Appendix F – Wetland Delineation Report



MEMORANDUM

TO: US Army Corps of Engineers

FROM: Rebecca Beduhn, SEH

DATE: August 5, 2021

RE: Interstate 229 Exit 4 Reconstruction Wetland Delineation SDDOT PCN 05HN SEH No. SDDOT 147016

Please find the enclosed wetland delineation report and Approved Jurisdictional Determination (AJD) request for the Interstate 229 Exit 4 Reconstruction project. An AJD is requested for Wetlands 1, 2, 3, 6, 7, 8, 9, and 10.

If there are any questions, please contact Rebecca Beduhn at rebduhn@sehinc.com or 651.470.6027.

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Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 3535 Vadnais Center Drive, St. Paul, MN 55110-3507 651.490.2000 | 800.325.2055 | 888.908.8166 fax | sehinc.com SEH is 100% employee-owned | Affirmative Action–Equal Opportunity Employer

U.S. ARMY CORPS OF ENGINEERS REQUEST FOR CORPS JURISDICTIONAL DETERMINATION						
*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332. Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination						
(AJD), which will be made available to the public on the District's website and on the Headquarters L Submission of requested information is voluntary; however, if information is not provided, the request evaluated nor can an AJD be issued.		PROJECT NO.:				
1. PROPERTY LOCATION: 2.REQUESTOR CONTACT INFORMATION:						
Street Address: Exit 4 (I-229 and Cliff Ave)	Typed or Printed Na	ame: Steve Gramm				
City/Township/Parish: Sioux Falls	Company Name: S	DDOT				
County: Minnehaha County State: SD	Street Address: 700	0 East Broadway Avenue				
Acreage of Parcel/Review Area for JD: 90	City: Pierre	State: <u>SD</u> ZIP: <u>77501</u>				
Section: 227 Township: 101 Range: 49	Phone Number:	(605) 773-6641				
Latitude: <u>43.515189</u> Longitude: <u>-96.71163</u>	E-mail: steve.gram	m@state.sd.us				
(For linear projects, please include the center point of the proposed alignment.)						
3. MAP: Please attach a survey/plat map and vicinity map id		d review area for the JD.				
4. REASON FOR REQUEST (check as many as applicable)	:					
I intend to construct/develop a project or perform active aquatic resources.	vities on this parcel w	which would be designed to avoid all				
I intend to construct/develop a project or perform activity jurisdictional aquatic resources under Corps authority		vhich would be designed to avoid all				
I intend to construct/develop a project or perform active Corps, and the JD would be used to avoid and minimi- initial step in a future permitting process.						
I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.						
	I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.					
A Corps JD is required in order to obtain my local/state authorization.						
I intend to contest jurisdiction over a particular aquatic does/does not exist over the aquatic resource on the		est the Corps confirm that jurisdiction				
I believe that the site may be comprised entirely of dr	y land.					
Other:						
5. TYPE OF DETERMINATION BEING REQUESTED:	6. OWNERSHIP DE	ETAILS:				
☐ I currently own this property.						
☐ I am requesting a preliminary JD. ☐ I plan to purchase this property.						
□ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated. I am an agent/consultant acting on behalf of the						
I am unclear as to which JD I would like to request and require additional information to inform my decision.						
By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.						
Signature: Bailey Nelson Digitally signed b	by Bailey Nelson 5 14:23:26 -05'00'	Date:				



October 22, 2021

RE: Interstate 229 Exit 4 Reconstruction Sioux Falls, Minnehaha County, South Dakota Wetland Delineation Report SDDOT PCN : 05HN SEH Project Number: Error! Reference source not found.

Steve Gramm, PE SDDOT - Project Development 700 East Broadway Avenue Pierre, SD, 75501-2589

Dear Mr. Steve Gramm, PE:

Please find enclosed the Wetland Delineation Report for Interstate 229 Exit 3 Reconstruction in the City of Sioux Falls, South Dakota. This Report presents the results of the field delineation for wetlands performed on September 13th and 14th, 2018 completed by Rebecca Beduhn (CWD #1243, PWS #2758). The field delineation included on-site identification, classification, and boundary determinations of wetland basins following the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010).

Thank you for the opportunity to provide wetland services to the South Dakota Department of Transportation (SDDOT). Short Elliott Hendrickson Inc. (SEH[®]) is pleased to provide you with this information for your records and review. If you have any questions, please contact me directly at 651.490.2146 or via e-mail at rbeduhn@sehinc.com.

Sincerely,

Releace Bed

Rebecca Beduhn Professional Wetland Scientist Certified Professional Soil Scientist



Wetland Delineation Report South Dakota Department of Transportation (SDDOT) Interstate 229 Exit 4 Reconstruction

Sioux Falls, Minnehaha County, South Dakota SDDOT Number: PCN 05HN | SEH Number: SDDOT 147016 October 2021



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Wetland Delineation Report

Interstate 229 Exit 4 Reconstruction PCN 05HN Minnehaha County, South Dakota

Prepared for: South Dakota Department of Transportation (SDDOT) 700 East Broadway Avenue Pierre, SD, 75501-2589

> Prepared by: Short Elliott Hendrickson Inc. 3535 Vadnais Center Drive St. Paul, MN 55110-5196 651.490.2000

The procedures described in this report and the field methods used constitute an official wetland delineation in accordance with the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and applicable *Regional Supplement*.

The field delineation was completed by Rebecca Beduhn. The methodology meets the standards and criteria described in the manual, and conforms to the applicable standards and regulations in force at the time the fieldwork was completed. The results reflect conditions present at the time of the delineation.

I hereby certify that this report was prepared by me or under my direct supervision.

Prepared by:

Bailey Nelson, Wetland Biologist

1/20/2019 Date

Beel

Reviewed by:

Rebecca Beduhn, Wetland Scientist Professional Wetland Scientist, No. <u>2758</u> Certified Professional Soil Scientist, No. <u>333315</u>

10/22/2021 Date





Contents

Letter of Transmittal	
Certification	
Contents	

1	Intro	oduction1
	1.1	Site Description1
2	We	tland Delineation1
	2.1	Wetlands Definition1
	2.2	Methodology1
	2.3	Hydrophytic/Wetland Vegetation2
	2.4	Hydric/Wetland Soils2
	2.5	Hydrology2
3	Res	sults3
	3.1	Shallow Marsh4
	3.2	Fresh (Wet) Meadow Error! Bookmark not defined.
	3.3	Regulatory Considerations Error! Bookmark not defined.
4	Bibl	liography10

List of Tables

Table 1 – Wetland and Aquatic Resource Characteristics	. 3
Table 2 – Summary of Shallow Marsh Communities	.4
Table 3 – Summary of Fresh (Wet) Meadow Communities	. 5

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Contents (continued)

List of Figures

Figure 1 – Site Location and Topography

Figure 2 - National Wetlands Inventory (NWI)

Figure 3 – Minnehaha County Web Soil Survey

Figures 4-1 and 4-2 – Wetland Delineation Results

List of Appendices

Appendix A	Wetland Delineation Data Forms	

Appendix B Site Photographs

Appendix C Climate Summary Data

Appendix D Hydrogeomoprhic Functional Assessment Workbooks

1 Introduction

The purpose of this study was to investigate the project area, identify areas meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, and classify the wetland habitat for reconstruction. This field delineation will be the basis on which wetland impacts from the proposed project will be determined.

This report describes the methodology and results of the field delineation performed on September 12th and 13th, 2018. Figures referred to in the text are included at the end of the report.

1.1 Site Description

The project site is located in Sections 27, 28, 33, and 34 in Township 101 North, Range 49 West in Sioux Falls, Minnehaha County, South Dakota as shown on **Figure 1**. The approximately 90-acre site is bounded on the north by W 33rd Street, on the east by the Big Sioux River, on the south by E 49th Street, and on the west by S Minnesota Avenue. The site is located in the Lower Big Sioux watershed.

The project site consists of a variety of upland and wetland plant communities. The wetland and upland communities onsite are described in more detail in the following sections.

2 Wetland Delineation

2.1 Wetlands Definition

Wetlands are defined in federal Executive Order 11990 as follows:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

According to U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010), one positive indicator (except in certain situations) from each of three elements must be present in order to make a positive wetland determination, which are as follows:

- Greater than 50 percent dominance of hydrophytic plant species.
- Presence of hydric soil.
- The area is either permanently or periodically inundated, or soil is saturated to the surface during the growing season of the dominant vegetation.

2.2 Methodology

2.2.1 Resource Review

Topographic maps, the U. S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map, and the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2019) for Minnehaha County, the Minnehaha County hydric soils list were reviewed prior to visiting the site to locate potential wetland habitats. **Figure 2** is a copy of the NWI map, and **Figure 3** is a copy of the NRCS Web Soil Survey map. These sources showed a number wetland areas that were investigated in greater detail during the field delineation.

2.2.2 | Field Procedures

The project site was examined on September 12th and 13th, 2018 for areas meeting the technical wetland criteria in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010).

The delineation procedures in the Corps *Manual* (*i.e.*, the Routine Onsite Determination Method), in combination with wetland indicators and guidance provided in the *Regional Supplement* were applied for this delineation. Where differences in the two documents occur, the *Regional Supplement* takes precedence over the Corps *Manual* for applications in the *Midwest Region* (USACE 2010).

Field notes, samples, and photographs were taken at representative locations in each wetland basin, with data transect locations following spacing guidelines in the *Regional Supplement*. The respective wetland and upland plots for each wetland were documented on Wetland Determination Data Forms (**Appendix A**). Relevant photographs of the site and representative sample locations are included in **Appendix B**; all other photographs will be retained on file at SEH.

Wetland boundaries were located and marked with pin flags and/or flagging labeled with "WETLAND BOUNDARY" to allow for field review. The locations of the delineated wetland boundaries were collected with a sub-meter accuracy Global Positioning System (GPS) unit and mapped. The results of the delineation are shown on **Figures 4-1** and **4-2**. The sample points noted identify where data was collected.

2.3 Hydrophytic/Wetland Vegetation

Wetland plant species nomenclature follows the *National Wetland Plant List* (USACE 2016). Identification was aided when necessary with field guides for the region. Vegetation was sampled in nested circular plots: 5-ft radius for herbaceous species, 15-ft radius for shrubs, and 30-ft radius for trees and vines.

2.4 Hydric/Wetland Soils

Soils were observed for hydric soil characteristics. Soils were examined in cores taken with a Dutch auger. Soil profiles were observed at a depth necessary to confirm hydric soil characteristics. Typical soil profile depths are typically within 18-24 inches below ground surface to allow for: (1) observation of an adequate portion of the soil profile to determine presence/absence of hydric soil characteristics; (2) observation of hydrology including depth to the water table and saturated soils; and, (3) identification of disturbances (e.g., buried horizon, plow line, etc.). Soil color determinations were made using Munsell Soil Color Charts (Gretag-Macbeth 1994). Site soil characteristics were compared to those mapped and described in the Soil Survey for Minnehaha County (USDA 2019). Hydric soil characteristics were compared to those identified in the *Midwest Regional Supplement* (USACE 2010) and the most recent version of the NRCS publication *Field Indicators of Hydric Soils in the United States, Version 8.1* (USDA 2017).

2.5 Hydrology

Primary and secondary indicators of hydrology were identified in the field to determine the presence or absence of wetland hydrology, as described in the *Midwest Regional Supplement* (USACE

2010), and are listed in each wetland description. Subsurface wetland hydrology indicators were examined using the soil cores and/or soil pits as deep as 24 inches.

3 Results

The field delineation was conducted under temperature conditions that were higher than normal and precipitation conditions that were wetter than normal as compared to the historical average for the region according to Midwest Regional Climate Center (**Appendix C**). Most of the vegetation was identifiable, including all dominant species.

10 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**). The Wetland Determination Data Forms (**Appendix A**) indicate the dominant species of vegetation and the soil and hydrologic characteristics at representative locations around each basin. **Table 1** is a summary of the size and classification of each wetland basin.

The wetlands are grouped by wetland habitat classification and described below Table 1.

Wetland ID	Size (acres) ¹	HGM Classification	Cowardin Classification	Location (Decimal Degrees)	Jurisdictional Status		
1	0.9129	Prairie Pothole	PEMC	43.5147, -96.7110	Jurisdictional, Culverts provide connection to river		
2	0.1236	Prairie Pothole	PEMC	43.5149, -96.7082	Jurisdictional, Culverts provide connection to river		
3	6.6559	Prairie Pothole	PEMC	43.5133, -96.7114	Jurisdictional, Culverts provide connection to river		
4	0.1623	Riverine	PEMB	43.5153, -96.7135	Jurisdictional, Adjacent to river		
5	0.2012	Riverine	PEMB 43.5164, -96.7119		Jurisdictional, Adjacent to river		
6	0.1869	Prairie Pothole	PEMB 43.5165, -96.7092		Not Jurisdictional, No Surficial Connection observed		
7	0.7492	Prairie Pothole	PEMB 43.5158, -96.7109		Not Jurisdictional, No Surficial Connection observed		
8	1.3048	Prairie Pothole	PEMC	43.5122, -96.7111	Not Jurisdictional, No Surficial Connection		
9	0.0977	Prairie Pothole	PEMB 43.5175, -96.7076		Not Jurisdictional, No Surficial Connection		
10	0.8589	Prairie Pothole	PEMC 43.5139, -96.7160		Not Jurisdictional, No Surficial Connection		
TOTAL	TOTAL 11.2534						
¹ Size include	¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and						

 Table 1 – Wetland and Aquatic Resource Characteristics

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

3.1 Prairie Pothole Wetlands

The following sections describe wetlands within the project area that are classified as Prairie Pothole Wetland Communities based on the Hydrogeomophic Approach.

3.1.1 PEMC Wetlands

Wetland ID	Size (acres)	Cowardin
1	0.9129	PEMC
2	0.1236	PEMC
3	6.6559	PEMC
8	1.3048	PEMC
10	0.8589	PEMC
Total acreage	9.8561	

Table 2 – Summary of PEMC Prairie Pothole

Five (5) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Shallow Marsh wetland communities. These wetlands included Wetlands 1, 2, 3, 8 and 10 (**Figure 4-1** and **4-2**). Wetlands 1-3 are located south of Interstate 229, while Wetlands 8 and 10 are located north of Interstate 229.

Dominant vegetation in the shallow marsh communities included blunt spike-rush (*Eleocharis obtusa* – OBL), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), large barnyard grass (*Echinochloa crus-galli* – FACW), narrow-leaf cat-tail (*Typha angustifolia* – OBL), broad-leaf cat-tail (*Typha latifolia* – FACW), and catnip (*Nepeta cataria* – FACU) in the herbaceous stratum.

A typical soil profile in the shallow marsh community met the technical hydric soil indicator A11 – Depleted Below Dark Surface, A12 – Thick Dark Surface, F6 – Redox Dark Surface, and/or F7 – Depleted Below Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric and predominantly nonhydric.

The primary wetland hydrology indicators observed included A2 – High Water Table and A3 – Saturation. Saturation was observed 0-3 inches below the ground surface. In addition, a water table was encountered at 11 inches below ground surface in one sample point.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by green ash (*Fraxinus pennsylvanica* – FACW) in the tree stratum; European buckthorn (*Rhamnus cathartica* – FAC) in the shrub stratum; and/or fox-tail barley (*Hordeum jubatum* – FAC), smooth brome (*Bromus inermis* – FACU), yellow bristle grass (*Setaria pumila* – FAC), black medick (*Medicago lupulina* – FACU), European buckthorn, Pennsylvania sedge (*Carex pensylvanica* – UPL), and/or black-bindweed (*Fallopia convolvulus* – FACU) in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

3.1.2 PEMB Wetlands

Wetland ID	Size (acres)	Cowardin
6	0.1868	PEMB
7	0.7492	PEMB
9	0.0977	PEMB
Total acreage	1.0338	

Table 3 – Summary of Fresh (Wet) Meadow Communities

There are three (3) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Fresh (wet) Meadow wetland communities. They include Wetlands 6, 7 and 9 (**Figure 4-1** and **4-2**).

Dominant vegetation in the fresh (wet) meadow communities included large barnyard grass, dockleaf smartweed, reed canary grass, blunt spike-rush, and/or fox-tail barley in the herbaceous stratum.

A typical soil profile in the fresh (wet) meadow community met the technical hydric soil indicator A11 – Depleted Below Dark Suface and/or F6 – Redox Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, predominantly nonhydric, and nonhydric.

The primary wetland hydrology indicator observed included A3 – Saturation. Saturation was present at the soil surface in the sample points.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by yellow bristle grass, Canadian thistle (*Cirsium arvense* – FACU), smooth brome, Kentucky blue grass (*Poa pratensis* – FAC), annual ragweed (*Ambrosia artemisiifolia* – FAC), wand panic grass (*Panicum virgatum* – FAC), wild black currant (*Ribes americanum* – FACW), tall goldenrod (*Solidago altissima* – FACU), European buckthorn, and/or bull thistle (*Cirsium vulgare* – FACU) in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not present at the upland sample points.

3.2 Riverine Wetlands

Wetlands 4 and 5 are associated with the Big Sioux River, and are directly adjacent to the main river channel, located along the riverbanks. These wetlands are categorized as Riverine Wetland Communities based on the Hydrogeomophic Approach and are described below.

3.2.1 PEMB Wetlands

Table 4 – Summary of Fresh (Wet) Meadow Communities

Wetland ID	Size (acres)	Cowardin
4	0.1623	PEMB
5	0.2012	PEMB
Total acreage	0.3635	

Wetlands 4 and 5 are classified as Riverine, and are best described as Fresh (Wet) Meadow wetland communities in the project area. They are located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2**).

Dominant vegetation in the fresh (wet) meadow communities included large barnyard grass, dockleaf smartweed, reed canary grass, blunt spike-rush, and/or fox-tail barley in the herbaceous stratum.

A typical soil profile in the fresh (wet) meadow community met the technical hydric soil indicator A11 – Depleted Below Dark Suface and/or F6 – Redox Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, predominantly nonhydric, and nonhydric.

The primary wetland hydrology indicator observed included A3 – Saturation. Saturation was present at the soil surface in the sample points.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by yellow bristle grass, Canadian thistle, smooth brome, Kentucky blue grass, annual ragweed, wand panic grass, wild black currant, tall goldenrod, European buckthorn, and/or bull thistle in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Primary indicator A3 – Saturation was present at the upland sample point for Wetland 5, but was not present at the other upland sample points.

3.3 Additional Upland Sample Points – U-A and U-B

Using GIS and other off-site resources, areas that appear to be wetland are mapped and identified for additional on-site review. During the on-site review, sample points within the potential wetland areas are used to determine if the technical criterion for wetland is present or absent. This process ensures that areas that appear meet wetland criteria based on initial review are appropriately identified through collection of field data. Form a regulatory standpoint,

inclusion of potential wetland areas, even if ultimately eliminated based on actual field conditions, provides the clarity needed to support a final decision on the wetland boundary and types.

For this project, two (2) areas were identified as potentially wetland during the GIS/ off-site investigation, one south of Interstate 229 (U-A) and one north of Interstate 229 (U-B). Both areas were determined non-wetland, and the data collected for each is described below.

The dominant vegetation at U-A was yellow bristle grass in the herbaceous stratum. Other vegetation included common milkweed (*Asclepias syriaca* – FACU), smooth brome, lamb's quarters (*Chenopodium album* – FACU), large barnyard grass, curly dock (*Rumex crispus* – FAC), black-bindweed, big bluestem (*Andropogon gerardii* – FAC), Canadian thistle, and narrow-leaf hawkweed (*Hieracium umbellatum* – UPL) in the herbaceous stratum. Soils in the area are classified as Bon loam, 0 to 2 percent slopes, occasionally flooded, with a hydric rating of predominantly nonhydric. There were no signatures within the site landscape that suggest water would be retained for a duration sufficient to meet primary or secondary hydrology indicators. Although hydrophytic vegetation was present, soils did not meet hydric soil criteria and hydrology indicators were not observed. From this field visit, we conclude that this area is not wetland.

The dominant vegetation at U-B was smooth brome, reed canary grass, leafy spurge (*Euphorbia esula* – UPL), and black-bindweed in the herbaceous stratum. Other vegetation included yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), and Virginia ground cherry (*Physalis virginiana* – UPL) in the herbaceous stratum. Soils in the area are classified as Baltic silty clay loam, ponded, with a hydric rating of predominantly hydric. There were no signatures within the site landscape that suggest water would be retained for a duration sufficient to meet primary or secondary hydrology indicators. Although hydrophytic vegetation was present, soils did not meet hydric soil criteria and hydrology indicators were not observed. From this field visit, we conclude that this area is not wetland.

4 Hydrogeomorphic (HGM) Assessment

The Hydrogeomophic (HGM) Approach is a method to assess the functional condition of wetlands by using data from a range of physical characteristics of the wetland collected during the field delineation. The HGM Approach incorporates data collected from the wetlands by using mathematic models to provide a level of wetland condition for each function. When combined in an aggregation equation, these functions produce a functional capacity index (FCI), a measure of the functional capacity of a wetland relative to reference standard wetlands on a scale of 0.0 - 1.0. A low FCI indicates that the wetland is performing a function at a level that is below that characteristic of reference standard.

While the FCI scores alone define relationships between variables of the wetland, when they are combined with the area of the wetland, a Functional Capacity Unit (FCU) score is generated. The FCU provides a basis for determination of impact and mitigation.

The HGM Approach was utilized on the 10 delineated wetland basin described above. HGM scores were calculated as required for the wetland delineation. A summary table of the HGM scores is included in Table 2. Full calculations for HGM can be found in the Hydrogeomophic Model Worksheets in Appendix D. The total HGM score for the site is 15.55 FCUs.

Basin ID	Wetland Size (acres)	HGM Method	1	2	3	4	5	6 (Riverine) 6a (Prairie Pothole)	7 (Riverine) 6b (Prairie Pothole)	8	9	Total FCI ³	Total FCU⁴
1	0.91	Prairie Pothole	0.18	0.18	0.6	0.16	0.15	0.16	0.1	N/A	N/A	1.53	1.40
2	0.12	Prairie Pothole	0.18	0.18	0.57	0.16	0.15	0.15	0.09	N/A	N/A	1.48	0.18
3	6.66	Prairie Pothole	0.18	0.17	0.32	0.12	0.13	0.14	0.11	N/A	N/A	1.17	7.79
4	0.16	Riverine	N/A	0.32	0.52	0	0.12	0.15	0	0.08	0.2	1.39	0.21
5	0.2	Riverine	N/A	0.37	0.52	0	0.16	0.19	0	0.08	0.24	1.56	0.31
6	0.19	Prairie Pothole	0.18	0.19	0.51	0.15	0.14	0.15	0.09	N/A	N/A	1.23	0.27
7	0.75	Prairie Pothole	0.18	0.18	0.53	0.15	0.14	0.15	0.1	N/A	N/A	1.25	1.07
8	1.3	Prairie Pothole	0.18	0.17	0.61	0.17	0.16	0.16	0.1	N/A	N/A	1.37	2.01
9	0.1	Prairie Pothole	0.18	0.19	0.58	0.16	0.14	0.16	0.09	N/A	N/A	1.32	0.01
10	0.86	Prairie Pothole	0.4	0.41	0.6	0.36	0.33	0.35	0.24	N/A	N/A	2.29	2.3

HGM Functions ^{1, 2}

^{1.} Prairie Pothole Functions are: 1. Water storage, 2. groundwater recharge, 3. particulate retention, 4. dissolved substances, 5. plant community and carbon seguestration, 6a. Faunal habitat, 6b. Faunal habitat (alternate formula)

². Riverine Functions are: 2. Velocity Reduction of Surface Water Flow, 3. Storage and Release of Subsurface Water, 4. Removal of Imported Elements and Compounds, Retention of Particulates and Organic Materials, 6. Organic Carbon Export, 7/ Maintains Characteristic Plant Community, 8. Maintains Habitat Structure Within Wetland, 9. Maintains Hab. Str. And Connect. Among Wetlands

^{3.} FCI = Functional Capacity Index

^{4.} FCU = Functional Capacity Units

4.1 Conclusion

10 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**) with in the project limits. A total of 11.2534 acres of wetland habitat was delineated within the project limits for a total of 15.55 FCUs, as calculated utilizing the HGM. Two (2) of the wetlands are classified as Riverine under the HGM assessments, and the remaining eight (8) are classified as Prairie Pothole. In general, wetlands south of the center of I-229 are assumed connected to the Big Sioux River via culverts or direct surface flow. Because of this, these five (5) wetlands (1, 2, 3, 4, and 5) are presumed to be jurisdictional by the USACE. The remaining five (5) wetlands (6, 7, 8, 9, and 10) have no apparent connection to the river and are presumed to be not jurisdictional by the USACE.

Wetlands in the project area are regulated by agencies at the local, regional, state, and federal levels including the USACE and the EPA at the federal level. It is presumed that the USACE has jurisdiction over all the wetlands in the project are due to their and connectivity proximity to the River. The primary state agencies in involved in wetlands protection include the South Dakota Department of Environment and Natural Resources (SDDENR), South Dakota Department of Game, Fish, and Parks (SDGFP), and the South Dakota Department of Agriculture (SDDA). These agencies may require a field review of the wetland delineation.

Construction plans that propose any direct alteration or indirect impact to wetlands or watercourses within the project area will require permits from the appropriate regulatory agencies. Violation of wetland regulations can result in substantial civil and/or criminal penalties.

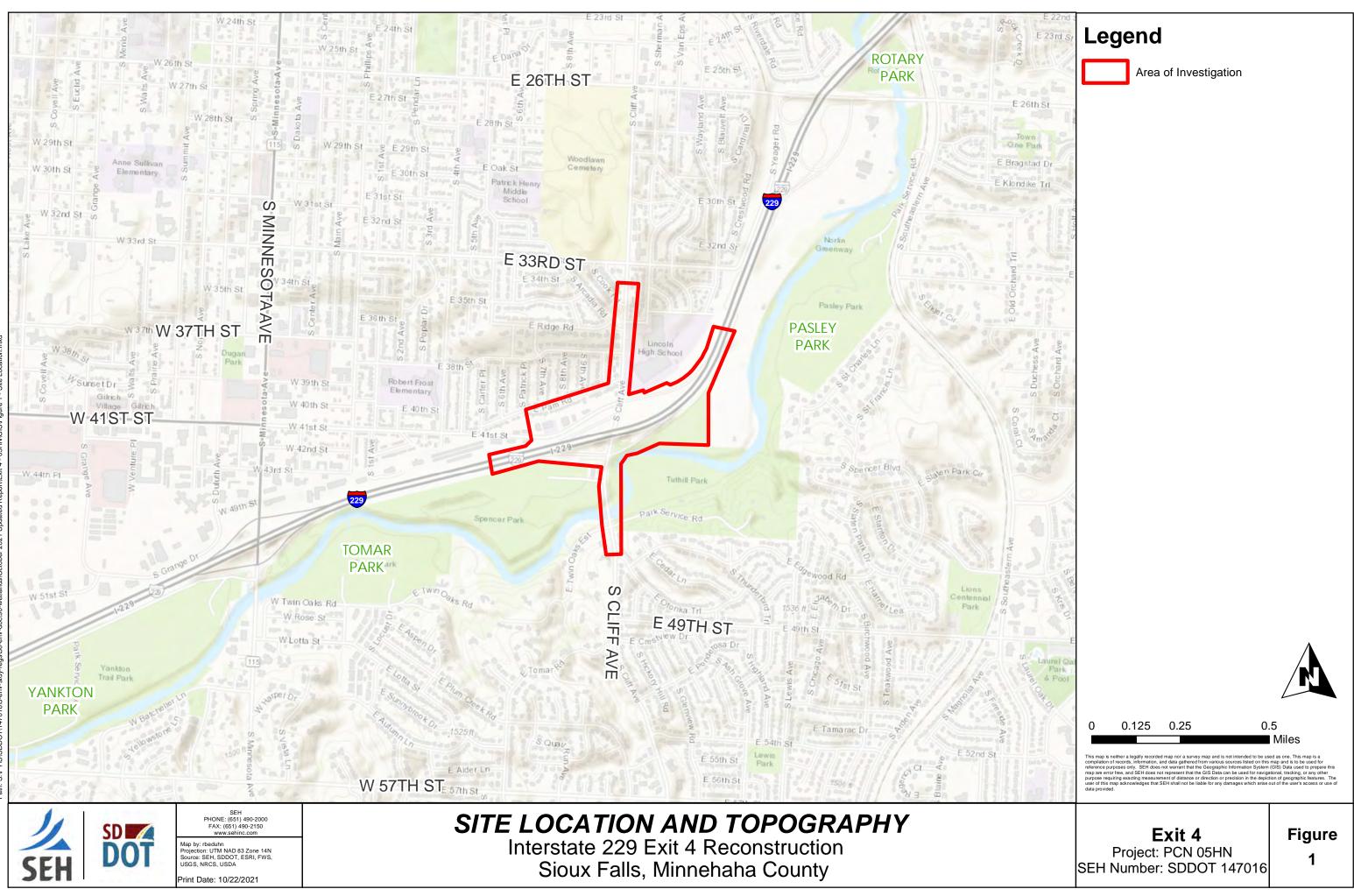
5 Bibliography

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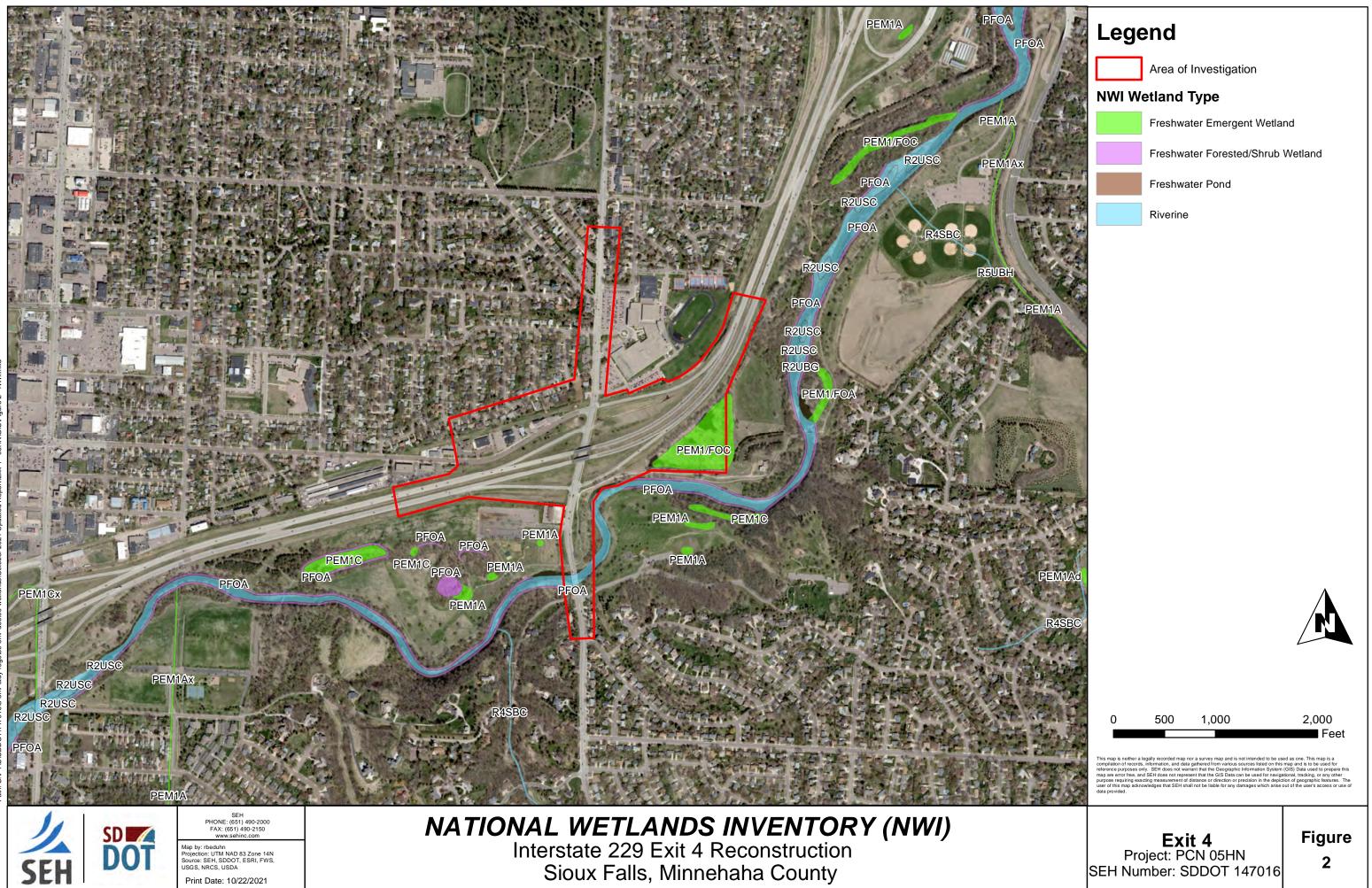


Figures

Figure 1 – Site Location and Topography Figure 2 – National Wetlands Inventory (NWI) Figure 3 – Minnehaha County Web Soil Survey Figures 4-1 and 4-2 – Wetland Delineation Results

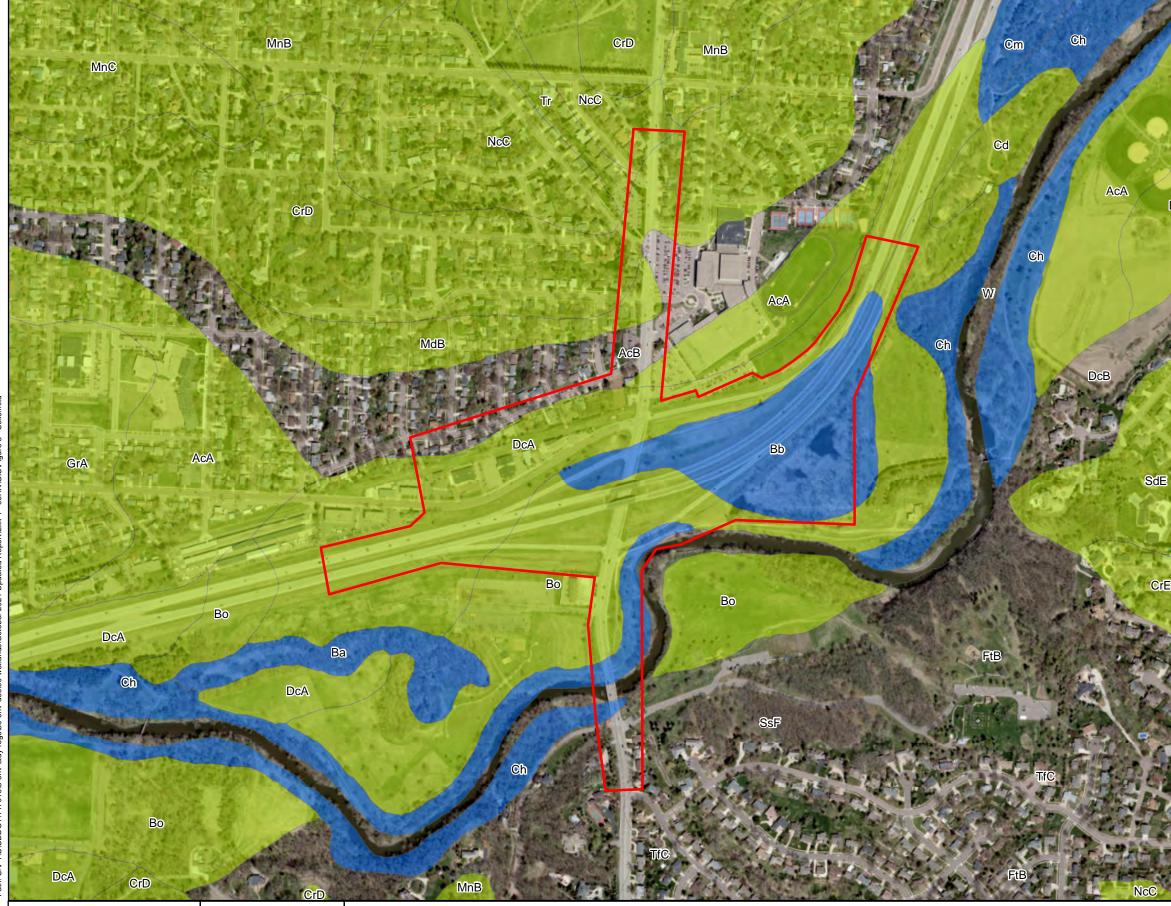


ath: S:PTISISDD0T147016(3-env-stdy-regs/30-env-doc/90-wetlands)October 2021 Updated Report/Exit 4 - 05HN/GIS/Figure 1 - Site Location.













MINNEHAHA COUNTY SOIL SURVEY Interstate 229 Exit 4 Reconstruction Sioux Falls, Minnehaha County



Area of Investigation

Hydric Rating



Predominantly Nonhydric

Predominantly Hydric

DcA

Map Unit	Soil Name
AcA	Alcester silty clay loam, cool, 0 to 2 percent slopes
AcB	Alcester silty clay loam, cool, 2 to 6 percent slopes
Ва	Baltic silty clay loam, 0 to 1 percent slopes
Bb	Baltic silty clay loam, ponded
Во	Bon loam, 0 to 2 percent slopes, occasionally flooded
Cd	Chaska loam, 0 to 2 percent slopes
Ch	Chaska loam, channeled
Cm	Clamo silty clay, 0 to 1 percent slopes
CrD	Crofton-Nora complex, 9 to 15 percent slopes
CrE	Crofton-Nora complex, 15 to 25 percent slopes
DcA	Davis loam, 0 to 2 percent slopes
DcB	Davis loam, 2 to 6 percent slopes
FaB	Flandreau loam, 2 to 6 percent slopes
FtB	Flandreau-Thurman complex, 2 to 6 percent slopes
GrA	Graceville silty clay loam, 0 to 2 percent slopes
MdB	Moody silty clay loam, cool, 2 to 6 percent slopes
MnB	Moody-Nora complex, 2 to 6 percent slopes
MnC	Moody-Nora silty clay loams, 6 to 9 percent slopes
NcC	Nora-Crofton complex, 6 to 9 percent slopes
SdE	Shindler-Houdek clay loams, 15 to 40 percent slopes
SsF	Steinauer-Shindler clay loams, 25 to 60 percent slopes
TfC	Thurman-Flandreau complex, 6 to 9 percent slopes
Tr	Trent silty clay loam, 0 to 3 percent slopes
W	Water





This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GiS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.





DO SEH



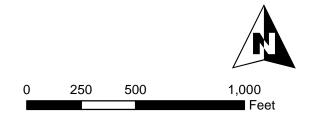
Interstate 229 Exit 4 Reconstruction Sioux Falls, Minnehaha County



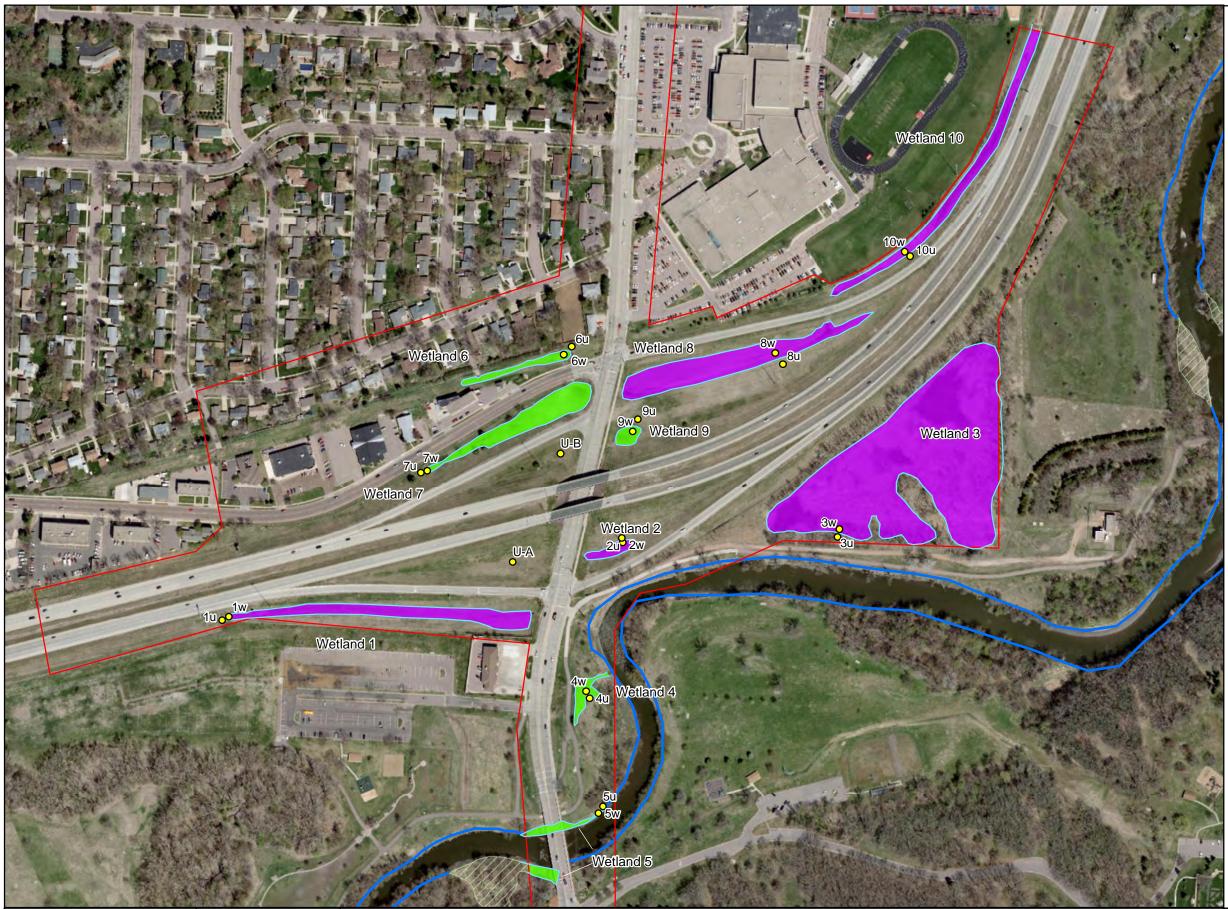
PASLEY PARK

Area of Investigation

Wetland Boundary









3535 VADNAIS CENTER DR. ST. PAUL, MN 55110 PHONE: (651) 490-2000 FAX: (651) 490-2150 WATTS: 800-325-2055 www.sehinc.com Project: SDDOT 147016 Print Date: 10/22/2021

Map by: rbeduhn Projection: UTM NAD 83 Zone 14N Source: SEH, SDDOT, ESRI, FWS, USGS, NRCS, USDA WETLAND DELINEATION RESULTS Interstate 229 Exit 4 Reconstruction Sioux Falls, Minnehaha County

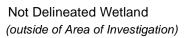
Legend

- Area of Investigation
- Sample Point
 - Wetland Boundary
 - Big Sioux River Top of Bank

Wetland Type

Fresh (Wet) Meadow







Figure

4-2

0	200	400	800
			Feet

This map is neither a legally recorded map nor a survey map and is not intended to be used as nor. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.



Appendix A

Wetland Delineation Data Forms

WETLAND DETERMIN	NATION D		A - Midwe	st Regior	า	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	1U
Investigator(s): Rebecca Beduhn		Sect	tion, Townsh	iip, Range:	S33 T1	01N R49W
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, conve	k, none):	Concave
Slope (%): 3 Lat: 43° 30' 49.992" N		Long:	96° 42' 57.9	68" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, explai	in in remarks)	
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	mstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	d, explain any ans	swers in remarks.)
Hydrophytic vegetation present? N						
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:	-	
Remarks: (Explain alternative procedures here or in a separate re	oport)	• • •	•			
Sample Point collected adjacent to Wetland 1.	epon.)					
VEGETATION Use scientific names of plants.				Demine		
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status		nce Test Worksh	
Tree Stratum (Plot size: 30' Radius)		Species	Status		of Dominant Speci OBL, FACW, or FA	
					Number of Domina	()
3					cies Across all Stra	
4				-	of Dominant Speci	()
5					OBL, FACW, or FA	
	0	= Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevaler	nce Index Worksl	neet
1				Total %		
2				OBL spe		(1 = 0)
				FACW s		(2 = 10)
4				FAC spe FACU sp		(3 = 135) (4 = 180)
	0	= Total Cover		UPL spe		(5 = 25)
Herb stratum (Plot size: 5' Radius)				Column		
1 Hordeum jubatum Fox-Tail Barley	30	Y	FAC		ice Index = $B/A =$	3.50
2 Bromus inermis Smooth Brome	30	Y	FACU	1 TOTAION		0.00
3 Plantago major Great Plantain	15	N	FAC	Hydroph	ytic Vegetation I	ndicators:
4 Trifolium pratense Red Clover	15	N	FACU	Rapi	d test for hydroph	ytic vegetation
5 Echinochloa crus-galli Large Barnyard Grass	5	Ν	FACW	Dom	inance test is >50	%
6 Conyza canadensis Canadian Horseweed	5	Ν	UPL	Prev	alence index is ≤3	5.0*
7				Morp	hological adaptat	ions* (provide
8					orting data in Ren	narks or on a
					rate sheet)	
10	100	= Total Cover		Prob (expl	lematic hydrophyt	ic vegetation*
Woody vine stratum (Plot size: 30' Radius)	100			— · ·		
1					s of hydric soil and we esent, unless disturbe	etland hydrology must be ed or problematic
					rophytic	
	0	= Total Cover		vege	etation	
Demosiles (include plate such as here the second state in the		-		pres	ent? N	
Remarks: (Include photo numbers here or on a separate sheet)						
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2 4 0 (https:	//wetland_nla	nts usace army mil)	LS Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Research						
US Army Corps of Engineers					M	idwest Region

Depth	Matrix			dox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text		Remarks
0-15	10YR 3/1	100					Sandy Loa	m	
15-20	10YR 3/2	100					Sandy Loa	m with rocks	
/pe: C = 0	Concentration, D =	= Depletio	on, RM = Reduce	ed Matrix,	MS = Ma	asked Sa	ind Grains.	**Location	: PL = Pore Lining, M = Matrix
lydric So	oil Indicators:								ematic Hydric Soils:
His	tosol (A1)				ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo					7) (LRR K, L)
	ck Histic (A3)			ipped Ma				-	t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4			-	ky Minera			•	Masses (F12) (LRR K, L, R)
	atified Layers (A5))			ed Matrix	: (F2)			rk Surface (TF12)
	m Muck (A10)				atrix (F3)		Othe	er (explain in	remarks)
	oleted Below Dark				Surface	. ,			
	ck Dark Surface (ark Surfac	. ,			ophytic vegetation and wetlan
Sar	ndy Mucky Minera	ıl (S1)	Re	dox Depr	essions (F8)	hydr	ology must b	e present, unless disturbed of problematic
pe:							Hydric	soil presen	t? N
/pe: epth (inche emarks:	es):				-		Hydric	soil presen	t? <u>N</u>
epth (inche					-		Hydric	soil presen	t? <u>N</u>
epth (inche emarks: YDROL(DGY				- -		Hydric	soil presen	t? <u>N</u>
epth (inche emarks: YDROL(etland Hy	DGY rdrology Indicate						Hydric	soil presen	t? <u>N</u>
epth (inche emarks: YDROL(etland Hy imary Indi	DGY drology Indicato cators (minimum		required; check a	all that ap	- - - 				t? <u>N</u>
pth (inche marks: /DROL(etland Hy mary Indi Surface	DGY drology Indicato cators (minimum Water (A1)		required; check a	Aquatic	Fauna (B			Secondary Inc	<u>dicators (minimum of two requ</u> Soil Cracks (B6)
Poth (inche marks: YDROL(etland Hy mary Indi Surface High Wa	DGY rdrology Indicato cators (minimum Water (A1) ater Table (A2)		required; check a	Aquatic True Aq	Fauna (B uatic Plan	nts (B14)		Secondary Ind Surface Surface	<u>dicators (minimum of two requ</u> Soil Cracks (B6) ∋ Patterns (B10)
Poth (inche marks: YDROL(etland Hy imary Indi Surface High Wa Saturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)		required; check a	Aquatic True Aq Hydroge	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1)	Secondary Ind Surface 3 Drainage Dry-Seas	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2)
Provident Alexandres (Incher Provident Alexandres) Provident Alexandres Provident Alexandres	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)		required; check a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1		Secondary Ind Surface S Drainage Dry-Seas Crayfish	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
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Pepth (inche emarks: PMROLO etland Hy imary Indi Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser	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 v Vegetated Conca itained Leaves (B9 vations: er present? present?	of one is Il Imagery ive Surfac) Yes	2 (B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o Other (E	Fauna (B uatic Plan en Sulfide d Rhizospl e of Redu Iron Redu ck Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Poth (incher marks: Provide the second provide the second provide the second prife per Algal Ma Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S Pid Obser rface wat ater table turation p	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 v Vegetated Conca itained Leaves (B9 vations: er present? present?	of one is al Imagery ive Surfac) Yes Yes	r (B7) te (B8) No No	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizospl e of Redu Iron Redu ck Surfac or Well Da Explain in I Depth (ii	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Pepth (inche emarks: Pararks:	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?	ul Imagery Ive Surfac) Yes Yes Yes	r (B7) (B7) (B7) (B7) (B7) No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge c Other (E X X X	Fauna (B uatic Plan en Sulfide d Rhizospl e of Redu Iron Redu ck Surfac or Well Da explain in I Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser rface wat ater table turation p cludes ca	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 v Vegetated Conca itained Leaves (B9 rvations: er present? present? pillary fringe)	ul Imagery Ive Surfac) Yes Yes Yes	r (B7) (B7) (B7) (B7) (B7) No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge c Other (E X X X	Fauna (B uatic Plan en Sulfide d Rhizospl e of Redu Iron Redu ck Surfac or Well Da explain in I Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)

WETLAND DETERMIN	NATION D		/I - Midwe	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha Sa	ampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	oakota Sa	ampling Point:	1W
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	nip, Range:	S33 T10	1N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conc	ave, convex, r	none):	Concave
Slope (%): 1 Lat: 43° 30' 50.122" N		Long:	96° 42' 57.6	59" W D	atum: UTM N	AD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classification	n:	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		<u>N</u> (lf no, explain i	in remarks)	
Are vegetation, soil, or hydrology	significantl	y disturbed?		Ar	e "normal circum	stances"
Are vegetation, soil, or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If needed,	explain any ansv	vers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled are	a within a we	tland?	Y
Indicators of wetland hydrology present? Y		If yes, o	ptional wetla	and site ID:	Wetland 1	
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected in Wetland 1.						
VEGETATION Use scientific names of plants.						
	Absolute	Dominant	Indicator	Dominanc	e Test Workshe	et
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number of	Dominant Specie	S
1				that are OB	L, FACW, or FAC	2 (A)
2					umber of Dominar	
3				Specie	s Across all Strata	: <u> </u>
4					Dominant Specie	
5	0	= Total Cover		that are OE	L, FACW, OF FAC	: <u>100.00%</u> (A/B)
Sapling/Shrub stratun (Plot size: 15' Radius)	0			Prevalence	e Index Workshe	et
1				Total % Co		
2				OBL specie		= 65
3				FACW spe	cies 30 x 2	2 = 60
4				FAC specie	es <u>5</u> x 3	3 = 15
5				FACU spec	cies <u>0</u> x4	1 = 0
	0	= Total Cover		UPL specie		
Herb stratum (Plot size: 5' Radius)				Column tot	······	
1 Eleocharis obtusa Blunt Spike-Rush	65	<u>Y</u>	OBL	Prevalence	Index = B/A =	1.40
2 Persicaria lapathifolia Dock-Leaf Smartweed 3 Echinochloa crus-galli Large Barnyard Grass	<u>20</u> 10	<u> </u>	FACW FACW	Ludrophyt	ic Vegetation In	diactora
3 Echinochloa crus-galli Large Barnyard Grass 4 Hordeum jubatum Fox-Tail Barley	5	<u> </u>	FAC		est for hydrophyt	
5					ance test is >50%	
6					ence index is ≤3.0	
7				Morpho	ological adaptatio	ns* (provide
8					ting data in Rema	
9				separat	te sheet)	
10					natic hydrophytic	vegetation*
Weathering strature (Distring) 201 Dedius	100	= Total Cover		(explain	ר)	
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>)					f hydric soil and wetle ent, unless disturbed	and hydrology must be
2				Hydrop		or problematic
	0	= Total Cover		vegeta	-	
	-			presen	t? Y	
Remarks: (Include photo numbers here or on a separate sheet)						
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2.4 0 (https:	//wetland nlants	usace.armv mil) 11 S	Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Research						
US Army Corps of Engineers					Mic	west Region

Profile Desc	cription: (Descri	be to the	e depth needed t	o docum	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		-	dox Featu					-
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-4	10YR 3/1	100					Silty Loam		
4-12	10YR 3/1	75	5YR 4/4	20	С	М	Silty Loam		
			7.5YR 4/4	5	С	М			
12-20	10YR 4/1	80	7.5YR 4/6	20	С	М	Course Sar	ndv Loam	
					-				
*T 0 0		Durlati						++1	
	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa			: PL = Pore Lining, M = Matrix
-	il Indicators:		Com	du Clava	d Matrix	(64)			ematic Hydric Soils:
	iosol (A1) ic Epipedon (A2)			dy Gleye		(54)			dox (A16) (LRR K, L, R) ⁄) (LRR K, L)
	ck Histic (A3)			oped Mat	. ,			•	t or Peat (S3) (LRR K, L, R)
	Irogen Sulfide (A4	L)		my Muck	· · ·	l (F1)		•	Masses (F12) (LRR K, L, R)
	atified Layers (A5)	,		my Gleve	•	. ,		-	rk Surface (TF12)
	n Muck (A10)			leted Ma		()		er (explain in	
	leted Below Dark	Surface		lox Dark	. ,	(F6)		(
	ck Dark Surface (A			leted Da		. ,	*Indic	ators of hvdr	ophytic vegetation and wetland
	dy Mucky Minera	,		lox Depre		. ,			e present, unless disturbed or
_		. ,			·		,	0,	problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydric	soil presen	t? Y
Depth (inche	es):							•	
Remarks:									
Remarks.									
HYDROLO	DGY								
Wetland Hy	drology Indicato	rs:							
Primary India	cators (minimum	of one is	required; check a	II that ap	ply)		S	econdary Ind	dicators (minimum of two required)
	Water (A1)		·		-auna (B	13)	_	-	Soil Cracks (B6)
High Wa	ter Table (A2)			True Aqu	uatic Plan	ts (B14)	-		Patterns (B10)
X Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)		son Water Table (C2)
	arks (B1)				Rhizospl	heres on	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)					n Visible on Aerial Imagery (C9)
	oosits (B3)					iced Iron			or Stressed Plants (D1)
	it or Crust (B4) osits (B5)			(C6)	ron Redu	ction in 1	illed Soils		ohic Position (D2) utral Test (D5)
	on Visible on Aeria	Imagery	(B7)		ck Surfac	e (C7)	-	A FAC-Net	illar rest (DS)
	Vegetated Conca				r Well Da	. ,			
	tained Leaves (B9)			-		Remarks))		
Field Obser				. `		- /			
Surface wate		Yes	No	х	Depth (i	nches):			
Water table	•	Yes	No		Depth (i			Inc	licators of wetland
Saturation p		Yes	X No		Depth (i	nches):	0	h	vdrology present? Y
(includes ca	pillary fringe)								
Describe rec	orded data (strea	m gauge	, monitoring well,	aerial ph	otos, pre	evious ins	spections), if a	vailable:	
Remarks:			• .				111 / 4		
Anteceden	t precipitation of	conditio	ns were determ	nined "V	vetter th	nan nori	mal" (Appen	idix C).	

WETLAND DETERMIN	ATION D	ATA FOR	M - Midwe	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: S	Sioux Falls/Mi	nnehaha Sa	ampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota Sa	ampling Point:	2U
Investigator(s): Rebecca Beduhn		Sec	ction, Townsh	nip, Range:	S27 T101	N R49W
Landform (hillslope, terrace, etc.): footslope		Loca	al relief (conc	ave, convex, r	none):	Concave
Slope (%): 2 Lat: 43° 30' 53.329" N		Long:	96° 42' 39.8	608" W D	atum: UTM N	AD83 Zone 14N
Soil Map Unit Name: Bon Ioam, 0-2% slopes, occasionally flooded			NW	I Classificatio	n:	None
Are climatic/hydrologic conditions of the site typical for this time of	f the year?		N (If no, explain i	in remarks)	
	-	y disturbed		-	e "normal circum	etances"
	naturally p	roblematic?		7.1		present? Yes
SUMMARY OF FINDINGS				(If needed,	explain any answ	vers in remarks.)
Hydrophytic vegetation present? N						
Hydric soil present? N		Is the	sampled are	a within a we	tland?	N
Indicators of wetland hydrology present? N			optional wetla			
		y ,				
Remarks: (Explain alternative procedures here or in a separate re	port.)					
Sample Point collected adjacent to Wetland 2.						
VEGETATION Use scientific names of plants.				T		
	Absolute	Dominant	Indicator	Dominanc	e Test Workshee	et
<u>Tree Stratum</u> (Plot size: <u>30' Radius</u>)	% Cover	Species	Status		Dominant Species	
					BL, FACW, or FAC	()
3					umber of Dominan s Across all Strata	
4					Dominant Species	
5					BL, FACW, or FAC	
	0	= Total Cove	er			、 ,
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalence	e Index Workshe	et
1				Total % Co	over of:	
2				OBL specie	es <u>0</u> x1	= 0
3				FACW spe		
4				FAC specie		
5		TILO		FACU spec		
Herb stratum (Plot size: 5' Radius)	0	= Total Cove	er.	UPL specie Column tot		
	40	Y	FAC			
1 Setaria pumila Yellow Bristle Grass 2 Medicago lupulina Black Medick	40	<u>т</u> Ү	FAC FACU	Prevalence	Index = B/A =	3.30
3 Andropogon gerardii Big Bluestem	15	N	FAC	Hydrophyt	ic Vegetation In	dicators:
4 Poa pratensis Kentucky Blue Grass	15	N	FAC		est for hydrophyti	
5 Trifolium pratense Red Clover	10	N	FACU	· · ·	ance test is >50%	•
6				Prevale	ence index is ≤3.0	*
7				Morpho	ological adaptation	ns* (provide
8					ting data in Rema	
9				separa	te sheet)	
10					matic hydrophytic	vegetation*
	100	= Total Cove	er	(explain	n)	
Woody vine stratum (Plot size: 30' Radius)						and hydrology must be
				Hydrop	ent, unless disturbed	or problematic
2	0	= Total Cove	۲	vegeta		
	5		~	presen		
Remarks: (Include photo numbers here or on a separate sheet)						
Note: This data sheet has been adapted to use the 2016 National				//wether in the internet		A
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Natio Engineers, Engineer Research and Development Center, Cold Regions Researc						
US Army Corps of Engineers					Mid	west Region

(Inches) 0-10 10+	Color (moist) 10YR 3/3			edox Feat					
	10YR 3/3	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
10+		100					Silty Loam	with rocks	
									Rocks
		1 1							
		+							
				_	-				
$v_{\text{DP}} \cdot C = Col$	ncentration D	= Depletic	n, RM = Reduc	ed Matrix	MS = M	asked Sa	and Grains	**Location	: PL = Pore Lining, M = Matrix
Hydric Soil				eu Matrix,	, 1010 – 1016	askeu Oa			ematic Hydric Soils:
•	sol (A1)		54	andy Gley	od Matrix	(\$4)			dox (A16) (LRR K, L, R)
	Epipedon (A2)			andy Redo		(04)			7) (LRR K, L)
	Histic (A3)			ripped Ma					t or Peat (S3) (LRR K, L, R)
	gen Sulfide (A	4)		amy Muc) (F1)			Masses (F12) (LRR K, L, R)
	ied Layers (A5			amy Gley	-			-	rk Surface (TF12)
	Muck (A10))		epleted Ma		(i Z)		er (explain in	
	ted Below Darl	k Surfaco		dox Dark		(E6)	0		Terrarks)
	Dark Surface (epleted Dark		. ,	*1	f f	
	/ Mucky Minera			edox Depr					rophytic vegetation and wetlan be present, unless disturbed or
Ganuy		11 (31)			65510115 (10)	nyu	lology must t	problematic
	yer (if observ	<u></u>				1			
		eu).					Hydric	soil preser	12 N
/pe: epth (inches)					-		пуала	son preser	it? <u>N</u>
eptin (incries)					-				
YDROLOG									
-	ology Indicate								
imary Indicat	<u>tors (minimum</u>	of one is	required; check	all that ap	<u>oply)</u>		<u> </u>		dicators (minimum of two requ
Surface Wa	. ,				Fauna (B	,			Soil Cracks (B6)
	r Table (A2)				uatic Plar				e Patterns (B10)
Saturation					en Sulfide	•		-	son Water Table (C2)
Water Marl					d Rhizosp	heres on	Living Roots		Burrows (C8)
	Deposits (B2)			_(C3)			(04)		on Visible on Aerial Imagery (C9
					e of Redu				or Stressed Plants (D1)
Drift Depos				(C6)	Iron Redu	iction in T	illed Soils		phic Position (D2) utral Test (D5)
Drift Depos Algal Mat c		al Imagery	(B7) —	. /	ick Surfac				utrai Test (DS)
Drift Depos Algal Mat c Iron Depos		• •	. ,		or Well Da				
Drift Depos Algal Mat o Iron Depos Inundation			e (=e)	_	Explain in	. ,)		
Drift Depos Algal Mat c Iron Depos Inundation Sparsely V	egetated Conca						/		
Drift Depos Algal Mat c Iron Depos Inundation Sparsely V Water-Stain	egetated Conca ned Leaves (B9								
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stain	egetated Conca ned Leaves (B9 ttions:	9)			-	ncheel			
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stair eld Observa	egetated Conca ned Leaves (B9 ttions: present?	9) Yes		Х	Depth (i			In	dicators of wetland
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stain eld Observa arface water ater table pro	egetated Conca ned Leaves (B9 ttions: present? esent?	9) Yes Yes	No	X X	Depth (i Depth (i	nches):			dicators of wetland vdrology present? N
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stain eld Observa atrface water ater table pre- aturation pres	egetated Conca ned Leaves (B9 ntions: present? esent? sent?	9) Yes		Х	Depth (i	nches):			dicators of wetland ydrology present? N
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stain eld Observa urface water ater table pre- aturation press ncludes capill	egetated Conca ned Leaves (B9 ttions: present? esent? sent? lary fringe)	Yes Yes Yes	No	X X X	Depth (i Depth (i Depth (i	nches): nches):	spections), if a	h	
Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Water-Stain eld Observa urface water ater table pre- aturation press iccludes capill	egetated Conca ned Leaves (B9 ttions: present? esent? sent? lary fringe)	Yes Yes Yes	No No	X X X	Depth (i Depth (i Depth (i	nches): nches):	spections), if a	h	

WETLAND DETERMIN	NATION D		/I - Midwe	st Region			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha Sampling	g Date:	9/25/2018	3
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota Sampling	g Point:	2W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	nip, Range:	S27 T101	N R49W	
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conc	ave, convex, none):	C	oncave	
Slope (%): 1 Lat: 43° 30' 53.178" N		Long:	96° 42' 39.7	46" W Datum:	UTM NA	D83 Zone 1	I4N
Soil Map Unit Name: Bon Ioam, 0-2% slopes, occasionally flooded	1		NW	I Classification:	Ν	one	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If no, explain in rema	arks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?		Are "norr	mal circums	tances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?					es
SUMMARY OF FINDINGS				(If needed, explain	n any answe	ers in remar	ks.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the s	ampled are	a within a wetland?	•	Y	
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	and site ID: W	etland 2		
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected in Wetland 2.	000111)						
VEGETATION Use scientific names of plants.							
	Abaaluta	Densister	Indiantar	Dominance Test	Worksheet		
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status	Number of Domin			
1				that are OBL, FAC		2	(A)
2				Total Number of	•		- ` ′
3				Species Acros		2	(B)
4				Percent of Domin	ant Species		•
5				that are OBL, FAC	W, or FAC:	100.00%	(A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalence Index	k Workshee	et	
				Total % Cover of:	05	05	
2				OBL species FACW species	25 x 1 55 x 2		-
4				FAC species	20 x 3		-
5				FACU species	0 x 4		-
	0	= Total Cover		UPL species	0 x 5	= 0	-
Herb stratum (Plot size: 5' Radius)				Column totals	100 (A)	195	(B)
1 Echinochloa crus-galli Large Barnyard Grass	40	Y	FACW	Prevalence Index	= B/A =	1.95	-
2 Typha angustifolia Narrow-Leaf Cat-Tail	25	Y	OBL				•
3 Cyperus esculentus Chufa	15	Ν	FACW	Hydrophytic Veg	etation Ind	icators:	
4 Poa pratensis Kentucky Blue Grass	10	N	FAC	X Rapid test for		vegetation	
5 Setaria pumila Yellow Bristle Grass	10	N	FAC	X Dominance te			
 				X Prevalence in	dex is ≤3.0*		
7 8				Morphologica			
9				supporting da separate shee		ks of on a	
10				Problematic h		egetation*	
	100	= Total Cover		(explain)		Systation	
Woody vine stratum (Plot size: 30' Radius)				*Indicators of hydric	soil and wetlar	nd hydrology m	nuet ho
1					ess disturbed o		lust be
2				Hydrophytic			
	0	= Total Cover		vegetation	v		
Remarks: (Include photo numbers here or on a separate sheet)				present?	Y		
Noto: This data shoot has been adapted to use the 2016 Nations	Wotland D	lant List-					
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati			on 2.4.0 (https:	//wetland_plants.usace.a	rmy.mil). U.S.	Army Corps of	f
Engineers, Engineer Research and Development Center, Cold Regions Resear					ill, NC. (2016)		
US Army Corps of Engineers					Midv	west Regio	วท

Depth	Matrix		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
0-6	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam w	ith rocks	
6-18	10YR 2/1	85	7.5YR 4/6	15	С	М	Silty Loam w	ith rocks	
18-24	10YR 5/1	85	7.5YR 46	15	С	М	Silty Loam w		
ype: C = 0	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	ind Grains.	**Location: F	PL = Pore Lining, M = Matrix
-	oil Indicators:								natic Hydric Soils:
	tosol (A1)				ed Matrix	(S4)			ox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo				Surface (S7)	
	ck Histic (A3)			pped Ma	. ,			-	or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	.)	Loa	my Mucł	ky Minera	al (F1)	Iron-M	langanese M	lasses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	my Gley	ed Matrix	(F2)	Very S	Shallow Dark	Surface (TF12)
	m Muck (A10)				atrix (F3)		Other	(explain in re	emarks)
	oleted Below Dark		. ,		Surface	. ,			
X Thi	ck Dark Surface (A	A12)	X Dep	pleted Da	ark Surfac	ce (F7)	*Indica	tors of hydro	phytic vegetation and wetlan
Sar	ndy Mucky Minera	l (S1)	Rec	dox Depr	essions (F8)	hydrol		present, unless disturbed of
						-		۲	problematic
estrictive	Layer (if observe	ed):							
		-					م ما با ا		
/pe: opth (inch		-			-		Hydric s	soil present?	? <u>Y</u>
/pe: epth (inche emarks:					-		Hydric s	soil present?	? <u>Y</u>
epth (inche emarks: YDROL(etland Hy imary Indi Surface	DGY drology Indicato cators (minimum Water (A1)	rs: of one is		Aquatic	Fauna (B			condary India Surface So	cators (minimum of two requ oil Cracks (B6)
epth (inche emarks: YDROL(retland Hy rimary Indi Surface High Wa	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	rs: of one is		Aquatic True Aq	Fauna (B uatic Plan	nts (B14)	<u>Se</u>	<u>condary India</u> Surface So Drainage F	<u>cators (minimum of two requ</u> oil Cracks (B6) ^P atterns (B10)
Pepth (inche emarks: YDROL(fetland Hy cimary Indi Surface High Wa Saturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)	rs: of one is		Aquatic True Aq Hydroge	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1	<u>Se</u>	<u>condary India</u> Surface So Drainage F Dry-Seaso	cators (minimum of two requ oil Cracks (B6) ^P atterns (B10) on Water Table (C2)
Pepth (inche Pemarks: PUROLO etland Hy imary Indi Surface High Wa Saturatio Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	rs: of one is		Aquatic True Aq Hydroge	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1	<u>Se</u>	<u>condary India</u> Surface So Drainage F Dry-Seaso Crayfish B	cators (minimum of two requ oil Cracks (B6) ^P atterns (B10) on Water Table (C2) urrows (C8)
Pepth (inche Pemarks: PUROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimen	DGY rdrology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	rs: of one is		Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1 heres on) Living Roots	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation	cators (minimum of two requ oil Cracks (B6) ^P atterns (B10) on Water Table (C2) urrows (C8)
Pepth (inche emarks: PDROL(etland Hy imary Indi Surface High Wa Saturation Water M Sedimen Drift Dep	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	rs: of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu	nts (B14) Odor (C1 heres on uced Iron)	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9
epth (inche emarks: YDROL(/etland Hy rimary Indi Surface High Wa Saturation Water M Sedimen Drift Dep Algal Ma	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	rs: of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu	nts (B14) Odor (C1 heres on uced Iron	Se) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2)
Pepth (inche emarks: Paratks:	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	rs: of one is	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6)	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu	nts (B14) Odor (C1 heres on uced Iron action in T	Se) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or X Geomorph	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2)
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epth (inche emarks: YDROL(retland Hy rimary Indi Surface High Wa Saturati Vater M Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat	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 v Vegetated Conca itained Leaves (B9) vations: er present?	rs: of one is I Imagery ve Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches):) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or X Geomorph X FAC-Neutr	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2) ral Test (D5)
epth (inche emarks: YDROL(etland Hy rimary Indi Surface High Wa Saturatie Water N Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsen urface wat /ater table	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 v Vegetated Conca itained Leaves (B9) vations: er present? present?	rs: of one is I Imagery ve Surfac Yes Yes	r (B7) ce (B8) No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T e (C7) ata (D9) Remarks nches): nches):	Se) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or Crayfish Composition Stunted or Crayfish B Saturation Stunted or Stunted or Stunted or Stunted or Stunted or Stunted Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation	cators (minimum of two requipol oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2) ral Test (D5) cators of wetland
Pepth (inche emarks: PMROL(etland Hy imary Indi Surface High Wa Saturatie Water M Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsen urface wat fater table aturation p	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 v Vegetated Conca itained Leaves (B9) vations: er present? present?	rs: of one is I Imagery ve Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or Crayfish Composition Stunted or Crayfish B Saturation Stunted or Stunted or Stunted or Stunted or Stunted or Stunted Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation Stunted Staturation	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2) ral Test (D5)
epth (inche emarks: YDROL(etland Hy imary Indi Surface High Wa Saturation Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsei urface wat 'ater table aturation p nocludes ca	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) vations: er present? present? present? pillary fringe)	rs: of one is I Imagery ve Surfac Yes Yes Yes Yes	(B7) (B7) (B8) (B8) (No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or X Geomorph X FAC-Neutr	cators (minimum of two requipol oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2) ral Test (D5) cators of wetland
epth (inche emarks: YDROL(etland Hy imary Indi Surface High Wa Saturation Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsei urface wat 'ater table aturation p nocludes ca	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 v Vegetated Conca itained Leaves (B9) vations: er present? present?	rs: of one is I Imagery ve Surfac Yes Yes Yes Yes	(B7) (B7) (B8) (B8) (No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or X Geomorph X FAC-Neutr	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (C9 Stressed Plants (D1) nic Position (D2) ral Test (D5) cators of wetland
Pepth (inche emarks: PTDROLO etland Hy imary Indi Surface High Wa Saturation Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsei urface wat ater table aturation p nocludes ca	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) vations: er present? present? present? pillary fringe)	rs: of one is I Imagery ve Surfac Yes Yes Yes Yes	(B7) (B7) (B8) (B8) (No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	condary India Surface So Drainage F Dry-Seaso Crayfish B Saturation Stunted or X Geomorph X FAC-Neutr	cators (minimum of two requ oil Cracks (B6) Patterns (B10) on Water Table (C2) urrows (C8) Visible on Aerial Imagery (CS Stressed Plants (D1) nic Position (D2) ral Test (D5) cators of wetland

WETLAND DETERMIN	NATION D	ATA FOR	M - Midwe	st Region			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: S	ioux Falls/Mi	nnehaha Samp	oling Date:	9/25/2018	3
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota Samp	ling Point:	3U	
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	nip, Range:	S27 T101	N R49W	
Landform (hillslope, terrace, etc.): backslope		Loca	l relief (conca	ave, convex, non	e):(Concave	
Slope (%): 4 Lat: 43° 30' 53.682" N		Long:	96° 42' 29.9	09" W Datu	m: UTM N/	AD83 Zone 1	4N
Soil Map Unit Name: Bon loam, 0-2% slopes, occasionally flooded			NW	I Classification:	PEN	/1/FOC	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If no, explain in re	emarks)		
Are vegetation , soil , or hydrology	significantl	ly disturbed?	,	Are "r	normal circums	stances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Ye	es
SUMMARY OF FINDINGS				(If needed, exp	olain any answ	ers in remarl	ks.)
Hydrophytic vegetation present? Y							
Hydric soil present? N		Is the s	sampled are	a within a wetlaı	nd?	Ν	
Indicators of wetland hydrology present? N		lf yes, c	optional wetla	and site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected adjacent to Wetland 3.	op o)						
VEGETATION Use scientific names of plants.							
	Abaaluta	Development	Indicator	Dominance T	est Workshee	+	
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Status		minant Species		
1 Fraxinus pennsylvanica Green Ash	10	Y	FACW	that are OBL, F			(A)
2				Total Numb	per of Dominant		-`´´
3					cross all Strata:		(B)
4				Percent of Do	minant Species	;	•
5				that are OBL, F	FACW, or FAC	75.00%	(A/B)
	10	= Total Cove	r				-
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalence In		et	
1 Rhamnus cathartica European Buckthorn	50	Y	FAC	Total % Cover			
2		,		OBL species	<u>0</u> x 1		-
				FACW species			-
4 <u></u> 5 <u></u>				FAC species FACU species	90 x 3		-
	50	= Total Cove		UPL species	<u> </u>		-
Herb stratum (Plot size: 5' Radius)				Column totals	135 (A)		(B)
1 Rhamnus cathartica European Buckthorn	40	Y	FAC	Prevalence Inc	`	3.07	• ()
2 Carex pensylvanica Pennsylvania Sedge	15	Y	UPL			0.01	•
3 Laportea canadensis Canadian Wood-Nettle	10	N	FACW	Hydrophytic \	egetation Inc	licators:	
4 Acer saccharinum Silver Maple	5	N	FACW	Rapid test	for hydrophyti	c vegetation	
5 Oxalis stricta Upright Yellow Wood-So	5	Ν	FACU	X Dominance	e test is >50%		
6				Prevalence	e index is ≤3.0	*	
7				Morpholog	ical adaptatior	ns* (provide	
8					data in Rema	rks or on a	
				separate s			
10	75	= Total Cove		Problemat (explain)	ic hydrophytic	vegetation*	
Woody vine stratum (Plot size: 30' Radius)	75		1				
					dric soil and wetla unless disturbed		iust be
2				Hydrophy			
	0	= Total Cove	r	vegetation			
	-			present?	Y		
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			ion 2 1 0 /64	//wetland planta		Army Correct	f
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat Engineers, Engineer Research and Development Center, Cold Regions Resear							
US Army Corps of Engineers					Mid	west Regio	on

Depth	Matrix		Re	dox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-8	10YR 4/3	100					Sandy Loa	m	
8-18	10YR 4/4	90	7.5YR 5/6	10	С	М	Silty Loam		
							-		
/pe: C = (Concentration, D	= Depleti	on. RM = Reduce	d Matrix.	MS = M	asked Sa	nd Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
	oil Indicators:			,					plematic Hydric Soils:
-	tosol (A1)		Sai	ndy Gleve	ed Matrix	(S4)			edox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo		()			67) (LRR K, L)
	ck Histic (A3)			pped Ma	. ,			-	at or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A	4)			ky Minera	al (F1)	Iron-	Manganese	e Masses (F12) (LRR K, L, R)
	atified Layers (A5	-	Loa	amy Gley	ed Matrix	(F2)	Very	Shallow Da	ark Surface (TF12)
	m Muck (A10)				atrix (F3)			er (explain i	
	pleted Below Darl	surface			Surface			-	
Thi	ck Dark Surface (A12)	De	oleted Da	ark Surfa	ce (F7)	*Indic	ators of hvo	drophytic vegetation and wetlan
Sar	ndy Mucky Minera	al (S1)	Re	dox Depr	essions ((F8)		•	be present, unless disturbed or
									problematic
otriotivo									
sinclive	Layer (if observ	ed):							
	Layer (if observ	ed):					Hydric	soil prese	ent? N
pe: pth (inche		ed):			-		Hydric	soil prese	ent? <u>N</u>
pe: pth (inche emarks:	es):	ed):			-		Hydric	soil prese	ent? <u>N</u>
pe: pth (inche marks:	es):				<u>-</u>		Hydric	soil prese	nt? <u>N</u>
pe: pth (inche marks:	es):						Hydric	soil prese	ent? <u>N</u>
pe: pth (inche marks: YDROL(etland Hy	es):	ors:	required; check a	all that ap	- - - 				
pe: pth (inche marks: (DROL(etland Hy mary Indi Surface	DGY drology Indicato Cators (minimum Water (A1)	ors:	required; check a	Aquatic	Fauna (B			Secondary Ir	ndicators (minimum of two request Soil Cracks (B6)
pet: pth (inche marks: /DROL(etland Hy mary Indi Surface High Wa	DGY rdrology Indicato cators (minimum Water (A1) ater Table (A2)	ors:	required; check a	Aquatic True Aq	Fauna (B uatic Plar	nts (B14)		Secondary Ir Surface Drainag	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10)
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Investigator(s): Rebacca Beduhn S27 T101N R49W Landtom (hillslope, terrace, etc.): tooslope Sol Map Unit Name Bon Loand, 0-2% stopes, cocasionally flooded NWI Classification: UTIN NADB3 Zone 144 Sol Map Unit Name Bon Loand, 0-2% stopes, cocasionally flooded NWI Classification: UTIN NADB3 Zone 144 Are eigenation , on hydrology significantly disturbed? Are 'normal icroamstances' Are vegetation , on hydrology naturally problematic? Are 'normal icroamstances' Hydrophytic vegetation present? Y Is the sampled area within a wetland? Y Hydrophytic vegetation present? Y Is the sampled area within a wetland? Y Indicators of wetland hydrology present? Y Is the sampled area within a wetland? Y Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. VEGETATION ~ Vetland 3 VEGETATION ~ Loss collection file names of plants. Tree stratum FACW Species Status 1 Acer saccharuum Silver Maple 20 Y FAC Species Status 2	WETLAND DETERMI	NATION D	ATA FORM	/ - Midwe	st Regior	า			
Investigancy (s): Rebeca Beduin	Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mi	nnehaha	Sampling Dat	e: 9/25	/2018	
Landform (nillelope, terrace, etc.):	Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Poir	nt: 3	W	
Stope (%): 1 Lat: 43° 30° 53.958° N Long: 96° 42° 29.838° W Datum: UTM NADB3 Zone 14N Soli Map Unit Name: Bon loam, 0-2% stopes, accessionally flooded NVI Classification: PEM/FOC Are vagatation , oil hydrology significantly disturbed? Are *normal circumstances* Are vagatation , oil hydrology naturally problematic? Are *normal circumstances* Hydrophytic vagatation present? Y Is the sampled area within a wetland? Y Indicators of wetland hydrology present? Y Is the sampled area within a wetland? Y Indicators of wetland hydrology present? Y Is the sampled area within a wetland? Y Indicators of wetland hydrology present? Y Is the sampled area within a wetland? Y Indicator of wetland hydrology present? Y Is the sampled area within a wetland? Y Indicator Sample Point collectati in Wetland 3 % Cover Species Status Indicator Mark Point Collectati in Wetland 3 Wetland 3 Indicator Y FAC Y FAC Wetland 3 VEGETATION ~ Use scientific names of plants. Tore status Species Status<	Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	S27	T101N R49	N	
Soil Map Unit Name Bon Loam, 0-2% slopes, occasionally flooded NWI Classification: PEMI/FOC Are signation: . on hydrology signification: PEMI/FOC Are vegatation: . on hydrology institution Are 'normal circumstances' Are vegatation: . on hydrology institution Are 'normal circumstances' Hydrohytic vegatation present? Y Is the sampled area within a wetland? Y Hydrohytic vegatation present? Y Is the sampled area within a wetland? Y Hydrohytic vegatation present? Y Is the sampled area within a wetland? Y Indicators of wetland hydrology present? Y Is the sampled area within a wetland? Y Sample Point collected in Wetland 3. Sample Point collected in Wetland 3. Exection (A) Are 'normal circumstances' VECETATION - Use scientific names of plants. Satus Satus Satus Are 'normal circumstances' Are 'normal circumstances' 2 — — — — Perceins of the site 'normal circumstances' Are 'normal circumstances' 3 — — — — — Are 'normal circumstances' 2 —	Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ave, conve	k, none):	Concav	е	
Are almatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks) Are vegetation	Slope (%): 1 Lat: 43° 30' 53.958" N		Long:	96° 42' 29.8	38" W	Datum: U	TM NAD83 Z	one 14N	
Are vegetation	Soil Map Unit Name: Bon Ioam, 0-2% slopes, occasionally flooded	ł		NW	I Classifica	tion:	PEM1/FOC)	
Are vegetation soil or hydrology naturally problematic? If needed, explain any answers in remarks.) Hydrophytic vegetation present? Y If needed, explain any answers in remarks.) Hydrophytic vegetation present? Y If she sample darea within a wetland? Y Hydrophytic vegetation present? Y If yes, optional wetland site ID: Wetland 3 Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. Sample Point collected in Wetland 3. VEGETATION Use scientific names of plants. Absolute Dominant Indicator 1 Accer saccharinum	Are climatic/hydrologic conditions of the site typical for this time	of the year?		N (lf no, expla	in in remarks)			
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SUMMARY OF FINDINGS (If needed, explain any answers in remarks.) Hydrophytic vegetation present? Y Hydrophytic vegetation present? Y Indicators of wetland hydrology present? Y Indicators of wetland hydrology present? Y Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3 Sample Point collected in Wetland 3. WetGETATION - Use scientific names of plants. Tree Stratum Plot size: 30 Radius) % Cover Species 1 Acer saccharinum Silter Maple 2 - Stratus Mumber of Dominant Species 4 - - Species Arross at Stratus (A) 3 - - - - 3 - - - - 4 - - - - - 2 - - - - - - 3 - - - - - - - 2 - - - - - - - - - -	Are vegetation , soil , or hydrology	naturally p	roblematic?			i to nonna o			
Hydric soil present? Y Is the sampled area within a wetland? Y Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. Vettand 3. <td colsp<="" td=""><td>SUMMARY OF FINDINGS</td><td></td><td></td><td></td><td>(If neede</td><td>ed, explain any</td><td>answers in r</td><td>emarks.)</td></td>	<td>SUMMARY OF FINDINGS</td> <td></td> <td></td> <td></td> <td>(If neede</td> <td>ed, explain any</td> <td>answers in r</td> <td>emarks.)</td>	SUMMARY OF FINDINGS				(If neede	ed, explain any	answers in r	emarks.)
Indicators of wetland hydrology present? Y If yes, optional wetland site ID: Wetland 3 Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. Memarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. VEGETATION Use scientific names of plants. Dominant Pacies Tree Stratum (Plot size: 30' Radius) Absolute Dominant Species 3 - - Species Across all Strata: 4 (B) 9 - - - - (B) 9 - - - - - (B) 9 - - - - - (B) 9 - - - - - - - - 1 -	Hydrophytic vegetation present? Y								
Indicators of wetland hydrology present? Y If yes, optional wetland site ID. Wetland 3 Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. VEEETATION Use scientific names of plants. Tree Stratum (Plot size: _30' Radius_) Absolute % Cover Dominant Species Indicator Species Dominance Test Worksheet 1 Acer saccharinum - Silver Maple 20 Y FAC 2 - - Silver Maple 20 Y FAC 3 - - Silver Maple 20 Y FAC 3 - - - - - (A) 4 - - - - - - 3 - - - - - - - 4 -	Hydric soil present? Y		Is the s	ampled area	a within a	wetland?	Y		
Remarks: (Explain alternative procedures here or in a separate report.) Sample Point collected in Wetland 3. VEGETATION Use scientific names of plants. Tree Stratum (Plot size: 30 Radius) 1 Acer saecharinum Silver Maple 2 Populus deltoides Eastern Cottonwood 10 Y FAC 3 20 Y FAC 4 Percent of Dominant Species that are OBL, FACW, or FAC. 4 (A) 5 Percent of Dominant Species that are OBL, FACW, or FAC. (A) 1 Percent of Dominant Species that are OBL, FACW, or FAC. (A) 1 Percent of Dominant Species that are OBL, FACW, or FAC. (A) 1 Prevalence Index Worksheet 1 PRAC species 35 x 1 = 35 5 Prevalence Index is 3.0° 1 True Prevalence Index is 3.0°				-			d 3		
Sample Point collected in Wetland 3. VEGETATION Use scientific names of plants. Tree Stratum (Plot size: 30 Radius) Absolute Species Status 1 Acer saccharinum - Silver Maple 20 Y FACW 2 Populus deltoides - Eastern Cottonwood 10 Y FAC 4 - - - - - 4 - - - - - 5 - - - - - - 2 - - - - - - - - 2 -			, , -						
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Tree Stratum (Plot size: 30' Radius %Cover Species Stratus 1 Acer saccharinum - Silver Maple 20 Y FACW FACW Total Number of Dominant FACW 3 - 10 Y FAC FACW Total Number of Dominant Species 4 (A) 4 - - - - - Species Across all Strata: 4 (B) 5 - - - - - - Species Across all Strata: 4 (B) 2 - <td>VEGETATION Use scientific names of plants.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	VEGETATION Use scientific names of plants.								
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3	· · · · · · · · · · · · · · · · · · ·							(A)	
4 - - 30 = Total Cover Sapling/Shrub stratun (Plot size: 15 Radius) 30 = Total Cover 2 OBL species ast + = - 35 x 1 = - 35 x 2 = - 70 4 OBL species ast + = - 0 BL species ast + = - 0 FAC w species ast + = - 0 FAC w species ast + = - 0 UPL species 0 Tast + = - 0 Not + = - 0 No		10		TAC				(B)	
5								(8)	
Sapling/Shrub stratur (Plot size: 15' Radius) 1 2 3 4 5 5 1 Typha latifolia 2 1 Typha latifolia - 0 - - 0 - - 0 - - 0 - - - 0 - - - - - - - - - - - - - - - - -	5							00% (A/B)	
1 Total % Cover of: 2 OBL species $35 \times 1 = 35$ 3 FAC species $35 \times 2 = 70$ 4 FAC species $10 \times 3 = 30$ 5 4 1 Typha latifolia Broad-Leaf Cat-Tail 35 Y OBL Prevalence Index = B/A = 1.69 2 Phalaris arundinacea Column totals 80 (A) 135 (B) 2 Phalaris arundinacea Column totals 80 (A) 135 (B) 3 Column totals 80 (A) 135 (Column totals 80 (A) 135 (Column totals 80 (A) 135 (Column totals 1.69 <		30	= Total Cover					()	
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WETLAND DETERMIN	NATION D	ATA FORI	M - Midwe	st Regior	ו	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	ioux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	4U
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	nip, Range:	S33 T	101N R49W
Landform (hillslope, terrace, etc.): backslope		Loca	l relief (conca	ave, conve	k, none):	Concave
Slope (%): 4 Lat: 43° 30' 47.935" N		Long:	96° 42' 40.9	55" W	Datum: UTM	/I NAD83 Zone 14N
Soil Map Unit Name: Chaska loam, channeled			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circ	umstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ar	nswers in remarks.)
Hydrophytic vegetation present? N						
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν
Indicators of wetland hydrology present? N		lf yes, c	ptional wetla	and site ID:		
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected adjacent to Wetland 4.						
VEGETATION Use scientific names of plants.						
	Absolute	Dominant	Indicator	Domina	nce Test Works	heet
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status		of Dominant Spe	
1 Quercus alba Northern White Oak			FACU		OBL, FACW, or F	
2				Total	Number of Domin	nant
3				Spee	cies Across all Str	rata: <u> 2 </u> (B)
4					of Dominant Spe	
5				that are	OBL, FACW, or F	AC: 0.00% (A/B)
	0	= Total Cove	r	<u> </u>		
Sapling/Shrub stratun (Plot size: 15' Radius)					nce Index Works	sheet
					Cover of:	x1 0
3				OBL spe FACW s		$\begin{array}{c} x \ 1 = \\ x \ 2 = \end{array} \begin{array}{c} 0 \\ \end{array}$
4				FAC spe	·	$x^2 = 0$ $x^3 = 0$
5				FACU sp		x 4 = 400
	0	- Total Cove	r	UPL spe		x 5 = 0
Herb stratum (Plot size: 5' Radius)				Column	totals 100	(A) 400 (B)
1 Bromus inermis Smooth Brome	60	Y	FACU	Prevaler	ice Index = B/A =	4.00
2 Cirsium vulgare Bull Thistle	20	Y	FACU			
3 Parthenocissus quinquefolia Virginia-Creeper	10	N	FACU	Hydroph	nytic Vegetation	Indicators:
4 Medicago lupulina Black Medick	10	N	FACU		d test for hydrop	
5					inance test is >5	
6 <u></u> 7					alence index is ≤	
					phological adapta	
9					orting data in Re rate sheet)	marks of on a
10					lematic hydrophy	vtic vegetation*
	100	= Total Cove	r	(exp		,
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and y	wetland hydrology must be
1					resent, unless distur	
2				-	rophytic	
	0	= Total Cove	r	-	etation	N
Remarks: (Include photo numbers here or on a separate sheet)				pres		<u> </u>
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland I	Plant List, versi				
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laborator	y, Hanover, NH	, and BONAP		•
US Army Corps of Engineers					Ν	Aidwest Region

Depth	<u>Matrix</u>		Re	edox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	ire	Remarks
0-15	10YR 3/2	100					Sandy Loam	1	
15-20	10YR 7/3	100					Sand		
10 20	1011(1/0	100					Gana		
					<u> </u>				
	Concentration, D	= Depletion	on, RM = Reduc	ed Matrix	, MS = Ma	asked Sa			: PL = Pore Lining, M = Matrix
-	il Indicators:					(a 1)			ematic Hydric Soils:
	tosol (A1)				ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)		ndy Redo	. ,				7) (LRR K, L)
	ck Histic (A3)			ripped Ma	. ,			-	t or Peat (S3) (LRR K, L, R)
	Irogen Sulfide (A			-	ky Minera			-	Masses (F12) (LRR K, L, R)
	atified Layers (A5)			ed Matrix	: (F2)			rk Surface (TF12)
	m Muck (A10)			pleted M		(==)	Other	(explain in	remarks)
	eleted Below Dar				Surface	. ,			
	ck Dark Surface	. ,		-	ark Surfac				rophytic vegetation and wetland
San	ndy Mucky Miner	al (S1)	Re	dox Depr	ressions (F8)	hydro	logy must b	be present, unless disturbed or
									problematic
							Hydric	soil presen	nt? N
/pe: epth (inche					-		Hydric	soil presen	nt? <u>N</u>
estrictive ype: epth (inche emarks:					-		Hydric :	soil presen	it? <u>N</u>
ype: epth (inche					-		Hydric :	soil presen	it? <u>N</u>
ype: epth (inche							Hydric :	soil presen	nt? <u>N</u>
ype: epth (inche					-		Hydric :	soil presen	it? <u>N</u>
ype: epth (inche emarks:	95):				-		Hydric :	soil presen	it? <u>N</u>
/pe: epth (inche emarks: YDROLC	95):	Drs:			-		Hydric :	soil presen	nt? <u>N</u>
ype: epth (inche emarks: YDROLC /etland Hy	95): DGY		required; check	all that ap	- - 				
ype: epth (inche emarks: YDROLC /etland Hy rimary India	DGY drology Indicate	of one is			- - - - - - - - - - - - - - - - - - -	13)		econdary In	tt?N dicators (minimum of two requir Soil Cracks (B6)
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/pe: epth (inche emarks: YDROLC etland Hy rimary India Surface	DGY drology Indicate cators (minimum Water (A1) tter Table (A2)	of one is		Aquatic True Aq	Fauna (B	nts (B14)	<u>Se</u>	econdary In Surface Drainage	dicators (minimum of two requined the second s
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WETLAND DETERMIN	NATION D	ATA FOR	M - Midwe	st Regioi	n	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: S	Sioux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	4W
Investigator(s): Rebecca Beduhn		Sec	ction, Townsh	iip, Range:	S33 T1	01N R49W
Landform (hillslope, terrace, etc.): toeslope		Loca	al relief (conca	ave, conve	x, none):	Concave
Slope (%): 1 Lat: 43° 30' 48.163" N		Long:	96° 42' 41.1	34" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Chaska Ioam, channeled			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?	?		Are "normal circu	mstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	swers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	sampled area	a within a	wetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	optional wetla	nd site ID:	Wetland 4	
Remarks: (Explain alternative procedures here or in a separate re	eport)					
Sample Point collected in Wetland 4.	, port.)					
VEGETATION Use scientific names of plants.						
	Abaaluta	<u> </u>	la d'anten	Domina	nce Test Worksh	oot
<u>Tree Stratum</u> (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status			
1		openiee	Clarab		of Dominant Speci OBL, FACW, or FA	
2					Number of Domina	()
3					cies Across all Stra	
4				Percent	of Dominant Speci	es
5				that are	OBL, FACW, or FA	.C: <u>100.00%</u> (A/B)
	0 =	= Total Cove	er			
Sapling/Shrub stratun (Plot size: 15' Radius)					nce Index Works	neet
					Cover of:	4 40
2 <u></u> 3				OBL spe FACW s		(1 = 10) (2 = 124)
4				FAC spe	·	3 = 60
5				FACU sp		4 = 0
	0 :	- Total Cove	er	UPL spe		5 = 50
Herb stratum (Plot size: 5' Radius)				Column	totals 102 (A) 244 (B)
1 Echinochloa crus-galli Large Barnyard Grass	40	Y	FACW	Prevaler	nce Index = $B/A =$	2.39
2 Persicaria lapathifolia Dock-Leaf Smartweed	20	Y	FACW			
3 Poa pratensis Kentucky Blue Grass	10	Ν	FAC	Hydroph	nytic Vegetation I	ndicators:
4 Hordeum jubatum Fox-Tail Barley	10	N	FAC		id test for hydroph	-
5 Typha angustifolia Narrow-Leaf Cat-Tail	10	<u>N</u>	OBL		inance test is >50	
6 Silphium laciniatum Compass Plant	10	<u>N</u>	UPL	X Prev	alence index is ≤3	5.0*
7 Bidens frondosa Devil's-Pitchfork 8	2	<u>N</u>	FACW		phological adaptat	
9					porting data in Rer arate sheet)	narks or on a
10					elematic hydrophyt	ic vegetation*
	102	= Total Cove	er	(exp		ie vegetation
Woody vine stratum (Plot size: 30' Radius)				*Indicator	rs of hydric soil and we	etland hydrology must be
1					resent, unless disturbe	
2				-	rophytic	
	0 :	Total Cove	er	-	etation	
Remarks: (Include photo numbers here or on a separate sheet)				pres	sent? Y	
Note: This data short has been adapted to use the 2016 Matternal	Wotland D	antlict				
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland I	Plant List, vers				
Engineers, Engineer Research and Development Center, Cold Regions Research					P, Chapel Hill, NC. (20	16)
US Army Corps of Engineers					Μ	idwest Region

Depth	Matrix			dox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex		Remarks
0-8	10YR 3/1	100					Sandy Loa	m	
8-16	10YR 3/1	90	7.5YR 5/6	10	С	М	Sandy Loa	m	
16-20	10YR 7/1	100					Sand		
/pe: C = C	Concentration, D =	= Depletio	on, RM = Reduce	ed Matrix,	MS = Ma	asked Sa	and Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
lydric So	il Indicators:								elematic Hydric Soils:
Hist	osol (A1)			ndy Gleye		(S4)			edox (A16) (LRR K, L, R)
	ic Epipedon (A2)			ndy Redo					67) (LRR K, L)
	ck Histic (A3)			ipped Ma					at or Peat (S3) (LRR K, L, R)
	rogen Sulfide (A4			amy Mucl	-			•	e Masses (F12) (LRR K, L, R)
	tified Layers (A5))		amy Gley					ark Surface (TF12)
	n Muck (A10)			pleted Ma	. ,		Othe	er (explain i	n remarks)
	leted Below Dark			dox Dark		. ,			
	k Dark Surface (pleted Da					drophytic vegetation and wetlan
San	dy Mucky Minera	l (S1)	Re	dox Depr	essions (F8)	hydı	ology must	be present, unless disturbed of problematic
	Layer (if observe	- N				r —			-
001							وأعرابهم		
-		,uj.			-		Hydric	: soil prese	ent? Y
ype: epth (inche emarks:					-		Hydric	soil prese	ent? Y
epth (inche emarks:	PS):				-		Hydric	soil prese	ent? <u>Y</u>
epth (inche emarks: YDROLC	DGY				-		Hydric	soil prese	ent? <u>Y</u>
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YDROLC etland Hy marks: YDROLC etland Hy mary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-S eld Obser rface wate ater table turation pr cludes cap	DGY drology Indicato cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) arks (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca tained Leaves (B9 vations: er present? present? present? present? pillary fringe)	I Imagery ve Surfac) Yes Yes Yes	(B7) ce (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da ck Surfac or Well Da ck Surfac for Well Da chopth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):	1) Living Roots (C4) illed Soils) 0	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo X FAC-No	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (CS d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)

WETLAND DETERMIN	NATION D	ATA FORI	M - Midwe	st Regioi	n	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	5U
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	ip, Range:	S33 T1	01N R49W
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, conve	x, none):	Concave
Slope (%): 5 Lat: 43° 30' 44.339" N		Long:	96° 42' 40.1	26" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Water			NW	I Classifica	tion:	R2UBG
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	mstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	swers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν
Indicators of wetland hydrology present? Y			ptional wetla		-	
	port)					
Remarks: (Explain alternative procedures here or in a separate re	epon.)					
Sample Point collected adjacent to Wetland 5.						
VEGETATION Use scientific names of plants.				<u> </u>		
	Absolute	Dominant	Indicator Status		nce Test Worksh	
Tree Stratum (Plot size: <u>30' Radius</u>)	% Cover	Species	Status		of Dominant Speci OBL, FACW, or FA	
2						
3					Number of Domina cies Across all Stra	
4					of Dominant Speci	(,
5					OBL, FACW, or FA	
	0	= Total Cove	r			
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevale	nce Index Worksl	neet
1				Total %	Cover of:	
2				OBL spe		1 = 0
3				FACW s		2 = 40
4 <u></u>				FAC spe		3 = 60
5	0	= Total Cove		FACU sp UPL spe		4 = 240 5 = 0
<u>Herb stratum</u> (Plot size: 5' Radius)	0		I	Column		A) 340 (B)
1 Ribes americanum Wild Black Currant	20	Y	FACW		rec Index = B/A =	3.40
2 Solidago altissima Tall Goldenrod	20		FACU	Tievaler		0.40
3 Rhamnus cathartica European Buckthorn	20	Y	FAC	Hydroph	nytic Vegetation I	ndicators:
4 Glechoma hederacea Groundivy	15	N	FACU		id test for hydroph	
5 Erigeron annuus Eastern Daisy Fleabane	15	N	FACU	X Dom	inance test is >50	%
6 Parthenocissus quinquefolia Virginia-Creeper	10	Ν	FACU	Prev	alence index is ≤3	.0*
7				Mor	phological adaptat	ons* (provide
8					oorting data in Ren	narks or on a
9 <u></u>					arate sheet)	
10		Tatal Onus			lematic hydrophyt	ic vegetation*
<u>Woody vine stratum</u> (Plot size: 30' Radius)	100	= Total Cove	I	(exp	iaii1)	
1					rs of hydric soil and we resent, unless disturbe	etland hydrology must be
2					rophytic	
	0	= Total Cove	 r	-	etation	
	-			pres	sent? Y	
Remarks: (Include photo numbers here or on a separate sheet)						
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2 4 0 (https:	//wetland n/o	nts usace army mil)	S Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Research						
US Army Corps of Engineers					M	idwest Region

Depth	Matrix		<u> </u>	edox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Тех	ture	Remarks
0-8	10YR 2/2	100					Silty Loam		
8-18	10YR 3/3	60	10YR 4/4	40	С	М	Sandy Loa	ım	
vpe: C = C	Concentration, D =	Depleti	on. RM = Reduc	ed Matrix	. MS = M	asked Sa	and Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
	il Indicators:	Dobion	,	ou manna	,				plematic Hydric Soils:
	tosol (A1)		S	andy Gley	ed Matrix	(S4)			edox (A16) (LRR K, L, R)
	tic Epipedon (A2)			andy Redo		(-)			67) (LRR K, L)
	ck Histic (A3)			ripped Ma					eat or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	L)		amy Muc	()	al (F1)		-	e Masses (F12) (LRR K, L, R)
	atified Layers (A5)			amy Gley	•	. ,	Ver	y Shallow D	ark Surface (TF12)
	m Muck (A10)			epleted M		. ,		er (explain i	
	pleted Below Dark	Surface		edox Dark		(F6)			
	ck Dark Surface (A			epleted Da	ark Surfa	ce (F7)	*Indi	cators of hv	drophytic vegetation and wetlan
San	ndy Mucky Minera	I (S1)	R	edox Depr	essions ((F8)			be present, unless disturbed or
									problematic
pe: pth (inche	Layer (if observe	ed):			-		Hydrid	c soil prese	ent? <u>N</u>
rpe: epth (inche emarks:		ea):			-		Hydrid	c soil prese	ent? <u>N</u>
pe: pth (inche emarks:	es):	ea):			-		Hydrid	c soil prese	ent? <u>N</u>
pe: pth (inche marks: /DROLC	es): DGY				-		Hydrid	c soil prese	ent? <u>N</u>
pe: pth (inche marks: YDROLC	es): DGY drology Indicato	rs:	roquirod: obool	all that ar	- -				
pe: pth (inche marks: YDROLC etland Hy	DGY drology Indicato cators (minimum)	rs:	required; check			12)		Secondary I	ndicators (minimum of two requi
pe: pth (inche marks: /DROLC etland Hy mary India Surface	DGY drology Indicato cators (minimum Water (A1)	rs:	required; check	Aquatic	Fauna (B			Secondary I	ndicators (minimum of two requ e Soil Cracks (B6)
be: pth (inche marks: (DROLC etland Hy mary India Surface High Wa	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	rs:	required; check	Aquatic True Aq	Fauna (B Juatic Plar	nts (B14)		Secondary I	<u>ndicators (minimum of two requ</u> e Soil Cracks (B6) ge Patterns (B10)
pe: pth (inche marks: /DROLC tetland Hy mary India Surface High Wa Saturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)	rs:	required; check	Aquatic True Aq Hydroge	Fauna (B Juatic Plar en Sulfide	nts (B14) Odor (C1	1)	Secondary I Surface Drainag	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
pe: pth (inche marks: //DROLC tetland Hy mary India Surface High Wa Saturatic Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	rs:	required; check	Aquatic True Aq Hydroge	Fauna (B Juatic Plar en Sulfide	nts (B14) Odor (C1		Secondary I Surface Drainag Dry-Se Crayfis	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
pe: pth (inche marks: // / / / / / / / / / / / / / / / / /	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)	rs:	required; check	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B Juatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	1) Living Roots	Secondary I Surface Drainag Dry-Se Crayfis Saturat	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9)
pe: marks: marks: YDROLC etland Hy mary India Surface High Wa Saturatic Vater M Sedimer Drift Dep	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	rs:	required; check	Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B juatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on uced Iron	1) Living Roots	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
pe: ppth (inche marks: YDROLC tland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3)	rs:	required; check	Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B juatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on uced Iron	1) Living Roots (C4)	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
pe: ppth (inche marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	rs: of one is		Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6)	Fauna (B juatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C ⁴ heres on uced Iron uction in T	1) Living Roots (C4)	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) orphic Position (D2)
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pe: pth (inche marks: YDROLC etland Hy mary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si	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 v Vegetated Conca tained Leaves (B9)	rs: of one is I Imagery ve Surfac		Aquatic True Aq Hydroge (C3) Presenc Recent (C6) Thin Mu Gauge o	Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu lick Surfac or Well Da	nts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9)	1) Living Roots (C4) Filled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
pe: epth (inche emarks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si eld Obser	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 v Vegetated Conca tained Leaves (B9)	rs: of one is I Imagery ve Surfac		Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (B Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu uck Surfac or Well Da Explain in	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks	1) Living Roots (C4) Filled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo FAC-N	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
pe: epth (inche emarks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si eld Obser ater table	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 v Vegetated Conca tained Leaves (B9) vations: er present? present?	rs: of one is l Imagery ve Surfac) Yes Yes	/ (B7) 	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Filled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo FAC-N	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
pe: ppth (inche prarks: PTROLC etland Hyr imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si eld Obser inface wate ater table ituration po	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria / Vegetated Conca tained Leaves (B9) vations: er present? present? resent?	rs: of one is I Imagery ve Surfac	/ (B7) ce (B8) No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (B Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu Iron Redu uck Surfac or Well Da Explain in	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Filled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo FAC-N	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
pe: ppth (inche prarks: PTROLC etland Hyr imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si eld Obser inface wate ater table ituration po	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 v Vegetated Conca tained Leaves (B9) vations: er present? present?	rs: of one is l Imagery ve Surfac) Yes Yes	/ (B7) 	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches):	1) Living Roots (C4) Filled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo FAC-N	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
pe: ppth (inche ppth (inche prarks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Si eld Obser ater table ituration pro- cludes cap	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria / Vegetated Conca tained Leaves (B9) vations: er present? present? resent?	rs: of one is l Imagery ve Surfac) Yes Yes Yes	(B7) ce (B8) No X No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (B Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Tilled Soils	Secondary I Surface Drainag Dry-Se Crayfis Saturat Stunted Geomo FAC-N	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
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WETLAND DETERMIN	ATION D	ATA FORM	N - Midwe	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota S	Sampling Point:	5W
Investigator(s): Rebecca Beduhn		Sect	tion, Townsh	nip, Range:	S33 T10	1N R49W
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ave, convex,	none):	Concave
Slope (%): 2 Lat: 43° 30' 44.110" N		Long:	96° 42' 40.3	809" W	Datum: UTM N	NAD83 Zone 14N
Soil Map Unit Name: Water			NW	I Classificati	on: F	R2UBG
Are climatic/hydrologic conditions of the site typical for this time of	the year?		N (If no, explair	n in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circun	nstances"
Are vegetation , soil , or hydrology	naturally pr	oblematic?				present? Yes
SUMMARY OF FINDINGS				(If needeo	l, explain any ans	wers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled area	a within a w	vetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	and site ID:	Wetland 5	
Remarks: (Explain alternative procedures here or in a separate re	port)					
Sample Point collected in Wetland 5.	port.)					
VEGETATION Use scientific names of plants.						
	Abaaluta	Densistant	Indiantar	Dominan	ce Test Workshe	oct
<u>Tree Stratum</u> (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status		of Dominant Specie	
1					BL, FACW, or FA	
2					Number of Domina	()
3					es Across all Strat	
4				Percent of	of Dominant Specie	es
5				that are C	BL, FACW, or FAC	C: 100.00% (A/B)
	0 =	= Total Cover	r			
Sapling/Shrub stratun (Plot size: 15' Radius)					ce Index Worksh	eet
				Total % C		
				OBL spec		1 = 0 2 = 170
3				FACW sp FAC spec		3 = 0
5				FACU spec		4 = 60
· · · · · · · · · · · · · · · · · · ·	0 :	Total Cover	r	UPL spec		5 = 0
Herb stratum (Plot size: 5' Radius)				Column to	otals 100 (A	A) 230 (B)
1 Phalaris arundinacea Reed Canary Grass	60	Y	FACW	Prevalenc	e Index = B/A =	2.30
2 Solidago altissima Tall Goldenrod	15	Ν	FACU			
3 Urtica dioica Stinging Nettle	15	Ν	FACW	Hydrophy	ytic Vegetation Ir	ndicators:
4 Persicaria lapathifolia Dock-Leaf Smartweed	10	N	FACW		test for hydrophy	-
5					nance test is >50%	
· ·				X Preva	llence index is ≤3.	0*
/					nological adaptatio	
9					orting data in Rem ate sheet)	arks or on a
10					ematic hydrophyti	c vegetation*
· ·	100	Total Cover	r	(expla		o vegetation
Woody vine stratum (Plot size: 30' Radius)				`		land hydrology must be
1					esent, unless disturbed	
2				-	ophytic	
	0 :	Total Cover	r	veget		
Remarks: (Include photo numbers here or on a separate sheet)				prese	ent? Y	
Note: This data shoot has been adopted to use the 2016 National	Wotland D	ant List-				
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Natio	onal Wetland I	Plant List, versi				
Engineers, Engineer Research and Development Center, Cold Regions Research	h and Enginee	ering Laboratory	, Hanover, NH	l, and BONAP,	Chapel Hill, NC. (201	6)
US Army Corps of Engineers					Mi	dwest Region

Depth	cription: (Descri Matrix	ibe to the		dox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	ire	Remarks
0-12	10YR 2/2	95	10YR 5/6	5	C	M	Silty Loam		romano
				-	-		-		
12-20	10YR 5/1	80	7.5YR 5/6	15	C	M	Silty Loam		
			10YR 5/8	5	С	М			
$T_{\text{VPO}} = 0$	Concentration, D =	- Doplati	n PM - Poduor	d Matrix		l acked Se	nd Crains	**Location	: PL = Pore Lining, M = Matrix
	bil Indicators:	- Depietio		eu iviaurix,	1013 - 1016	askeu Sa			ematic Hydric Soils:
-	tosol (A1)		50	ndy Glove	ed Matrix	(\$4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo		(04)			7) (LRR K, L)
	ck Histic (A3)			ipped Ma					t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	1)			ky Minera	al (F1)		-	Masses (F12) (LRR K, L, R)
	atified Layers (A5)			-	ed Matrix			-	rk Surface (TF12)
	m Muck (A10)	,		pleted Ma		. ()		r (explain in	
	pleted Below Dark	Surface		•	Surface	(F6)			
	ck Dark Surface (. ,		ark Surfac	. ,	*Indica	ators of hydr	ophytic vegetation and wetland
	ndy Mucky Minera			-	essions (be present, unless disturbed or
	,				(,	nyare	logy made a	problematic
octrictivo	Layer (if observe	od).				1			-
esuicuve		eu).							
		,					Hydria	coil procon	+2 V
уре:					-		Hydric	soil presen	t? <u>Y</u>
ype: Depth (inche					-		Hydric :	soil presen	t? <u>Y</u>
ype: Depth (inche Remarks:	es):				-		Hydric :	soil presen	t? <u>Y</u>
Type: Depth (inche Remarks:	DGY						Hydric :	soil presen	t? <u>Y</u>
Type: Depth (inche Remarks: TYDROLC Vetland Hy	DGY drology Indicato	ors:			- - 				
Type: Depth (inche Remarks: HYDROLC Vetland Hy Primary India	DGY drology Indicato	ors: of one is	required; check					econdary Inc	dicators (minimum of two require
Type: Depth (inche Remarks: TYDROL(Vetland Hy Primary India Surface	DGY drology Indicato cators (minimum Water (A1)	ors: of one is	required; check	Aquatic	Fauna (B			econdary Ind	dicators (minimum of two require Soil Cracks (B6)
Type: Depth (inche Remarks: TYDROLC Vetland Hy Primary India Surface High Wa	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	ors: of one is	required; check	Aquatic True Aq	Fauna (B uatic Plan	nts (B14)	<u>Se</u>	econdary Ind Surface	dicators (minimum of two require Soil Cracks (B6) 2 Patterns (B10)
Type: Depth (inche Remarks: TYDROLC Vetland Hy Primary India Surface High Wa X Saturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)	ors: of one is	required; check	Aquatic True Aq Hydroge	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1)	econdary Ind Surface Drainage Dry-Seas	dicators (minimum of two require Soil Cracks (B6) ∋ Patterns (B10) son Water Table (C2)
Type: Depth (inche Remarks: TYDROLC Vetland Hy Primary India Surface High Wa X Saturatio Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	ors: of one is	required; check	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plan en Sulfide	nts (B14) Odor (C1	<u>Se</u>	econdary Ind Surface Drainage Dry-Seas Crayfish	dicators (minimum of two require Soil Cracks (B6) ∋ Patterns (B10) son Water Table (C2) Burrows (C8)
Type: Depth (inche Remarks: Remarks: HYDROLC Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)	ors: of one is	required; check	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plan en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on) Living Roots	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatio	dicators (minimum of two require Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9)
Type: Depth (inche Remarks: Remarks: HyDROLC Vetland Hy Primary India Surface High Wa Surface Water M Sedimer Drift Dep	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)	ors: of one is	required; check	Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan en Sulfide d Rhizospl ce of Redu	nts (B14) Odor (C1 heres on uced Iron)	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatio Stunted	dicators (minimum of two require Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1)
Type: Depth (inche Remarks: Remarks: HYDROLO Vetland Hy Primary India Surface High Wa Surface High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma	DGY drology Indicato cators (minimum Water (A1) atter Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors: of one is	required; check	Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan en Sulfide d Rhizospl ce of Redu	nts (B14) Odor (C1 heres on uced Iron) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Surface High Wa Surface High Ma	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)	ors: of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6)	Fauna (B uatic Plan en Sulfide d Rhizospl ce of Redu	nts (B14) Odor (C1 heres on uced Iron action in T) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Surface High Wa Surface High Ma	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)	ors: of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu	Fauna (B uatic Plan en Sulfide d Rhizosp d Rhizosp ce of Redu Iron Redu	nts (B14) Odor (C1 heres on uced Iron uction in T re (C7)) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: Remarks: Remarks: Primary India Surface High Wa Surface High Wa Surface Algal Ma Iron Dep Inundatia Sparsely	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	ors: of one is of Imagery ive Surface		Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac	nts (B14) Odor (C1 heres on uced Iron action in T re (C7) ata (D9)	Se) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: ATTENTS ATTENTS ATTENTS Auter M Sedimer Drift Dep Algal Ma Iron Dep Inundation Sparsely Water-S	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 r Vegetated Conca tained Leaves (B9	ors: of one is of Imagery ive Surface		Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o	Fauna (B uatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron action in T re (C7) ata (D9)	Se) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: Remarks: Remarks: Primary India Surface High Wa Sufface High Wa Sufface High Wa Sufface High Wa Sedimer Drift Dep Algal Ma Iron Dep Inundatia Sparsely	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 v Vegetated Conca tained Leaves (B9 vations:	ors: of one is of Imagery ive Surface		Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o	Fauna (B uatic Plan en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron nction in T re (C7) ata (D9) Remarks)	Se) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomor	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: Remarks: TYDROLO Vetland Hy Primary India Surface High Wa Surface High Wa High Wa Surface High Wa High Wa	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 v Vegetated Conca tained Leaves (B9 vations: er present?	of one is of one is I Imagery ive Surfac	r (B7) pe (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron nction in T ee (C7) ata (D9) Remarks) nches):	Se) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorg X FAC-Net	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Surface High Wa Surface High Wa Saturation Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S Surface wate Nater table Saturation p	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria / Vegetated Conca tained Leaves (B9 vations: er present? present? resent?	of one is of one is al Imagery ive Surfac) Yes	r (B7) ce (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron iction in T e (C7) ata (D9) Remarks) nches): nches):	Se) Living Roots (C4) illed Soils	Econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorp X FAC-Net	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Remarks: Surface High Wa Surface High Wa Saturation Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S Surface wate Nater table Saturation p	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 v Vegetated Conca tained Leaves (B9 vations: er present? present?	ors: of one is of one is ll Imagery ive Surfac) Yes Yes	r (B7) ce (B8) No No	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge o Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp ee of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron iction in T e (C7) ata (D9) Remarks) nches): nches):) Living Roots (C4) illed Soils	Econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorp X FAC-Net	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Primary India Surface High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S Field Obser Surface wate Vater table Saturation p includes ca	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria / Vegetated Conca tained Leaves (B9 vations: er present? present? resent?	or s: of one is of one is ll Imagery ive Surfac) Yes Yes Yes	r (B7) (B7) (B8) (B8) (No No X No	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorp X FAC-Neu Ind	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Primary India Surface High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S Field Obser Surface wate Vater table Saturation p includes ca	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca tained Leaves (B9 vations: er present? present? present? pillary fringe)	or s: of one is of one is ll Imagery ive Surfac) Yes Yes Yes	r (B7) (B7) (B8) (B8) (No No X No	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorp X FAC-Neu Ind	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Type: Depth (inche Remarks: Remarks: Remarks: Remarks: Primary India Surface High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S Field Obser Surface wate Vater table Saturation p includes ca	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca tained Leaves (B9 vations: er present? present? present? pillary fringe)	or s: of one is of one is ll Imagery ive Surfac) Yes Yes Yes	r (B7) (B7) (B8) (B8) (No No X No	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu Iron Redu ick Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	econdary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted X Geomorp X FAC-Neu Ind	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)

WETLAND DETERMIN	NATION D		/I - Midwe	st Region	1		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018	3
Applicant/Owner: South Dakota Department of Transportation		State:	South D	Jakota	Sampling Point:	6U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	nip, Range:	S28 T10	01N R49W	
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ave, convex	, none):	Concave	
Slope (%): 3 Lat: 43° 30' 59.644" N		Long:	96° 42' 42.5	606" W	Datum: UTM	NAD83 Zone 14	4N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classificat	ion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	mstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Ye	es
SUMMARY OF FINDINGS				(If neede	d, explain any ans	wers in remark	ks.)
Hydrophytic vegetation present? Y							
Hydric soil present? N		Is the s	ampled are	a within a v	vetland?	Ν	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	and site ID:	_		
Remarks: (Explain alternative procedures here or in a separate re	eport)			-			
Sample Point collected adjacent to Wetland 6.	opon.)						
VEGETATION Use scientific names of plants.	A1 1 - 1 -		1	Dominar	nce Test Worksho	oot	
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status				
1		opooloo	olaldo		of Dominant Speci OBL, FACW, or FA		(A)
2					Number of Domina		
3					ies Across all Strat		(B)
4				Percent	of Dominant Speci	es	
5				that are 0	OBL, FACW, or FA	C: 66.67%	(A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)					ice Index Worksh	neet	
				Total % (4	
2				OBL spec		$\begin{array}{c} 1 = \\ 2 = \end{array} \begin{array}{c} 0 \\ 0 \end{array}$	
4				FACW sp FAC spe		3 = 0	
5				FACU sp		4 = 160	
	0	= Total Cover		UPL spec		5 = 25	
Herb stratum (Plot size: 5' Radius)				Column t		A) 350	(B)
1 Ambrosia artemisiifolia Annual Ragweed	40	Y	FACU	Prevalen	ce Index = B/A =	3.50	
2 Setaria pumila Yellow Bristle Grass	35	Y	FAC				
3 Panicum virgatum Wand Panic Grass	20	Y	FAC	Hydroph	ytic Vegetation I	ndicators:	
4 Physalis virginiana Virginia Ground Cherry	5	Ν	UPL	Rapio	d test for hydrophy	vtic vegetation	
5					inance test is >50°		
6				Preva	alence index is ≤3	.0*	
					hological adaptati		
8					orting data in Rem rate sheet)	harks or on a	
10						ie verstetien*	
····	100	= Total Cover		(expl	lematic hydrophyti ain)	c vegetation	
Woody vine stratum (Plot size: 30' Radius)				<u> </u>			
1					s of hydric soil and we esent, unless disturbe		ust de
2				Hydr	ophytic	-	
	0	= Total Cover		-	tation		
Remarks: (Include photo numbers here or on a separate sheet)				pres	ent? Y		
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2.4.0 (https:	//wetland plan	nts.usace.army.mil). U	.S. Army Corps of	
Engineers, Engineer Research and Development Center, Cold Regions Research							
US Army Corps of Engineers					M	idwest Regio	on 🗌

Depth	Matrix			Ree	dox Feat	ures				
(Inches)	Color (moist)	%	Color (m	noist)	%	Type*	Loc**	Text	ture	Remarks
0-12	10YR 3/1	100						Sandy Loa	m	
12-20	10YR 3/2	100					1	Sandy Loa	m with rocks	
	ł									
vne: $C = ($	Concentration, D =	= Depleti	on RM = R	Reduce	d Matrix	MS = M	asked Sa	nd Grains	**Location	: PL = Pore Lining, M = Matrix
	bil Indicators:	Bopioti		louuoo	a matrix,					ematic Hydric Soils:
•	tosol (A1)			Sar	dv Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)		—		idy Redo		(01)			7) (LRR K, L)
	ck Histic (A3)		_		pped Ma					t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	1)	_		-	ky Minera	al (F1)		•	Masses (F12) (LRR K, L, R)
•	atified Layers (A5)	,	_		-	ed Matrix			-	rk Surface (TF12)
	m Muck (A10)					atrix (F3)	. ,		er (explain in	
	pleted Below Dark	Surface	(A11) —			Surface	(F6)			,
	ck Dark Surface (. /			ark Surfac	. ,	*Indic	ators of hvd	rophytic vegetation and wetlan
	ndy Mucky Minera	,	—			essions (. ,			be present, unless disturbed or
			_						0,	problematic
be: pth (inche	Layer (if observe					-		Hydric	: soil presen	it? <u>N</u>
pe: pth (inche						-		Hydric	soil presen	nt? <u>N</u>
rpe: epth (inche emarks:	es):					-		Hydric	soil presen	nt? <u>N</u>
pe: pth (inche marks: YDROL(DGY					-		Hydric	soil presen	nt? <u>N</u>
pe: epth (inche emarks: YDROL(etland Hy	DGY	ors:	required: c	check a	II that ap	- - - -				
pe: pth (inche marks: YDROL(etland Hy mary Indi	DGY rdrology Indicato cators (minimum	ors:	required; c	check a			13)		Secondary In	dicators (minimum of two requ
pe: pth (inche marks: (DROL(etland Hy mary Indi Surface	DGY drology Indicato cators (minimum Water (A1)	ors:	required; c	check a	Aquatic	- - - - - - - - - - - - - - - - - - -	,		Secondary In	dicators (minimum of two requ Soil Cracks (B6)
pe: pth (inche marks: (DROL(etland Hy mary Indi Surface	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	ors:	required; c	check a	Aquatic True Aq	Fauna (B	nts (B14)		Secondary In Surface	dicators (minimum of two requ
pet: pth (inche marks: /DROL(etland Hy mary Indi Surface High Wa Saturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	ors:	required; c	check a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1		Secondary In Surface Drainage Dry-Sea	dicators (minimum of two requ Soil Cracks (B6) ∋ Patterns (B10)
pe: pth (inche marks: //DROL(etland Hy mary Indi Surface High Wa Saturatie Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)	ors:	required; c	check a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1)	Secondary In Surface Drainage Dry-Sea Crayfish	dicators (minimum of two requ Soil Cracks (B6) ∋ Patterns (B10) son Water Table (C2) Burrows (C8)
pe: pth (inche marks: //DROL(tland Hy mary Indi Surface High Wa Saturatio Vater M Sedimer	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	ors:	required; c		Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1 heres on) Living Roots	Secondary In Surface Drainage Dry-Sea Crayfish Saturatic Stunted	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1)
Pe: Ppth (inche marks: PTDROL(Ptland Hy mary Indi Surface High Wa Saturation Water N Sedimer Drift Dep Algal Ma	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors:	required; c		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent	Fauna (B uatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on uced Iron) Living Roots	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2)
pe: ppth (inche pmarks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water N Sedimer Drift Dep Algal Ma Iron Dep	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)	ors: of one is		check a	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6)	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu	nts (B14) Odor (C1 heres on uced Iron uction in T) Living Roots (C4)	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1)
pe: ppth (inche marks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati	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	ors: of one is	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac	Odor (B14) Odor (C1 heres on uced Iron uction in T) Living Roots (C4)	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2)
pe: pth (inche marks: (DROL(etland Hy <u>mary Indi</u> Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely	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	of one is of one is I Imagery ve Surfac	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge C	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron uction in T re (C7) ata (D9)) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2)
pe: pth (inche marks: //DROL(etland Hy mary Indi Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S	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)	of one is of one is I Imagery ve Surfac	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge C	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac	nts (B14) Odor (C1 heres on uced Iron uction in T re (C7) ata (D9)) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2)
pe: ppth (inche prmarks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser	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 / Vegetated Conca itained Leaves (B9 rvations:	of one is of one is I Imagery ve Surfac	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor	dicators (minimum of two requi Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2)
pe: epth (inche emarks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat	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 v Vegetated Conca- itained Leaves (B9 vations: er present?	of one is of one is Il Imagery ve Surfac) Yes	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor FAC-Net	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
pe: epth (inche emarks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water N Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser ater table	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 / Vegetated Conca itained Leaves (B9 rvations: er present? present?	I Imagery ve Surfac) Yes Yes	r (B7)	 No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron iction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor FAC-Net	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
pe: ppth (inche ppth (inche) ppth (inche)	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 v Vegetated Conca itained Leaves (B9 vations: er present? present?	of one is of one is Il Imagery ve Surfac) Yes	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron iction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor FAC-Net	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
pe: ppth (inche ppth (inche pmarks: YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Inundati Sparsely Water-S eld Obser Inface wat ater table uturation p cludes ca	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 / Vegetated Conca itained Leaves (B9 rvations: er present? present?	of one is of one is ll Imagery ive Surfac) Yes Yes Yes	r (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidizeo (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor FAC-Net	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
pe: ppth (inche marks: YDROL(etland Hy fmary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser rface wata ater table turation p cludes ca	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 vations: er present? present? present? pillary fringe)	of one is of one is ll Imagery ive Surfac) Yes Yes Yes	r (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidizeo (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted X Geomor FAC-Net	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2) utral Test (D5)

WETLAND DETERMIN	ATION D	ATA FORI	N - Midwe	st Regioi	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	ioux Falls/Mi	nnehaha	Sampling Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	6W	
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	ip, Range:	S28 T ²	101N R49W	
Landform (hillslope, terrace, etc.): toeslope		Local	l relief (conca	ave, conve	k, none):	Concave	
Slope (%): 1 Lat: 43° 30' 59.359" N		Long:	96° 42' 42.8	47" W	Datum: UTM	NAD83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classifica	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	f the year?		N (lf no, expla	in in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circu	umstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	res
SUMMARY OF FINDINGS				(If neede	ed, explain any an	swers in rema	rks.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the s	ampled area	a within a	wetland?	Y	
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	and site ID:	Wetland 6	>	
Remarks: (Explain alternative procedures here or in a separate re	port.)						
Sample Point collected in Wetland 6.	p o)						
VEGETATION Use scientific names of plants.							
	Absolute	Dominant	Indicator	Domina	nce Test Worksł	neet	1
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status		of Dominant Spec		
1 '					OBL, FACW, or F		(A)
2				Total	Number of Domin	ant	_
3				Spe	cies Across all Stra	ata: 1	(B)
4					of Dominant Spec		
5				that are	OBL, FACW, or F	AC: 100.00%	(A/B)
	0	= Total Cove	r	Desugla		haat	
Sapling/Shrub stratun (Plot size: 15' Radius)					n ce Index Works Cover of:	neet	
2				OBL spe		x1= 0	
3				FACW s			_
4				FAC spe	·	$x_3 = 0$	_
5				FACU sp		x 4 = 0	_
	0	= Total Cove	r	UPL spe	cies 0	x 5 = 0	_
Herb stratum (Plot size: 5' Radius)				Column	totals 100	(A) 200	(B)
1 Phalaris arundinacea Reed Canary Grass	100	Y	FACW	Prevaler	nce Index = B/A =	2.00	
2							
3					nytic Vegetation		
					d test for hydroph		n
5 <u></u>					iinance test is >50 alence index is ≤		
7							
					phological adapta porting data in Re		;
9					arate sheet)		
10				Prob	lematic hydrophy	tic vegetation*	r
	100	= Total Cove	r	(exp		Ū	
Woody vine stratum (Plot size: 30' Radius)				*Indicator	rs of hydric soil and w	etland hydrology	must be
1				р	resent, unless disturb		
2				-	rophytic		
	0 :	= Total Cove	r	-	etation sent? Y	1	
Remarks: (Include photo numbers here or on a separate sheet)				L	I		
Note: This data sheet has been adapted to use the 2016 National	Wetland PI	ant List:					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Natio	onal Wetland I	Plant List, versi					of
Engineers, Engineer Research and Development Center, Cold Regions Research	n and Enginee	ening Laborator	y, nanover, NH	, and BONAP			
US Army Corps of Engineers					N	1idwest Regi	ion

	cription: (Descri	be to the						1	
Depth	<u>Matrix</u>			dox Feat			_		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-6	10YR 3/1	100					Silty Loam		
6-12	10YR 3/1	80	5YR 4/4	15	С	М	Silty Loam		
			7.5YR 4/4	5	С	М			
12-20	10YR 4/1	90	7.5YR 4/6	10	С	М	Course Sa	ndv Loam	
12 20			1.011(1/0	10	Ŭ			lay Loan	
$V_{\text{De}} C = 0$	Concentration, D =	= Depletic	on RM = Reduce	d Matrix	MS = M	asked Sa	nd Grains	**Location	: PL = Pore Lining, M = Matrix
	bil Indicators:	Bopious		a maan,					ematic Hydric Soils:
	tosol (A1)		Sar	ndy Gleye	d Matrix	(\$4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo		(04)			() (LRR K, L)
	ck Histic (A3)			pped Ma					t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	1)		amy Muck	· · /) (E1)		•	Masses (F12) (LRR K, L, R)
		-		-	-			•	
	atified Layers (A5)	1		amy Gley		(ГZ)			k Surface (TF12)
	m Muck (A10)	Curtosa		oleted Ma	. ,			er (explain in	remarks)
	bleted Below Dark		· · · ·	dox Dark		. ,			
	ck Dark Surface (,		oleted Da					ophytic vegetation and wetland
Sar	ndy Mucky Minera	1 (51)	Rec	dox Depr	essions (F8)	hydr	ology must b	e present, unless disturbed or
									problematic
estrictive	Layer (if observe	ed):							
		,							
		,			_		Hydric	soil presen	t? Y
ype:	es):				-		Hydric	soil presen	t? <u>Y</u>
ype: Depth (inche Remarks:	es):				-		Hydric	soil presen	t? <u>Y</u>
ype: bepth (inche Remarks: IYDROLC Vetland Hy	DGY drology Indicato	ors:		all that an	- -				
ype: Depth (inche Remarks: IYDROL(Vetland Hy Primary Indi	DGY drology Indicato cators (minimum	ors: of one is	-	-		13)		Secondary Inc	dicators (minimum of two require
ype: epth (inche emarks: IYDROL(/etland Hy rimary Indi Surface	DGY drology Indicato cators (minimum Water (A1)	ors: of one is	-	Aquatic	Fauna (B			Secondary Inc	dicators (minimum of two require Soil Cracks (B6)
ype: epth (inche emarks: IYDROL(/etland Hy rimary Indi Surface High Wa	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)	ors: of one is	-	Aquatic True Aq	Fauna (B uatic Plar	nts (B14)	<u></u>	Secondary Inc Surface S Drainage	dicators (minimum of two require Soil Cracks (B6) Patterns (B10)
ype: epth (inche emarks: IYDROL(/etland Hy rimary Indi Surface High Wa XSaturatio	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3)	ors: of one is	-	Aquatic True Aqu Hydroge	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1)	Secondary Inc Surface S Drainage Dry-Seas	dicators (minimum of two requir Soil Cracks (B6) Patterns (B10) son Water Table (C2)
ype: epth (inche emarks: VYDROLC /etland Hy rimary Indi Surface High Wa Saturatio Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)	ors: of one is	-	Aquatic True Aqu Hydroge Oxidized	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1	<u></u>	Secondary Inc Surface S Drainage Dry-Seas Crayfish	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
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WETLAND DETERMIN	NATION D		N - Midwe	st Regioi	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Dat	e: 9/25/2018	
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Poir	nt: 7U	
Investigator(s): Rebecca Beduhn		Sect	tion, Townsh	ip, Range:	S28	T101N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, conve	k, none):	Concave	
Slope (%): 3 Lat: 43° 30' 55.210" N		Long:	96° 42' 49.1	49" W	Datum: U	TM NAD83 Zone 14N	1
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classifica	tion:		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal c	rcumstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?			nie norma o	present? Yes	
SUMMARY OF FINDINGS				(If neede	ed, explain any	answers in remarks.))
Hydrophytic vegetation present? N							
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν	
Indicators of wetland hydrology present? N			ptional wetla				
	an art)	, ,					
Remarks: (Explain alternative procedures here or in a separate re	epon.)						
Sample Point collected adjacent to Wetland 7.							
VEGETATION Use scientific names of plants.							
	Absolute	Dominant	Indicator		nce Test Worl		
Tree Stratum (Plot size: <u>30' Radius</u>)	% Cover	Species	Status		of Dominant S OBL, FACW, o		<u>۱</u>
2						(.)
					Number of Dor cies Across all)
4				-	of Dominant S		<i>,</i>
5					OBL, FACW, o		/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevale	nce Index Wo	rksheet	
1				Total %	Cover of:		
2				OBL spe		x 1 = 0	
				FACW s			
4				FAC spe FACU sp		x 3 = 75 x 4 = 220	
	0	= Total Cover		UPL spe			
Herb stratum (Plot size: 5' Radius)				Column		(A) (B))
1 Cirsium arvense Canadian Thistle	25	Y	FACU		B = B/A		,
2 Bromus inermis Smooth Brome	20	Y	FACU				
3 Poa pratensis Kentucky Blue Grass	15	Y	FAC	Hydroph	nytic Vegetati	on Indicators:	
4 Setaria pumila Yellow Bristle Grass	10	N	FAC	Rapi	d test for hydro	ophytic vegetation	
5 Phalaris arundinacea Reed Canary Grass	10	Ν	FACW	Dom	inance test is	>50%	
6 Fallopia convolvulus Black-Bindweed	10	N	FACU	Prev	alence index is	s ≤3.0*	
7 Euphorbia esula Leafy Spurge	10	N	UPL	Morp	phological ada	otations* (provide	
8					-	Remarks or on a	
9					arate sheet)		
10	100	= Total Cover		Prob (exp		ohytic vegetation*	
Woody vine stratum (Plot size: 30' Radius)	100			` ·			
1					-	d wetland hydrology must turbed or problematic	be
2					rophytic	•	
	0	= Total Cover		-	etation		
Remarka: (Include photo numbers here or on a constrate sheet)				pres	ent?	Ν	
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2.4.0 (https:/	//wetland pla	nts.usace.armv.m	il). U.S. Armv Corps of	
Engineers, Engineer Research and Development Center, Cold Regions Resear							
US Army Corps of Engineers						Midwest Region	

Depth	Matrix			dox Feat					
Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-14	10YR 3/1	100					Sandy Loa	m	
14-20	10YR 3/2	100					Sandy Loa	m with rocks	
				1					
							1		
pe: C = 0	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = M	asked Sa	and Grains.	**Location:	: PL = Pore Lining, M = Matrix
ydric Sc	il Indicators:						Indicato	rs for Proble	ematic Hydric Soils:
His	tosol (A1)		Sar	ndy Gleye	ed Matrix	(S4)	Coa	st Prairie Red	dox (A16) (LRR K, L, R)
His	tic Epipedon (A2)			ndy Redo				< Surface (S7	
	ck Histic (A3)			pped Ma	. ,				t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	-		•	ky Minera	. ,		•	Masses (F12) (LRR K, L, R)
	atified Layers (A5))			ed Matrix	(F2)			rk Surface (TF12)
	m Muck (A10)			pleted Ma			Othe	er (explain in	remarks)
	oleted Below Dark		· · · ·		Surface	. ,			
	ck Dark Surface (ark Surfa				ophytic vegetation and wetlar
Sar	ndy Mucky Minera	l (S1)	Rec	dox Depr	essions ((F8)	hydi	ology must b	e present, unless disturbed o problematic
	20):				-		Hydric	soil presen	t? <u>N</u>
rpe: epth (inche emarks:	es):				-		Hydric	soil presen	t? <u>N</u>
pth (inche	es):				-		Hydric	: soil presen	t? <u>N</u>
pth (inche marks:					-		Hydric	soil presen	t? <u>N</u>
pth (inche marks: /DROLC		rs:			-		Hydric	soil presen	t? <u>N</u>
pth (inche marks: (DROLC etland Hy	DGY		required; check a	all that ap	- - - 				t? <u>N</u> dicators (minimum of two requ
pth (inche marks: 'DROL(tland Hy mary Indi	DGY drology Indicato		required; check a	-	- - - - - - - - - - - - - - - - - - -	13)		Secondary Inc	
oth (inche marks:	DGY drology Indicato cators (minimum		required; check a	Aquatic				Secondary Inc	dicators (minimum of two requ
oth (inche marks:	DGY drology Indicato cators (minimum Water (A1) ater Table (A2)		required; check a	Aquatic True Aq	Fauna (B	nts (B14)		Secondary Inc Surface S	dicators (minimum of two requ Soil Cracks (B6)
pth (inche marks: /DROL(tiland Hy mary Indi Surface High Wa Saturatie Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) larks (B1)		required; check a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1		Secondary Inc Surface S Drainage Dry-Seas Crayfish	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
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pth (inche marks: /DROL(etland Hy mary Indi Surface High Wa Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser rface wata ater table turation p cludes ca	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 / Vegetated Conca tained Leaves (B9 vations: er present? present? pillary fringe)	I Imagery ve Surfac) Yes Yes Yes	r (B7) ce (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X X	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da explain in Depth (i Depth (i	nts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) illed Soils)	Secondary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)

WETLAND DETERMIN	NATION D	ATA FOR	M - Midwe	st Regioi	า	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: S	ioux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	7W
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	ip, Range:	S28 T10	01N R49W
Landform (hillslope, terrace, etc.): toeslope		Loca	l relief (conca	ave, conve	k, none):	Concave
Slope (%): 1 Lat: 43° 30' 55.286" N		Long:	96° 42' 48.8	60" W	Datum: UTM I	NAD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circur	nstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	wers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled area	a within a	wetland?	Υ
Indicators of wetland hydrology present? Y		lf yes, c	ptional wetla	nd site ID:	Wetland 7	
Remarks: (Explain alternative procedures here or in a separate re	eport)					
Sample Point collected in Wetland 7.	, port.)					
1						
VEGETATION Use scientific names of plants.	AL		L. P. d.	Domina	nce Test Worksho	oot
<u>Tree Stratum</u> (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status			
1		openie	Clarao		of Dominant Specie OBL, FACW, or FA	
2					Number of Domina	()
3					cies Across all Strat	
4				Percent	of Dominant Specie	es
5				that are	OBL, FACW, or FA	C: 100.00% (A/B)
	0 =	=Total Cove	r			
Sapling/Shrub stratun (Plot size: 15' Radius)					nce Index Worksh	eet
					Cover of:	4 05
2 <u></u> 3				OBL spe FACW s		1 = 25 2 = 110
4				FAC spe	·	3 = 30
5				FACU sp		4 = 0
	0 :	Total Cove	r	UPL spe		5 = 0
Herb stratum (Plot size: 5' Radius)				Column	totals 90 (A	A) 165 (B)
1 Phalaris arundinacea Reed Canary Grass	35	Y	FACW	Prevaler	nce Index = $B/A =$	1.83
2 Eleocharis obtusa Blunt Spike-Rush	25	Y	OBL			
3 Echinochloa crus-galli Large Barnyard Grass	10	Ν	FACW	Hydroph	nytic Vegetation I	ndicators:
4 Persicaria pensylvanica Pinkweed	10	Ν	FACW		d test for hydrophy	-
5 Poa pratensis Kentucky Blue Grass	10	N	FAC		inance test is >50°	
6				X Prev	alence index is ≤3	.0*
					phological adaptati	
8					oorting data in Rem arate sheet)	arks or on a
10					lematic hydrophyti	c vegetation*
	90	Total Cove	r	(exp		e vegetation
Woody vine stratum (Plot size: 30' Radius)				*Indicator	rs of bydric soil and we	tland hydrology must be
1					resent, unless disturbe	
2				-	rophytic	
	0 :	= Total Cove	r	-	etation	
Remarks: (Include photo numbers here or on a separate sheet)				pres	ent? Y	
Note: This data short has been adapted to use the 2016 Matternal	Wotland D	antlict				
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland I	Plant List, versi				
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laborator	y, Hanover, NH	, and BONAF	, Chapel Hill, NC. (201	6)
US Army Corps of Engineers					Mi	dwest Region

ofile Des	Matrix		Po	dox Feat	Iroc				
Depth (Inches)	Color (moist)	%	Color (moist)	<u>uux i eau</u> %	Type*	Loc**	Tex	ture	Remarks
0-8	10YR 3/1	100		70	Турс		Silty Loam		Kemano
				45			-		
8-12	10YR 3/1	80	5YR 4/4	15	С	М	Silty Loam		
			7.5YR 4/4	5	С	М			
12-20	10YR 4/1	90	7.5YR 4/6	10	С	М	Course Sa	ndy Loam	
								441 (1	
	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa			: PL = Pore Lining, M = Matrix
•	bil Indicators:		0			(04)			ematic Hydric Soils:
	tosol (A1)			ndy Gleye		(54)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo pped Ma					7) (LRR K, L) t or Peat (S3) (LRR K, L, R)
	ck Histic (A3) drogen Sulfide (A4	`		my Muck	. ,			-	Masses (F12) (LRR K, L, R)
	atified Layers (A5)			my Gley	-			-	rk Surface (TF12)
	m Muck (A10)			oleted Ma		(12)		er (explain in	
	pleted Below Dark	Surface		dox Dark		(F6)			ionanoj
	ck Dark Surface (/		· · ·	pleted Da		. ,	*!!!		
	ndy Mucky Minera			dox Depre		. ,			ophytic vegetation and wetland pe present, unless disturbed or
0ai		1(01)		JOX Depr	63310113 (10)	nyu	lology must b	problematic
pe: pth (inche	Layer (if observe						Hydrid	c soil presen	t? <u>Y</u>
pe: pth (inche					-		Hydrid	c soil presen	t? <u>Y</u>
rpe: epth (inche emarks: YDROLO	DGY				-		Hydrid	c soil presen	t? <u>Y</u>
rpe: epth (inche emarks: YDROL(etland Hy	es): DGY rdrology Indicato	rs:			- 				
pe: epth (inche emarks: YDROL(etland Hy imary Indi	es): DGY rdrology Indicato cators (minimum of	rs:	required; check a	-				Secondary Inc	dicators (minimum of two requi
pe: pth (inche marks: YDROL(etland Hy mary Indi Surface	DGY drology Indicato cators (minimum of Water (A1)	rs:	required; check a	Aquatic	Fauna (B			Secondary Inc	dicators (minimum of two requi Soil Cracks (B6)
pe: pth (inche marks: /DROL(etland Hy mary Indi Surface High Wa	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2)	rs:	required; check a	Aquatic True Aq	Fauna (B uatic Plar	nts (B14)		Secondary Ind Surface Surface	dicators (minimum of two requi Soil Cracks (B6) ∋ Patterns (B10)
pe: pth (inche marks: /DROL(etland Hy mary Indi Surface High Wa Saturatio	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3)	rs:	required; check a	Aquatic True Aqu Hydroge	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1		Secondary Ind Surface Drainage Dry-Seas	dicators (minimum of two requi Soil Cracks (B6) 9 Patterns (B10) son Water Table (C2)
pe: marks: marks: YDROL(etland Hy mary Indi Surface High Wa Saturatic Water M	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1)	rs:	required; check a	Aquatic True Aqu Hydroge Oxidized	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1		Secondary Ind Surface S Drainage Dry-Seas Crayfish	dicators (minimum of two requi Soil Cracks (B6) 9 Patterns (B10) son Water Table (C2) Burrows (C8)
pe: marks: marks: YDROL(etland Hy mary Indi Surface High Wa Saturatio Water M Sedimer	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	rs:	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3)	Fauna (B uatic Plar n Sulfide I Rhizosp	nts (B14) Odor (C1 heres on	I) Living Roots	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9)
pe: marks: marks: YDROL(etland Hy mary Indi Surface High Wa Saturation Vater M Sedimer Drift Dep	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	rs:	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on uced Iron	I) Living Roots (C4)	Secondary Ind Surface 3 Drainage Dry-Seas Crayfish Saturatic Stunted o	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1)
pe: ppth (inche marks: YDROL(etland Hy mary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	rs:	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on uced Iron	I) Living Roots	Secondary Ind Surface S Drainage Dry-Seas Crayfish Saturatic Stunted o X Geomorp	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
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WETLAND DETERMIN	NATION D		/I - Midwe	st Regior	1		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018	3
Applicant/Owner: South Dakota Department of Transportation		State:	South D	Jakota	Sampling Point:	8U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	nip, Range:	S27 T1	01N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, convex	, none):	Concave	
Slope (%): 4 Lat: 43° 30' 59.370" N		Long:	96° 42' 32.7	'80" W	Datum: UTM	NAD83 Zone 14	4N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classificat	ion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	mstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Ye	es
SUMMARY OF FINDINGS				(If neede	d, explain any ans	swers in remark	ks.)
Hydrophytic vegetation present? N							
Hydric soil present? N		Is the s	ampled are	a within a v	vetland?	N	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	and site ID:	-		
Remarks: (Explain alternative procedures here or in a separate re	oport)		-	-			
Sample Point collected adjacent to Wetland 8.	epon.)						
VEGETATION Use scientific names of plants.				Deminer		4	
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status		nce Test Worksh		
Tree Stratum (Plot size: 30' Radius)		Species	Status		of Dominant Speci OBL, FACW, or FA		(A)
2					Number of Domina		(//)
3					ies Across all Stra		(B)
4					of Dominant Speci		. ,
5	·				OBL, FACW, or FA		(A/B)
	0	= Total Cover					
<u>Sapling/Shrub stratun</u> (Plot size: 15' Radius)				Prevaler	ice Index Works	neet	
1				Total % 0			
2				OBL spe		(1 = 0)	
				FACW s		(2 = 0)	
4				FAC spe FACU sp		(3 = 120) (4 = 140)	
	0	= Total Cover		UPL spe		x = 140 x = 25	
Herb stratum (Plot size: 5' Radius)				Column t		(A) 285	(B)
1 Setaria pumila Yellow Bristle Grass	40	Y	FAC		ce Index = $B/A =$	3.56	
2 Fallopia convolvulus Black-Bindweed	30	Y	FACU	Tiovalori		0.00	
3 Medicago lupulina Black Medick	5	N	FACU	Hydroph	ytic Vegetation I	ndicators:	
4 Physalis virginiana Virginia Ground Cherry	5	N	UPL	Rapie	d test for hydroph	ytic vegetation	
5				Dom	inance test is >50	%	
6				Preva	alence index is ≤3	5.0*	
7				Morp	hological adaptat	ions* (provide	
8					orting data in Ren	narks or on a	
				·	rate sheet)		
10	80	= Total Cover		Prob (expl	lematic hydrophyt ain)	ic vegetation*	
Woody vine stratum (Plot size: 30' Radius)	00			<u> </u>	,		
1					s of hydric soil and we esent, unless disturbe		ust be
	·				ophytic		
	0	= Total Cover		vege	tation		
		-		pres	ent? N		
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			n 2 4 0 (https://www.com/articles.com/arti	//wetland plar	nts usace army mil)	IS Army Corns of	
Engineers, Engineer Research and Development Center, Cold Regions Research							
US Army Corps of Engineers					M	idwest Regio	on

Depth	<u>Matrix</u>		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-10	10YR 3/3	100					Silty Loam	with rocks	
10+									Rocks
101									
Гуре: С = С	oncentration, D	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	ind Grains.	**Location	: PL = Pore Lining, M = Matrix
Hydric Soi	il Indicators:								ematic Hydric Soils:
Histo	osol (A1)		Sar	dy Gley	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
Histi	ic Epipedon (A2)		Sar	ndy Redo	ox (S5)				7) (LRR K, L)
Blac	k Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	n Mucky Pea	t or Peat (S3) (LRR K, L, R)
Hydr	rogen Sulfide (A4	4)	Loa	my Mucl	ky Minera	al (F1)		Manganese	Masses (F12) (LRR K, L, R)
Stra	tified Layers (A5)	Loa	my Gley	ed Matrix	(F2)	Very	Shallow Da	rk Surface (TF12)
2 cm	n Muck (A10)		Dep	leted Ma	atrix (F3)		Othe	er (explain in	remarks)
Dep	leted Below Dark	Surface	(A11) Red	lox Dark	Surface	(F6)			
	k Dark Surface (leted Da	ark Surfac	ce (F7)	*Indic	ators of hvd	rophytic vegetation and wetland
San	dy Mucky Minera	ıl (S1)			essions (be present, unless disturbed or
	, ,	· · ·		·	,	. ,	,		problematic
a a fria fiva I	aver (if choose)	۰ ما <i>\</i> .				1			
	_ayer (if observe	eu):					Lludria	soil preser	42 N
ype:							- nvaric	son preser	nt? N
anth (inches	a).				-				
	s):				-				
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emarks:					-				
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emarks: IYDROLO /etland Hyc rimary Indic	DGY drology Indicato cators (minimum		required; check a			13)		Secondary In	
emarks: IYDROLO /etland Hyd rimary Indic Surface V	OGY drology Indicato		required; check a	Aquatic	- - - - - - - - - - - - - - - - - - -			Secondary In	dicators (minimum of two requi
emarks: IYDROLO /etland Hyd rimary Indic Surface V	DGY drology Indicato cators (minimum Water (A1) ter Table (A2)		required; check a	Aquatic True Aq	Fauna (B	nts (B14)	<u></u>	Secondary In Surface	dicators (minimum of two requi Soil Cracks (B6)
emarks: IYDROLO /etland Hyc rimary Indic Surface V High Wat	DGY chology Indicato cators (minimum Water (A1) ter Table (A2) n (A3)		required; check a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1)	Secondary In Surface Drainage Dry-Sea	dicators (minimum of two requi Soil Cracks (B6) ∋ Patterns (B10)
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emarks: IYDROLO /etland Hyc rimary Indic Surface V High Wat Saturatio Water Ma Sediment	DGY drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1)		required; check a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1 heres on) Living Roots	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio	dicators (minimum of two requi Soil Cracks (B6) ∋ Patterns (B10) son Water Table (C2) Burrows (C8)
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emarks: IYDROLO /etland Hyd rimary Indic Surface V High Wat Saturatio Water Ma Sediment Drift Depe Algal Mat Iron Depo Inundatio	DGY drology Indicato eators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) posits (B5)	<u>of one is</u> Il Imagery	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend (C6) Thin Mu	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7)) Living Roots (C4)	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted Geomor	dicators (minimum of two requi Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2)
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rimary Indic Surface V High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	DGY cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) n Visible on Aeria Vegetated Conca ained Leaves (B9)	of one is I Imagery Ive Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge o	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9)) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted Geomor	dicators (minimum of two requi Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2)
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IVDROLO Vetland Hyc Vetland Hyc Vetland Hyc Surface V High Wate Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Water-Sta ield Observ urface wate	DGY drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present?	of one is Il Imagery Ive Surfac	(B7) (B7) (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge C Other (E	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted Geomor FAC-Ne	dicators (minimum of two requi Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2)
emarks: AYDROLO Vetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Water-Sta Surface wate Vater table p	DGY drology Indicato actors (minimum Nater (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: or present?	of one is Il Imagery Ive Surfac) Yes Yes	(B7) == (B8) No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge C Other (E X X	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ck Surfac or Well Da Explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted Geomor FAC-Ne	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
Algal Mater Sparsely Water table p Gurface water Algal Mater Saturation Water Call Sparsely Water-Station Staturation provided the staturation Staturation provided the staturation provided the sta	DGY drology Indicato ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present? oresent?	of one is Il Imagery ive Surfac) Yes	(B7) ee (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent (C6) Thin Mu Gauge C Other (E X	Fauna (B uatic Plar en Sulfide d Rhizosp e of Redu Iron Redu ck Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches):) Living Roots (C4) illed Soils	Secondary In Surface Drainage Dry-Sea Crayfish Saturatio Stunted Geomor FAC-Ne	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9) or Stressed Plants (D1) phic Position (D2) utral Test (D5)
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WETLAND DETERMIN	NATION D	ATA FORM	N - Midwe	st Regior	ו	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	8W
Investigator(s): Rebecca Beduhn		Sect	tion, Townsh	nip, Range:	S27 T10	01N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ave, conve	(, none):	Concave
Slope (%): 1 Lat: 43° 30' 59.728" N		Long:	96° 42' 33.1	60" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, explai	in in remarks)	
Are vegetation , soil , or hydrology	-	y disturbed?	`	•	Are "normal circu	metances"
Are vegetation , soil , or hydrology	-	roblematic?			Are normal circui	present? Yes
SUMMARY OF FINDINGS				(If neede	d, explain any ans	·
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled are	a within a	wetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	and site ID:	Wetland 8	
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected in Wetland 8.						
VEGETATION Use scientific names of plants.						
	Absolute	Dominant	Indicator	Domina	nce Test Worksho	eet
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Speci	es
1					OBL, FACW, or FA	
2				Total	Number of Domina	ant
3				Spec	cies Across all Strat	ta: <u> </u>
4					of Dominant Speci	
5				that are	OBL, FACW, or FA	C: 100.00% (A/B)
Carling (Christian territory, (Distributed, 45) Darding,)	0 :	= Total Cover	ſ	Desuglar		4
Sapling/Shrub stratun (Plot size: 15' Radius)					nce Index Worksh	ieet
2				Total % OBL spe		1 = 60
3				FACW s		2 = 40
4				FAC spe	·	3 = 30
5				FACU sp		4 = 40
	0 :	= Total Cover	r	UPL spe	cies 0 x	5 = 0
Herb stratum (Plot size: 5' Radius)				Column	totals 100 (A	A) 170 (B)
1 Typha latifolia Broad-Leaf Cat-Tail	50	Y	OBL	Prevalen	ice Index = B/A =	1.70
2 Nepeta cataria Catnip	10	Ν	FACU			
3 Persicaria lapathifolia Dock-Leaf Smartweed	10	Ν	FACW	Hydroph	nytic Vegetation I	ndicators:
4 Eleocharis acicularis Needle Spike-Rush	10	N	OBL		d test for hydrophy	-
5 Hordeum jubatum Fox-Tail Barley	10	<u>N</u>	FAC		inance test is >50°	
6 Bidens frondosa Devil's-Pitchfork 7 Cyperus esculentus Chufa	5	<u>N</u>	FACW		alence index is ≤3	
7 Cyperus esculentus Chuta 8		<u>N</u>	FACW		hological adaptati	
9					orting data in Rem rate sheet)	Iaiks of off a
10					lematic hydrophyti	ic vegetation*
	100	- Total Cover	r	(expl		ie regetation
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hvdric soil and we	tland hydrology must be
1					esent, unless disturbe	
2				-	rophytic	
	0 :	= Total Cover	r	vege	etation ent? Y	
Remarks: (Include photo numbers here or on a separate sheet)				P103		
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland I	Plant List, versi				
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH	, and BONAP		,
US Army Corps of Engineers					M	idwest Region

	Matrix		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
0-8	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam w	ith rocks	
8-18	10YR 2/1	85	7.5YR 4/6	15	С	М	Silty Loam w	ith rocks	
18-24	10YR 5/1	85	7.5YR 46	15	С	М	Silty Loam w	ith rocks	
							0		
ype: C = 0	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location: PL	. = Pore Lining, M = Matrix
-	oil Indicators:								atic Hydric Soils:
	tosol (A1)				ed Matrix	(S4)			(A16) (LRR K, L, R)
	tic Epipedon (A2)			ndy Redo				Surface (S7) (L	-
	ick Histic (A3)			pped Ma	. ,			-	Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	4)	Loa	my Mucł	ky Minera	al (F1)	Iron-N	langanese Ma	sses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matrix	: (F2)	Very S	Shallow Dark S	Surface (TF12)
2 cr	m Muck (A10)		Dep	pleted Ma	atrix (F3)		Other	(explain in ren	narks)
	pleted Below Dark				Surface	. ,			
X Thi	ck Dark Surface (A12)	X Dep	pleted Da	ark Surfac	ce (F7)	*Indica	tors of hydroph	ytic vegetation and wetlan
Sar	ndy Mucky Minera	l (S1)	Rec	dox Depr	essions (F8)	hydrol		resent, unless disturbed of
						1		pic	oblematic
	Layer (if observe	ed):						all mraaant?	V
/pe: epth (inche	oc):				-		Hydric s	oil present?	<u>Y</u>
					-				
etland Hy rimary Indi Surface	OGY /drology Indicato icators (minimum Water (A1) ater Table (A2)	of one is		Aquatic True Aq	Fauna (B uatic Plan	its (B14)	_	Surface Soil	
rimary Indi Surface High Wa	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3)	of one is		Aquatic True Aq Hydroge	Fauna (B uatic Plan en Sulfide	its (B14) Odor (C1)	Surface Soil Drainage Pa Dry-Season	Cracks (B6) tterns (B10) Water Table (C2)
etland Hy imary Indi Surface High Wa Saturatio Water M	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1)	of one is		Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plan en Sulfide	its (B14) Odor (C1	_	Surface Soil Drainage Pa Dry-Season Crayfish Bur	Cracks (B6) tterns (B10) Water Table (C2) rows (C8)
etland Hy imary Indi Surface High Wa Saturatid Water M Sedimer	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)	of one is		Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plan n Sulfide I Rhizosp	tts (B14) Odor (C1 heres on) Living Roots	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9
etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)	of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on liced Iron)	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1)
Vetland Hy rimary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	of one is		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I	Fauna (B uatic Plan n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on liced Iron) Living Roots (C4)	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2)
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etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely	vdrology Indicator icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca	of one is I Imagery Ive Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C	Fauna (B uatic Plan en Sulfide I Rhizosp e of Redu Iron Redu ck Surfac or Well Da	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9)) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2)
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rimary Indi Surface High Wa Saturatid Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S ield Obser urface wat	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: ier present?	of one is I Imagery Ive Surfac	(B7) e (B8) No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da xplain in	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks nches):) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2)
Vetland Hy rimary Indi Surface High Wa Saturatid Water M Sedimer Drift Deg Algal Ma Iron Deg Inundati Sparsely Water-S Vater saturated	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: ater present? present?	of one is al Imagery ive Surfac) Yes	(B7) (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu lron Redu ck Surfac or Well Da explain in Depth (i Depth (i	nts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks inches): nches):) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2) Test (D5)
etland Hy imary Indi Surface High Wa Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water S eld Obser urface wat 'ater table aturation p	vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: ater present? present?	of one is al Imagery ive Surfac) Yes Yes	(B7) == (B8) No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da xplain in	nts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks inches): nches):) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2) Test (D5)
Vetland Hy rimary Indi Surface High Wa Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat vater table aturation p ncludes ca	vdrology Indicator icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: rer present? present?	of one is I Imagery Ive Surfac) Yes Yes Yes	(B7) = (B8) No X No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da cxplain in Depth (i Depth (i	nts (B14) Odor (C1 heres on iced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2) Test (D5)
etland Hy surface High Wa Saturatio Water M Sedimer Drift Dep Inundati Sparsely Water-S eld Obser urface wat dater table aturation p ncludes ca	vdrology Indicator icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: ter present? present? present? present? apillary fringe)	of one is I Imagery Ive Surfac) Yes Yes Yes	(B7) = (B8) No X No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu ron Redu ck Surfac or Well Da cxplain in Depth (i Depth (i	nts (B14) Odor (C1 heres on iced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2) Test (D5)
Vetland Hy rimary Indi Surface High Wa Saturatio Water M Sedimer Drift Deg Algal Ma Iron Deg Inundati Sparsely Water-S Vater table aturation p ncludes ca escribe red emarks:	vdrology Indicator icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: ter present? present? present? present? apillary fringe)	of one is I Imagery Ive Surfac) Yes Yes Yes am gauge	(B7) ee (B8) No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X	Fauna (B uatic Plan en Sulfide d Rhizosp e of Redu lron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches):) Living Roots	Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic FAC-Neutral Indica hydre ailable:	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) isible on Aerial Imagery (C9 tressed Plants (D1) Position (D2) Test (D5)

WETLAND DETERMIN	NATION D		A - Midwe	st Regior	ı		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018	3
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	9U	
Investigator(s): Rebecca Beduhn		Sect	tion, Townsh	ip, Range:	S27 T1	01N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, conve	(, none):	Concave	
Slope (%): 4 Lat: 43° 30' 57.319" N		Long:	96° 42' 39.3	09" W	Datum: UTM	NAD83 Zone 1	4N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classifica	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	umstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Ye	es
SUMMARY OF FINDINGS				(If neede	d, explain any an	swers in remark	ks.)
Hydrophytic vegetation present? Y							
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:	-		
Remarks: (Explain alternative procedures here or in a separate re	eport)						
Sample Point collected adjacent to Wetland 9.	sport.)						
VEGETATION Use scientific names of plants.				Domino			
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status		nce Test Worksh		
1		Opecies	Olalus		of Dominant Spec OBL, FACW, or FA		(A)
					Number of Domin		(/)
3					cies Across all Stra		(B)
4				Percent	of Dominant Spec		
5					OBL, FACW, or FA		(A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevaler	nce Index Works	heet	
1					Cover of:		
2				OBL spe		x = 0	
				FACW s		$x^2 = 0$	
4				FAC spe FACU sp		x 3 = 180 x 4 = 140	
	0	= Total Cover		UPL spe		$x = \frac{140}{75}$	
Herb stratum (Plot size: 5' Radius)				Column			(B)
1 Setaria pumila Yellow Bristle Grass	60	Y	FAC		ce Index = B/A =	3.59	
2 Asclepias syriaca Common Milkweed	20	 N	FACU	Tiovalor		0.00	
3 Cirsium arvense Canadian Thistle	10	N	FACU	Hydroph	ytic Vegetation	Indicators:	
4 Hieracium umbellatum Narrow-Leaf Hawkweed	10	N	UPL	Rapi	d test for hydroph	ytic vegetation	
5 Euphorbia esula Leafy Spurge	5	Ν	UPL	X Dom	inance test is >50	0%	
6 Fallopia convolvulus Black-Bindweed	5	Ν	FACU	Prev	alence index is ≤	3.0*	
7				Morp	hological adaptat	tions* (provide	
8					orting data in Rei	marks or on a	
					rate sheet)		
10	110	= Total Cover		Prob (exp	lematic hydrophy	tic vegetation*	
Woody vine stratum (Plot size: 30' Radius)	110			— · ·			
1					s of hydric soil and w esent, unless disturb		ust be
					rophytic		
- <u></u> -	0	= Total Cover		-	etation		
		-		pres	ent? Y		
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2 4 0 (https:	//wetland_nla		I.S. Army Corns of	
Engineers, Engineer Research and Development Center, Cold Regions Research							
US Army Corps of Engineers					N	lidwest Regio	n

Depth	Matrix			Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (n	noist)	%	Type*	Loc**	Тех	ture	Remarks
0-12	10YR 3/1	100						Sandy Loa	ım	
12-20	10YR 3/2	100						Sandy Loa	m with rocks	
								,		
									*** **	
	Concentration, D	= Depletio	on, RIVI = F	Reduce	d Matrix,	MS = Ma	asked Sa			: PL = Pore Lining, M = Matrix
•	il Indicators:			•			(0 1)			ematic Hydric Soils:
	tosol (A1)		_			ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)		_		ndy Redo					7) (LRR K, L)
	ck Histic (A3)				pped Ma	· · /				t or Peat (S3) (LRR K, L, R)
	Irogen Sulfide (A	-			-	ky Minera			-	Masses (F12) (LRR K, L, R)
	atified Layers (A5)				ed Matrix				rk Surface (TF12)
	n Muck (A10)		_			atrix (F3)		Oth	er (explain in	remarks)
	leted Below Darl		(A11)			Surface	. ,			
	ck Dark Surface (_	Dep	pleted Da	ark Surfac	ce (F7)	*Indi	cators of hydi	ophytic vegetation and wetlar
San	ndy Mucky Minera	al (S1)		Red	dox Depr	essions ((F8)	hyd	rology must b	e present, unless disturbed o
										problematic
pe:	Layer (if observ					-		Hydri	c soil presen	it? <u>N</u>
/pe: epth (inche		-				-		Hydrid	c soil presen	t? <u>N</u>
/pe: epth (inche						-		Hydrie	c soil presen	t? <u>N</u>
ype: epth (inche emarks:						-		Hydrie	c soil presen	t? <u>N</u>
/pe: epth (inche						-		Hydrid	c soil presen	t? <u>N</u>
pe: epth (inche						-		Hydri	c soil presen	t? <u>N</u>
pe: pth (inche emarks:	95):					- 		Hydrid	c soil presen	t? <u>N</u>
pe: ppth (inche marks: YDROLC	95):					- -		Hydrid	c soil presen	t? <u>N</u>
pe: epth (inche emarks: YDROLC etland Hy	es): OGY drology Indicato	Drs:	required: (theck a	all that an	- - -			-	
pe: ppth (inche emarks: YDROLC etland Hy	DGY drology Indicate cators (minimum	Drs:	required; c	check a			13)		Secondary Inc	dicators (minimum of two requ
pe: pth (inche marks: YDROLC etland Hy mary India Surface	DGY drology Indicate cators (minimum Water (A1)	Drs:	required; c	check a	Aquatic	Fauna (B			Secondary In	dicators (minimum of two requ Soil Cracks (B6)
pe: pth (inche marks: YDROLC etland Hy mary India Surface High Wa	DGY drology Indicato cators (minimum Water (A1) tter Table (A2)	Drs:	required; c	check a	Aquatic True Aq	Fauna (B uatic Plar	nts (B14)		Secondary Ind Surface	dicators (minimum of two requ Soil Cracks (B6) ∋ Patterns (B10)
pe: pth (inche marks: YDROLC etland Hy mary India Surface High Wa Saturatic	DGY drology Indicato cators (minimum Water (A1) tter Table (A2) on (A3)	Drs:	required; c	check a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1)	Secondary In Surface Drainage Dry-Sea	dicators (minimum of two requ Soil Cracks (B6) ∋ Patterns (B10) son Water Table (C2)
pe: pth (inche marks: //DROLC etland Hy mary India Surface High Wa Saturatic Water M	DGY drology Indicato cators (minimum Water (A1) tter Table (A2) on (A3) arks (B1)	Drs:	required; c	check a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1		Secondary In Surface Drainage Dry-Sea Crayfish	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
pe: marks: marks: YDROLC etland Hy mary India Surface High Wa Saturatio Water M Sedimen	DGY drology Indicato cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) tt Deposits (B2)	Drs:	required; c	check a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar n Sulfide I Rhizosp	nts (B14) Odor (C1 heres on) Living Roots	Secondary In Surface Drainage Dry-Sea Crayfish Saturatic	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9
pe: pth (inche marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3)	Drs:	required; c		Aquatic True Aq Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plar n Sulfide d Rhizosp	nts (B14) Odor (C1 heres on uced Iron) Living Roots (C4)	Secondary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1)
pe: ppth (inche marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) tt or Crust (B4)	Drs:	required; c		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent	Fauna (B uatic Plar n Sulfide d Rhizosp	nts (B14) Odor (C1 heres on uced Iron) Living Roots	Secondary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2)
pe: ppth (inche marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep	DGY drology Indicato cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) tt or Crust (B4) posits (B5)	ors: of one is	·		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6)	Fauna (B uatic Plar In Sulfide Rhizosp e of Redu Iron Redu	nts (B14) Odor (C1 heres on uced Iron uction in T) Living Roots (C4)	Secondary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1)
pe: ppth (inche marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic	DGY drology Indicato cators (minimum Water (A1) ther Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) losits (B5) on Visible on Aeria	ors: of one is	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu Iron Redu ck Surfac	odor (B14) Odor (C1 heres on uced Iron uction in T ee (C7)) Living Roots (C4)	Secondary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2)
pe: marks: marks: YDROLC etland Hy imary India Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely	DGY drology Indicate cators (minimum Water (A1) tter Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) tt or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conce	ors: of one is al Imagery ave Surfac	r (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge o	Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu Iron Redu ck Surfac or Well Da	nts (B14) Odor (C1 heres on uced Iron uction in T ce (C7) ata (D9)) Living Roots (C4) illed Soils	Secondary Ind Surface Drainage Dry-Seas Crayfish Saturatic Stunted Geomor	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2)
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WETLAND DETERMIN	NATION D		/I - Midwe	st Region			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018	
Applicant/Owner: South Dakota Department of Transportation		State:	South D	Dakota S	Sampling Point:	9W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	nip, Range:	S27 T10	1N R49W	
Landform (hillslope, terrace, etc.): footslope		Local	relief (conc	ave, convex,	none):	Concave	
Slope (%): 2 Lat: 43° 30' 56.901" N		Long:	96° 42' 39.5	529" W	Datum: UTM N	IAD83 Zone 14	N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classificati	on:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If no, explair	in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circum	istances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes	S
SUMMARY OF FINDINGS				(If needeo	l, explain any ansv	wers in remarks	s.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the s	ampled are	a within a w	etland?	Y	
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	and site ID:	Wetland 9		
Remarks: (Explain alternative procedures here or in a separate re	eport)						
Sample Point collected in Wetland 9.	560.11)						
VEGETATION Use scientific names of plants.							
	Abaaluta	Densistent	Indiantar	Dominan	ce Test Workshe	ot	
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status		of Dominant Specie		
1					BL, FACW, or FAC		(A)
2					Number of Dominar	``	,
3					es Across all Strata		(B)
4				Percent of	of Dominant Specie	s	
5				that are C	BL, FACW, or FAC	C: 100.00% (/	A/B)
	0	=Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)					ce Index Worksho	eet	
				Total % C		1 0	
3				OBL spec FACW sp		1 = 0 2 = 160	
4				FAC spec		3 = 60	
5				FACU spe		4 = 0	
	0	= Total Cover		UPL spec		5 = 0	
Herb stratum (Plot size: 5' Radius)				Column to	otals 100 (A) <u>220</u> (I	В)
1 Phalaris arundinacea Reed Canary Grass	50	Y	FACW	Prevalenc	e Index = B/A =	2.20	
2 Hordeum jubatum Fox-Tail Barley	20	Y	FAC				
3 Persicaria lapathifolia Dock-Leaf Smartweed	15	Ν	FACW	Hydrophy	tic Vegetation In	dicators:	
4 Cyperus esculentus Chufa	15	Ν	FACW		test for hydrophy		
5					nance test is >50%		
6				X Preva	lence index is ≤3.0	D*	
7 8					nological adaptatic		
9					orting data in Rema ate sheet)	arks or on a	
10					ematic hydrophytic	vegetation*	
	100	= Total Cover		(expla		vegetation	
Woody vine stratum (Plot size: 30' Radius)				*Indicators	of hydric soil and wet	and hydrology mus	ist ha
1					sent, unless disturbed		SUDE
2				-	phytic		
	0	= Total Cover		veget			
Remarks: (Include photo numbers here or on a separate sheet)				prese	nt? Y		
Note: This data shoot has been adapted to use the 2016 Matters	Wotland P	ant List-					
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat			on 2.4.0 (https:	//wetland_plant	s.usace.army.mil). U.S	S. Army Corps of	
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Engine	ering Laboratory	, Hanover, NH	l, and BONAP,			
US Army Corps of Engineers					Mie	dwest Region	า

Dupph Matrix Redox Features Texture Remarks (Inches) Color (moist) % Type: Loc* Texture Remarks 0-8 10YR 5/1 75 7.5YR 5/6 20 C M Sily Loam 0-20 10YR 5/1 75 7.5YR 5/6 25 C M Sily Loam 0-20 10YR 5/1 75 7.5YR 5/6 25 C M Sily Loam 0-20 10YR 5/1 75 7.5YR 5/6 25 C M Sily Loam 0-20 10	Profile Desc	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
0-8 10YR 3/1 80 7.5YR 4/6 20 C M Sity Learn 8-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Learn 8-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Learn 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Learn 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Learn 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Learn 9-20 10 10 10 10 10 10 10 9-20 1	Depth	Matrix		Red	dox Featu	ures				
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Type: C = Concentration. D = Depletion. RM = Reduced Matrix. MS = Masked Sand Grains. **Location: PL = Pore Lining. M = Matrix. Hype: C = Concentration. D = Depletion. RM = Reduced Matrix. MS = Masked Sand Grains. **Location: PL = Pore Lining. M = Matrix. Hype: C = Concentration. D = Depletion. RM = Reduced Matrix. (S4) Indicators: Hatics Soli Indicators: Sandy Gloyed Matrix (S4) Histics (A3) Simped Matrix (S5) Black Histic (A3) Simped Matrix (S5) 2 m Muck (A10) Depleted Matrix (S7) 2 cm Muck (A10) Depleted Matrix (S7) 2 m Muck (A10) Depleted Matrix (F3) 3 mode Below Dark Surface (A11) Redox Dark Surface (F7) Thrick Dark Surface (A12) Depleted Dark Surface (F7) * Depleted Below Dark Surface (A11) Redox Dark Surface (F7) * Depleted Below Dark Surface (A11) Redox Dark Surface (F7) * Depleted Dark Surface (A12) Tota Aquatria (Fauna (B13) * problematic Sacondary Indicators (Iminimum of one is required: check all fhat apply) Saturator (A3) Surface Suff Cracks (B1) Saturator (A3) - Prosence of Roloced Iron (C1) Diarogap Patternes (B10) Saturator (A3) - Cast Final Matrix (C1) - Cast Hindeo Solie Cracks (B1)								-		
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Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils Geomorphic Position (D2) Iron Deposits (B5) (C6) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) FAC-Neutral Test (D5) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Other (Explain in Remarks) Indicators of wetland Field Observations: No X Depth (inches): Indicators of wetland Saturation present? Yes No X Depth (inches): 0 Gauge capillary fringe) Depth (inches): 0 Indicators of wetland hydrology present? Pescribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Y		. ,				l Rhizosp	heres on	Living Roots		
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Iron Deposits (B5) (C6) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Indicators of wetland Field Observations: No X Depth (inches): Indicators of wetland Surface water present? Yes No X Depth (inches): Indicators of wetland Saturation present? Yes X No Depth (inches): 0 hydrology present? Y Cincludes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	Drift Dep	oosits (B3)			Presenc	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) Water-Stained Leaves (B9) Other (Explain in Remarks) Field Observations: Other (Explain in Remarks) Surface water present? Yes No X Depth (inches): Water table present? Yes No X Depth (inches): Saturation present? Yes Yes X No Depth (inches): 0 Indicators of wetland hydrology present? Y Cincludes capillary fringe) Depth (inches): 0 Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:						ron Redu	ction in T	illed Soils	Geomor	phic Position (D2)
Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) Water-Stained Leaves (B9) Other (Explain in Remarks) Field Observations: Surface water present? Yes Surface water present? Yes No X Depth (inches): Indicators of wetland hydrology present? Yes X No Depth (inches): Saturation present? Yes X No Includes capillary fringe) Depth (inches): 0 hydrology present? Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:					(C6)				FAC-Neu	utral Test (D5)
Water-Stained Leaves (B9) Other (Explain in Remarks) Field Observations: Ves No X Depth (inches): Indicators of wetland hydrology present? Water table present? Yes No X Depth (inches): Indicators of wetland hydrology present? Y Saturation present? Yes X No Depth (inches): 0 Indicators of wetland hydrology present? Y (includes capillary fringe) Depth (inches): 0 0 Indicators of wetland hydrology present? Y Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Remarks:										
Field Observations: Surface water present? Yes No X Depth (inches): Indicators of wetland hydrology present? Water table present? Yes X No X Depth (inches): Indicators of wetland hydrology present? Y Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	Sparsely	Vegetated Conca	ve Surfac	ce (B8)	Gauge o	r Well Da	ata (D9)			
Surface water present? Yes No X Depth (inches): Indicators of wetland hydrology present? Water table present? Yes X No X Depth (inches): 0 Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Depth (inches): 0 0 hydrology present? Y Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Indicators of wetland hydrology present?	Water-S	tained Leaves (B9))	_	Other (E	xplain in	Remarks)			
Water table present? Yes No X Depth (inches): Indicators of wetland hydrology present? Y Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Indicators of wetland hydrology present? Y Remarks: Saturation present? Y Y Y Y	Field Obser	vations:								
Water table present? Yes No X Depth (inches): Indicators of wetland hydrology present? Y Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Y Y			Yes	No	Х	Depth (i	nches):			
Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Y Y Remarks: Remarks: Y Y Y Y									Inc	dicators of wetland
(includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:							-	0	h	ydrology present? Y
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	-					<u> </u>	,		• `	
Remarks:			m dauge	monitoring well	aerial nh	notos pre	evinus ind	spections) if	available [.]	
	Describe rec	שישבט טמומ (שוופמ	in yauye	, monitoring well,	aenai pi	10105, pre		speciions), II		
	Romarka:									
Antecedent precipitation conditions were determined "wetter than normal" (Appendix C).				no wore date		Vottor		mol" (^ =====	ndiv C)	
	Anteceder	it precipitation (Jonaitio	ns were determ	inea v	vellerti	ian nori	nai (Appe	nuix C).	

WETLAND DETERMIN	NATION D	ATA FORI	M - Midwe	st Regior	ו	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	ioux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D)akota	Sampling Point:	10U
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	nip, Range:	S27 T1	01N R49W
Landform (hillslope, terrace, etc.): backslope		Loca	l relief (conca	ave, conve	k, none):	Concave
Slope (%): 4 Lat: 43° 31' 3.164" N		Long:	96° 42' 27.1	65" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time c	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal circu	mstances"
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	d, explain any an	swers in remarks.)
Hydrophytic vegetation present? N						
Hydric soil present? N		Is the s	ampled are	a within a	wetland?	N
Indicators of wetland hydrology present? N		lf yes, c	ptional wetla	and site ID:	-	
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected adjacent to Wetland 10.	·P • · · ·)					
VEGETATION Use scientific names of plants.						
	Absolute	Dominant	Indicator	Domina	nce Test Worksh	eet
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status		of Dominant Spec	
1 '					OBL, FACW, or FA	
2				Total	Number of Domina	ant
3				Spee	cies Across all Stra	ta: <u> </u>
4					of Dominant Spec	
5				that are	OBL, FACW, or FA	AC: <u>50.00%</u> (A/B
	0 :	= Total Cove	r	Desuglar		
Sapling/Shrub stratun (Plot size: 15' Radius)				Total %	nce Index Works	neet
2				OBL spe		<1= 0
3				FACW s		$x^2 = 0$
4				FAC spe		(3 = 150
5				FACU sp		<pre>< 4 = 160</pre>
	0	= Total Cove	r	UPL spe	cies 10	x 5 = 50
Herb stratum (Plot size: 5' Radius)				Column	totals <u>100</u> ((A) <u>360</u> (B)
1 Setaria pumila Yellow Bristle Grass	50	Y	FAC	Prevaler	ice Index = B/A =	3.60
2 Fallopia convolvulus Black-Bindweed	30	Y	FACU			
3 Medicago lupulina Black Medick	10	<u>N</u>	FACU		nytic Vegetation	
4 Physalis virginiana Virginia Ground Cherry	10	<u> </u>	UPL		d test for hydroph	
5 <u></u> 6					inance test is >50 alence index is ≤3	
7						
8			·		phological adaptat orting data in Rer	
9					rate sheet)	
10				Prob	lematic hydrophyt	ic vegetation*
	100	= Total Cove	r	(exp		0
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and we	etland hydrology must be
1				р	resent, unless disturbe	
2				-	rophytic	
	0 :	= Total Cove	r	-	etation ent? N	
Remarks: (Include photo numbers here or on a separate sheet)				P.50		
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List:				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland I	Plant List, versi				
Engineers, Engineer Research and Development Center, Cold Regions Research	on and Enginee	ering Laborator	у, нanover, NH	, and BONAP		,
US Army Corps of Engineers					M	idwest Region

Profile Desc	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Redox Features						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ture	Remarks
0-12	10YR 3/3	100					Silty Loam	with rocks	
12+									Rocks
*Type: C = C	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location	: PL = Pore Lining, M = Matrix
	il Indicators:	•	,	,					ematic Hydric Soils:
-	tosol (A1)		San	dy Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			idy Redo		()			7) (LRR K, L)
Blac	ck Histic (A3)			pped Ma			5 cm	n Mucky Pea	t or Peat (S3) (LRR K, L, R)
Hyd	Irogen Sulfide (A4	.)	Loa	my Muck	ky Minera	l (F1)	Iron-	Manganese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)				ed Matrix		Very	Shallow Da	rk Surface (TF12)
2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)		Othe	er (explain in	remarks)
Dep	leted Below Dark	Surface	(A11) Rec	lox Dark	Surface	(F6)			
	ck Dark Surface (A	,	Dep	leted Da	rk Surfac	ce (F7)	*Indic	ators of hydr	ophytic vegetation and wetland
San	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydr	ology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:		,					Hydric	soil presen	t? N
Depth (inche	es):				•		-		
Remarks:									
HYDROLO									
-	drology Indicato								
Primary Indi	cators (minimum	of one is	required; check a	II that ap	<u>ply)</u>		<u>S</u>		dicators (minimum of two required)
	Water (A1)				Fauna (B	,	-		Soil Cracks (B6)
	iter Table (A2)				uatic Plan		、		e Patterns (B10)
Saturatio						Odor (C1	-		son Water Table (C2)
	arks (B1) nt Deposits (B2)			(C3)	Rnizospi	neres on	Living Roots		Burrows (C8) on Visible on Aerial Imagery (C9)
	oosits (B3)				e of Redu	iced Iron	(C4)		or Stressed Plants (D1)
	at or Crust (B4)						illed Soils		phic Position (D2)
-	osits (B5)			(C6)	ion noud		-		utral Test (D5)
	on Visible on Aeria	l Imagery	(B7)	Thin Mu	ck Surfac	e (C7)	-		
Sparsely	Vegetated Conca	ve Surfac	e (B8)	Gauge o	r Well Da	ta (D9)			
Water-S	tained Leaves (B9)	1		Other (E	xplain in I	Remarks)			
Field Obser	vations:								
Surface wate		Yes	No	Х	Depth (ii				
Water table		Yes	No	Х	Depth (ii				dicators of wetland
Saturation p		Yes	No	Х	Depth (ii	nches):		h	ydrology present? N
	pillary fringe)								
Describe rec	corded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious ins	spections), if a	available:	
Remarks:									
	t precipitation of	onditio	ne were determ	nined "V	Vottor th	an nor	nal" (Annor	div C)	
AIRECEUEI									

WETLAND DETERMIN	NATION D		/I - Midwe	st Regioi	n	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mi	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	10W
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	S27 T10	01N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ave, conve	x, none):	Concave
Slope (%): 2 Lat: 43° 31' 3.312" N		Long:	96° 42' 27.4	19" W	Datum: UTM I	NAD83 Zone 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classifica	tion:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (lf no, expla	in in remarks)	
Are vegetation , soil , or hydrology	-	y disturbed?	`	•	Are "normal circur	metances"
Are vegetation , soil , or hydrology	-	roblematic?			Ale normal circui	present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	wers 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? Y		lf yes, o	ptional wetla	nd site ID:	Wetland 10	
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected in Wetland 10.	. ,					
VEGETATION Use scientific names of plants.						
	Absolute	Dominant	Indicator	Domina	nce Test Workshe	eet
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status		of Dominant Specie	
1					OBL, FACW, or FA	
2				Total	Number of Domina	Int
3				Spe	cies Across all Strat	ta: <u> </u>
4					of Dominant Specie	
5				that are	OBL, FACW, or FA	C: <u>50.00%</u> (A/E
	0 =	= Total Cover		<u> </u>		
Sapling/Shrub stratun (Plot size: 15' Radius)					nce Index Worksh	leet
				OBL spe	Cover of: ecies 50 x	1 = 50
3				FACW s		2 = 50
4				FAC spe	·	3 = 15
5				FACU sp		4 = 80
	0	Total Cover		UPL spe		5 = 0
Herb stratum (Plot size: 5' Radius)				Column	totals 100 (/	A) <u>195</u> (B)
1 Typha latifolia Broad-Leaf Cat-Tail	40	Y	OBL	Prevaler	nce Index = B/A =	1.95
2 Nepeta cataria Catnip	20	Y	FACU			
3 Persicaria lapathifolia Dock-Leaf Smartweed	15	N	FACW	Hydroph	nytic Vegetation I	ndicators:
4 Eleocharis acicularis Needle Spike-Rush	10	<u>N</u>	OBL		id test for hydrophy	-
5 Hordeum jubatum Fox-Tail Barley	5	<u>N</u>	FAC		inance test is >50°	
6 Bidens frondosa Devil's-Pitchfork 7 Cyperus esculentus Chufa	5	<u> </u>	FACW	Prev	alence index is ≤3	.0^
7 Cyperus esculentus Chufa 8	5	<u>N</u>	FACW		phological adaptation	
9					oorting data in Rem arate sheet)	IAIKS OF OFFA
10					olematic hydrophyti	c vegetation*
	100	- Total Cover		(exp		e regetation
Woody vine stratum (Plot size: 30' Radius)				*Indicato	rs of hydric soil and we	tland hydrology must b
1					resent, unless disturbe	
2				-	rophytic	
	0 =	Total Cover		-	etation sent? Y	
Remarks: (Include photo numbers here or on a separate sheet)				pies		
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland I	Plant List, versio				
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH	, and BONAP		,
US Army Corps of Engineers					Mi	idwest Region

Depth (Inches)							r or confirm		· · · · · · · · · · · · · · · · · · ·
, ,	<u>Matrix</u>		Ree	dox Featu	ures				
	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ture	Remarks
0-10	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam	with rocks	
10-18	10YR 2/1	85	7.5YR 4/6	15	С	М	Silty Loam		
18-24	10YR 5/1	85	7.5YR 46	15	C	M	Silty Loam		
10-24	1018 5/1	60	7.31K 40	15	C	IVI	Silly Loam	WITHTOCKS	
*Turnet C = C	encontration D	- Dominiti		d Matrix		alkad Ca	and Crains	**L costion	DI - Dava Lining M - Matrix
	il Indicators:	= Depietio	on, RM = Reduce	u Matrix,		asked Sa			: PL = Pore Lining, M = Matrix ematic Hydric Soils:
•	osol (A1)		Sor		d Motrix	(84)			dox (A16) (LRR K, L, R)
	. ,				ed Matrix	(54)			(LRR K, L)
	ic Epipedon (A2) k Histic (A3)			idy Redo pped Ma				•	t or Peat (S3) (LRR K, L, R)
	. ,	1)		-				-	Masses (F12) (LRR K, L, R)
	rogen Sulfide (A4	-		•	ky Minera	. ,		-	
	tified Layers (A5))			ed Matrix	(FZ)			rk Surface (TF12)
	n Muck (A10)	Curtage		leted Ma	()			er (explain in	remarks)
	leted Below Dark		· · · ·		Surface	. ,			
	k Dark Surface (,	'		rk Surfac	()		•	ophytic vegetation and wetland
San	dy Mucky Minera	1 (51)	Rec	iox Depre	essions (F8)	hydr	ology must b	e present, unless disturbed or
									problematic
	_ayer (if observe	ed):							
Туре:					-		Hydric	soil presen	t? <u>Y</u>
Depth (inche	s):				-				
)GY drology Indicato	ors:							
-	drology Indicato		required; check a	Il that ap	ply)			Secondary Inc	licators (minimum of two required
Wetland Hyd Primary Indic	drology Indicato		required; check a	Aquatic	Fauna (B			-	<u>dicators (minimum of two require</u> Soil Cracks (B6)
Wetland Hyd Primary Indic Surface \ High Wat	drology Indicato cators (minimum Water (A1) ter Table (A2)		required; check a	Aquatic True Aqu	Fauna (B uatic Plan	its (B14)		Surface S	Soil Cracks (B6) Patterns (B10)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3)		required; check a	Aquatic True Aqu Hydroge	Fauna (B uatic Plan n Sulfide	its (B14) Odor (C1)	Surface S Drainage Dry-Seas	Soil Cracks (B6) Patterns (B10) son Water Table (C2)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1)		required; check a	Aquatic True Aqu Hydroge Oxidized	Fauna (B uatic Plan n Sulfide	its (B14) Odor (C1		Surface S Drainage Dry-Seas Crayfish	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2)		required; check a	Aquatic True Aqu Hydroge Oxidized (C3)	Fauna (B uatic Plan n Sulfide I Rhizospl	nts (B14) Odor (C1 heres on) Living Roots	Surface S Drainage Dry-Seas Crayfish Saturatio	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)		required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu	its (B14) Odor (C1 heres on iced Iron) Living Roots (C4)	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu	its (B14) Odor (C1 heres on iced Iron) Living Roots	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) Son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) Ohic Position (D2)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) posits (B5)	<u>of one is</u>		Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6)	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu	nts (B14) Odor (C1 heres on iced Iron ction in T) Living Roots (C4)	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria	<u>of one is</u> I Imagery	(B7)	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac	ts (B14) Odor (C1 heres on iced Iron ction in T e (C7)) Living Roots (C4)	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Wetland Hyd Primary Indio Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca	of one is I Imagery ive Surface	(B7)	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac or Well Da	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9)) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9	of one is I Imagery ive Surface	(B7)	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9)) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations:	of one is Il Imagery ive Surfac	(B7) e (B8)	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Muc Gauge o Other (E	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfac r Well Da xplain in I	tts (B14) Odor (C1 heres on uced Iron ction in T e (C7) tta (D9) Remarks)) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp	Soil Cracks (B6) Patterns (B10) Son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) Ohic Position (D2)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ Surface wate	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present?	of one is Il Imagery ive Surfac) Yes	(B7) == (B8) No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Muc Gauge o Other (E	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfac r Well Da xplain in l	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks) nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ Surface wate	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: or present?	of one is Il Imagery ive Surfac) Yes Yes	(B7) == (B8) No No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Muc Gauge o Other (E	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac or Well Da xplain in I Depth (i	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks) nches): nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Wetland Hyd Primary India Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ Surface wate Water table p	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: or present? oresent?	of one is Il Imagery ive Surfac) Yes	(B7) == (B8) No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Muc Gauge o Other (E	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfac r Well Da xplain in l	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks) nches): nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Wetland Hyd Primary India Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ Surface wate Water table p Saturation pr (includes cap	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present? bresent? resent? billary fringe)	of one is I Imagery Ive Surfac) Yes Yes Yes	(B7) = (B8) No X No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mud Gauge o Other (E X	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac or Well Da xplain in I Depth (i Depth (i	nts (B14) Odor (C1 heres on iced Iron ction in T e (C7) ita (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depc Inundatio Sparsely Water-St Field Observ Surface wate Water table p Saturation pr (includes cap	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present? bresent? resent? billary fringe)	of one is I Imagery Ive Surfac) Yes Yes Yes	(B7) == (B8) No No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mud Gauge o Other (E X	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac or Well Da xplain in I Depth (i Depth (i	nts (B14) Odor (C1 heres on iced Iron ction in T e (C7) ita (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu	Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
Wetland Hyd Primary Indic Surface V High Wat X Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St Field Observ Surface wate Water table p Saturation pr (includes cap Describe reco	drology Indicato cators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca ained Leaves (B9 vations: er present? oresent? oresent? oresent? orded data (streat	of one is I Imagery ive Surfac) Yes Yes Yes am gauge	(B7) = (B8) No X No	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Muc Gauge o Other (E X X aerial ph	Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfac or Well Da xplain in I Depth (ii Depth (ii	tts (B14) Odor (C1 heres on icced Iron ction in T e (C7) ita (D9) Remarks) nches): nches): nches):) Living Roots (C4) illed Soils	Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o X Geomorp X FAC-Neu Inc hy available:	Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9) or Stressed Plants (D1) ohic Position (D2) utral Test (D5)

Appendix B Site Photographs



Photo 1 Wetland 1 – Shallow Marsh



Photo 2 Wetland 1 – Shallow Marsh



Photo 3 Wetland 2 – Shallow Marsh



Photo 4 Wetland 2 – Shallow Marsh



Photo 5 Wetland 3 – Shallow Marsh



Photo 6 Wetland 3 – Shallow Marsh



Photo 7 Wetland 4 – Fresh (Wet) Meadow



Photo 8 Wetland 4 – Fresh (Wet) Meadow



Photo 9 Wetland 5 – Fresh (Wet) Meadow



Photo 10 Wetland 5 – Fresh (Wet) Meadow



Photo 11 Wetland 6 - Fresh (Wet) Meadow



Photo 12 Wetland 6 – Fresh (Wet) Meadow



Photo 13 Wetland 7 – Fresh (Wet) Meadow



Photo 14 Wetland 7 – Fresh (Wet) Meadow



Photo 15 Wetland 8 – Fresh (Wet) Meadow



Photo 16 Wetland 8 – Fresh (Wet) Meadow



Photo 17 Wetland 9 – Fresh (Wet) Meadow



Photo 18 Wetland 9 – Fresh (Wet) Meadow



Photo 19 Wetland 10 – Shallow Marsh



Photo 20 Wetland 10 – Shallow Marsh



Photo 21 Upland Sample Point (U-A)



Photo 22 Upland Sample Point (U-B)

Appendix C

Climate Summary Data

Field Visit Date: August 25, 2018

		Long-te	erm rainfall r	ecords					
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition: dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	September	1.84	2.93	3.54	7.32	3	Dry	3	9
2nd prior month*	August	1.86	3.01	3.64	5.33	3	Wet	2	6
3rd prior month*	July	1.46	2.58	3.15	4.94	3	Wet	1	3

*Monthly data prior to field date

Note: If sum is

6-9	then prior period has been
	drier than normal
10-14	then prior period has been

- normal
- 15-18 then prior period has been wetter than normal

Condition value: Dry =1 Normal =2 Wet =3 Sum

18

"Wet'

Appendix D

Hydrogeomorphic Functional Assessment Workbooks

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #1

	Variable	Data entered		Subindex
		wetland perimeter (feet):	2145.60	
	V _{GRASSCONT}	grassland along perimeter (feet):	2145.60	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	43.00	
		Point 2:	45.00	
		Point 3:	50.00	
		Point 4:	33.00	
u		Point 5	32.00	0.88
tio	V _{GRASSWIDTH}	Point 6:	50.00	
Vegetation	GRASSWIDTH	Point 7: Point 8:	50.00	
ee Be			50.00	
/e		Point 9:	50.00	
-		Point 10:	50.00	
		Point 11:	33.00	
		Point 12:	34.00	
		mean width (feet):	43.33	
		(see vegetation worksheet for species entered)		
		sum of species:	11.00	
	V _{VEGCOMP}	sum of C values:	9.00	0.14
		mean coefficient of conservatism:	0.82	
		FQI:	2.71	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
		mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	12.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V	sample 2:	2.00	0.05
	V _{SQI}	sample 3:	1.50	0.05
		sample 4:	2.00	
		average SQI score:	1.88	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches): 0.00		
		ADI for 4 samples:		
=		Sample 1 hue:	10.00	
Soil		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 hue:	10.00	
		value:	3.00	
	V _{SOM}	chroma:	2.00	0.23
	* SOM	ADI:	9.00	0.25
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		average ADI:	7.75	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.44	

2		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1398.00	
		elevation of the edge of the historic wetland:	1395.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1396.00	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	-2.00	
D O		depth of surface drainage invert:		
OD	V _{SUBOUT}	distance from WAA edge:		0.25
86	. 20001	location/spacing of subsurface tile within the WAA:		0.20
2		type & effect of surface alteration(s):		
vd .	X 7	% of historic catchment area still contributing runoff:		0.50
H	V _{SOURCE}	additions of water from other sources:		0.50
, (change in wetland regime class?		
		wetland perimeter (feet):	2145.60	
	V _{EDGE}	wetland area (acres):	0.91	1.00
	2202	Shoreline Development Index:	3.04	
		wetland area (acres):	0.91	
	V _{CATCHWET}	catchment area (acres):	8.00	1.00
		ratio of catchment size to wetland size:	8.79	
		total acre size of the present day catchment:	8.00	
		acres of catchment for each curve number:		
		98	8.00	
		90		
		79		
		77		
		72		
		75		
se	V _{UPUSE}	73		0.00
lu	• UPUSE	71		0.00
DU		72		
Landuse		74		
		69		
e		79		
de		74		
SC		69		
q		61		
Landscape &		weighted average score for upland land use:	98.00	
L		distance to nearest wetland(feet):	228.00	
		distance to 2nd nearest wetland:	261.00	
	V _{WETPROX}	distance to 3rd nearest wetland:	452.00	0.77
		distance to 4th nearest wetland:	634.00	
		distance to 5th nearest wetland:	671.00	
	X 7	mean distance (feet):	449.20	0.07
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07
-	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	41.00	0.18
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.16
2. Groundwater Recharge	0.18	0.17
3. Retain Particlulates	0.60	0.55
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.15
5. Plant Community Resilience and Carbon Cycling	0.15	0.14
6a. Provide Faunal Habitat	0.16	0.15
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.09

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #2

	Variable	Data entered		Subindex
		wetland perimeter (feet):	382.70	
	V _{GRASSCONT}	grassland along perimeter (feet):	382.70	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
u		Point 5:	31.00	0.87
tio	Vantagumm	V _{GRASSWIDTH} Point 6	34.00	
Vegetation	' GRASSWIDTH	Point 7:	37.00	0.07
<u>e</u>		Point 8:	50.00	
∕eå		Point 9:	50.00	
		Point 10:	16.00	
		Point 11:	47.00	
		Point 12:	50.00	
		mean width (feet):	42.92	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	VVEGCOMP	sum of C values:	0.00	0.00
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	•	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	18.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V	sample 2:	2.00	0.06
	V _{SQI}	sample 3:	2.00	0.00
		sample 4:	2.00	
		average SQI score:	2.00	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		*	sample 4: 0.00	
		Average Litter Depth (inches): 0.00		
		ADI for 4 samples:		
il		Sample 1 hue:	10.00	
Soil		value:	2.00	
•1		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	3.00	
	V _{SOM}	chroma:	1.00	0.32
	50M	ADI:	8.00	-
		Sample 3 hue:	10.00	-
		value:	2.00	-
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	-
		value:	2.00	-
		chroma:	1.00	-
		ADI:	6.00	-
		average ADI: Direct Measurements	6.50	-
		% organic carbon for 0-15cm depth:		
		% organic carbon for 0-15cm deptn: % organic carbon for 15-30cm depth:		
		mean percentage: % organic carbon:	1.74	
		% organic carbon:	1./4	

	74 69		
	74		
	71		
V _{UPUSE}			0.00
	72		
	79		
	90		
	98	2.10	
	acres of catchment for each curve number:		
V _{CATCHWET}	total acre size of the present day catchment:	2.10	
	ratio of catchment size to wetland size:	17.50	
	catchment area (acres):	2.10	1.00
	*		
▼ EDGE			1.00
Vener			1.00
		282 70	
SUURCE			
VSOUDCE	% of historic catchment area still contributing runoff:		0.50
	type & effect of surface alteration(s):		
	location/spacing of subsurface tile within the WAA:		
V _{SUBOUT}			1.00
	depth of surface drainage invert:		
	ratio of the constructed elevation to the natural outlet elevation:	-0.20	
		0.00	
	if evaluating pit or fill enter % volume of pit/fill vs wetland		
V _{OUT}	elevation of a representative deepest portion of the wetland:	1397.50	0.05
	elevation of the edge of the historic wetland:	1395.00	
	present (or constructed) invert elevation:	1398.00	
	historic invert elevation in relation to wetland maximum depth:	1395.00	
	V _{SUBOUT} V _{SOURCE} V _{EDGE} V _{CATCHWET}	Vour elevation of the edge of the historic wetland: elevation of a representative deepest portion of the wetland: if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0: ratio of the constructed elevation to the natural outlet elevation: depth of surface drainage invert: distance from WAA edge: location/spacing of subsurface tile within the WAA: location/spacing of subsurface tile within the WAA: type & effect of surface alteration(s): % of historic catchment area still contributing runoff: additions of water from other sources: change in wetland regime class? VEDGE wetland area (acres): change in wetland regime class? VEDGE wetland area (acres): change in wetland regime class? VEDGE wetland area (acres): change in wetland regime class? VEDGE wetland area (acres): catchment area (acres): catchment area (acres): catchment size to wetland size VUPUSE total acre size of the present day catchment: acres of catchment for each curve number: 72 0 79 71 72 72 73 74 74 75 74 76 79	Vorr present (or constructed) invert elevation: 1398.00 elevation of the edge of the historic wetland: 1395.00 Vorr elevation of a representative deepest portion of the wetland: 1397.50 if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0: ratio of the constructed elevation to the natural outlet elevation: depth of surface drainage invert: depth of surface drainage invert: location/spacing of subsurface tile within the WAA: type & effect of surface alteration(s): % of historic catchment area still contributing runoff: additions of water from other sources: change in wetland regime class? WEIGE VEDGE VEDGE VENCE VACATCHIVET CATCHIVET VUPUSE VUPUSE VUPUSE total acre size of the present day catchment: 2.10 neters of catchment for each curve number:

Function	FCI	FCU
1. Water Storage	0.18	0.02
2. Groundwater Recharge	0.18	0.02
3. Retain Particlulates	0.57	0.07
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.02
5. Plant Community Resilience and Carbon Cycling	0.15	0.02
6a. Provide Faunal Habitat	0.15	0.02
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.01

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #3

	Variable	Data entered		Subindex
		wetland perimeter (feet):	3186.10	
	V _{GRASSCONT}	grassland along perimeter (feet):	300.00	0.09
		percent continuity:	9.42	
		grassland width (feet) at 12 points:		
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
n		Point 5:	0.00	
tio	V _{GRASSWIDTH}	Point 6:	50.00	0.17
Vegetation	• GRASSWIDTH	Point 7:	0.00	0.17
<u>e</u>		Point 8:	0.00	
e.		Point 9:	50.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	8.33	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	VVEGCOMP	sum of C values:	8.00	0.19
		mean coefficient of conservatism:	1.60	
		FQI:	3.58	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	N7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	10.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	¥7	sample 2:	1.50	0.04
	V _{SQI}	sample 3:	2.00	0.04
		sample 4:	2.00	
		average SQI score:	1.75	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	1.00	
		sample 2:	1.00	
		sample 3:	2.00	
		sample 4:	2.00	
		Average Litter Depth (inches):	1.50	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
Soil		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 hue:	10.00	
		value:	3.00	
	V _{SOM}	chroma:	1.00	0.39
	* SOM	ADI:	8.00	0.39
		Sample 3 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI: 6.00		
		average ADI:	7.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.96	

Hydrogeomorphic V ² V ² V ²					
Value Value <t< td=""><td></td><td>historic invert elevation in relation to wetland maximum depth:</td><td>1395.00</td><td></td></t<>		historic invert elevation in relation to wetland maximum depth:	1395.00		
Value Value <t< td=""><td></td><td>present (or constructed) invert elevation:</td><td>1392.00</td><td></td></t<>		present (or constructed) invert elevation:	1392.00		
Value Value <t< td=""><td></td><td>elevation of the edge of the historic wetland:</td><td>1394.00</td><td></td></t<>		elevation of the edge of the historic wetland:	1394.00		
V _L V _{CAT}	V _{OUT}	elevation of a representative deepest portion of the wetland:	1392.00	0.05	
V _L V _{CAT}		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (av. $25\% - 25\%$), otherwise, enter 0:	0.00		
V _L V _{CAT}		(ex. 25%=25), otherwise enter 0:			
V _L V _{CAT}		ratio of the constructed elevation to the natural outlet elevation:	0.00		
V _L V _{CAT}		depth of surface drainage invert:			
V _L V _{CAT}	V _{SUBOUT}	distance from WAA edge:		1.00	
V _L V _{CAT}		location/spacing of subsurface tile within the WAA:			
V _L V _{CAT}		type & effect of surface alteration(s):			
V _L V _{CAT}	V _{SOURCE}	% of historic catchment area still contributing runoff: additions of water from other sources:		0.50	
V _{CAT}		change in wetland regime class?			
V _{CAT}		wetland perimeter (feet):	3186.10		
V _{CAT}	V _{EDGE}	wetland area (acres):	6.66	1.00	
Tanduse v _u	' EDGE	Shoreline Development Index:	1.67	1.00	
Tanduse v _u		wetland area (acres):	6.66		
Tanduse v _u	CATCHWET	catchment area (acres):	24.00	0.54	
	chronwbr	ratio of catchment size to wetland size:	3.60		
		total acre size of the present day catchment:	24.00		
		acres of catchment for each curve number:			
		98	98 24.00		
		90			
		79			
		77			
		72			
		75			
	V _{UPUSE}	73		0.00	
		71			
		72			
idscape &		74			
idscape		69 79			
idscap		74			
ndsc		69			
nd		61			
		weighted average score for upland land use:	98.00		
		distance to nearest wetland(feet):	297.00		
		distance to 2nd nearest wetland:	422.00		
V	7	distance to 3rd nearest wetland:	455.00	0.73	
V WE	WETPROX	distance to 4th nearest wetland:	508.00	0.73	
		distance to 5th nearest wetland:	756.00		
		mean distance (feet):	487.60		
V _{WE}			40.00	0.07	
V _B	WETAREA	acres of palustrine wetlands within a 1-mile radius:			
V _{HA}	V _{BASINS}	acres of palustrine wetlands within a 1-mile radius: number of palustrine wetlands within a 1-mile radius: miles of roads and linear attributes within a 1-mile radius:	41.00	0.18	
V _{WE} V _B	WETPROX	distance to 5th nearest wetland: mean distance (feet):	508.00 756.00 487.60		

Function	FCI	FCU
1. Water Storage	0.18	1.18
2. Groundwater Recharge	0.17	1.15
3. Retain Particlulates	0.32	2.14
4. Remove, Convert, and Sequester Dissolved Substances	0.12	0.82
5. Plant Community Resilience and Carbon Cycling	0.13	0.85
6a. Provide Faunal Habitat	0.14	0.94
6b. Provide Faunal Habitat (Alternate Formula)	0.11	0.71

		South D	akota R	iverine H	IGM Mo	odel, Ver	sion 1.1		
			Vari	able Sco	re Field	Form			
Field Offic	:e				Assessmen	n <mark>t Area ID. (</mark> i	f more than	one)	4
County		Minnehał	na County		Wetland ad	nent Area ID. (if more than one) 4 d acres (Pre-project) 0.16			16
Date		9/25/2018	3		Wetland ad	cres (Post-pr	oject)		
Producer/L	Landowner	South Da	kota DOT			Type of we	tland (fringe	e adjacent to	stream
Producer/Landowner South Dakota DOT Yellow flag? (Y/N) If Y, what?						channel, or	depressiona	l or linear o	n flood
Red flag? ((Y/N)		If Y, what?	•		plain)?			
Variable	ariable Measurement or Condition Results					Discu Ratio			le Score Post-proj.
v ar lable		hydrology (nuon Kesu		Kati	Jildie	ric proj.	r ost proj
		ns present (Y	1		N	1			
	If Y, wha	<u> </u>				1			
	(H _{fp}) pr	e-project			1	1			
V	(H _{fp}) po	ost-project				1		1.00	0.00
V _{hydalt}	Wetland hy	drology (H _w)					1.00	0.00
	Alteration	rations present (Y/N)?]			
	If Y, wha	t?]			
	(H _w) pr	(H _w) pre-project							
	(H _w) pc	st-project							
	Watershed alterations present? (Y/N)				Y				
V _{source}	Source If Y, what? Drain Tiles, culverts, stormy				cilities			0.50	0.00
	% of watershed area 80								
		pography (T							
		ns present? (Y/N)		N				
		t?							
		(pre)	0	(T_w) pre =	1				
V _{topog}		(post)		(Tw) post =				0.20	0.00
topog		Flood plain topography (T _{fp})							
		1s present? (у	4			
			Rip rap, tra	-	0.5	4			
		(pre)	40	$(T_{fp}) pre =$	0.5	4			
		(post) pland uses (3 movimum	$(T_{fp}) \text{ post} =$					
		ipianu uses (1)					
	nro	1 Index	0.1	% area	40	1			
		1 Index 2 Index	0.1	% area	40 30	1			
V _{upuse}	*	2 Index 3 Index	0.75	% area	30 30	1		0.57	#DIV/0!
		st1 Index	0.75	% area					
	*	t2 Index		% area		1			
		t3 Index		% area		1			
V _{detritus}	-	ckness (in.)-			0				
• detritus		l sediment ir		Y/N)	0 N				
	Accelerated	i seument II	i wettallu? (1/1N)	IN	J		I	I

	If Y, evidence?				
V _{sed}					
	Sediment thickness (in.)		0		
N7	Dominant soil texture in upper 18"		Sand Loam		
V _{som}	Dominant soil color (value) upper 12	,"	10YR 3/1		
	Soil pores observed F	ine			
V _{soil}	Soil structure Sub Angular	Blky			
	Rupture resistance F	⁷ irm			
	Pre-project				
	Buffer continuity (%)	100			
	Average buffer width (ft.)	60		0.24	
	Continuity/width rating (B ₁)		0.6	0.24	
	Buffer condition				
V	Condition rating (B ₂)		0.1		
V _{buffer}	Post-project				
	Buffer continuity (%)				
	Average buffer width (ft.)				0.00
	Continuity/width rating (B ₁)		0.00		
	Buffer condition				
	Condition rating (B ₂)				
	Woody species present in WAA? (Y/	′N)	Y		
V	(If N, score variable based on the her	baceous p	art.)		
V _{denhw}	Herbaceous density (%)		100%		
	Woody density (%, if applicable)		5%		
V	Native species present in wetland (%	of total			
V _{pratio}	dominants)		50%		
	Vegetative canopy coverage (%)		5		
V _{veg}	Number of vegetative strata present -		3		
veg	Deviation from normal (number of				
	be absent) Dominant use of wetland		0		
V _{wetuse}	Dominant use of wettand				

	S.D. RIV	ERINE HO	GM MODI	EL WORK	SHEET 1.	VER. 1.1	
Use this worl		ssional or linear					the ability to
		lands adjacent to					the doning to
DATE		09/25/18		OWNER/OPE		South Dakota I	ОГ
WETLAND IE		4				Field	201
OBSERVERS		Rebecca Beduh	n		YPE (NWI)		
CONDITIONS		Rebecca Dedui			YPE (FSA)	K205C	
PROJECT NA		PCN 05HN (I-2	\mathbf{D}	REMARKS	TFE (FSA)		
PLANNED AC		Roadway impro	,	KEWIAKKS			
		Roadway Impre	ovements	RED FLAG (Y			
YELLOW FLA	CRES (EXISTI	NG)	0.16		CRES (PREDIC	TED	0
WEILAND A	CRES (EAISTI				E) SCORING		0
		Variable	AL INDICES	(VARIADLI			Predicted
Varia Floor	1 Dlain/Watlan	d Hydrology A	Iterations		Existing 1.00		0.00
V hydalt - 11000	rshed Hydrolo	bgy Alterations	Therations		0.50		0.00
V source - wate	Diain/Watland	d Topographic	Complexity		0.30		0.00
V topog - F1000	d Use	a ropographic	Complexity		0.20		#DIV/0!
V _{upuse} - Uplar							
V _{detritus} - Detr		the Wetler 1			0.00		0.00
	ntation Within	the wetland			0.00		0.00
V _{som} - Soll Ol	rganic Matter				0.00		0.00
V _{soil} - Soil Po	rosity	1	XX7 1.1		0.00		0.00
V _{buffer} - Buffe	er Condition, C	Continuity, and	Width	· · · ·	0.24		0.00
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00
V _{pratio} - Ratio	of Native to N	Non-Native Pla	nt Species		0.00		0.00
V _{veg} - Vegeta	tive Strata and	Canopy Cove	rage		0.00		0.00
V _{wetuse} - Wetl	and Use				0.00		0.00
]	1			
	Fund	ction		Exi	sting	Prec	licted
		ction		FCI	FCU	FCI	FCU
1.0 Storage of				0.00	0.00	0.00	0.00
		face Water Flow	7	0.32	0.05	#DIV/0!	#DIV/0!
	d Release of Su			0.52	0.08	#DIV/0!	#DIV/0!
		nents and Comp		0.00	0.00	#DIV/0!	#DIV/0!
		nd Organic Mat	erials	0.12	0.02	#DIV/0!	#DIV/0!
6.0 Organic Ca				0.15	0.02	0.00	0.00
		lant Community		0.00	0.00	#DIV/0!	#DIV/0!
		e Within Wetlar		0.08	0.01	0.00	0.00
9.0 Maintains		onnect. Among	Wetlands	0.20	0.03	#DIV/0!	#DIV/0!
FUNCTION		E IN FCU's	MINIMAL EFFECT			IAL EFFECT I	
	NUMERICAL	%	(Y or N)	NET FUN	CTIONAL LOS	S OF 10 TO 20	PERCENT
1.0	0.00	#DIV/0!	#DIV/0!				
2.0	#DIV/0!	#DIV/0!	#DIV/0!				
3.0	#DIV/0!	#DIV/0!	#DIV/0!				
4.0	#DIV/0!	#DIV/0!	#DIV/0!				
5.0	#DIV/0!	#DIV/0!	#DIV/0!				
6.0	-0.02	-100.00%	No				
7.0	#DIV/0!	#DIV/0!	#DIV/0!				
8.0	-0.01	-100.00%	No				
9.0	#DIV/0!	#DIV/0!	#DIV/0!				

S.D. R	RIVERINE H	GM MODI	EL WORK	SHEET 2,	VER. 1.1					
Use this worksheet for wetlands that are adjacent and parallel to the channel and that lack the ability to store surface										
water. For depressional	l and linear wetlands	with the ability	to store surface	water, use wor	ksheet 1.					
DATE	09/25/18		OWNER/OPE	RATOR	South Dakota I	DOT				
WETLAND ID	4		ASSESSMEN'	Т ТҮРЕ						
OBSERVERS			WETLAND T	YPE (NWI)						
CONDITIONS				YPE (FSA)						
PROJECT NAME			REMARKS							
PLANNED ACTIVITY										
YELLOW FLAG (Y/N) -			RED FLAG (Y	(/N)						
WETLAND ACRES (EX		0.16		CRES (PREDIO	CTED)	0				
	,	AL INDICES								
	Variable		()	Existing		Predicted				
V _{hydalt} - Flood Plain/We		Alterations		1.00		0.00				
V _{source} - Watershed Hyd	drology Alteration	S		0.50		0.00				
V _{topog} - Flood Plain/We	tland Topographic	Complexity		0.20		0.00				
V _{upuse} - Upland Use	<u></u>	1		0.57		#DIV/0!				
V _{detritus} - Detritus				0.00		0.00				
V_{sed} - Sedimentation W	ithin the Wetland			0.00		0.00				
V _{som} - Soil Organic Ma	tter			0.00		0.00				
V _{soil} - Soil Porosity				0.00		0.00				
V _{soil} - Buffer Condition	on Continuity and	Width		0.24		0.00				
V_{denhw} - Density of Pere	ennial Herbaceous	and Woody V	egetation	0.24		0.00				
V _{denhw} - Density of Pere V _{pratio} - Ratio of Native	to Non Nativa Pla	and woody v	egetation	0.00		0.00				
V _{pratio} - Katio of Inative	and Conony Cove									
V _{veg} - Vegetative Strata V _{wetuse} - Wetland Use	and Canopy Cove	rage		0.00 0.00		0.00 0.00				
		ONIAL CADA								
CALCULAI	TION OF FUNCTI	UNAL CAPA								
	Function			sting		licted				
10.0			FCI	FCU	FCI	FCU				
1.0 Storage of Surface W			0.22	0.05						
2.0 Velocity Reduction o		Ŵ	0.32	0.05	#DIV/0!	#DIV/0!				
3.0 Storage and Release of		1	0.52	0.08	#DIV/0!	#DIV/0!				
4.0 Removal of Imported			0.00	0.00	#DIV/0!	#DIV/0!				
5.0 Retention of Particula		terials	0.12	0.02	#DIV/0!	#DIV/0!				
6.0 Organic Carbon Expo			0.15	0.02	0.00	0.00				
7.0 Maintains Characteris			0.00	0.00	#DIV/0!	#DIV/0!				
8.0 Maintains Habitat Str			0.08	0.01	0.00	0.00				
9.0 Maintains Hab. Str. a			0.20	0.03	#DIV/0!	#DIV/0!				
	NGE IN FCU's	MINIMAL EFFECT			AL EFFECT I					
NUMERI	CAL %	(Y or N)	NET FUN	CTIONAL LOS	S OF 10 TO 20	PERCENT				
1.0										
2.0 #DIV/0		#DIV/0!				1.40				
3.0 #DIV/0		#DIV/0!				0.22				
4.0 #DIV/0		#DIV/0!								
5.0 #DIV/0		#DIV/0!								
6.0 -0.02		No								
7.0 #DIV/0		#DIV/0!								
8.0 -0.01		No								
9.0 #DIV/0	0! #DIV/0!	#DIV/0!								

		South D	Dakota R	iverine H	IGM Mo	odel, Ver	sion 1.1		
			Vari	able Sco	re Field	Form			
Field Offic	:e				Assessmen	nt Area ID. (i	if more than	one)	5
County		Minnehał	na County		Wetland ad	ment Area ID. (if more than one) nd acres (Pre-project) 0.2			.2
Date		9/25/2018	3		Wetland ad	cres (Post-pr	oject)		
Producer/L	Landowner	South Da	kota DOT			Type of we	tland (fringe	e adjacent to	stream
						channel, or	depressiona	ll or linear o	n flood
Red flag? ((Y/N)		If Y, what?	•		plain)?			
Variable	ariable Measurement or Condition Results						ssion/ onale		le Score Post-proj.
		hydrology (
		ns present (Y	1		N	1			
	If Y, wha	t?				1			
	(H _{fp}) pr	e-project			1	1			
V	(H _{fp}) po	ost-project				1		1.00	0.00
V _{hydalt}	Wetland hy	drology (H _w	,)					1.00	0.00
	Alteration	ations present (Y/N)?			N				
	If Y, wha	t?							
	(H _w) pr	e-project			1				
	(H _w) post-project								
		alterations p		-	Y				
V _{source}				Stormwater f	acilities			0.50	0.00
		ershed area -							
		ography (T							
		ns present? (Y				
		t?							
		(pre)	30	(T_w) pre =	1				
V _{topog}		(post)		(Tw) post =				0.50	0.00
tobo8		Flood plain topography (T _{fp}) Alterations present? (Y/N)							
					Y	4			
			Rip rap, tra	-	0.5	-			
		(pre)	40	(T_{fp}) pre =	0.5	-			
		% of area (post) (T _{fp}) post = Dominant upland uses (3 maximum)							
		ipianu uses (1)					
	nro	1 Index	0.1	% area	40	1			
		1 Index 2 Index	0.1	% area	40 30	1			
V _{upuse}	x	2 Index 3 Index	0.75	% area	30 30	1		0.57	#DIV/0!
•	*	st1 Index	0.75	% area	- 30	1			
	*	t2 Index		% area		1			
		t3 Index		% area		1			
V	-	ckness (in.)-			0				
V _{detritus}		l sediment ir							
	Accelerated	seument fr		1/1N)	N	J		I	I

If Y, evidence? 0 Sediment thickness (in.) 0 Dominant soil texture in upper 18 Silty Loam Dominant soil texture in upper 18 With Second Control Soil pores observed Fine Soil pores observed Fine Soil structure Sub Angular Blky Rapture resistance Firm Buffer continuity (%) 50 Average buffer width (ft.) 30 Vouffer Ontion arting (B ₁) Continuity (%) 0.1 Suffer continuity (%) 0.1 Continuity (%) 0.1 Marcage buffer width (ft.) 0.1 Continuity (%) 0.1 Marcage buffer width (ft.) 0.1 Continuity (%) 0.1 Marcage buffer width (ft.) 0.1	
Vsom Dominant soil texture in upper 18" Silty Loam Dominant soil color (value) upper 12" 10YR 2/2 Vsoil Soil pores observed Fine Soil structure	
Vsom Dominant soil texture in upper 18" Silty Loam Dominant soil color (value) upper 12" 10YR 2/2 Soil pores observed Fine Soil structure Sub Angular Blky Rupture resistance Firm Buffer continuity (%) 50 Average buffer width (ft.) 30 Continuity/width rating (B1) 0.1 Vbuffer Condition Condition rating (B2) 0.1 Post-project Buffer continuity (%) Buffer continuity (%) 0.1 Vbuffer Continuity/width rating (B1) Rupture resistance 0.1 Post-project Buffer continuity (%)	
Dominant soli color (value) upper 12 [10 YR 2/2] 0 0 Soil pores observed Fine Soil structure Sub Angular Blky 0 Rupture resistance Firm Firm 0 Buffer continuity (%) 50 0 0.14 Continuity/width rating (B ₁) 0.2 0.14 0.14 Buffer continuity (%) 0.2 0.1 0.14 Buffer continuity (%) 0.1 0.1 0.14 Continuity/width rating (B ₂) 0.1 0.1 0.14 Muffer continuity (%) 0.1 0.1 0.14 Suffer continuity (%) 0.1 0.1 0.14 Muffer continuity (%) 0.1 0.1 0.14 Vegetarize spresent in WAA? (Y/N) 1 0.1 0.14 Woody species present in WAA? (Y/N) 1 N 0.1 Mufter species present in WAA? (Y/N) N N 0.1 (If N, score variable based on the herbaceous part.) Herbaceous density (%) 0% N Woody species present in wetland (% of total 0% 0% 100% Vegetarize canopy coverage (%) 0% 0% 100% 10% Vegetarize canopy cov	
Vsoil Soil structure Sub Angular Blky Rupture resistance Firm Buffer continuity (%) 50 44 Average buffer width (ft.) 30 0.14 Average buffer width (ft.) 30 0.14 Buffer continuity/width rating (B ₁) 0.2 0.14 Buffer condition 0.2 0.14 Buffer condition 0.1 Continuity/width rating (B ₂) 0.1 Average buffer width (ft.) 0.1 Average buffer width (ft.) 0.1 Average buffer width (ft.)	
Rupture resistanceFirmIndexIndexBuffer continuity (%)50Average buffer width (ft.)300.14Average buffer width (ft.)300.20.14Buffer condition rating (B_1)0.20.140.14Condition rating (B_2)0.10.140.14Muffer continuity (%)0.10.140.14Buffer condition rating (B_2)0.10.140.14Muffer continuity (%)0.10.140.14Muffer continuity (%)0.10.140.14Muffer continuity (%)0.140.140.14Muffer continuity (%)0.140.140.14Muffer continuity (%)000Muffer condition rating (B_1)0%0%Muffer condition rating (B_2)100%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)100%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)100%0%Muffer condition rating (B_2)100%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)10%0%Muffer condition rating (B_2)0%0%Muffer condition rating (B_2)10%0%Muffer condition rating (B_2)10%0%Muffer conditi	
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Dominant use of wetland	
V _{wetuse}	

	S.D. RIV	ERINE HO	GM MODI	EL WORK	SHEET 1,	VER. 1.1	
Use this work	sheet for depre	ssional or linear	wetlands that a	re disconnected	from the chan	el and that have	the ability to
	-	lands adjacent to					2
DATE		09/25/18				South Dakota I	DOT
WETLAND ID		5				Field	
OBSERVERS		Rebecca Beduh	n	WETLAND T	YPE (NWI)	R2USC	
CONDITIONS					YPE (FSA)		
PROJECT NA	ME	PCN 05HN (I-2	229 Exit 4)	REMARKS		•	
PLANNED AC	TIVITY	Roadway impro	ovements				
YELLOW FLA	AG (Y/N)	• •		RED FLAG (Y	(/N)		
WETLAND A	CRES (EXISTI	NG)	0.2	WETLAND A	CRES (PREDIC	CTED)	0
		FUNCTION	AL INDICES	(VARIABL)	E) SCORING		
		Variable			Existing		Predicted
V _{hydalt} - Flood	<mark>l Plain/Wetlan</mark>	d Hydrology A	Iterations		1.00		0.00
V _{source} - Wate	rshed Hydrolo	gy Alterations			0.50		0.00
V _{topog} - Flood	Plain/Wetland	d Topographic	Complexity		0.50		0.00
V _{upuse} - Uplan	ld Use				0.57		#DIV/0!
V _{detritus} - Detr	itus				0.00		0.00
V _{sed} - Sedime	ntation Within	the Wetland			0.00		0.00
V _{som} - Soil Or	ganic Matter				0.00		0.00
V _{soil} - Soil Poi	rosity				0.00		0.00
V _{buffer} - Buffe	r Condition, C	Continuity, and	Width		0.14		0.00
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00
V _{pratio} - Ratio	of Native to N	Non-Native Pla	nt Species		0.00		0.00
V _{veg} - Vegetat	tive Strata and	Canopy Cove	rage		0.00		0.00
V _{wetuse} - Wetla	and Use				0.00		0.00
]	1			
	Fun	ction		Exi	sting	Prec	licted
	1 ⁻ uno			FCI	FCU	FCI	FCU
1.0 Storage of	Surface Water			0.00	0.00	0.00	0.00
2.0 Velocity R	eduction of Sur	face Water Flow	1	0.37	0.07	#DIV/0!	#DIV/0!
	d Release of Su			0.52	0.10	#DIV/0!	#DIV/0!
4.0 Removal o	f Imported Elen	nents and Comp	ounds	0.00	0.00	#DIV/0!	#DIV/0!
		nd Organic Mat	erials	0.16	0.03	#DIV/0!	#DIV/0!
6.0 Organic Ca				0.19	0.04	0.00	0.00
		lant Community		0.00	0.00	#DIV/0!	#DIV/0!
		e Within Wetlar		0.08	0.02	0.00	0.00
9.0 Maintains		onnect. Among		0.24	0.05	#DIV/0!	#DIV/0!
FUNCTION		IN FCU's	MINIMAL EFFECT		ION OF MININ		
	NUMERICAL	%	(Y or N)	NET FUN	CTIONAL LOS	S OF 10 TO 20	PERCENT
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2.0	#DIV/0!	#DIV/0!	#DIV/0!				
3.0	#DIV/0!	#DIV/0!	#DIV/0!				
4.0	#DIV/0!	#DIV/0!	#DIV/0!				
5.0	#DIV/0!	#DIV/0!	#DIV/0!				
6.0	-0.04	-100.00%	No				
7.0	#DIV/0!	#DIV/0!	#DIV/0!				
<u>8.0</u> 9.0	-0.02 #DIV/0!	-100.00% #DIV/0!	No #DIV/0!				

Use this worksheet for wetlands that are adjacent and parallel to the channel and that lack the ability to store surface water, use worksheet 1. DATE	cted 0 0					
water. For depressional and linear wetlands with the ability to store surface water, use worksheet 1. DATE 09/25/18 OWNER/OPERATOR South Dakota DOT WETLAND ID. 5 ASSESSMENT TYPE South Dakota DOT OBSERVERS WETLAND TYPE (NWI) ASSESSMENT TYPE South Dakota DOT CONDITIONS WETLAND TYPE (NWI) WETLAND TYPE (FSA) PROJECT NAME PLANNED ACTIVITY RED FLAG (Y/N) WETLAND ACRES (PREDICTED) TO WETLAND ACRES (EXISTING) 0.2 WETLAND ACRES (PREDICTED) TO WETLAND ACRES (EXISTING) 0.2 WETLAND ACRES (PREDICTED) OC Vertuand - Flood Plain/Wetland Hydrology Alterations 0.50 0.00 Voater Variable Existing Predi Verge - Flood Plain/Wetland Topographic Complexity 0.50 0.00 Verge - Sedimentation Within the Wetland 0.00 0.00 0.00 Verd - Soil Organic Matter 0.00 0.00 0.00 Verd - Soil Porosity 0.00 0.00 0.00 Verd - Soil Organic Matter 0.00 0.00 0.00 Verd - Soil Porosity 0.00 0.00 0.00 0	cted 0 0					
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6.0 Organic Carbon Export 0.19 0.04 0.00 0.0	0					
7.0 Maintains Characteristic Plant Community 0.00 #DIV/0! #DIV	//0!					
8.0 Maintains Habitat Structure Within Wetland 0.08 0.02 0.00 0.0						
9.0 Maintains Hab. Str. and Connect. Among Wetlands 0.24 0.05 #DIV/0! #DIV	//0!					
FUNCTION CHANGE IN FCU'S MINIMAL EFFECT JUSTIFICATION OF MINIMAL EFFECT IF THER	E IS A					
NUMERICAL % (Y or N) NET FUNCTIONAL LOSS OF 10 TO 20 PERCE						
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6.0 -0.04 -100.00% No	1.55					
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8.0 -0.02 -100.00% No	1.55					
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USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #6

	Variable	Data entered		Subindex
		wetland perimeter (feet):	803.90	
	V _{GRASSCONT}	grassland along perimeter (feet):	803.90	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	15.00	
		Point 2:	15.00	
		Point 3:	15.00	
		Point 4:	30.00	
u		Point 5:	19.00	
tic	Point 6:	33.00	0.48	
Vegetation	GRASSWIDTH	Point 7:	48.00	0110
ge		Point 8:	10.00	
/e		Point 9:	20.00	
		Point 10:	50.00	
		Point 11:	15.00	
		Point 12:	15.00	
		mean width (feet):	23.75	
		(see vegetation worksheet for species entered)		
		sum of species:	1.00	
	VVEGCOMP	sum of C values:	0.00	0.00
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	N 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	12.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	sample 2:		2.00	0.04
	V _{SQI}	sample 3:	1.50	0.04
	sample 4:	2.00		
		average SQI score:	1.75	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
Soil		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
	V _{SOM}	Sample 2 hue:	10.00	
		value:	3.00	
		chroma:	1.00	0.21
	· SOM	ADI:	8.00	0.21
		Sample 3 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 4 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI: 8.00		
		average ADI:	8.00	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.35	

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Vorr elevation of the edge of the historic wetland: 1395.00 Vorr elevation of a representative deepest portion of the wetland: 1397.00 0.05 if evaluating pi or fill, entre % volume of pit/fill vs. wetland 0.00 0.00 ratio of the constructed elevation to the natural outlet elevation: 0.00 0.00 Vsubour depth of surface drainage invert: 0.00 Vsubour distance from WAA edge: 0.25 Vsubour % of historic cultarition the wath from other sources: 0.50 change in wetland period entration (prime class); 0.50 0.50 Vence % of historic cultarition of water from other sources: 0.50 wetland period carbinest reference: 80.3.90 0.50 Vence Shoreline Development Index: 2.49 Wetland period carbinest reference: 80.3.90 0.98 Vence intoir carbinest reference: 1.10 0.98 Vence intoir carbinest reference: 1.10 0.98 Vence intoir carbinest reference: 1.10 0.98 Vence intoir carbinest reference:			historic invert elevation in relation to wetland maximum depth:	1395.00	
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		V			0.07
			*		
			*		
V _{HABFRAG} miles of roads and linear attributes within a 1-mile radius: 29.00 0.00					

Function	FCI	FCU
1. Water Storage	0.18	0.03
2. Groundwater Recharge	0.19	0.04
3. Retain Particlulates	0.51	0.10
4. Remove, Convert, and Sequester Dissolved Substances	0.15	0.03
5. Plant Community Resilience and Carbon Cycling	0.14	0.03
6a. Provide Faunal Habitat	0.15	0.03
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.02

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #7

	Variable	Data entered		Subindex
		wetland perimeter (feet):	1332.00	
	V _{GRASSCONT}	grassland along perimeter (feet):	1300.00	0.98
		percent continuity:	97.60	
		grassland width (feet) at 12 points:		
		Point 1:	35.00	
		Point 2:	25.00	
		Point 3:	16.00	
		Point 4:	13.00	
u		Point 5:	22.00	
tic	V _{GRASSWIDTH}	Point 6:	24.00	0.60
Vegetation	GRASSWIDTH	Point 7:	35.00	0.000
ge		Point 8:	39.00	
Ve		Point 9:	50.00	
		Point 10:	37.00	
		Point 11:	30.00	
		Point 12:	26.00	
		mean width (feet):	29.33	
		(see vegetation worksheet for species entered)		
		sum of species:	6.00	2.24
	V _{VEGCOMP}	sum of C values:	3.00	0.04
		mean coefficient of conservatism:	0.50	
		FQI:	1.22	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	X 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes	e Potholes	
		mean depth to B horizon (inches):	12.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	sample 2:		1.50	0.03
	V _{SQI}	sample 3:	1.50	0.05
	sample 4:	2.00		
		average SQI score:	1.63	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
=		Sample 1 hue:	10.00	
Soil		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 hue:	10.00	
	V _{SOM}	value:	3.00	
		chroma:	1.00	0.16
	* SOM	ADI:	8.00	0.10
		Sample 3 hue:	10.00	
		value:	3.00	
		chroma:	2.00	
		ADI:	9.00	
		Sample 4 hue:	10.00	
		value:	3.00	
		chroma:	2.00	
		ADI: 9.00		
		average ADI:	8.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.21	

Vorr historic invert clevation in relation to wetland maximum deph: 1395.00 Vorr ifevation of the edge of the historic wetland: 1395.00 elevation of the edge of the historic wetland: 1395.00 0.05 if evaluating pit or fill, enter % volume of pit/fill vs. wetland: 0.00 0.05 rif evaluating pit or fill, enter % volume of pit/fill vs. wetland: 0.00 0.05 Vstnoor distance from WAA edge: 0.25 Vstnoor ideation/spacing of subsurface this within the WAA: 0.25 vstnoor wetland primedric (fice): 0.320 Vstnoor distance from WAA edge: 0.50 vstnoor wetland primedric (fice): 0.50 Vstnoor wetland primedric (fice): 0.50 Vstnoor store size of the present day catchement: 2.30 Vstnoor wetland area (acres): 0.75 Vstnoor store size of the present day catchement: 2.30 Vstnowr catchement for each curve number: 2.30 wetland area (acres): 0.75 0.75 Vstnowr catchement for each curve number:					
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PUPP VIEWERN Provide number of participants within a limit of the sense within d line discovery within a line radius within a line radi			elevation of the edge of the historic wetland:	1395.00	
OTO (ex. 25%=25), otherwise enter 0; 0.00 ratio of the constructed elevation to the natural outlet elevation; -1.00 depth of surface drainage invert: 0.25 Vscnorr idiatance from WAA edge; 0.25 Vscnorr idiatance from WAA edge; 0.25 Vscnorr % of historic cathement area still contributing runof); 0.50 Vscnorr % of historic cathement area still contributing runof); 0.50 Vscnorr % of historic cathement area still contributing runof); 0.50 Vscnorr % of historic cathement area still contributing runof); 0.50 Vscnorr welland perimeter (lext); 1332.00 Vscnorr welland area (area;); 0.75 Vscore ShoreTine Development Index; 2.30 Vscore areas of cathment area (areas); 2.30 90		V _{OUT}	elevation of a representative deepest portion of the wetland:	1396.50	0.05
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$ V_{WETPROX} \begin{bmatrix} distance to 3rd nearest wetland: 145.00 \\ distance to 4th nearest wetland: 452.00 \\ distance to 5th nearest wetland: 468.00 \\ \hline \\$					
VWETPROX distance to 4th nearest wetland: 452.00 distance to 5th nearest wetland: 468.00 mean distance (feet): 253.40 VWETAREA acres of palustrine wetlands within a 1-mile radius: 40.00 0.07 VBASINS number of palustrine wetlands within a 1-mile radius: 41.00 0.18		Vwetprox			
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Mathematical mean distance (feet):253.40Vwetareaacres of palustrine wetlands within a 1-mile radius:40.000.07VBASINSnumber of palustrine wetlands within a 1-mile radius:41.000.18					
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		V WETAREA	*		
V miles of reads and linear attributes within a 1 mile and linear 0.00 V 0.00			*		
V HABFRAG Innes of roads and linear auributes within a 1-mile radius: 29.00 0.00		V_{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.13
2. Groundwater Recharge	0.18	0.13
3. Retain Particlulates	0.53	0.40
4. Remove, Convert, and Sequester Dissolved Substances	0.15	0.11
5. Plant Community Resilience and Carbon Cycling	0.14	0.10
6a. Provide Faunal Habitat	0.15	0.12
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.07

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #8

	Variable	Data entered		Subindex
		wetland perimeter (feet):	1851.00	
	V _{GRASSCONT}	grassland along perimeter (feet):	1851.00	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	44.00	
		Point 2:	50.00	
		Point 3:	45.00	
		Point 4:	50.00	
u		Point 5:	50.00	
tio	V _{GRASSWIDTH}	50.00	0.91	
tat		50.00		
ge		50.00		
/ea			50.00	
-		Point 10:	16.00	
		Point 11:	43.00	
		Point 12:	40.00	
		mean width (feet):	44.83	
		(see vegetation worksheet for species entered)		
		sum of species:	7.00	
	VVEGCOMP	sum of C values:	8.00	0.15
		mean coefficient of conservatism:	1.14	
		FQI:	3.02	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.50	0.50
	RECHARGE	Eastern Prairie Potholes		
		mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
	F	mean depth to B horizon (inches):	18.00	
		SQI scores for 4 samples:		
	F	sample 1:	2.00	
	T 7	sample 2:	2.00	0.05
	V _{SQI}	v _{sQI} sample 3:	2.00	0.05
	-	sample 4:	1.50	
	average SQI score:	1.88		
		Indirect Measurements		
	Γ	Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
	Average Litter Depth (inches):0.00ADI for 4 samples:			
		ADI for 4 samples:		
I		Sample 1 hue:	10.00	
Soil		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		*		
	V _{SOM}	chroma:	2.00	0.31
	· SOM	ADI:	7.00	0.01
		Sample 3 hue:	10.00	
		value:	2.00	
	L L	chroma:	2.00	
	L L L	ADI:	7.00	
	L L L	Sample 4 hue:	10.00	
	L L L	value:	2.00	
	L L L	chroma:	1.00	
	L L L	ADI:	6.00	
	L L L	average ADI:	6.50	
	Ļ	Direct Measurements		
	Ļ	% organic carbon for 0-15cm depth:		
	Ļ	% organic carbon for 15-30cm depth:		
	ļ	mean percentage:		
		% organic carbon:	1.71	

		=		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1394.00	
		elevation of the edge of the historic wetland:	1395.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1394.00	0.05
2		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
hi		(ex. 25%=25), otherwise enter 0:		
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	0.00	
m		depth of surface drainage invert:		
e0	V _{SUBOUT}	distance from WAA edge:		0.25
g		location/spacing of subsurface tile within the WAA:		
dr		type & effect of surface alteration(s):		
l A	V _{SOURCE}	% of historic catchment area still contributing runoff:		0.50
H	Social	additions of water from other sources:		
		change in wetland regime class?	1051.00	
	X 7	wetland perimeter (feet):	1851.00	1.00
	V _{EDGE}	wetland area (acres):	1.30	1.00
		Shoreline Development Index:	2.19	
	17	wetland area (acres):	1.30	0.24
	V _{CATCHWET}	catchment area (acres):	3.40	0.34
		ratio of catchment size to wetland size:	2.62	
		total acre size of the present day catchment:	3.40	
		acres of catchment for each curve number:	2.40	
		98 90	3.40	
		77		
		72		
		72		
e		73		
SIL	V _{UPUSE}	71		0.00
pu		72		
Landuse		72		
		69		
Š		79		
pe		74		
caj		69		
lse		61		
Landscape &		weighted average score for upland land use:	98.00	
La		distance to nearest wetland(feet):	89.00	
		distance to 2nd nearest wetland:	89.00	
	V _{WETPROX}	distance to 3rd nearest wetland:	109.00	1.00
	• WETPROX	distance to 4th nearest wetland:	205.00	1.00
		distance to 5th nearest wetland:	300.00	
		mean distance (feet):	158.40	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	41.00	0.18
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00
	ALL ALL			

Function	FCI	FCU
1. Water Storage	0.18	0.23
2. Groundwater Recharge	0.17	0.22
3. Retain Particlulates	0.61	0.79
4. Remove, Convert, and Sequester Dissolved Substances	0.17	0.22
5. Plant Community Resilience and Carbon Cycling	0.16	0.20
6a. Provide Faunal Habitat	0.16	0.21
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.14

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #9

	Variable	Data entered		Subindex
		wetland perimeter (feet):	247.50	
	V _{GRASSCONT}	grassland along perimeter (feet):	247.50	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
u		Point 5:	50.00	
tio	V _{GRASSWIDTH} Point 6: Point 7: Point 8: Point 9: Point 10: Point	50.00	0.94	
Vegetation			50.00	0.71
Be		50.00		
/e			50.00	
			29.00	
		Point 11:	30.00	
		Point 12:	46.00	
		mean width (feet):	46.25	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	VVEGCOMP	sum of C values:	1.00	0.00
		mean coefficient of conservatism:	0.20	
		FQI:	0.45	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	X 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	8.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	X7	sample 2:	1.50	0.04
	V _{SQI}	V _{SQI} sample 2:	2.00	0.04
		sample 4:	2.00	
	average SQI score	1.75		
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
Soil		value:	3.00	
		chroma:	2.00	
		ADI:	9.00	
		Sample 2 hue:	10.00	
		value:	3.00	
	V _{SOM}	chroma:	1.00	0.19
	* SOM	ADI:	8.00	0.19
		Sample 3 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 4 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		average ADI:	8.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.30	

	historic invert elevation in relation to wetland maximum depth:	1395.00	
	present (or constructed) invert elevation:	1398.00	
	elevation of the edge of the historic wetland:	1395.00	
V _{OUT}	elevation of a representative deepest portion of the wetland:	1398.00	0.05
	if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
nic	(ex. 25%=25), otherwise enter 0:	0.00	
V _{SUBOUT} V _{SUBOUT}	ratio of the constructed elevation to the natural outlet elevation:	0.00	
n n n	depth of surface drainage invert:		
V _{SUBOUT}	distance from WAA edge:		1.00
<u> </u>	location/spacing of subsurface tile within the WAA:		
dre	type & effect of surface alteration(s):		
V _{SOURCE}	% of historic catchment area still contributing runoff:		0.50
H	additions of water from other sources:		
	change in wetland regime class?	247 50	
V	wetland perimeter (feet):	247.50	1.00
V _{EDGE}	wetland area (acres):	0.01	1.00
	Shoreline Development Index:	3.35 0.01	
V _{CATCHWE}	wetland area (acres): catchment area (acres):	2.50	1.00
• CATCHWE	ratio of catchment size to wetland size:	250.00	1.00
	total acre size of the present day catchment:	2.50	
	acres of catchment for each curve number:	2.30	
	98	2.50	
	90	2.50	
	79		
	77		
	72		
	75		
v.	73		0.00
	71		0.00
nd	72		
V _{UPUSE}	74		
	69		
S	79		
di	74		
225	69		
de	61		
Landscape &	weighted average score for upland land use:	98.00	
	distance to nearest wetland(feet):	90.00	
	distance to 2nd nearest wetland:	139.00	
V _{WETPROX}	distance to 3rd nearest wetland:	297.00	0.99
	distance to 4th nearest wetland:	318.00	
	distance to 5th nearest wetland: mean distance (feet):	509.00 270.60	
•	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07
V _{WETAREA}	*		
V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	41.00	0.18
V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.00
2. Groundwater Recharge	0.19	0.00
3. Retain Particlulates	0.58	0.01
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.00
5. Plant Community Resilience and Carbon Cycling	0.14	0.00
6a. Provide Faunal Habitat	0.16	0.00
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.00

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #10

	Variable	Data entered		Subindex
		wetland perimeter (feet):	2358.90	
	V _{GRASSCONT}	grassland along perimeter (feet):	2358.90	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	8.00	
		Point 2:	11.00	
		Point 3:	38.00	
		Point 4:	50.00	
u		Point 5:	23.00	
tio	V _{GRASSWIDTH} Point 6: Point 7: Point 8:	24.00	0.55	
Vegetation			39.00	0.55
ge		28.00		
/ea		Point 9:	38.00	
-		Point 10:	50.00	
		Point 11:	10.00	
		Point 12:	5.00	
		mean width (feet):	27.00	
		(see vegetation worksheet for species entered)		
		sum of species:	8.00	
	VVEGCOMP	sum of C values:	9.00	0.16
		mean coefficient of conservatism:	1.13	
		FQI:	3.18	

	V _{RECHARGE}	Soil Recharge Potential Subindex:	0.50	0.50		
	ABCILINOL	Eastern Prairie Potholes				
		mean depth to B horizon (inches):	1.00			
	V _{SED}	Western Prairie Potholes				
		mean depth to B horizon (inches):	18.00			
	V _{SQI}	SQI scores for 4 samples:				
		sample 1:	2.00	0.05		
		sample 2:	2.00			
		sample 3:	2.00			
		sample 4:	1.50			
		average SQI score:	1.88			
		Indirect Measurements				
		Litter Depth for 4 samples:				
		sample 1:	0.00			
		sample 2:	0.00			
		sample 3:	0.00			
		sample 4:	0.00			
		Average Litter Depth (inches): 0.00				
		ADI for 4 samples:				
ii		Sample 1 hue:	10.00			
Soil		value:	2.00			
		chroma:	1.00			
	V _{SOM}	ADI:	6.00			
		Sample 2 hue:	10.00			
		value:	2.00			
		chroma:	2.00	0.33		
		ADI:	7.00	0.55		
		Sample 3 hue:	10.00			
		value:	2.00			
		chroma:	1.00			
		ADI:	6.00			
		Sample 4 hue:	10.00			
		value:	2.00			
		chroma:	1.00			
		ADI:	6.00			
		average ADI: 6.25				
		Direct Measurements				
		% organic carbon for 0-15cm depth:				
		% organic carbon for 15-30cm depth:		-		
		mean percentage:				
		% organic carbon:	1.77			

		=		
Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1394.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1392.00	0.68
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
		(ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	0.67	
	V _{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		
À		% of historic catchment area still contributing runoff:		
Ĥ		additions of water from other sources:		
		change in wetland regime class? wetland perimeter (feet):	2358.90	
	$\mathbf{V}_{\mathbf{EDGE}}$	wetland area (acres):	2358.90	1.00
	V EDGE	Shoreline Development Index:	3.44	1.00
		wetland area (acres):	0.86	
	V _{CATCHWET}	catchment area (acres):	6.00	
	• CATCHWET	ratio of catchment size to wetland size:	6.98	
		total acre size of the present day catchment:	6.00	0.00
		acres of catchment for each curve number:	0.00	
	V _{UPUSE}	98	6.00	
		90		
		79		
		77		
		72		
		75		
Landuse		73		
ŋŋ		71		
nu		72		
Lê		74		
8		69		
e				
ap		69		
sc		61		
pu		weighted average score for upland land use:	98.00	
Landscape &	V _{WETPROX}	distance to nearest wetland(feet):	86.00	0.59
Ι		distance to 2nd nearest wetland:	373.00	
		distance to 3rd nearest wetland:	784.00	
		distance to 4th nearest wetland:	866.00	
		distance to 5th nearest wetland:	900.00	
		mean distance (feet):	601.80	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	41.00	0.18
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00
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Function	FCI	FCU
1. Water Storage	0.40	0.34
2. Groundwater Recharge	0.41	0.35
3. Retain Particlulates	0.60	0.52
4. Remove, Convert, and Sequester Dissolved Substances	0.36	0.31
5. Plant Community Resilience and Carbon Cycling	0.33	0.29
6a. Provide Faunal Habitat	0.35	0.30
6b. Provide Faunal Habitat (Alternate Formula)	0.24	0.20