# Appendix H – Wetland Finding

## **U.S. DEPARTMENT OF TRANSPORTATION**

Federal Highway Administration

## THE STATE OF SOUTH DAKOTA

South Dakota Department of Transportation

## **WETLAND FINDING**

IM-CR 2292(84)2, PCN 000S, NH 2115(46), PCN 08DN Sioux Falls CIP #11099 Sioux Falls #11 (2023 Bike Plan) I-229 Exit 3 (Minnesota Avenue) Interchange Sioux Falls, Minnehaha County, South Dakota



This action complies with the Executive Order 11990 "Protection of Wetlands".

Approved_	Tom Lehmkuhl 2024.07.25 16:02:31 -05'00'	Date:	Julv	25, 2024
	FHWA Environmental Engineer			•
Approved_	MBdook	Date:	Chad Babcock	Digitally signed by Chad Babcock Date: 2024.07.15 16:47:03 -05'00'
	SDDOT Environmental Manager			_

## SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION E.O. 11990 – WETLAND FINDING

Projects:
IM-CR 2292(84)2, PCN 000S, NH 2115(46), PCN 08DN
Sioux Falls CIP #11099
Sioux Falls #11 (2023 Bike Plan)
I-229 Exit 3 (Minnesota Avenue) Interchange
Sioux Falls, Minnehaha County, South Dakota

#### 1. INTRODUCTION

In compliance with Executive Order 11990 and in accordance with 23 CFR 771, 777 and Technical Advisory T6640.8a, this statement sets forth the basis for a finding that there is no practical alternative to the placing of fill for highway construction in certain wetlands adjacent to the reconstruction of the existing interchange at I-229 and Exit 3 (Minnesota Avenue) and the reconstruction and expansion of Minnesota Avenue in Sioux Falls, South Dakota. All practicable measures to minimize the fill areas to reduce harm to the wetlands have been taken.

### 2. PROJECT LOCATION AND SUMMARY

The stakeholders for this project include the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO), South Dakota Department of Transportation (SDDOT), and the Federal Highway Administration (FHWA). SDDOT, in partnership with the other project stakeholders, is completing an environmental study of the Interstate Highway 229 (I-229) Exit 3 Interchange Project in Sioux Falls, South Dakota. This project will build on the work and findings of recently completed studies for the area, including the 2010 Decennial Interstate Corridor Study, the I-229 Major Investment Study (MIS), the I-229 Exit 3 Interchange Modification Justification Report (IMJR) and Environmental Scan Report (ESR).

The recommended build alternative includes several components, including Exit 3 interchange improvements (PCN 000S), Minnesota Avenue improvements (PCN 08DN), improvements on Minnesota Avenue from 41st Street to W. Lotta Street (CIP Project 11099), and a bicycle/pedestrian underpass under I-229 (Sioux Falls Bike Plan #11). A designated option borrow site, located in the I-229/Louise Avenue Exit 1C loop ramp, may also be used for the project if the need is identified by the contractor and is included in environmental review for this project. Total estimated project construction cost of the recommended build alternative is \$44.375M. The project is tentatively scheduled to be constructed in FY 2027-2028.

While other reasonably foreseeable projects have been identified in close proximity to the project, there are no associated project actions apart from those identified above. Other reasonably foreseeable actions would have their own independent utility and environmental clearances. **Appendix A** illustrates the project location and infrastructure improvements included in the Build Alternative, as well as other reasonably foreseeable nearby projects.

## 3. PURPOSE AND NEED FOR THE ACTION

The purpose of the project is to address the main needs identified in the study area. These needs, which are listed below and will be addressed with equal importance and priority in this study, are:

- Mobility LOS C or better should be maintained along all sections of I-229 and all ramp terminals (Per SDDOT standards) and LOS D or better should be maintained along all sections of Minnesota Avenue within the project area (per City of Sioux Falls Standards) through the 2050 project design year with a preference for alternatives that meet these requirements under higher than anticipated demand.
- **Geometric Deficiencies** Geometric deficiencies, including infrastructure condition deficiencies for roadways in the study area, should be addressed to meet current standards by the project's design year (2050).

The project also includes safety and nonmotorized connectivity as project goals. Maintaining low crash rates was considered during the design of the build alternative. The build alternative includes new sidewalks, a new section of trail, a grade-separated crossing of I-229, and a direct connection to the Sioux Falls Bike Trail as improvements that work toward achieving this goal.

## 4. ALTERNATIVES CONSIDERED

Four (4) alternatives were considered for the project, including the No Build Alternative, Build Alternative Minn-2C, Build Alternative Minn-2D, and Build Alternative Minn-9D. Each of the alternatives is described as follows:

A. No Build Alternative – "No Action" (Maintenance for operating safety only)

The No Build Alternative is a "no action" alternative. This alternative assumes that no modifications would be made, and the interchange would be maintained in its current configuration. Continual maintenance and repairs would be performed to ensure the safety of the traveling public, and safety measures would be implemented to the extent feasible and practicable.

With failing levels of service and unaddressed geometric deficiencies, the No Build Alternative does not meet the purpose and need of the project. Alternatives which do not meet the purpose and need of the project are not typically carried forward for consideration in the NEPA process. Although the No Build Alternative does not meet the purpose the project, it is always carried forward to serve as the baseline when analyzing the potential social, economic, and environmental impacts of other alternatives. Consideration of a no action alternative is required by Council of Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508).

## B. Build Alternative Minn-2C

5/4-Lane Divided Corridor with Northeast Quadrant Loop and Northeast Ramp aligned with 49th Street Alternative

With Build Alternative Minn-2C, the northbound I-229 ramp terminal would remain a standard diamond configuration with additional turn lanes to improve capacity and the closely spaced Park Access Road would be reconfigured to a ¾ access intersection.

The southbound I-229 ramps would be substantially reconfigured. The I-229 entrance ramp would be split into two ramps with a new entrance ramp access on southbound I-229. The southbound Minnesota Avenue ramp would be a free right turn movement and the northbound Minnesota Avenue traffic would have a free right turn onto a new loop ramp connection. The southbound I-229 exit ramp would connect to the 49th Street

intersection. This connection helps improve safety and relieves the closely spaced intersection issue.

Along Minnesota Avenue, a four-lane divided roadway would be provided to the north with several driveway access closures and 43rd Street would remain open as a ¾ access intersection. The four-lane divided section would be carried south to 57th Street. Lotta Street would remain full access, but other streets would convert to right-in/right-out access (RI/RO).

Build Alternative Minn-2C does not meet the purpose and need of the project. This alternative addresses the geometric deficiencies identified as project needs and improves LOS to acceptable levels in all locations. However, the sensitivity analysis indicated that this alternative could still fail operationally with higher than anticipated levels of traffic. This alternative achieves additional project goals by allowing for the addition of bicycle and pedestrian infrastructure and providing a safety improvement by reducing crashes in the study area. However, the reduction in crashes provided would be less than those provided by other alternatives.

Because of the potential for this alternative to fail operationally under higher traffic volumes, this alternative will not meet the Purpose and need of the project. Therefore, Build Alternative Minn-2C was not carried forward for further analysis in the NEPA process.

#### C. Build Alternative Minn-2D

6/4-Lane Divided Corridor with Northeast Quadrant Loop and Northeast Ramp aligned with 49th Street Alternative

With Build Alternative Minn-2C, the northbound I-229 ramp terminal would remain a standard diamond configuration with additional turn lanes to improve capacity. The closely spaced Park Access Road would be reconfigured to a ¾ access intersection.

The southbound I-229 ramps would be substantially reconfigured. The I-229 entrance ramp would be split into two ramps with a new entrance ramp access on southbound I-229. The southbound Minnesota Avenue ramp would be a free right turn movement and the northbound Minnesota Avenue traffic would have a free right turn onto a new loop ramp connection. The southbound I-229 exit ramp would connect to the 49th Street intersection. This connection will help improve safety and relieve the closely spaced intersection issue.

Along Minnesota Avenue, a six-lane divided roadway would be provided to the north with several driveway access closures and 43rd Street would remain open only as a RI/RO access intersection. A five-lane section, with four-lanes and a center left turn lane, would be carried south to 57th Street.

Build Alternative Minn-2D does not meet the purpose and need of the project. This alternative addresses the geometric deficiencies identified as project needs and improves LOS to acceptable levels in all locations. However, the sensitivity analysis indicated that this alternative could still fail operationally with higher than anticipated levels of traffic.

This alternative achieves additional project goals by allowing for the addition of bicycle and pedestrian infrastructure and providing a safety improvement by reducing crashes in

the study area. However, it would not provide the greatest safety benefit among the alternatives.

Because of the potential for this alternative to fail operationally under higher traffic volumes, this alternative does not meet the purpose and need of the project. Therefore, Build Alternative Minn-2D was not carried forward for further analysis in the NEPA process.

#### D. Build Alternative Minn-9D – Recommended Build Alternative

6/4-Lane Divided Corridor with Single Point Urban Interchange and Northeast Ramp aligned with 49th Street Alternative

With Build Alternative Minn-9D, the existing diamond interchange would be reconfigured to a Single Point Urban Interchange (SPUI).

The northbound I-229 ramps are typical of a SPUI design. The closely spaced Park Access Road would be reconfigured to a ¾ access intersection. The southbound I-229 entrance ramp is also typical of a SPUI design.

The southbound I-229 exit ramp would be substantially reconfigured from a standard SPUI design. The I-229 exit ramp would be split into directional ramps for Minnesota Avenue. The southbound Minnesota Avenue traffic would tie into the traditional SPUI intersection. The northbound Minnesota Avenue traffic would connect to the 49th Street intersection. This connection will help improve safety and relieve the closely spaced intersection issue.

Along Minnesota Avenue, a six-lane divided roadway would be provided to the north with several driveway access closures. The 43rd Street intersection would remain open only as a 3/4 access intersection. A four-lane divided section would be carried south to 57th Street. The Lotta Street intersection would remain full access, but other street crossings would convert to RI/RO.

Build Alternative Minn-9D meets the purpose and need of the project and was identified as the recommended build alternative. This alternative addresses the geometric deficiencies identified as project needs and improves LOS to acceptable levels in all locations, even under 10 percent higher traffic volumes than anticipated, and is the only alternative to do this.

Build Alternative Minn-9D also meets the non-motorized connectivity goal of the project by allowing for the integration of new bicycle and pedestrian infrastructure to the project area. This infrastructure would safely connect non-motorized travelers using the Sioux Falls Bike trail and local parks to destinations north of the interchange, using a combined system of at-grade bridge sidewalks and grade separated trails with tunnel crossings of I-229. It meets the safety goal of the project by reducing crashes, and it does this to a greater extent than any other build alternative. Although this alternative would have the highest cost, it would still be fundable and would provide more benefits overall than other alternatives.

Among the build alternatives, Alternative Minn-9D is the most prudent and feasible. It provides the most overall benefit, avoids impacts to Section 4(f)/Section 6(f) properties, and is not anticipated to have environmental impacts of higher significance compared to other build alternatives. This alternative will be further evaluated for wetland impacts to satisfy NEPA requirements.

Conversely, each of the other build alternatives were dismissed due to not meeting the purpose and need of the project. Alternative Minn-9D will be referred to as the "Build Alternative" for the analysis of environmental impacts.

The proposed action includes improvements to the I-229 Exit 3 Interchange (PCN 000S) and Minnesota Avenue (PCN 08DN), along with other adjacent component projects. Component projects include improvements along Minnesota Avenue from 41st Street to W Lotta Street (CP #11099), and a shared use path under I-229 (City Bike Plan Project #11). Improvements associated with all of these project components would have the potential for unavoidable impacts associated with cuts and fills necessary to satisfy SDDOT and City of Sioux Falls design standards for all roadways, sidepaths, and structural components of the project. While some of these components would be city projects, the combined project constitutes one action for which SDDOT is the lead agency. SDDOT will be the responsible entity for mitigating impacts to wetlands for all project components.

# 5. BASIS FOR DETERMINING THE PROPOSED ACTION INCLUDES ALL PRACTICABLE MEASURES TO MINIMIZE HARM TO WETLANDS

#### PRACTICABLE MEASURES TO MINIMIZE HARM TO WETLANDS

The project is located within the Lower Big Sioux watershed. The wetlands adjacent to the project are depressional and riverine. These wetlands have been previously disturbed by highway construction and maintenance activities and commercial development and are not considered high quality wetlands.

Measures to minimize impacts to the wetlands were discussed and considered at all points of planning, location, and design of the project. A field delineation was conducted to identify the locations of wetlands within the study area. Elements of the Build Alternative, including drainage features, will be designed in such a way that they would avoid identified wetlands to the extent practicable. This includes consideration for an assessment of unavoidable impacts associated with cuts and fills necessary to satisfy SDDOT and City of Sioux Falls design standards for all roadways, sidepaths, and structural components of the project. The purpose and need for the project are to improve travel mobility and address geometric deficiencies at the I-229 Exit 3 Interchange and along Minnesota Avenue from 41st Street to W Lotta Street. The project goals also include improving safety and nonmotorized connectivity. Because the impacted wetlands are in areas of shallow fills near the proposed interchange improvements, it was determined that total avoidance of adjacent wetlands was not feasible.

Best Management Practices (BMPs) will be implemented during all phases of construction to reduce impacts to aquatic resources from erosion and sedimentation. All disturbed areas will be restored and revegetated according to a project specific erosion and sediment control plan, which will be included in the project plans as Section D. The contractor will be required to submit a Spill Prevention, Control, and Countermeasure (SPCC) Plan prior to commencing construction. With implementation of these measures, it is anticipated that the construction of the proposed I-229 Exit 3 Interchange and associated roadways will not result in long-term impacts to aquatic resources along the project corridor. In addition to the above measures, the project will require a Section 404 permit issued by the United States Army Corps of Engineers (USACE) and a South Dakota Department of Agriculture and Natural Resources (SDDANR) General Permit Authorizing

Stormwater Discharges Associated with Construction Activities, and the project will comply with the conditions listed in these permits.

## 6. WETLAND IMPACTS

Several digital resources were examined, and a field review was conducted to determine wetland locations within the study area. Digital resources examined include:

- The Natural Resources Conservation Service (NRCS) Soil Survey Geographic Maps (SSURGO) for Minnehaha County (2019)
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) (2019)
- Minnehaha County Hydric Soils List (2019)

The field delineation site visit was conducted by Rebecca Beduhn, SEH Senior Scientist, on September 12<sup>th</sup> and 13<sup>th</sup>, 2018. The purpose of these visits was to identify 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 included areas where impacts from all project components would have the potential to directly impact wetlands. In total, 11 wetland areas were delineated within the study area. Wetlands in the study area consist of primarily palustrine emergent wetlands (PEM), with one palustrine unconsolidated bottom (PUB) wetland. The project's wetland delineation report is included in **Appendix B**.

The initial wetland delineation type and boundary concurrence expired in September 2023, a reevaluation of the wetland boundaries was made by Luke Menden, an SEH Wetland Biologist, in early September 2023. This reevaluation included a site visit to each of the previously delineated wetlands to compare conditions and determine if any significant changes were observed to either the wetland boundary or type. Approved wetland boundaries were field verified using a sub-meter GPS unit and were determined to be accurate and therefore will continue to be utilized for project planning purposes. This assessment relies primarily on observations of vegetation and hydrology, it confirmed that site conditions were unchanged, and none of the wetland boundaries have been altered, modified, or natural changed. On this basis, the previous boundaries remain valid for the purposes of completing the EA, quantifying impacts, and identification of mitigation. No newly formed wetlands were found during this investigation. The findings of the reevaluation are documented in the Wetland Boundary Verification memo included in **Appendix B**.

The Preliminary Wetlands Assessment for the current survey was provided to the USACE on January 26, 2022, and is included in **Appendix B**. The USACE provided an Approved Jurisdictional Determination (AJD) on March 31, 2022, and is included in **Appendix C**. The AJD states that there are jurisdictional and non-jurisdictional waters located within the review area. A summary of USACE jurisdictional status is included in **Table 1** below. Discharge of dredged or fill material within the waters of the United States, as part of this project, will require a permit from the USACE. Coordination took place between USACE and SDDOT in October 2023 following the expiration of the initial wetland delineation. USACE confirmed the findings of the March 31, 2022, AJD remain valid. A copy of the USACE correspondence is included in **Appendix C**.

The Build Alternative results in an estimated 2.51 acres of permanent wetland impact (1.42 acres of jurisdictional wetlands, 1.09 acres of non-jurisdictional wetlands). Due to the space requirements of the necessary improvements and the number and proximity of wetlands within the study area, these impacts are unavoidable. There are no planned temporary wetland impacts

or impacts to non-wetland Waters of the US. A Section 404 permit will be required for jurisdictional wetland impacts. Non-jurisdictional wetlands would need to be mitigated under EO 11990, in accordance with FHWA regulation 23 CFR 777.9. Delineated and impacted wetlands are also listed in **Table 1** below. Wetlands 1, 2, and 11 from the delineation are not included in this table because they would not be impacted by the project. All impacts are associated with the overall project, including its component projects. A map of delineated wetland and impacted wetland areas is included in **Appendix D.** 

Table 1 – Wetland Impacts and Mitigation

Wetland Name	Permanent Wetland Impact (acres)	Jurisdictional Status	Mitigation Ratio (in- kind and in-place)	Mitigation Required Under (EO 11990 or Section 404)	Mitigation Required (Credits)
Wetland 3	0.14	JD	5.5:1	Section 404	0.77
Wetland 4	0.05	JD	5.5:1	Section 404	0.28
Wetland 5	0.34	JD	5.5:1	Section 404	1.87
Wetland 6	0.89	JD	5.5:1	Section 404	4.90
Wetland 7	0.30	Non-JD	1.01 :1	EO 11990	0.30
Wetland 8	0.26	Non-JD	1.01 :1	EO 11990	0.26
Wetland 9	0.49	Non-JD	1.01 :1	EO 11990	0.49
Wetland 10	0.04	Non-JD	1.01 :1	EO 11990	0.04
TOTAL	2.51 (1.42 JD	, 1.09 Non-JD)			
				Total Mitigation Re	quired under Section 404
				Total Cradita	7 91

Total Mitigation Required under Section 404				
Total Credits	7.81			
Total Mitigation I	Required Under EO 11990			
Total Credits	1.10			

The impacts described above represent all anticipated impacts to wetlands. No additional indirect impacts to wetlands are anticipated. The project is not anticipated to directly or indirectly impact the Big Sioux River.

#### 7. WETLAND MITIGATION

Wetland mitigation is required under the Clean Water Act (CWA) for wetland impacts to jurisdictional features greater than 0.1 acre per single aquatic resource. There are a total of 1.42 acres of permanent wetland impacts to jurisdictional waters (Wetlands 3, 4, 5, and 6) which will be mitigated in accordance with Section 404 of the CWA. Based on a standard mitigation ratio of 5.5:1, a total of 7.81 functional capacity units (FCUs) is expected to satisfy Section 404 compensatory mitigation requirements. The remaining 1.09 acres of permanent wetland impacts are to non-jurisdictional waters (Wetlands 7, 8, 9, and 10) and will be mitigated in accordance with EO 11990. A total of 1.10 FCUs will be required to satisfy E0 11990 compensatory mitigation requirements based on a 1.01:1 ratio mitigation. All wetland impacts occur in the Lower Big Sioux Geographic Service Area (GSA).

Off-site wetland mitigation through the purchase of wetland credits from a wetland bank is proposed to satisfy the requirements 11990. Wetland Banking is the preferred option for off-site mitigation. On-site mitigation is not proposed due to the site constraints with available land. The SDDOT will be responsible for mitigating all impacts from project components and proposes to mitigate permanent wetland impacts by purchasing released credits from Ducks Unlimited's Moody County wetland mitigation bank site. SDDOT intends to mitigate EO11990 impacts

concurrently with Section 404 impacts which is anticipated to require a purchase of 8.91 FCUs from Ducks Unlimited. A breakdown of FCUs is shown in **Table 1**.

Ducks Unlimited has confirmed it has sufficient released credits In-Lieu Fee (ILF) available which could be used for offsite mitigation as proposed by this project. Ducks Unlimited has provided a letter of credit availability for the project, which is included in **Appendix E**. Ducks Unlimited has also confirmed they have 100 advanced ILF credits available in the Lower Big Sioux GSA, which could be used as an alternate form of mitigation if offsite mitigation credits are not available from any suitable sites at the time of purchase. If released wetland bank credits are not available, following Section 404 permitting for this project, SDDOT proposes, as an available mitigation contingency, to purchase available ILF from Ducks Unlimited.

The final credits required to compensate for unavoidable permanent impacts to aquatic resources will be determined by the USACE during Section 404 permitting. Although the AJD was coordinated for the Exit 3 Project (including all components) and the adjacent Exit 4 Project (including all of its associated components) at the same time as an efficiency for the NEPA coordination process, these two project actions will be permitted individually. The NEPA evaluation for the adjacent Exit 4 Project is currently ongoing and will have its own wetland finding and mitigation/permitting requirements and commitments.

## 8. NEPA COORDINATION & DOCUMENTATION

In accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4370h and the Regulations for Implementing the procedural Provisions of NEPA (40 CFR §§ 1500-1508), the SDDOT conducted an environmental review on the project to determine if significant impacts to the environment would occur because of the proposed project improvements and to determine the level of documentation required to comply with NEPA. Based on input from state and federal agencies, tribes that have an interest in projects located in Minnehaha County and the public, SDDOT anticipates that this Project will not individually or cumulatively have a significant effect on the environment and that NEPA compliance will be documented under an Environmental Assessment (EA). Agency correspondence appears in **Appendix F**.

Coordination for the project has taken place with the following agencies as it relates to wetland impacts:

- SDDOT Coordinated with South Dakota Department of Environment & Natural Resources (renamed South Dakota Department of Agriculture & Natural Resources during this study) (DENR/DANR) on 12/10/2018. A response was received on 12/27/2018.
- SDDOT Coordinated with South Dakota Department of Game, Fish and Parks (GFP) on 12/10/2018. A response was received on 12/27/2018.
- State Historic Preservation Office (SHPO): A cultural resources survey was conducted for the project by the Archaeological Resource Center (ARC) and Sent to SHPO on 4/24/2019. SHPO concurred with the determination of No Adverse Effect on June 12, 2019. ARC completed survey of an expanded area of potential effect including additional stormwater retention and borrow areas which was sent to SHPO of September 8, 2023. SHPO concurred with the determination of No Adverse Effect on September 12, 2023.

SDDOT Coordinated with U.S. Fish and Wildlife Service (USFWS) on 04/19/2024. A
response was received on 05/16/2024 concurring with the determination that the project
would not adversely affect listed species.

In addition, in accordance with Section 106 of the NHPA (36 CFR Part 800), the SDDOT solicited comments on this project from the following tribes:

- Flandreau Santee Sioux Tribe
- Ponca Tribe of Nebraska
- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate Tribe
- Standing Rock Sioux Tribe
- Yankton Sioux Tribe
- Three Affiliated Tribes of North Dakota
- Chippewa Cree Tribe

Consultation letters were sent to each tribe on December 11, 2018 (**Appendix F**). One response was received from the Yankton Sioux Tribe Tribal Historic Preservation Office (THPO) on January 31, 2019. They responded their office does not have interest in the proposed project at this time but requested notification if any cultural artifacts were found at the project site. A copy of the letter is included in **Appendix F**.

#### **Public Involvement**

Open House style public meetings were held throughout the project, which helped the study team identify impacts and obtain input on the alternatives. Stakeholder were notified of the meetings through postcard mailings, the project website, press release, local newspaper ads, and social media. While these were meetings held during the planning phase of the project, a final public meeting is planned to take place for the NEPA process in summer 2024. The following Open Houses were held for the project:

Public Meeting / Open House #1, January 23, 2019

The focus of this meeting was to introduce the project and provide an overview of the scope and schedule, present a draft purpose and need, and present a draft range of alternatives. A presentation was provided by project staff, and poster-board exhibits were set up at the meeting. Comment forms were provided, and members of the study team were on hand to answer questions. Postcard invitations were mailed directly to 670 properties surrounding the project area. Approximately 166 individuals signed in at the meeting.

Public Meeting /Virtual Open House #2 November 6 – December 5, 2020

Due to the COVID 19 pandemic, an online public meeting and virtual open house were held without in-person contact. The online meeting was held concurrently for I-229 Exit 3 and I-229 Exit 4, as both interchanges are adjacent to one another and planned for reconstruction. Three individual speaker presentations were recorded for the public's information on recommended improvements, the Interchange Modification Justification Report (IMJR) summary, and Environmental Scan Report (ESR) and posted online for a period of 30 days. A total of 933 unique website visitors were recorded during this period, the majority of which accessed the project website directly for project update information. Online comment forms

were provided next to each pre-recorded presentation in the Virtual Open House. Comments were received on the three video recordings and were also received via telephone and email.

#### Future Public Involvement

The EA will be made available to public agencies and the general public for review and comments. The EA will be available for a 30-day comment period at the following locations:

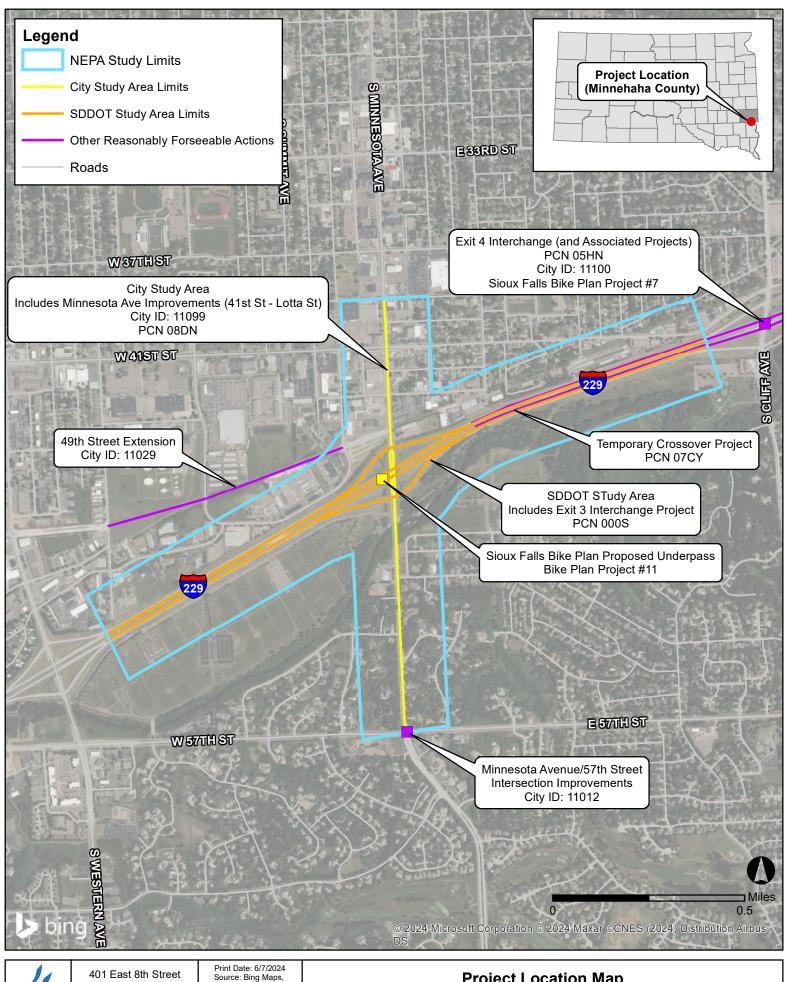
- SDDOT Website
- Sioux Falls City Hall, Engineering Department
- SDDOT Sioux Falls Area Office
- Siouxland Library, Caille Branch
- SDDOT Office of Project Development in Pierre
- FHWA Division Office, Pierre

FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative (when identified) would or would not result in significant social, economic, and environmental impacts. If it is found that project does not result in significant impacts, a Finding of No Significant Impact (FONSI) document will be prepared and submitted to FHWA. The FHWA would take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative would or would not result in significant social, economic, and environmental impacts. If a FONSI is determined, this document will be posted on the SDDOT and other project websites. If not, the agencies would consider whether the project will be pursued under an Environmental Impact Statement (EIS).

#### 9. CONCLUSION

Based on the above considerations, it has been determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

# Attachment A – Project Location and Build Alternative





Suite 309 Sioux Falls, SD 57103 (605) 330-7000

Source: Bing Maps,

Map by: mfalk Projection: State Plane South Dakota S

## **Project Location Map**

I-229 Exit 3 (Minnesota Avenue) Interchange Minnehaha County, SD

# Attachment B – Wetland Delineation Report



# Wetland Boundary Verification

I-229 Exit 3 Reconstruction Project

Minnehaha County, SD

 $IM2292(83)3\ N,\ PCN\ 000S,\ 08DN\ -\ Sioux\ Falls\ \ CIP\ \#11099\ -\ Sioux\ Falls\ \#11\ (2023\ Bike\ Plan)$ 

October 30, 2023





July 11, 2024

RE: I-229 Exit 3 Interchange Reconstruction

Sioux Falls, Minnehaha County, SD Wetland Boundary Verification IM2292(83)3 N, PCN 000S, 08DN

Sioux Falls CIP #11099

Sioux Falls #11 (2023 Bike Plan)

SDDOT – Environmental Office Attn: Chad Babcock 700 East Broadway Pierre, South Dakota 57501-2586

## South Dakota Regulatory Office:

Initial wetland delineation took place for the referenced project in September, 2018. An AJD was received for the project on April 1, 2022.

While the initial wetland delineation type and boundary concurrence has expired, a reevaluation of the wetland boundaries was made by Luke Menden, an SEH Wetland Biologist, in September 2023. This reevaluation included a site visit to each of the previously delineated wetlands and an updated desktop review. The desktop review included digital elevation models (DEM), aerial imagery, soil maps, hydrology data, land use/land cover information, and review of the existing wetland delineations. All wetlands were visited in the field to compare conditions and determine if any significant changes were observed to either the wetland boundary or type. The wetland boundaries were field verified by comparing the previously recorded GPS lines with current site conditions. Most wetland sites were bounded by roads, trails, or rises in elevation significant enough to restrict the expansion of wetland conditions.

Based on the above review, the previous wetland boundaries were found to match the current extent of wetland vegetation. No newly formed wetlands were found during this investigation.

Please contact me directly with any questions regarding this investigation at 651.470.6027 or via e-mail at rbeduhn@sehinc.com.

Sincerely,

Rebecca Beduhn

Professional Wetland Scientist Certified Professional Soil Scientist

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## **MEMORANDUM**

TO: US Army Corps of Engineers

FROM: Rebecca Beduhn, SEH

DATE: August 5, 2021

RE: Interstate 229 Exit 3 Reconstruction Wetland Delineation

SDDOT PCN 000S SEH No. SDDOT 147016

Please find the enclosed wetland delineation report and Approved Jurisdictional Determination (AJD) request for the Interstate 229 Exit 3 Reconstruction project. An AJD is requested for Wetlands 3, 5, 6, 7, 8, and 9.

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

#### BN

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### U.S. ARMY CORPS OF ENGINEERS REQUEST FOR CORPS JURISDICTIONAL DETERMINATION CORPS USE ONLY: 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 DATE RECEIVED: 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 USACE website. Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be PROJECT NO .: 2.REQUESTOR CONTACT INFORMATION: 1. PROPERTY LOCATION: Street Address: Exit 3 (I-229 and Minnesota Ave) Typed or Printed Name: Steve Gramm City/Township/Parish: Sioux Falls Company Name: SDDOT County: Minnehaha County State: SD Street Address: 700 East Broadway Avenue Acreage of Parcel/Review Area for JD: 120 City: Pierre State: SD ZIP: 77501 Section: 28 Township: 101 Range: 49 Phone Number: (605) 773-6641 Latitude: 43.51015 Longitude: -96.731234 E-mail: steve.gramm@state.sd.us (For linear projects, please include the center point of the proposed alignment.) MAP: Please attach a survey/plat map and vicinity map identifying location and review area for the JD. REASON FOR REQUEST (check as many as applicable): I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources. I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority. I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an 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 resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel. ☐ I believe that the site may be comprised entirely of dry land. Other: 5. TYPE OF DETERMINATION BEING REQUESTED: 6. OWNERSHIP DETAILS: ☐ I am requesting an approved JD. I currently own this property. □ I am requesting a preliminary JD. I plan to purchase this property. I am an agent/consultant acting on behalf of the I am requesting a "no permit required" letter as I believe my proposed activity is not regulated. requestor. I am unclear as to which JD I would like to request Other (please explain:) and require additional information to inform my

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 by Bailey Nelson Date: 2021.08.05 14:22:19 -05'00'

\_\_\_\_

Date:



October 20, 2021

RE: Interstate 229 Exit 3 Reconstruction

Sioux Falls, Minnehaha County, South

Dakota

Wetland Delineation Report

SDDOT PCN: 000S

SEH Project Number:. SDDOT 147016

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 25, 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,

Rebecca Beduhn

Professional Wetland Scientist

Releven O. Bed.

Certified Professional Soil Scientist



# Wetland Delineation Report

South Dakota Department of Transportation (SDDOT) Interstate 229 Exit 3 Reconstruction

Sioux Falls, Minnehaha County, South Dakota

SDDOT Number: PCN 000S | SEH Number: SDDOT 147016

October 2021



# Wetland Delineation Report

Interstate 229 Exit 3 Reconstruction PCN 000S
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.

Certified Professional Soil Scientist, No. 333315

1/20/2019
Date
10/20/2021
_
Date





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# 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 12<sup>th</sup> and 13<sup>th</sup>, 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 28, 29, and 33 in Township 101 North, Range 49 West in Sioux Falls, Minnehaha County, South Dakota as shown on **Figure 1**. The approximately 120-acre site is bounded on the north by W 37<sup>th</sup> Street, on the east by S Cliff Avenue, on the south by W 57<sup>th</sup> Street, and on the west by S Western 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.

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WETLAND DELINEATION REPORT

# 2.2.2 Field Procedures

The project site was examined on September 12<sup>th</sup> and 13<sup>th</sup>, 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.

11 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**.

Table 1 – Wetland and Aquatic Resource Characteristics

Wetland ID	Size (acres) <sup>1</sup>	HGM Classification	Cowardin Classification	Location (Decimal Degrees)	Jurisdictional Status
1	0.06706	Prairie Pothole	PUBH	43.5083, -96.731	Jurisdictional, Culverts provide connection to river
2	0.05952	Riverine	PEMB	43.5085, -96.730	Jurisdictional, Adjacent to river
3	0.14251	Prairie Pothole	PEMB	43.5094, -96.731	Jurisdictional, Culverts provide connection to river
4	0.04776	Prairie Pothole	PEMC	43.5089, -96.730	Jurisdictional, Culverts provide connection to river
5	0.34224	Prairie Pothole	PEMC	43.5097, -96.730	Jurisdictional, Culverts provide connection to river
6	0.89335	Prairie Pothole	PEMC	43.5112, -96.730	Jurisdictional, Culverts provide connection to river
7	0.29862	Prairie Pothole	PEMB	43.5109, -96.730	Not Jurisdictional, No Surficial Connection observed
8	0.26041	Prairie Pothole	РЕМВ	43.5104, -96.731	Not Jurisdictional, No Surficial Connection
9	0.90768	Prairie Pothole	PEMC	43.5100, -96.733	Not Jurisdictional, No Surficial Connection
10	0.04097	Prairie Pothole	РЕМВ	43.5088, -96.731	Not Jurisdictional, No Surficial Connection
11	0.62692	Riverine	PEMC	43.5075, -96.731	Jurisdictional, Adjacent to river
TOTAL	3.6870				

<sup>&</sup>lt;sup>1</sup> 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 PUBH Wetlands

Table 2 - Summary of PUBH Prairie Potholes

Wetland ID	Size (acres)	Cowardin
1	0.06706	PUBH
Total acreage	0.06706	

One (1) Wetland within the project limits is classified utilizing the Prairie Pothole Classification, and is described as a Shallow Open Water wetland community. This included Wetland 1 (**Figure 4-1** and **4-2**). It is located west of S Minnesota Avenue and south of Interstate 229.

Vegetation was not present in this shallow open water wetland community.

A typical soil profile in the shallow open water community met the technical hydric soil indicator A11 – Depleted Below Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, consistent with field observations.

The primary wetland hydrology indicators observed included A3 – Saturation, A2 – High Water Table, A1 – Surface Water, and B7 – Inundation Visible on Aerial Imagery. Inundation of approximately two inches was present.

The wetland boundary placement was primarily based upon a slight topographic rise and a presence of vegetation. The surrounding upland areas were dominated by American elm (*Ulmus americana* – FACW) in the tree stratum; European buckthorn (*Rhamnus cathartica* – FAC) in the shrub stratum; and common dandelion (*Taraxacum officinale* – FACU), groundivy (*Glechoma hederacea* – FACU), Pennsylvania sedge (*Carex pensylvanica* – UPL), Allegheny blackberry (*Rubus allegheniensis* – FACU), and European buckthorn in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Primary indicator A3 – Saturation was present at the upland sample point.

# 3.1.2 PEMB Wetlands

Table 3 - Summary of PEMB Prairie Potholes

Wetland ID	Size (acres)	Cowardin
3	0.1425	PEMC
7	0.29862	PEMC
8	0.26041	PEMC
10	0.04097	PEMC
Total acreage	0.7425	

There are four (4) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Fresh (wet) Meadow wetland communities. They include Wetlands 3, 7, 8, and 10 (**Figure 4-1** and **4-2**). Wetlands 3, and 10 are located south of Interstate 229, while Wetlands 7 and 8 are located north of Interstate 229.

Dominant vegetation in the fresh (wet) meadow communities included reed canary grass (*Phalaris arundinacea* – FACW), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), and/or large barnyard grass (*Echinochloa crus-galli* – FACW) 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. 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. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface.

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 European buckthorn in the tree stratum, and/or stinging needle (*Urtica dioica* – FACW), eastern daisy fleabane (*Erigeron annuus* – FACU), Pensylvania sedge, saw-tooth sunflower (*Helianthus grosseserratus* – FACW), yellow bristle grass (*Setaria pumila* – FACU), Canadian thistle (*Cirsium arvense* - FACU), and/or smooth brome (*Bromus inermis* – FACU) 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 10, but was not present at the other upland sample points.

## 3.1.3 PEMC Wetlands

Table 4 – Summary of PEMC Prairie Potholes

Wetland ID	Size (acres)	Cowardin
4	0.04776	PEMC
5	0.34224	PEMC
6	0.89335	PEMC
9	0.90768	PEMC
Total acreage	2.19103	

There are four (4) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Shallow Marsh wetland communities. These wetlands included Wetlands 4-6, and 9 (**Figure 4-1** and **4-2**). Wetlands 4 and 5 are located south of Interstate 229, while Wetlands 6 and 9 are located north of Interstate 229.

Dominant vegetation in the shallow marsh communities included quaking aspen (*Populus tremuloides* – FAC) and/or silver maple (*Acer saccharinum* – FACW) in the tree stratum; quaking aspen, European buckthorn, and/or meadow willow (*Salix petiolaris* – OBL) in the shrub stratum; and/or narrow-leaf cat-tail (*Typha angustifolia* – OBL), pointed broom sedge (*Carex scoparia* – FACW), reed canary grass, blunt spike rush (*Eleocharis obtuse* – OBL), broad-leaf cat-tail (*Typha latifolia* – OBL), curly dock (*Rumex crispus* – FAC), and/or spotted touch-me-not (*Impatiens capensis* – FACW) in the herbaceous stratum.

A typical soil profile in these communities met the technical hydric soil indicator A11 – 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 A3 – Saturation, A2 – High Water Table, and/or A1 – Surface Water. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface. At the wetland sample point for Wetland 6, there was 3 inches of inundation.

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 European buckthorn in the shrub stratum; and/or yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), Siberian elm (*Ulmus pumila* – UPL), horseweed (*Conyza canadensis* – UPL), and/or smooth brome in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

## 3.2 | Riverine Wetlands

Wetlands 2 and 11 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 5 – Summary of PEMB Riverine Wetlands

Wetland ID	Size (acres)	Cowardin
2	0.0595	PEMB
Total acreage	0.0595	

Wetland 2, within the project limits, is classified utilizing the Riverine Classification and can be best described as a Fresh (wet) Meadow wetland community. It is located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2**).

Dominant vegetation in the fresh (wet) meadow communities included reed canary grass (*Phalaris arundinacea* – FACW), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), and/or large barnyard grass (*Echinochloa crus-galli* – FACW) 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. 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. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface.

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 European buckthorn in the tree stratum, and/or stinging needle (Urtica dioica – FACW), eastern daisy

fleabane (Erigeron annuus – FACU), Pensylvania sedge, saw-tooth sunflower (Helianthus grosseserratus – FACW), yellow bristle grass (Setaria pumila – FACU), Canadian thistle (Cirsium arvense - FACU), and/or smooth brome (Bromus inermis – FACU) 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 10, but was not present at the other upland sample points.

## 3.2.2 PFMC Wetlands

Table 6 – Summary of PEMC Riverine Wetlands

Wetland ID	Size (acres)	Cowardin
11	0.6269	PEMC
Total acreage	0.6269	

Wetland 11, within the project limits, is classified utilizing the Riverine Classification and can be best described as a Shallow Marsh wetland community. It is located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2**).

Dominant vegetation in the shallow marsh communities included quaking aspen (*Populus tremuloides* – FAC) and/or silver maple (*Acer saccharinum* – FACW) in the tree stratum; quaking aspen, European buckthorn, and/or meadow willow (*Salix petiolaris* – OBL) in the shrub stratum; and/or narrow-leaf cat-tail (*Typha angustifolia* – OBL), pointed broom sedge (*Carex scoparia* – FACW), reed canary grass, blunt spike rush (*Eleocharis obtuse* – OBL), broad-leaf cat-tail (*Typha latifolia* – OBL), curly dock (*Rumex crispus* – FAC), and/or spotted touch-me-not (*Impatiens capensis* – FACW) in the herbaceous stratum.

A typical soil profile in these communities met the technical hydric soil indicator A11 – 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 A3 – Saturation, A2 – High Water Table, and/or A1 – Surface Water. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface. At the wetland sample point for Wetland 6, there was 3 inches of inundation.

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 European buckthorn in the shrub stratum; and/or yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), Siberian elm (*Ulmus pumila* – UPL), horseweed (*Conyza canadensis* – UPL), and/or smooth brome in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

# 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 11 delineated wetland basin described above. A summary table of the HGM scores is included in Table 7. Full calculations for HGM can be found in the Hydrogeomophic Model Worksheets in **Appendix D**. The total HGM score for the site is **7.79 FCUs**.

Table 7 – HGM Workbook Functions and Values

**HGM Functions** 1, 2

	TIOM Functions												
Basin ID	Wetland Size (acres)	HGM Method	1	2	3	4	5	6 (Riverine) 6a (Prairie Pothole)	7 (Riverine) 6b (Prairie Pothole)	8	9	To tal FC I <sup>3</sup>	To tal FC U <sup>4</sup>
1	0.07	Prairie Pothole	0.36	0.37	0.28	0.26	0.26	0.29	0.21	N/ A	N/ A	2.0	0. 14
2	0.06	Riverine	N/A	0.34	0.52	0	0.15	0.15	0	0. 1	0. 24	1.5	0. 09
3	0.14	Prairie Pothole	0.34	0.37	0.51	0.35	0.31	0.31	0.17	N/ A	N/ A	2.3 6	0. 33
4	0.05	Prairie Pothole	0.56	0.58	0.66	0.49	0.51	0.55	0.42	N/ A	N/ A	3.7 7	0. 18
5	0.34	Prairie Pothole	0.51	0.7	0.4	0.69	0.59	0.64	0.3	N/ A	N/ A	3.8	1. 31
6	0.89	Prairie Pothole	0.17	0.17	0.47	0.14	0.14	0.16	0.11	N/ A	N/ A	1.3 6	1. 22
7	0.3	Prairie Pothole	0.51	0.73	0.39	0.68	0.56	0.61	0.21	N/ A	N/ A	3.6 9	1. 1
8	0.26	Prairie Pothole	0.25	0.37	0.32	0.34	0.29	0.31	0.13	N/ A	N/ A	2.0 1	0. 52
9	0.91	Prairie Pothole	0.25	0.35	0.33	0.34	0.29	0.32	0.16	N/ A	N/ A	2.0 4	1. 86
10	0.04	Prairie Pothole	0.16	0.19	0.53	0.16	0.14	0.15	0.08	N/ A	N/ A	1.4 1	0. 06
11	0.63	Riverine	N/A	0.37	0.52	0	0.16	0.19	0	0. 08	0. 24	1.5 6	0. 98

<sup>&</sup>lt;sup>1</sup> Prairie Pothole Functions are: 1. Water storage, 2. groundwater recharge, 3. particulate retention, 4. dissolved substances, 5. plant community and carbon sequestration, 6a. Faunal habitat, 6b. Faunal habitat (alternate formula)

## 4.1 | Conclusion

11 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**) with in the project limits. A total of 3.6780 acres of wetland habitat was delineated within the project limits for a total of 7.79 FCUs, as calculated utilizing the HGM. Two (2) of the wetlands are classified as Riverine under the HGM assessments, and the remaining nine (9) 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 these seven (7) wetlands (1,2,3, 4, 5, 6, and 11) are

<sup>&</sup>lt;sup>2</sup> 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

<sup>3.</sup> FCI = Functional Capacity Index

<sup>&</sup>lt;sup>4.</sup> FCU = Functional Capacity Units

presumed to be jurisdictional by the USACE. The remaining four (4) wetlands (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.

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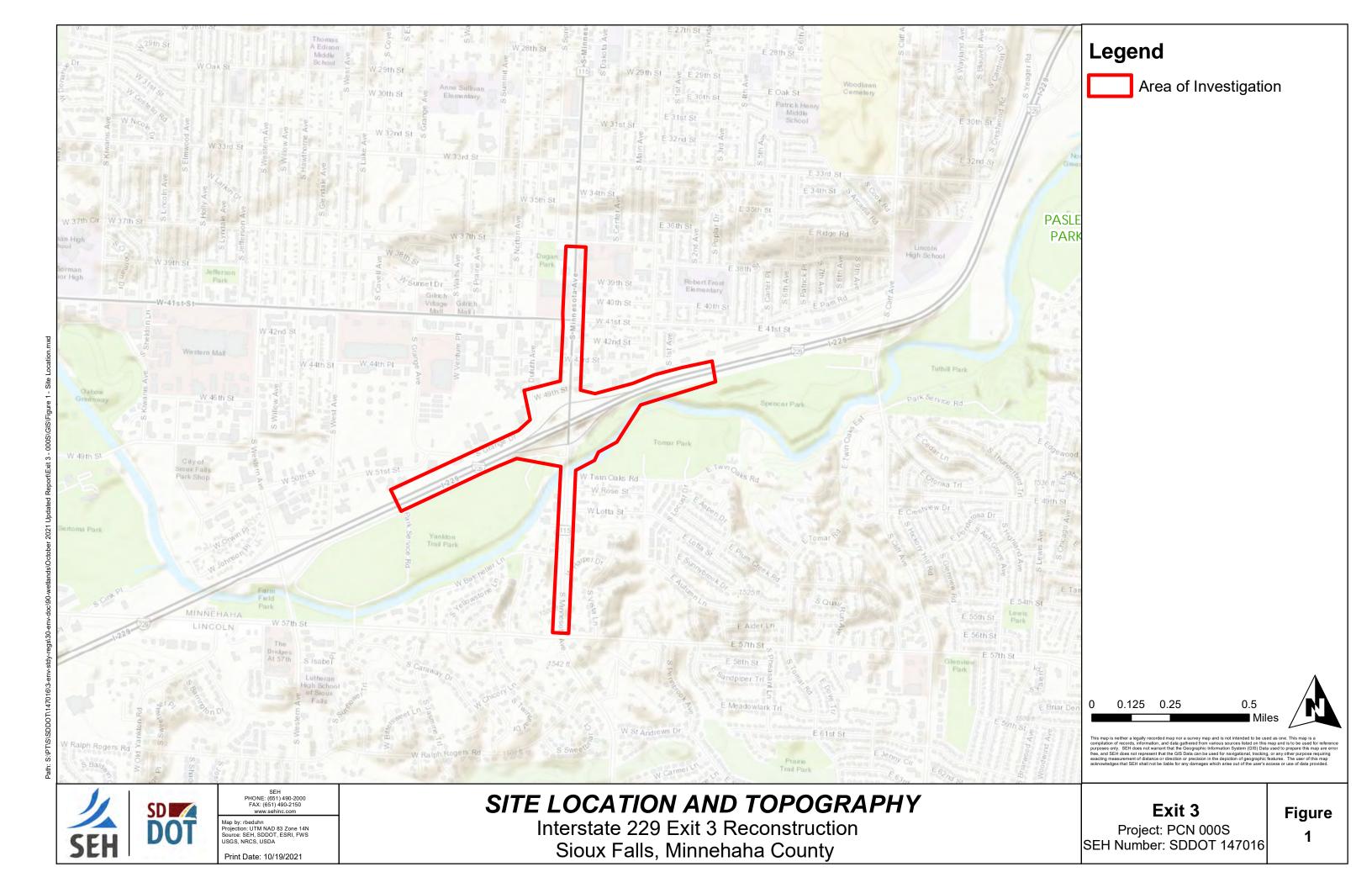
  National Cooperative Soil Survey On-line Database.

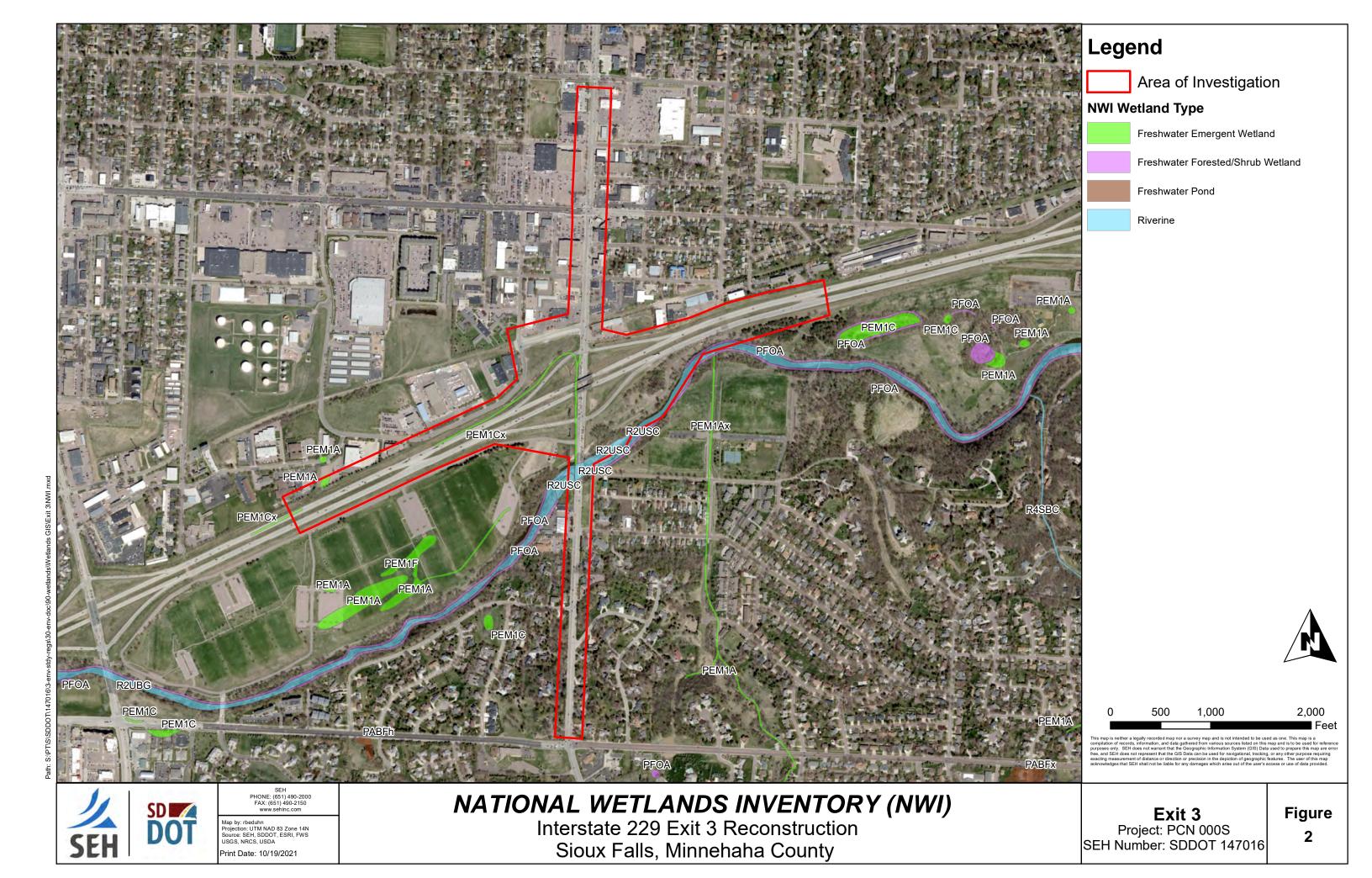
  http://websoilsurvey.nrcs.usda.gov/app/.
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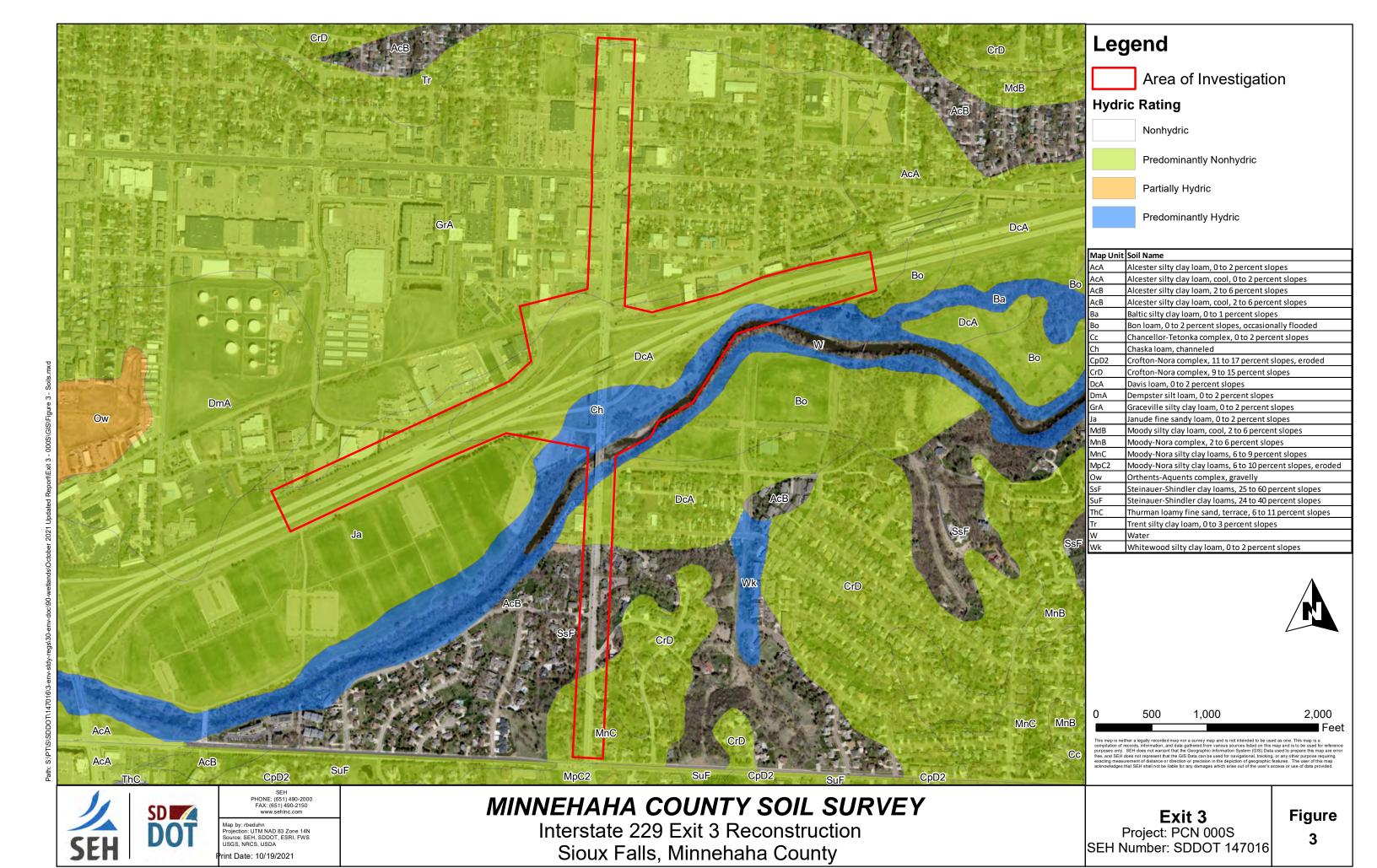


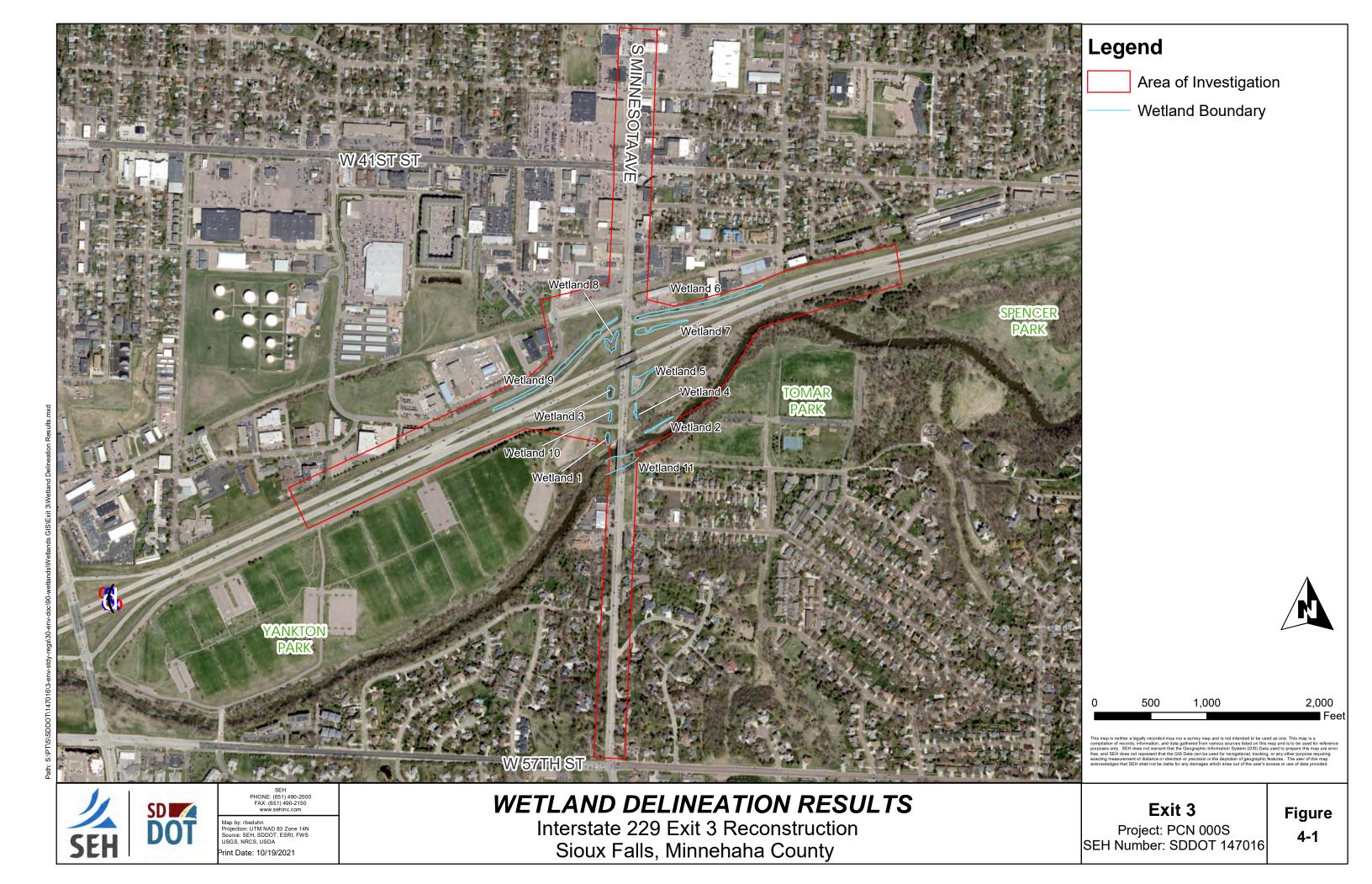
# Figures

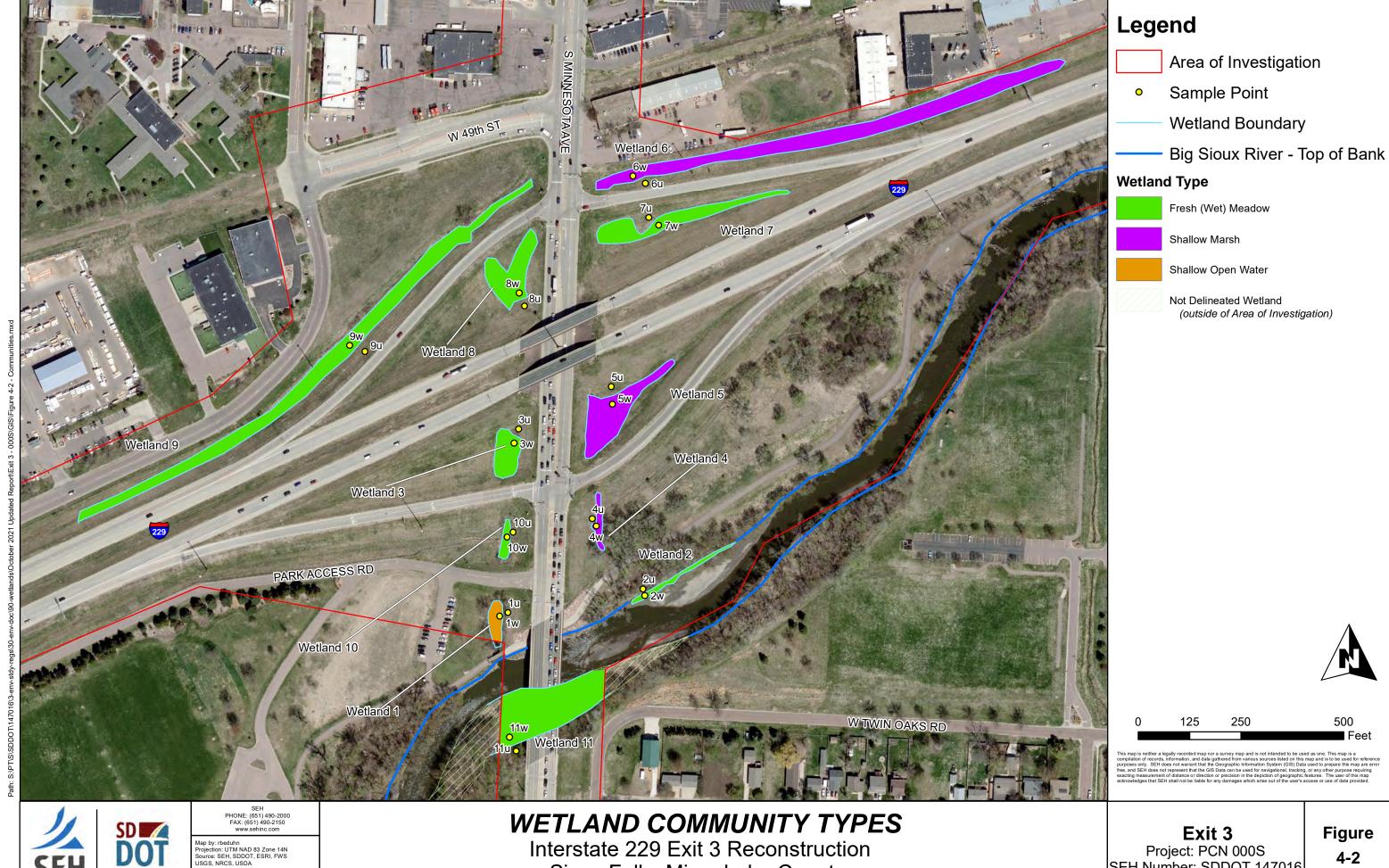
Figure 1 – Site Location and Topography
Figure 2 – National Wetlands Inventory (NWI)
Figure 3 – Minnehaha County Web Soil Survey
Figures 4-1 and 4-2 – Wetland Delineation Results











Sioux Falls, Minnehaha County

Print Date: 10/19/2021

4-2

SEH Number: SDDOT 147016

Appendix A Wetland Delineation Data Forms	

WETLAND DETERMII  Project/Site PCN 000S: I-229 Exit 3 Reconstruction		OATA FORM County: Sid		•		Date:	9/25/201	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling P		1U	
Investigator(s): Rebecca Beduhn			ion, Townsh			32 T101N		
Landform (hillslope, terrace, etc.):  Backslope			relief (conc				ncave	
Slope (%): 8 Lat: 43° 30' 30.053" N			96° 43' 53.6		· · · · ·	UTM NAD		14N
Soil Map Unit Name: Chaska loam, channeled				l Classifica		PEN		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?				in in remark		***	
Are vegetation , soil , or hydrology	-	ly disturbed?		-		•	"	
Are vegetation , soil , or hydrology	-	roblematic?			Are "norma			'es
SUMMARY OF FINDINGS	riatarany p	robiomano.		(If neede	ed, explain a	•		
Hydrophytic vegetation present? N				(	-,,	<b>y</b>		
Hydric soil present?		Is the sa	ampled are	a within a	wetland?	ı	N	
Indicators of wetland hydrology present?			otional wetla				<del>`</del>	
		300, 0	onorial World					
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected adjacent to Wetland 1.								
<b>VEGETATION</b> Use scientific names of plants.				T _				
To Otal and (DL) in a COLD live	Absolute	Dominant	Indicator		nce Test W			
<u>Tree Stratum</u> (Plot size: <u>30' Radius</u> ) 1 <i>Ulmus americana American Elm</i>	% Cover 10	Species Y	Status FACW		of Dominant OBL, FACW,		3	<b>(\</b> \)
2 American Emi			PACVV		Number of E	_		_(A)
3					number of L cies Across a		7	(B)
					of Dominant	_		-` ′
5					OBL, FACW,		42.86%	(A/B)
	10	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevale	nce Index W	Vorksheet		
1 Rhamnus cathartica European Buckthorn	20	<u>Y</u>	FAC		Cover of:			
2				OBL spe		0 x 1 =	0	_
3		· ——		FACW s	·	10 x 2 =	20	_
5				FAC spe		$\frac{30}{35}$ x 3 =	90	_
<u> </u>	20	= Total Cover		UPL spe		10 x 5 =	50	-
Herb stratum (Plot size: 5' Radius )		,		Column		85 (A)	300	(B)
1 Taraxacum officinale Common Dandelion	15	Υ	FACU	Prevaler	nce Index = E		3.53	_` ′
2 Glechoma hederacea Groundivy	10	<u> </u>	FACU					_
3 Carex pensylvanica Pennsylvania sedge	10	Υ	UPL	Hydroph	nytic Vegeta	ation Indic	ators:	
4 Rubus allegheniensis Allegheny Blackberry	10	Υ	FACU	Rapi	d test for hy	drophytic v	egetation/	1
5 Rhamnus cathartica European Buckthorn	10	Υ	FAC	Dom	inance test i	is >50%		
6				Prev	alence index	x is ≤3.0*		
7					phological ad			
8					oorting data i arate sheet)	in Remarks	or on a	
9 10		· ——		<u> </u>	•	rophyticyc	actation*	
	55	= Total Cover		(exp	lematic hydı lain)	ropnytic ve	getation	
Woody vine stratum (Plot size: 30' Radius )  1					rs of hydric soil resent, unless		, ,,	
2				-	rophytic			
	0	= Total Cover		_	etation ent?	N		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 1U

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	<u>Matrix</u>		Re	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	cture	Remarks
0-10	10YR 4/3	100					Sand		
10-20	10YR 4/2	100					Sand		
10-20	10111 4/2	100					Odrid		
± <b>T</b> 0 0		D 1 11	DM D 1				10 :	441 (*	DI D. III I I I I I I I I I I I I I I I
	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa			PL = Pore Lining, M = Matrix
-	il Indicators:		0		1.84 . 6 . 5 .	(0.4)			ematic Hydric Soils:
	osol (A1)				d Matrix	(54)			dox (A16) (LRR K, L, R)
	ic Epipedon (A2)			dy Redo				k Surface (S7	
	ck Histic (A3)	,		pped Mai					or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	•		-	y Minera	. ,		-	Masses (F12) (LRR K, L, R)
	tified Layers (A5)				ed Matrix	(F2)		-	k Surface (TF12)
	n Muck (A10)			oleted Ma		(=0)	Oth	er (explain in	remarks)
	leted Below Dark		· · · · —		Surface	` '			
	k Dark Surface (	•			rk Surfac				ophytic vegetation and wetland
San	dy Mucky Minera	I (S1)	Red	lox Depre	essions (	F8)	hyd	lrology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydri	c soil presen	t? N
Depth (inche	s):				•				<del></del>
Remarks:	<u> </u>								
rtemants.									
HYDROLO	)CV								
1	drology Indicato								
_	cators (minimum o	of one is	required; check a	-			<u>.</u>		<u>licators (minimum of two required)</u>
	Water (A1)				Fauna (B				Soil Cracks (B6)
	ter Table (A2)				uatic Plan		_		Patterns (B10)
X Saturation	, ,				n Sulfide	-			on Water Table (C2)
	arks (B1)				Rhizospl	neres on l	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)			(O.1)		n Visible on Aerial Imagery (C9)
	osits (B3)				e of Redu				or Stressed Plants (D1)
	t or Crust (B4)				ron Redu	ction in Ti	lled Soils		hic Position (D2)
	osits (B5) on Visible on Aeria	Ilmagany	(D7)	(C6)	-l. Cf	- (07)		FAC-Net	tral Test (D5)
	Vegetated Conca		· · ·	=	ck Surfac r Well Da	. ,			
	ained Leaves (B9)			-	xplain in I				
	` '			Other (L	λριαιτί τι τ	(Ciliaiks)			
Field Obser		Voc	Ma	~	Depth /:	nchos).			
Surface wate Water table	•	Yes Yes	No No	X	Depth (in			- In-	licators of wetland
Saturation pr		Yes	X No		Depth (i		6	_	drology present?
(includes car		163			- Dobut (II	101100).	0	-   '''	
		m corre-	monitoring	norial al-	otos ===	vious is -	nootions\ :f	ovoiloble:	
Describe rec	orded data (strea	ııı gauge	, monitoring well,	aeriai pr	iotos, pre	vious ins	pections), If	avaliable:	
Remarks:									
	t precipitation o	condition	ne were datara	nined "\/	Vatter +	an nor	mal" (Anno	ndiv (C)	
Allecedell	r bi coibirarioti (	onunu	is well detelli	mi <del>c</del> u V	v CitCi li	iaii IIUII	nai (Appe	11uix 0).	

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sic		_	ıg Date:	9/25/201	8	
Applicant/Owner: South Dakota Department of Transportation	<u> </u>	State:	South Da	akota Sampling	g Point:	1W		
Investigator(s): Rebecca Beduhn		Secti	ion, Townshi	p, Range:	S32 T101N F	R49W		
Landform (hillslope, terrace, etc.): Toeslope		Local	relief (conca	ive, convex, none):	Cor	ncave		
Slope (%): 1 Lat: 43° 30' 30.053" N		_ Long: 9	96° 43' 53.61	11" W Datum:	UTM NAD	83 Zone 1	14N	
Soil Map Unit Name: Chaska loam, channeled			NWI	Classification:	PEM	1A		
Are climatic/hydrologic conditions of the site typical for this time o	of the year?		N (If	f no, explain in rema	arks)			
Are vegetation , soil , or hydrology	•	ly disturbed?		•	mal circumstar	nces"		
Are vegetation X , soil , or hydrology	•	roblematic?		Ale non		sent? Y	'es	
SUMMARY OF FINDINGS	,,,			(If needed, explai	n any answers	in remar	rks.)	
Hydrophytic vegetation present? N								
Hydric soil present?		Is the sampled area within a wetland?						
Indicators of wetland hydrology present?		If yes, or	otional wetlar	nd site ID:W	Vetland 1	_		
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected in Wetland 1.								
VEGETATION Use scientific names of plants.								
Plante.	Absolute	Dominant	Indicator	Dominance Test	Worksheet			
<u>Tree Stratum</u> (Plot size: 30' Radius )	% Cover	Species	Status	Number of Domin				
1				that are OBL, FAC		0	(A)	
2				Total Number	of Dominant		_	
3				Species Acros	ss all Strata:	0	(B)	
				Percent of Domin	•			
5				that are OBL, FAC	CW, or FAC:	0.00%	(A/B)	
	0 :	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevalence Index				
				Total % Cover of:		•		
				OBL species	0 x 1 =	0	_	
				FACW species	0 x 2 =	0	_	
5		<del></del> .		FAC species FACU species	0 x 3 = 0 x 4 =	0	_	
°	0 :	= Total Cover		UPL species	$\frac{0}{0}$ x 4 =	0	_	
Herb stratum (Plot size: 5' Radius )		- Total Gover		Column totals	$\frac{0}{0}$ (A)	0	(B)	
1				Prevalence Index			_(5)	
2				Frevalence index	. – B/A – <u> </u>		_	
3				Hydrophytic Veg	netation Indica	ators:		
4					hydrophytic ve		1	
5				Dominance te		-g-16.11-11.		
6				Prevalence in	ndex is ≤3.0*			
7				Morphologica	al adaptations*	(provide		
8					ata in Remarks			
9				separate shee				
10				Problematic h	nydrophytic veg	getation*		
	0 :	= Total Cover		(explain)				
Woody vine stratum (Plot size: 30' Radius )				*Indicators of hydric	soil and wetland I	hydrology n	nust be	
1					ess disturbed or pr	roblematic		
2				Hydrophytic				
	0 :	= Total Cover		vegetation present?	N			
Remarks: (Include photo numbers here or on a separate sheet)			Į	procent:				
This wetland has no vegetation- likely from stormwater i	nputs							
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	lant List:						
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati Engineers, Engineer Research and Development Center, Cold Regions Researc						my Corps o	of	

SOIL Sampling Point: 1W

Profile Desci Depth	Matrix			Re	dox Feat	<u>ure</u> s				
(Inches)	Color (moist)	%	Color (m		%	Type*	Loc**	Tex	ture	Remarks
0-6	10YR 2/1	100						Sand		
6-10	10YR 4/2	90	7.5YR	4/6	10	С	PL	Sand		
10-20	10YR 6/1	85	7.5YR	4/6	15	С	М	Sand		
10 20	101110/1		7.011	-1/ 0	10	<del>                                     </del>	141	Curia		
						<u> </u>				
ype: C = Co	oncentration, D =	Depletion	on, RM = R	educe	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
Hydric Soil	I Indicators:							Indicate	ors for Prob	lematic Hydric Soils:
	osol (A1)			Sar	ndy Gleye	ed Matrix	(S4)			edox (A16) ( <b>LRR K, L, R</b> )
	c Epipedon (A2)				ndy Redo					67) ( <b>LRR K, L)</b>
	k Histic (A3)				pped Ma	, ,			•	at or Peat (S3) ( <b>LRR K, L, R</b> )
	ogen Sulfide (A4	-			-	ky Minera				e Masses (F12) ( <b>LRR K, L, R</b> )
	ified Layers (A5)	)				ed Matrix	(F2)		-	ark Surface (TF12)
	Muck (A10)		, <b>,</b> ,		oleted Ma	, ,	(=a)	Oth	er (explain i	n remarks)
	eted Below Dark		(A11)			Surface	. ,			
	k Dark Surface (/	•				rk Surfac	` ,			drophytic vegetation and wetland
Sand	dy Mucky Minera	I (S1)	_	Red	dox Depr	essions (	(F8)	hyd	rology must	be present, unless disturbed or problematic
										problematic
estrictive L	ayer (if observe	ed):								
										m42 V
						_		Hydri	c soil prese	nt? Y
epth (inches	s):					<del>-</del> -		Hydri	c soil prese	mr <u>1</u>
epth (inches						-		Hydri	c soil prese	iit.r <u>1</u>
epth (inchesemarks:	GY					-		Hydri	c soil prese	T T
epth (inches emarks: YDROLO /etland Hyd	GY Irology Indicato					-				
epth (inches emarks: IYDROLO /etland Hyd	GY		required; c	heck a	all that ap	- - pply)				ndicators (minimum of two require
epth (inches emarks: YDROLO /etland Hyd rimary Indicators X Surface V	GY Irology Indicato ators (minimum o		required; c	heck a	Aquatic	Fauna (B	,		Secondary I	ndicators (minimum of two require Soil Cracks (B6)
epth (inches emarks: IYDROLO /etland Hyd rimary Indica K Surface V K High Water	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2)		required; c	heck a	Aquatic True Aq	Fauna (B uatic Plar	rts (B14)	:	Secondary II Surface Drainaç	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10)
YDROLO /etland Hyd rimary Indica X Surface V X High Wate X Saturation	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3)		required; c	heck a	Aquatic True Aq Hydroge	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1	:	Secondary II Surface Drainaç Dry-Se	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
PYDROLO  Vetland Hydrimary Indicator  X Surface V  High Wate  X Saturation  Water Ma	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) irks (B1)		required; c	heck a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar n Sulfide	nts (B14) Odor (C1	:	Secondary II Surface Drainaç Dry-Se: Crayfis	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
epth (inches emarks: VPDROLO Vetland Hydrimary Indica X Surface V X High Water X Saturation Water Ma Sediment	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2)		required; c	heck a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar n Sulfide I Rhizosp	nts (B14) Odor (C1 heres on l	) _iving Roots	Secondary II Surface Drainage Dry-See Crayfis	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9)
YDROLO /etland Hydrimary Indica X Surface V X High Wate X Saturation Water Ma Sediment Drift Depo	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3)		required; c	heck a	Aquatic True Aquatic Hydroge Oxidized (C3) Presence	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on l	) Living Roots (C4)	Secondary II Surface Drainaç Dry-Sea Crayfisi Saturat	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
epth (inches emarks: IYDROLO /etland Hyd rimary Indica X Surface V X High Wate X Saturation Water Ma Sediment Drift Depo	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) osits (B3) or Crust (B4)		required; c	heck a	Aquatic True Aquatic Hydroge Oxidized (C3) Presence	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	nts (B14) Odor (C1 heres on l	) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9)
epth (inches emarks: IYDROLO /etland Hyd rimary Indica X Surface V X High Water X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) osits (B3) or Crust (B4)	of one is		heck a	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6)	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	ots (B14) Odor (C1 heres on laced Iron (action in Ti	) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
YDROLO /etland Hyd rimary Indic / Surface V / High Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation	GY Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) osits (B3) or Crust (B4) isits (B5)	<u>of one is</u>	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu	odor (C1 heres on laced Iron of aced Iron of action in Ti	) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
Pydrolo  Wetland Hydrimary Indica  X Surface V X High Water X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) irks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aeria	of one is I Imagery ve Surfac	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I (C6) Thin Mu Gauge C	Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da	odor (C1 heres on laced Iron of aced Iron of action in Ti	) Living Roots (C4) Iled Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
epth (inches emarks: IYDROLO /etland Hyd rimary Indica X Surface V X High Wate X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely Water-Sta	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aeria Vegetated Conca	of one is I Imagery ve Surfac	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I (C6) Thin Mu Gauge C	Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da	odor (C1 heres on laction in Tiese (C7) ata (D9)	) Living Roots (C4) Iled Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
IYDROLO Vetland Hyd Irimary Indica X Surface V X High Water X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely Water-Sta ield Observ	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aeria Vegetated Conca ained Leaves (B9) rations: r present?	I Imagery ve Surfac )	y (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I (C6) Thin Mu Gauge C	Fauna (Buatic Plar n Sulfide d Rhizospee of Reduron Reduck surfactor Well Dates explain in	nts (B14) Odor (C1 heres on laction in Tiee (C7) ata (D9) Remarks)	) Living Roots (C4) Iled Soils	Secondary II Surface Drainag Dry-Se: Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
x Surface V X High Water X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely Water-Sta ield Observ urface water Vater table p	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aeria Vegetated Conca ained Leaves (B9) rations: r present? resent?	I Imagery ve Surfac ) Yes Yes	y (B7) the (B8)  X X	No No	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I (C6) Thin Mu Gauge C	Fauna (Buatic Plar on Sulfide d Rhizospee of Reduron Reduck or Well Data explain in	nts (B14) Odor (C1 heres on laction in Tiese (C7) hata (D9) Remarks) nches):	) Living Roots (C4) Iled Soils	Secondary II Surface Drainag Dry-Se: Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
epth (inches emarks:  IYDROLO  /etland Hydrimary Indica  X Surface V X High Water X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely Water-State ield Observ urface water /ater table paturation pre	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) Deposits (B3) or Crust (B4) Deposits (B5) n Visible on Aeria Vegetated Conca ained Leaves (B9) rations: r present? resent?	I Imagery ve Surfac )	y (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I (C6) Thin Mu Gauge C	Fauna (Buatic Plar n Sulfide d Rhizospee of Reduron Reduck surfactor Well Dates explain in	nts (B14) Odor (C1 heres on laction in Tiese (C7) hata (D9) Remarks) nches):	) Living Roots (C4) Iled Soils	Secondary II Surface Drainag Dry-Se: Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
IYDROLO Vetland Hyd Vetland Hy	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) in (A3) in (A3) or Crust (B4) in (B5) in Visible on Aeria Vegetated Conca ained Leaves (B9) rations: in present? ir present? iresent? illary fringe)	I Imagery ve Surfac ) Yes Yes Yes	(B7) De (B8)  X X X	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge of Other (E	Fauna (Bruatic Plans Sulfide Reduced Surface Face Face Face Face Face Face Face F	nts (B14) Odor (C1 heres on laction in Ti e (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainag Dry-Sea Crayfisi Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
IYDROLO Vetland Hyd Vetland Hy	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) n (A3) Irks (B1) Deposits (B2) Deposits (B3) or Crust (B4) Deposits (B5) n Visible on Aeria Vegetated Conca ained Leaves (B9) rations: r present? resent?	I Imagery ve Surfac ) Yes Yes Yes	(B7) De (B8)  X X X	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge of Other (E	Fauna (Bruatic Plans Sulfide Reduced Surface Face Face Face Face Face Face Face F	nts (B14) Odor (C1 heres on laction in Ti e (C7) hata (D9) Remarks) nches): nches): nches):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainag Dry-Sea Crayfisi Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
IYDROLO Vetland Hyd Vetland Hy	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) in (A3) in (A3) or Crust (B4) in (B5) in Visible on Aeria Vegetated Conca ained Leaves (B9) rations: in present? ir present? iresent? illary fringe)	I Imagery ve Surfac ) Yes Yes Yes	(B7) De (B8)  X X X	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge of Other (E	Fauna (Bruatic Plans Sulfide Reduced Surface Face Face Face Face Face Face Face F	nts (B14) Odor (C1 heres on laction in Ti e (C7) hata (D9) Remarks) nches): nches): nches):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainag Dry-Sea Crayfisi Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
Water Massely Water-State Vater table paturation prescribe recommends.	GY  Irology Indicato ators (minimum of Vater (A1) er Table (A2) in (A3) in (A3) in (A3) or Crust (B4) in (B5) in Visible on Aeria Vegetated Conca ained Leaves (B9) rations: in present? ir present? iresent? illary fringe)	I Imagery ve Surfac ) Yes Yes Yes	y (B7) the (B8)  X X X A  A  A  A  A  A  A  A  A  A  A	No No No g well,	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge d Other (E	Fauna (Buatic Plaren Sulfide Reduced Reduced Face)  Explain in Depth (in Dep	nts (B14) Odor (C1 heres on laction in Tiee (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) Iled Soils  2 0 0	Secondary II Surface Drainag Dry-Se: Crayfisi Saturat Stunted X Geomo FAC-No	ndicators (minimum of two requires Soil Cracks (B6)) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) ion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) seutral Test (D5)

	the year?	Local	South D on, Townsh relief (conca 96° 43' 49.1	akota ip, Range:			2U R49W	
Investigator(s): Rebecca Beduhn  Landform (hillslope, terrace, etc.): Footslope  Slope (%): 4 Lat: 43° 30' 30.768" N  Soil Map Unit Name: Chaska loam, channeled  Are climatic/hydrologic conditions of the site typical for this time of t  Are vegetation , soil , or hydrology s	-	Local	relief (conca	ip, Range:			R49\M	
Landform (hillslope, terrace, etc.): Footslope Slope (%): 4 Lat: 43° 30' 30.768" N Soil Map Unit Name: Chaska loam, channeled Are climatic/hydrologic conditions of the site typical for this time of t Are vegetation , soil , or hydrology s	-	Local	relief (conca	-				
Slope (%): 4 Lat: 43° 30' 30.768" N  Soil Map Unit Name: Chaska loam, channeled  Are climatic/hydrologic conditions of the site typical for this time of the service of the	-	-	•	,	. none):	Co	ncave	
Soil Map Unit Name: Chaska loam, channeled  Are climatic/hydrologic conditions of the site typical for this time of t  Are vegetation, soil, or hydrology s	-			98" W	Datum:	UTM NAD		14N
Are climatic/hydrologic conditions of the site typical for this time of t  Are vegetation, soil, or hydrology s	-			Classificat	_		ne	
Are vegetation, soil, or hydrology s	-			f no, explai				
		y disturbed?		-		nal circumsta	nnaaa"	
, as regetation, con, strip an energy	-	roblematic?			Are norm		esent?	⁄es
SUMMARY OF FINDINGS	р.			(If neede	d. explain	any answer	_	
Hydrophytic vegetation present?					, ,	,		
Hydric soil present?		Is the sa	ampled area	a within a v	vetland?		N	
Indicators of wetland hydrology present?			tional wetla			-		
		,, -,						
Remarks: (Explain alternative procedures here or in a separate repo	ort.)							
Sample Point collected adjacent to Wetland 2.								
<b>VEGETATION</b> Use scientific names of plants.								
	Absolute % Cover	Dominant Species	Indicator			Vorksheet		
Tree Stratum (Plot size: 30' Radius )  1 Rhamnus cathartica European Buckthorn	% Cover	Y	Status FAC			nt Species W, or FAC:	3	(A)
2 Luropean Bucktrom			TAO			f Dominant		_(^)
3						all Strata:	5	(B)
4				Percent	of Domina	nt Species		<b>-</b> ` ′
5						W, or FAC:	60.00%	(A/B)
_	50 =	Total Cover						_
Sapling/Shrub stratun (Plot size: 15' Radius )						Worksheet		
1				Total % (				
				OBL spec	_	0 x 1 =		_
3				FACW specific	_	25 x 2 = 50 x 3 =		-
5				FACU sp		10 x 4 =		_
	0 =	Total Cover		UPL spec	_	10 x 5 =		_
Herb stratum (Plot size: 5' Radius )				Column t	otals	95 (A)	290	(B)
1 Urtica dioica Stinging Nettle	15	Υ	FACW	Prevalen	ce Index =	= B/A =	3.05	_
2 Erigeron annuus Eastern Daisy Fleabane	10	Y	FACU			_		_
3 Carex pensylvanica Pennsylvania sedge	10	Υ	UPL	Hydroph	ytic Vege	tation Indic	ators:	
4 Helianthus grosseserratus Saw-Tooth Sunflower	10	Υ	FACW			nydrophytic	vegetatio	า
5						t is >50%		
6				Preva	alence ind	ex is ≤3.0*		
						adaptations		J
9					orting data rate sheet	a in Remark ·\	s or on a	
10						drophytic ve	edetation*	:
· ·	45 =	Total Cover		(expl	_	aropriyao v	gotation	
Woody vine stratum (Plot size: 30' Radius )				*Indicators	s of hydric so	oil and wetland	l hydrology	must be
1						s disturbed or		
2				-	ophytic			
	0 =	Total Cover		vege pres	tation	Y		
Remarks: (Include photo numbers here or on a separate sheet)				Pies		ı		

SOIL Sampling Point: 2U

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		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	kture	Remarks
0-10	10YR 3/2	100					Silt Loam		
10-18	10YR 3/3	95	7.5YR 4/4	5	С	М	Sandy Loa	am	
					_		,		
*Type: C = C	Concentration, D =	: Denletic	n RM = Reduce	d Matrix	MS = Ma	asked Sa	nd Grains	**Location	: PL = Pore Lining, M = Matrix
	il Indicators:	Ворюш	on, raw radado	a matrix,	IVIO IVIO	aonoa oa			ematic Hydric Soils:
_	osol (A1)		San	dv Gleve	ed Matrix	(S4)			dox (A16) ( <b>LRR K, L, R</b> )
	ic Epipedon (A2)			idy Redo		(0.)		rk Surface (S7	
	ck Histic (A3)			pped Ma				-	t or Peat (S3) ( <b>LRR K, L, R</b> )
	lrogen Sulfide (A4	.)			ky Minera	al (F1)		=	Masses (F12) (LRR K, L, R)
	atified Layers (A5)	-		-	ed Matrix			_	k Surface (TF12)
	n Muck (A10)			leted Ma		` '		er (explain in	· · · · · · · · · · · · · · · · · · ·
	oleted Below Dark	Surface			Surface	(F6)			,
	ck Dark Surface (		· · · · —		rk Surfac	, ,	*Indi	cators of hydr	ophytic vegetation and wetland
	idy Mucky Minera	•			essions (				e present, unless disturbed or
		. ,			,	,	,	0,7	problematic
Restrictive	Layer (if observe	vq).							
Type:	Layer (II observe	ω).					Hvdri	c soil presen	t? N
Depth (inche	is).				•		n y win	o oon proocn	·· <u> </u>
					•				
Remarks:									
LIVERGLE	201/								
HYDROLO									
1	drology Indicato								
-	cators (minimum o	of one is	required; check a	•					dicators (minimum of two required)
	Water (A1)				Fauna (B				Soil Cracks (B6)
	iter Table (A2)				uatic Plan				Patterns (B10)
Saturatio						Odor (C1			son Water Table (C2)
	arks (B1)				Rhizosp	heres on	Living Roots		Burrows (C8)
	nt Deposits (B2)			(C3)	f Dd-		(CA)		n Visible on Aerial Imagery (C9)
	oosits (B3)					ced Iron			or Stressed Plants (D1)
	it or Crust (B4) osits (B5)			(C6)	ron Redu	cuon in T	illed Soils		ohic Position (D2) utral Test (D5)
	on Visible on Aeria	l Imagery	(B7)		ck Surfac	e (C7)			itiai Test (D3)
	Vegetated Conca		· ·		r Well Da				
	tained Leaves (B9)					Remarks)	1		
Field Obser				•	<u>'</u>				
Surface water		Yes	No	Х	Depth (i	nches):			
Water table		Yes	No	X	Depth (i			- Inc	licators of wetland
Saturation p	•	Yes	No	X	Depth (i			_	/drology present?
-	ncludes capillary fringe)								
	corded data (strea	m gauge	e, monitorina well.	aerial ph	notos, pre	evious ins	spections), if	available:	
	(2 2/ 00	59	,		., [		,,		
1									
Remarks:									
	t precipitation o	conditio	ns were determ	nined "V	Vetter th	nan nori	mal" (Appe	ndix C).	

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	Sampling	a Date:	9/25/20 <sup>-</sup>	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling		2W	_
Investigator(s): Rebecca Beduhn			ion, Townsh		, ,	S33 T101	N R49W	
Landform (hillslope, terrace, etc.):  Toeslope				ave, convex,	none):		Concave	
Slope (%): 2 Lat: 43° 30' 30.611" N		_	° 43' 49.1		, _ Datum:		D83 Zone	: 14N
Soil Map Unit Name: Chaska loam, channeled		J		l Classificati	-		lone	
Are climatic/hydrologic conditions of the site typical for this time	of the vear?			If no, explair				
Are vegetation , soil , or hydrology	-	ly disturbed?		-		mal circums	stanaaa"	
Are vegetation , soil , or hydrology	-	roblematic?		,	tie non		resent? `	Yes
SUMMARY OF FINDINGS				(If needed	l. explair	۔ n any answ		
Hydrophytic vegetation present?					<u>, , , , , , , , , , , , , , , , , , , </u>			,
Hydric soil present?		Is the sa	ampled are	a within a w	etland?	•	Υ	
Indicators of wetland hydrology present?			otional wetla			etland 2		
<u> </u>		, 555, 51						
Remarks: (Explain alternative procedures here or in a separate	report.)							
Sample Point collected in Wetland 2.								
<b>VEGETATION</b> Use scientific names of plants.				T				
Too Charters (District 201 Dedice )	Absolute % Cover	Dominant	Indicator Status			Workshee	i	
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status			ant Species CW, or FAC:	2	(A)
2	· ——					of Dominant		_(^)
3						s all Strata:	2	(B)
				Percent of	of Domin	ant Species		_` ′
5	-					W, or FAC:	100.00%	(A/B)
	0	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )						k Workshee	et	
1				Total % C				
2				OBL spec	-	30 x 1		_
3				FACW spec	-	75 x 2 0 x 3		_
5				FACU spec	_	$\frac{0}{0}$ x 4		_
	0	= Total Cover		UPL spec	-	$\frac{0}{0}$ x 5		_
Herb stratum (Plot size: 5' Radius )		,		Column to	-	105 (A)	180	(B)
1 Phalaris arundinacea Reed Canary Grass	35	Υ	FACW	Prevalend	e Index		1.71	_` ′
2 Persicaria lapathifolia Dock-Leaf Smartweed	25	<u>Y</u>	FACW			_,,,,		_
3 Eleocharis obtusa Blunt Spike-Rush	20	N	OBL	Hydroph	ytic Veg	etation Ind	icators:	
4 Impatiens capensis Spotted Touch-Me-Not	15	N	FACW	X Rapid	test for	hydrophytic	vegetatio	n
5 Schoenoplectus tabernaemontani Soft-Stem Club-Rush	10	N	OBL	X Domi	nance te	est is >50%		
6				X Preva	lence in	dex is ≤3.0*	;	
7				Morpl	nological	l adaptation	s* (provide	е
8					_	ta in Remar	ks or on a	
9	- ——				ate shee	•		
10	105	= Total Cover		Proble (expla		ydrophytic	/egetation	*
Woody vine stratum (Plot size: 30' Radius )	100	- Total Cover		I — ' '	·			
1					•	soil and wetla ess disturbed o	, ,,	
2					phytic			
	0	= Total Cover		veget	ation			
Demonstra (Include what were true to a constant to a const				prese	nt?	Υ		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 2W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	<u>ıres</u>				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-6	10YR 3/2	100					Silt Loam		
6-12	10YR 2/1	80	10YR 5/8	20	С	М	Sandy Loa	am	
12-18	10YR 6/2	80	10YR 5/6	20	С	PL	Sandy Loa		
12-10	10111 0/2	00	10111 3/0	20		1 L	Oarluy Loa	3111	
*Type: C = C	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location	: PL = Pore Lining, M = Matrix
	il Indicators:								ematic Hydric Soils:
Hist	osol (A1)		San	dy Gleye	ed Matrix	(S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
—— Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dar	k Surface (S7	() (LRR K, L)
Blac	ck Histic (A3)		Stri	oped Mat	trix (S6)		5 cr	m Mucky Peat	or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A4	.)	Loa	my Muck	y Minera	ıl (F1)	Iron	n-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dai	k Surface (TF12)
	n Muck (A10)			leted Ma			Oth	er (explain in	remarks)
	leted Below Dark		· · · · · · · · · · · · · · · · · · ·		Surface				
	k Dark Surface (/	•			rk Surfac				ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (	F8)	hyd	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydri	c soil presen	t? Y
Depth (inche	es):								
Remarks:									
HYDROLO	OGY								
	drology Indicato	rs:							
1			required; check a	ll that an	nlv)		9	Secondary Inc	dicators (minimum of two required)
-	Water (A1)	or oric is	required, crieck a	-	<del>נייט</del> Fauna (B	13)	<u> </u>		Soil Cracks (B6)
	ter Table (A2)				uatic Plan				Patterns (B10)
X Saturation			-			Odor (C1	)		son Water Table (C2)
	arks (B1)					-	Living Roots	Crayfish	Burrows (C8)
Sedimen	t Deposits (B2)			(C3)			-	Saturation	n Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		·	Presence	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		<u> </u>		ron Redu	ction in T	lled Soils		phic Position (D2)
	osits (B5)			(C6)				X FAC-Neu	ıtral Test (D5)
	on Visible on Aeria		· ·	i	ck Surfac				
	Vegetated Conca		e (B8)	_	r Well Da				
	tained Leaves (B9)			Other (E	xpıaın ın ı	Remarks)			
Field Obser		V	NI-	V	D =4l= /:				
Surface water	•	Yes	X No	Х	Depth (i		6	. l	licators of wetland
Water table   Saturation pi		Yes Yes	X No		Depth (i Depth (i	-	6 2	_	/drology present?
(includes car		103	<u> </u>		Dopui (i	1101103).		-   '''	, are logy present:
		m dalido	, monitoring well,	aerial nh	notoe pro	vioue inc	nections) if	available:	
Pescine ied	orueu uata (Stied	yauye	, monitoring well,	αστιαί μι	ioios, pre	vious IIIS	pecuona), II	avaliable.	
Remarks:									
	t precipitation of	condition	ns were determ	nined "V	Vetter th	nan nori	nal" (Appe	ndix C).	
	- p p. (callott)		40.0111				(, , , , , , , ,	· · · · · · · · · · · · · · · · · · ·	

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	<b>n</b> Sampling	g Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation	<del></del>	State:	South D	akota	Sampling	Point:	3U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	•	S32 T101	N R49W	
Landform (hillslope, terrace, etc.): Footslope			relief (conca			(	Concave	
Slope (%): 3 Lat: 43° 30' 34.465" N		_	96° 43' 53.5		Datum:	UTM NA	D83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NW	l Classifica	tion:	Р	EMA	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (I	If no, expla	in in rema	arks)		
Are vegetation , soil , or hydrology	-	ly disturbed?		, ,		nal circums	tances"	
Are vegetation , soil , or hydrology	_	roblematic?			Ale Hon		resent? \	Yes
SUMMARY OF FINDINGS	, ,			(If neede	ed, explair	n any answ		
Hydrophytic vegetation present? N				`				
Hydric soil present?		Is the sa	ampled area	a within a	wetland?	•	N	
Indicators of wetland hydrology present?			otional wetla					
		,, -,						
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected adjacent to Wetland 3.								
<b>VEGETATION</b> Use scientific names of plants.								
Tree Charters (Diet size, 201 Dedice	Absolute % Cover	Dominant	Indicator Status			Workshee	i	
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status			ant Species CW, or FAC:	1	(A)
2						of Dominant		_('')
3						s all Strata:	2	(B)
				Percent	of Domin	ant Species		<b>-</b> ` ′
5						W, or FAC:	50.00%	(A/B)
	0	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )						k Workshee	≱t	
1					Cover of:			
2				OBL spe	-	0 x 1		_
3				FACW s	· -	0 x 2 50 x 3		_
5				FACU s	-	50 x 4		_
	0	= Total Cover		UPL spe	· _	0 x 5		_
<u>Herb stratum</u> (Plot size: 5' Radius )				Column	totals	100 (A)	350	(B)
1 Setaria pumila Yellow Bristle Grass	50	Υ	FAC	Prevaler	nce Index	= B/A =	3.50	_
2 Cirsium arvense Canadian Thistle	35	Υ	FACU					_
3 Asclepias syriaca Common Milkweed	15	N	FACU	Hydrop	nytic Veg	etation Ind	icators:	
4				Rap	id test for	hydrophytic	: vegetatio	n
5						st is >50%		
6				Pre\	alence in	dex is ≤3.0°		
						l adaptation		
9					oorting da arate shee	ta in Remar	ks or on a	
						•	voqetation;	*
	100	= Total Cover				yuropriyuc	/egetation	
Woody vine stratum (Plot size: 30' Radius )				<del></del> -	·	soil and wotla	nd hydrology	must bo
1 -					•	son and wenan ess disturbed o	, ,,	
2				-	rophytic			
	0	= Total Cover		_	etation			
Remarks: (Include photo numbers here or on a separate shoot)				pres	ent ?	N		
Woody vine stratum (Plot size: 30' Radius )  1		= Total Cover		Prob (exp *Indicato p <b>Hyd</b> vege	olematic h lain) rs of hydric : resent, unle rophytic	ydrophytic v	nd hydrology	m

SOIL Sampling Point: 3U

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	kture	Remarks
0-6	10YR 2/2	100					Silt Loam		
6-12	10YR 3/3	100					Silt Loam		
12-20	10YR 4/4	100					Silt Loam		
12-20	10111 4/4	100					Olit Loaili		
*Type: C = C	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location:	: PL = Pore Lining, M = Matrix
	il Indicators:							ors for Proble	ematic Hydric Soils:
Hist	osol (A1)		San	dy Gleye	ed Matrix	(S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dar	rk Surface (S7	) (LRR K, L)
Blad	ck Histic (A3)		Stri	oped Mat	trix (S6)		5 cı	m Mucky Peat	or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A4	.)	Loa	my Muck	xy Minera	l (F1)	Iror	n-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dar	k Surface (TF12)
	n Muck (A10)			leted Ma			Oth	er (explain in	remarks)
	leted Below Dark		· · · · · · · · · · · · · · · · · · ·		Surface	` '			
	k Dark Surface (/	•			rk Surfac				ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (	F8)	hyd	Irology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydri	c soil presen	t? N
Depth (inche	es):				- '				
Remarks:									
HYDROLO	)GY								
	drology Indicato	rs:							
1			required; check a	ll that an	nlv)			Secondary Inc	dicators (minimum of two required)
_	Water (A1)	<u> </u>	roquirou, oricon u	-	Fauna (B	13)			Soil Cracks (B6)
	ter Table (A2)		-		uatic Plan				Patterns (B10)
Saturatio						Odor (C1	)		son Water Table (C2)
	arks (B1)					-	Living Roots		Burrows (C8)
Sedimen	t Deposits (B2)			(C3)				Saturatio	n Visible on Aerial Imagery (C9)
	osits (B3)			Presence	e of Redu	ced Iron	(C4)	Stunted of	or Stressed Plants (D1)
	t or Crust (B4)				ron Redu	ction in Ti	lled Soils		phic Position (D2)
	osits (B5)		(57)	(C6)				FAC-Neu	ıtral Test (D5)
	on Visible on Aeria		· ·		ck Surfac				
	Vegetated Conca		е (ва)		r Well Da				
	tained Leaves (B9)			Other (E	хріаін ін і	Remarks)			
Field Obser		Voc	Na	~	Donth /	nobos):			
Surface wate Water table	•	Yes Yes	No No	X	Depth (in			Inc	licators of wetland
Saturation p		Yes	No	X	Depth (i			_	/drology present?
(includes cap		. 55			VIII (III			-  ,	
		m dalide	, monitoring well,	aerial ph	notos pre	evious ins	spections) if	available <sup>.</sup>	
20001100 100	data (3116a	gaage	,ormornig woll,	acriai pi	.5.55, pre		. r 00010110 <i>j</i> , 11	aranabio.	
Remarks:									
Anteceden	t precipitation o	conditio	ns were determ	nined "V	Vetter th	nan norr	mal" (Appe	ndix C).	
	•						` ' '	,	

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	<b>n</b> Sampling [	Date:	9/25/201	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling F		3W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:		32 T101N	R49W	
Landform (hillslope, terrace, etc.):  Toeslope	)		relief (conc			Co	oncave	
Slope (%): 3 Lat: 43° 30' 34.121" N		_	° 43' 53.6		Datum:	UTM NAI	D83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes				l Classifica	tion:	PE	MA	
Are climatic/hydrologic conditions of the site typical for this time	e of the vear?				in in remark			
Are vegetation , soil , or hydrology	•	ly disturbed?		, ,	Are "norma	•	anasa"	
Are vegetation , soil , or hydrology	_	roblematic?			Ale Hollia		esent? Y	⁄es
SUMMARY OF FINDINGS				(If neede	ed, explain a	•		
Hydrophytic vegetation present?					<u>, , , , , , , , , , , , , , , , , , , </u>			
Hydric soil present?		Is the sa	ampled are	a within a	wetland?		Υ	
Indicators of wetland hydrology present?			otional wetla			land 3	<del></del>	
		, 500, 51	ononai wone					
Remarks: (Explain alternative procedures here or in a separate	report.)							
Sample Point collected in Wetland 3.								
<b>VEGETATION</b> Use scientific names of plants.				1				
To Ottobar (DL) in a COLD (in a )	Absolute	Dominant	Indicator		nce Test W			
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status		of Dominan OBL, FACW		2	<b>(</b>
2						_		_(A)
3					Number of I		2	(B)
4					of Dominan	_		_(_)
5					OBL, FACW	•	100.00%	(A/B)
	0	= Total Cover						_
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevale	nce Index V	Vorksheet	t	
1					Cover of:			
2				OBL spe		0 x 1 =		_
3				FACW s	·	100 x 2 =		_
5				FAC spe		0 x 3 = 0 x 4 =		_
		= Total Cover		UPL spe		0 x5=		_
Herb stratum (Plot size: 5' Radius )				Column		100 (A)	200	(B)
1 Echinochloa crus-galli Large Barnyard Grass	45	Υ	FACW	Prevaler	nce Index =		2.00	_` ′
2 Persicaria lapathifolia Dock-Leaf Smartweed	40	<u> </u>	FACW					_
3 Phalaris arundinacea Reed Canary Grass	15	N	FACW	Hydrop	hytic Veget	ation Indi	cators:	
				X Rap	id test for hy	/drophytic	vegetation	1
5				I	ninance test			
6	_		_	X Prev	alence inde	x is ≤3.0*		
7				Mor	ohological a	daptations	* (provide	
8					oorting data		s or on a	
9					arate sheet)			
10	100	= Total Cover			olematic hyd lain)	rophytic ve	egetation*	
Woody vine stratum (Plot size: 30' Radius )					rs of hydric soi resent, unless			
2					rophytic			
<del>-</del>	0	= Total Cover		veg	etation sent?	Y		
Remarks: (Include photo numbers here or on a separate sheet)	)							

SOIL Sampling Point: 3W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-5	10YR 2/2	100					Silt Loam		
5-15	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
15-20	10YR 6/2	80	10YR 5/6	20	С	PL	Silt Loam		
13-20	10111 0/2	00	10111 3/0	20		FL	OIIL LUAITI		
*Type: C = C	Concentration D =	: Depletic	on, RM = Reduce	d Matrix	MS = Ma	asked Sa	nd Grains.	**Location	: PL = Pore Lining, M = Matrix
	il Indicators:	Dopiotio	Troduce.	a matrix,		acitod od			ematic Hydric Soils:
	osol (A1)		San	dv Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	ic Epipedon (A2)			dy Redo		( )		k Surface (S7	
	k Histic (A3)			oped Mat				•	t or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	.)		•	xy Minera	ıl (F1)		-	Masses (F12) (LRR K, L, R)
	tified Layers (A5)	-		-	, ed Matrix			•	k Surface (TF12)
	n Muck (A10)			leted Ma		,		er (explain in	` ,
	leted Below Dark	Surface			Surface	(F6)		` '	,
	k Dark Surface (		· · · · · · · · · · · · · · · · · · ·		rk Surfac	. ,	*Indi	cators of hydr	ophytic vegetation and wetland
	dy Mucky Minera	•			essions (				e present, unless disturbed or
		, ,			•	•	,	0,7	problematic
Restrictive	Layer (if observe	м).							
Type:	Layer (II Observe	uj.					Hydrid	c soil presen	t? Y
Depth (inche	·e).				•		Hydri	o son presen	··· <u> </u>
					•				
Remarks:									
HYDROLO									
Wetland Hy	drology Indicato	rs:							
Primary Indic	cators (minimum o	of one is	required; check a	ll that ap	ply)		<u> </u>	Secondary Inc	dicators (minimum of two required)
Surface '	Water (A1)				Fauna (B				Soil Cracks (B6)
X High Wa	ter Table (A2)		·		uatic Plan				Patterns (B10)
X Saturation	on (A3)			Hydroge	n Sulfide	Odor (C1	)	Dry-Seas	son Water Table (C2)
	arks (B1)				Rhizosp	heres on l	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)					n Visible on Aerial Imagery (C9)
	osits (B3)					iced Iron			or Stressed Plants (D1)
	t or Crust (B4)				ron Redu	ction in Ti	lled Soils		phic Position (D2)
	osits (B5)	llmaaan	(D7)	(C6)		- (07)		X FAC-Net	ıtral Test (D5)
	on Visible on Aeria		· ·		ck Surfac				
	Vegetated Conca tained Leaves (B9)		<u> </u>	_	r Well Da volain in l				
	` '			Other (E	хріані ін	Remarks)		•	
Field Obser		V	N.I =	V	Donth /	nobes\:			
Surface wate Water table	•	Yes Yes	X No	Х	Depth (i Depth (i		6	In a	licators of wetland
Saturation p		Yes	X No		Depth (i		6 2	_	/drology present?
(includes car		103	<u> </u>		. Dobui (i	1101103).		-   "'	, are logy present:
		m dalido	, monitoring well,	aerial nh	notoe pro	avioue inc	enections) if	available:	
Describe 160	orucu uata (Sifea	iii yauge	, mornioring well,	acııaı pi	iotos, pre	vious iils	ppecuons), II	avaliable.	
Remarks:									
	t precipitation o	condition	ns were determ	nined "\/	Vetter th	nan norr	nal" (Anne	ndix C.)	
,	. proorpitation	o i iditiO	HOIO GOLOIII	GG V		11011	a. (Appe		

# WETLAND DETERMINATION DATA FORM - Midwest Pegion

Project/Site PCN 000S: I-229 Exit 3 Reconstruction			oux Falls/Mi	_	g Date: 9/25/2018		
Applicant/Owner: South Dakota Department of Transportation		State:	South D		-		
Investigator(s): Rebecca Beduhn		Section, Township, Range: S33 T101N R49W					
Landform (hillslope, terrace, etc.): Footslope		Local relief (concave, convex, none): Concave					
Slope (%): 6 Lat: 43° 30' 32.395" N		_	° 43' 50.9	· -	UTM NAD83 Zone 14N		
Soil Map Unit Name: Chaska loam, channeled		NWI Classification: None					
Are climatic/hydrologic conditions of the site typical for this time of	of the year?			If no, explain in rema			
Are vegetation, soil, or hydrology Are vegetation, soil, or hydrology	significantl	ly disturbed?		-	nal circumstances"  present? Yes		
SUMMARY OF FINDINGS	naturally p	iobicinatio:		(If needed, explain	n any answers in remarks.)		
Hydrophytic vegetation present? N				(п посаса, схріан	rany anowere in remarke.)		
Hydric soil present?		le the e	ampled are	a within a wetland?	N		
			-				
Indicators of wetland hydrology present? N		ii yes, op	otional 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	Dominance Test	Worksheet		
<u>Tree Stratum</u> (Plot size: 30' Radius )	% Cover	Species	Status	Number of Domina	ant Species		
1				that are OBL, FAC	W, or FAC: 1 (A)		
2				Total Number of			
3				Species Acros	s all Strata: 3 (B)		
				Percent of Domina	•		
5		<del></del>		that are OBL, FAC	W, or FAC: 33.33% (A/B)		
Conline (Church Street in / Diet size . 45! Dedicts . )	0	= Total Cover		Prevalence Index	· Markabaat		
Sapling/Shrub stratun (Plot size: 15' Radius )				Total % Cover of:	worksneet		
2				OBL species	0 x 1 = 0		
3				FACW species	$\frac{0}{0}$ x 2 = $\frac{0}{0}$		
4				FAC species	55 x 3 = 165		
5	-			FACU species	20 x 4 = 80		
	0	= Total Cover		UPL species	25 x 5 = 125		
<u>Herb stratum</u> (Plot size: 5' Radius )				Column totals	100 (A) 370 (B)		
1 Setaria pumila Yellow Bristle Grass	50	Υ	FAC	Prevalence Index	= B/A = 3.70		
2 Setaria faberi Japanese Bristle Grass	20	Υ	FACU				
3 Ulmus pumila Siberian Elm	20	Υ	UPL	Hydrophytic Veg	etation Indicators:		
4 Andropogon gerardii Big Bluestem	5	N	FAC	Rapid test for	hydrophytic vegetation		
5 Euphorbia esula Leafy Spurge	5	N	UPL	Dominance te	st is >50%		
6				Prevalence inc	dex is ≤3.0*		
7				Morphological	adaptations* (provide		
8 <u></u> 9 <u></u>		·		supporting dat separate shee	ta in Remarks or on a et)		
	100	= Total Cover		Problematic h	ydrophytic vegetation*		
Woody vine stratum (Plot size: 30' Radius )		-		*Indicators of hydric s	soil and wetland hydrology must be ss disturbed or problematic		
2				Hydrophytic			
	0	= Total Cover		vegetation present?	N		
Remarks: (Include photo numbers here or on a separate sheet)							

SOIL Sampling Point: 4U

Depth	cription: (Descri	10 111	acptii net		dox Feat					1
(Inches)	Color (moist)	%	Color (m	oist)	%	Type*	Loc**	Tex	ture	Remarks
0-8	10YR 2/2	100						Sandy Loa	m	
8-18	10YR 3/2	100						Silt Loam		
										+
vne: C = C	Concentration, D :	= Depletio	on RM = Ro	educe	d Matrix	MS = M	asked Sa	nd Grains	**Locatio	on: PL = Pore Lining, M = Matrix
	il Indicators:	Dopioti	J.1, 1 (1)	- Guuco	a man,	1110 1111	aonoa oa			plematic Hydric Soils:
-	osol (A1)			Sar	ndv Gleve	ed Matrix	(S4)			ledox (A16) ( <b>LRR K, L, R</b> )
	ic Epipedon (A2)				ndy Redo		()			S7) ( <b>LRR K, L)</b>
	ck Histic (A3)		_		pped Ma				-	eat or Peat (S3) (LRR K, L, R)
	rogen Sulfide (A	1)	_			ky Minera	al (F1)			e Masses (F12) (LRR K, L, R)
	tified Layers (A5	•	_		-	ed Matrix				eark Surface (TF12)
	n Muck (A10)	,	_			atrix (F3)	` '			n remarks)
	leted Below Dark	Surface	(A11)			Surface	(F6)		` '	,
	k Dark Surface (		` ' _	 Dep	oleted Da	ark Surfac	ce (F7)	*Indio	ators of hy	drophytic vegetation and wetland
San	dy Mucky Minera	ıl (S1)		Red	dox Depr	essions (	(F8)		,	be present, unless disturbed or
								•	0,	problematic
estrictive l	Layer (if observe	eq).					1			
pe:	-ayo. ( oboo	ou).						Hvdrid	soil prese	ent? N
epui (iliche	es):					-		,		
	s):					-				
	s):					-				
emarks:						-				
emarks:		ors:				-				
emarks:  YDROLC	OGY		required; cl	heck a	all that ap	- - - - - - - - -				ndicators (minimum of two requir
YDROLO etland Hydrimary Indic	OGY drology Indicate		required; cl	heck a		pply) Fauna (B	13)		Secondary I	ndicators (minimum of two requires Soil Cracks (B6)
YDROLO  etland Hydrimary Indic  Surface N	OGY drology Indicato cators (minimum		required; cl	heck a	Aquatic		,		Secondary I Surfac	
YDROLO  etland Hydrimary Indic  Surface N	DGY drology Indicate cators (minimum Water (A1) ter Table (A2)		required; cl	heck a	Aquatic True Aq	Fauna (B uatic Plar	,	<u>\$</u>	Secondary I Surfac Draina	e Soil Cracks (B6)
YDROLC Vetland Hydrimary Indic Surface V High War Saturatio Water Mi	drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1)		required; cl	heck a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>\$</u>	Secondary I Surfac Draina Dry-Se Crayfis	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
YDROLC Vetland Hydrimary Indic Surface V High Wa Saturatio Water Mi Sedimen	drology Indicated cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2)		required; cl	heck a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	) Living Roots	Secondary I Surfac Draina Dry-Se Crayfis Satura	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9)
YDROLO  YDROLO  Yetland Hyd  Surface N  High Wa'  Saturatio  Water Ma  Sedimen  Drift Dep	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3)		required; cl	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend	Fauna (B uatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	) Living Roots	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
YDROLO  Yetland Hydrimary India Surface N High Wa' Saturatio Water Ma Sedimen Drift Dep Algal Ma	DGY drology Indicate cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		required; cl	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent	Fauna (B uatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	) Living Roots	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
YDROLO  Yetland Hydrimary India Surface N High Wa' Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Depo	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	of one is	·	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6)	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu	ots (B14) Odor (C1 heres on uced Iron uction in T	) Living Roots	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1)
YDROLO  Vetland Hydrimary Indic Surface N High Wa' Saturatio Water M Sedimen Drift Dep Algal Ma Iron Depi Inundation	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) osits (B3) tt or Crust (B4) osits (B5) on Visible on Aeria	of one is	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu	onts (B14) Odor (C1 heres on uced Iron uction in T	) Living Roots	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
YDROLO  etland Hydrimary Indic Surface V High Water Ma Sedimen Drift Dep Algal Ma Iron Depe Inundatic Sparsely	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) oosits (B3) t or Crust (B4) oosits (B5) on Visible on Aeria	of one is al Imagery ave Surface	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge (C3)	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ack Surfac or Well Da	odor (C1) heres on uced Iron uction in Ti ee (C7) ata (D9)	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
YDROLC Vetland Hydrimary Indic Surface V High War Saturatio Water Mar Sedimen Drift Dep Algal Mar Iron Depi Inundatic Sparsely Water-St	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9	of one is al Imagery ave Surface	v (B7)	heck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge (C3)	Fauna (B uatic Plar en Sulfide d Rhizosp ee of Redu Iron Redu ack Surfac or Well Da	onts (B14) Odor (C1 heres on uced Iron uction in T	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
YDROLC Yetland Hydrimary Indic Surface V High War Saturatio Water Marical Sedimen Drift Dep Algal Mar Iron Dep Inundatical Sparsely Water-St eld Observir	drology Indicated eators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) to Deposits (B2) exits (B3) to or Crust (B4) exits (B5) exits (B5) exits (B5) exits (B5) exits (B9) exits (B9	of one is al Imagery ave Surfac )	v (B7)		Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge of	Fauna (Buatic Plaren Sulfided Rhizospece of Reduler Reduction Redu	nts (B14) Odor (C1 heres on uced Iron action in The (C7) ata (D9) Remarks)	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2)
rimary Indic Surface \ High Wa Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-St ield Observ	drology Indicated eators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) to Deposits (B2) exits (B3) to or Crust (B4) exits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9) vations: er present?	of one is  Il Imagery  ive Surface  )	v (B7)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge of Other (E	Fauna (Buatic Plaren Sulfided Rhizospece of Reduler Reduced Surfacer Well Das Explain in	nts (B14) Odor (C1 heres on uced Iron uction in To ee (C7) ata (D9) Remarks) nches):	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
IYDROLO  /etland Hydromary Indica Surface North High Ware Mare Mare Mare Mare Mare Mare Mare M	drology Indicated cators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) osits (B3) tt or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9) vations: er present? present?	of one is  Il Imagery ave Surface )  Yes Yes	v (B7)	No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (Buatic Plaren Sulfided Rhizospee of Redulron Reduck Surfacer Well Das Explain in Depth (in Depth (in Paul Poper Reduck Surfacer Well Das Explain in Depth (in Paul Poper Reduck Surfacer Well Das Explain in Paul Poper Reduck Surfacer Well Das Explain in Paul Poper Reduck Surfacer Well Das Explain in Paul Poper Reduck Surfacer R	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
YDROLO  Yetland Hydrimary Indic Surface N High War Saturatio Water Mar Sedimen Drift Dep Algal Mar Iron Depo Inundatic Sparsely Water-St eld Observation pr	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) ot Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9) vations: er present? present?	of one is  Il Imagery  ive Surface  )	v (B7)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge of Other (E	Fauna (Buatic Plaren Sulfided Rhizospece of Reduler Reduced Surfacer Well Das Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
YDROLO Vetland Hydrimary Indice Surface Vertiand Hydrimary Indice Surface Vertiand High Water Manager Manager Manager Manager Manager Manager Mater-Steld Observariace water table paturation procludes cap	drology Indicated cators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) osits (B3) tt or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9) vations: er present? present?	of one is  Il Imagery  ive Surface  Yes  Yes  Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Plaren Sulfide de Rhizospece of Reduck Surface or Well Das Explain in Depth (in De	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) nches): nches):	) Living Roots (C4) Illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
emarks:  IYDROLC  /etland Hydrimary Indic Surface \ High Wa Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Depi Inundatic Sparsely Water-St ield Observater table paturation predudes capescribe rec	drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) to Deposits (B2) cosits (B3) to r Crust (B4) cosits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9 vations: er present? present? coillary fringe)	of one is  Il Imagery  ive Surface  Yes  Yes  Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Plaren Sulfide de Rhizospece of Reduck Surface or Well Das Explain in Depth (in De	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) ata (D9) Remarks) nches): nches):	) Living Roots (C4) Illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
emarks:  IYDROLC  /etland Hydromary Indice Surface Note of the second of	drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) to Deposits (B2) cosits (B3) to r Crust (B4) cosits (B5) on Visible on Aeria Vegetated Concatained Leaves (B9 vations: er present? present? coillary fringe)	al Imagery nve Surfac ) Yes Yes Yes	v (B7) ce (B8)	No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge d Other (E	Fauna (Buatic Plaren Sulfided Rhizospee of Reduler Red	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches): nches):	) Living Roots (C4) Illed Soils	Secondary I Surfac Draina Dry-Se Crayfis Satura Stunte X Geomo FAC-N	e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) th Burrows (C8) tion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)

Project/Site PCN 000S: I-229 Exit 3 Reconstruction  Applicant/Owner: South Dakota Department of Transportation  Investigator(s): Rebecca Beduhn		County: Sid			Sampling Date: _		8
· · · · · · · · · · · · · · · · · · ·		State:	South D	akota S	ampling Point:	4W	
myesiidalons); kedecca Bedunn			on, Townsh			01N R49W	
Landform (hillslope, terrace, etc.):  Toeslope	e			ave, convex,		Concave	
Slope (%): 3 Lat: 43° 30' 32.218" N		_	96° 43' 50.8			NAD83 Zone 1	14N
Soil Map Unit Name: Chaska loam, channeled	<u>`</u>			l Classification		None	
Are climatic/hydrologic conditions of the site typical for this tim	ne of the year?			lf no, explain			
Are vegetation , soil , or hydrology	-	ly disturbed?		•	re "normal circu	matanaaa"	
Are vegetation , soil , or hydrology	_	roblematic?		F	ire normai circui	present? Y	'es
SUMMARY OF FINDINGS				(If needed	, explain any ans	<u> </u>	
Hydrophytic vegetation present?					, 1		
Hydric soil present?		Is the sa	ampled area	a within a w	etland?	Υ	
Indicators of wetland hydrology present?			tional wetla		Wetland 4		
		,, -,		<u> </u>			
Remarks: (Explain alternative procedures here or in a separate	e report.)						
Sample Point collected in Wetland 4.							
<b>VEGETATION</b> Use scientific names of plants.				<u> </u>			
Tree Stratum (Plot size: 30' Radius )	Absolute % Cover	Dominant Species	Indicator Status		ce Test Worksh		
1 (Flot Size. 30 Radius )	70 COVE	Opecies	Status		f Dominant Speci BL, FACW, or FA		(A)
2					lumber of Domina	-	_(''')
3					es Across all Stra		(B)
4				Percent of	f Dominant Speci	es	<b>-</b> ` ′
5				that are O	BL, FACW, or FA	C: 100.00%	(A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius )					e Index Worksh	neet	
1 Salix petiolaris Meadow Willow	10	<u> </u>	OBL	Total % C		.4	
3				OBL spec FACW sp		1 = 55 $2 = 110$	-
4				FAC spec		3 = 0	-
5	_			FACU spe		4 = 0	-
	10	= Total Cover	_	UPL spec		5 = 0	-
Herb stratum (Plot size: 5' Radius )				Column to	tals 110 (	A) 165	(B)
1 Typha angustifolia Narrow-Leaf Cat-Tail	45	Υ	OBL	Prevalenc	e Index = B/A =	1.50	
2 Carex scoparia Pointed Broom Sedge	25	Υ	FACW				_
3 Phalaris arundinacea Reed Canary Grass	20	Υ	FACW		tic Vegetation I		
4 Verbena hastata Simpler's-Joy	10	N	FACW		test for hydrophy	_	i
5				l ——	ance test is >50 ence index is ≤3		
7							
8					ological adaptati rting data in Ren		
9	_				ate sheet)	iaiks of off a	
10				— ·	matic hydrophyt	ic vegetation*	
	100	= Total Cover		(expla		ŭ	
Woody vine stratum (Plot size: 30' Radius )				*Indicators	of hydric soil and we	tland hydrology m	nust be
1					sent, unless disturbe	d or problematic	
2				Hydro veget	phytic		
	0	= Total Cover		prese			
					<u> </u>		

SOIL Sampling Point: 4W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-8	10YR 2/1	100					Loam		
8-16	10YR 4/1	80	7.5YR 5/6	20	С	М	Silt Loam		
16-20	10YR 6/1	90	10YR 5/6	10	С	PL	Silt Loam		
10-20	10111 0/1	90	10111 3/0	10		FL	OIIL LUAITI		
*Tvpe: C = C	concentration, D =	Depletion	on. RM = Reduce	d Matrix.	MS = Ma	asked Sa	nd Grains.	**Location:	PL = Pore Lining, M = Matrix
	il Indicators:		,						ematic Hydric Soils:
-	osol (A1)		San	dy Gleye	ed Matrix	(S4)			dox (A16) ( <b>LRR K, L, R</b> )
	ic Epipedon (A2)			dy Redo		` ,		k Surface (S7	
	ck Histic (A3)			pped Mat				•	or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	.)		-	ky Minera	l (F1)	Iron	-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dar	k Surface (TF12)
2 cr	n Muck (A10)		Dep	leted Ma	atrix (F3)		Oth	er (explain in	remarks)
X Dep	leted Below Dark	Surface	(A11) Rec	lox Dark	Surface	(F6)			
Thic	k Dark Surface (/	<del>1</del> 12)	Dep	leted Da	rk Surfac	e (F7)	*Indi	cators of hydr	ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (	F8)	hyd	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:	• •	•					Hydrid	c soil presen	t? Y
Depth (inche	es):				•				
Remarks:					•				
rtemants.									
HYDROLO	GY								
	drology Indicato	re·							
1			roquirod: obook o	ll that an	nlu)			Coopedom: Inc	diagtors (mainime) as the required)
-	cators (minimum o	or one is	required; check a	-		10\	<u> </u>		dicators (minimum of two required)
	Water (A1) ter Table (A2)				Fauna (B <sup>.</sup> uatic Plan				Soil Cracks (B6) Patterns (B10)
X Saturation			-			Odor (C1	`		son Water Table (C2)
	arks (B1)		-			-	) Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)	т чигдоорі	10100 011	Living reduc		n Visible on Aerial Imagery (C9)
	osits (B3)				e of Redu	ced Iron	(C4)		or Stressed Plants (D1)
	t or Crust (B4)						lled Soils		phic Position (D2)
Iron Dep	osits (B5)			(C6)				X FAC-Neu	ıtral Test (D5)
Inundation	on Visible on Aeria	l Imagery	(B7)	Thin Mu	ck Surfac	e (C7)			
	Vegetated Conca		e (B8)	Gauge o	r Well Da	ta (D9)			
Water-S	tained Leaves (B9)	)		Other (E	xplain in l	Remarks)			
Field Obser									
Surface water	•	Yes	No	Х	Depth (i				
Water table		Yes	X No		Depth (i		1	_	licators of wetland
Saturation p		Yes	X No		Depth (i	nches):	0	. hy	/drology present? Y
(includes cap									
Describe rec	orded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious ins	spections), if	available:	
Domarko									
Remarks:	t procinitation	on ditie	oo wore determ	sincd III	Vottor ti	on nam	mal" / A == -	ndiv C\	
Anteceden	t precipitation o	JOHUITIO	is were determ	iiried "V	veller tr	iaii ii0ff	паг (Арреі	nuix C).	

# WETLAND DETERMINATION DATA FORM - Midwest Pegion

Project/Site PCN 000S: I-229 Exit 3 Reconstruction			oux Falls/Mi	<del>-</del>	9/25/2018		
Applicant/Owner: South Dakota Department of Transportation		State: South Dakota Sampling Point: 5U					
Investigator(s): Rebecca Beduhn		Section, Township, Range: S33 T101N R49W					
Landform (hillslope, terrace, etc.): Footslope		Local relief (concave, convex, none): Concave					
Slope (%): 6 Lat: 43° 30' 35.585" N		_	° 43' 50.5	· ———	33 Zone 14N		
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		NWI Classification: None					
Are climatic/hydrologic conditions of the site typical for this time of	of the year?			If no, explain in remarks)			
Are vegetation, soil, or hydrology	significantl	ly disturbed?		Are "normal circumstan			
Are vegetation, soil, or hydrology	naturally p	roblematic?		'	sent? Yes		
SUMMARY OF FINDINGS				(If needed, explain any answers	in remarks.)		
Hydrophytic vegetation present? Y							
Hydric soil present? N			-	a within a wetland?			
Indicators of wetland hydrology present? N		If yes, or	otional wetla	ınd site ID:	_		
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected adjacent to Wetland 5.							
VEGETATION Use scientific names of plants.				-			
	Absolute	Dominant	Indicator	Dominance Test Worksheet			
<u>Tree Stratum</u> (Plot size: 30' Radius )	% Cover	Species	Status	Number of Dominant Species			
1				that are OBL, FACW, or FAC:	1 (A)		
2	-			Total Number of Dominant			
3				Species Across all Strata:	1 (B)		
				Percent of Dominant Species			
5				that are OBL, FACW, or FAC: 1	00.00% (A/B)		
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevalence Index Worksheet			
1				Total % Cover of:			
2				OBL species 0 x 1 =	0		
3				FACW species 5 x 2 =	10		
5				FAC species 70 x 3 = FACU species 25 x 4 =	100		
<u></u>	0	= Total Cover		UPL species 0 x 5 =	0		
Herb stratum (Plot size: 5' Radius )		- Total Gover		Column totals 100 (A)	320 (B)		
1 Setaria pumila Yellow Bristle Grass	70	Υ	FAC	Prevalence Index = B/A =	3.20		
2 Cirsium arvense Canadian Thistle	10		FACU	- Trevalence index - B/A -	3.20		
3 Medicago sativa Alfalfa	10		FACU	Hydrophytic Vegetation Indica			
4 Persicaria lapathifolia Dock-Leaf Smartweed	5	N	FACW	Rapid test for hydrophytic ve			
5 Setaria faberi Japanese Bristle Grass	5	N	FACU	X Dominance test is >50%	· ·		
6				Prevalence index is ≤3.0*			
7				Morphological adaptations*	(provide		
8				supporting data in Remarks			
9				separate sheet)			
10	100	= Total Cover		Problematic hydrophytic veg (explain)	etation*		
Woody vine stratum (Plot size: 30' Radius )  1				*Indicators of hydric soil and wetland h present, unless disturbed or pr			
2				Hydrophytic			
	0	= Total Cover		vegetation present? Y			
Remarks: (Include photo numbers here or on a separate sheet)							

**SOIL** Sampling Point: 5U

Depth	cription: (Descr Matrix			Red	dox Feat	ures				
(Inches)	Color (moist)	%	Color (mo	oist)	%	Type*	Loc**	Tex	ture	Remarks
0-8	10YR 2/2	100						Sandy Loa	m	
8-20	10YR 3/3	100						Sandy Loa	m	
								,		
										<u> </u>
						1				_
vpe: C = C	Concentration, D :	= Depletion	on. RM = Re	educe	d Matrix.	MS = Ma	asked Sa	nd Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
	il Indicators:		,		,	,				plematic Hydric Soils:
-	tosol (A1)			San	dy Gleye	ed Matrix	(S4)			edox (A16) ( <b>LRR K, L, R</b> )
	ic Epipedon (A2)			_	dy Redo		,			67) ( <b>LRR K, L)</b>
	ck Histic (A3)			_	-	trix (S6)			-	at or Peat (S3) (LRR K, L, R)
Hyd	lrogen Sulfide (A	1)		_ Loa	my Mucl	ky Minera	al (F1)	Iron-	-Manganes	e Masses (F12) ( <b>LRR K, L, R</b> )
	atified Layers (A5			_	-	ed Matrix				ark Surface (TF12)
2 cn	n Muck (A10)			_ Dep	leted Ma	atrix (F3)		Othe	er (explain i	n remarks)
Dep	leted Below Dark	Surface	(A11)	Red	lox Dark	Surface	(F6)			
Thic	ck Dark Surface (	A12)		_ Dep	leted Da	ark Surfac	ce (F7)	*Indic	ators of hy	drophytic vegetation and wetland
San	dy Mucky Minera	ıl (S1)		Red	lox Depr	essions (	(F8)			be present, unless disturbed or
				_						problematic
estrictive	Layer (if observe	ed):								
	, (									
vpe:								Hvdrid	soil prese	ent? N
	es):					_		Hydric	soil prese	ent? N
epth (inche	es):					- -		Hydric	soil prese	ent? <u>N</u>
epth (inche emarks:						-		Hydric	soil prese	nt? <u>N</u>
epth (inche emarks:						- -		Hydric	soil prese	nt? <u>N</u>
epth (inche emarks:		ors:				-		Hydric	soil prese	nt? <u>N</u>
epth (inche emarks: IYDROLC	DGY		required; ch	neck a	III that ap	- - - pply)				ndicators (minimum of two require
epth (inche emarks: IYDROLC /etland Hydrimary Indic	OGY drology Indicate		required; ch	neck a		pply) Fauna (B	13)		Secondary I	
epth (inche emarks: YDROLC /etland Hydrimary India Surface	OGY drology Indicato cators (minimum		required; ch	neck a	Aquatic		,		Secondary II Surface	ndicators (minimum of two require
YDROLO /etland Hydrimary India Surface High Wa Saturatio	DGY drology Indicato cators (minimum Water (A1) iter Table (A2) on (A3)		required; ch	neck a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>\$</u>	Secondary I Surface Drainao Dry-Se	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
epth (inche emarks: IYDROLO /etland Hy rimary India Surface ' High Wa Saturatio Water M	drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1)		required; ch	neck a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>\$</u>	Secondary II Surface Drainae Dry-Se Crayfis	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
IYDROLO Jetland Hydrimary India Surface Surface Water M Sedimen	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2)		required; ch	neck a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B luatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	<u>S</u> Living Roots	Secondary II Surface Drainae Dry-Se Crayfis Saturat	ndicators (minimum of two require e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) tion Visible on Aerial Imagery (C9)
epth (inche emarks: IYDROLO /etland Hydrimary India Surface ' High Wa Saturatio Water M Sedimen Drift Dep	drology Indicated cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3)		required; ch	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presence	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu	nts (B14) Odor (C1 heres on	S ) Living Roots (C4)	Secondary II Surface Draina Dry-Se Crayfis Saturat Stunted	ndicators (minimum of two require 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)
IYDROLO Vetland Hydrimary India Surface Migh Wa Saturatic Water M Sedimen Drift Dep Algal Ma	drology Indicators (minimum) Water (A1) Iter Table (A2) In (A3) Iter (B1) It Deposits (B2) Iter (B3) Iter (B4)		required; ch	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu	nts (B14) Odor (C1 heres on	S ) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
rimary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep	drology Indicators (minimum) Water (A1) Iter Table (A2) In (A3) In Deposits (B1) In Deposits (B2) In Or Crust (B4) In Or Crust (B4) In Or Crust (B5)	of one is		neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6)	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	ots (B14) Odor (C1 heres on uced Iron uction in T	S ) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
IYDROLO  Vetland Hydrimary India Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio	drology Indicator cators (minimum Water (A1) tter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) osits (B5) on Visible on Aeria	<u>of one is</u> al Imagery	ı (B7)	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	onts (B14) Odor (C1 heres on uced Iron uction in T	S ) Living Roots (C4)	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
epth (inche emarks: IYDROLO /etland Hydrimary India Surface Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely	drology Indicators (minimum) Water (A1) Iter Table (A2) In (A3) In Deposits (B2) In Deposits (B3) It or Crust (B4) It or Crust (B4) It or Visible on Aeria	of one is al Imagery ave Surface	ı (B7)	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ack Surfac or Well Da	odor (C1) heres on uced Iron uction in Ti ee (C7) ata (D9)	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
IYDROLO Vetland Hyd Yrimary Indio Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-Si	drology Indicators (minimum) Water (A1) Iter Table (A2) On (A3) arks (B1) In Deposits (B2) Oosits (B3) It or Crust (B4) Oosits (B5) On Visible on Aeria It Vegetated Concatained Leaves (B9	of one is al Imagery ave Surface	ı (B7)	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ack Surfac or Well Da	onts (B14) Odor (C1 heres on uced Iron uction in T	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
IYDROLO Vetland Hydrimary Indic Surface Vetland Hydrimary Indic Surface Vetland High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-Stield Obser	drology Indicators (minimum) Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) osits (B3) at or Crust (B4) osits (B5) on Visible on Aeria or Vegetated Concatained Leaves (B9) vations:	of one is al Imagery ave Surfac )	v (B7) ce (B8)		Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge of Other (E	Fauna (B luatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu lick Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron action in The (C7) ata (D9) Remarks)	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
IYDROLO Vetland Hydrimary Indic Surface Vetland Hydrimary Indic Surface Vetland High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-Si ield Obser	drology Indicators (minimum Water (A1) water Table (A2) on (A3) arks (B1) arks (B3) water Crust (B4) cosits (B5) on Visible on Aeria vegetated Concatained Leaves (B9) vations: er present?	of one is  Il Imagery  ive Surface  )	v (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (Buuatic Plaren Sulfided Rhizospote of Redulation Reduct Surfactor Well Das Explain in	nts (B14) Odor (C1 heres on uced Iron uction in To ee (C7) ata (D9) Remarks) nches):	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two require 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)
Algal Ma Iron Dep Inundatio Sparsely Water-Si ield Obser Jurface water Vater table	drology Indicators (minimum) Water (A1) Ater Table (A2) Ater Table (A3) Ater T	of one is  Il Imagery ave Surface )  Yes Yes	v (B7) ce (B8)	No No	Aquatic True Aq Hydroge Oxidizec (C3) Presenc Recent (C6) Thin Mu Gauge c Other (E	Fauna (B Iuatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu lck Surfac or Well Da Explain in Depth (i	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) cion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
emarks:  IYDROLO  /etland Hydrimary India  Surface ' High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-Stield Obser urface water /ater table   aturation pi	drology Indicated cators (minimum) Water (A1) Iter Table (A2) In (A3) In Deposits (B2) In Occits (B3) In Occits (B4) In Occits (B5) In Visible on Aeria In Vegetated Concatained Leaves (B9 Vations: Iter present? Iter present? Iter present? Iter present?	of one is  Il Imagery  ive Surface  )	v (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E	Fauna (Buuatic Plaren Sulfided Rhizospote of Redulation Reduct Surfactor Well Das Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	) Living Roots (C4) illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo	ndicators (minimum of two requires 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)
IYDROLO Vetland Hydrimary India Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-Stield Obseriourface water Vater table paturation princludes cap	drology Indicators (minimum) Water (A1) Ater Table (A2) Ater Table (A3) Ater T	of one is  Il Imagery eve Surface  Yes Yes Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge o Other (E  X X	Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu lron Redu lck 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):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainae Dry-Se Crayfis Saturat Stuntee X Geome FAC-No	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) cion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
IYDROLO Vetland Hydrimary Indio Surface Vetland Hydrimary Indio Surface Vetland High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-Si ield Obser Jurface water Vater table Inaturation princludes cap Jescribe recommended	drology Indicators (minimum) Water (A1) Iter Table (A2) In (A3) In Deposits (B2) It or Crust (B4) It or Crust (B4) In Visible on Aeria It Vegetated Concatained Leaves (B9 Vations: Iter present? Iter present. Iter	of one is  Il Imagery eve Surface  Yes Yes Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge o Other (E  X X	Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu lron Redu lck 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):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainae Dry-Se Crayfis Saturat Stuntee X Geome FAC-No	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) cion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)
IYDROLO Vetland Hydrimary Indic Surface Vetland Hydrimary Indic Surface Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-St Vetland Observator table staturation procludes cap describe recommended.	drology Indicators (minimum) Water (A1) Iter Table (A2) In (A3) In Deposits (B2) It or Crust (B4) It or Crust (B4) In Visible on Aeria It Vegetated Concatained Leaves (B9 Vations: Iter present? Iter present. Iter	al Imagery nve Surfac ) Yes Yes Yes	v (B7) ce (B8)	No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge o Other (E  X X X	Fauna (B uatic Plar en Sulfide d Rhizospote of Redular	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches): nches):	) Living Roots (C4) Illed Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunted X Geomo FAC-No	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) cion Visible on Aerial Imagery (C9) d or Stressed Plants (D1) orphic Position (D2) eutral Test (D5)

WETLAND DETERMII  Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•		Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling		5W	
Investigator(s): Rebecca Beduhn			ion, Townsh			S33 T101N		
Landform (hillslope, terrace, etc.): footslope			relief (conca	· -			ncave	
Slope (%): 1 Lat: 43° 30' 35.161" N		_	96° 43' 50.4		Datum:	UTM NAD		14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		Long.		l Classificat	_	No		1411
Are climatic/hydrologic conditions of the site typical for this time of	of the year?			lf no, explai	-		ie	
	-	ly disturbed?	(			•		
				•	Are "norm	al circumsta	inces" esent? Y	/oc
Are vegetation, soil, or hydrology SUMMARY OF FINDINGS	naturany p	roblematic?		(If poodo	d ovoloin	any answers	_	
Hydrophytic vegetation present?				(II Heede	J, Explain	ally allowers	s III Tellia	185.)
Hydric soil present?		le tha e	ampled area	a within a v	votland?	,	<b>~</b>	
Indicators of wetland hydrology present?			otional wetla			etland 5	<u> </u>	
<u> </u>		ii yes, o	Juonai wella	iliu sile iD.		elianu 5		
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected in Wetland 5.								
<b>VEGETATION</b> Use scientific names of plants.								
	Absolute	Dominant	Indicator	Dominar	ice Test V	Vorksheet		
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status			nt Species	0	<b>(A)</b>
1						N, or FAC:	2	_(A)
3						f Dominant all Strata:	2	(B)
4						nt Species		_('')
5			_			N, or FAC:	100.00%	(A/B)
	0	= Total Cover						_
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevalen	ce Index	Worksheet		
1				Total % C				
2				OBL spec	_	65 x 1 =	65	_
3				FACW sp		30 x 2 = 5 x 3 =	60	_
5				FAC spec	_	5 x 3 = 0 x 4 =	15 0	_
<u> </u>	0	= Total Cover		UPL spec	_	$0 \times 5 =$	0	_
Herb stratum (Plot size: 5' Radius )				Column t	_	100 (A)	140	(B)
1 Typha angustifolia Narrow-Leaf Cat-Tail	40	Υ	OBL	Prevalen	ce Index =		1.40	_` `
2 Eleocharis obtusa Blunt Spike-Rush	20	Υ	OBL					_
3 Persicaria lapathifolia Dock-Leaf Smartweed	10	N	FACW	Hydroph	ytic Vege	tation Indic	ators:	
4 Cyperus esculentus Chufa	10	N	FACW	X Rapid	d test for h	nydrophytic v	egetatior/	า
5 Phalaris arundinacea Reed Canary Grass	10	<u>N</u>	FACW	l ——	inance tes			
6 Schoenoplectus tabernaemontani Soft-Stem Club-Rush	5	N	OBL	X Preva	alence ind	ex is ≤3.0*		
7 Hordeum jubatum Fox-Tail Barley	5	<u>N</u>	FAC			adaptations*		;
9					orting data rate sheet	a in Remarks	or on a	
10				l — ·		. <i>)</i> drophytic ve	aetation*	r
	100	= Total Cover		(expla	_	diopriyac ve	getation	
Woody vine stratum (Plot size: 30' Radius )				— · ·	,	oil and wetland	hydrology	muet ha
1 -					•	s disturbed or p	, ,,	
2					ophytic			
	0	= Total Cover		vege prese	tation	V		
Remarks: (Include photo numbers here or on a separate sheet)				prese	511L f	Y		
,								

SOIL Sampling Point: 5W

Profile Desc	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	<u>Matrix</u>		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-2	10YR 2/1	100					Silt Loam		
2-10	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
10-20	10YR 5/1	80	10YR 5/6	20	С	PL	Silt Loam		
10-20	1011(3/1	00	10111 3/0	20	U	1 L	Oilt Loain		
*Tvpe: C = C	Concentration, D =	Depletion	on. RM = Reduce	d Matrix.	MS = Ma	asked Sa	nd Grains.	**Location:	PL = Pore Lining, M = Matrix
	il Indicators:		,						ematic Hydric Soils:
	tosol (A1)		Sar	dy Gleye	ed Matrix	(S4)			dox (A16) ( <b>LRR K, L, R</b> )
	tic Epipedon (A2)			dy Redo		( )		k Surface (S7	
	ck Histic (A3)			pped Mat				•	or Peat (S3) (LRR K, L, R)
	lrogen Sulfide (A4	.)			ky Minera	ıl (F1)	Iron	-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
	atified Layers (A5)	-		-	ed Matrix		Ver	y Shallow Dar	k Surface (TF12)
2 cr	m Muck (A10)		—— Dep	leted Ma	trix (F3)		Oth	er (explain in	remarks)
X Dep	oleted Below Dark	Surface	(A11) Red	lox Dark	Surface	(F6)			
Thic	ck Dark Surface ( <i>i</i>	<b>412</b> )	— Dep	leted Da	rk Surfac	e (F7)	*Indi	cators of hydr	ophytic vegetation and wetland
San	ndy Mucky Minera	l (S1)	Red	lox Depre	essions (	F8)			e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:		,-					Hvdri	c soil presen	t? Y
Depth (inche	es):				•		,		·
	<u> </u>				•				
Remarks:									
	20V								
HYDROLO									
1	drology Indicato								
_	cators (minimum o	of one is	required; check a	-			<u> </u>		dicators (minimum of two required)
	Water (A1)				Fauna (B				Soil Cracks (B6)
	ater Table (A2)			_	uatic Plan				Patterns (B10)
X Saturation	, ,					Odor (C1			son Water Table (C2)
	larks (B1)				Rnizospi	neres on I	Living Roots		Burrows (C8)
	nt Deposits (B2) posits (B3)			(C3)	o of Podu	ced Iron	(C4)		n Visible on Aerial Imagery (C9) or Stressed Plants (D1)
	at or Crust (B4)						illed Soils		ohic Position (D2)
	osits (B5)			(C6)	ion Redu	Clion III 11	illed Solls		utral Test (D5)
	on Visible on Aeria	l Imagery	(B7)		ck Surfac	e (C7)		<u> </u>	attal Test (De)
	Vegetated Conca			•	r Well Da				
	tained Leaves (B9)					Remarks)			
Field Obser	vations:	•		. `	•	,			
Surface water		Yes	No	Х	Depth (i	nches):			
Water table		Yes	X No	-	Depth (i		6	Inc	licators of wetland
Saturation p	resent?	Yes	X No		Depth (i		2	hy	/drology present? Y
(includes ca	pillary fringe)				•	•		-	<del></del>
	Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Describe red	corded data (strea	m gauge	i, monitoring well,	acriai pi	iotoo, pi c	VIOUS IIIS	pecuons, n		
Describe red	corded data (strea	m gauge	, monitoring weii,	aonai pi	iotoo, pro	VIOUS IIIC	spections), ii		
Describe red Remarks:	corded data (strea	m gauge	e, monitoring well,	donar pr		VIOUS IIIC			
Remarks:	nt precipitation o								

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	<b>I</b> Sampling	Date:	9/25/201	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling l		6U	
Investigator(s): Rebecca Beduhn			ion, Townsh			S33 T101N	R49W	
Landform (hillslope, terrace, etc.):  Backslope			relief (conca	•			oncave	
Slope (%): 6 Lat: 43° 30' 40.497" N		_	96° 43' 49.7		Datum:		D83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		<u> </u>		l Classificat	_		one	
Are climatic/hydrologic conditions of the site typical for this time	of the vear?			If no, explai				
Are vegetation , soil , or hydrology	•	ly disturbed?		-		/ al circumst	ancos"	
Are vegetation , soil , or hydrology		roblematic?			Ale Holli		esent? Y	es/
SUMMARY OF FINDINGS	. , , , ,			(If neede	d, explain	any answe		
Hydrophytic vegetation present? Y					· · ·			,
Hydric soil present? N		Is the sa	ampled area	a within a v	wetland?		N	
Indicators of wetland hydrology present? N			tional wetla					
<u> </u>	conort )	, , ,		•				
Remarks: (Explain alternative procedures here or in a separate r	eport.)							
Sample Point collected adjacent to Wetland 6.								
<b>VEGETATION</b> Use scientific names of plants.				Damina.	T+ V			
Tree Stratum (Plot size: 30' Radius )	Absolute % Cover	Dominant Species	Indicator Status			Vorksheet		
1	70 OOVC1	Ороско	Otatus		of Dominar OBL, FACV		2	(A)
2					Number of	_		_(' ')
3		· <del></del>			ies Across		2	(B)
4				Percent	of Dominar	nt Species		
5				that are (	OBL, FACV	V, or FAC:	100.00%	_(A/B)
	0	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )	F	V	E40			Worksheet	t	
1 Rhamnus cathartica European Buckthorn 2	5	<u> </u>	FAC	Total % ( OBL spe		0 x 1 =	= 0	
3				FACW s		0 x1=		_
4				FAC spe	_	65 x 3 =		_
5			_	FACU sp	_	35 x 4 =		_
	5	= Total Cover		UPL spe	cies	5 x 5 =	25	_
Herb stratum (Plot size: 5' Radius )				Column t	otals	105 (A)	360	(B)
1 Setaria pumila Yellow Bristle Grass	50	Y	FAC	Prevalen	ce Index =	B/A =	3.43	
2 Cirsium arvense Canadian Thistle	15	N	FACU					
3 Medicago lupulina Black Medick	10	<u>N</u>	FACU			tation Indi		
4 Alliaria petiolata Garlic-Mustard	10		FAC	I ——		ydrophytic	vegetation	ו
5 Asclepias syriaca Common Milkweed 6 Fallopia convolvulus Black-Bindweed	5 5	. <u>N</u> N	FACU FACU	l ——	inance tes	t is >50% ex is ≤3.0*		
7 Linaria vulgaris Yellow Toadflax	5		UPL	l —			<b>.</b>	
8		<del></del>				adaptations a in Remark		
9					rate sheet		or on a	
		·		Prob	lematic hy	drophytic v	egetation*	
	100	= Total Cover		(expl	ain)			
Woody vine stratum (Plot size: 30' Radius )				*Indicator	s of hydric so	oil and wetland	d hydrology i	must be
1	·					s disturbed or	problematic	;
2		T		_	ophytic tation			
	0	= Total Cover		pres		Υ		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 6U

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	cture	Remarks
0-9	10YR 4/3	100					Sandy Loa	am	
9-18	10YR 4/3	100					Sandy Loa	am	
*Type: C = 0	Concentration, D =	: Depletio	on. RM = Reduce	d Matrix	MS = Ma	asked Sa	nd Grains.	**Location	PL = Pore Lining, M = Matrix
	il Indicators:	Ворюш	Troduce.	a matrix,	1110 1110	acked ea			ematic Hydric Soils:
_	osol (A1)		San	dv Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	ic Epipedon (A2)			dy Redo		(0.)		k Surface (S7	
	ck Histic (A3)			oped Mat					or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	.)			xy Minera	l (F1)			Masses (F12) (LRR K, L, R)
	tified Layers (A5)	•		-	, ed Matrix	. ,		-	k Surface (TF12)
	n Muck (A10)			leted Ma		. ,		er (explain in	
	leted Below Dark	Surface			Surface	(F6)		` '	,
	k Dark Surface (		· · · · · · · · · · · · · · · · · · ·		rk Surfac	. ,	*Indi	cators of hydr	ophytic vegetation and wetland
San	dy Mucky Minera	(S1)			essions (				e present, unless disturbed or
				·	,	•	,	0,7	problematic
Restrictive	Layer (if observe	м).							
Type:	Layer (II observe	ω,.					Hydri	c soil presen	t? N
Depth (inche	:s):				•		i i y wi i	o oon procen	·· <del>_                                  </del>
					•				
Remarks:									
HYDROLO									
Wetland Hy	drology Indicato	rs:							
Primary India	cators (minimum o	of one is	required; check a	II that ap	ply)		<u>;</u>	Secondary Inc	licators (minimum of two required)
Surface	Water (A1)				Fauna (B				Soil Cracks (B6)
High Wa	ter Table (A2)				uatic Plan				Patterns (B10)
Saturation						Odor (C1			son Water Table (C2)
	arks (B1)				Rhizospl	neres on	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)			( <b>0</b> 1)		n Visible on Aerial Imagery (C9)
	osits (B3)					ced Iron			or Stressed Plants (D1)
	t or Crust (B4)				ron Redu	ction in T	illed Soils		phic Position (D2)
	osits (B5) on Visible on Aeria	Ilmagery	(B7)	(C6)	ok Surfoo	o (C7)		FAC-Net	ıtral Test (D5)
	Vegetated Conca		· ·		ck Surfac r Well Da				
	tained Leaves (B9)					Remarks)			
			-	Other (E	лріант ін і	(Ciliants)			
Field Obser Surface water		Yes	No	Χ	Depth (i	nches).			
Water table	•	Yes	No	X	Depth (in	-		- Inc	licators of wetland
Saturation p		Yes	No	X	Depth (i	-		_	drology present?
(includes ca					(	,.		-   1	
	orded data (strea	m gauge	monitoring well	aerial nh	notos pre	evious ins	spections) if	available:	
20001100 100	data (3116a	gaage	,ormornig woll,	acriai pi	.5.55, pre		. p 00010110 <i>j</i> , 11	aranabio.	
Remarks:									
	t precipitation o	conditio	ns were determ	nined "V	Vetter th	nan nori	mal" (Appe	ndix C).	
							\ II	,	

WETLAND DETERMIN Project/Site PCN 000S: I-229 Exit 3 Reconstruction		ATA FORN County: Sid		•		Data	9/25/2018
· ·		· · ·			Sampling		
Applicant/Owner: South Dakota Department of Transportation		State:	South Da		Sampling		6W
Investigator(s): Rebecca Beduhn			ion, Townshi	-		S33 T101N I	
Landform (hillslope, terrace, etc.): Toeslope		-	relief (conca		· · · · ·		ncave
Slope (%): 2 Lat: 43° 30' 40.658" N		Long:	96° 43' 50.14		Datum:		83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes	.f. 41 O			Classifica		Nor	1e
Are climatic/hydrologic conditions of the site typical for this time of	•		N (I	-	in in remar	•	
Are vegetation, soil, or hydrology		y disturbed?			Are "norm	al circumsta	
Are vegetation, soil, or hydrology SUMMARY OF FINDINGS	naturally pr	roblematic?		(If poods	d ovelein	'	sent? Yes
Hydrophytic vegetation present?				(II Heede	u, explain	ally allswers	in remarks.)
Hydric soil present?		le the er	ampled area	within a	wotland?	,	,
			•			etland 6	<u>'</u>
Indicators of wetland hydrology present? Y		ii yes, op	otional wetlar	id site iD.		elianu o	_
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected in Wetland 6.							
<b>VEGETATION</b> Use scientific names of plants.							
T 01 1 (D) 1 (D) 1	Absolute	Dominant	Indicator			Vorksheet	
Tree Stratum (Plot size: 30' Radius )	% Cover 10	Species	Status FAC		of Domina	•	6 (4)
1 Populus tremuloides Quaking Aspen 2		<u> </u>	FAC		OBL, FACV		6 (A)
3					Number of cies Across		6 (B)
4				·	of Domina	_	(-/
5						•	100.00% (A/B)
	10 :	Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius )						Worksheet	
1 Populus tremuloides Quaking Aspen	10	<u>Y</u>	FAC		Cover of:		
2 Rhamnus cathartica European Buckthorn	10	<u>Y</u>	FAC	OBL spe	_	60 x 1 =	60
3 Salix petiolaris Meadow Willow	5	<u> </u>	OBL	FACW s FAC spe	_	45 x 2 = 30 x 3 =	90
5				FACU sp	_	0 x 4 =	0
	25 :	Total Cover		UPL spe	_	0 x 5 =	0
<u>Herb stratum</u> (Plot size: 5' Radius )				Column	_	135 (A)	240 (B)
1 Typha latifolia Broad-Leaf Cat-Tail	55	Υ	OBL	Prevalen	nce Index =	= B/A =	1.78
2 Phalaris arundinacea Reed Canary Grass	25	<u>Y</u>	FACW				
3 Persicaria lapathifolia Dock-Leaf Smartweed	10	N	FACW	Hydroph	ytic Vege	tation Indic	ators:
4 Persicaria pensylvanica Pinkweed	10	N	FACW			nydrophytic v	egetation
5					inance tes		
6				X Prev	alence ind	ex is ≤3.0*	
						adaptations*	
9					oorting data arate sheet	a in Remarks	or on a
10						. <i>)</i> drophytic ve	getation*
	100 :	Total Cover		(expl	-	diopriyac ve	getation
Woody vine stratum (Plot size: 30' Radius )						oil and wetland	hydrology must be
1					-	s disturbed or p	
2				-	rophytic		
	0 :	Total Cover		_	etation	V	
Remarks: (Include photo numbers here or on a separate sheet)				pres	sent?	Y	

SOIL Sampling Point: 6W

Profile Desc	ription: (Descri	be to the	e depth need	ed to do	cument the	indicato	or or confirm	the absence	of indicators.)
Depth	Matrix			Redox F	eatures				
(Inches)	Color (moist)	%	Color (mois	st) %	Type*	Loc**	Tex	kture	Remarks
0-7	10YR 2/1	100					Loam		
7-14	10YR 4/2	90	7.5YR 4/6	3 1	) C	PL	Sandy Loa	am	
14-20	10YR 5/2	85	7.5YR 4/6	_	<del>-  </del>	М	Sandy Loa		
14-20	10111 3/2	00	7.511( 4/(	<del>,   '</del>		IVI	Garidy Loa	alli	
*Type: C = C	concentration, D =	Depletion	on, RM = Red	uced Ma	trix, MS = N	lasked Sa	and Grains.	**Location	: PL = Pore Lining, M = Matrix
Hydric So	il Indicators:						Indicate	ors for Proble	ematic Hydric Soils:
Hist	osol (A1)			Sandy G	leyed Matri	x (S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
Hist	ic Epipedon (A2)			Sandy R	edox (S5)			rk Surface (S7	
	ck Histic (A3)				Matrix (S6)			-	t or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	•		-	lucky Miner			_	Masses (F12) ( <b>LRR K, L, R</b> )
	tified Layers (A5)			-	leyed Matri			-	rk Surface (TF12)
	n Muck (A10)				Matrix (F3)		Oth	er (explain in	remarks)
	leted Below Dark				ark Surface				
	ck Dark Surface (	•		-	Dark Surfa				ophytic vegetation and wetland
San	dy Mucky Minera	(51)		Redox D	epressions	(F8)	hyd	Irology must b	e present, unless disturbed or problematic
									problematic
	Layer (if observe	d):							
Type:							Hydri	c soil presen	t? <u>Y</u>
Depth (inche	es):								
Remarks:									
HYDROLO	OGY								
Wetland Hy	drology Indicato	rs:							
Primary India	cators (minimum	of one is	required; che	ck all tha	t apply)			Secondary Inc	dicators (minimum of two required)
X Surface	Water (A1)			Aqua	atic Fauna (E	313)			Soil Cracks (B6)
High Wa	ter Table (A2)		•	True	Aquatic Pla	nts (B14)		Drainage	Patterns (B10)
Saturation	on (A3)			Hydı	ogen Sulfide	e Odor (C1	1)	Dry-Seas	son Water Table (C2)
	arks (B1)		•		ized Rhizos <sub>l</sub>	oheres on	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)			(0.1)		on Visible on Aerial Imagery (C9)
	osits (B3)		•		ence of Red		-		or Stressed Plants (D1)
	t or Crust (B4) osits (B5)			(C6)	ent Iron Red	uction in 1	illed Soils		ohic Position (D2) utral Test (D5)
	on Visible on Aeria	Imagery	(B7)		Muck Surfa	ce (C7)			utiai Test (D3)
	Vegetated Conca				ge or Well D				
	tained Leaves (B9)		` ′ .		r (Explain in		)		
Field Obser	vations:				•		,		
Surface water		Yes	X N	0	Depth (	(inches):	3		
Water table	•	Yes	N	o ->		(inches):		Inc	dicators of wetland
Saturation p		Yes	N	o >	Depth (	(inches):		hy	ydrology present? Y
(includes cap	oillary fringe)				_				
Describe rec	orded data (strea	m gauge	, monitoring v	vell, aeria	al photos, pi	evious in	spections), if	available:	
Remarks:	4				LINAL	u			
Anteceden	t precipitation of	conditio	ns were det	ermine	ı "vvetter	ınan nor	maı" (Appe	ndix C).	

Project/Site PCN 000S: I-229 Exit 3 Reconstruction	City/	County: Sid	oux Falls/Mi	nnehaha S	ampling Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D		ampling Point:	7U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh		· · · -	01N R49W	
Landform (hillslope, terrace, etc.): Footslope	<del></del>			ave, convex, i		Concave	
Slope (%): 4 Lat: 43° 30' 39.679" N		_	° 43' 49.5			NAD83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		<u> </u>		l Classificatio		None	
Are climatic/hydrologic conditions of the site typical for this time	e of the vear?			If no, explain			
Are vegetation , soil , or hydrology	-	y disturbed?		•	re "normal circu	metanece"	
Are vegetation , soil , or hydrology	_	roblematic?		A	re normal circu	present? '	Yes
SUMMARY OF FINDINGS				(If needed,	explain any ans	· —	
Hydrophytic vegetation present? N				,	<u> </u>		
Hydric soil present? N		Is the sa	ampled are	a within a we	etland?	N	
Indicators of wetland hydrology present?			tional wetla		_		
Remarks: (Explain alternative procedures here or in a separate	roport \	, , ,		_			
·	report.)						
Sample Point collected adjacent to Wetland 7.							
VEGETATION Use scientific names of plants.				D	a Tank Wantah		
Tree Stratum (Plot size: 30' Radius )	Absolute % Cover	Dominant Species	Indicator Status		e Test Worksh		
1	70 COVE	Орсоюз	Otatus		Dominant Speci BL, FACW, or FA		(A)
2					umber of Domina		_(','
3					s Across all Stra		(B)
4				Percent of	Dominant Speci	es	_
5				that are Of	BL, FACW, or FA	C: 33.33%	(A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius )					e Index Worksl	heet	
1				Total % Co		.1 - 0	
3				OBL species		$\begin{array}{c} (1 = 0) \\ (2 = 0) \end{array}$	_
4				FAC specie		3 = 90	_
5				FACU spec		4 = 260	_
	0	= Total Cover		UPL specie		5 = 25	_
Herb stratum (Plot size: 5' Radius )				Column tot	tals 100 (	A) 375	(B)
1 Bromus inermis Smooth Brome	30	Υ	FACU	Prevalence	e Index = B/A =	3.75	
2 Setaria pumila Yellow Bristle Grass	30	Υ	FAC			'	
3 Cirsium arvense Canadian Thistle	20	<u> </u>	FACU		tic Vegetation I		
4 Amaranthus retroflexus Red-Root		N	FACU	l ——	test for hydroph	, ,	n
5 Asclepias syriaca Common Milkweed	_ <u>5</u> 5	<u>N</u> N	FACU UPL	l ——	ance test is >50 ence index is ≤3		
6 Euphorbia esula Leafy Spurge 7			UPL				
8					ological adaptat ting data in Ren		
9					te sheet)	nants or on a	
					matic hydrophyt	ic vegetation'	*
	100	= Total Cover		(explai		J	
Woody vine stratum (Plot size: 30' Radius )	·			*Indicators	of hydric soil and we	etland hydrology	must be
1					ent, unless disturbe	ed or problemation	C
2		<del>-</del>		Hydro vegeta			
	0	= Total Cover		preser			

SOIL Sampling Point: 7U

Depth	cription: (Descri	ING IO IN		dox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	ıre	Remarks
0-5	10YR 2/2	100					Silt Loam		
5-15	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
15-20	10YR 6/2	80	10YR 5/6	20	С	PL	Silt Loam		
10-20	10111 0/2	- 00	10110 3/0	20		1 L	Oilt Loaili		
Type: C = C	Concentration, D =	= Depleti	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location	: PL = Pore Lining, M = Matrix
Hydric So	il Indicators:						Indicator	s for Probl	ematic Hydric Soils:
	tosol (A1)				ed Matrix	(S4)			dox (A16) ( <b>LRR K, L, R</b> )
	tic Epipedon (A2)			ndy Redo	. ,				') (LRR K, L)
	ck Histic (A3)			pped Ma	, ,			•	t or Peat (S3) ( <b>LRR K, L, R</b> )
	lrogen Sulfide (A	-		-	ky Minera				Masses (F12) (LRR K, L, R)
	atified Layers (A5)	)			ed Matrix	(F2)			rk Surface (TF12)
	m Muck (A10)				atrix (F3)	( <b>5</b> 0)	Other	(explain in	remarks)
	oleted Below Dark		· · · · · · · · · · · · · · · · · · ·		Surface	. ,			
	ck Dark Surface (				ark Surfac	. ,			ophytic vegetation and wetland
San	ndy Mucky Minera	il (S1)	Red	dox Depr	essions (	F8)	hydro	ology must b	e present, unless disturbed or
									problematic
	Layer (if observe	ed):							
ype:							Lludric	cail nracan	t? N
	,				_		Hydric	soil presen	··
epth (inche	es):				<u>-</u>		nyunc s	son presen	·· <u>··</u>
Depth (inche					-		nyunc s	son presen	· <u>· · · · · · · · · · · · · · · · · · </u>
Depth (inche					<del>-</del> -		nyunc s	son presen	· <u>· · · · · · · · · · · · · · · · · · </u>
Pepth (inche Remarks:		ors:			-		nyunc s	son presen	· · · · · ·
Depth (inche Remarks: HYDROLO Vetland Hy	OGY drology Indicato		required; check a	all that ap	- - pply)				dicators (minimum of two require
IYDROLC Vetland Hydrimary India Surface	DGY drology Indicato cators (minimum Water (A1)		required; check a	Aquatic	Fauna (B	,		econdary Ind Surface	dicators (minimum of two require Soil Cracks (B6)
IYDROLO Vetland Hydrimary India Surface High Wa	DGY drology Indicato cators (minimum Water (A1) iter Table (A2)		required; check a	Aquatic True Aq	Fauna (B uatic Plar	rts (B14)	<u>Se</u>	econdary Ind Surface Drainage	dicators (minimum of two require Soil Cracks (B6) Patterns (B10)
IYDROLO Vetland Hy 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 Plar en Sulfide	nts (B14) Odor (C1	<u>Se</u>	econdary Ind Surface Drainage Dry-Seas	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) Son Water Table (C2)
IYDROLO Jetland Hy rimary India Surface High Wa Saturatic Water M	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) arks (B1)		required; check a	Aquatic True Aq Hydroge Oxidized	Fauna (B uatic Plar 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)
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# WETLAND DETERMINATION DATA FORM - Midwest Pegion

Project/Site PCN 000S: I-229 Exit 3 Reconstruction			oux Falls/Mi	_		
Applicant/Owner: South Dakota Department of Transportation	State: South Dakota Sampling Point: 7W					
Investigator(s): Rebecca Beduhn	Section, Township, Range: S33 T101N R49W					
Landform (hillslope, terrace, etc.): footslope	Local relief (concave, convex, none): Concave					
Slope (%): 2 Lat: 43° 30' 39.505" N	Long: 96° 43' 49.223" W Datum: UTM NAD83 Zone 14N					
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			l Classification: None			
Are climatic/hydrologic conditions of the site typical for this time of	of the year?			If no, explain in remarks)		
Are vegetation , soil , or hydrology	•	ly disturbed?				
Are vegetation , soil , or hydrology	J	roblematic?		Are "normal circumstances" present? Yes		
SUMMARY OF FINDINGS	riaturally p	iobiematic:		(If needed, explain any answers in remarks.)		
Hydrophytic vegetation present?				(II fleeded, explain any answers in remarks.)		
		lo the or	mulad ara	a within a wetland?		
Hydric soil present? Y			-			
Indicators of wetland hydrology present? Y		if yes, of	otional wetla	and site ID: Wetland 7		
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected in Wetland 7.						
<b>VEGETATION</b> Use scientific names of plants.						
	Absolute	Dominant	Indicator	Dominance Test Worksheet		
<u>Tree Stratum</u> (Plot size: <u>30' Radius</u> )	% Cover	Species	Status	Number of Dominant Species		
1				that are OBL, FACW, or FAC: 1 (A)		
2				Total Number of Dominant		
3				Species Across all Strata: 1 (B)		
				Percent of Dominant Species		
5	0	= Total Cover		that are OBL, FACW, or FAC: 100.00% (A/B)		
<u>Sapling/Shrub stratun</u> (Plot size: 15' Radius )		- Total Cover		Prevalence Index Worksheet		
1				Total % Cover of:		
2				OBL species 0 x 1 = 0		
3				FACW species 90 x 2 = 180		
4				FAC species 10 x 3 = 30		
5				FACU species 0 x 4 = 0		
	0	= Total Cover		UPL species 0 x 5 = 0		
Herb stratum (Plot size: 5' Radius )				Column totals 100 (A) 210 (B)		
1 Persicaria lapathifolia Dock-Leaf Smartweed	50	<u> </u>	FACW	Prevalence Index = B/A = 2.10		
2 Cyperus esculentus Chufa	15	N	FACW			
3 Phalaris arundinacea Reed Canary Grass	15	N	FACW	Hydrophytic Vegetation Indicators:		
4 Setaria pumila Yellow Bristle Grass	10	N	FAC	X Rapid test for hydrophytic vegetation		
5 Echinochloa crus-galli Large Barnyard Grass	10	N	FACW	X Dominance test is >50% X Prevalence index is ≤3.0*		
6 7				<del>-</del>		
8				Morphological adaptations* (provide supporting data in Remarks or on a		
9				supporting data in Remarks of on a separate sheet)		
10				Problematic hydrophytic vegetation*		
	100	= Total Cover		(explain)		
Woody vine stratum (Plot size: 30' Radius )				*Indicators of hydric soil and wetland hydrology must be		
1				present, unless disturbed or problematic		
2				Hydrophytic		
	0	= Total Cover		vegetation present? Y		
Remarks: (Include photo numbers here or on a separate sheet)				hieseiit:		

SOIL Sampling Point: 7W

Profile Desc Depth	Matrix		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textur	re e	Remarks
0-2	10YR 2/1	95	7.5YR 4/6	5	С	PL	Sandy Loam		
2-10	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
10-20	10YR 5/1	80	10YR 5/6	20	С	PL	Silt Loam		
10 20	101110/1	- 00	10111 0/0				Olit Eddini		
	Concentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa			PL = Pore Lining, M = Matrix
-	il Indicators:								ematic Hydric Soils:
	tosol (A1)			-	ed Matrix	(S4)			dox (A16) ( <b>LRR K, L, R</b> )
	tic Epipedon (A2)			ndy Redo	. ,			-	() (LRR K, L)
	ck Histic (A3)	,		pped Ma	. ,	(54)		-	or Peat (S3) (LRR K, L, R)
•	lrogen Sulfide (A4	,		-	ky Minera	. ,		•	Masses (F12) (LRR K, L, R)
	atified Layers (A5) n Muck (A10)				ed Matrix atrix (F3)	(FZ)		nallow Dar (explain in ו	k Surface (TF12)
	n Muck (A10) bleted Below Dark	Surface			Surface	(F6)	Other	(exhigiti iti i	iciiidi <i>ko)</i>
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	ndy Mucky Minera	•			essions (	, ,		•	ophytic vegetation and wetland e present, unless disturbed or
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YDROLO YDROLO Yetland Hy rimary India Surface High Wa Sedimer Drift Dep Algal Ma Iron Dep Inundatia Sparsely	drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	rs: of one is I Imagery ve Surface	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C	Fauna (B uatic Plan en Sulfide d Rhizospl ee of Redu Iron Redu ck Surfac	odor (C1 heres on laced Iron oction in Ti e (C7) ata (D9)	Sec Living Roots  (C4)  Illed Soils  X	Condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted C	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) Son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1)
ype: epth (inche emarks:  YDROLC  Yetland Hy rimary India Surface  High Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatia Sparsely Water-S  ield Obser	drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeria of Vegetated Concar tained Leaves (B9) vations:	rs: of one is I Imagery ve Surface	(B7) te (B8)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C	Fauna (Buatic Planen Sulfided Rhizospiere of Redulation Reduck Surfactor Well Dates	odor (C1) heres on laced Iron oction in Tie e (C7) heres (C9) Remarks)	Sec Living Roots  (C4)  Illed Soils  X	Condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted C	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) Son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1)
ype: epth (inche emarks:  WDROLC /etland Hy rimary India Surface K High Wa K Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-S ield Obser urface water	drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria of Vegetated Concar tained Leaves (B9) vations: er present?	rs: of one is	(B7) ee (B8) No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C	Fauna (Buatic Planen Sulfide di Rhizospice of Redultron Reduck Surfactor Well Date Explain in Explain (in Explain in Explain in Explain in Explain (in Explain in E	nts (B14) Odor (C1 heres on laced Iron oction in Ti e (C7) hata (D9) Remarks)	Sec  Living Roots  (C4)  Illed Soils	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) whic Position (D2) atral Test (D5)
ype: lepth (inche lemarks:  IYDROLO letland Hy rimary India Surface X High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-S ield Obser urface water later table	drology Indicato cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aeria of Vegetated Concartained Leaves (B9) vations: er present?	rs: of one is I Imagery ve Surface Yes Yes	(B7) te (B8)  No X No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Planen Sulfide di Rhizospice of Redultron Reduck Surfacer Well Date Depth (in Depth (in Depth (in Surfacer)	nts (B14) Odor (C1 heres on laced Iron oction in Ti e (C7) hata (D9) Remarks) nches):	Sec	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp FAC-Neu	dicators (minimum of two requires Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) shic Position (D2) stral Test (D5)
ype: epth (inche emarks:  WDROLO /etland Hy rimary India Surface High Wa Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S ield Obser urface wate /ater table aturation pi	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria of Vegetated Concar tained Leaves (B9) vations: er present? present?	rs: of one is	(B7) ee (B8) No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Planen Sulfide di Rhizospice of Redultron Reduck Surfactor Well Date Explain in Explain (in Explain in Explain in Explain in Explain (in Explain in E	nts (B14) Odor (C1 heres on laced Iron oction in Ti e (C7) hata (D9) Remarks) nches):	Sec  Living Roots  (C4)  Illed Soils	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp FAC-Neu	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) whic Position (D2) atral Test (D5)
Surface X High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Sparsely Water-S ield Obser urface wate Vater table aturation pincludes ca	DGY drology Indicato cators (minimum of Water (A1) Inter Table (A2) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int Operated Concar Italian Leaves (B9) Vations: Inter Table (A2) Inte	I Imagery ve Surface Yes Yes Yes	(B7) Dee (B8)  No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Planen Sulfide de Antizospiere of Reducted Surfactor Well Date Depth (in	nts (B14) Odor (C1 heres on l liced Iron (ction in Ti le (C7) hata (D9) Remarks) nches): nches):	Secondary Second	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp FAC-Neu	dicators (minimum of two require Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) shic Position (D2) stral Test (D5)
ype: Jepth (inche Jepth (inche Jepth (inche Jemarks:  IYDROLO Jetland Hy Jerimary India Surface X High Wa X Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely Water-S Jeld Obser	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria of Vegetated Concar tained Leaves (B9) vations: er present? present?	I Imagery ve Surface Yes Yes Yes	(B7) Dee (B8)  No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Planen Sulfide de Antizospiere of Reducted Surfactor Well Date Depth (in	nts (B14) Odor (C1 heres on l liced Iron (ction in Ti le (C7) hata (D9) Remarks) nches): nches):	Secondary Second	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp FAC-Neu	dicators (minimum of two requires Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) shic Position (D2) stral Test (D5)
ype: epth (inche emarks:  IYDROLO /etland Hy rimary India Surface X High Wa X Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatia Sparsely Water-S ield Obser urface wate /ater table aturation pr ncludes ca	DGY drology Indicato cators (minimum of Water (A1) Inter Table (A2) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Int or Crust (B4) Int Operated Concar Italian Leaves (B9) Vations: Inter Table (A2) Inte	I Imagery ve Surface Yes Yes Yes	(B7) Dee (B8)  No No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E	Fauna (Buatic Planen Sulfide de Antizospiere of Reducted Surfactor Well Date Depth (in	nts (B14) Odor (C1 heres on l liced Iron (ction in Ti le (C7) hata (D9) Remarks) nches): nches):	Secondary Second	condary Ind Surface S Drainage Dry-Seas Crayfish I Saturatio Stunted of Geomorp FAC-Neu	dicators (minimum of two requires Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9) or Stressed Plants (D1) shic Position (D2) stral Test (D5)

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	<b>n</b> Sampling	g Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling		8U	
Investigator(s): Rebecca Beduhn		Secti	ion, Townsh	ip, Range:		S32 T101	N R49W	
Landform (hillslope, terrace, etc.): Footslope			relief (conca				Concave	
Slope (%): 3 Lat: 43° 30' 37.419" N		_	° 43' 53.5		Datum:	UTM NA	D83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		<u> </u>		l Classifica	tion:	Р	EMA	
Are climatic/hydrologic conditions of the site typical for this time of	of the vear?			If no, expla				
Are vegetation , soil , or hydrology	-	ly disturbed?		,,		nal circums	tanaaa"	
Are vegetation , soil , or hydrology	_	roblematic?			Are nom		resent?	Yes
SUMMARY OF FINDINGS				(If neede	ed. explair	n any answe		
Hydrophytic vegetation present?					<u>, , , , , , , , , , , , , , , , , , , </u>	,		
Hydric soil present?		Is the sa	ampled are	a within a	wetland?		N	
Indicators of wetland hydrology present?			otional wetla					
<u> </u>		300, 0	Juonal Would					
Remarks: (Explain alternative procedures here or in a separate r	eport.)							
Sample Point collected adjacent to Wetland 8.								
<b>VEGETATION</b> Use scientific names of plants.								
To Otal and (DL) in a COLD live	Absolute	Dominant	Indicator			Workshee	Ċ	
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status			ant Species : W, or FAC:	1	<b>(\</b> \
2		· —— ·						_(A)
3		· ——				of Dominant s all Strata:	1	(B)
4		· <del></del> ·		•		ant Species		_(-/
5						W, or FAC:	100.00%	(A/B)
	0	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevale	nce Index	Workshee	<b>≥</b> t	
1					Cover of:			
2				OBL spe	_	0 x 1		_
3		· ·		FACW s	· _	0 x 2		_
5		· ——		FAC spe	-	80 x 3 0 x 4		_
<u> </u>	0	= Total Cover		UPL spe	_	20 x 5		_
Herb stratum (Plot size: 5' Radius )		10101 00101		Column	_	100 (A)	340	_
1 Setaria pumila Yellow Bristle Grass	80	Υ	FAC	Prevaler	nce Index		3.40	_` ′
2 Euphorbia esula Leafy Spurge	10		UPL					_
3 Physalis pubescens Husk-Tomato	10	N	UPL	Hydrop	nytic Veg	etation Ind	icators:	
4				Rap	id test for	hydrophytic	vegetation	n
5				X Dom	inance te	st is >50%		
6				Prev	alence ind	dex is ≤3.0*	<i>t</i>	
7						adaptation	**	
8					oorting dat arate shee	ta in Remar	ks or on a	
9 10				l — ·		•	4 . 4 ! 9	*
	100	= Total Cover			olematic ny Iain)	ydrophytic v	/egetation <sup>-</sup>	•
Woody vine stratum (Plot size: 30' Radius )		- Total Gover		I — ` `				
1					•	soil and wetlar ss disturbed c	, ,,	
2		<del></del> ,		Hyd	rophytic			
	0	= Total Cover		_	etation			
Pamarke: (Include photo numbers here or on a congrete sheet)				pres	sent?	Y		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 8U

Profile Desc	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	<u>Matrix</u>		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	cture	Remarks
0-10	10YR 3/2	100					Silt Loam		
10-18	10YR 3/3	95	7.5YR 4/4	5	С	М	Sandy Loa	am	
					_				
*Type: C = 0	Concentration, D =	: Depletio	on. RM = Reduce	d Matrix	MS = Ma	asked Sa	nd Grains	**Location	: PL = Pore Lining, M = Matrix
	oil Indicators:	Ворющ	on, raw raddoo	a main,	IVIO IVIO	aonou ou			ematic Hydric Soils:
	tosol (A1)		Sar	dv Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	tic Epipedon (A2)			idy Redo		(0.)		k Surface (S7	
	ck Histic (A3)			pped Ma					t or Peat (S3) ( <b>LRR K, L, R</b> )
	drogen Sulfide (A4	.)			ky Minera	d (F1)		=	Masses (F12) (LRR K, L, R)
	atified Layers (A5)			-	ed Matrix			-	k Surface (TF12)
	m Muck (A10)			leted Ma		. ,		er (explain in	· · · · · · · · · · · · · · · · · · ·
	oleted Below Dark	Surface			Surface	(F6)		` '	,
	ck Dark Surface (		· · · —		rk Surfac	. ,	*Indi	cators of hydr	ophytic vegetation and wetland
	ndy Mucky Minera	•			essions (				e present, unless disturbed or
_					,	,	,	0,7	problematic
Restrictive	Layer (if observe	м).							
Type:	Layer (II Observe	uj.					Hydri	c soil presen	t? N
Depth (inche	56).						Hydri	c son presen	
					•				
Remarks:									
HYDROLO									
1	drology Indicato								
Primary Indi	<u>cators (minimum c</u>	of one is	required; check a	ll that ap	ply)		<u> </u>		licators (minimum of two required)
Surface	Water (A1)				Fauna (B				Soil Cracks (B6)
	ater Table (A2)				uatic Plan				Patterns (B10)
Saturatio					n Sulfide	-	-		son Water Table (C2)
	larks (B1)				Rhizospl	heres on	Living Roots		Burrows (C8)
	nt Deposits (B2)			(C3)			(O.1)		n Visible on Aerial Imagery (C9)
	posits (B3)				e of Redu				or Stressed Plants (D1)
	at or Crust (B4)				ron Redu	ction in T	illed Soils		phic Position (D2)
	oosits (B5) on Visible on Aeria	Ilmagery	(B7)	(C6)	ok Surfac	o (C7)		FAC-Net	ıtral Test (D5)
	/ Vegetated Conca		· · ·		ck Surfac r Well Da				
	tained Leaves (B9)				xplain in I		1		
	` '			Other (E	Apiaiii iii i	(Ciliants)			
Field Obser Surface water		Yes	No	Х	Depth (i	nches).			
		Yes	No	$\frac{\lambda}{X}$	Depth (i			- Inc	licators of wetland
ivvater table	nresent?		110					_	
	present? resent?		No.	Х	Deoin (i	nches):			varology bresent? IN I
Saturation p	resent?	Yes	No	X	Depth (ii	nches):		-   '''	/drology present? N
Saturation p (includes ca	resent? pillary fringe)	Yes			•		spections) if	-	varology present? N
Saturation p (includes ca	resent?	Yes			•		spections), if	-	varology present? N
Saturation p (includes ca	resent? pillary fringe)	Yes			•		spections), if	-	varology present? N
Saturation p (includes ca Describe red Remarks:	resent? pillary fringe)	Yes m gauge	, monitoring well,	aerial ph	notos, pre	evious ins		available:	varology present? N

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		_	<b>n</b> Sampling	Date:	9/25/2018	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling I		W8	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:		S32 T101N	R49W	
Landform (hillslope, terrace, etc.): footslope			relief (conca			C	oncave	
Slope (%): 1 Lat: 43° 30' 37.732" N		_	° 43' 53.7		Datum:	UTM NAI	D83 Zone 1	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes		<u> </u>		l Classifica	tion:	PE	MA .	
Are climatic/hydrologic conditions of the site typical for this time	of the vear?				in in remar			
Are vegetation , soil , or hydrology	•	ly disturbed?		, ,		al circumst	anasa"	
Are vegetation , soil , or hydrology	-	roblematic?			Are norm		esent? Y	'es
SUMMARY OF FINDINGS				(If neede	ed, explain	-		
Hydrophytic vegetation present?					<del>, , ,</del>			
Hydric soil present?		Is the sa	ampled are	a within a	wetland?		Υ	
Indicators of wetland hydrology present?			ptional wetla			tland 8	<del></del>	
		,00, 0	- Tronai Would					
Remarks: (Explain alternative procedures here or in a separate	report.)							
Sample Point collected in Wetland 8.								
<b>VEGETATION</b> Use scientific names of plants.				1				
T 0(-1	Absolute	Dominant	Indicator		nce Test V			
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status		of Dominar OBL, FACV		4	<b>(\</b> \)
	_					_		_(A)
3	_				l Number of cies Across		1	(B)
4					of Dominar	_		_(_)
5					OBL, FACV		100.00%	(A/B)
	0	= Total Cover						-
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevale	nce Index \	Worksheet	t	
1					Cover of:			
2	_			OBL spe	_	0 x 1 =		_
3	_			FACW s	_	90 x 2 =		_
5				FAC spe	_	10 x 3 =		_
	0	= Total Cover		UPL spe	·	0 x5=		_
Herb stratum (Plot size: 5' Radius )		10101 00101		Column	_	100 (A)	210	(B)
1 Phalaris arundinacea Reed Canary Grass	50	Υ	FACW	Prevaler	nce Index =		2.10	-` ′
2 Cyperus esculentus Chufa	15		FACW					_
3 Echinochloa crus-galli Large Barnyard Grass	15	N	FACW	Hydrop	hytic Vege	tation Indi	cators:	
4 Setaria pumila Yellow Bristle Grass	10	N	FAC	X Rap	id test for h	ydrophytic	vegetation	1
5 Persicaria pensylvanica Pinkweed	10	N	FACW	X Don	ninance test	t is >50%		
6				X Prev	alence inde	ex is ≤3.0*		
7					phological a			
8					oorting data		s or on a	
9	_				arate sheet)	-		
10	100	= Total Cover			olematic hyd Iain)	drophytic ve	egetation <sup>*</sup>	
Woody vine stratum (Plot size: 30' Radius )	100	- TOLAI COVEI		<u>  —                                   </u>	•			
1					rs of hydric so resent, unless			
2	_				rophytic			
_	0	= Total Cover		veg	etation			
Demonitor (Include what were have				pres	sent?	Y		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 8W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	ent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featu	<u>ıres</u>				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-2	10YR 2/1	100					Silt Loam		
2-10	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
10-20	10YR 5/1	80	10YR 5/6	20	С	PL	Silt Loam		
10-20	10111 3/1	00	10111 3/0	20	C	1 L	Oilt Loain		
*Type: C = C	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location:	: PL = Pore Lining, M = Matrix
	il Indicators:								ematic Hydric Soils:
Hist	osol (A1)		San	dy Gleye	d Matrix	(S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
—— Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dar	k Surface (S7	() (LRR K, L)
Blac	ck Histic (A3)		Stri	oped Mat	rix (S6)		5 cr	m Mucky Peat	or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A4	.)	Loa	my Muck	y Minera	ıl (F1)	Iron	-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dar	k Surface (TF12)
	n Muck (A10)			leted Ma			Oth	er (explain in	remarks)
	leted Below Dark		· · · · · · · · · · · · · · · · · · ·		Surface	. ,			
	k Dark Surface (/	•			rk Surfac				ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (	F8)	hyd	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydrid	c soil presen	t? Y
Depth (inche	es):								
Remarks:									
HYDROLO	OGY								
	drology Indicato	rs:							
1	cators (minimum		required: check a	ll that an	nlv)		(	Secondary Inc	dicators (minimum of two required)
	Water (A1)	or oric is	required, crieck a	•	Fauna (B	13)	<u> </u>		Soil Cracks (B6)
	ter Table (A2)				uatic Plan				Patterns (B10)
X Saturation			-			Odor (C1	)		son Water Table (C2)
	arks (B1)					-	Living Roots		Burrows (C8)
Sedimen	t Deposits (B2)			(C3)			•	Saturatio	n Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		·	Presence	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		<u> </u>		ron Redu	ction in Ti	illed Soils		phic Position (D2)
	osits (B5)			(C6)				X FAC-Neu	ıtral Test (D5)
	on Visible on Aeria		· ·		ck Surfac				
	Vegetated Conca		e (B8)	i	r Well Da				
	tained Leaves (B9)			Other (E	xpıaın ın ı	Remarks)			
Field Obser		V	NI_	V	Donth (	h \·			
Surface water	•	Yes	X No	Х	Depth (in		5	In a	licators of wetland
Water table   Saturation pi		Yes Yes	X No		Depth (ii		5 0	_	/drology present?
(includes car		103			Dopui (II		<u> </u>	·   '''	
	orded data (strea	m dalido	monitoring well	aerial nh	notoe pro	avioue inc	enections) if	available:	
Pescine ied	orueu uata (Stied	yauye	, monitoring well,	αστιαί μί	ioios, pre	vious IIIS	, pecuons <i>)</i> , 11	a valiabic.	
Remarks:									
	t precipitation o	condition	ns were determ	nined "V	Vetter th	nan norr	nal" (Appe	ndix C).	
	- p p. (callott)		40.0111				(, , , , , , , ,	· · · · · · · · · · · · · · · · · · ·	

### WETLAND DETERMINATION DATA FORM - Midwest Pegion

Project/Site PCN 000S: I-229 Exit 3 Reconstruction			oux Falls/Mi	_	g Date: 9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D		
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	S32 T101N R49W
Landform (hillslope, terrace, etc.):  Backslope				ave, convex, none):	Concave
Slope (%): 6 Lat: 43° 30' 36.159" N		_	96° 43' 58.7	· · · · · · · · · · · · · · · · · · ·	UTM NAD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes				I Classification:	PEMA
Are climatic/hydrologic conditions of the site typical for this time of	of the year?			If no, explain in rema	
Are vegetation , soil , or hydrology Are vegetation , soil , or hydrology SUMMARY OF FINDINGS	significantl	ly disturbed? roblematic?		Are "norm	mal circumstances"  present? Yes
				(II fleeded, explair	n any answers in remarks.)
Hydrophytic vegetation present?  N		1-41			N.
Hydric soil present? N			-	a within a wetland?	N
Indicators of wetland hydrology present? N		If yes, or	otional wetla	ınd site ID:	
Remarks: (Explain alternative procedures here or in a separate r	eport.)				
Sample Point collected adjacent to Wetland 9.					
<b>VEGETATION</b> Use scientific names of plants.					
	Absolute	Dominant	Indicator	Dominance Test	Worksheet
<u>Tree Stratum</u> (Plot size: <u>30' Radius</u> ) 1	% Cover	Species	Status	Number of Domina that are OBL, FAC	
2				Total Number of	of Dominant
3				Species Acros	<del></del> ` ' '
5				Percent of Domina that are OBL, FAC	·
5	0	= Total Cover		that are OBL, FAC	W, or FAC: 50.00% (A/B)
Sapling/Shrub stratun     (Plot size: 15' Radius )       1        2        3        4        5				Prevalence Index Total % Cover of: OBL species FACW species FAC species FACU species	0 x 1 = 0 0 x 2 = 0 50 x 3 = 150 30 x 4 = 120
3	0	= Total Cover		UPL species	$\frac{30}{20} \times 5 = \frac{120}{100}$
Herb stratum       (Plot size: 5' Radius )         1 Setaria pumila       Yellow Bristle Grass	50	Y	FAC	Column totals Prevalence Index	100 (A) 370 (B)
2 Conyza canadensis Horeseweed	20	<u>Y</u>	UPL		
3 Humulus japonicus Japanese Hop	15	N	FACU	' ' '	etation Indicators:
4 Arctium minus Lesser Burrdock 5 Cirsium arvense Canadian Thistle	<u>5</u>	N	FACU FACU	Dominance tes	hydrophytic vegetation
5 Cirsium arvense Canadian Thistle 6 Bromus inermis Smooth Brome	5	N	FACU	Prevalence in	
7			17100	<del></del>	
8					adaptations* (provide ta in Remarks or on a et)
10	100	= Total Cover		I —	ydrophytic vegetation*
Woody vine stratum (Plot size: 30' Radius )  1				*Indicators of hydric s	soil and wetland hydrology must be ss disturbed or problematic
2	0	= Total Cover		Hydrophytic vegetation	
	v	. 5.0. 50101		present?	N
Remarks: (Include photo numbers here or on a separate sheet)					

SOIL Sampling Point: 9U

Depth (Inches)     Matrix (Inches)     Redox Features       Color (moist)     %     Color (moist)     %       Type*     Loc**     Texture     Remarks	
	1
0-10 10YR 4/3 100     Sand	
10-20 10YR 4/2 100 Sandy Loam	
10 20 10 11 11 11 11 11 11 11 11 11 11 11 11	
*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M	= Matrix
Hydric Soil Indicators: Indicators for Problematic Hydric Soils:	Wattix
Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) (LRR K, L, I	R)
Histic Epipedon (A2)  Sandy Redox (S5)  Dark Surface (S7) (LRR K, L)	,
Black Histic (A3)  Stripped Matrix (S6)  5 cm Mucky Peat or Peat (S3) (LRR K,	. L. R)
Hydrogen Sulfide (A4)  Loamy Mucky Mineral (F1)  Iron-Manganese Masses (F12) (LRR K	
Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Very Shallow Dark Surface (TF12)	, , ,
2 cm Muck (A10) Depleted Matrix (F3) Other (explain in remarks)	
Depleted Below Dark Surface (A11) Redox Dark Surface (F6)	
Thick Dark Surface (A12)  Depleted Dark Surface (F7)  *Indicators of hydrophytic vegetation and	d wetland
Sandy Mucky Mineral (S1)  Redox Depressions (F8)  hydrology must be present, unless distu	
problematic	
Restrictive Layer (if observed):	
Type: Hydric soil present? N	
Depth (inches):	
Remarks:	
LIVEROLOGY	
HYDROLOGY	
Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)  Secondary Indicators (minimum of the secondary (min	
Confee Mater (A4)	wo required)
Surface Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6)	wo required)
High Water Table (A2)  True Aquatic Plants (B14)  Drainage Patterns (B10)	wo required)
High Water Table (A2)  Saturation (A3)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Drainage Patterns (B10)  Dry-Season Water Table (C2)	wo required)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  Dry-Season Water Table (C2)  Oxidized Rhizospheres on Living Roots	
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Dry-Season Water Table (C2)  Oxidized Rhizospheres on Living Roots  (C3)  Saturation Visible on Aerial Image	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Drift Deposits (B3)  True Aquatic Plants (B14)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Image Patterns (B10)  Presence of Reduced Iron (C4)  Stunted or Stressed Plants (D1)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Presence of Reduced Iron (C4)  Recent Iron Reduction in Tilled Soils  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Image Patterns (B10)  Presence of Reduced Iron (C4)  Recent Iron Reduction in Tilled Soils  Geomorphic Position (D2)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Drainage Patterns (B10)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  True Aquatic Plants (B14)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Image Patterns (B10)  Presence of Reduced Iron (C4)  Recent Iron Reduction in Tilled Soils  Geomorphic Position (D2)  FAC-Neutral Test (D5)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Oxidized Rhizospheres on Living Roots  (C3)  Saturation Visible on Aerial Imagery (B7)  True Aquatic Plants (B14)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Saturation Visible on Living Roots  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  FAC-Neutral Test (D5)  Thin Muck Surface (C7)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Oxidized Rhizospheres on Living Roots  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Recent Iron Reduction in Tilled Soils  (C6)  Thin Muck Surface (C7)  Gauge or Well Data (D9)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Dry-Season Water Table (C2)  Oxidized Rhizospheres on Living Roots  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Saturation Visible on Aerial Imagery (C3)  Saturation Visible on Aerial Imagery (B7)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water Aguatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Saturation Visible on Aerial Imagery (B7)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  True Aquatic Plants (B14)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Gauge or Well Data (D9)  Other (Explain in Remarks)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water Aguatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Oxidized Rhizospheres on Living Roots  (C3)  Sediment Deposits (B2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Recent Iron Reduction in Tilled Soils  (C6)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B4)  Iron Deposits (B5)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water Stained Leaves (B9)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Image  Crayfish Burrows (C8)  Saturation Visible on Aerial Image  Stunted or Stressed Plants (D1)  Recent Iron Reduction in Tilled Soils  (C6)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):  Indicators of wetland	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B4)  Iron Deposits (B5)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water Stained Leaves (B9)  Field Observations:  Surface water present?  Water Marks (B1)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Stunted or Stressed Plants (D1)  Recent Iron Reduction in Tilled Soils  (C6)  FAC-Neutral Test (D5)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):  Indicators of wetland	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water-Stained Leaves (B9)  Field Observations:  Surface water present?  Water table (A2)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Dry-Season Water Table (C2)  Dry-Season Water Table (C2)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Recent Iron Reduced Iron (C4)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  (C6)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):  Indicators of wetland Saturation present?  Yes  No  X  Depth (inches):  Indicators of wetland hydrology present?  (includes capillary fringe)	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water-Stained Leaves (B9)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):  Water Idable (A2)  True Aquatic Plants (B14)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Crayfish Burrows (C8)  Saturation Visible on Aerial Image  Crayfish Burrows (C8)  Saturation Visible on Aerial Image  Saturation Visible on Aerial Image  Geomorphic Position (D2)  FAC-Neutral Test (D5)  FAC-Neutral Test (D5)  Indicators of wetland hydrology present?	gery (C9)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Water-Stained Leaves (B9)  Field Observations:  Surface water present?  Water table (A2)  True Aquatic Plants (B14)  Hydrogen Sulfide Odor (C1)  Dry-Season Water Table (C2)  Dry-Season Water Table (C2)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (B7)  Recent Iron Reduced Iron (C4)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  (C6)  Thin Muck Surface (C7)  Gauge or Well Data (D9)  Other (Explain in Remarks)  Field Observations:  Surface water present?  Yes  No  X  Depth (inches):  Indicators of wetland Saturation present?  Yes  No  X  Depth (inches):  Indicators of wetland hydrology present?  (includes capillary fringe)	gery (C9)
High Water Table (A2) Saturation (A3) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Water-Stained Leaves (B9)  Field Observations: Surface water present? Water table present? Yes No X Depth (inches): Water Table (A2) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (B7) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)  Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Water-Stained Leaves (B9) Other (Explain in Remarks)  Field Observations: Surface water present? Yes No X Depth (inches): Indicators of wetland hydrology present? (includes capillary fringe)  Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	gery (C9)

Project/Site Interstate 229 Exit 3 Reconstruction		County: Si		•	<b>n</b> Sampling	ı Date:	9/25/201	18
Applicant/Owner: SDDOT		State:	South D		Sampling		9W	
Investigator(s): Rebecca Beduhn			ion, Townsh			S32 T101N		
Landform (hillslope, terrace, etc.):  Toeslope	•		relief (conc		. none):		oncave	
Slope (%): 2 Lat: 43° 30' 36.286" N		_	96° 43' 59.2		Datum:		D83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes	•			l Classifica	-		MA	
Are climatic/hydrologic conditions of the site typical for this time	e of the vear?			If no, expla			1417 (	
Are vegetation , soil , or hydrology	•	ly disturbed?		-		•		
Are vegetation , soil , or hydrology	_	roblematic?			Are morm	nal circumst pr	ances" esent? \	Yes
SUMMARY OF FINDINGS		robiomano.		(If neede	ed explain	any answe		
Hydrophytic vegetation present?				(	-a, ->-pa	a, a		
Hydric soil present?		Is the s	ampled are	a within a	wetland?		Υ	
Indicators of wetland hydrology present?			ptional wetla			etland 9	<del></del>	
		11 you, o	phonai would	ind one ib.		Stiding 0		
Remarks: (Explain alternative procedures here or in a separate	e report.)							
Sample Point collected in Wetland 9.								
<b>VEGETATION</b> Use scientific names of plants.				1				
To Otto Lorenza (DLA size and DD Livera)	Absolute	Dominant	Indicator			Worksheet		
<u>Tree Stratum</u> (Plot size: <u>30' Radius</u> ) 1 <i>Acer saccharinum Silver Maple</i>	% Cover 10	Species Y	Status FACW			nt Species W, or FAC:	5	<b>(\</b> \)
2 Silver Maple			FACW			-		_(A)
3						f Dominant s all Strata:	5	(B)
4						nt Species		_(-/
5						W, or FAC:	100.00%	(A/B)
	10	= Total Cover				-		
Sapling/Shrub stratun (Plot size: 15' Radius )						Workshee	į	
1					Cover of:			
2				OBL spe	_	15 x 1 =		_
3				FACW s	_	80 x 2 =		_
5				FAC spe		0 x4=		_
<u> </u>		= Total Cover		UPL spe	_	0 x 5 =		_
<u>Herb stratum</u> (Plot size: 5' Radius )				Column	_	110 (A)	220	(B)
1 Phalaris arundinacea Reed Canary Grass	40	Υ	FACW	Prevaler	 		2.00	<b>-</b> ` '
2 Typha latifolia Broad-Leaf Cat-Tail	15	Υ	OBL			-		_
3 Rumex crispus Curly Dock	15	Y	FAC	Hydroph	ytic Vege	etation Indi	cators:	
4 Urtica dioica Stinging Nettle	15	Υ	FACW			nydrophytic	vegetation	n
5 Persicaria lapathifolia Dock-Leaf Smartweed	10	N	FACW	l ——		st is >50%		
6 Acer saccharinum Silver Maple	5	N	FACW	X Prev	alence ind	lex is ≤3.0*		
7						adaptations		
9					oorting data arate sheet	a in Remarl •\	s or on a	
10						را drophytic v	egetation'	*
	100	= Total Cover		(exp	-	rdiopriytic v	sgetation	
Woody vine stratum (Plot size: 30' Radius )				<u> </u>	,	oil and watlan	d hydrology	must bo
1					•	oil and wetlan ss disturbed or	, ,,	
2				_	rophytic			
	0	= Total Cover		_	etation	V		
Remarks: (Include photo numbers here or on a separate sheet	.)			pres	ent?	Y		
,	,							

SOIL Sampling Point: 9W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-2	10YR 2/1	100					Silt Loam		
2-10	10YR 4/1	80	10YR 5/8	20	С	М	Silt Loam		
10-20	10YR 5/1	80	10YR 5/6	20	С	PL	Silt Loam		
10-20	10111 3/1	00	10111 3/0	20		1 L	Oilt Loain		
*Type: C = C	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location:	: PL = Pore Lining, M = Matrix
	il Indicators:	<u> </u>	,	,					ematic Hydric Soils:
Hist	osol (A1)		San	dy Gleye	d Matrix	(S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
— Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dar	k Surface (S7	) (LRR K, L)
Blac	ck Histic (A3)		Stri	oped Mat	trix (S6)		5 cr	m Mucky Peat	or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A4	.)	Loa	my Muck	y Minera	ıl (F1)	Iron	-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dar	k Surface (TF12)
	n Muck (A10)			leted Ma			Oth	er (explain in	remarks)
	leted Below Dark		· · · · · · · · · · · · · · · · · · ·		Surface	. ,			
	k Dark Surface (/	•			rk Surfac				ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (	F8)	hyd	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydrid	c soil presen	t? Y
Depth (inche	es):								
Remarks:									
HYDROLO	OGY								
	drology Indicato	rs:							
1			required; check a	ll that an	nlv)		g	Secondary Inc	dicators (minimum of two required)
	Water (A1)	or oric is	required, crieck a	-	<del>נייט</del> Fauna (B	13)	<u> </u>		Soil Cracks (B6)
	ter Table (A2)				uatic Plan				Patterns (B10)
X Saturation			-			Odor (C1	)		son Water Table (C2)
	arks (B1)					-	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)	•		Ü		n Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		-	Presence	e of Redu	ced Iron	(C4)	Stunted of	or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		·	Recent I	ron Redu	ction in T	lled Soils		phic Position (D2)
	osits (B5)			(C6)				X FAC-Neu	ıtral Test (D5)
	on Visible on Aeria		· ·		ck Surfac				
	Vegetated Conca		e (B8)	i	r Well Da				
	tained Leaves (B9)		-	Other (E	xplain in i	Remarks)			
Field Obser		.,		.,	<b>5</b>				
Surface water	•	Yes	No No	Х	Depth (i		4		liantary of westerned
Water table		Yes	X No		Depth (i		1 0	_	dicators of wetland
Saturation procession (includes care		Yes	X No		Depth (i	1101165).	U	-   '''	/drology present? Y
		m gougo	monitoring well	aerial nh	otos pro	vious iss	nections) if	available:	
Describe rec	อเน <del>ะ</del> น นสเส (Stiea	ııı yauge	, monitoring well,	аспатрг	iotos, pre	vious ins	pecions), II	avalidDI <del>C</del> .	
Remarks:									
	t precipitation o	condition	ns were determ	nined "\/	Vetter th	nan nori	nal" (Anne	ndix C.)	
,	. proorpitation	J. IGILIO	is note determ	V	. 5 11	.311 11011	a. (/ ippo		

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		•	Sampling	Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling I		10U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:		S32 T101N	R49W	
Landform (hillslope, terrace, etc.):  Backslope			relief (conca		k. none):	Co	oncave	
Slope (%): 3 Lat: 43° 30' 31.986" N		_	96° 43' 53.5		Datum:		D83 Zone	14N
Soil Map Unit Name: Chaska loam, channeled		<u> </u>		l Classifica	· —		MA	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?				in in remar			
Are vegetation , soil , or hydrology	•	ly disturbed?		-		al circumst	"	
Are vegetation , soil , or hydrology	_	roblematic?			Are norm		esent? \	⁄es
SUMMARY OF FINDINGS				(If neede	ed. explain	any answei		
Hydrophytic vegetation present?					· ·	<u>,                                      </u>		
Hydric soil present?		Is the sa	ampled area	a within a	wetland?		N	
Indicators of wetland hydrology present?			otional wetla				<u></u> -	
		500, 0	onona wona	ind one ib.				
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected adjacent to Wetland 1.								
<b>VEGETATION</b> Use scientific names of plants.				1				
T- 0(-1 (D) 1 00(D) (5 )	Absolute	Dominant	Indicator		nce Test V			
Tree Stratum (Plot size: 30' Radius )	% Cover	Species	Status		of Dominar OBL, FACV		2	<b>(\</b> \)
2						_		_(A)
3					Number of cies Across		3	(B)
4					of Dominar	_		_(_/
5					OBL, FACV	•	66.67%	(A/B)
	0	= Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius )				Prevale	nce Index	Worksheet	:	
1 Rhamnus cathartica European Buckthorn	20	Υ	FAC		Cover of:			
2				OBL spe		0 x 1 =		_
3				FACW s	_	0 x 2 =		_
5				FAC spe		60 x 3 =		_
<u> </u>	20	= Total Cover		UPL spe		10 x 5 =		_
Herb stratum (Plot size: 5' Radius )				Column	_	120 (A)	430	(B)
1 Setaria pumila Yellow Bristle Grass	30	Υ	FAC	Prevaler	ce Index =		3.58	_` ′
2 Bromus inermis Smooth Brome	20	<u> </u>	FACU				0.00	_
3 Carex pensylvanica Pennsylvania sedge	10	N	UPL	Hydropl	nytic Vege	tation Indi	cators:	
4 Rubus allegheniensis Allegheny Blackberry	10	N	FACU	Rapi	d test for h	ydrophytic	vegetation	า
5 Rhamnus cathartica European Buckthorn	10	N	FAC	X Dom	inance test	t is >50%		
6 Taraxacum officinale Common Dandelion	10	N	FACU	Prev	alence inde	ex is ≤3.0*		
7 Glechoma hederacea Groundivy	10	N	FACU			adaptations		
8						in Remark	s or on a	
9					rate sheet)			
10	100	= Total Cover		exp	-	drophytic ve	egetation <sup>*</sup>	
Woody vine stratum (Plot size: 30' Radius )						il and wetland		
1						s disturbed or	problemation	;
2		-T-4-1 O		_	rophytic etation			
	0	= Total Cover		_	ent?	Υ		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 10U

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Re	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	kture	Remarks
0-9	10YR 4/2	100					Sandy loa	m	
9-18	10YR 4/3	100					Sand		
0.0									
*Type: C = C	Concentration, D =	: Depletic	on. RM = Reduce	d Matrix	MS = Ma	asked Sa	nd Grains	**Location	: PL = Pore Lining, M = Matrix
	il Indicators:	Doplotic	711, 1111 1104400	a mann,	1110 1110	aonoa oa			ematic Hydric Soils:
	osol (A1)		Sar	dv Gleve	ed Matrix	(S4)			dox (A16) (LRR K, L, R)
	ic Epipedon (A2)			idy Redo		(0.)		rk Surface (S7	
	ck Histic (A3)			pped Ma					t or Peat (S3) ( <b>LRR K, L, R</b> )
	rogen Sulfide (A4	.)			xy Minera	l (F1)			Masses (F12) (LRR K, L, R)
	tified Layers (A5)	-		-	, ed Matrix	. ,		_	k Surface (TF12)
	n Muck (A10)			leted Ma		• ,		er (explain in	· · · · · · · · · · · · · · · · · · ·
	leted Below Dark	Surface			Surface	(F6)			,
	k Dark Surface (		· · · · —		rk Surfac		*Indi	cators of hydr	ophytic vegetation and wetland
San	dy Mucky Minera	(S1)			essions (				e present, unless disturbed or
		, ,			,	•	,	0,7	problematic
Restrictive	Layer (if observe	м).							
Type:	Layer (II Observe	uj.					Hydri	c soil presen	t? N
Depth (inche	·e).				•		ilyan	c son presen	
Remarks:									
HYDROLO									
Wetland Hy	drology Indicato	rs:							
Primary India	cators (minimum o	of one is	required; check a	ll that ap	ply)		<u>;</u>	Secondary Inc	dicators (minimum of two required)
Surface '	Water (A1)				Fauna (B				Soil Cracks (B6)
	ter Table (A2)				uatic Plan				Patterns (B10)
X Saturation	` '				n Sulfide	-			son Water Table (C2)
	arks (B1)				Rhizospl	neres on l	Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)			(O.1)		n Visible on Aerial Imagery (C9)
	osits (B3)				e of Redu				or Stressed Plants (D1)
	t or Crust (B4)				ron Redu	ction in Ti	lled Soils		phic Position (D2)
	osits (B5) on Visible on Aeria	l Imagery	(B7)	(C6)	ok Surfoo	o (C7)		FAC-Net	ıtral Test (D5)
	Vegetated Conca		· · ·		ck Surfac r Well Da				
	tained Leaves (B9)				xplain in I				
				Other (E	лріант ін і	(Ciliants)			
Field Obser Surface water		Yes	No	Х	Depth (i	nchee).			
Water table	•	Yes	No	$\frac{\lambda}{X}$	Depth (i			- Inc	licators of wetland
Saturation pr		Yes	X No		Depth (i		6	_	/drology present?
(includes car		. 55						-	
	orded data (strea	m dalide	monitoring well	aerial nh	notos pre	evious ins	spections) if	available:	
20001100 100	2.404 data (5116a	gaage	,ororg well,	acriai pi	.5.55, pre		. r 00010110 <i>j</i> , 11	aranabio.	
Remarks:									
	t precipitation o	conditio	ns were detern	nined "V	Vetter th	nan norr	nal" (Appe	ndix C).	
	, , ,			- •	<b>-</b> -		(1-13-c	- /-	

WETLAND DETERMIN  Project/Site PCN 000S: I-229 Exit 3 Reconstruction				•	<b>າ</b> Sampling Dat	e: 9	/25/2018	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D		Sampling Poir		10W	
Investigator(s): Rebecca Beduhn			on, Townsh			 T101N R		
Landform (hillslope, terrace, etc.): Toeslope			relief (conc	-		Cond		
Slope (%): 2 Lat: 43° 30' 31.865" N		_	96° 43' 53.7			TM NAD8:		14N
Soil Map Unit Name: Chaska loam, channeled		Long.		l Classifica		PEMA		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?				in in remarks)	1 = 1017	`	
Are vegetation , soil , or hydrology		ly disturbed?		-	·			
Are vegetation , soil , or hydrology	-	roblematic?			Are "normal c		ces" ent? Y	'es
SUMMARY OF FINDINGS	riatarany p	robiomatio.		(If neede	ed, explain any	•		
Hydrophytic vegetation present?				(	<u> </u>			,
Hydric soil present?		Is the sa	mpled are	a within a	wetland?	Υ		
Indicators of wetland hydrology present?			tional wetla			110		
		11 900, 01	Alonai Wolle	ind one ib.	- VVOIGIN	10		
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected in Wetland 10.								
<b>VEGETATION</b> Use scientific names of plants.				1				
T- 0(-1 (D) 1 00(D) (1 )	Absolute	Dominant	Indicator		nce Test Wor			
Tree Stratum (Plot size: 30' Radius ) 1	% Cover	Species	Status		of Dominant S OBL, FACW, o	•	1	(A)
2					Number of Do		-	_(^)
3					cies Across all		1	(B)
				Percent	of Dominant S	pecies		-` ′
5					OBL, FACW, o		00.00%	(A/B)
	0	= Total Cover						_
Sapling/Shrub stratun (Plot size: 15' Radius )					nce Index Wo	rksheet		
1					Cover of:		_	
				OBL spe			0	_
3				FACW s	·	x 2 = x 3 =	200	-
5				FACU sp			0	-
	0	= Total Cover		UPL spe		x 5 =	0	-
Herb stratum (Plot size: 5' Radius )				Column		(A)	200	(B)
1 Phalaris arundinacea Reed Canary Grass	75	Υ	FACW	Prevaler	ice Index = B/A	<del>\</del> =	2.00	-
2 Echinochloa crus-galli Large Barnyard Grass	15	N	FACW					-
3 Cyperus esculentus Chufa	10	N	FACW	Hydroph	nytic Vegetati	on Indicat	tors:	
4				I — ·	d test for hydro		getation	1
5					inance test is			
6				X Prev	alence index is	s ≤3.0°		
8					ohological ada			
9					oorting data in arate sheet)	Remarks	or on a	
10	100	- Total Cayor		Prob	lematic hydror	ohytic vege	etation*	
Woody vine stratum (Plot size: 30' Radius )	100	= Total Cover		(exp				
1					rs of hydric soil an resent, unless dis			nust be
2					rophytic			
	0	= Total Cover		vege	etation			
Describe (festal al festal a la completa de la completa del completa de la completa de la completa del completa de la completa del completa de la completa del completa de la completa del com				pres	ent?	Υ		
Remarks: (Include photo numbers here or on a separate sheet)								

SOIL Sampling Point: 10W

rofile Desci Depth	Matrix		R	edox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-6	10YR 2/1	100					Sand		
6-10	10YR 4/2	90	7.5YR 4/6	10	С	PL	Sand		
10-20	10YR 6/1	85	7.5YR 4/6	15	С	M	Sand		
10-20	1011071	00	7.511( 4/0	13		IVI	Janu		
-									
ype: C = C	oncentration, D =	Depletion	on, RM = Reduc	ed Matrix,	, MS = Ma	asked Sa	nd Grains.	**Location	: PL = Pore Lining, M = Matrix
	I Indicators:								ematic Hydric Soils:
Histo	osol (A1)		Sa	andy Gley	ed Matrix	(S4)	Coas	st Prairie Re	dox (A16) ( <b>LRR K, L, R</b> )
Histi	c Epipedon (A2)		Sa	andy Redo	ox (S5)		Dark	Surface (S	7) ( <b>LRR K, L)</b>
Blac	k Histic (A3)		St	ripped Ma	trix (S6)		5 cm	Mucky Pea	it or Peat (S3) ( <b>LRR K, L, R</b> )
Hydr	rogen Sulfide (A4	<b>!</b> )	Lo	amy Mucl	ky Minera	al (F1)	Iron-	Manganese	Masses (F12) (LRR K, L, R)
Strat	tified Layers (A5)	)	Lo	amy Gley	ed Matrix	(F2)	Very	Shallow Da	rk Surface (TF12)
	n Muck (A10)			epleted Ma	, ,		Othe	er (explain in	remarks)
	leted Below Dark		· · ·	edox Dark		. ,			
	k Dark Surface (/			epleted Da		, ,			rophytic vegetation and wetland
Sand	dy Mucky Minera	I (S1)	R	edox Depr	essions (	(F8)	hydro	ology must l	pe present, unless disturbed or
									problematic
epth (inches	s):				- -		Hydric	soil presei	nt? Y
epth (inches	s):				- -		Hydric	soil presei	nt? <u>Y</u>
epth (inches					- -		Hydric	soil presei	nt? <u>Y</u>
epth (inchesemarks:	GY	rs:			-		Hydric	soil presei	nt? <u>Y</u>
epth (inchesemarks:  YDROLO	GY drology Indicato		required; check	all that ar	- -				
epth (inchesemarks:  YDROLO  etland Hydrimary Indic	GY drology Indicato ators (minimum o		required; check			13)		econdary In	dicators (minimum of two requi
YDROLO etland Hydrimary Indic	GY drology Indicato eators (minimum o		required; check	Aquatic	Fauna (B	,		econdary In Surface	dicators (minimum of two requi Soil Cracks (B6)
YDROLO etland Hydrimary Indic Surface V High Wat	drology Indicato sators (minimum ovater (A1) er Table (A2)		required; check	Aquatic True Aq	Fauna (B uatic Plar	,	<u>S</u>	econdary In Surface Drainag	dicators (minimum of two requi
YDROLO etland Hyd imary Indic Surface V High Wat	drology Indicato eators (minimum of Water (A1) der Table (A2) n (A3)		required; check	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>S</u>	econdary In Surface Drainag Dry-Sea	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10)
YDROLO etland Hydrimary Indic Surface V High Wate Saturation Water Ma Sediment	PGY Irology Indicato eators (minimum of Water (A1) erer Table (A2) n (A3) arks (B1) t Deposits (B2)		required; check	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>S</u>	econdary In Surface Drainag Dry-Sea Crayfish Saturati	dicators (minimum of two requi Soil Cracks (B6) e Patterns (B10) son Water Table (C2) Burrows (C8) on Visible on Aerial Imagery (C9)
YDROLO YDROLO Yetland Hydrimary Indic Surface V High Wate Saturation Water Ma Sediment Drift Depo	Arks (B1) t Deposits (B3)		required; check	Aquatic True Aq Hydroge Oxidized (C3) Presence	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu	nts (B14) Odor (C1 heres on	S - ) _iving Roots _ (C4)	econdary In Surface Drainag Dry-Sea Crayfish Saturati	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)
YDROLO Yetland Hydrimary Indica Surface V High Water Ma Sediment Drift Depo	PGY  Arology Indicato Eators (minimum of Water (A1) For Table (A2) In (A3) For (B1) It Deposits (B2) It Deposits (B3) It or Crust (B4)		required; check	Aquatic True Aq Hydroge Oxidized (C3) Presend	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu	nts (B14) Odor (C1 heres on	S - ) _iving Roots _ (C4)	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO Yetland Hydrimary Indica Surface V High Water Ma Sediment Drift Depo	PGY  Arology Indicato Eators (minimum of Water (A1) For Table (A2) In (A3) For (B1) It Deposits (B2) For (B3) It or Crust (B4) For (B5)	of one is	- - - -	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6)	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	ots (B14) Odor (C1 heres on uced Iron uction in T	S - ) _iving Roots _ (C4)	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO Yetland Hyd Commary Indication Water Mater Mate	drology Indicato sators (minimum of Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) in Visible on Aeria	<u>of one is</u>	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	onts (B14) Odor (C1 heres on uced Iron uction in T	S - ) _iving Roots _ (C4)	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO etland Hyd imary Indic Surface V High Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely	drology Indicato eators (minimum of Vater (A1) eer Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) e or Crust (B4) osits (B5) in Visible on Aeria Vegetated Conca	of one is I Imagery ve Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ack Surfac or Well Da	odor (C1) heres on uced Iron uction in Ti ee (C7) ata (D9)	S  ) Living Roots (C4) Illed Soils	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO Yetland Hydrimary Indication Surface V C High Wate C Saturation Water Mater M	PGY  Irology Indicato eators (minimum of Mater (A1) er Table (A2) en (A3) earks (B1) et Deposits (B2) eosits (B3) et or Crust (B4) eosits (B5) en Visible on Aeria Vegetated Conca eained Leaves (B9)	of one is I Imagery ve Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ack Surfac or Well Da	onts (B14) Odor (C1 heres on uced Iron uction in T	S  ) Living Roots (C4) Illed Soils	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO  YDROLO  YDROLO  YDROLO  YDROLO  YDROLO  YDROLO  YDROLO  YOUR HIGH  Surface V  High Water  Sediment  Drift Depo  Algal Mat  Iron Depo  Inundation  Sparsely  Water-Sta  Eld Observ	drology Indicators (minimum of Water (A1) ser Table (A2) nr (A3) arks (B1) to Deposits (B2) osits (B3) to or Crust (B4) osits (B5) nr Visible on Aeria Vegetated Concarined Leaves (B9) vations:	of one is I Imagery ve Surfac	(B7) — ce (B8) —	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron action in To ee (C7) ata (D9) Remarks)	S  ) Living Roots (C4) Illed Soils	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor	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)
YDROLO Vetland Hydrimary Indication Surface V High Water Mater Mat	drology Indicators (minimum of Water (A1) ser Table (A2) in (A3) arks (B1) it Deposits (B2) osits (B3) it or Crust (B4) osits (B5) in Visible on Aeria Vegetated Conca ained Leaves (B9) vations:	of one is I Imagery ve Surfac	(B7)	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (Buuatic Plaren Sulfided Rhizospote of Redulation Reduct Surfactor Well Das Explain in	nts (B14) Odor (C1 heres on uced Iron uction in The (C7) ata (D9) Remarks) nches):	S  ) Living Roots (C4) Illed Soils	econdary In Surface Drainag Dry-Sea Crayfish Saturati Stunted X Geomor X 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)
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## **WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sic		_	g Date: 9	9/25/2018	
Applicant/Owner: South Dakota Department of Transportation	<del></del>	State:	South Da	akota Sampling	Point:	11U	
Investigator(s): Rebecca Beduhn		Secti	on, Townshi	ip, Range:	S33 T101N R	49W	
Landform (hillslope, terrace, etc.): Footslope		Local	relief (conca	ive, convex, none):	Con	cave	
Slope (%): 4 Lat: 43° 30' 26.737" N		Long:	96° 43' 53.13	35" W Datum:	UTM NAD8	3 Zone 14N	
Soil Map Unit Name: Chaska loam, channeled			NWI	Classification:	R2UB	G	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (l	f no, explain in rema	urks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?		Are "norr	nal circumstan	ces"	
Are vegetation , soil , or hydrology	naturally pi	roblematic?		,		ent? Yes	
SUMMARY OF FINDINGS				(If needed, explain	n any answers	in remarks.)	
Hydrophytic vegetation present? N							
Hydric soil present?		Is the sa	mpled area	a within a wetland?	N		
Indicators of wetland hydrology present?		If yes, op	tional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)				<del>,</del>		
Sample Point collected adjacent to Wetland 11.							
VEGETATION Use scientific names of plants.							
·	Absolute	Dominant	Indicator	Dominance Test	Worksheet		
<u>Tree Stratum</u> (Plot size:30' Radius)	% Cover	Species	Status	Number of Domina	ant Species		
1				that are OBL, FAC	W, or FAC:	1 (A)	
2				Total Number o			
3				Species Acros		(B)	
5				Percent of Domina that are OBL, FAC	•	50.00% (A/E	D/
	0	= Total Cover		triat are ODL, I AC	W, 01 FAC	60.00% (A/E	رد
Sapling/Shrub stratun (Plot size: 15' Radius )		10101 00101		Prevalence Index	Worksheet		
1				Total % Cover of:			
2				OBL species	0 x 1 =	0	
3				FACW species	0 x 2 =	0	
4				FAC species	20 x 3 =	60	
5				FACU species	45 x 4 =	180	
(5)	0	= Total Cover		UPL species	0 x 5 =	0 (B)	
Herb stratum (Plot size: 5' Radius )				Column totals	65 (A)	240 (B)	
1 Bromus inermis Smooth Brome	45	<u>Y</u>	FACU	Prevalence Index	= B/A =	3.69	
2 Setaria pumila Yellow Bristle Grass	20	<u> </u>	FAC	Hydrophytic Vege	etation Indica	tors:	_
4				' ' '	hydrophytic ve		
5				Dominance tes		gotation	
6				Prevalence inc	dex is ≤3.0*		
7				Morphological	adaptations* (	provide	
8				supporting dat		••	
9				separate shee	et)		
10		- Total Carra		Problematic hy	ydrophytic veg	etation*	
Woody vine stratum (Plot size: 30' Radius )	65	= Total Cover		(explain)			
Woody vine stratum (Plot size: 30' Radius )				*Indicators of hydric s	soil and wetland hy ss disturbed or pro		е
2				Hydrophytic	25 alotarboa or pro	22.01110110	
	0 :	= Total Cover		vegetation			
Demontos (Include whate sometimes have				present?	N		
Remarks: (Include photo numbers here or on a separate sheet) 35%	% rock (rip	-rap) cover					
Note: This data sheet has been adapted to use the 2016 National							$\dashv$
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland I	Plant List, versio				y Corps of	
Engineers, Engineer Research and Development Center, Cold Regions Research	aria ⊑nginee	ыну Laboratory,	nanover, NH,	and bowar, Chapei Hil	1, NO. (2016)		ļ

US Army Corps of Engineers

SOIL Sampling Point: 11U

Depth Desc	ription: (Descri	~0 tO tH	Ī	Red	dox Feat	ures				
(Inches)	Color (moist)	%	Color (mo	oist)	%	Type*	Loc**	Text	ure	Remarks
0-4	10YR 3/2	100	•					Sandy Loar	m	
4+								ROCKS		
-										
						1				
vpe: C = C	oncentration, D =	Depletion	on, RM = Re	educe	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Locatio	n: PL = Pore Lining, M = Matrix
	il Indicators:	•	•			<u> </u>				lematic Hydric Soils:
-	osol (A1)			San	ndy Gleye	ed Matrix	(S4)			edox (A16) ( <b>LRR K, L, R</b> )
	ic Epipedon (A2)			_	ndy Redo		` '	— Dark	Surface (S	67) (LRR K, L)
	k Histic (A3)			Stri	pped Ma	trix (S6)		5 cm	Mucky Pea	at or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A	<b>!</b> )		Loa	my Mucl	ky Minera	al (F1)	Iron-	Manganese	e Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)	)		Loa	my Gley	ed Matrix	(F2)	Very	Shallow Da	ark Surface (TF12)
2 cm	n Muck (A10)			Dep	oleted Ma	atrix (F3)		Othe	er (explain ir	n remarks)
Dep	leted Below Dark	Surface	(A11)	Rec	dox Dark	Surface	(F6)			
Thic	k Dark Surface (	A12)		Dep	oleted Da	ark Surfac	ce (F7)	*Indic	ators of hyd	drophytic vegetation and wetland
San	dy Mucky Minera	l (S1)		Rec	dox Depr	essions (	(F8)			be present, unless disturbed or
										problematic
estrictive I	Layer (if observe	ed):								
rpe: Ro	ocks	,						Hydric	soil prese	nt? N
epth (inche						- -		Hydric	soil prese	nt? <u>N</u>
epth (inche						-		Hydric	soil prese	nt? <u>N</u>
epth (inche emarks:	s): <u>4"</u>					-		Hydric	soil prese	nt? <u>N</u>
epth (inche emarks:	s): <u>4"</u>					-		Hydric	soil prese	nt? N
epth (inche emarks: YDROLO etland Hyd	s): 4"  OGY drology Indicato	rs:	required: ch	neck a	all that ar	- -				
epth (inche emarks: YDROLO etland Hyd imary Indic	s): 4"  OGY  drology Indicato cators (minimum	rs:	required; ch	neck a			13)		econdary Ir	ndicators (minimum of two requi
YDROLO etland Hyd imary Indic Surface \( \)	OGY drology Indicatorators (minimum Water (A1)	rs:	required; ch	neck a	Aquatic	Fauna (B	,		econdary Ir Surface	ndicators (minimum of two requi
YDROLO etland Hyd imary Indic Surface \( \)	OGY  drology Indicator cators (minimum Water (A1) ter Table (A2)	rs:	required; ch	neck a	Aquatic True Aq		nts (B14)	<u>S</u>	econdary Ir Surface Drainag	ndicators (minimum of two requi
YDROLO etland Hydimary Indic Surface \ High Wat	OGY drology Indicato cators (minimum Water (A1) ter Table (A2) in (A3)	rs:	required; ch	neck a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>S</u>	econdary Ir Surface Drainag Dry-Sea	ndicators (minimum of two requies Soil Cracks (B6) Je Patterns (B10)
YDROLO etland Hyd imary Indic Surface \ High Wat Saturatio Water Ma	OGY drology Indicato cators (minimum Water (A1) ter Table (A2) in (A3)	rs:	required; ch	neck a	Aquatic True Aq Hydroge	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1	<u>S</u>	econdary Ir Surface Drainag Dry-Sea Crayfish	ndicators (minimum of two requi e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) n Burrows (C8)
YDROLO etland Hyd imary Indic Surface \ High Wat Saturatio Water Ma Sedimen	OGY drology Indicato cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1)	rs:	required; ch	neck a	Aquatic True Aq Hydroge Oxidized (C3)	Fauna (B uatic Plar en Sulfide	nts (B14) Odor (C1 heres on	S - - ) Living Roots	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) n Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1)
YDROLO etland Hyd imary Indic Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat	oGY drology Indicator eators (minimum Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	rs:	required; ch	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presence Recent	Fauna (B luatic Plar en Sulfide d Rhizosp	nts (B14) Odor (C1 heres on	S - ) Living Roots - (C4)	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) gason Water Table (C2) gason Water Table (C2) gason Visible on Aerial Imagery (C9)
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YDROLO etland Hyd imary Indic Surface \ High Water Ma Sedimen Drift Dep Algal Ma' Iron Depo Inundatio	DGY drology Indicator cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria	rs: of one is	ı (B7)	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	onts (B14) Odor (C1 heres on uced Iron uction in T	S - ) Living Roots - (C4)	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requies Soil Cracks (B6) ge Patterns (B10) gason Water Table (C2) gason Water Table (C2) gason Visible on Aerial Imagery (C9)
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YDROLO etland Hyd imary Indio Surface V High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depo Inundatio Sparsely Water-St	DGY  drology Indicator cators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Conca	rs: of one is I Imagery ve Surface	ı (B7)	neck a	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C	Fauna (B quatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu	odor (C1) heres on uced Iron uction in Ti ee (C7) ata (D9)	S  ) Living Roots (C4) illed Soils	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) gason Water Table (C2) gason Water Table (C2) gason Visible on Aerial Imagery (C9)
YDROLO YDROLO Yetland Hydrimary Indic Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma' Iron Dept Inundatic Sparsely Water-St eld Observ	DGY  drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concarained Leaves (B9) vations:	rs: of one is	/ (B7) ce (B8)		Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (B Fauna (B Juatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu lick Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron action in To ee (C7) ata (D9) Remarks)	S  ) Living Roots (C4) illed Soils	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) gason Water Table (C2) gason Water Table (C2) gason Visible on Aerial Imagery (C9)
YDROLO Yetland Hydrimary Indic Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma' Iron Dept Inundatic Sparsely Water-St eld Observurface water	DGY  drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concarained Leaves (B9) vations: er present?	rs: of one is I Imagery ve Surface)	v (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (B luatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron uction in The (C7) ata (D9) Remarks) nches):	S  ) Living Roots (C4) illed Soils	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO Yetland Hydrimary Indic Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma' Iron Dept Inundatic Sparsely Water-St ield Observ urface water //ater table p	DGY drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concarained Leaves (B9 vations: er present?	rs: of one is I Imagery ve Surface) Yes Yes	v (B7) ce (B8)	No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (B Fauna (B)))))))))))))))	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	S  ) Living Roots (C4) illed Soils	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo FAC-Ne	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hydrimary Indic Surface \ High Water Ma Sedimen Drift Dep Algal Ma' Iron Depr Inundatic Sparsely Water-St eld Observ urface water atter table paturation pr	bogy  drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concarained Leaves (B9) vations: er present? present?	rs: of one is I Imagery ve Surface)	v (B7) ce (B8)	No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent (C6) Thin Mu Gauge C Other (E	Fauna (B luatic Plar en Sulfide d Rhizosp ce of Redu Iron Redu ick Surfac or Well Da Explain in	nts (B14) Odor (C1 heres on uced Iron uction in T ee (C7) hata (D9) Remarks) nches): nches):	S  ) Living Roots (C4) illed Soils	econdary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo FAC-Ne	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO  YDROLO  YDROLO  YDROLO  YELIAND Hydro  Surface N  High Water  Sedimen  Drift Depo  Algal Mater  Iron Depot Inundation  Sparsely  Water-St  Eld Observ  water table paturation princludes cap	DGY drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concarained Leaves (B9 vations: er present?	I Imagery ve Surface Yes Yes Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E  X X	Fauna (B luatic Plar en Sulfide d Rhizosp ce of Redu lron Redu lck 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):	S Living Roots (C4)	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hyd imary Indic Surface \( \) High Water Ma Sedimen Drift Dep Algal Mai Iron Depo Inundatic Sparsely Water-St eld Observ urface water table paturation princludes cap	oGY drology Indicators (minimum Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aeria Vegetated Concar cained Leaves (B9 vations: er present? oresent? oresent?	I Imagery ve Surface Yes Yes Yes	v (B7) ce (B8)	No No No	Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge C Other (E  X X	Fauna (B luatic Plar en Sulfide d Rhizosp ce of Redu lron Redu lck 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):	S Living Roots (C4)	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo	ndicators (minimum of two requires Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)

Project/Site PCN 000S: I-229 Exit 3 Reconstruction		County: Sid		_	<b>n</b> Sampling Date:	9/25/20	)18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	11W	1
Investigator(s): Rebecca Beduhn		Secti	ion, Townsh	ip, Range:		101N R49W	
Landform (hillslope, terrace, etc.):  Toeslope			relief (conca			Concave	
Slope (%): 2 Lat: 43° 30' 27.069" N		_	° 43' 53.3			/ NAD83 Zone	e 14N
Soil Map Unit Name: Chaska loam, channeled		<u> </u>		l Classifica	tion:	R2UBG	
Are climatic/hydrologic conditions of the site typical for this time	of the vear?				in in remarks)		
Are vegetation , soil , or hydrology	•	ly disturbed?		,	Are "normal circ	umotonooo"	
Are vegetation , soil , or hydrology		roblematic?			Ale normal circ	present?	Yes
SUMMARY OF FINDINGS	, ,,,			(If neede	ed, explain any ar	· -	
Hydrophytic vegetation present? Y							· · ·
Hydric soil present?		Is the sa	ampled are	a within a	wetland?	Υ	
Indicators of wetland hydrology present?			tional wetla			1	
Remarks: (Explain alternative procedures here or in a separate r	coport )	3 / 1					
	ероп.)						
Sample Point collected in Wetland 11.							
<b>VEGETATION</b> Use scientific names of plants.				I 5	T W	L 4	
Tree Stratum (Plot size: 30' Radius )	Absolute % Cover	Dominant Species	Indicator Status		nce Test Works		
1	70 COVE	Орсоюз	Otatus		of Dominant Spe OBL, FACW, or F		(A)
2					Number of Domir	-	(','
3					cies Across all Str		(B)
				Percent	of Dominant Spe	cies	
5				that are	OBL, FACW, or F	AC: 100.00%	<u>%</u> (A/B)
	0	= Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius )					nce Index Works	sheet	
1					Cover of:	x 1 = 0	
3				OBL spe		x 1 = 0 x 2 = 200	<u> </u>
4				FAC spe		x3 = 0	<u></u>
5				FACU s		x 4 = 0	
	0	= Total Cover		UPL spe	ecies 0	x 5 = 0	
Herb stratum (Plot size: 5' Radius )				Column	totals 100	(A) 200	(B)
1 Phalaris arundinacea Reed Canary Grass	80	Υ	FACW	Prevaler	nce Index = B/A =	2.00	
2 Impatiens capensis Spotted Touch-Me-Not	20	Υ	FACW				
3				-	hytic Vegetation		
4				I — ·	id test for hydrop		on
5				l ——	ninance test is >5 ⁄alence index is ≤		
7				l —			
8					phological adapta porting data in Re		
9					arate sheet)	illaiks of off e	a
					plematic hydrophy	ytic vegetation	ı*
Woody vino stratum /Diot size: 20/ Dading	100	= Total Cover		(exp	lain)		
Woody vine stratum (Plot size: 30' Radius )					rs of hydric soil and v resent, unless disturl		•
2					rophytic	sed or broblemat	lio
<u></u>	0	= Total Cover			etation		
	·	. 5.3. 50101		pres	sent?	Y	
Remarks: (Include photo numbers here or on a separate sheet)							

SOIL Sampling Point: 11W

Profile Desc	ription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Red	dox Featı	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-6	10YR 2/2	100					Sandy Loa	am	
6-12	10YR 2/1	80	10YR 5/8	20	С	М	Sandy Loa	am	
12-18	10YR 6/2	80	10YR 5/6	20	С	PL	Sandy Loa		
12-10	10111 0/2	00	10110 3/0	20		1 -	Oandy Loa	3111	
*Type: C = C	oncentration, D =	Depletion	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains.	**Location:	: PL = Pore Lining, M = Matrix
	il Indicators:		<u> </u>						ematic Hydric Soils:
Hist	osol (A1)		San	dy Gleye	ed Matrix	(S4)	Coa	ast Prairie Red	dox (A16) ( <b>LRR K, L, R</b> )
—— Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dar	k Surface (S7	) (LRR K, L)
Blac	k Histic (A3)		Stri	pped Mat	trix (S6)		5 cr	m Mucky Peat	or Peat (S3) ( <b>LRR K, L, R</b> )
Hyd	rogen Sulfide (A4	.)	Loa	my Muck	ky Minera	al (F1)	Iron	ı-Manganese	Masses (F12) ( <b>LRR K, L, R</b> )
Stra	tified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Ver	y Shallow Dar	k Surface (TF12)
2 cn	n Muck (A10)			leted Ma			Oth	er (explain in	remarks)
	leted Below Dark		(A11) Red	lox Dark	Surface	(F6)			
	k Dark Surface (	,			rk Surfac		*Indi	cators of hydr	ophytic vegetation and wetland
San	dy Mucky Minera	l (S1)	Red	lox Depre	essions (	F8)	hyd	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Type:							Hydrid	c soil presen	t? Y
Depth (inche	s):				•				<del></del>
Remarks:	•				-	l			
rtomanto.									
HYDROLO	)GY								
	drology Indicato	re.							
1			required; check a	ll that an	nh()			Socondon, Inc	diagtors (minimum of two required)
-	Water (A1)	one is	required, check a	-	<u>ріу)</u> Fauna (B	12)	<u> </u>		dicators (minimum of two required) Soil Cracks (B6)
	ter Table (A2)				uatic Plan				Patterns (B10)
X Saturation						Odor (C1	)		son Water Table (C2)
	arks (B1)					-	, Living Roots		Burrows (C8)
	t Deposits (B2)			(C3)			g		n Visible on Aerial Imagery (C9)
	osits (B3)				e of Redu	iced Iron	(C4)		or Stressed Plants (D1)
	t or Crust (B4)						illed Soils		phic Position (D2)
Iron Dep	osits (B5)			(C6)				X FAC-Neu	ıtral Test (D5)
Inundatio	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	ita (D9)			
Water-St	ained Leaves (B9)	)		Other (E	xplain in l	Remarks)			
Field Obser	vations:								
Surface water	•	Yes	No	Х	Depth (i		_		
Water table		Yes	X No		Depth (i		6	_	licators of wetland
Saturation pr		Yes	X No		Depth (i	nches):	0	hy	/drology present? Y
(includes cap									
Describe rec	orded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious ins	spections), if	available:	
Domarko									
Remarks:	t propiniteties	onditie:	no wore determine	sincd III	Vottor H	200 55	mal" / ^ == =	ndiv C\	
Anteceden	t precipitation (	JOHUITIO!	ns were determ	iiried "V	veller tr	ian nofi	паг (Арреі	nuix C).	



WETLAND DELINEATION REPORT SDDOT 147016



Photo 1 Wetland 1 – Shallow Open Water



Photo 2 Wetland 1 – Shallow Open Water



Photo 3 Wetland 2 – Fresh (Wet) Meadow



Photo 4 Wetland 2 – Fresh (Wet) Meadow



Photo 5 Wetland 3 – Fresh (Wet) Meadow



Photo 6 Wetland 3 – Fresh (Wet) Meadow



Photo 7 Wetland 4 – Shallow Marsh



Photo 8 Wetland 4 – Shallow Marsh



Photo 9 Wetland 5 – Shallow Marsh



Photo 10 Wetland 5 – Shallow Marsh



Photo 11 Wetland 6 – Shallow Marsh



Photo 12 Wetland 6 – Shallow Marsh



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 - Fresh (Wet) Meadow



Photo 20 Wetland 11 (view from across the river) - Fresh (Wet) Meadow



WETLAND DELINEATION REPORT SDDOT 147016

Field Visit Date: August 25, 2018

	_	Long-te	rm rainfall r	ecords					
		3 yrs. in 10 less		3 yrs. in 10 more	Rain	Condition: dry, wet,	Condition	Month weight	Product of previous two
	Month	than	Normal	than	fall	normal	value	value	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

Sum	18
	"Wet"

Note: If sum is

Condition value:

Dry =1
Normal =2
Wet =3

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

<sup>\*</sup>Monthly data prior to field date



## **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.

Proi	iect	Name	/Loca	tion
1 I U	CCL	1 (ullic)	Locu	UUUI

Interstate Exit 3 Reconstruction
Sioux Falls/Minnehaha County
Wetland #1

	Variable	Variable Data entered					
		wetland perimeter (feet):	260.00				
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	0.00	0.00			
		percent continuity:	0.00				
		grassland width (feet) at 12 points:					
		Point 1:	0.00				
		Point 2:	0.00				
		Point 3:	0.00				
		Point 4:	0.00				
n n		Point 5:	0.00				
tio	V	V <sub>GRASSWIDTH</sub> Point 6: Point 7:	0.00	0.00			
Vegetation	V GRASSWIDTH		0.00				
gel		Point 8:	0.00				
eg_		Point 9:	0.00				
		Point 10:	0.00				
		Point 11:	0.00				
		Point 12:	0.00				
		mean width (feet):	0.00				
		(see vegetation worksheet for species entered)					
		sum of species:	3.00				
	$ m V_{VEGCOMP}$		5.00	0.15			
		mean coefficient of conservatism:	1.67	_			
		FQI:	2.89				

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.10	0.10			
		Eastern Prairie Potholes					
	<b>X</b> 7	mean depth to B horizon (inches):	0.90				
	$V_{SED}$	Western Prairie Potholes	0.80				
		mean depth to B horizon (inches):	6.00				
		SQI scores for 4 samples:					
		sample 1:	2.50				
	V	sample 2:	2.50	0.13			
	V <sub>SQI</sub>	sample 3:	3.00	0.13			
		sample 4:	2.50				
		average SQI score:	2.63				
		Indirect Measurements					
		Litter Depth for 4 samples:					
		sample 1:	1.00				
		sample 2:	2.00				
		sample 3:	3.00				
		sample 4:	2.00				
		Average Litter Depth (inches):	2.00				
		ADI for 4 samples:					
		Sample 1 hue:	10.00				
Soil		value:	2.00				
		chroma:					
		ADI:	6.00				
		Sample 2 hue:	10.00				
		value:	2.00				
	V <sub>SOM</sub>	chroma:	1.00	0.58			
	V SOM	ADI:	6.00	0.36			
		Sample 3 hue:	10.00				
		value:	2.00				
		chroma:	1.00				
		ADI:	6.00				
		Sample 4 hue:	10.00				
		value:	2.00				
		chroma:					
	ADI:		7.00 6.25				
		average ADI:					
		Direct Measurements					
		% organic carbon for 0-15cm depth:					
		% organic carbon for 15-30cm depth:					
		mean percentage:					
		% organic carbon:	2.60				

		<b>=</b>				
		historic invert elevation in relation to wetland maximum depth:	1395.00			
		present (or constructed) invert elevation:	1395.00			
		elevation of the edge of the historic wetland:	1395.00			
	$ m V_{OUT}$	elevation of a representative deepest portion of the wetland:	1394.50	1.00		
၁		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:	1.00			
10]		depth of surface drainage invert:				
ON	$ m V_{SUBOUT}$	distance from WAA edge:		0.25		
ge	ЗОВООТ	location/spacing of subsurface tile within the WAA:		0.20		
ro	$ m V_{SOURCE}$	type & effect of surface alteration(s):				
yd		% of historic catchment area still contributing runoff:		0.50		
Ħ		additions of water from other sources:		0.50		
		change in wetland regime class?				
		wetland perimeter (feet):	260.00			
	$\mathbf{V_{EDGE}}$	wetland area (acres):	0.07	0.84		
		Shoreline Development Index:	1.33			
		wetland area (acres):	0.07			
	V <sub>CATCHWET</sub>	catchment area (acres):	0.80	1.00		
		ratio of catchment size to wetland size:	11.43			
		total acre size of the present day catchment:	0.80			
		acres of catchment for each curve number:				
		98	0.80			
		90				
		79				
		77				
		72				
		75				
ıse	$\mathbf{V}_{\mathbf{UPUSE}}$	73		0.00		
du	CTCGE	71				
Landuse		72				
L		74				
8		69				
Landscape &		79 74				
ap		69				
Sc		61				
nd		weighted average score for upland land use:	98.00			
,a		distance to nearest wetland(feet):	101.00			
Ι		distance to hearest wetland(reet).  distance to 2nd nearest wetland:	117.00			
		distance to 2nd nearest wetland:	271.00			
	$\mathbf{V}_{\mathbf{WETPROX}}$	distance to 4th nearest wetland:	297.00	1.00		
		distance to 5th nearest wetland:	335.00			
		mean distance (feet):	224.20			
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03		
	V <sub>BASINS</sub>	number of palustrine wetlands within a 1-mile radius:	24.00	0.09		
	V <sub>HABFRAG</sub>	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00		
	▼ HABFRAG	inics of roads and inical attitudes within a 1-inic facility.	72.30	0.00		

Function	FCI	FCU
1. Water Storage	0.36	0.03
2. Groundwater Recharge	0.37	0.03
3. Retain Particlulates	0.28	0.02
4. Remove, Convert, and Sequester Dissolved Substances	0.26	0.02
5. Plant Community Resilience and Carbon Cycling	0.26	0.02
6a. Provide Faunal Habitat	0.29	0.02
6b. Provide Faunal Habitat (Alternate Formula)	0.21	0.01

		South I				odel, Version 1.1		
TH			Vari	iable Sco				
	e					at Area ID. (if more than		2
			ha County			cres (Pre-project)	0.	06
Date		9/25/2013				cres (Post-project)	l .	
	andowner	South Da	kota DOT			Type of wetland (fring		
	g? (Y/N)		If Y, what			channel, or depression	al or linear o	n flood
Red flag?	(Y/N)		If Y, what	4		plain)?		
						Discussion/		le Score
Variable				dition Resu	ılts	Rationale	Pre-proj.	Post-proj.
		hydrology (						
		ns present (	Y/N)?		N			
	If Y, wha							
		e-project			1			
$V_{hydalt}$	(H <sub>fp</sub> ) post-project Wetland hydrology (H <sub>w</sub> )						1.00	0.00
,								
		ns present (			N			
		it?						
		e-project			1			
	_	ost-project			Y			
V		alterations p			-		0.50	0.00
V <sub>source</sub>				Stormwater f			0.50	0.00
		ershed area			80			
		pography (T			3.7			
		ns present? (	(1/N)		N			
	If Y, wha			(T.)-	-1			
		(pre)	0	(T <sub>w</sub> ) pre =	1			
$V_{topog}$		(post)	(T.)	(Tw) post =			0.20	0.00
		topography ns present? (			Y			
				ile perke	Y			
		t? (pre)	Rip rap, tra 40		0.5			
		(pre)	40	$(T_{fp})$ pre = $(T_{fp})$ post =	0.3			
		pland uses (	(3 mavim					
	Dominant U	<sub>pranu</sub> uses (	(2 maximul	11)				
	pro	re1 Index 0.1 % area			40			
		2 Index	1	% area	30			
V <sub>upuse</sub>		3 Index	0.75	% area	30		0.57	#DIV/0!
		st1 Index	0.73	% area	30			
		st2 Index		% area				
		st3 Index		% area				
<b>X</b> 7				70 arca	0			
V <sub>detritus</sub>	Detritus thi				0			
		l sediment ii	n wetland?	(Y/N)	N			
$V_{sed}$	If Y, evider	nce?	<u> </u>					
		nickness (in.	<u> </u>		0			
$V_{som}$		oil texture i			Silt Loam			
		oil color (va	nue) upper		10YR 3/2			
<b>V</b> 7	Soil structu		Cul- A ·····	Fine				
$V_{soil}$	Soil structu	istance	Sub Angul	Firm				
	rapture res		Pre-project				+	
	Ruffercort	inuity (%) -						
		ffer width (		42				
		uity/width ra			0.4		0.45	
	Buffer cond		<sub>6</sub> ( <b>D</b> 1) -		0.4			
		ion rating (E	32)		0.5			
$V_{buffer}$	Conditi		Post-projec	t	0.5			
	Buffer cont	inuity (%) -						
		ffer width (1						
		uity/width ra						0.00
	Buffer cond		3 ( 17					
		ion rating (E	32)					
		cies present		Y/N)	Y			
**	* 1			nerbaceous p				
$V_{denhw}$		ous density (			60%			
		ensity (%, if			10%			
X/		ies present i						
$\mathbf{V}_{ ext{pratio}}$	dominant				100%			
		canopy cove	erage (%)		10			
		1.4	trata preser	ıt	2			
<b>V</b> /	Number of vegetative strata present			0 1 1	and the		1	
$\mathbf{V}_{ ext{veg}}$	Deviation		Deviation from normal (number of strata bel					
$\mathbf{V}_{ ext{veg}}$	Deviation be abse	nt)			0			
$f V_{ m veg}$	Deviation be abse							

S.D. RIVERINE HGM MODEL WORKSHEET 1, VER. 1.1										
Use this worksheet for depressional or linear wetlands that are disconnected from the channel and that have the ability to										
store surface water. For wetlands adjacent to the channel and that lack this ability, use worksheet 2.										
DATE		09/25/18		OWNER/OPE		South Dakota I	OOT			
WETLAND ID	)	2			Г ТҮРЕ					
OBSERVERS -		Rebecca Bedul	n		YPE (NWI)					
CONDITIONS		Tree course			YPE (FSA)	112000				
PROJECT NAI		PCN 000S (I-2	29 Exit 3)	REMARKS						
PLANNED AC		Roadway impro		REWARKS						
YELLOW FLA		rioud way mipi		RED FLAG (Y	//N)					
WETLAND AG		NG)	0.06	WETLAND ACRES (PREDICTED) 0						
FUNCTIONAL INDICES (VARIABLE) SCORING										
		Variable		(	Existing		Predicted			
V <sub>hydalf</sub> - Flood	l Plain/Wetlan	d Hydrology	Alterations		1.00		0.00			
		ogy Alterations			0.50		0.00			
V <sub>topog</sub> - Flood	Plain/Wetland	d Topographic	Complexity		0.20		0.00			
$\mathbf{V}_{ ext{upuse}}$ - Uplan	nd Use		<u> </u>		0.57		#DIV/0!			
V <sub>upuse</sub> - Optalit Ose  V <sub>detritus</sub> - Detritus					0.00		0.00			
V <sub>sed</sub> - Sedime	ntation Withir	the Wetland			0.00		0.00			
$\overline{\mathbf{V}_{\mathbf{som}}}$ - Soil Or					0.00		0.00			
V <sub>soil</sub> - Soil Poi					0.00		0.00			
		Continuity, and	l Width		0.45		0.00			
V <sub>buffer</sub> - Buffer Condition, Continuity, and Width V <sub>denhw</sub> - Density of Perennial Herbaceous and Woody Vegetation					0.00		0.00			
$\mathbf{V}_{\mathbf{pratio}}$ - Ratio of Native to Non-Native Plant Species					0.00		0.00			
V <sub></sub> - Vegetat	erage		0.00		0.00					
V <sub>veg</sub> - Vegetative Strata and Canopy Coverage V <sub>wetuse</sub> - Wetland Use					0.00		0.00			
wetuse			1	1			2002			
				Existing Predicted						
Function				FCI	FCU	FCI	FCU			
1.0 Storage of Surface Water				0.00	0.00	0.00	0.00			
2.0 Velocity Reduction of Surface Water Flow				0.34	0.02	#DIV/0!	#DIV/0!			
3.0 Storage and Release of Subsurface Water				0.52	0.03	#DIV/0!	#DIV/0!			
			ounds	0.00	0.00	#DIV/0!	#DIV/0!			
<ul><li>4.0 Removal of Imported Elements and Compounds</li><li>5.0 Retention of Particulates and Organic Materials</li></ul>				0.15	0.01	#DIV/0!	#DIV/0!			
6.0 Organic Ca				0.15	0.01	0.00	0.00			
7.0 Maintains		Plant Community	V	0.00	0.00	#DIV/0!	#DIV/0!			
		re Within Wetla		0.10	0.01	0.00	0.00			
		onnect. Among		0.24	0.01	#DIV/0!	#DIV/0!			
		E IN FCU's	MINIMAL EFFECT		ON OF MINIM					
FUNCTION	NUMERICAL		(Y or N)		CTIONAL LOS					
1.0	0.00	#DIV/0!	#DIV/0!	11211011	CIIOIWE EOD	<u> </u>	LICEIVI			
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	-0.01	-100.00%	No							
7.0	#DIV/0!	#DIV/0!	#DIV/0!							
8.0	-0.01	-100.00%	πDIV/0:							
9.0	#DIV/0!	#DIV/0!	#DIV/0!							
7.0	11DI 1/0:	11DI 1/0:	11211/01							

# **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.

Froiect Name/Location	Project Name/Location	n:
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Interstate 229 Exit 3 Reconstruction
Sioux Falls/Minnehaha County
Wetland #3

	Variable	Variable Data entered		
		wetland perimeter (feet):	314.82	
Vegetation	$ m V_{GRASSCONT}$	grassland along perimeter (feet):	314.82	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
	$ m V_{GRASSWIDTH}$	Point 1:	50.00	0.91
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	42.00	
		Point 5:	45.00	
		Point 6:	25.00	
		Point 7:	26.00	
		Point 8:	48.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	44.67	
	V <sub>VEGCOMP</sub>	(see vegetation worksheet for species entered)		
		sum of species:	7.00	0.02
		sum of C values:	2.00	
		mean coefficient of conservatism:	0.29	
		FQI:	0.76	

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	V	mean depth to B horizon (inches):		0.67
	V <sub>SED</sub>	Western Prairie Potholes		0.67
		mean depth to B horizon (inches):	5.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	<b>V</b> 7	sample 2:	1.50	0.04
	V <sub>SQI</sub>	sample 3:	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:	2.00	
<b>9</b> 1		chroma:	2.00	
		ADI:	7.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.30
	▼ SOM	ADI:	6.00	0.50
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI: 6.50		
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.68	

		<b>=</b>		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1407.00	
		elevation of the edge of the historic wetland:	1395.00	
	$\mathbf{V}_{\mathbf{OUT}}$	elevation of a representative deepest portion of the wetland:	1397.00	1.00
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	1.00	
Ŭ		depth of surface drainage invert:		
<b>[</b> 0	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		0.25
80		location/spacing of subsurface tile within the WAA:		
lrc		type & effect of surface alteration(s):		
N N	$ m V_{SOURCE}$	% of historic catchment area still contributing runoff:		0.50
<b>=</b>	SOURCE	additions of water from other sources:		
		change in wetland regime class?	214.02	
	₩7	wetland perimeter (feet):	314.82	0.41
	$\mathbf{V_{EDGE}}$	wetland area (acres):	0.14	0.41
	**/	Shoreline Development Index:	1.14	
		wetland area (acres):	0.14	1.00
	$\mathbf{V}_{CATCHWET}$	catchment area (acres):	2.25	1.00
		ratio of catchment size to wetland size:	16.07	
		total acre size of the present day catchment:	2.25	
		acres of catchment for each curve number:  98	2.25	
		98	2.25	
		79		
		77		
		72		
		75		
e		73		
ns	$\mathbf{V}_{\mathbf{UPUSE}}$	71		0.00
pu		72		
Landuse		74		
		69		
Landscape &		79		
pe		74		
Ca		69		
qs		61		
an		weighted average score for upland land use:	98.00	
Ľ		distance to nearest wetland(feet):	100.00	
		distance to 2nd nearest wetland:	156.00	
	$ m V_{WETPROX}$	distance to 3rd nearest wetland:	225.00	1.00
	WEITROA	distance to 4th nearest wetland:	290.00	
		distance to 5th nearest wetland:	297.00	
	<b>T</b> 7	mean distance (feet):	213.60	0.02
	V <sub>WETAREA</sub>	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V <sub>BASINS</sub>	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.34	0.05
2. Groundwater Recharge	0.37	0.05
3. Retain Particlulates	0.51	0.07
4. Remove, Convert, and Sequester Dissolved Substances	0.35	0.05
5. Plant Community Resilience and Carbon Cycling	0.31	0.04
6a. Provide Faunal Habitat	0.31	0.04
6b. Provide Faunal Habitat (Alternate Formula)	0.17	0.02

Proi	iect	Name	/Loca	tion
	CCL	1 141110/	Loca	uvu

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

	Variable	Data entered		Subindex
		wetland perimeter (feet):	316.70	
	$V_{GRASSCONT}$	grassland along perimeter (feet):	158.40	0.50
		percent continuity:	50.02	
		grassland width (feet) at 12 points:		
		Point 1:	0.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	0.00	
Ħ	V <sub>GRASSWIDTH</sub>	Point 5:	0.00	
tio		Point 6:	0.00	0.51
Vegetation		Point 7:	0.00	
gel		Point 8:	0.00	
<b>.</b>		Point 9:	50.00	
	Point 3	Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	25.00	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	$\mathbf{V}_{ ext{VEGCOMP}}$	sum of C values:	21.00	0.54
		mean coefficient of conservatism:	4.20	
		FQI:	9.39	

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	V	mean depth to B horizon (inches):		1.00
	V <sub>SED</sub>	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	8.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V	sample 2:	2.00	0.05
	V <sub>SQI</sub>	sample 3:	2.00	0.03
		sample 4:	1.50	
		average SQI score:	1.88	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	1.00	
		sample 3:	0.00	
		sample 4:	1.00	
		Average Litter Depth (inches):	0.50	
		ADI for 4 samples:		
=		Sample 1 hue:	10.00	
Soil		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.38
	▼ SOM	ADI:	6.00	0.56
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI: 7.00  average ADI: 6.25  Direct Measurements		
			6.25	
			·	
		% organic carbon for 0-15cm depth:	·	
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.93	

		=		
		historic invert elevation in relation to wetland maximum depth:	: 1395.00	
		present (or constructed) invert elevation:	1399.00	
		elevation of the edge of the historic wetland:	1395.00	
	$ m V_{OUT}$	elevation of a representative deepest portion of the wetland:	1400.00	1.00
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	1.00	
m		depth of surface drainage invert:		
<b>60</b>	$ m V_{SUBOUT}$	distance from WAA edge:		0.50
80		location/spacing of subsurface tile within the WAA:		
dr		type & effect of surface alteration(s):		
N N	$\mathbf{V}_{\mathbf{SOURCE}}$	% of historic catchment area still contributing runoff:		0.50
Ħ	Socie	additions of water from other sources:		
		change in wetland regime class?	21670	
	₹7	wetland perimeter (feet):	316.70	1.00
	$ m V_{EDGE}$	wetland area (acres):	0.05	1.00
	V	Shoreline Development Index:	1.95 0.05	
		wetland area (acres):	7.50	1.00
	$\mathbf{V}_{\mathrm{CATCHWET}}$	ratio of catchment size to wetland size:	156.25	1.00
		total acre size of the present day catchment:  acres of catchment for each curve number:	7.50	
		98	7.50	
		90	7.50	
		79		
		77		
		72		
		75		
و		73		
sn	$\mathbf{V_{UPUSE}}$	71		0.00
pı		72		
Landuse		74		
		69		
8		79		
pe		74		
ca		69		
qs		61		
Landscape &		weighted average score for upland land use:	98.00	
L		distance to nearest wetland(feet):	87.00	
		distance to 2nd nearest wetland:	141.00	
	$\mathbf{V}_{ ext{WETPROX}}$	distance to 3rd nearest wetland:	198.00	1.00
	▼ WETPROX	distance to 4th nearest wetland:	274.00	. 0 0
		distance to 5th nearest wetland:	495.00	
	<b>T</b> 7	mean distance (feet):	239.00	0.02
	V <sub>WETAREA</sub>	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V <sub>BASINS</sub>	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.56	0.03
2. Groundwater Recharge	0.58	0.03
3. Retain Particlulates	0.66	0.03
4. Remove, Convert, and Sequester Dissolved Substances	0.49	0.02
5. Plant Community Resilience and Carbon Cycling	0.51	0.02
6a. Provide Faunal Habitat	0.55	0.03
6b. Provide Faunal Habitat (Alternate Formula)	0.42	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.

Wetland #5

Project Name/Location:		
	Interstate 229 Exit 3 Reconstruction	
	Sioux Falls, Minnehaha County	

	Variable	Data entered		Subindex
		wetland perimeter (feet):	728.60	
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	728.60	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	
n		Point 5:	50.00	
jo	V <sub>GRASSWIDTH</sub>	Point 6:	50.00	0.91
Vegetation		Point 7:	45.00	0.91
gel		Point 8:	32.00	
es <sub>o</sub>		Point 9:	33.00	
		Point 10:	37.00	
		Point 11:	39.00	
		Point 12:	50.00	
		mean width (feet):	44.67	
		(see vegetation worksheet for species entered)		
		sum of species:	7.00	
	$ m V_{VEGCOMP}$	sum of C values:	7.00	0.13
		mean coefficient of conservatism:	1.00	
		FQI:	2.65	

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	<b>X</b> 7	mean depth to B horizon (inches):		0.27
	V <sub>SED</sub>	Western Prairie Potholes		0.27
		mean depth to B horizon (inches):	2.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V	sample 2:	1.50	0.04
	V <sub>SQI</sub>	sample 3:	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:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.32
	▼ SOM	ADI:	6.00	0.32
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI: 6.00	6.00	
		average ADI:	6.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.74	

Nout   Present (or constructed) invert elevation:   1401.00     1401.00	50
Properties and the elevation of the edge of the historic wetland: 1395.00    Properties	50
Property Pro	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:  1.00  VSUBOUT    depth of surface drainage invert:   distance from WAA edge:   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?   wetland perimeter (feet): 728.60   wetland area (acres): 0.34   VCATCHWET    volume of pit/fill vs. wetland     dext. 25%=25), otherwise enter 0:   depth of surface drainage invert:   distance from WAA edge:   location/spacing of subsurface tile within the WAA:   type & effect of surface alteration(s):   depth of surface drainage invert:   volume of pit/fill vs. wetland energies     depth of surface drainage invert:   volume of pit/fill vs. wetland     depth of surface drainage invert:   volume of pit/fill vs. wetland     depth of surface drainage invert:   volume of pit/fill vs. wetland     volume of pit/fill vs. wetland     depth of surface drainage invert:   volume of pit/fill vs. wetland     depth of surface drainage invert:   volume of pit/fill vs. wetland     volume of pit/fill vs. vs.     volum	50
Tratio of the constructed elevation to the natural outlet elevation:    Value   Constructed   Constr	50
Tratio of the constructed elevation to the natural outlet elevation:    Value   Constructed elevation to the natural outlet elevation:   1.00	50
Change in wetland regime class?  Wetland perimeter (feet): 728.60  VEDGE wetland area (acres): 0.34 1.0  Shoreline Development Index: 1.69  wetland area (acres): 0.34  VCATCHWET catchment area (acres): 2.00 1.0  ratio of catchment size to wetland size: 5.88	50
Change in wetland regime class?  Wetland perimeter (feet): 728.60  Vedet wetland area (acres): 0.34  Shoreline Development Index: 1.69  wetland area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  ratio of catchment area (acres): 5.88	50
Change in wetland regime class?  Wetland perimeter (feet): 728.60  Vedet wetland area (acres): 0.34  Shoreline Development Index: 1.69  wetland area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  ratio of catchment area (acres): 5.88	50
V <sub>EDGE</sub> V <sub>E</sub>	
Change in wetland regime class?  Wetland perimeter (feet): 728.60  Vedet wetland area (acres): 0.34  Shoreline Development Index: 1.69  wetland area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  ratio of catchment area (acres): 5.88	
V <sub>EDGE</sub> V <sub>E</sub>	
Change in wetland regime class?  Wetland perimeter (feet): 728.60  Vedet wetland area (acres): 0.34  Shoreline Development Index: 1.69  wetland area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  Vedet area (acres): 0.34  ratio of catchment area (acres): 5.88	
VEDGEwetland perimeter (feet):728.60Shoreline Development Index:0.341.0VCATCHWETwetland area (acres):0.34VCATCHWETcatchment area (acres):2.001.0ratio of catchment size to wetland size:5.88	)0
V <sub>EDGE</sub> wetland area (acres):     0.34     1.0       Shoreline Development Index:     1.69       wetland area (acres):     0.34       V <sub>CATCHWET</sub> catchment area (acres):     2.00       ratio of catchment size to wetland size:     5.88	00
Shoreline Development Index: 1.69  wetland area (acres): 0.34  VCATCHWET catchment area (acres): 2.00  ratio of catchment size to wetland size: 5.88	<i>J</i> U
V <sub>CATCHWET</sub> wetland area (acres): 0.34  catchment area (acres): 2.00  ratio of catchment size to wetland size: 5.88	
V <sub>CATCHWET</sub> catchment area (acres): 2.00 1.0  ratio of catchment size to wetland size: 5.88	
ratio of catchment size to wetland size: 5.88	10
	<i>,</i> 0
total acre size of the present day catchment: 2.00	
acres of catchment for each curve number:	
98 2.00	
90	
79	
77	
72	
75	
$\mathbf{V}_{\text{UPUSE}}$ $\mathbf{V}_{\text{UPUSE}}$ $\mathbf{V}_{\text{O.0}}$	)()
71 71	
V <sub>UPUSE</sub>   V <sub>UPUSE</sub>	
74	
69 79	
Total Content of the Content of th	
69	
61	
weighted average score for upland land use: 98.00	
distance to nearest wetland(feet): 91.00	
distance to 2nd nearest wetland: 156.00	
distance to 3rd negreet watland: 243.00	)()
V <sub>WETPROX</sub> distance to 4th nearest wetland: 330.00  1.0	Ю
distance to 5th nearest wetland: 360.00	
mean distance (feet): 236.00	
V <sub>WETAREA</sub> acres of palustrine wetlands within a 1-mile radius: 21.25 0.0	)3
V <sub>BASINS</sub> number of palustrine wetlands within a 1-mile radius: 24.00 0.0	
V <sub>HABFRAG</sub> miles of roads and linear attributes within a 1-mile radius: 42.50 0.0	)9

Function	FCI	FCU
1. Water Storage	0.51	0.17
2. Groundwater Recharge	0.70	0.24
3. Retain Particlulates	0.40	0.14
4. Remove, Convert, and Sequester Dissolved Substances	0.69	0.24
5. Plant Community Resilience and Carbon Cycling	0.59	0.20
6a. Provide Faunal Habitat	0.64	0.22
6b. Provide Faunal Habitat (Alternate Formula)	0.30	0.10

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.

Wetland #6

Project Name/Location:		
	Interstate 229 Exit 3 Reconstruction	
•	Sioux Falls, Minnehaha County	

	Variable	Data entered		Subindex
		wetland perimeter (feet):	2404.00	
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	1200.00	0.50
		percent continuity:	49.92	
		grassland width (feet) at 12 points:		
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	50.00	
n		Point 5:	40.00	
jo	V	Point 6:	40.00	0.43
Vegetation	V <sub>GRASSWIDTH</sub>	Point 7:	34.00	0.43
get		Point 8:	29.00	
e se		Point 9:	28.00	
		Point 10:	30.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	20.92	
		(see vegetation worksheet for species entered)		
		sum of species:	9.00	
	$ m V_{VEGCOMP}$	sum of C values:	16.00	0.30
		mean coefficient of conservatism:	1.78	
		FQI:	5.33	

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	$ m V_{SED}$	mean depth to B horizon (inches):		0.94
	V SED	Western Prairie Potholes		0.94
		mean depth to B horizon (inches):	7.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V <sub>SQI</sub>	sample 2:	1.50	0.03
	▼ SQ1	sample 3:	2.00	0.03
		sample 4:	1.50	
		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:	2.00	
<b>9</b> 1		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	2.00	0.28
	· SOM	ADI:	7.00	0.20
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.75	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.60	

		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1397.00	
		elevation of the edge of the historic wetland:	1395.00	
	$ m V_{OUT}$	elevation of a representative deepest portion of the wetland:	1397.00	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	0.00	
Ŭ		depth of surface drainage invert:		
<b>[</b> 0	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		0.25
80		location/spacing of subsurface tile within the WAA:		
lrc		type & effect of surface alteration(s):		
	$ m V_{SOURCE}$	% of historic catchment area still contributing runoff:		0.50
Ξ	SOURCE	additions of water from other sources:		
		change in wetland regime class?	2404.00	
	<b>T</b> 7	wetland perimeter (feet):	2404.00	1.00
	$ m V_{EDGE}$	wetland area (acres):	0.89	1.00
		Shoreline Development Index:	3.44	
	<b>T</b> 7	wetland area (acres):	0.89	0.20
	$\mathbf{V}_{CATCHWET}$	catchment area (acres):	2.50	0.38
		ratio of catchment size to wetland size:	2.81	
		total acre size of the present day catchment:	2.50	
		acres of catchment for each curve number:  98	2.50	
		98	2.50	
		79		
		77		
		72		
		75		
e		73		
ns	$ m V_{UPUSE}$	71		0.00
pu		72		
Landuse		74		
		69		
Landscape &		79		
pe		74		
S		69		
qs		61		
an	<u> </u>	weighted average score for upland land use:	98.00	
Ľ		distance to nearest wetland(feet):	86.00	
		distance to 2nd nearest wetland:	154.00	
	$V_{WETPROX}$	distance to 3rd nearest wetland:	181.00	0.95
	WEITROA	distance to 4th nearest wetland:	450.00	
		distance to 5th nearest wetland:	623.00	
	<b>T</b> 7	mean distance (feet):	298.80	0.02
	V <sub>WETAREA</sub>	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V <sub>BASINS</sub>	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.17	0.15
2. Groundwater Recharge	0.17	0.15
3. Retain Particlulates	0.47	0.42
4. Remove, Convert, and Sequester Dissolved Substances	0.14	0.13
5. Plant Community Resilience and Carbon Cycling	0.14	0.13
6a. Provide Faunal Habitat	0.16	0.14
6b. Provide Faunal Habitat (Alternate Formula)	0.11	0.10

Project Nai	me/Location:
	Interstate 229 Exit 3 Reconstruction
	Sioux Falls, Minnehaha County
	Wetland #7

	Variable	Data entered		Subindex
		wetland perimeter (feet):	1045.00	
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	1045.00	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	39.00	
		Point 2:	35.00	
		Point 3:	32.00	
		Point 4:	50.00	
Ę.		Point 5:	50.00	
Vegetation	V <sub>GRASSWIDTH</sub>	Point 6:	50.00	0.90
ta (	▼ GRASSWIDTH	Point 7:	50.00	0.90
gel		Point 8:	50.00	
e e		Point 9:	50.00	
		Point 10:	43.00	
		Point 11:	35.00	
		Point 12:	50.00	
		mean width (feet):	44.50	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	$ m V_{VEGCOMP}$	sum of C values:	1.00	0.00
		mean coefficient of conservatism:	0.20	
		FQI:	0.45	

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	V	mean depth to B horizon (inches):		0.27
	V <sub>SED</sub>	Western Prairie Potholes		0.27
		mean depth to B horizon (inches):	2.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	<b>T</b> 7	sample 2:	2.00	0.04
	V <sub>SQI</sub>	sample 3:	1.50	0.04
		sample 4:	1.50	
		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:	2.00	
<b>9</b> 1		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.34
	V SOM	ADI:	6.00	0.54
		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:	6.00	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.79	

		<b>=</b>		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1401.00	
		elevation of the edge of the historic wetland:	1395.00	
	$\mathbf{V}_{\mathbf{OUT}}$	elevation of a representative deepest portion of the wetland:	1399.00	1.00
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	1.00	
m		depth of surface drainage invert:		
<b>60</b> ]	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		1.00
60		location/spacing of subsurface tile within the WAA:		
dr		type & effect of surface alteration(s):		
- X	$\mathbf{V}_{\mathbf{SOURCE}}$	% of historic catchment area still contributing runoff:		0.50
	SOCROL	additions of water from other sources:		
		change in wetland regime class?	1045.00	
	V	wetland perimeter (feet):  wetland area (acres):	1045.00 0.30	1.00
	$\mathbf{V_{EDGE}}$	Shoreline Development Index:	2.58	1.00
		wetland area (acres):	0.30	
	$V_{CATCHWET}$	catchment area (acres):	2.20	1.00
	CATCHWET	ratio of catchment size to wetland size:	7.33	1.00
		total acre size of the present day catchment:	2.20	
		acres of catchment for each curve number:	2.20	
		98	2.20	
		90		
		79		
		77		
		72		
		75		
se	$\mathbf{V_{UPUSE}}$	73		0.00
du	· OF USE	71		0.00
in		72		
Landuse		74		
8		69		
96		79 74		
ар		69		
SC		61		
Landscape &		weighted average score for upland land use:	98.00	
a		distance to nearest wetland(feet):	85.00	
Ι		distance to 2nd nearest wetland:	145.00	
	₹7	distance to 3rd nearest wetland:	191.00	1.00
	$\mathbf{V}_{\mathbf{WETPROX}}$	distance to 4th nearest wetland:	370.00	1.00
		distance to 5th nearest wetland: 507		
		mean distance (feet):	259.60	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V <sub>BASINS</sub>	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$ m V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00
	' HABFRAG	miles of rouge and initial autitories within a 1-fillic facility.	12.50	0.00

Function	FCI	FCU
1. Water Storage	0.51	0.15
2. Groundwater Recharge	0.73	0.22
3. Retain Particlulates	0.39	0.12
4. Remove, Convert, and Sequester Dissolved Substances	0.68	0.20
5. Plant Community Resilience and Carbon Cycling	0.56	0.17
6a. Provide Faunal Habitat	0.61	0.18
6b. Provide Faunal Habitat (Alternate Formula)	0.21	0.06

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.

Wetland #8

Project Name/Location:		
	Interstate 229 Exit 3 Reconstruction	
	Sioux Falls, Minnehaha County	

	Variable	Data entered		Subindex	
		wetland perimeter (feet):	569.40		
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	569.40	1.00	
		percent continuity:	100.00		
		grassland width (feet) at 12 points:			
		Point 1:	50.00		
		Point 2:	36.00		
		Point 3:	18.00		
		Point 4:	35.00		
n		Point 5:	44.00		
io	V <sub>GRASSWIDTH</sub>	Point 6:	46.00	0.85	
Vegetation	▼ GRASSWIDTH	Point 7:	50.00	0.65	
zel		Point 8:	50.00		
e se		Point 9:	50.00		
<b>&gt;</b>		Point 10:	50.00		
		Point 11:	50.00		
		Point 12:	21.00		
		mean width (feet):	41.67		
		(see vegetation worksheet for species entered)			
		sum of species:	8.00		
	$V_{VEGCOMP}$	sum of C values:	5.00	0.08	
		mean coefficient of conservatism:	0.63		
		FQI:	1.77		

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.75	0.75
		Eastern Prairie Potholes		
	<b>V</b> 7	mean depth to B horizon (inches):		0.25
	V <sub>SED</sub>	Western Prairie Potholes		0.27
		mean depth to B horizon (inches):	2.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V	sample 2:	1.50	0.04
	V <sub>SQI</sub>	sample 3:	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:	2.00	
<b>9</b> 2		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.30
	· SOM	ADI:	6.00	0.50
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.68	

		<b>=</b>			
		historic invert elevation in relation to wetland maximum depth:	1395.00		
		present (or constructed) invert elevation:	1402.00		
		elevation of the edge of the historic wetland:	1395.00		
	$\mathbf{V}_{\mathbf{OUT}}$	elevation of a representative deepest portion of the wetland:	1399.00	1.00	
6)		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00		
hic		(ex. 25%=25), otherwise enter 0:			
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	1.00		
m		depth of surface drainage invert:			
<b>60</b>	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		0.25	
080		location/spacing of subsurface tile within the WAA:			
dr		type & effect of surface alteration(s):			
, i	$\mathbf{V}_{\mathbf{SOURCE}}$	% of historic catchment area still contributing runoff:		0.50	
1		additions of water from other sources:			
		change in wetland regime class?	560.40		
	V	wetland perimeter (feet):  wetland area (acres):	569.40 0.26	1.00	
	$ m V_{EDGE}$	` /	1.51	1.00	
		Shoreline Development Index:	0.26		
	V	wetland area (acres): catchment area (acres):	2.10	1.00	
	$\mathbf{V}_{ ext{CATCHWET}}$	ratio of catchment size to wetland size:	8.08	1.00	
		total acre size of the present day catchment:	2.10		
	-	acres of catchment for each curve number:	2.10		
		98	2.10		
		90	2.10		
		79			
		77			
		72			
		75			
e	₹7	73		0.00	
ns	$\mathbf{V}_{\mathbf{UPUSE}}$	71		0.00	
pu		72			
Landuse		74			
		69			
<b>~</b>		79			
be.		74			
င်ဒ		69			
qs		61			
Landscape &		weighted average score for upland land use:	98.00		
L		distance to nearest wetland(feet):	57.00		
		distance to 2nd nearest wetland:	161.00		
	$\mathbf{V}_{\mathbf{WETPROX}}$	distance to 3rd nearest wetland:	184.00	1.00	
	EII ROA	distance to 4th nearest wetland:	280.00		
		distance to 5th nearest wetland:	289.00		
	<b>X</b> 7	mean distance (feet):	194.20	0.02	
	V <sub>WETAREA</sub>	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03	
	$V_{BASINS}$	number of palustrine wetlands within a 1-mile radius:	24.00	0.09	
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00	

Function	FCI	FCU
1. Water Storage	0.25	0.07
2. Groundwater Recharge	0.37	0.10
3. Retain Particlulates	0.32	0.08
4. Remove, Convert, and Sequester Dissolved Substances	0.34	0.09
5. Plant Community Resilience and Carbon Cycling	0.29	0.07
6a. Provide Faunal Habitat	0.31	0.08
6b. Provide Faunal Habitat (Alternate Formula)	0.13	0.03

Project Name/Location:						
•						
•						

	Variable	Data entered		Subindex	
		wetland perimeter (feet):	2832.40		
	V <sub>GRASSCONT</sub>	grassland along perimeter (feet):	2832.40	1.00	
		percent continuity:	100.00		
		grassland width (feet) at 12 points:			
		Point 1:	36.00		
		Point 2:	50.00		
		Point 3:	50.00		
		Point 4:	39.00		
<b>=</b>		Point 5:	24.00		
<u>.</u> [0]	*7	Point 6:	36.00	0.75	
at	V <sub>GRASSWIDTH</sub>	Point 7:	42.00	0.75	
et		Point 8:	39.00		
Vegetation		Point 9:	30.00		
		Point 10:	50.00		
		Point 11:	31.00		
		Point 12:	18.00		
		mean width (feet):	37.08		
		(see vegetation worksheet for species entered)			
		sum of species:	8.00		
	V <sub>VEGCOMP</sub>	sum of C values:	9.00	0.16	
		mean coefficient of conservatism:	1.13		
		FQI:	3.18		

	V <sub>RECHARGE</sub>	Soil Recharge Potential Subindex:	0.50	0.50
		Eastern Prairie Potholes		
	V/	mean depth to B horizon (inches):		0.67
	V <sub>SED</sub>	Western Prairie Potholes		0.27
		mean depth to B horizon (inches):	2.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V <sub>SQI</sub>	sample 2:	1.50	0.03
	▼ SQI	sample 3:	1.50	0.03
		sample 4:	1.50	
		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:		
il		Sample 1 hue:	10.00	
Soil		value:	2.00	
01		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V <sub>SOM</sub>	chroma:	1.00	0.31
	5011	ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
	 	Sample 4 hue: value:	2.00	
		chroma:	2.00	
			7.00	
	<u> </u>	ADI: average ADI:	6.25	
		Direct Measurements	0.23	
	<del>                                     </del>	% organic carbon for 0-15cm depth:		
		% organic carbon for 0-13cm depth:		
		mean percentage:		
		% organic carbon:	1.71	
		% organic carbon:	1./1	

		<b>=</b>		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1400.00	
		elevation of the edge of the historic wetland:	1395.00	
	$\mathbf{V}_{\mathbf{OUT}}$	elevation of a representative deepest portion of the wetland:	1401.00	1.00
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
Hydrogeomorphic		ratio of the constructed elevation to the natural outlet elevation:	1.00	
<u> </u>		depth of surface drainage invert:		
<b>e0</b> ]	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		0.25
80		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	SOURCE	additions of water from other sources:		
		change in wetland regime class?	2022 40	
	V	wetland perimeter (feet):	2832.40	1.00
	$ m V_{EDGE}$	wetland area (acres):	0.91 4.01	1.00
-		Shoreline Development Index: wetland area (acres):	0.91	
	$\mathbf{V}_{ ext{CATCHWET}}$	catchment area (acres):	7.00	1.00
	▼ CATCHWET	ratio of catchment size to wetland size:	7.69	1.00
		total acre size of the present day catchment:	7.00	
		acres of catchment for each curve number:	7.00	
		98	7.00	
		90		
		79		
		77		
		72		
		75		
se	$\mathbf{V}_{ ext{UPUSE}}$	73		0.00
du	OI USE	71		0.00
Landuse		72		
Lí		74		
8		69 79		
Landscape &		79		
ар		69		
SC		61		
nd		weighted average score for upland land use:	98.00	
ြရ		distance to nearest wetland(feet):	56.00	
П		distance to 2nd nearest wetland:	155.00	
	<b>T</b> 7	distance to 3rd nearest wetland:	191.00	0.00
	$V_{WETPROX}$	distance to 4th nearest wetland:	463.00	0.99
		distance to 5th nearest wetland:	470.00	
		mean distance (feet):	267.00	
	$\mathbf{V}_{\mathbf{WETAREA}}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	$V_{BASINS}$	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.25	0.23
2. Groundwater Recharge	0.35	0.32
3. Retain Particlulates	0.33	0.30
4. Remove, Convert, and Sequester Dissolved Substances	0.34	0.31
5. Plant Community Resilience and Carbon Cycling	0.29	0.27
6a. Provide Faunal Habitat	0.32	0.29
6b. Provide Faunal Habitat (Alternate Formula)	0.16	0.14

<b>Project</b>	Name/L	Location:
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Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #10

	Variable	Variable Data entered			
		wetland perimeter (feet):	219.30		
	$V_{GRASSCONT}$	grassland along perimeter (feet):	219.30	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		
n		Point 5:	50.00		
io	V <sub>GRASSWIDTH</sub>	Point 6:	50.00	0.99	
at		Point 7:	35.00	0.99	
Vegetation		Point 8:	50.00		
		Point 9:	50.00		
		Point 10:	50.00		
		Point 11:	50.00		
		Point 12:	50.00		
		mean width (feet):	48.75		
		(see vegetation worksheet for species entered)			
	F	sum of species:	3.00		
	$ m V_{VEGCOMP}$	sum of C values:	0.00	0.00	
		mean coefficient of conservatism:			
		FQI:	0.00		

	$V_{ m RECHARGE}$	Soil Recharge Potential Subindex:	0.75	0.75		
		Eastern Prairie Potholes				
	V	mean depth to B horizon (inches):	0.80			
	V <sub>SED</sub>	Western Prairie Potholes	0.80			
		mean depth to B horizon (inches):	6.00			
		SQI scores for 4 samples:				
		sample 1:	2.50			
	V <sub>SQI</sub>	sample 2:	2.50	0.13		
	▼ SQI	sample 3:	2.50	0.13		
		sample 4:	3.00			
		average SQI score:	2.63			
		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):				
		ADI for 4 samples:				
::		Sample 1 hue:	10.00			
Soil		value:	2.00			
		chroma:	2.00			
		ADI:	7.00			
		Sample 2 hue:	10.00			
	<u> </u>	value:	2.00			
	V <sub>SOM</sub>	chroma:	2.00	0.35		
	50.11	ADI:	7.00			
		Sample 3 hue:	10.00			
		value:	2.00			
		chroma:	1.00			
		ADI:	6.00			
		Sample 4 hue:	10.00			
		value:	2.00			
		chroma:	2.00			
	<u> </u>	ADI:	7.00 6.75			
		average ADI:  Direct Measurements				
		% organic carbon for 0-15cm depth:				
		% organic carbon for 0-13cm depth:				
		% organic carbon for 13-30cm deput: mean percentage:				
	<u> </u>		1.83			
		% organic carbon:	1.83			

		=		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1396.00	
		elevation of the edge of the historic wetland:	1395.00	
	$\mathbf{V}_{\mathbf{OUT}}$	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	0.00	
Hydrogeomorphic		(ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	0.00	
m		depth of surface drainage invert:		
<b>60</b> ]	$\mathbf{V}_{ ext{SUBOUT}}$	distance from WAA edge:		0.25
86		location/spacing of subsurface tile within the WAA:		
lrc		type & effect of surface alteration(s):		
	$ m V_{SOURCE}$	% of historic catchment area still contributing runoff:		0.50
=	SOURCE	additions of water from other sources:		
		change in wetland regime class?	010.00	
	<b>T</b> 7	wetland perimeter (feet):	219.30	1.00
	$\mathbf{V_{EDGE}}$	wetland area (acres):	0.04	1.00
		Shoreline Development Index: wetland area (acres):	1.48 0.04	
	$\mathbf{V}_{ ext{CATCHWET}}$	catchment area (acres):	4.38	1.00
		ratio of catchment size to wetland size:	109.50	1.00
		total acre size of the present day catchment:	4.38	
		acres of catchment for each curve number:	1.50	
		98	4.38	
		90		
		79		
		77		
		72		
		75		
Se	${ m V_{UPUSE}}$	73		0.00
du	OLOSE	71		
Landuse		72		
L		74		
8		69 79		
Landscape &		79		
ар		69		
Sc		61		
nd		weighted average score for upland land use:	98.00	
a		distance to nearest wetland(feet):	100.00	
		distance to 2nd nearest wetland:	101.00	
	<b>T</b> 7	distance to 3rd nearest wetland:	198.00	1.00
	$\mathbf{V}_{\mathbf{WETPROX}}$	distance to 4th nearest wetland:	243.00	1.00
		distance to 5th nearest wetland:	318.00	
		mean distance (feet):	192.00	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	$V_{BASINS}$	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.16	0.01
2. Groundwater Recharge	0.19	0.01
3. Retain Particlulates	0.53	0.02
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.01
5. Plant Community Resilience and Carbon Cycling	0.14	0.01
6a. Provide Faunal Habitat	0.15	0.01
6b. Provide Faunal Habitat (Alternate Formula)	0.08	0.00

		South I		liverine I able Sco		odel, Version 1.1 Form		
Field Offic	:e					at Area ID. (if more tha	n one)	11
					cres (Pre-project)		63	
Date		9/25/201				cres (Post-project)		03
	andowner		kota DOT			Type of wetland (fring		stream
	g? (Y/N)	Doddi Da	If Y, what?	)		channel, or depression		
Red flag?			If Y, what?			plain)?	ar or inicar o	n nood
red mg.	(1711)		II I, WHAT				<b>77</b> • 1	
						Discussion/		le Score
Variable				dition Resu	ılts	Rationale	Pre-proj.	Post-proj
	Flood plain l		- 1:					
			//N)?		N			
	If Y, what							
	(H <sub>fp</sub> ) pre-project				1			
$V_{hydalt}$	1 -	(H <sub>fp</sub> ) post-project Wetland hydrology (H <sub>w</sub> )					1.00	0.00
					27			
			//N)?		N			
	If Y, what							
					1			
					¥7			
<b>X</b> 7	Watershed a				Y		0.50	0.00
$\mathbf{V}_{\mathrm{source}}$	If Y, what?						0.50	0.00
					80			
	Wetland top						1	
			Y/N)		Y		1	
	If Y, what			-			1	
	% of area		30	(T <sub>w</sub> ) pre =	1		1	
$V_{topog}$	% of area			(Tw) post =			0.50	0.00
topog	Flood plain t							
			Y/N)		Y			
			Rip rap, tra					
	% of area		40	(T <sub>fp</sub> ) pre =	0.5		1	
	% of area			(T <sub>fp</sub> ) post =				
	Dominant up	oland uses	3 maximun	n)			1	
							1	
		Index	0.1	% area	40		1	
$V_{upuse}$		2 Index	1	% area	30		0.57	#DIV/0!
upuse		Index	0.75	% area	30			
		1 Index		% area				
		2 Index		% area				
	post	3 Index	<u></u>	% area				
$V_{detritus}$	Detritus thic	kness (in.)			0		1	
	Accelerated	sediment i	n wetland?	(Y/N)	N			
V	If Y, evidend	ce?						
$\mathbf{V}_{ ext{sed}}$		ii i, evidence.					1	
	Sediment thi	ickness (in.	)		0		<u>L</u>	
V	Dominant so	oil texture i	n upper 18"		Sand Loam			
$V_{som}$	Dominant so	oil color (va	llue) upper	12"	10YR 2/2			
	Soil pores of	served		Fine			1	
$\mathbf{V}_{ ext{soil}}$	Soil structure	e	Sub Angul	ar Blky				
	Rupture resi	stance		Firm				
	Rupture resi		Pre-project					
	Rupture resis		Pre-project					
		nuity (%) -	Pre-project				0.14	
	Buffer contin	nuity (%) -	Pre-project	100	0.2		0.14	
	Buffer contin	nuity (%) - fer width ( ity/width ra	Pre-project	100	0.2		0.14	
V	Buffer continu Average buf Continu Buffer condi	nuity (%) - fer width ( ity/width ra	Pre-project ft.) ating (B <sub>1</sub> )	100	0.2		0.14	
$ m V_{buffer}$	Buffer continu Average buf Continu Buffer condi	nuity (%) - fer width (; ity/width ra ition	Pre-project ft.) ating (B <sub>1</sub> )	100			0.14	
$ m V_{buffer}$	Buffer continu Average buf Continu Buffer condi	nuity (%) - fer width (; ity/width ra ition on rating (E	Pre-project  ft.)  uting (B <sub>1</sub> )  s <sub>2</sub> )  Post-projec	100			0.14	
$ m V_{buffer}$	Buffer continu Average buff Continu Buffer condition	nuity (%) - fer width (; ity/width ra ition on rating (E	Pre-project  ft.)  ating (B <sub>1</sub> )  b <sub>2</sub> )  Post-projec	100			0.14	000
$ m V_{buffer}$	Buffer contin Average buf Continu Buffer conditio Conditio Buffer contin Average buf	nuity (%) - fer width (; ity/width ra ition on rating (E nuity (%) -	Pre-project  ft.)  ating (B <sub>1</sub> )  b <sub>2</sub> )  Post-projec	100 22			0.14	0.00
$ m V_{buffer}$	Buffer contin Average buf Continu Buffer conditio Conditio Buffer contin Average buf	nuity (%) - fer width (; ity/width ra ition on rating (E  nuity (%) - fer width (; ity/width ra	Pre-project  ft.)  ating (B <sub>1</sub> )  B <sub>2</sub> )  Post-projec  ft.)	100 22			0.14	0.00
$ m V_{buffer}$	Buffer continu Average buf Continu Buffer condition Condition Buffer continu Average buf Continu Buffer condition	nuity (%) - fer width (; ity/width ra ition on rating (E  nuity (%) - fer width (; ity/width ra	Pre-project  ft.)  ating (B <sub>1</sub> )  by 2)  Post-projec  ft.)  ating (B <sub>1</sub> )  ating (B <sub>1</sub> )	100 22			0.14	0.00
$ m V_{buffer}$	Buffer continu Average buf Continu Buffer condition Condition Buffer continu Average buf Continu Buffer condition	nuity (%) - fer width (: ity/width r: ition on rating (B nuity (%) - fer width (: ity/width r: ition on rating (E	Pre-project  it.)  atting (B <sub>1</sub> )  by 2)  Post-project  it.)  iting (B <sub>1</sub> )  iting (B <sub>1</sub> )	100 22			0.14	0.00
	Buffer continu Average buf Continu Buffer condition Condition Buffer continu Average buf Continu Buffer condition Condition	nuity (%) - fer width (: ity/width ra ition on rating (E nuity (%) - fer width (: ity/width ra ition on rating (E	Pre-project  ting (B <sub>1</sub> )  Post-project  ting (B <sub>1</sub> )  post-project  ting (B <sub>1</sub> )  ting (B <sub>1</sub> )  in WAA? (	100 22 22 tt	0.1 Y		0.14	0.00
$ m V_{buffer}$	Buffer continu Average buf Continu Buffer condit Conditio  Buffer continu Average buf Continu Buffer conditio Conditio Woody spec (If N, score v	nuity (%) - fer width (: ity/width re ition on rating (E nuity (%) - fer width (: ity/width re ition on rating (E	Pre-project  fit.)  string (B <sub>1</sub> )  Post-projec  fit.)  fit.)  post-projec  fit.)  in WAA? (  seed on the h	100 22 22 tt	0.1 Y		0.14	0.00
	Buffer contin Average buf Continu Buffer condi Conditio  Buffer contin Average buf Continu Buffer condi Conditio Conditio Woody spec (If N, sore v Herbaccou	nuity (%) - fer width ( ity/width ra ition on rating (B nuity (%) - fer width ( ity/width ra ition on rating (E ity/width ra ition on rating (E ies present variable ba is density (	Pre-project sting (B <sub>1</sub> )	100 22 t	0.1  Y  art.)  90%		0.14	0.00
$ m V_{denhw}$	Buffer contin Average buf Continu Buffer condit Conditio  Buffer contin Average buf Continu Buffer conditio Conditio Woody spec (If N, score Herbaccoo.	nuity (%) - fer width (; ity/width ra ition on rating (F fer width (; ity/width ra ity/wid	Pre-project  ft.)	100 22 tt	Y art.)		0.14	0.00
	Buffer contin Average buf Continu Buffer condi Conditio  Buffer contin Average buf Continu Buffer condi Conditio Conditio Woody spec (If N, sore v Herbaccou	nuity (%) - fer width ( ity/width r ition por rating (E  nuity (%) - fer width ( ity/width r ition por rating (E  ition por rating	Pre-project  ft.)	100 22 tt	0.1  Y art.) 90% 10%		0.14	0.00
$ m V_{denhw}$	Buffer contin Average buf Continu Buffer condi Conditio  Buffer contin Average buf Continu Buffer condi Average buf Continu Buffer conditi Woody spec (If N, score v Herbaccot Woody de Native specie dominants	nuity (%) - fer width ( ity/width r ittion on rating (E nuity (%) - fer width ( ity/width r ittion on rating (E ity/width r ittion on rating (E ity/width r ittion on rating (E its present variable ba is density (%, if se present)	Pre-project  itin (B <sub>1</sub> )  Post-projec  itin (B <sub>1</sub> )  iting (B <sub>1</sub> )	100 22	0.1  Y  art.)  90%		0.14	0.00
$ m V_{denhw}$	Buffer contin Average buf Continu Buffer condit Conditio  Buffer contin Average buf Continu Buffer condit Average buf Conditio Onditio Woody spec (If N, score Herbaceo Woody de Native speci	nuity (%) - fer width ( ity/width ra ittion on rating (E nuity (%) - fer width ( ity/width ra ittion on rating (E ity/width ra ittion on rating (E its present variable ba is density ( insity (%, if es present variable ba insity (%, if es present variable ba onsity (%, if es present variable open variable ba onsity (%, if es present	Pre-project  itin (B <sub>1</sub> )  Post-projec  itin (B <sub>1</sub> )  iting (B <sub>1</sub> )	100 22	0.1  Y art.) 90% 100%		0.14	0.00
$ m V_{denhw}$	Buffer contin Average buf Continu Buffer contin Buffer contin Average buf Continu Buffer contin Average buf Continu Buffer conditio Woody spec (If N, score v Herbaccot Woody de Native speci dominants Vegetative c Number of v	nuity (%) - fer width (; ity/width r ition on rating (F nuity (%) - fer width (; ity/width r ition ton rating (F ies present variable ba us density (%, if es present ) anopy cove	Pre-project  itin (B <sub>1</sub> )  tating (B <sub>1</sub> )  2)  Post-projec  itin (B <sub>1</sub> )  ting (B <sub>1</sub> )  in WAA? (sed on the h  %)  applicable in wetland (  erage (%)  trata presen	100 22	0.1  Y art.) 90% 10% 100% 10 3		0.14	0.00
$ m V_{denhw}$	Buffer contin Average buf Continu Buffer contin Buffer contin Average buf Continu Buffer contin Average buf Continu Buffer condit Conditio Woody spec (If N, score v Herbaccon Woody de Native speci dominants Vegetative c Number of v Deviation	nuity (%) - fer width ( ity/width re ition on rating (E  nuity (%) - fer width (; ity/width re ition on rating (E  ity/width re ity	Pre-project  iting (B <sub>1</sub> )  Post-project  ft.)  ting (B <sub>1</sub> )  iz)  Post-projec   in WAA? (  sed on the h  sed on the h  sed on the h  certage (%)  trage (%)  trag	100 22	0.1  Y art.) 90% 10% 100% 10 3		0.14	0.00

S.D. RIVERINE HGM MODEL WORKSHEET 1, VER. 1.1								
Use this worksheet for depressional or linear wetlands that are disconnected from the channel and that have the ability to								
store surface water. For wetlands adjacent to the channel and that lack this ability, use worksheet 2.								
DATE		09/25/18		OWNER/OPERATOR South Dakota DOT				
WETLAND ID		11			Г ТҮРЕ			
OBSERVERS -		Rebecca Bedul	nn	•	YPE (NWI)			
CONDITIONS					YPE (FSA)			
PROJECT NAM		PCN 000S (I-2	29 Exit 3)	REMARKS				
PLANNED AC	TIVITY	Roadway impr						
YELLOW FLA		r a a a a a a		RED FLAG (Y	/N)			
WETLAND AC		NG)	0.63		CRES (PREDIC	TED)	0	
		<b>FUNCTION</b>	AL INDICES	(VARIABLI	E) SCORING			
		Variable			Existing		Predicted	
V <sub>hydalt</sub> - Flood	l Plain/Wetlan	d Hydrology A	Alterations		1.00		0.00	
V <sub>source</sub> - Water	rshed Hydrolo	gy Alterations	S		0.50		0.00	
V <sub>topog</sub> - Flood	Plain/Wetland	d Topographic	Complexity		0.50		0.00	
V <sub>upuse</sub> - Uplan	id Use				0.57		#DIV/0!	
V <sub>detritus</sub> - Detr	itus				0.00		0.00	
V <sub>sed</sub> - Sedimen		the Wetland			0.00		0.00	
V <sub>som</sub> - Soil Or	ganic Matter				0.00		0.00	
V <sub>soil</sub> - Soil Poi					0.00		0.00	
V <sub>buffer</sub> - Buffe	r Condition, C	Continuity, and	l Width		0.14		0.00	
V <sub>denhw</sub> - Densi	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00	
V <sub>pratio</sub> - Ratio	of Native to N	Non-Native Pla	ant Species		0.00		0.00	
V <sub>veg</sub> - Vegetat V <sub>wetuse</sub> - Wetla	ive Strata and	Canopy Cove	erage		0.00		0.00	
V <sub>wetuse</sub> - Wetla	and Use				0.00		0.00	
			]	1				
	Fun	ction		Exis	sting	Pred	icted	
	1 un	Ction		FCI	FCU	FCI	FCU	
1.0 Storage of				0.00	0.00	0.00	0.00	
2.0 Velocity R			V	0.37	0.23	#DIV/0!	#DIV/0!	
3.0 Storage and				0.52	0.33	#DIV/0!	#DIV/0!	
4.0 Removal of				0.00	0.00	#DIV/0!	#DIV/0!	
5.0 Retention of		nd Organic Mat	terials	0.16	0.10	#DIV/0!	#DIV/0!	
6.0 Organic Ca				0.19	0.12	0.00	0.00	
7.0 Maintains (				0.00	0.00	#DIV/0!	#DIV/0!	
8.0 Maintains l				0.08	0.05	0.00	0.00	
9.0 Maintains l				0.24	0.15	#DIV/0!	#DIV/0!	
FUNCTION		E IN FCU's	MINIMAL EFFECT					
	NUMERICAL	%	(Y or N)	NET FUNC	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	-0.12	-100.00%	No					
7.0	#DIV/0!	#DIV/0!	#DIV/0!					
8.0	-0.05	-100.00%	No					
9.0	#DIV/0!	#DIV/0!	#DIV/0!					



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## Attachment C – Approved Jurisdictional Determination

From: Carnahan, Bridget G CIV USARMY CENWO (USA)

To: Babcock, Chad

 Cc:
 Juhas, Catherine D CIV USARMY CENWO (USA)

 Subject:
 RE: [EXT] AJD - NWO-2022-00214-PIE

 Date:
 Thursday, October 26, 2023 4:19:27 PM

Attachments: image001.png

#### Chad,

Good afternoon. We've just received confirmation from our district jurisdiction subject matter expert that AJD's completed under the pre-2015 regulatory regime, pre-Sackett are still valid. In reviewing the types of waters present within the review area, there were wetlands that abut a relatively permanent water and isolated wetlands. We no longer use the term abutting wetlands, they are now adjacent wetlands, but even with the change of guidance, they would still be jurisdictional. The other features identified were isolated wetlands, which is another term we don't use. Technically these wetlands would not meet the adjacency test and would not be jurisdictional. So it boils down to the fact that the only real changes are to vocabulary and an AJD would not be necessary. I hope that helps to clear up your concerns.

Thanks,

Bridget Carnahan U.S. Army Corps of Engineers South Dakota Regulatory Office 28563 Powerhouse Road, Room 118 Pierre, South Dakota 57501

Chad,

Good afternoon. We've just received confirmation from our district jurisdiction subject matter expert that AJD's completed under the pre-2015 regulatory regime, pre-Sackett are still valid. In reviewing the types of waters present within the review area, there were wetlands that abut a relatively permanent water and isolated wetlands. We no longer use the term abutting wetlands, they are now adjacent wetlands, but even with the change of guidance, they would still be jurisdictional. The other features identified were isolated wetlands, which is another term we don't use. Technically these wetlands would not meet the adjacency test and would not be jurisdictional. So it boils down to the fact that the only real changes are to vocabulary and an AJD would not be necessary. I hope that helps to clear up your concerns.

Thanks,

Bridget Carnahan U.S. Army Corps of Engineers South Dakota Regulatory Office 28563 Powerhouse Road, Room 118 Pierre, South Dakota 57501 From: Babcock, Chad <Chad.Babcock@state.sd.us>

**Sent:** Monday, October 16, 2023 1:51 PM

**To:** Juhas, Catherine D CIV USARMY CENWO (USA) <Catherine.D.Juhas@usace.army.mil>; Carnahan,

Bridget G CIV USARMY CENWO (USA) < Bridget.G.Carnahan@usace.army.mil>

**Subject:** [Non-DoD Source] AJD

Good afternoon,

We received an AJD for SDDOT Project I229 Exits 3 and 4 on March 31, 2022. Is this still valid for 5 years (from the date of issuance) or would we need to submit a new application given changes in federal definitions? Thanks



## **Chad Babcock**

# **Environmental Manager | South Dakota Department of Transportation**

Better Lives Through Better Transportation 700 E. Broadway Ave, Pierre SD 57501 O: 605.773.3721 | C: 605.280.6035 | dot.sd.gov

### APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

	CTION I: BACKGROUND INFORMATION  REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 31, 2022
B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha District - SDDOT I-229 Exits 3 and 4 - NWO-2022-00214-PIE
Elev	PROJECT LOCATION AND BACKGROUND INFORMATION: The project consists of two review areas: I-229 Exits 3 and 4.  ven wetlands are located at Exit 3; 7 are adjacent to the Big Sioux River and 4 are isolated. Exit 4 contains 10 wetlands; 5 are acent to the Big Sioux River and 5 are isolated. The Big Sioux River is a TNW.  State: South Dakota County/parish/borough: Minnehaha County City: Corson Center coordinates of site (lat/long in degree decimal format): Lat.43.510150 N; Long96.731234 W  Universal Transverse Mercator: 14  Name of nearest waterbody: Big Sioux River Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Big Sioux River
	Name of watershed or Hydrologic Unit Code (HUC):10170203  Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  Check if other sites (e.g., offsite mitigation sites, disposal sites, etc) are associated with this action and are recorded on a different JD form.
D.	REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):  ☐ Office (Desk) Determination. Date:March 8, 2022 ☐ Field Determination. Date(s):
	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
The revi	Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the lew area. [Required]  Waters subject to the ebb and flow of the tide.  Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  Explain:
В. (	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	are and are not "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]
	1. Waters of the U.S.  a. Indicate presence of waters of U.S. in review area (check all that apply):  TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters <sup>2</sup> (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands
	b. Identify (estimate) size of waters of the U.S. in the review area:  Non-wetland waters: linear feet: width (ft) and/or acres.  Wetlands:10.24 acres.
	c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known):

Boxes checked below shall be supported by completing the appropriate sections in Section III below.
 For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

### 2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Four aquatic resources at Exit 3 (Wetlands 7, 8, 9, and 10) and five aquatic resources at Exit 4 (Wetlands 6, 7, 8, 9, and 10) are isolated waters that are not located within a reasonably close proximity to jurisdictional waters; whereby, nonspeculative ecological connection(s) could be made. Further, these aquatic resources: 1) are not used by interstate or foreign travelers for recreational or other purposes; 2) do not support fish or shellfish that could be taken and sold in interstate or foreign commerce; and 3) are not used for industrial purposes by industries in interstate commerce. Based upon these principle considerations, it is determined that these aquatic resources are non-jurisdictional under the auspices of Section 404 of the Clean Water Act.

### **SECTION III: CWA ANALYSIS**

TENTANI

#### A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1.	Identify TNW:	
	Summarize rationale supporting determination: .	
2.	Wetland adjacent to TNW Summarize rationale supporting conclusion that wetland is "adjacent":	

### B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

### 1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i)	General Area Conditions:
	Watershed size: acres
	Drainage area: acres
	Average annual rainfall: inches
	Average annual snowfall: inches
(ii)	Physical Characteristics:
	(a) Relationship with TNW:
	☐ Tributary flows directly into TNW.

<sup>&</sup>lt;sup>3</sup> Supporting documentation is presented in Section III.F.

<sup>&</sup>lt;sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

	☐ Tributary flows through <b>Pick List</b> tributaries before entering TNW.
	Project waters are Pick List river miles from TNW.  Project waters are Pick List river miles from RPW.  Project waters are Pick List aerial (straight) miles from TNW.  Project waters are Pick List aerial (straight) miles from RPW.  Project waters cross or serve as state boundaries. Explain:
	Identify flow route to TNW <sup>5</sup> :  Tributary stream order, if known:
(b)	General Tributary Characteristics (check all that apply):  Tributary is:  Natural  Artificial (man-made). Explain:  Manipulated (man-altered). Explain:
	Tributary properties with respect to top of bank (estimate):  Average width: feet  Average depth: feet  Average side slopes: Pick List.
	Primary tributary substrate composition (check all that apply):  Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain:
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:  Presence of run/riffle/pool complexes. Explain:  Tributary geometry: Pick List  Tributary gradient (approximate average slope): %
(c)	Flow: Tributary provides for: Pick List Estimate average number of flow events in review area/year: Pick List Describe flow regime: Other information on duration and volume:
	Surface flow is: Pick List. Characteristics:
	Subsurface flow: Pick List. Explain findings:  Dye (or other) test performed:
	Tributary has (check all that apply):  Bed and banks  OHWM <sup>6</sup> (check all indicators that apply):  clear, natural line impressed on the bank changes in the character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining other (list):  Discontinuous OHWM. Explain:
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):  High Tide Line indicated by:  Oil or scum line along shore objects  fine shell or debris deposits (foreshore)  Mean High Water Mark indicated by:  survey to available datum;  physical markings;

<sup>&</sup>lt;sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW. <sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break. <sup>7</sup>Ibid.

		<ul> <li>□ physical markings/characteristics</li> <li>□ tidal gauges</li> <li>□ other (list):</li> <li>□ vegetation lines/changes in vegetation types.</li> </ul>
	(iii)	Chemical Characteristics: Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.) Explain: Identify specific pollutants, if known:
	(iv)	Biological Characteristics. Channel supports (check all that apply):    Riparian corridor. Characteristics (type, average width):   Wetland fringe. Characteristics:   Habitat for:   Federally Listed species. Explain findings:   Fish/spawn areas. Explain findings:   Other environmentally-sensitive species. Explain findings:   Aquatic/wildlife diversity. Explain findings:
2.	Cha	aracteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)	Physical Characteristics:  (a) General Wetland Characteristics: Properties: Wetland size: Wetland type. Explain: Wetland quality. Explain: Project wetlands cross or serve as state boundaries. Explain:
		(b) General Flow Relationship with Non-TNW: Flow is: Pick List. Explain:  Surface flow is: Pick List Characteristics:  Subsurface flow: Pick List. Explain findings:  Dye (or other) test performed:
		(c) Wetland Adjacency Determination with Non-TNW:  Directly abutting  Not directly abutting  Discrete wetland hydrologic connection. Explain:  Ecological connection. Explain:  Separated by berm/barrier. Explain:  (d) Proximity (Relationship) to TNW  Project wetlands are Pick List river miles from TNW.  Project waters are Pick List aerial (straight) miles from TNW.  Flow is from: Pick List.  Estimate approximate location of wetland as within the Pick List floodplain.
	(ii)	Chemical Characteristics: Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Identify specific pollutants, if known:
	(iii	Biological Characteristics. Wetland supports (check all that apply):  Riparian buffer. Characteristics (type, average width):  Vegetation type/percent cover. Explain:  Habitat for:  Federally Listed species. Explain findings:  Fish/spawn areas. Explain findings:  Other environmentally-sensitive species. Explain findings:  Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: Pick List

Approximately (	) acres in t	otal are being conside	ered in the cumulative analysis.		
For each wetland, spec	cify the foll	lowing:			
Directly abuts? (	<u>Y/N)</u>	Size (in acres)	Directly abuts? (Y/N)	Size (in	acres)
Summarize overa	all biologica	al, chemical and physi	cal functions being performed:		

#### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the Rapanos Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

- Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
- Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
- 3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D.	DETERMINATIONS	<b>OF JURISDICTIONAL</b>	FINDINGS.	THE SUBJECT	WATERS/WETLANDS	ARE (CHECK AL	L
	THAT APPLY):						

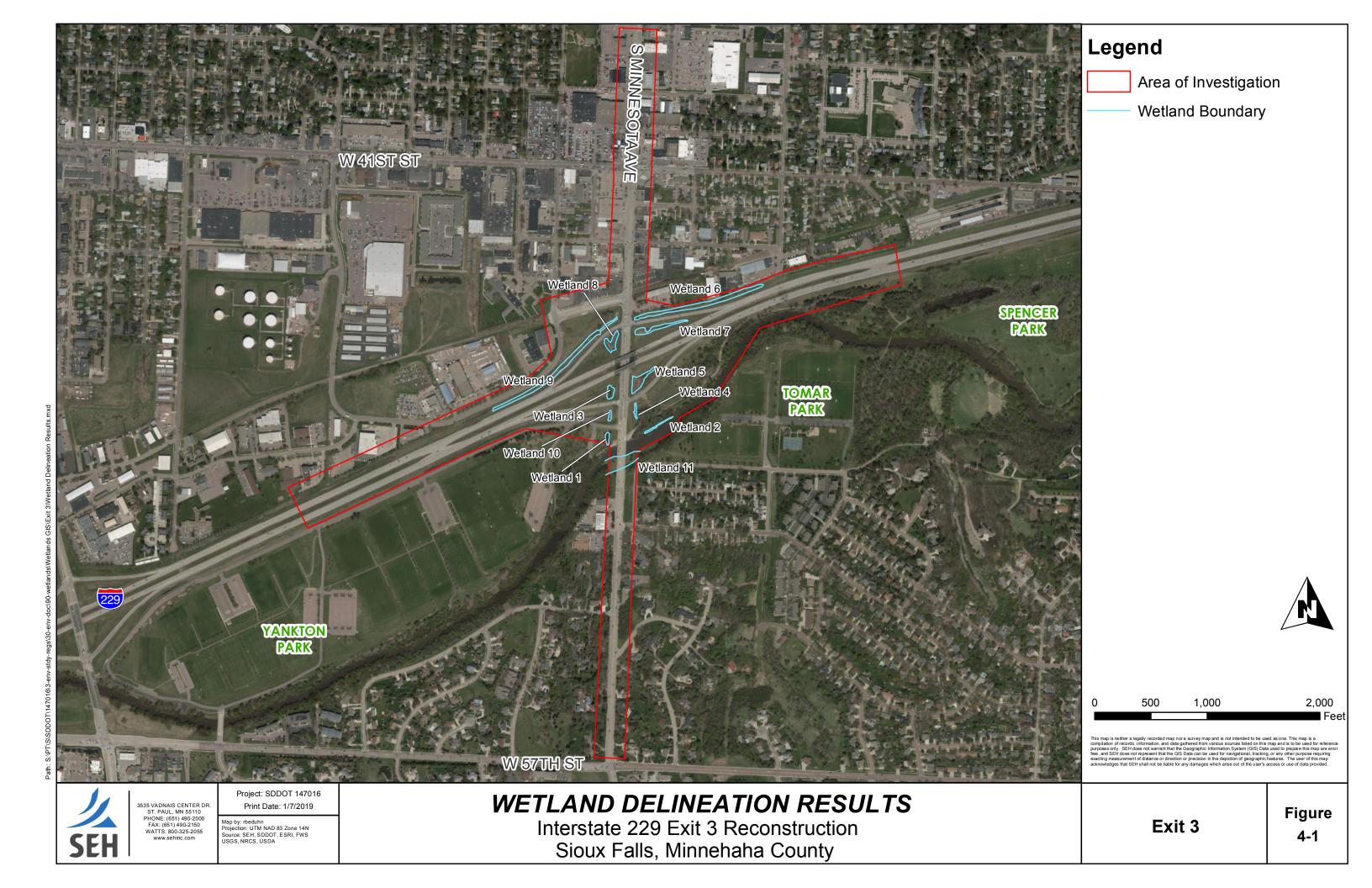
1.	TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:  ☐ TNWs: linear feet width (ft), Or, acres.  ☐ Wetlands adjacent to TNWs: acres.
2.	RPWs that flow directly or indirectly into TNWs.  ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:  ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:
	Provide estimates for jurisdictional waters in the review area (check all that apply):  Tributary waters: width (ft).  Other non-wetland waters: acres.

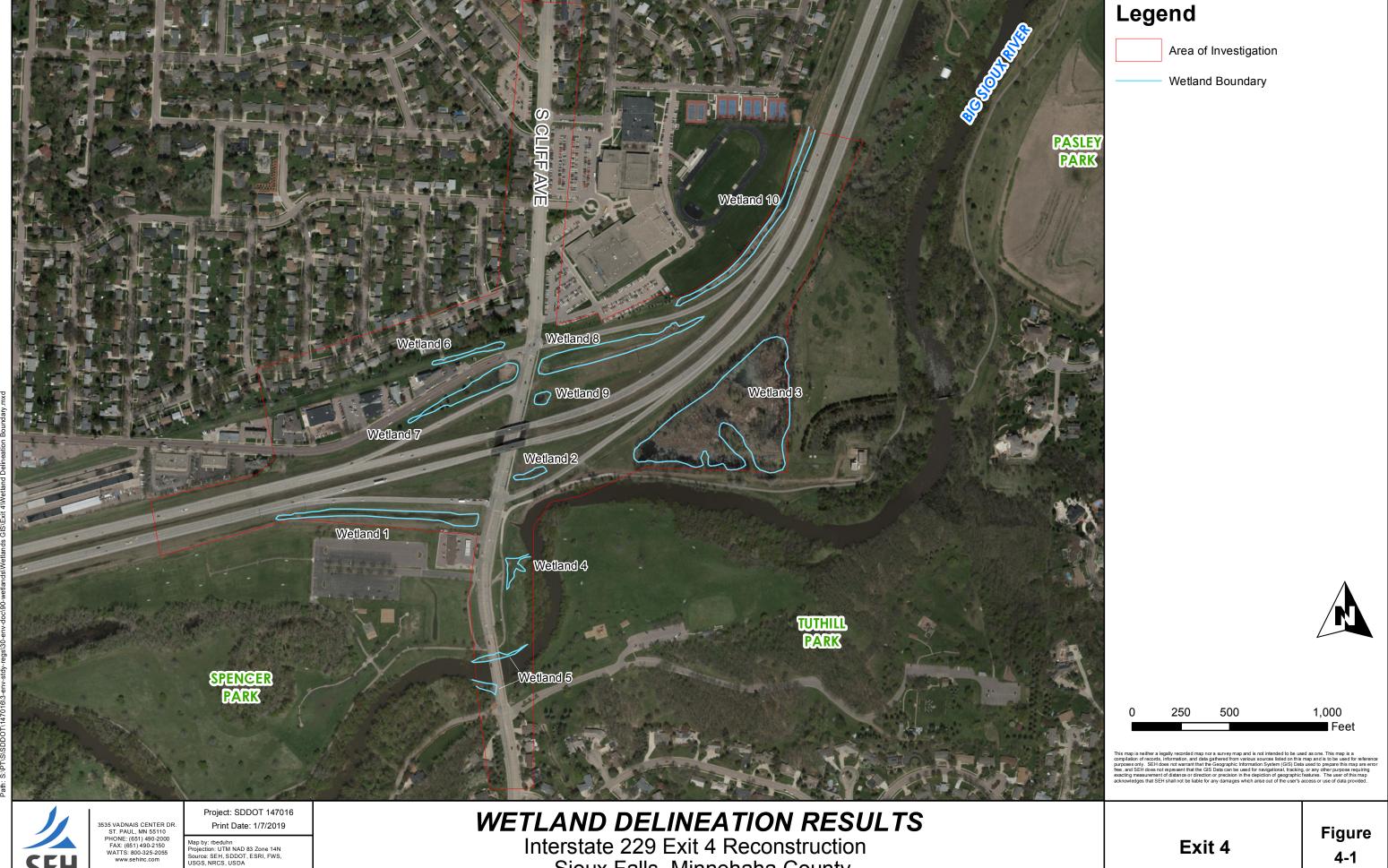
		Identify type(s) of waters:
3.	Non	Provide estimates for jurisdictional waters within the review area (check all that apply):  Tributary waters:  Interpret Inter
		Other non-wetland waters: acres.  Identify type(s) of waters: .
	4.	Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.  Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Wetlands 1, 2, 3, 4, 5, 6 and 11 at Exit 3 and Wetlands 1, 2, 3, 4, and 5 at Exit 4 exhibit a contiguous surface connection to the Big Sioux River, a perennial TNW.
		■ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
		Provide acreage estimates for jurisdictional wetlands in the review area: 10.24 acres.
	5.	Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.  Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.
		Provide acreage estimates for jurisdictional wetlands in the review area: acres.
	6.	Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.  Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.
		Provide estimates for jurisdictional wetlands in the review area: acres.
	7.	As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.  Demonstrate that impoundment was created from "waters of the U.S.," or  Demonstrate that water meets the criteria for one of the categories presented above (1-6), or  Demonstrate that water is isolated with a nexus to commerce (see E below).
Е.	DEC SUC 	LATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH WATERS (CHECK ALL THAT APPLY): 10 which are or could be used by interstate or foreign travelers for recreational or other purposes. from which fish or shellfish are or could be taken and sold in interstate or foreign commerce. which are or could be used for industrial purposes by industries in interstate commerce. Interstate isolated waters. Explain:  Other factors. Explain:
	Idei	ntify water body and summarize rationale supporting determination:
	Pro	vide estimates for jurisdictional waters in the review area (check all that apply):

 <sup>8</sup>See Footnote#3.
 To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
 Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

	☐ Tributary waters: linear feet width(ft).  ☐ Other non-wetland waters: acres.  Identify type(s) of waters: .  Wetlands: acres.
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.  ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.  ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).  ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:  ☐ Other: (explain, if not covered above):
	Provide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet width (ft).  Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: 4.71 acres.
	Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).  Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
SEC	CTION IV: DATA SOURCES.
Α.	SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):    Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:   Drequest received January 26, 2022.     Data sheets prepared/submitted by or on behalf of the applicant/consultant.     Office concurs with data sheets/delineation report.     Office does not concur with data sheets/delineation report.     Data sheets prepared by the Corps:     Corps navigable waters' study:     U.S. Geological Survey Hydrologic Atlas:     USGS NHD data.     USGS NHD data.     USGS Nada 12 digit HUC maps.     U.S. Geological Survey map(s). Cite scale & quad name:1:24,000 Sioux Falls East.     USDA Natural Resources Conservation Service Soil Survey. Citation:     National wetlands inventory map(s). Cite name:FWS Online Mapper.     State/Local wetland inventory map(s):     FEMA/FIRM maps:     100-year Floodplain Elevation is:   (National Geodectic Vertical Datum of 1929)     Photographs:   Aerial (Name & Date):Google Earth Pro and ORM2 Database.     or   Other (Name & Date):Onsite provided on behalf of applicant (2021).     Previous determination(s). File no. and date of response letter:     Applicable/supporting ascelaw:     Applicable/supporting scientific literature:     Other information (please specify):

## B. ADDITIONAL COMMENTS TO SUPPORT JD: .



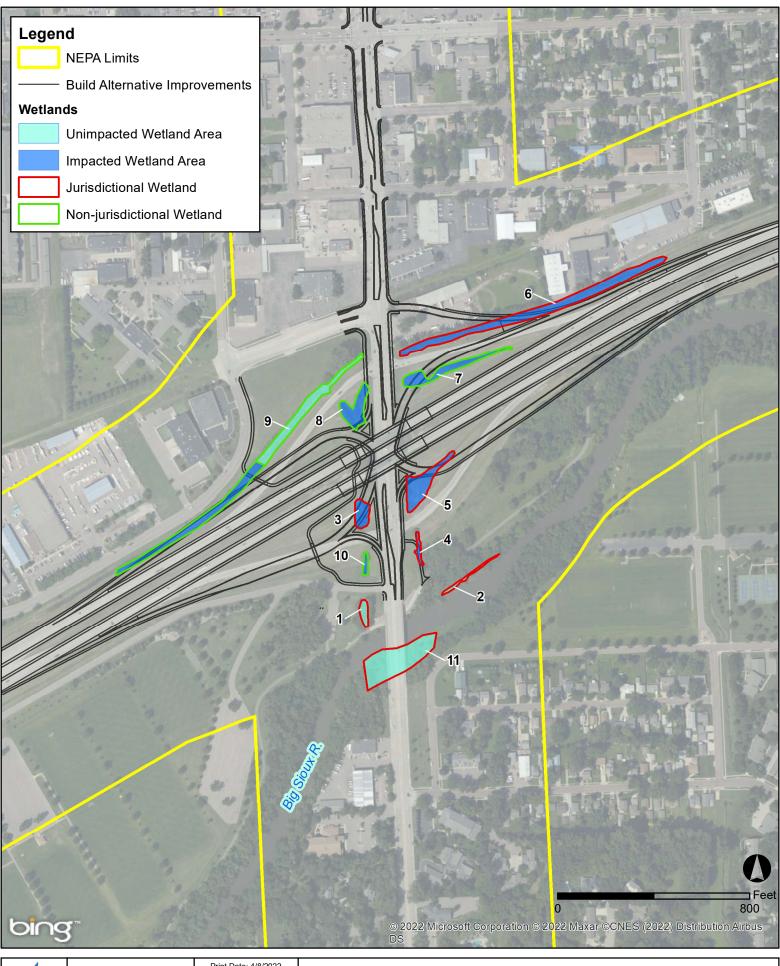


SEH

Sioux Falls, Minnehaha County

4-1

# Attachment D – Build Alternative Wetland Impacts





401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000 Print Date: 4/8/2022 Source: SDDENR, FEMA

Map by: mfalk Projection: State Plane South Dakota S

# **Wetland Impacts**

I-229 Exit 3 (Minnesota Avenue) Interchange Minnehaha County, SD

# Attachment E – Letter of Credit Availability



Great Plains Regional Office 2525 River Road Bismarck, ND 58503-9011 (701) 355-3500; fax (701) 355-3575 www.ducks.org

6/19/2024

Chad Babcock South Dakota Department of Transportation 700 East Broadway Avenue Pierre, SD 57501

RE: Wetland Mitigation Credit Availability in the Lower Big Sioux Service Area, Moody County In-Lieu Fee Site

Dear Mr. Babcock:

You have requested wetland mitigation credits for the "I229 - Exit 3 (Cliff Ave) in Sioux Falls" Project #IM 2292(84)2, PCN 000S in Minnehaha County, SD, USACE Project #NWO-2022-00214-PIE. The project would have wetland impacts requiring mitigation. This letter is non-binding and for informational purpose only. USACE would determine final mitigation requirements.

Compensatory wetland mitigation credits in the amount of 8.91 Function Capacity Units are available for purchase as of the date of this letter in the Lower Big Sioux service area. The credits are released credits from the Moody County ILF Site.

In addition, Ducks Unlimited has 100 advanced ILF credits available, as of the date of this letter in the Lower Big Sioux service area.

Ducks Unlimited, Inc. is not responsible for holding, securing, or otherwise guaranteeing that these or any credits will be available to you at any future date. This letter does not constitute any agreement between Ducks Unlimited, Inc. and Permittee for the purchase of said credits or their future availability. The Wetland Mitigation credits are only secured when purchased and the permanent transfer for the mitigation liability to Ducks Unlimited, Inc. is only completed once we have received full payment, verified there are available credits and Ducks Unlimited acknowledges by Credit Sales letter signed in writing by Ducks Unlimited, Inc. This letter will expire 12 months from the date it is issued.

Respectfully, Justin Williams Manager, Ecosystem Services

# Attachment F – Agency/Tribal Coordination Documentation



# DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING 523 EAST CAPITOL PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

December 27, 2018

Joanne Hight
Department of Transportation
700 East Broadway Avenue
Pierre, South Dakota 57501

RE: SD DOT Project

IM 2292(101)4 PCN 05HN

Minnehaha County

Dear Ms. Hight:

The South Dakota Department of Environment and Natural Resources (DENR), Division of Environmental Regulation, has reviewed the above referenced project.

This office has no objections to this project, which should not result in any violations of applicable statutes or regulations provided the Department of Transportation and/or its contractor(s) comply with the following requirements.

### **SURFACE WATER QUALITY**

- 1. All fill material shall be free of substances in quantities, concentrations, or combinations which are toxic to aquatic life.
- 2. Removal of vegetation shall be confined to those areas absolutely necessary to construction.
- 3. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (800-737-8676) or <a href="http://denr.sd.gov/des/sw/stormwater.aspx">http://denr.sd.gov/des/sw/stormwater.aspx</a>.
- 4. All material identified in the application as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland, and measures taken to ensure that the material cannot enter the watercourse through erosion or any other means.
- Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into a waterway.

- 6. All newly created and disturbed area above the ordinary high water mark which are not riprapped shall be seeded or otherwise revegetated to protect against erosion.
- 7. This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.

This project is in the vicinity of the Big Sioux River. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

- (5) Warmwater semipermanent fish life propagation waters;
- (7) Immersion recreation waters:
- (8) Limited contact recreation waters:
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated.

### **HAZARDOUS and SOLID WASTES**

- 1. Should any hazardous waste be generated during the implementation of this project, the generator must abide by all applicable hazardous waste regulations found in ARSD 74:28 and 40 CFR Part 262.
- 2. If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the department at 605-773-3296. Any contaminated soil encountered must be temporarily stockpiled and sampled to determine disposal requirements.
- 3. It is not expected that any hazardous wastes sites will be encountered during road construction in any rural area. However, if road construction is planned for areas within a city or town, the DOT or contractor should contact this Department prior to construction.
- 4. Some solid waste may be generated during this project. Any solid waste generated that will not be reused in some beneficial manner must be disposed or managed at a permitted solid waste facility.
- 5. Regional landfills able to accept all solid waste generated are listed on our website available here: https://apps.sd.gov/NR60SolidWaste/main.html#. Only Regional landfills are permitted to accept all wastes generated. If you have any questions please contact Waste Management at 605-773-3153.
- 6. Demolition or renovation of a building structure may be subject to asbestos abatement requirements. If demolition is part of the construction projects please contact our Asbestos Coordinator at 605-773-3153.

### **AIR QUALITY**

- It appears that Department of Transportation projects may have only a minor impact on the air quality in South Dakota. This impact would be through point source and fugitive emissions.
- 2. Equipment with point source emissions in many cases are required to have an air quality permit to operate. Permit applications can be obtained from the Air Quality or Minerals and Mining Programs.

- 3. Fugitive emissions, although not covered under State air quality regulations, are a common source of public concern and may be subject to local or county ordinances. Fugitive emissions add to the deterioration of the ambient air quality and should be controlled to protect the health of communities within the construction areas.
- 4. For further air quality information, please contact Rick Boddicker, Air Quality Program, telephone number 605-773-3151.

This office requests the opportunity to review and comment on any significant changes that may be proposed before the project is completed. Thank you for the opportunity to comment on the proposed project. If you have any questions, please contact me at 605-773-3351 or <a href="mailto:Shannon.Minerich@state.sd.us">Shannon.Minerich@state.sd.us</a>.

Sincerely,

Shannon Minerich Environmental Scientist

Surface Water Quality Program

Cc: Deanna Lehrkamp, DENR Waste Management Program

Rick Boddicker, DENR Air Quality Program

Jannon Minerick



# SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS

523 EAST CAPITOL AVENUE | PIERRE, SD 57501

December 27, 2018

Joanne Hight SD Department of Transportation 700 E. Broadway Avenue Pierre, SD 57501

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County

I-229 - Exit 4 (Cliff Ave) in Sioux Falls

Interchange Improvements

Dear Joanne,

The Department of Game, Fish and Parks has reviewed the above project involving interchange improvements on I-229, Exit 4 in Sioux Falls.

A search of the South Dakota Natural Heritage Database found records of trout-perch (Percopsis omiscomaycus), a species of greatest conservation need in the Big Sioux River, downstream of the project area.

Based on the information provided, there is no anticipated significant impact to fish and wildlife resources and would anticipate that to remain if the following suggestions are considered during the planning and construction of the project:

- 1. Disturbance to riparian and wetland areas should be kept to an absolute minimum.
- 2. If riparian vegetation is lost it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
- 3. A site specific sediment and erosion control plan should be part of the project.
- 4. A post construction erosion control plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.
- 5. Stream bottoms impacted by construction activities should be restored to pre-project elevations.
- 6. In stream work should not be conducted during fish spawning periods. Most spawning occurs during April, May and June.

If you have any questions, please feel free to contact me at 605-773-6208.

Sincerely,

Hilary Meyer

**Environmental Review Senior Biologist** 

523 East Capitol Avenue

Pierre, SD 57501













DETAKTMENT OF EDUCA

June 12, 2019

SDDOT Environmental

JUN 1 4 2019

Ms. Joanne Hight
Department of Transportation
Environmental Office
700 E. Broadway Avenue
Pierre, SD 57501-2586

### **SECTION 106 PROJECT CONSULTATION**

Project: 190424003F – IM 2292(84)3 & IM 2292(101)4, PCN 000S & 05HN – I-229 Exit 3 & Exit 4 Interchange Modification & Improvements

Minnehaha County
(FHWA/DOT)

Dear Ms. Hight,

Thank you for the opportunity to comment on the above-referenced project pursuant to 54 U.S.C. 306108, Section 106 of the National Historic Preservation Act of 1966 (as amended). The Office of the South Dakota State Historic Preservation Officer (SHPO) has the following comments regarding the effect of the proposed undertaking on the non-renewable cultural resources of South Dakota.

On April 24, 2019, we received your letter and the report entitled "An Intensive Cultural Resources Survey for SEH, Inc. of Interstate I-229 Exits 3 and 4 IMJR and NEPA, Minnehaha County, South Dakota" by Cassie Vogt (CIS No. 3345). The report indicated that 11 structures, 2 bridges, and a new segment of Eligible site 39MH2000 were recorded during the survey. In email exchanges during May and June of 2019, you clarified the project's APE, stating that, at this time, no project activities will be occurring outside of the area surveyed for Ms. Vogt's report and you clarified the effects to the newly-recorded segment of 39MH2000. Based upon the information provided, SHPO concurs with your determination that structures MH00002403 through MH00002413 and bridges MH00002401 and MH00002402 should be considered Not Eligible for listing in the National Register of Historic Places. Site 39MH2000 is Eligible for listing in the National Register of Historic Places. However, the effect of the off-ramp to 39MH2000, as indicated in your June 12, 2019 email, will not affect the site's overall eligibility.

Therefore, we recommend a finding of "No Adverse Effect" for the proposed undertaking on the Area of Potential Effect (APE) labeled as 'survey area' in Ms. Vogt's report. Once a preferred alternative for each interchange's modification and improvements is selected, if activities are planned for the area outside of the APE identified in Ms. Vogt's report, such as the use of the

remaining railroad grade as an access road or the selection of Alternative 6 for the Cliff Avenue (Exit 4) interchange, additional documentation pertaining to the identification of historic properties, as described in 36 C.F.R. § 800.4, must be submitted to SHPO for consultation.

Concurrence of the SHPO does not relieve the federal agency official from consulting with other appropriate parties, as described in 36 C.F.R. § 800.2(c).

If historic properties are discovered or unanticipated effects on historic properties are found after the agency official has completed the process outlined by 54 U.S.C. 306108 (Section 106) of the National Historic Preservation Act, the agency official shall avoid, minimize, or mitigate the adverse effects to such properties and notify the SHPO and Indian tribes that might attach religious and cultural significance to the affected property within 48 hours of the discovery, pursuant to 36 C.F.R. § 800.13.

Should you require any additional information, please do not hesitate to contact Jenna Carlson Dietmeier at <u>Jenna.CarlsonDietmeier@state.sd.us</u> or (605)773-8370. Your concern for the non-renewable cultural heritage of our state is appreciated.

Sincerely,

Jay D. Vogt

State Historic Preservation Officer

Jenna Calso Dutom

Jenna Carlson Dietmeier

Review and Compliance Archaeologist

CC: Jane Watts - Archaeological Research Center, Rapid City
David Williams - Archaeological Research Center, Rapid City



September 12, 2023

Chad Babcock SDDOT 700 E Broadway Pierre, SD 57501

### **SECTION 106 PROJECT CONSULTATION**

Project: 230908003F - IM 2292(84)2, PCN 000S; NH 2115(46), PCN 08DN; IM-B 2292(101)4, PCN

05HN; IM2292(105)3, PCN 07CY; IM 2292(106)2, PCN 07CX, Minnehaha County

Location: Minnehaha

FHWA - Federal Highway Administration

### Dear Chad,

Thank you for the opportunity to comment on the above referenced project pursuant to 54 U.S.C. 306108, also known as Section 106 of the National Historic Preservation Act of 1966 (as amended). The South Dakota Office of the State Historic Preservation Officer (SHPO) concurs with your determination regarding the effect of the proposed undertaking on the non-renewable cultural resources of South Dakota.

On September 8, 2023, SHPO received your letter, maps of the Area of Potential Effects (APE), and a report titled "A Class III Cultural Resources Survey for South Dakota Department of Transportation Projects IM 2292(84)2 and IM-B-CR 2292(101)3, PCNs 000S and 05HN, Interstate 229 Exits 3 & 4, Lincoln and Minnehaha Counties, South Dakota" prepared by Fidel Martinez-Greer and Joes B. Jones of the Archaeological Research Center. Included in this report were efforts to identify cultural resources, maps showing the APE, and photographic overviews of the project area.

Based upon the information provided, the proposed undertaking is for interchange modifications, crossovers, and improvements. This project had been previously coordinated un SHPO# 190424003F. In the letter dated June 12, 2019 SHPO concurred with a determination of "No Adverse Effect". Since that time, revisions to the project design have necessitated additional consultation. According to the information submitted, the site 39MH2000 lies within the APE. This railroad is considered Eligible for listing in the National Register of Historic Places. Due to its heavily disturbed condition within the APE, it is considered not integral to the site's overall eligibility. No additional Historic Properties were identified within the APE. Therefore, SHPO concurs with your determination of "No Adverse Effect" for the proposed undertaking, provided that the work remains within the area surveyed.

Changes in the location and/or nature of activities from those identified in your request will require the submission of additional documentation pertaining to the identification of historic properties, as described in 36 C.F.R. § 800.4, and/or the undertaking's effects on historic properties, as described in 36 C.F.R. § 800.11.

Concurrence of the SHPO does not relieve the federal agency official from consulting with other appropriate parties, as described in 36 C.F.R. § 800.2(c).

If historic properties are discovered or unanticipated effects on historic properties are found after the



agency official has completed the Section 106 process, the agency official shall avoid, minimize or mitigate the adverse effects to such properties and notify the SHPO and Indian tribes that might attach religious and cultural significance to the affected property within 48 hours of the discovery, pursuant to 36 C.F.R. § 800.13.

Should you require any additional information, please contact Jozef Lamfers at Jozef.Lamfers@state.sd.us or at 605-773-6004. Your concern for the non-renewable cultural heritage of our state is appreciated.

Joseb Sanser

Sincerely, Jenna Carlson Dietmeier Interim State Historic Preservation Officer

Jozef Lamfers

Review & Compliance Archaeologist

CC:

Cassie Vogt - Archaeological Research Center

Lynn Griffin - Archaeological Research Center



Planning and Engineering
DOT Environmental Office

700 E Broadway Pierre, SD 57501 O: 605-773-4336 dot.sd.gov

April 19, 2024

Christopher Swanson, Field Supervisor U.S. Fish & Wildlife Service 420 Garfield Ave Suite 400 Pierre, SD 57501-5408 There is no requirement under the implementing regulations of the Endangered Species Act (50 CFR Part 402) for federal agencies to receive U.S. Fish and Wildlife Service concurrence with "no effect" determinations; therefore, responsibility for "no effect" determinations remains with each federal agency. Accordingly, we recommend the action agency retain the documentation for these listed resources in the decisional record for this federal action.

**DYLAN TURNER** 

Digitally signed by DYLAN TURNER Date: 2024.05.16 09:44:55 -05'00'

South Dakota Ecological Services

Date

RE: Project IM-CR 2292(84)2, PCN 000S, Minnehaha County

1229 - Exit 3 (Minnesota Ave) in Sioux Falls

Interchange Reconstruction

Dear Christopher Swanson:

Attached is information on the above project for your review and comment. This project may impact aquatic resources.

According to the U.S. Fish & Wildlife Service (FWS) IPaC Information for Planning and Conservation system, the following species are known to occur in Minnehaha County: (Consultation code: 2024-0079697).

Species	Status	SDDOT Determination	Comment
Rufa Red Knot	T	No Effect	No critical habitat identified
Northern Long-eared Bat	E	No Effect	No suitable habitat identified during survey
Western Prairie Fringed Orchid	Т	No Effect	No critical habitat identified
Monarch Butterfly	С	No Effect	Candidate species
Tricolored Bat	PE	No Effect	Proposed endangered

The project will be reviewed for wetland impacts. The project will comply with all federal and state environmental regulations. Please submit your response so that the project's environmental documentation can be completed, and the project can be let and constructed in a timely manner.

Sincerely,

Chad Babcock, Environmental Manager **DOT Environmental Office** 605.773.3721

Bhod

chad.babcock@state.sd.us

CC: Dylan Turner, USFWS



# United States Department of the Interior



### FISH AND WILDLIFE SERVICE

South Dakota Ecological Services Field Office 420 South Garfield Avenue, Suite 400 Pierre, SD 57501-5408

Phone: (605) 224-8693 Fax: (605) 224-1416

In Reply Refer To: 04/19/2024 18:47:43 UTC

Project code: 2024-0079697

Project Name: IM-CR 2292(84)2, PCN 000S; I229 Exit 3; NH 2115(46), PCN 08DN

Subject: Consistency letter for the 'IM-CR 2292(84)2, PCN 000S; I229 Exit 3; NH 2115(46),

PCN 08DN' project under the amended February 5, 2018, FHWA, FRA, FTA

Programmatic Biological Opinion (dated March 23, 2023) for Transportation Projects

within the Range of the Indiana Bat and Northern Long-eared Bat (NLEB).

### To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated April 19, 2024 to verify that the **IM-CR 2292(84)2, PCN 000S; I229 Exit 3; NH 2115(46), PCN 08DN** (Proposed Action) may rely on the amended February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion Opinion (dated March 23, 2023) for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action will have <u>no effect</u> on the endangered Indiana bat (*Myotis sodalis*) or the endangered northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species.** If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA section 7(a)(2) may be required.

# For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:

If your initial bridge/culvert or structure assessment failed to detect Indiana bats and/or NLEBs use or occupancy, yet later detected prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of the incident. In these instances, potential incidental take of Indiana bats and/or NLEBs may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency accordingly.

The following species may occur in your project area and **are not** covered by this determination:

• Monarch Butterfly *Danaus plexippus* Candidate

Project code: 2024-0079697

- Rufa Red Knot *Calidris canutus rufa* Threatened
- Tricolored Bat Perimyotis subflavus Proposed Endangered
- Western Prairie Fringed Orchid *Platanthera praeclara* Threatened



# **Department of Transportation Environmental Office**

700 E Broadway Avenue Pierre, South Dakota 57501-2586

December 10, 2018

Garrie Killsahundred Flandreau Santee Sioux Tribe THPO P.O. Box 283 Flandreau, SD 57028

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

605/773-4336

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Killsahundred:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# **Department of Transportation**

# **Environmental Office**

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Clair Green, Section 106 Coordinator Lower Brule Sioux Tribe P.O. Box 187 Lower Brule, SD 57548

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Ms. Green:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight Engineering Supervisor

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Diane Desrosiers Sisseton-Wahpeton Oyate THPO P.O. Box 907 Sisseton, SD 57028

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Ms. Desrosiers:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# **Department of Transportation**

# **Environmental Office**

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Jon Eagle Standing Rock Sioux Tribe THPO P.O. Box D Fort Yates, ND 58538-0522

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Eagle:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# **Department of Transportation Environmental Office**

700 E Broadway Avenue Pierre, South Dakota 57501-2586

605/773-4336

December 10, 2018

Kip Spotted Eagle Yankton Sioux Tribe THPO P.O. Box 1153 Wagner, SD 57380-1153

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Spotted Eagle:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# **Department of Transportation**

# **Environmental Office**

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Elgin Crows Breast Three Affiliated Tribes (Mandan Hidatsa Arikara Nation) THPO 404 Frontage Road New Town, ND 58763-9404

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Crows Breast:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Shannon Wright Ponca Tribe of Nebraska THPO P.O. Box 288 Niobrara, NE 68760

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Wright:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us



# Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Jonathan Windy Boy Chippewa Cree Tribe THPO P.O. Box 230 Box Elder, MT 59521

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229 – Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Mr. Windy Boy:

Attached is the scope summary and map detailing the location of the above referenced project. This project will correct deficiencies at the interchange of I-229 and Minnesota Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

**Engineering Supervisor** 

Joanne Hight

605.773.3721

Joanne.Hight@state.sd.us

### **Project Description and Background**

The South Dakota Department of Transportation (SDDOT), in partnership with the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO) and Federal Highway Administration (FHWA) – the Study Partners – are proposing to improve the Interstate 229 (I-229) interchanges and their approach roadways at Exits 3 (Minnesota Avenue) and 4 (Cliff Avenue) in Sioux Falls, South Dakota. Potential I-229 Corridor Study improvements were documented in a recently completed Major Investment Corridor Study (MIS) from the Solberg Avenue Bridge crossing to the East 60th Street Bridge crossing. Five interchange substudies resulted from the MIS, including Exit 3 (Substudy 2) and Exit 4 (Substudy 6).

Next steps for advancing the interchange studies include preparation of Interchange Justification Modification Reports (IMJR), NEPA documentation, topographic surveys and subsurface utility engineering and exploration. With the preceding MIS groundwork completed, the Study Partners are moving forward with refining and continuing to narrow the range of reasonable alternatives, construct a defensible purpose and need for both projects through required NEPA documentation, and complete topographic surveys and utility locates for each project to determine existing rights-of-way, access control and potential utility conflicts.

Rather than completing long-term improvements in a piecemeal fashion along the I-229 corridor, the Study Partners determined that the best approach would be to develop a Vision project that could be accomplished in fundable segments over time. The Study Partners also recognized that the cost and detailing of the Vision project would be extensive and thus would need to be completed in stages and proceed through individual projects coordinated with supporting local roadway and other integrated multimodal projects. This approach also ensures the components "fit together" over time, especially as redevelopment projects and park and recreation uses adjacent to the I-229 Corridor evolve and change. The MPO's current 2040 Long Range Transportation Plan (LRTP) provides for this range of interchange and mainline I-229 improvement costs spread over a 20-year period, with priority determined by needs, funding availability and community-wide acceptance.

Based on project partner consensus – as well as efficiencies to be gained through concurrent traffic/other data collection, analysis in the IMJR and NEPA documentation processes, survey and utility investigations and public involvement efforts – it was strategically determined that Exit 3 and Exit 4 would be advanced simultaneously and proceed together to future design and construction staging. For each substudy area, MIS-identified alternatives may be further modified and some may potentially be eliminated during the completion of the IMJR documentation and/or NEPA processes.

## I-229 Exit 3 (Minnesota Avenue)



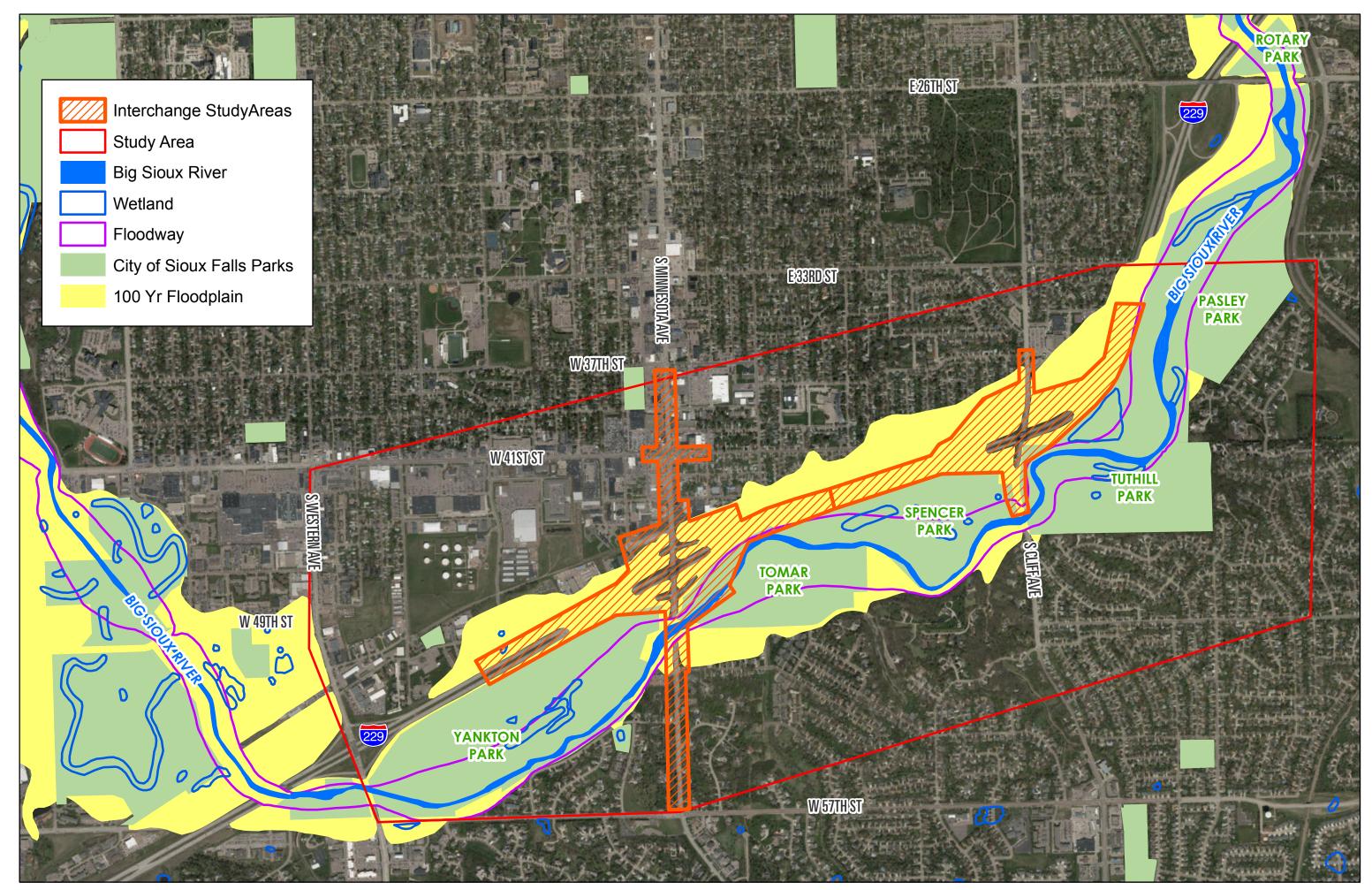
I-229 Exit 3 is located near the center of the I-229 Corridor and includes Minnesota Avenue. This interchange distributes traffic through a major commuter and commercial corridor connecting the downtown area to destinations north and south in Minnehaha and Lincoln Counties, including the heavily used Yankton Trail Park.

Exit 3 is congested today, with a current design that will require innovative design solutions to achieve desired improvements with minimized impacts to surrounding land uses. In addition, the proposed project is located in a redevelopment area of the community and any potential changes to the future land uses (i.e. types and densities) in the vicinity of the project must also be considered.

Traffic forecasts show that roadway capacity, safety and mobility are expected to worsen for all modes through the interchange and along Minnesota Avenue between 41st Street and 57th Street by the forecasted horizon year (2035). Thirteen preliminary concepts were developed for both the I-229 Exit 3 interchange and Minnesota Avenue corridor to address the existing and year 2035 transportation deficiencies. Of these concepts, four corridor concepts were screened and remain as finalists to be carried forward for further development and evaluation. The remaining interchange and corridor concepts were then combined to form alternative scenarios for further analysis.

Concepts from the MIS for Exit 3 to be carried forward for further development and evaluation have been combined as follows:

- Minn-2C 5/4-Lane Divided Corridor with NE Quadrant Loop and NE Ramp aligned with 49th Street
- Minn-2D 6/4- Lane Divided Corridor with NE Quadrant Loop and NE Ramp aligned with 49th Street
- Minn-9D 6/4-Lane Divided Corridor with Single Point Urban Interchange (SPUI) and NE Ramp aligned with 49th Street



January 31, 2019

Joanne Hight
South Dakota Department of Transportation
Environmental Office
700 E. Broadway Ave.
Pierre, SD 57501-2586

RE: Project IM 2292(84)3, PCN 000S, Minnehaha County

I-229-Exit 3 (Minnesota Ave.) in Sioux Falls Interchange Modification

Dear Madam,

We have reviewed the documentation for the referenced project(s). Based on the information provided, we would like to notify you the Yankton Sioux Tribal Historic Preservation Office does not have interest in the proposed project at this time but would like to be notified if any cultural artifacts are found.

Please retain this letter in your files as compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Finally, be advised that this correspondence is not consultation with the Yankton Sioux Tribe. The Ihanktonwan Consultation Wo'ope (Protocols for Consultation with the Yankton Sioux Tribe) are attached for your reference. Thank you for your cooperation. If there are any questions or concerns, please do not hesitate to contact us at our office by phone at 605-384-3641 ext. 1032/1033 or by e-mail at yst.thpo@gmail.com.

Sincerely,

Kip Spotted Eagle, THPO Director Tribal Historic Preservation Office Yankton Sioux Tribe of South Dakota



# Ihanktonwan Consultation Wo'ope

Protocols for Consultation with the Yankton Sioux Tribe

## I. Purpose

The purpose of these protocols is to provide federal agencies with standards with which they must comply when engaging in consultation with the Yankton Sioux Tribe ("Tribe") in order to ensure that consultation is meaningful and will fulfill the purpose and intent of Executive Order 13175 as well as applicable federal statutes, regulations, and agency policies, manuals, and Secretarial Orders. Consultation shall create understanding, commitment, and trust between the parties, and should be used to identify opportunities and solve problems.

## II. Scope

The scope of these consultation protocols includes any and all consultation for both federal undertakings, as defined by 36 C.F.R. § 800.16(Y), and other "policies that have tribal implications," as that phrase is defined in Executive Order 13175.

These consultation protocols apply to any effort by a federal agency to consult with the Yankton Sioux Tribe pursuant to federal law(s), including but not limited to the National Environmental Policy Act implementing regulations (40 C.F.R. Part 1500), the National Historic Preservation Act (16 U.S.C. § 470 et seq.) and implementing regulations (36 C.F.R. Part 800), the Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001 et seq.) and implementing regulations (43 C.F.R. Part 10), the American Indian Religious Freedom Act (42 U.S.C. §§ 1996 & 1996a), the Archeological Resources Protection Act of 1979 (16 U.S.C. §§ 470aa-mm), Executive Order 13175, and Executive Order 12989. For purposes of these protocols, "agency" means any authority of the United States that is an "agency" under 44 U.S.C. § 3502(1).

## III. Protocols

### A. Cultural Protocols

- 1. Relationship-building should be at the center of any consultation, as this is a primary cultural protocol for the Ihanktonwan ("Yankton"). Relationship building cannot occur through just one meeting, or by telephone or email. It requires time, trust, and respect for the relationship.
- 2. Agencies must recognize that water is viewed as the first medicine, and it must be honored and protected. Water is vital to the spiritual practices, culture, and health of the Ihanktonwan.



- 3. Agencies shall respect the fact that Yankton Sioux Tribal members have experience and knowledge that makes them uniquely qualified to identify Ihanktonwan cultural resources, and shall weigh their views accordingly.
- 4. Agencies must recognize that certain members of the Tribe possess inherent abilities and historical knowledge passed down through generations that make those tribal members uniquely equipped and able to identify sites of spiritual, cultural, and historical interest. These skills and knowledge should be utilized through tribal surveys of areas that may be impacted by a proposed action.
- 5. Agencies must recognize and respect the cultural practice of speaking in a "circular" manner, which may mean that it takes time for a speaker to arrive at the ultimate point but which conveys relevant information necessary to a proper understanding of that point.
- 6. Elders must be respected.
- 7. Agencies must recognize that the Ihanktonwan practice reciprocity, which means that if remains are unearthed, something must be given back in return to restore balance. There are consequences dictated by the universe for disturbing graves and remains, and this must be avoided.
- 8. Agencies must respect the practice of making offerings.
- 9. Sharing a meal at the conclusion of a meeting is customary and expected.

## B. Behavioral Protocols

- 1. Parties shall respect each participant and respect each other's diversity.
- 2. Parties shall speak with respect, courtesy, dignity, care, and moderation to maintain an amicable atmosphere.
- 3. Parties shall avoid the use of language of dominance and/or oppression.
- 4. Parties shall refrain from disruptive gestures or actions.
- 5. Parties shall avoid tactics to induce intimidation. This includes manner of dress. Parties should dress in civilian clothing or dress uniform. Fatigues must not be worn.
- 6. Parties shall treat everyone involved in a consultation meeting, particularly elders, with respect.
- 7. When an individual is speaking, all parties must refrain from interrupting that individual.



- 8. Parties shall not be dismissive of any statement made, but rather, shall acknowledge and value all contributions and bring them into consideration in any decision.
- 9. Parties shall refrain from reaching any decision until consultation has concluded and sufficient information has been exchanged.
- 10. Parties shall contribute and express opinions with complete freedom.
- 11. Parties shall carefully examine the views of others and accept valid points when made by others.
- 12. Parties shall focus on the subject of the consultation and avoid extraneous conversation.

### C. Procedural Protocols

- 1. Consultation shall only include government-to-government, in-person meetings with the Tribe's General Council. Consultation shall not be conducted via telephone or written correspondence unless expressly agreed to by the Chairman of the Tribe in writing.
- 2. A meeting shall not be considered consultation unless the relevant federal agency is represented at the meeting by an individual with decision-making authority over the proposed federal action at issue.
- 3. If more than one agency is involved in the federal activity at issue, each agency shall be responsible for fulfilling consultation requirements for any activity under its respective authority. Agencies may appoint a lead agency to coordinate and lead tribal consultation; however, all involved agencies shall participate directly in consultation.
- 4. Multi-tribal or public meetings shall not be considered consultation unless expressly agreed to by the Chairman of the Tribe in writing unless the meeting is comprised exclusively of the federal agency and the Oceti Sakowin.
- 5. The consultation process shall commence as early as possible. Initial notification by a federal agency to the Tribe of a proposed action shall occur within two weeks of the federal agency becoming aware of the proposed action.
- 6. A federal agency shall contact the Chairman of the Tribe and the Ihanktonwan Treaty Steering Committee for the Tribe to notify the Tribe of a proposed federal action and initiate the consultation process. If the proposed federal action is expected to impact tribal cultural, spiritual, or historical resources, the federal agency shall also contact the Tribal Historic Preservation Officer. Notification pursuant to this protocol does not constitute consultation, but merely initiates the consultation process.



- 7. The consultation process shall include a pre-consultation meeting with the Tribe's Business and Claims Committee at which preliminary information shall be exchanged and an overview of the proposed federal action shall be provided.
- 8. During or prior to the pre-consultation meeting, the relevant federal agency shall inform the Tribe of the potential impacts on the Tribe of the proposed federal action.
- 9. During or prior to the pre-consultation meeting, the relevant federal agency shall inform the Tribe of which federal officials will make the final decision with respect to the proposed federal action.
- 10. Pre-consultation meetings shall be held at the Tribe's Fort Randall Casino on the first Wednesday of each month. Consultation meetings shall be held at the Tribe's Fort Randall Casino on the third Wednesday of each month. Meeting times shall be scheduled on a first-come, first-served basis. An agency shall contact the Tribe's THPO and Secretary's office to determine the next available meeting time and to schedule pre-consultation and consultation meetings.
- 11. Consultation meetings shall be scheduled at least thirty-five (35) days in advance to allow for adequate notice to the General Council, which is comprised of tribal members age 18 years and older and which is the governing body of the Tribe.
- 12. All meetings shall be opened with a prayer.
- 13. All meetings shall be closed with a prayer.
- 14. All meetings shall be followed by a meal or include a meal as part of the necessary relationship-building.
- 15. Consultation meetings shall not designate an end time, but shall continue until all have had an opportunity to speak.
- 16. The federal agency shall provide the services of a court reporter to record each consultation meeting. A transcription of each meeting shall be provided to the Tribe within ten (10) days following said consultation meeting.
- 17. No party shall unreasonably withhold consent to terminate consultation, but consultation shall continue until meaningful consultation has been achieved.
- 18. While there is no set number of meetings required for consultation to be deemed sufficient, consultation shall not be considered complete until the parties are satisfied that all necessary information has been adequately exchanged.



19. Consultation shall be completed before any federal funds are expended for the proposed federal action, before the issuance of any license or permit for the proposed federal action, and prior to the agency making any decision or taking any action regarding policies that have tribal implications.

## **Summary of Consultation Steps:**

- 1. Federal agency learns of proposed federal action that may affect the Yankton Sioux Tribe.
- 2. Federal agency promptly (within two weeks) notifies the Chairman of the Tribe and the Ihanktonwan Treaty Steering Committee (and the Tribal Historic Preservation Officer for the Tribe if the proposed action is expected to impact tribal cultural, spiritual, or historic resources) of the proposed action. The consultation process is thus initiated.
- 3. The Chairman and/or his staff schedules a pre-consultation meeting.
- 4. A pre-consultation meeting is held.
  - a. Opening Prayer
  - b. Meeting
  - c. Closing Prayer
  - d. Meal (may also occur during the midpoint of the meeting)
- 5. The Chairman or his staff schedules a consultation meeting.
- 6. A consultation meeting is held.
  - a. Opening Prayer
  - b. Meeting
  - c. Closing Prayer
  - d. Meal (may also occur during the midpoint of the meeting)
- 7. Federal agency provides the Chairman of the Tribe with a transcript of the consultation meeting within 10 days.
- 8. Repeat steps 5-7 until meaningful consultation has been fully achieved.

### D. Governmental Protocols

- 1. Federal agencies shall respect the unique legal and political relationship between the United States and the Tribe.
- 2. Consultation shall be meaningful and shall include collaboration with tribal officials.



- 3. The Tribe's views shall be incorporated into a federal agency's decision-making process.
- 4. Consultation shall be conducted and resulting agency decisions shall be made in such a way that the government-to-government relationship between the Tribe and the United States is strengthened. The Tribe shall be considered as a collaborative partner with the federal agency.
- 5. Federal agencies shall recognize the Tribe's right to self-government and its inherent sovereign powers. Federal agencies shall be respectful of the Tribe's sovereignty.
- Federal agencies shall acknowledge and abide by the treaties between the United States and the Tribe.
- 7. Federal agency actions during and after consultation shall reflect the trust responsibility of the United States to the Tribe.

# IV. Compliance

All parties shall comply with the protocols contained herein when engaging in the consultation process. Should a party fail to comply with one or more protocols, the other party shall notify the non-compliant party of the violation and the parties shall mutually agree upon a time and location for a meeting between the parties to resolve the matter. The goal of this meeting shall be to restore balance and reduce or eliminate discord by talking through the violation and reaching a mutual understanding to move forward in compliance with the protocols.