	Ale	normal circum	present? Yes
SUMMARY OF FINDINGS				(If needed, e	explain any ans	wers in remarks.)
Hydrophytic vegetation present? Y				(, -	, ,	,
Hydric soil present?		Is the s	sampled area	a within a wet	land?	N
Indicators of wetland hydrology present?		f ves or	otional wetlan	nd site ID <sup>.</sup>		
		. , , , , , ,				
Remarks: (Explain alternative procedures here or in a si	eparate re	port.)				
Hydrology naturally problematic because the si	te is a na	atural flood	lplain that h	as been dik	ed and impou	unded, connected
to	Miss. Ri	ver via 36'	' culvert.			
VEGETATION Use scientific names of plants						
	Absolute	Dominan	Indicator	Dominance	Test Workshe	et
<u>Tree Stratum</u> (Plot size: <u>30' r</u> )	% Cover	t Species	Staus	Number of Do	ominant Species	
1 Acer saccharinum	50	Y	FACW	that are OBL,	FACW, or FAC	: <u>2</u> (A)
2 Flaxinus perinsylvanica	10	 		Total Num	ber of Dominan	t · 2 (B)
4 Populus deltoides	8	N	FAC	Dercent of D	aminant Spacia	. <u> </u>
5				that are OBL.	FACW. or FAC	; : 100.00% (A/B)
	83 =	Total Cove	r	, , ,	- ,	(+=)
Sapling/Shrub stratum (Plot size: N/A )				Prevalence	Index Worksh	eet
1				Total % Cov	er of:	
2				OBL species	s <u>0</u> x1	= 0
3				FACW spec	ies <u>75</u> x 2	= 150
4				FAC species	s <u>18</u> x 3	= <u>54</u>
5		Total Caulo		FACU speci	es <u>0</u> x 4	= 0
Herb stratum (Plot size: 5' r )	0 =	= Total Cove	1	Column tota	$= 0 \times 2$	b = 0 (B)
(Flot size. <u>31</u> )	10	V		Drevelance	$13 \underline{33}$ (A)	<u>204</u> (B)
	10	<u> </u>	FACW	Prevalence	Index = B/A =	2.19
3				Hydrophytic	c Vegetation Ir	ndicators:
4				Rapid te	est for hvdrophy	tic vegetation
5				X Dominar	nce test is >50%	%
6				X Prevaler	nce index is ≤3.	0*
7				Morphog	gical adaptation	s* (provide
8				supporti	ng data in Rem	arks or on a
9				separate	e sheet)	
10	10	Tatal Onus		Problem	atic hydrophyti	c vegetation*
Woody vino stratum (Plot sizo:	10 =	= Total Cove	ſ	(explain)	)	
1				*Indicators of	hydric soil and we	tland hydrology must be
2				Hydrop	hytic	
	0 =	Total Cove	r	vegetati	ion	
				present	? Y	_
Remarks: (Include photo numbers here or on a separate	e sheet)					
Late season delineation, observed vegetatio	n had alı	ready sene	esced.			

SOIL
------

Depth	Matrix		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
0-12+	10YR 6/3						Sand		Sandy fill
vpe: C = (	Concentration D:	= Depleti	on RM = Reduce	ed Matrix	MS = N	Aasked S	and Grains	**Locatio	n <sup>.</sup> PL = Pore Lining M = Ma
Hydric So	oil Indicators:	Boplot		ou main	, <b>mo</b> – n		Indicators	s for Proble	ematic Hydric Soils:
His	tisol (A1)		Sar	ndv Glev	ed Matrix	(S4)	Coast	Prairie Rec	dox (A16) (LRR K. L. R)
— His	tic Epipedon (A2)		Sar	ndv Redo	ou (S5)	(01)	Dark \$	Surface (S7	(LRR K. L)
Bla	ck Histic (A3)		Stri	nned Ma	atrix (S6)		Iron-M	langanese	Masses (F12) ( <b>LRR K. L. R</b>
Hv	drogen Sulfide (A	1)	l os	my Muc	kv Miner	al (F1)	Verv S	Shallow Dar	:k Surface (TF12)
Stra	atified Lavers (A5)	·/	Loc	imy Mao my Glev	ed Matrix	x (F2)	Other	(explain in	remarks)
2 c	m Muck (A10)		Der	oleted M	atrix (F3)	x (: <u>-</u> )		(oxplain in	iomano,
Der	pleted Below Dark	Surface	(A11) Re(	dox Dark	Surface	(F6)			
	ck Dark Surface (	A12)	Der	oleted D	ark Surfa	(F7)	*Indicat	ore of bydr	anhytic vocatation and walt
Sar	ndv Mucky Minera	l (S1)	Rec	dox Depr	ressions	(F8)	hvdrol	oav must be	e present unless disturbed
5 c	m Mucky Peat or	Peat (S3	)			()	nyaror	ogy maor b	problematic
			/			1			F
estrictive	Layer (If observe	ea):					l hadala a		60 N
ne.							Hydric s	soli present	I N
po.					-		•		
epth (inche emarks: Plot 3 ha	es): ad 24" of sandy	fill; Plo	t 4 had 12" of s	sandy fi	- - ill. Fill er	nded at	approximate	ly Plot 5.	
epth (inch emarks: Plot 3 ha	es): ad 24" of sandy	fill; Plo	t 4 had 12" of s	sandy fi	- ill. Fill er	nded at	approximate	ly Plot 5.	
epth (inchi emarks: Plot 3 ha	es): ad 24" of sandy DGY	fill; Plo	t 4 had 12" of s	sandy fi	- - ill. Fill er	nded at	approximate	ly Plot 5.	
epth (inch emarks: Plot 3 ha YDROL( etland Hy	es): ad 24" of sandy DGY rdrology Indicato	fill; Plo	t 4 had 12" of s	sandy fi	- - ill. Fill er	nded at	approximate	ly Plot 5.	
Plot 3 ha Plot 3 ha YDROL	ad 24" of sandy OGY rdrology Indicato	fill; Plo ors: of one is	t 4 had 12" of s	sandy fi all that a	- - - ill. Fill er apply)	nded at	approximate	ly Plot 5.	icators (minimum of two rec
Plot 3 ha Plot 3 ha YDROL( etland Hy Surface	ad 24" of sandy DGY rdrology Indicato Water (A1)	fill; Plo ors: of one is	t 4 had 12" of s	sandy fi	- - - - - - - - - - - - - - - - - - -	nded at	approximate	ly Plot 5. condary Indi Surface S	icators (minimum of two req Soil Cracks (B6)
YDROL YDROL Variable Surface High Wa	es): ad 24" of sandy OGY rdrology Indicato cators (minimum Water (A1) ater Table (A2)	fill; Plo or <b>s:</b> of one is	t 4 had 12" of s	sandy fi all that a Aquatic True Aq	- - - - - - - - - - - - - - - - - - -	nded at 313) nts (B14)	approximate	ly Plot 5. condary Indi Surface S Drainage	icators (minimum of two reg Soil Cracks (B6) Patterns (B10)
YDROL Plot 3 ha YDROL etland Hy rimary Indi Surface High Wa Saturati	ad 24" of sandy DGY vdrology Indicato vdrology Indicato Water (A1) ater Table (A2) on (A3)	fill; Plo	t 4 had 12" of s	all that a Aquatic True Aq Hydroge	apply) Fauna (B juatic Plar en Sulfide	nded at 313) nts (B14) 2 Odor (C <sup>2</sup>	approximate	ly Plot 5.	icators (minimum of two req Soil Cracks (B6) Patterns (B10) son Water Table (C2)
Plot 3 ha Plot 3 ha Plot 3 ha YDROL etland Hy imary Indi Surface High Wa Saturati	es): ad 24" of sandy DGY rdrology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	fill; Plo	t 4 had 12" of s	all that a Aquatic True Aq Oxidizer	apply) Fauna (B uatic Plar en Sulfide d Rhizosp	nded at 313) nts (B14) e Odor (C <sup>-</sup> oheres on	approximate	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
Plot 3 ha Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water M Sedime	es): ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) waiter (D2)	fill; Plo ors: of one is	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3)	apply) Fauna (B uatic Plan en Sulfide d Rhizosp	nded at 313) nts (B14) e Odor (C <sup>2</sup> oheres on	approximate	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Etland Hy imary Indi Saturati Water M Sedime Sedime	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)	fill; Plo ors: of one is	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu	a13) a13) nts (B14) a Odor (C' oheres on uced Iron	approximate Sec ) Living Roots	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (Cor Stressed Plants (D1)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha <b>YDROL(</b> etland Hy imary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posite (B5)	fill; Plo	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6)	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu	a13) nts (B14) Odor (C <sup>2</sup> oheres on uced Iron uction in T	approximate Sec Living Roots (C4)	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery ( or Stressed Plants (D1) whic Position (D2)
Plot 3 ha Plot 3 ha Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Saturati Water M Sedime Drift De Algal Ma Iron Dep	ad 24" of sandy DGY rdrology Indicato rdrology Indicato rdrology Indicato vater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	fill; Plo	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6)	apply) Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	a13) nts (B14) Odor (C <sup>2</sup> oheres on uced Iron uction in T	approximate Sec Living Roots (C4)	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) on Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) tral Test (D5)
Plot 3 ha epth (inch emarks: Plot 3 ha YDROL( etland Hy surface High Wa Saturati Water M Sedimel Drift De Algal Ma Iron Deg Inundati Sparsel	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conce	fill; Plo	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge	apply) Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu uck Surfac	a13) nts (B14) odor (C <sup>2</sup> oheres on uced Iron uction in T ce (C7) ata (D9)	approximate Sec Living Roots (C4) illed Soils	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery ( or Stressed Plants (D1) whic Position (D2) tral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water S	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9	fill; Plo ors: of one is of one is ul Imagery ive Surfa	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	apply) Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu ck Surfac or Well Da	anded at anded at ata) nts (B14) odor (C <sup>2</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks	approximate Sec ) Living Roots (C4) iilled Soils	ly Plot 5.	icators (minimum of two req Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery ( or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha enth (inche emarks: Plot 3 ha Plot 3 ha YDROL( Vetland Hy rimary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S	ad 24" of sandy DGY drology Indicator variations (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 posits (B9)	fill; Plo rs: of one is of one is ve Surfa	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge o Other (E	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu Ick Surfac or Well Da Explain in	nded at ata) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks	approximate Sec ) Living Roots (C4) illed Soils	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery ( or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha epth (inch emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Ind Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S eld Obse	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9 rvations: er present?	fill; Plo rs: of one is of one is ll Imager; ve Surfa ) Yes	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu Ick Surfac or Well Da Explain in	nded at ata ata) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches):	approximate Sec ) Living Roots (C4) (C4) )	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery ( or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsel urface wat	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 rvations: er present? present?	fill; Plo <b>ors:</b> <u>of one is</u> I Imager, ve Surfa ) Yes Yes	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu	a13) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches):	approximate Sec ) Living Roots (C4) iilled Soils	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S eld Obse ater table	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9 rvations: er present? present?	fill; Plo rs: of one is of one is il Imager, ve Surfar ) Yes Yes Yes Yes	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Ick Surfac or Well Da Explain in Depth (i Depth (i	anded at anded at anded at anded at and and and and and and and and and and	approximate Sec ) Living Roots (C4) iilled Soils	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( /etland Hy cimary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel: Water-S eld Obse aturation p ncludes ca	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 rvations: er present? present? pillary fringe)	fill; Plo <b>ors:</b> <u>of one is</u> <u>of one is</u> <u>of one is</u> <u>yes</u> <u>yes</u> <u>yes</u> <u>yes</u>	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Ick Surfac or Well Da Explain in Depth (i Depth (i	anded at anded at ata) nts (B14) oberes on uced Iron uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches):	approximate Sec Living Roots (C4) iilled Soils	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
Plot 3 ha epth (inch emarks: Plot 3 ha Plot 3 ha Plot 3 ha yurface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ield Obser urface wat vater table aturation p	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 rvations: er present? present? present? pillary fringe) poorded data (etrac	fill; Plo ors: of one is of on	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu uck Surfac or Well Da Explain in Depth (i Depth (i	anded at anded at and anded at and and and and and and and and and and	approximate Sec Sec (C4) (C4) illed Soils )	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) ttral Test (D5)
epth (inche emarks: Plot 3 ha Plot 3 ha YDROLO retland Hy rimary Indi Surface High Wa Saturati Water M Sedimen Drift Dej Algal Ma Iron Dep Inundati Sparsely Water-S eld Obse urface wat dater table aturation p ncludes ca escribe ret	ad 24" of sandy DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9 rvations: er present? present? present? pillary fringe) corded data (streat	fill; Plo ors: of one is of one is of one is ve Surfar ) Yes Yes Yes Yes Yes am gauge	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presence (C6) Thin Mu Gauge o Other (E X X X	apply) Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i bohotos, p	a13) nts (B14) oberes on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): inches):	approximate Sec Sec (C4) (C4) illed Soils ) approximate	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (f or Stressed Plants (D1) whic Position (D2) that Test (D5)
epth (inche emarks: Plot 3 ha Plot 3 ha Plot 3 ha IYDROLO /etland Hy rimary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ield Obse urface wat /ater table aturation p ncludes ca escribe rei	ad 24" of sandy DGY drology Indicator cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) boosits (B3) at or Crust (B4) boosits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9 rvations: er present? present? present? pillary fringe) corded data (streat	fill; Plo ors: of one is of one is ve Surfa ) Yes Yes Yes Yes Yes Yes	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presence (C3) Presence (C6) Thin Mu Gauge C Other (E X X X	apply) Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu lron Redu lck Surfac or Well Da Explain in Depth (i Depth (i bohotos, p	nded at ata) nts (B14) e Odor (C oheres on uced Iron uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): inches):	approximate Sec Sec Living Roots (C4) (C4) illed Soils ) approximate	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (f or Stressed Plants (D1) whic Position (D2) that Test (D5)
epth (inche emarks: Plot 3 ha Plot 3 ha Plot 3 ha Plot 3 ha YDROL( Vetland Hy rimary Indi Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S ield Obse aturation p ncludes ca escribe re-	ad 24" of sandy DGY drology Indicator (ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria (Vegetated Conca itained Leaves (B9) rvations: er present? present? present? present? pillary fringe) corded data (streat	fill; Plo rs: of one is of one is ve Surfa ) Yes Yes Yes am gauge	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge o Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu Ick Surfac or Well Da Explain in Depth (i Depth (i Depth (i	nded at ata) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): inches):	approximate Sec Sec Sec (C4) (C4) (C4) Tilled Soils Sec Annotational Sector (C4) Annotational Sector (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (C4) (	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) whic Position (D2) thral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S eld Obset aturation p ncludes ca escribe re-	ad 24" of sandy DGY rdrology Indicator rdrology Indicator (cators (minimum) Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 rvations: er present? present? present? present? pillary fringe) corded data (streat	fill; Plo rs: of one is of one is ve Surfa ) Yes Yes Yes Yes am gauga	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge C Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu Ick Surfac or Well Da Explain in Depth (i Depth (i Depth (i	nded at a13) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): inches):	approximate Sec ) Living Roots (C4) (C4) ) illed Soils ) hspections), if a	ly Plot 5.	icators (minimum of two rec Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) ohic Position (D2) ttral Test (D5)
Plot 3 ha epth (inche emarks: Plot 3 ha YDROL( etland Hy imary Indi Surface High Wa Saturati Water N Sedimel Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obse atter table atter table atter table atter table excribe ree	ad 24" of sandy DGY drology Indicato (cators (minimum) Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9 rvations: er present? present? pillary fringe) corded data (streat	fill; Plo rs: of one is of one is ve Surfa ) Yes Yes Yes Yes am gauge	t 4 had 12" of s	all that a Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge c Other (E X X X	apply) Fauna (B Juatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu Iron Redu Iron Redu Depth (i Depth (i Depth (i Depth (i	nded at a13) nts (B14) e Odor (C <sup>-</sup> oheres on uced Iron uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches):	approximate Sec ) Living Roots (C4) iilled Soils ) nspections), if a	ly Plot 5.	icators (minimum of two reo Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C or Stressed Plants (D1) ohic Position (D2) ttral Test (D5)

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Winona Riverfront	City/C	County:	Winona/Wir	nona Sa	ampling Date:	11-20-2013
Applicant/Owner: CEMVP-PM-E		State:	MN	Sa	mpling Point:	5
Investigator(s): Walther, Hanson, Derinzy, Studenski		Sectio	on, Township	p, Range:	22, T.	107N., R. 7W.
Landform (hillslope, terrace, etc.): floodpl	ain	Local re	elief (concav	ve, convex, n	one):	none
Slope (%): 0-1 Lat:		Long:		Da	atum:	
Soil Map Unit Name Comfrey silt loam, channeled			NWI (	Classification	n:	PFO1Ch
Are climatic/hydrologic conditions of the site typical for	this time of	the year?	Y (I	f no, explain	in remarks)	
Are vegetation, soil, or hydrolo	ду	significantly	disturbed?	Ar	e "normal circ	umstances"
Are vegetation , soil , or hydrolo	gy X	naturally pro	oblematic?			present? Yes
SUMMARY OF FINDINGS				(If needed	, explain any a	answers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the sa	ampled area	a within a w	etland?	Y
Indicators of wetland hydrology present? Y		f yes, opt	tional wetlan	nd site ID:		
Remarks: (Explain alternative procedures here or in a s	eparate rei	port.)				
Hydrology naturally problematic because the si	te is a na	tural floodr	lain that h	as been di	ked and im	ounded connected
to	Miss. Riv	ver via 36"	culvert.			
	Absolute	Dominan	Indicator	Dominand	e Test Work	sheet
<u>Tree Stratum</u> (Plot size: 30' r )	% Cover	t Species	Staus	Number of	Dominant Spe	cies
1 Acer saccharinum	50	Y	FACW	that are OB	L, FACW, or F	AC: 3 (A)
2 Fraxinus pennsylvanica	15	N	FACW	Total Nu	umber of Domi	nant
3 Acer negundo	10	N	FAC	Species	s Across all Sti	rata: <u> </u>
4 Populus deltoides	8	N	FAC	Percent of	Dominant Spe	cies
5				that are OB	L, FACW, or F	AC: <u>100.00%</u> (A/B)
Copling/Chrub stratum (Plat size)	83 =	I otal Cover		Broyolong	o Indox Worl	rahaat
Saping/Shrub stratum (Piot size: N/A )				Total % C	e index wor	sneet
2				OBL speci	es 0	x 1 = 0
3		·		FACW spe	ecies 73	$x^{2} = 146$
4		·		FAC speci	es 18	x 3 = 54
5				FACU spe	cies 0	x 4 = 0
	0 =	Total Cover		UPL speci	es O	x 5 = 0
Herb stratum (Plot size: 5' r )				Column to	tals 91	(A) <u>200</u> (B)
1 Frangula alnus	5	Υ	FACW	Prevalence	e Index = B/A	= 2.20
2 Laportea canadensis	3	Y	FACW			
3				Hydrophy	tic Vegetatio	n Indicators:
4		<u> </u>		Rapid	test for hydro	phytic vegetation
		·		X Preval	ence index is	30 ⁄₀ <3 0*
7		<u> </u>				iono* (provide
8		·		suppo	rting data in R	emarks or on a
9		·		separa	ate sheet)	
10				Proble	matic hydropl	nytic vegetation*
	8 =	Total Cover		(explai	in)	
Woody vine stratum (Plot size:)				*Indicators	of hydric soil and	wetland hydrology must be
1				pre	sent, unless distu	urbed or problematic
2		<u></u>		Hydro	pnytic	
	0 =	i otal Cover		prese	nt?	Y
Remarks: (Include photo numbers here or on a separat	e sheet)			ļ		
Late season delineation observed vegetation	on had alr	eady sene	sced.			

### SOIL

Profile Desc	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicate	or or confirm the absen	ce of indicators.)
Depth	<u>Matrix</u>		Rec	dox Featu	ures_			
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					SiCL	
2-12+	10YR 3/1	40	7.5YR 4/6	20	С	PL/M	SiCL	Sand lenses, stratified layers
	10YR 2/1	40						
*Type: C = C	Concentration, D	= Depleti	on, RM = Reduce	ed Matrix	, MS = N	lasked S	and Grains. **Location	on: PL = Pore Lining, M = Matrix
Hydric So	oil Indicators:		0			(0.1)	Indicators for Prob	lematic Hydric Soils:
Hist	tisol (A1)		Sar	dy Gleye	ed Matrix	(S4)	Coast Prairie Re	adox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		Sar	idy Redo	x (S5)		Dark Surface (S	() (LKK K, L) Massas (E12) (LPP K L P)
	CK HISTIC (A3) Irogon Sulfido (A)	1)	Stri	pped ivia my Muck	trix (S6)	J (E1)		r(asses (1 12) (ERR R, E, R)
	atified Lavers (A5	+ <i>)</i> \	L0a	my Glev	od Matrix	ai (F1) (F2)	Other (explain in	remarks)
2 012	m Muck (A10)	,	L0a	leted Ma	atrix (F3)	× (i ∠)		i tomarkoj
2 cr	leted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)		
	ck Dark Surface (	A12)		leted Da	rk Surfa	(F7)	*Indicators of hyd	rophytic vegetation and weltand
San	dv Mucky Minera	al (S1)	Rec	lox Depre	essions (	(F8)	hydrology must l	be present, unless disturbed or
5 cr	n Mucky Peat or	Peat (S3	)			(	, a. e. e. g.jaet.	problematic
Restrictive	l aver (if observ	ed).						-
Type:		<b>.</b>					Hvdric soil prese	nt? Y
Depth (inche	es):						, <b>,</b>	
Pomarks:								
Plot is im	mediately dow	Inslope	of farthest exte	ent of sa	andy fill	materia	al.	
	JG f drolomy Indiante							
Wetland Hy	arology indicato	ors:	required, check,		and d		0	
Primary Indi	Cators (minimum)	of one is	required; check	A quetie	<u>ppiy)</u> Fours (P	10)	Secondary In	Soil Crooks (RG)
High Wa	V aler (AT)				rauna (b uatic Plar	13) hts (R14)	Sunace	e Patterns (B10)
Saturatio	(A3)			Hydrode	n Sulfide	Odor (C1	Drainag	ison Water Table (C2)
Water M	arks (B1)			Oxidized	l Rhizosp	heres on	Living Roots Cravfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)			Saturati	on Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presenc	e of Redu	uced Iron	(C4) Stunted	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	iction in T	illed Soils Geomo	phic Position (D2)
Iron Dep	osits (B5)			(C6)			X FAC-Ne	utral Test (D5)
	on Visible on Aeria	al Imagery	/ (B7)	Thin Mu	ck Surfac	e (C7)		
Sparsely	Vegetated Conca	ave Sunta	ce (B8) X	Gauge o	or Well Da	ata (D9) Demorika		
Valer-S	tained Leaves (be	)		Other (E	xpiain in	Remarks	)	
Surface wat	valions: er present?	Yes	No	x	Denth (i	nches).		
Water table	present?	Yes	No	X	Depth (i	nches):	In	dicators of wetland
Saturation p	resent?	Yes	No	X	Depth (i	nches):	h	ydrology present? Y
(includes ca	pillary fringe)				• • •			
Describe rec	corded data (strea	am gauge	e, monitoring well	, aerial p	hotos, pr	revious ir	nspections), if available:	
Remarke								
Site is co	onnected to rive	er flowe	via 36" culvert	and riv	/er nau	ne data	indicates water eleva	tion frequently is above the
site's ele	vation.			, and m	. Si gau	90 0010		aon noquonay to above and

# Appendix C

# Web Soil Survey



National Cooperative Soil Survey

**Conservation Service** 

# Map Unit Legend

Winona County, Minnesota (MN169)									
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI						
1015	Psamments, fill	0.6	8.5%						
1860	Comfrey silt loam, channeled	6.1	86.7%						
W	Water	0.3	4.8%						
Totals for Area of Interest	·	7.1	100.0%						



USDA Natural Resources Conservation Service 11/20/2013 Page 1 of 3

# Map Unit Legend

Winona County, Minnesota (MN169)									
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI						
1010	Riverwash	3.2	6.8%						
1015	Psamments, fill	10.5	22.5%						
1860	Comfrey silt loam, channeled	10.7	23.0%						
W	Water	22.2	47.7%						
Totals for Area of Interest	,	46.6	100.0%						

# MEMORANDUM

# SUBJECT: Wetland Delineation of "Island 72" for RPED-N Winona, Winona County, Minnesota

### 1. Introduction.

The U.S. Army Corps of Engineers, St. Paul District (MVP) – Regulatory Branch conducted the wetland delineation for MVP Regional Planning and Environmental Division-North (RPED-N) in consideration of the Island 72 site for dredge material placement in the City of Winona, Winona County, Minnesota. The area of investigation (the Site) is shown on Figure 1 in Appendix A and is located in Section 22, T. 107N., R. 7W.

The purpose of this memorandum is to document the methods used and conclusions made regarding the extent of wetlands present within the Island 72 site.

### 2. Methods and Materials.

On-site procedures were conducted in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual (Corps Manual)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). The Corps staff team conducted the on-site data collection on Thursday, November 8, 2018.

The following resources were utilized for the wetland delineation:

- 30 June 1954 black & white historic aerial photograph, MnDNR Data Deli;
- 6 May 1992, 17 April 2008 and 24 July 2011 true color aerial photographs, and other sources provided at Google Earth;
- Minnesota Climatology Working Group Website (http://climate.umn.edu/gridded\_data/precip/wetland/wetland.asp) "Wetland Delineation Precipitation Data Retrieval";
- National Wetlands Inventory (NWI) mapping;
- MN Department of Natural Resources (DNR) Public Waters Inventory;
- USDA Web Soil Survey digital soil mapping;
- An iPad with ESRI Collector for ArcGIS to record the locations of data points and wetland/upland boundaries during field investigation; and
- ArcMap GIS program to digitize and display the results of the investigation.

In addition to the field methodologies laid out in the Midwest Supplement, the following methods were used:

a. <u>Placing Observations of Hydrology in the Context of Antecedent Precipitation</u>. *Hydrology Tools for Wetland Determination* (Woodward *et al.* 1997) and *Assessing and Using Meteorological Data to Evaluate Wetland Hydrology* (Sprecher and Warne 2000) recommend evaluation of precipitation for the 3 months prior to the date of the aerial imagery to assist in making determinations regarding signatures noted on aerial photography. In addition, antecedent precipitation was determined for the 3-months prior to site visit using gridded database

information from the Minnesota Climatology Working Group website. Direct observations of hydrology indicators made during the site visit were then placed in the context of antecedent precipitation.

### 3. Landscape.

The site is located within the main channel of the Mississippi River, in an area designated as the Upper Mississippi National Wildlife and Fish Refuge, immediately north of the City of Winona. While much of the island has been manipulated for a marina, bridge and park construction, the portion of the island subject to this current investigation has been nearly unchanged since the construction of Lock and Dam 6 and creation of Pool 6, as observed in the following sample of aerial photographs since 1954. The April 2008 aerial photograph is a leaf-off aerial that provides an excellent view of the wetland area, with the signature visible through the canopy cover that is darker than the surrounding uplands.

Photograph 1: 30 June, 1954



Photograph 2: 6 May, 1992



Photograph 3: April 17, 2008



Photograph 4: 24 July 2011



#### 4. Soils.

According to the Winona County Web Soil Survey, soils mapped on the project site are Shilo silt loam, ponded (predominantly hydric), Riverwash (not rated) and Psamments, fill (nonhydric sandy fill material), as shown below. The westernmost "Riverwash" polygon has been filled with dredge material in recent years, and would likely be labeled as "Psamments, fill" in any updated soil survey mapping. The polygon of "Riverwash" to the south of the delineated wetland basin is an upland knoll on a part of the island that has been unchanged since at least the 1950s.



### 5. NWI and DNR Mapping.

The site is mapped on the National Wetlands Inventory (NWI) as a freshwater emergent wetland within a freshwater forested/shrub wetland, as shown below.



The site itself is not designated on the DNR Public Waters Inventory (PWI), however it is an island within Public Water 2P, the Mississippi River.

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

#### 6. Site Visit 8 November 2018.

Data collection sample points were established (see Figure 1) and observations were documented on data sheets, which are part of the Corps administrative record and are available upon request. The delineation was based on field documentation of the change in topography between the wetland and upland areas, where nonhydric sandy material became evident and indicators of wetland soils and hydrology were no longer observed.

Precipitation during the three months antecedent to the site visit on 8 November 2018 was wetter than normal (see below). September and October were wetter than normal, following a slightly dryer than normal August. Water levels in the Mississippi River had recently subsided adjacent to the site, leaving behind evidence of both recent and typical high water levels. The site visit was conducted after the end of the growing season; temperatures through November had remained on the mild side, and the soils were not yet frozen, therefore, observations of critical wetland indicators were made.

#### Minnesota State Climatology Office

	home   current conditions   journal   past data   summaries   agriculture   other sites   about us f		
Precipitation Worksheet Using Gridded Database			
Precipitation data for target wetland location: outline: county: Winona township number: 107N 107N 107N			
Aerial photograph or site visit date: Thursday, November 8, 2018			
Score using 1981-2010 normal period			
values are in inches	first prior month:	second prior month:	third prior month:
A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	October 2018	September 2018	August 2018
estimated precipitation total for this location:	4.28	7.91	3.08
there is a 30% chance this location will have less than:	1.14	2.41	3.29
there is a 30% chance this location will have more than:	3.20	4.45	5.17
type of month: dry normal wet	wet	wet	dry
monthly score	3 * 3 = 9	2 * <mark>3</mark> = 6	1 * 1 = 1
multi-month score:   6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	16 (Wet)		

### 6. Results and Discussion.

One wetland area, Wetland 1, was identified and delineated on Island 72 (Figure 1) and is a shallow marsh within a bottomland forest located within the Mississippi River floodplain. Dominant vegetation includes silver maple (*Acer saccharinum*, FACW), eastern cottonwood (*Populus deltoides*, FAC) and wood-nettle (*Laportea canadensis*, FACW), with green ash (*Fraxinus pennsylvanica*, FACW) and box elder (*Acer negundo*, FACW) as sub-dominants.

The shallow marsh and floodplain forest community cited herein is based on the description and key in Eggers and Reed (2015).

### 7. Conclusion.

Based on the procedures described above, the evidence demonstrates the extent of wetland area at the Island 72 site, as shown on Figure 1.

Corps of Engineers, St. Paul District Regulatory Branch Team: Barbara Walther, Senior Ecologist (PWS #1750, WDC #1052), Regulatory LeeAnn Glomski, Biologist, RPED-N

#### LITERATURE CITED

- Cowardin, L., V. Carter, F. Golet and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 103 pp.
- Eggers, S. and D. Reed. 2011. Wetland Plants and Plant Communities of Minnesota and Wisconsin -Third Edition. U.S. Army Corps of Engineers, St. Paul District, St. Paul, MN. 486 pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 98 pp. plus appendices.
- Lichvar, R. 2012. *National Wetland Plant List*. ERDC/CRREL TR-12-11. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.
- Sprecher, S. and A. Warne. 2000. Accessing and Using Meteorological Data to Evaluate Wetland Hydrology. ERDC/EL TR-WRAP-00-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Version 2.0, ed., J.S. Wakeley, R.W. Lichvar and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USDA, Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/
- Woodward, D. ed. 1997. *Hydrology Tools for Wetland Determination*. Chapter 19, Engineering Field Handbook. USDA, Natural Resources Conservation Service. Fort Worth, TX. 34 pp.

# Appendix A

# Figure 1

