Appendix I

Wetland Resources

Westwood

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MEMORANDUM

Date: June 12, 2024

Re: Wetland Delineation Report Midwater BESS, Shell Rock Township, Freeborn County

Westwood File 0046089.00

- To: Rachel Wehner, Freeborn County USACE PM for Freeborn County
- Cc: Mary Matze, Midwater BESS, LLC
- From: Malia Stone

Please find enclosed the Joint Application form for Activities Affecting Water Resources in Minnesota and the Wetland Delineation Report for Midwater BESS, which is located in Shell Rock Township, Freeborn County, Minnesota. With this submittal the Applicant is requesting approval of delineated wetland boundaries.

Please review the enclosed report and feel free to contact me with questions at (507) 412-3292.

Joint Application Form for Activities Affecting Water Resources in Minnesota

This joint application form is the accepted means for initiating review of proposals that may affect a water resource (wetland, tributary, lake, etc.) in the State of Minnesota under state and federal regulatory programs. Applicants for Minnesota Department of Natural Resources (DNR) Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. Applicants can use the information entered into MPARS to substitute for completing parts of this joint application form (see the paragraph on MPARS at the end of the joint application form instructions for additional information). This form is only applicable to the water resource aspects of proposed projects under state and federal regulatory programs; other local applications and approvals may be required. Depending on the nature of the project and the location and type of water resources impacted, multiple authorizations may be required as different regulatory programs have different types of jurisdiction over different types of resources.

Regulatory Review Structure

Federal

The St. Paul District of the U.S. Army Corps of Engineers (Corps) is the federal agency that regulates discharges of dredged or fill material into waters of the United States (wetlands, tributaries, lakes, etc.) under Section 404 of the Clean Water Act (CWA) and regulates work in navigable waters under Section 10 of the Rivers and Harbors Act. Applications are assigned to Corps project managers who are responsible for implementing the Corps regulatory program within a particular geographic area.

<u>State</u>

There are three state regulatory programs that regulate activities affecting water resources. The Wetland Conservation Act (WCA) regulates most activities affecting wetlands. It is administered by local government units (LGUs) which can be counties, townships, cities, watershed districts, watershed management organizations or state agencies (on state-owned land). The Minnesota DNR Division of Ecological and Water Resources issues permits for work in specially-designated public waters via the Public Waters Work Permit Program (DNR Public Waters Permits). The Minnesota Pollution Control Agency (MPCA) under Section 401 of the Clean Water Act certifies that discharges of dredged or fill material authorized by a federal permit or license comply with state water quality standards. One or more of these regulatory programs may be applicable to any one project.

Required Information

Prior to submitting an application, applicants are <u>strongly encouraged</u> to seek input from the Corps Project Manager and LGU staff to identify regulatory issues and required application materials for their proposed project. Project proponents can request a preapplication consultation with the Corps and LGU to discuss their proposed project by providing the information required in Sections 1 through 5 of this joint application form to facilitate a meaningful discussion about their project. Many LGUs provide a venue (such as regularly scheduled technical evaluation panel meetings) for potential applicants to discuss their projects with multiple agencies prior to submitting an application. Contact information is provided below.

The following bullets outline the information generally required for several common types of determinations/authorizations.

- For delineation approvals and/or jurisdictional determinations, submit Parts 1, 2 and 5, and Attachment A.
- For activities involving CWA/WCA exemptions, WCA no-loss determinations, and activities not requiring mitigation, submit Parts 1 through 5, and Attachment B.
- For activities requiring compensatory mitigation/replacement plan, submit Parts 1 thru 5, and Attachments C and D.
- For local road authority activities that qualify for the state's local road wetland replacement program, submit Parts 1 through 5, and Attachments C, D (if applicable), and E to both the <u>Corps and the LGU</u>.

Submission Instructions

Send the completed joint application form and all required attachments to:

U.S Army Corps of Engineers. Applications may be sent directly to the appropriate Corps Office. For a current listing of areas of responsibilities and contact information, visit the St. Paul District's website at: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx and select "Minnesota" from the contact Information box. Alternatively, applications may be sent directly to the St. Paul District Headquarters and the Corps will forward them to the appropriate field office.

Section 401 Water Quality Certification: Applicants do not need to submit the joint application form to the MPCA unless specifically requested. The MPCA will request a copy of the completed joint application form directly from an applicant when they determine an individual 401 water quality certification is required for a proposed project.

Wetland Conservation Act Local Government Unit: Send to the appropriate Local Government Unit. If necessary, contact your county Soil and Water Conservation District (SWCD) office or visit the Board of Water and Soil Resources (BWSR) web site (www.bwsr.state.mn.us) to determine the appropriate LGU.

DNR Public Waters Permitting: In 2014 the DNR will begin using the Minnesota DNR Permitting and Reporting System (MPARS) for submission of Public Waters permit applications (<u>https://webapps11.dnr.state.mn.us/mpars/public/authentication/login</u>). Applicants for Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. To avoid duplication and to streamline the application process among the various resource agencies, applicants can use the information entered into MPARS to substitute for completing parts of this joint application form. The MPARS print/save function will provide the application. For certain types of activities, the MPARS application may also provide all of the necessary information required under Parts three and four of the joint application. However, it is the responsibility of the Applicant to make sure that the joint application contains all of the required information, including identification of all aquatic resources impacted by the project (see Part four of the joint application). After confirming that the MPARS application and fill in any missing information in the remainder of the joint application.

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Mary Matze, Midwater BESS, LLC.

Mailing Address:2916 N Miami Ave, Suite 830
Miami, FL 33127Phone:786-321-9379E-mail Address:mmatze@spearmintenergy.com

Authorized Contact (do not complete if same as above): Mailing Address: Phone: E-mail Address:

Agent Name: Malia Stone Mailing Address: 12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343 Phone: (507) 412-3292 E-mail Address: malia.stone@westwoodps.com

PART TWO: Site Location Information

County:FreebornCity/Township:Shell Rock TownshipParcel ID and/or Address:020070041, 020080070, 020170012

Legal Description (Section, Township, Range):Sections 08 and 17, T101N, R20WLat/Long (decimal degrees):43.5558353, -93.2630457Attach a map showing the location of the site in relation to local streets, roads, highways.Approximate size of site (acres) or if a linear project, length (feet):~104.4 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform 4345 2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted *prior to* this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

PART FOUR: Aquatic Resource Impact¹ Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type {wetland, lake, tributary etc.)	drain, or remove	Impact	Size of Impact ²	Overall Size of Aquatic Resource ³	Existing Plant Community Type(s) in Impact Area ⁴	County, Major Watershed #, and Bank Service Area # of Impact Area ⁵

¹If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

²Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

³This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A". ⁴Use Wetland Plants and Plant Community Types of Minnesota and Wisconsin 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2. ⁵Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

Check here if you are requesting a <u>pre-application</u> consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature:

4-10-	[Jun 6, 2024 12:18 MDT]	
And rew Waranch	[Jun 6, 2024 12:18 MDT]	

June 6, 2024 Date:

I hereby authorize Westwood Professional Services to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

¹ The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Minnesota Interagency Water Resource Application Form February 2014

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

Wetland Type Confirmation

Delineation Concurrence. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

Preliminary Jurisdictional Determination. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

Approved Jurisdictional Determination. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx

WETLAND DELINEATION REPORT

Midwater BESS

Shell Rock Township, Freeborn County, Minnesota MAY 29, 2024

PREPARED FOR:

Midwater BESS, LLC 2916 N Miami Ave, Suite 830 Miami, FL 33127 PREPARED BY:



Wetland Delineation Report

Midwater BESS Shell Rock Township, Freeborn County, Minnesota

Prepared for:

Midwater BESS, LLC 2916 N Miami Ave, Suite 830 Miami, FL 33127 **Prepared by:** Westwood Professional Services 12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343 (952) 937-5150

Project Number: R0046089.00 Date: 5/29/2024

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APPENDICES

Appendix A: Wetland Data Forms & Photographs Appendix B: Non-Wetland Data Forms & Photographs Appendix C: Watercourse Data Forms & Photographs Appendix D: Offsite Hydrology Review

1.0 PURPOSE

This report with the attached exhibits and appendices constitutes the wetland delineation report for the Midwater BESS Project ("Project Area" or "Site"), an approximately 104.4-acre area in Shell Rock Township, Freeborn County, Minnesota (PIN #s 020070041, 020080070, 020170012). Freeborn County is the Local Governmental Unit (LGU) that administers the Minnesota Wetland Conservation Act (WCA) in this area. This report provides the required documentation for wetland boundary determinations in conformance with the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, Waterways Experiment Station, 1987) and the Regional Supplement to the USACE Wetland Delineation Manual: Midwest Region (U.S. Army Corps of Engineers, 2010). The Joint Application Form for Activities Affecting Water Resources in Minnesota is included with the cover memo to this report.

2.0 SITE LOCATION AND DESCRIPTION

The site is located in Sections 08 and 17, T101N, R20W, Shell Rock Township, Freeborn County, Minnesota (**Exhibit 1**). Land use in the Site consists of cultivated fields, large wetland complexes, and the Shell Rock River. Surrounding land use consists of cultivated agriculture fields and wetland complexes associated with the Shell Rock River. Topography is undulating throughout the Project Area but generally slopes downward towards wetlands in the north and west, with the high point of the site located in the northwestern portion of the Project Area. Elevations range from 1204 feet to 1230 feet above mean sea level (msl).

3.0 FIELD DELINEATION METHODOLOGY

3.1 Mapping

Prior to delineating wetland boundaries in the field, the National Wetlands Inventory (NWI), the National Hydrography Dataset (NHD), the Minnesota Department of Natural Resources (MN DNR) Public Waters and Wetlands Inventory (PWI), Federal Emergency Management Agency (FEMA) Federal Insurance Rate Maps (FIRM) (**Exhibit 2**), and the Natural Resource Conservation Service (NRCS) Soil Survey Geographic database (SSURGO2) for Dakota County (**Exhibit 3**) were reviewed. Elevation mapping was completed using LiDAR contours from MnTOPO (**Exhibit 4**). These datasets, along with aerial photographs, were used to create Desktop Wetlands (**Exhibit 4**) which are desktop-delineated probable wetlands that occur outside of agricultural areas and are used to guide the field delineation.

3.2 Offsite Hydrology Review

Westwood reviewed historical aerial photography to identify potential wetlands (Suspect Areas) in cultivated portions of the property using the July 1st, 2016, Minnesota Board of Water and Soil Resources (BWSR)/USACE-accepted protocol for conducting off-site wetland determinations, *Guidance for Offsite Hydrology/Wetland Determinations*. Westwood reviewed 12 years of aerial photography between the years of 2003 to 2023. The offsite hydrology review, along with aerial photographs from each reviewed year, are included in **Appendix D**.

3.3 Wetland Delineation Methodology

On April 29 and 30, 2024, wetland scientists from Westwood delineated wetlands within the Project Area using a level two routine determination methods set forth in the USACE Wetlands Delineation Manual (Environmental Laboratory, Waterways Experiment Station 1987) and the supplemental methods set forth in the regional supplement to the USACE Wetland Delineation Manual: Midwest Region (US Army Engineer Research and Development Center 2010). Data sheets documenting soils, vegetation, and hydrology data as well as photographs of delineated wetlands are included in **Appendix A**.

Wetlands were classified according to Wetlands of the United States (U.S. Fish and Wildlife Service Circular 39; Shaw and Fredine; 1971) and Wetlands and Deepwater Habitats of the United States (FWS/OBS Publication 79/31; Cowardin et. al. 1979). Common and scientific names for vegetation identified in this report and on the attached data forms generally correspond with the nomenclature used in the 2022 National Wetland Plant List (USACE 2024). Wetland boundaries and sample points were delineated in the field using a Panasonic Toughbook[®] tablet and an EOS Arrow 100[®] unit capable of sub-meter accuracy (**Exhibit 5**).

Suspect Areas and Desktop Wetlands (**Exhibit 4**) identified either during the Offsite Hydrology Review or using the NWI, NHD, FEMA, NRCS soils, and/or topography datasets were reviewed in the field. Suspect Areas and Desktop Wetlands that did not exhibit all three wetland parameters were documented as a non-wetland sample point (**Exhibit 5**). Data forms and photographs were also collected detailing upland characteristics for these areas (**Appendix B**).

3.4 Ordinary High Water Mark Determinations

Drainages within the Project Area were considered non-wetland Waters of the U.S. (WOTUS), as they may not exhibit all parameters required for wetlands (i.e., predominance of hydrophytes, hydric soils, and jurisdictional hydrology). Accordingly, their boundaries were delineated in the field by documenting their Ordinary High-Water Marks (OHWMs), as determined according to the USACE Regulatory Guidance Letter No. 05-05 (U.S. Army Corps of Engineers, 2005).

USACE regulations set forth at 33 CFR 328.3(e) defines the OHWM for purposes of Clean Water Act (CWA) lateral jurisdiction:

The term ordinary high-water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

USACE Regulatory Guidance Letter No. 05-05 (U.S. Army Corps of Engineers, 2005) indicates the following physical characteristics are deemed reasonably reliable, and therefore presence of these characteristics was evaluated in the field when making OHWM determinations for drainages in the Project Area:

- Natural line impressed on the bank
- Changes in the character of soil
- Presence of litter and debris
- Vegetation matted down, bent, or absent
- Leaf litter disturbed or washed away
- Deposition
- Bed and banks
- Change in plant community

- Shelving
- Destruction of terrestrial vegetation
- Wracking
- Sediment sorting
- Scour
- Multiple observed flow events
- Water staining

If present, watercourse boundaries and sample points were delineated in the field using a Panasonic Toughbook[®] tablet and an EOS Arrow 100[®] unit capable of sub-meter accuracy (**Exhibit 5**). Data forms and photographs documenting delineated watercourse characteristics are included in **Appendix C**.

Areas which were noted on the NWI or NHD datasets, or areas which exhibited potential OHWM characteristics on aerial imagery but did not contain the physical characteristics of an OHWM were reviewed in the field. A non-watercourse sample point was collected in these locations along with a photograph.

4.0 RESULTS

4.1 Mapping

NWI data mapped 26 wetlands within the Project Area. NHD data mapped two (2) watercourses and three (3) waterbodies within the Project Area. Minnesota Public Waters Inventory (PWI) mapped one (1) watercourse and no water basins within the Project Area. Approximately 40 percent of the Project Area is located within FEMA mapped flood zones (**Exhibit 2**).

The NRCS SSURGO2 for Freeborn County indicates that the soils listed in **Table 4.1** are mapped within the Site (**Exhibit 3**). Based on the NRCS Web Soil Survey Hydric Rating, there are four (4) soil units classified as all hydric within the Site.

Map Symbol ¹	Map Unit Name ²	Rating ²	Percent Hydric Soil ³
5	Dakota loam, 0 to 2 percent slopes	Predominantly Non-Hydric	6
5B	Dakota loam, 2 to 6 percent slopes	Predominantly Non-Hydric	4
5C	Dakota loam, 6 to 14 percent slopes	Predominantly Non-Hydric	4
41	Estherville sandy loam, 0 to 2 percent slopes	Predominantly Non-Hydric	6
41B	Estherville sandy loam, 2 to 6 percent slopes	Predominantly Non-Hydric	1
41C	Estherville sandy loam, 6 to 12 percent slopes	Predominantly Non-Hydric	4
156	Fairhaven loam, 0 to 2 percent slopes	Predominantly Non-Hydric	4
392	Biscay clay loam, 0 to 2 percent slopes	All Hydric	100
465	Kalmarville loam, frequently flooded	Predominantly Hydric	99
517	Shandep loam	All Hydric	100
525	Muskego soils, 0 to 1 percent slopes	All Hydric	100
1030	Pits, sand and gravel	Non-Hydric	0
1055	Aquents and Histosols, ponded	All Hydric	100

Table 4.1: Soil Summary Table

¹- Soils determined using GIS geospatial query clipping the NRCS Soil Survey Geographic (SSURGO2) spatial data by Project boundaries.

 $^{\rm 2}$ – As indicated in the SSURGO2 database

³ – Where percentages are small (e.g. < 15 %) the hydric soil is likely an inclusion that is not recognized in the map unit name. The absence of a value does not necessarily indicate the absence of hydric soils, but that the relative percentages of included minor soils have not been determined.

4.2 **Antecedent Precipitation**

Antecedent precipitation data was evaluated for the 90 days prior to the site visit using the Antecedent Precipitation Tool (APT) developed by the USACE. Results from this data indicate antecedent precipitation was considered normal prior to the field review (Figure 4.2).

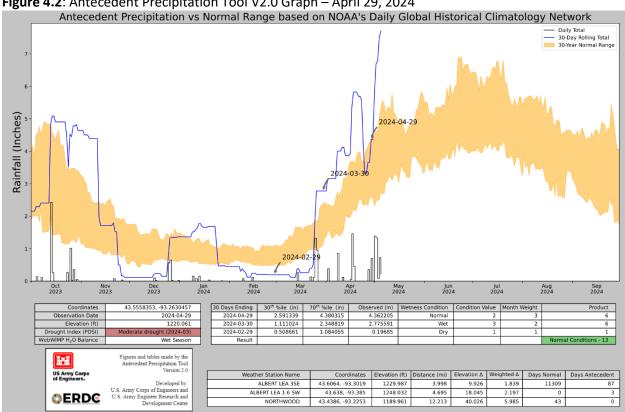


Figure 4.2: Antecedent Precipitation Tool V2.0 Graph – April 29, 2024

Offsite Hydrology Review 4.3

The site was reviewed against 12 years of aerial imagery prior to the field delineation. Three (3) Suspect Areas were identified (SA-01-03) (Exhibit 4). The results of the offsite hydrology review are included in Appendix D.

On-Site Wetland and Watercourse Delineation Results 4.4

Wetlands

On April 29 and 30, 2024, Westwood delineated seven (7) wetlands and one pond totaling 28.48 acres. Summaries of the delineated wetlands and pond are included in Table 4.4 below. Data forms and photographs documenting vegetation, soils, and hydrologic conditions are included in Appendix A.

Wetland Name	Area (Acres)	Mapped on NWI	Cowardin Wetland Type	Circular 39 Type	Eggers & Reed Type	Latitude	Longitude
WB-01	2.48	PUBFx, PFO1Cx	PEM1E, PFO1C, PUBFx	Туре 2/5/7	Fresh Wet Meadow, Floodplain Forest, Shallow Open Water	43.56033	-93.26708
WB-03	3.35	PEM1A, PEM1C, PEM1Fx,PUBFx	PEM1A, PEM1E, PUBF	Туре 2/3/5	Fresh Wet Meadow, Shallow Marsh, Shallow Open Water	43.55921	-93.26495
WB-04	4.80	PEM1A, PEM1C, PUBFx	PEM1A, PEM1E, PUBF	Туре 2/3/5	Fresh Wet Meadow, Shallow Marsh, Shallow Open Water	43.55810	-93.26574
WB-05	0.26	No	PEM1A	Type 1	Seasonally Flooded Basin	43.55671	-93.26539
WB-06	0.56	No	PEM1A	Type 1	Seasonally Flooded Basin	43.55644	-93.26429
WB-07	0.02	PEM1A	PEM1C	Type 2	Fresh Wet Meadow	43.56044	-93.26420
WB-08	15.85	PEM1A, PEM1C, PEM1F, PEM1Fx, PUBF	PEM1A, PEM1C, PEM1F, PFO1C, PUBF	Туре 2/3/5/7	Fresh Wet Meadow, Shallow Marsh, Floodplain Forest, Shallow Open Water	43.55419	-93.26179
PO-01	1.16	PUBFx	PUBFx	Type 5	Shallow Open Water	43.55761	-93.26403
Total	28.48				•		

Table 4.4: Delineated Wetland Summary Table

Watercourses

Westwood delineated one (1) perennial watercourse (**WC-01**) totaling 3.9 acres (3,407 linear feet) within the Project Area. This watercourse is located along the eastern boundary of the Site and flows to the southwest. It is a PWI watercourse identified as the Shell Rock River. Data forms and photographs documenting OHWM characteristics are included in **Appendix C**.

Non-Wetlands

Three (3) non-wetland points were gathered within the Project Area (**Exhibit 5**). These areas were identified prior to the delineation as either Suspect Areas or Desktop Wetlands. Data gathered at these sample points did not exhibit all three wetland parameters. Data forms and photographs documenting upland characteristics are included in **Appendix B**.

5.0 CONCLUSIONS

Westwood delineated seven (7) wetlands and one pond totaling 28.48 acres, and one (1) watercourse totaling 3.9 acres (3,407 linear feet) within the Midwater BESS site. Westwood requests that the LGU and the USACE review and process this report with the provided Joint Application Form and provide written concurrence that the extent of potentially jurisdictional water resources have been accurately identified. Please consider this report a formal Wetland Boundary request pursuant to Minn. Rules 8420.0405 and the CWA.

6.0 CERTIFICATION

I certify that, to the best of my knowledge and belief, the wetland delineation completed for this site is consistent with current wetland delineation practices and guidelines. I have the specific

qualifications, education, training, and experience to complete wetland delineations and determinations in accordance with federal and state requirements.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES

a

Malia Stone Wetland Scientist

7.0 LITERATURE CITED

- Cowardin, L.M., V.M. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Biological Services Program, Washington, DC, USA. FWS/OBS-79/31. 103pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Shaw, S.P. and C.G. Fredine. 1971. Wetlands of the United States. U.S. Fish and Wildlife Circular 39. U.S. Department of the Interior, Washington, D.C. 67 pp.
- U.S. Army Corps of Engineers, St. Paul District and Minnesota Board of Water and Soils Resources. 2016. Guidance for Offsite Hydrology/Wetland Determinations.
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- U.S. Fish & Wildlife Service. 2018. National Wetlands Inventory. U.S. Fish & Wildlife Service. https://data.nal.usda.gov/dataset/national-wetlands-inventory.

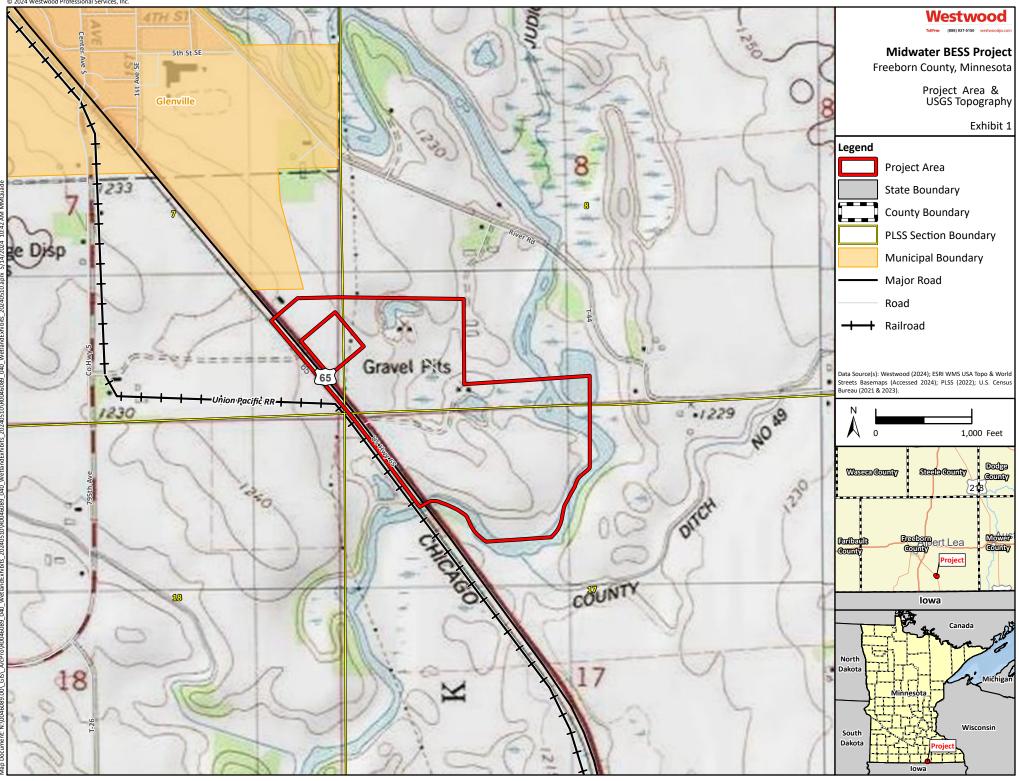


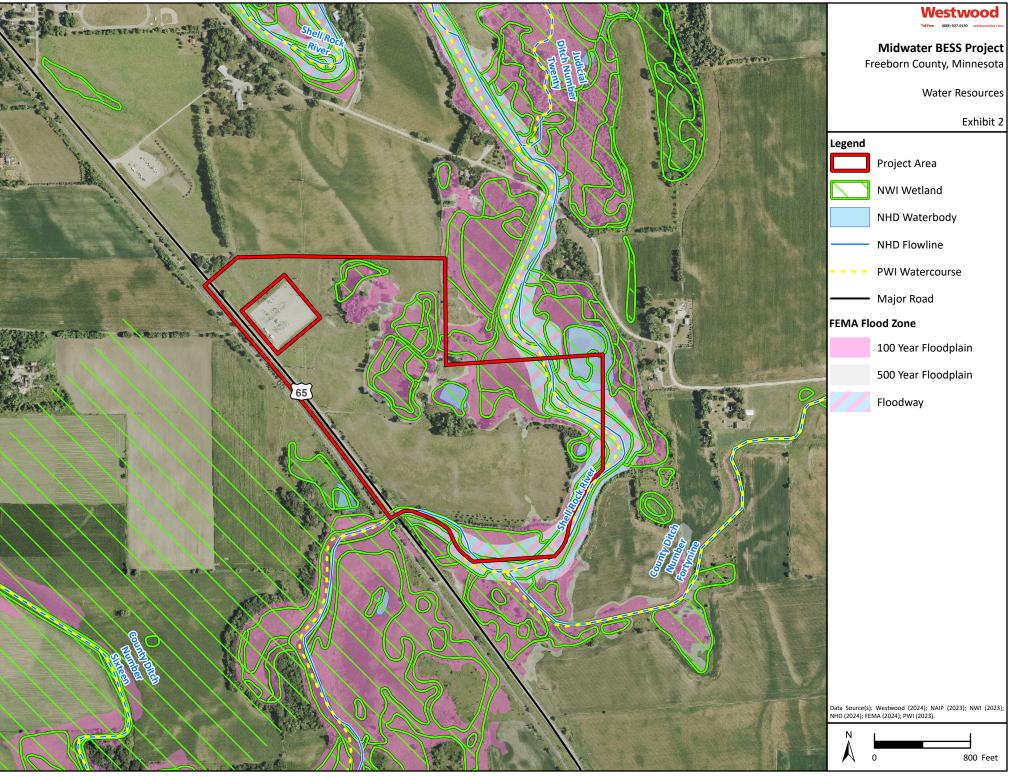
Exhibits

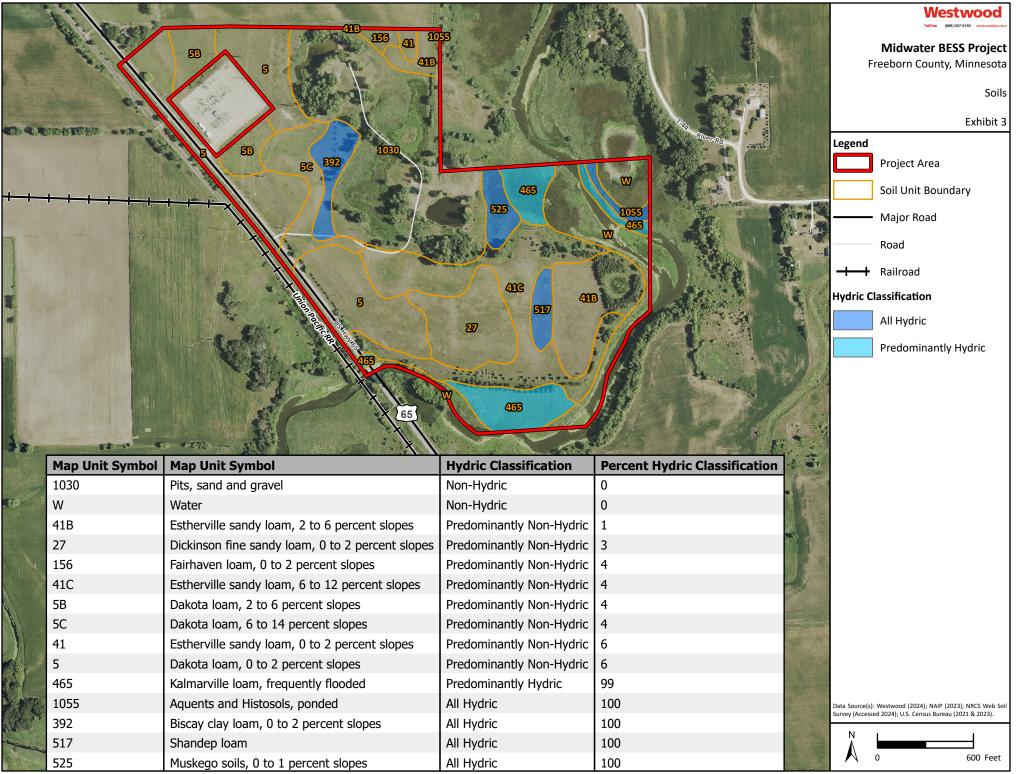
Midwater BESS

Shell Rock Township, Freeborn County, Minnesota

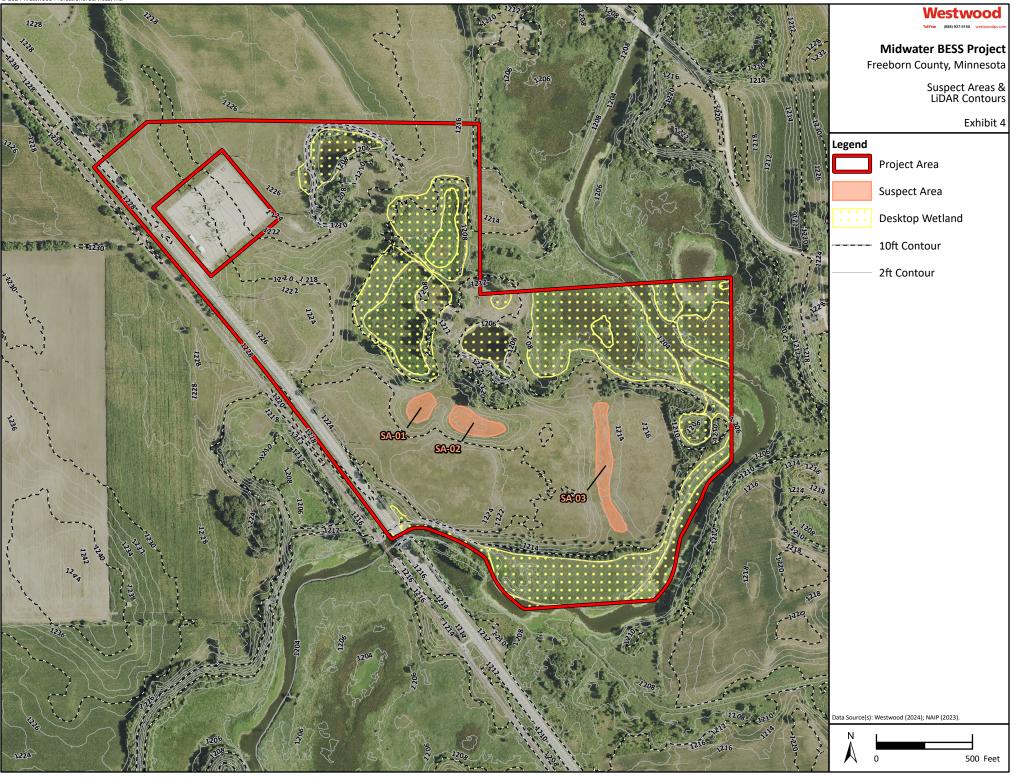
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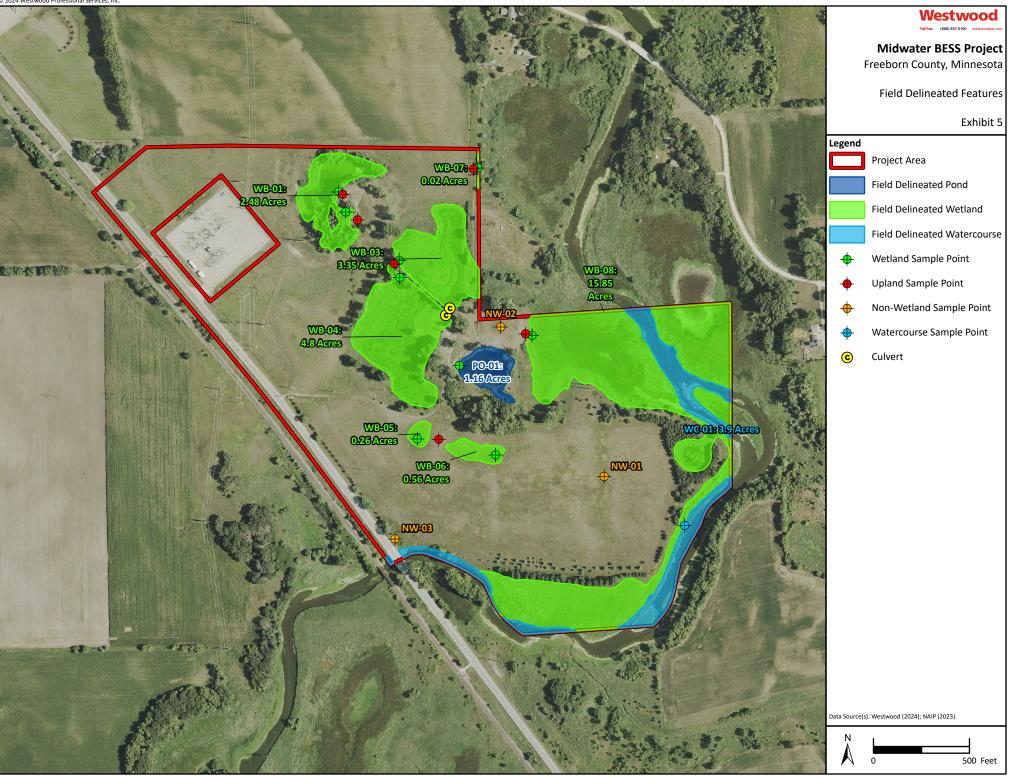






Dnorument: N^0046089.00\ GIS\ ArcPro\R0046089 040 WetlandExhibits 20240510\R0046089 040 WetlandEx





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Appendix A

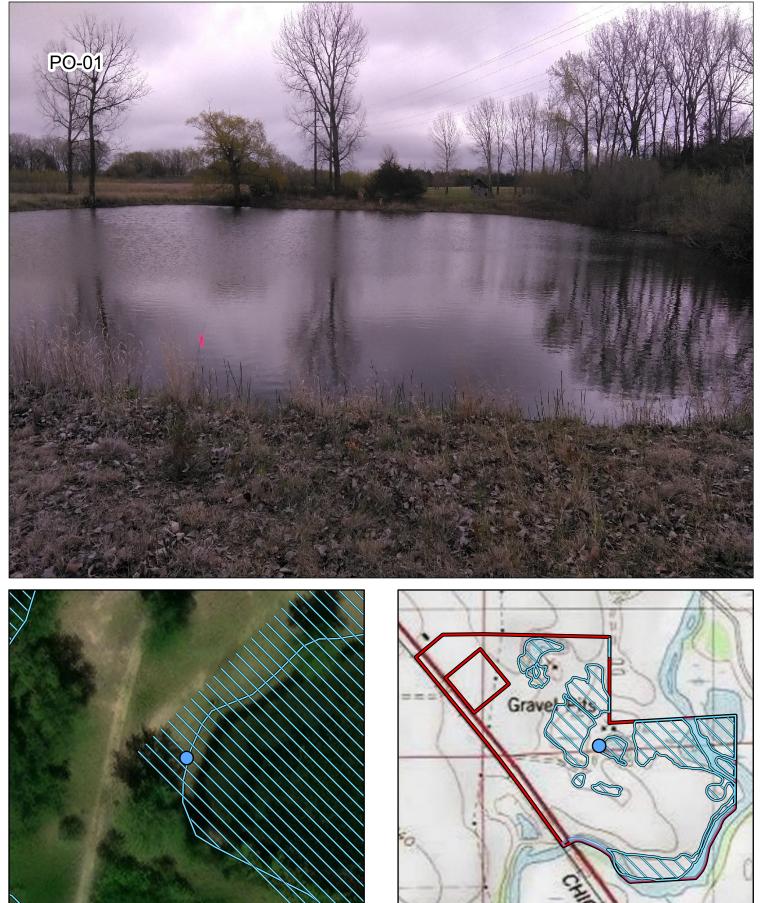
Wetland Data Forms & Photographs

Midwater BESS

Shell Rock Township, Freeborn County, Minnesota

Midwater BESS Project Delineation Site Photograph





Midwater BESS Project Delineation Site Photograph

Westwood



WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Midwater BESS	City/County: Freeborn County Sampling Date: 2024-04-29
Applicant/Owner: Spearmint Renewable Development	State: <u>Minnesota</u> Sampling Point: <u>WB-01-wet</u>
Investigator(s): <u>M. Stone, C. Gunn</u>	Section, Township, Range: sec 08 T101N R020W
Landform (hillslope, terrace, etc.): Toeslope	Local relief (concave, convex, none): <u>Concave</u>
Slope (%): <u>0-2</u> Lat: <u>43.560191</u>	Long: <u>-93.266967</u> Datum: <u>WGS84</u>
Soil Map Unit Name: Pits, sand and gravel	NWI classification: <u>PUBFx</u>
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗹 No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	/ disturbed? Are "Normal Circumstances" present? Yes 🔽 No
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes _ ✓ No Hydric Soil Present? Yes _ ✓ No Wetland Hydrology Present? Yes _ ✓ No Remarks: Yes _ ✓ No	within a Wetland? Yes V No

VEGETATION – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)		Species?		Number of Dominant Species
1. <u>Populus deltoides</u>	20	<u> </u>	FAC	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
		= Total Cov		That Are OBL, FACW, OF FAC(A/B)
Sapling/Shrub Stratum (Plot size: 15)	20.0		CI	Prevalence Index worksheet:
1. <u>Salix interior</u>	30	Y	FACW	Total % Cover of: Multiply by:
2				OBL species 0.00 x 1 = 0.00
				FACW species $135.00 \times 2 = 270.00$
3				FAC species $20.00 \times 3 = 60.00$
4				
5				FACU species $0.00 \times 4 = 0.00$
Llark Otrature (Distaire)	30.0	= Total Cov	er	UPL species <u>0.00</u> x 5 = <u>0.00</u>
Herb Stratum (Plot size: 5)	00	Ň		Column Totals: <u>155.00</u> (A) <u>330.00</u> (B)
1. <u>Phalaris arundinacea</u>		<u> Y </u>		Drevelance index $= D/A = -2.12$
2. <u>Equisetum hyemale</u>	15	<u> N </u>	FACW	Prevalence Index = B/A = <u>2.13</u>
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				✓ 2 - Dominance Test is >50%
6				\checkmark 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
				— Problematic Hydrophytic Vegetation ¹ (Explain)
9				
10				¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	105.0	= Total Cov	er	be present, unless disturbed or problematic.
1				Hydrophytic
2			·	Vegetation Present? Yes <u>/</u> No
	0	= Total Cov	er	Present? Yes 🖌 No
Remarks: (Include photo numbers here or on a separate s				1

SOIL

Profile Desc	cription: (D)escribe	to the dept	h needed to docu	ment the	indicator	or confirn	n the absence	e of indicators.)		
Depth		Matrix			ox Feature						
(inches)	Color (%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-2	<u>10YR</u>	2/2	100					MMI	Sandy inclusions and organic r		
2-6	10YR	4/1	100					COS			
6-16	10YR	4/1	100					COS	Gravel inclusions		
			·			<u></u>					
			·			·					
			·			·					
			letion, RM=	Reduced Matrix, M	S=Maske	d Sand Gra	ains.		cation: PL=Pore Lining, M=Matrix.		
Hydric Soil									for Problematic Hydric Soils ³ :		
Histosol	. ,				Gleyed Ma			Coast	Prairie Redox (A16)		
	pipedon (A2 istic (A3)	<u>(</u>)			Redox (St			- Dark S	Surface (S7)		
	en Sulfide (A	4)			d Matrix (Mucky Mi			Iron-M	langanese Masses (F12)		
	d Layers (A	,			Gleyed M	• •		Very S	Shallow Dark Surface (TF12)		
🖌 2 cm Mu					ed Matrix (Other	(Explain in Remarks)		
-	d Below Da		e (A11)		Dark Surfa	. ,		<u>,</u>			
	ark Surface	. ,				urface (F7)			s of hydrophytic vegetation and		
-	Aucky Miner		27	Redox	Depressio	ns (F8)			d hydrology must be present,		
Restrictive I	ucky Peat or							uniess	s disturbed or problematic.		
Type: Sa	• •	,sei veu).									
	ches): <u>16</u>							Hydric Soil	I Present? Yes ✔ No		
Remarks:	ches). <u>10</u>							Tryunc Son			
	o sampl	e furth	er due	to saturated	sand fa	alling ou	ut of au	iger back	into hole.		
	•					U		0			
HYDROLO	GY										
Wetland Hy	drology Inc	dicators:									
Primary India	cators (mini	mum of o	ne is requir	ed; check all that a	pply)			Second	ary Indicators (minimum of two required)		
Surface	Water (A1)			Water-Sta	ained Leav	res (B9)		Sur	face Soil Cracks (B6)		
🖌 High Wa	ater Table (A	42)		Aquatic F	auna (B13	5)		Drainage Patterns (B10)			
Saturation	on (A3)			True Aqu	atic Plants	(B14)		Dry-Season Water Table (C2)			
Water M	larks (B1)			Hydrogen	Sulfide O	dor (C1)		Cra	yfish Burrows (C8)		
Sedimer	nt Deposits	(B2)		Oxidized	Rhizosphe	eres on Liv	ing Roots	(C3) Sat	uration Visible on Aerial Imagery (C9)		
Drift Dep	posits (B3)			Presence	of Reduce	ed Iron (C4	4)	Stu	nted or Stressed Plants (D1)		
Algal Ma	at or Crust (B4)		Recent Ire	on Reduct	ion in Tilleo	d Soils (C6	6) <u>~</u> Geo	omorphic Position (D2)		
	oosits (B5)			Thin Muc	k Surface	(C7)		🖌 FAC	C-Neutral Test (D5)		
	on Visible o				Well Data	(D9)					
	y Vegetated	Concave	e Surface (E	38) <u> </u>	plain in Re	emarks)					
Field Obser											
Surface Wat				No 🖌 Depth (ir			_				
Water Table				No Depth (ir							
Saturation P			es 🖌 🛔	No Depth (ir	nches):	8	Wetl	and Hydrolog	y Present? Yes 🖌 No		
(includes cap Describe Re	corded Data	a (stream	gauge, mo	nitoring well, aerial	photos, p	evious ins	pections).	if available:			
-		•		<u> </u>			. ,,				
Remarks:											
Remarks:											
Remarks:											
Remarks:											

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Midwater BESS	City/County: <u>Freeborn County</u>	Sampling Date: 2024-04-29					
Applicant/Owner: Spearmint Renewable Development	State: <u>N</u>	Minnesota Sampling Point: WB-01-up					
Investigator(s): <u>M. Stone, C. Gunn</u>	Section, Township, Range: <u>Sec 08</u>	8 T101N R020W					
Landform (hillslope, terrace, etc.): Sideslope	Local relief (concave, co	nvex, none): <u>Convex</u>					
Slope (%): <u>3-7</u> Lat: <u>43.560147</u>	Long: <u>-93.266874</u>	Datum: WGS84					
Soil Map Unit Name: Pits, sand and gravel		NWI classification: <u>None</u>					
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>V</u> No (If no, explain in Remarks.)							
Are Vegetation, Soil, or Hydrology signific	antly disturbed? Are "Normal Circu	umstances" present? Yes No					
Are Vegetation, Soil, or Hydrology natura	lly problematic? (If needed, explai	n any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a Wetland?	Yes No					

VEGETATION – Use scientific names of plants.

Remarks:

Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30) <u>% Cover Species? Status</u> Iree Stratum (Plot size: 30 70 Cover species: status 1. Populus deltoides 40 Y FAC Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) 2._____ Total Number of Dominant <u>4</u> (B) Species Across All Strata: 4._____ ____ _____ Percent of Dominant Species 5. 50.00 (A/B) That Are OBL, FACW, or FAC: 40.0 = Total Cover Sapling/Shrub Stratum (Plot size: 15) Prevalence Index worksheet: Total <u>% Cover of:</u><u>Multiply by:</u> 1. Lonicera canadensis 5 Y FACU OBL species 0.00 x 1 = 0.00 2. _____ ____ ____ ____ ____ ____ FACW species <u>16.00</u> x 2 = <u>32.00</u> 3. _____ 4. _____ ____ _____ _____ _____ FAC species 90.00 x 3 = 270.00 _____ 5. FACU species <u>25.00</u> x 4 = <u>100.00</u> 5.0 = Total Cover UPL species 0.00 x 5 = 0.00 Herb Stratum (Plot size: 5) Column Totals: <u>131.00</u> (A) <u>402.00</u> (B) 1. <u>Poa pratensis 50 Y FAC</u> 2. Bromus inermis 20 Y FACU Prevalence Index = B/A = 3.07Hydrophytic Vegetation Indicators: 3. <u>Phalaris arundinacea</u> <u>16</u> <u>N</u> FACW 1 - Rapid Test for Hydrophytic Vegetation 4._____ ____ ____ _____ 2 - Dominance Test is >50% ____3 - Prevalence Index is ≤3.0¹ _____ 4 - Morphological Adaptations¹ (Provide supporting 7._____ _____ ____ ____ ____ ____ data in Remarks or on a separate sheet) 8. _____ _ ___ _ ___ _ ___ _ ____ — Problematic Hydrophytic Vegetation¹ (Explain) 9. _____ _ ____ _ ____ _ ____ 10. ¹Indicators of hydric soil and wetland hydrology must <u>86.0</u> = Total Cover be present, unless disturbed or problematic. Woody Vine Stratum (Plot size: 30) 1. _____ Hydrophytic 2._____ Vegetation Yes No 🖌 Present? 0 = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

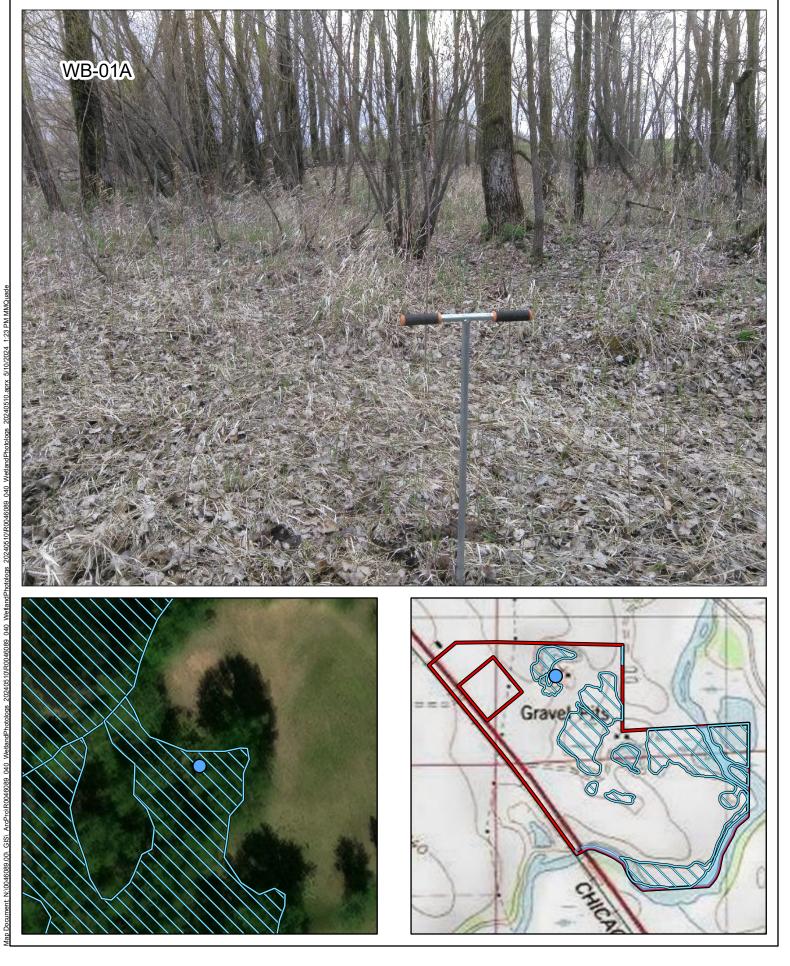
SOIL

(inches)	Color (I	Matrix moist)	%	Color (I		<u>x Feature</u> %	s Type ¹	Loc ²	Texture		Remarks	
0-6	10YR	3/2	100		10131)	/0	<u> </u>		LS	Organia	material	
							·			Organic	material	
6-20	<u>10YR</u>	4/4	100			·	·		COS			
20-24	<u>10YR</u>	4/3	95	5YR	4/6	5	C	<u> PL </u>	LCOS			
							·					
						·	·					
							·					
¹ Type: C=C	oncentration	ı. D=Dep	letion. RM	=Reduced	Matrix. MS	S=Maske	d Sand Gra	ains.	²L(ocation: PL=	Pore Lining, I	M=Matrix.
Hydric Soil					, ,						matic Hydric	
Histosol	Histosol (A1) Sandy Gleyed Matrix (S4)						Coast Prairie Redox (A16)					
	Histic Epipedon (A2) Sandy Redox (S5)					— Dark Surface (S7)						
	istic (A3)					d Matrix (Iron-Manganese Masses (F12)			
	en Sulfide (A	,				2	neral (F1)		Very Shallow Dark Surface (TF12)			
	d Layers (Ał uck (A10)	5)				d Matrix (atrix (F2)		Other (Explain in Remarks)			
	d Below Da	rk Surface	e (A11)			Dark Surfa					(cinanto)	
	ark Surface		5 (7117)				urface (F7)	1	³ Indicators of hydrophytic vegetation and			
Sandy M	lucky Miner	al (S1)				Depressio			wetland hydrology must be present,			
5 cm Mu	icky Peat or	Peat (S3	3)						unless disturbed or problematic.			
Restrictive I	Layer (if ob	served):										
Туре:												
Depth (in	ches):								Hydric So	il Present?	Yes	No 🖌

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves High Water Table (A2) Aquatic Fauna (B13) Saturation (A3) True Aquatic Plants (B Water Marks (B1) Hydrogen Sulfide Odo	(B9) Surface Soil Cracks (B6) Drainage Patterns (B10) i14) Dry-Season Water Table (C2) r (C1) Crayfish Burrows (C8) s on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Iron (C4) Stunted or Stressed Plants (D1) in Tilled Soils (C6) Geomorphic Position (D2) 7) FAC-Neutral Test (D5)
Sparsely Vegetated Concave Surface (B8) Other (Explain in Rem	
Field Observations:	,
Surface Water Present? Yes No _ Depth (inches): Water Table Present? Yes No _ Depth (inches):	
Saturation Present? Yes No 🖌 Depth (inches):	Wetland Hydrology Present? Yes No 🖌
Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev Remarks: None observed.	ious inspections), if available:

Midwater BESS Project Delineation Site Photograph





WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-29		
Applicant/Owner: Spearmint Renewable Development	State: Minnesc	ta Sampling Point: WB-01A-WET		
Investigator(s): <u>M. Stone, C. Gunn</u>	_ Section, Township, Range: <u>sec 08 T101</u>	N R020W		
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, no	one): <u>Concave</u>		
Slope (%): 0-2 Lat: 43.559822	ong: <u>-93.266731</u> Datum: <u>WGS84</u>			
Soil Map Unit Name: Pits, sand and gravel	NWI cla	ssification: <u>None</u>		
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes 🖌 No (If no, explain	in Remarks.)		
Are Vegetation, Soil, or Hydrologysignificant	y disturbed? Are "Normal Circumstanc	es" present? Yes <u><</u> No		
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any ar	nswers in Remarks.)		
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations, transe	ects, important features, etc.		
Hydrophytic Vegetation Present? Yes V No Hydric Soil Present? Yes V No Wetland Hydrology Present? Yes V No	- within a Wetland? Yes	✓ No		

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Tatal Number of Developed
3				Total Number of Dominant Species Across All Strata: 4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
	0	= Total Cov	er	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15)				
1. <u>Salix nigra</u>	10	Y	OBL	Total % Cover of:Multiply by:
2. <u>Salix interior</u>	5	Y	FACW	OBL species <u>10.00</u> x 1 = <u>10.00</u>
3				FACW species <u>55.00</u> x 2 = <u>110.00</u>
4				FAC species 0.00 x 3 = 0.00
				FACU species $0.00 \times 4 = 0.00$
5				· · · · · · · · · · · · · · · · · · ·
Llorb Stratum (Dist size) E	15.0	= Total Cov	er	UPL species $0.00 \times 5 = 0.00$
Herb Stratum (Plot size: 5)	40			Column Totals: <u>65.00</u> (A) <u>120.00</u> (B)
1. <u>Phalaris arundinacea</u>		<u> Y </u>		
2. <u>Carex spp.</u>	10	<u> </u>	<u>FACW</u>	Prevalence Index = $B/A = 1.85$
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				✓ 2 - Dominance Test is >50%
6				✓ 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				Problematic Hydrophytic Vegetation ¹ (Explain)
10				¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	50.0	= Total Cov	er	be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation
	0	= Total Cov	er	Present? Yes <u>V</u> No
Remarks: (Include photo numbers here or on a separate s	sheet.)			•

SOIL

Profile Desc	cription: (D	Describe t	to the dept	h needed to docu	ment the i	ndicator o	or confirm	the absence	e of indicators.)	
Depth										
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-2	<u>10YR</u>	2/1	100				<u> </u>	MMI	Roots in upper 2in.	
2-4	10YR	3/1	100					LS		
4-6	2.5Y	4/3	100					COS		
6-12	5GY	4/1	100					COS		
¹ Type: C=C	oncentratio	n, D=Depl	etion, RM=	Reduced Matrix, M	S=Masked	I Sand Gra	ins.		cation: PL=Pore Lining, M=Matrix.	
Hydric Soil	Indicators:							Indicators	s for Problematic Hydric Soils ³ :	
Histosol	(A1)			✓ Sandy	Gleyed Ma	atrix (S4)		Coast	Prairie Redox (A16)	
	pipedon (A2	2)		Sandy	Redox (S5)		— Dark	Surface (S7)	
	istic (A3)				d Matrix (S				Aanganese Masses (F12)	
	en Sulfide (A				Mucky Mir				Shallow Dark Surface (TF12)	
∠ 2 cm Mi	d Layers (A	5)			Gleyed Matrix (•	(Explain in Remarks)	
	d Below Da	rk Surface	(A11)		Dark Surfa	,				
-	ark Surface		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ed Dark Su	. ,		³ Indicators of hydrophytic vegetation and		
	/lucky Mine	. ,		Redox	Depressio	ns (F8)		wetland hydrology must be present,		
5 cm Mucky Peat or Peat (S3)					unles	s disturbed or problematic.				
Restrictive	Layer (if ob	oserved):								
Type: <u>R</u>	ock									
Depth (inches): <u>12</u>							Hydric Soil Present? Yes 🖌 No			
Remarks:	ماد سم مام	topool		10:0						
Large ro	CK resis	tance I	ayer at	12IN.						
HYDROLO	GY									
Wetland Hy										
Primary India	cators (mini	mum of o	ne is requir	ed; check all that a	oply)			Second	ary Indicators (minimum of two required)	
	Water (A1)				ined Leav			Su	rface Soil Cracks (B6)	
· _ High Water Table (A2) Aquatic Fauna (B13)									ainage Patterns (B10)	
_∠ Saturatio	. ,			True Aqua		. ,			-Season Water Table (C2)	
Water Marks (B1) Hydrogen Sulfide Odor (C1)								ayfish Burrows (C8)		
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3)									turation Visible on Aerial Imagery (C9)	
Drift Deposits (B3) Presence of Reduced Iron (C4) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6)									inted or Stressed Plants (D1)	
	at or Crust (B4)					Soils (C6	,	omorphic Position (D2)	
-	oosits (B5)	n Aorial I	magar / /D7	Thin Mucl		,		<u>/</u> FA	C-Neutral Test (D5)	
	on Visible o					. ,				
Field Obser	y Vegetated	Concave	Surface (E	38) Other (Ex	ριαπι πι κε	indiks)				
Surface Wat		, v.	-e N	No 🖌 Depth (ir	ches).					
				· ·	· —	10	-			
Water Table				No Depth (in			-			
Saturation P			55 <u>v</u> ľ	No Depth (in	icnes):	6		anu nyaroi0(gy Present? Yes 🖌 No	

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-29
Applicant/Owner: Spearmint Renewable Development	State: <u>Min</u>	nesota Sampling Point: WB-01A-UP
Investigator(s): <u>M. Stone, C. Gunn</u>	Section, Township, Range: <u>Sec 08 T</u>	101N R020W
Landform (hillslope, terrace, etc.): Shoulder	Local relief (concave, conve	ex, none): <u>Convex</u>
Slope (%): 0-2 Lat: 43.559782	Long: <u>-93.266581</u>	Datum: WGS84
Soil Map Unit Name: Pits, sand and gravel	NW	I classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes 🖌 No (If no, ex	plain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circums	stances" present? Yes 🔽 No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain a	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, tra	insects, important features, etc.
Hydrophytic Vegetation Present? Yes No	is the Sampled Area	

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	Is the Sampled Area within a Wetland?	Yes	No 🔽
Remarks:					

VEGETATION – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Deminent
3				Total Number of Dominant Species Across All Strata: 2 (B)
4				
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
Sapling/Shrub Stratum (Plot size:15)	0	= Total Cove	er	Prevalence Index worksheet:
	10	V		Total % Cover of: Multiply by:
1. <u>Salix nigra</u>		<u> Y </u>		
2				OBL species <u>10.00</u> x 1 = <u>10.00</u>
3				FACW species <u>10.00</u> x 2 = <u>20.00</u>
4				FAC species <u>70.00</u> x 3 = <u>210.00</u>
5				FACU species <u>0.00</u> x 4 = <u>0.00</u>
		= Total Cove	er	UPL species0.00 x 5 =0.00
Herb Stratum (Plot size: <u>5</u>)				Column Totals: 90.00 (A) 240.00 (B)
1. <u>Poa pratensis</u>	70	Y	FAC	
2. <u>Phalaris arundinacea</u>			FACW	Prevalence Index = $B/A = 2.67$
3				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
4				✓ 2 - Dominance Test is >50%
5				✓ 3 - Prevalence Index is $\leq 3.0^1$
6				
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8				, , ,
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
10				
		= Total Cove	er	¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)				be present, unless disturbed or problematic.
1				Headana ka 41a
2			_	Hydrophytic Vegetation
				Present? Yes <u>V</u> No
		= Total Cove	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL

Depth		Matrix			ox Feature		0		
(inches)	Color (I	noist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR	3/2	100					<u> L</u>	Roots in upper 2in.
2-26	<u>10YR</u>	4/3	100				. <u> </u>	LS	Silty inclusions
¹ Type: C=C Hydric Soil			etion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.		cation: PL=Pore Lining, M=Matrix.
-				Carati					,
 Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) Restrictive Layer (if observed):		— Sandy — Strippe Loamy — Loamy — Deplete — Redox — Redox	 Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) 				 Coast Prairie Redox (A16) Dark Surface (S7) Iron-Manganese Masses (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. 		
Depth (in Remarks:	iches):							Hydric Soi	il Present? Yes No 🗹

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
Field Observations: Surface Water Present? Yes No ✓ Depth (inches):	
Water Table Present? Yes No 🖌 Depth (inches):	
Saturation Present? Yes No <u>v</u> Depth (inches):	Wetland Hydrology Present? Yes No <u>V</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous insperies Remarks: None observed.	ctions), if available:

Midwater BESS Project Delineation Site Photograph





Project/Site: Midwater BESS	City/County: Freeborn County Sampling Date: 2024-04-29
Applicant/Owner: Spearmint Renewable Development	State: Minnesota Sampling Point: WB-03-wet
Investigator(s): <u>M. Stone, C. Gunn</u>	Section, Township, Range: sec 08 T101N R020W
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none): Concave
Slope (%): 0-2 Lat: 43.559195	Long: <u>-93.265775</u> Datum: <u>WGS84</u>
Soil Map Unit Name: Pits, sand and gravel	NWI classification: PEM1A
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗹 No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	/ disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes _ ✓ No Hydric Soil Present? Yes _ ✓ No Wetland Hydrology Present? Yes _ ✓ No Remarks: Image: Control of the second sec	within a Wetland? Yes ✓ No
VEGETATION – Use scientific names of plants.	

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)		Species?		Number of Dominant Species
1. <u>Populus deltoides</u>	70	<u> </u>	FAC	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				
5				Percent of Dominant Species
				That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
Sapling/Shrub Stratum (Plot size:15)	70.0	= Total Cov	er	Prevalence Index worksheet:
1				Total % Cover of:Multiply by:
				OBL species $20.00 \times 1 = 20.00$
2				FACW species $90.00 \times 1 = 180.00$
3				· · · · · · · · · · · · · · · · · · ·
4				FAC species $70.00 \times 3 = 210.00$
5				FACU species <u>0.00</u> x 4 = <u>0.00</u>
	0	= Total Cov	er	UPL species <u>0.00</u> x 5 = <u>0.00</u>
Herb Stratum (Plot size: 5)				Column Totals: <u>180.00</u> (A) <u>410.00</u> (B)
1. <u>Phalaris arundinacea</u>			FACW	
2. <u>Typha X glauca</u>	20	<u> N </u>	OBL	Prevalence Index = B/A = <u>2.28</u>
3. <u>Carex spp.</u>	10	N	FACW	Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				✓ 2 - Dominance Test is >50%
6				✓ 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation ¹ (Explain)
9			·	
10				¹ Indiactors of hydric soil and watland hydrology must
We ache Min a Observations (Dick aligner 20)	110.0	= Total Cov	er	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30)				
1				Hydrophytic
2				Vegetation
	0	- Total Cau		Present? Yes <u>V</u> No
Remarks: (Include photo numbers here or on a separate s		= Total Cov	ei	
	incer.)			

SOIL

Depth		Matrix				x Feature						
(inches)	Color (moist)	%	Color (r	noist)	%	Type ¹	Loc ²	Texture	Remarks		
0-2	<u>10YR</u>	2/1	100						MMI	Roots in upper 2in.		
2-4	10YR	2/2	98	7.5YR	4/6	2	C	PL	MMI	Sand included		
4-12	10YR	3/2	70	7.5YR	5/6	5	С	M/PL	MMI	Sandy loam inclusions		
	10YR	2/2	25						MMI			
12-24	10YR	3/2	40	2.5YR	3/6	5	С	M/PL	SC			
	10YR	2/1	45	7.5YR	4/6	10	С	M/PL	SC			
Hydric Soil Histoso	Indicators:		letion, RM	I=Reduced N	Sandy C	Gleyed Ma	ıtrix (S4)	ains.	Indicator	Decation: PL=Pore Lining, M=Matrix. is for Problematic Hydric Soils ³ : at Prairie Redox (A16)		
Black H	listic (A3) en Sulfide (A	44)		 Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) 					Dark Surface (S7) Iron-Manganese Masses (F12) Van Shallow Dark Surface (TE12)			
🖌 2 cm M	d Layers (A uck (A10) d Below Da		e (A11)		Deplete	Gleyed Ma d Matrix (I Dark Surfa	=3)		Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
🖌 Sandy I	ark Surface Mucky Miner ucky Peat or	ral (S1)	3)		•	d Dark Su Depression	•)	wetla	rs of hydrophytic vegetation and nd hydrology must be present, ss disturbed or problematic.		
Restrictive	Layer (if ob	served):										
Type: Depth (in	iches):								Hydric So	il Present? Yes 🖌 🖌 No		
Remarks:												

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; che	eck all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)	 Water-Stained Leaves (B9) 	Surface Soil Cracks (B6)
High Water Table (A2)	_ Aquatic Fauna (B13)	Drainage Patterns (B10)
✓ Saturation (A3)	_ True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1)	_ Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Ro	ots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	_ Recent Iron Reduction in Tilled Soils	(C6) <u>v</u> Geomorphic Position (D2)
Iron Deposits (B5)	 Thin Muck Surface (C7) 	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7)	_ Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)	
Field Observations:		
Surface Water Present? Yes No _	Depth (inches):	
Water Table Present? Yes <u>v</u> No	Depth (inches):14	
Saturation Present? Yes <u>v</u> No <u>(includes capillary fringe)</u>	Depth (inches): 10 V	Vetland Hydrology Present? Yes 🗹 No
Describe Recorded Data (stream gauge, monitoring	g well, aerial photos, previous inspectio	ns), if available:
Remarks:		

Midwater BESS Project Delineation Site Photograph





Project/Site: <u>Midwater BESS</u>			City/County: Fr	<u>eeborn County</u>	Sampling [Date: <u>2024</u>	-04-29
Applicant/Owner: Spearmint Rene	<u>wable Develo</u>	pment		State:	Minnesota Sampling Po	int: <u>WB-0</u>	4-wet
Investigator(s): M. Stone, C. Gunn			Section, Townsh	nip, Range: <u>sec 0</u>	8 T101N R020W		
Landform (hillslope, terrace, etc.): Dep	ression		Loca	l relief (concave, co	onvex, none): <u>Concave</u>)	
Slope (%): <u>0-2</u> Lat: <u>43.558</u>	956		_ Long: <u>-93.265</u>	764	Datum: <u>W</u>	GS84	
Soil Map Unit Name: Pits, sand and	gravel				NWI classification: PEN	/1A	
Are climatic / hydrologic conditions on th	ne site typical for	this time of y	vear?Yes 🖌	No (If no	, explain in Remarks.)		
Are Vegetation, Soil, or	Hydrology	_ significantl	y disturbed?	Are "Normal Circ	umstances" present? Ye	es 🖌	No
Are Vegetation, Soil, or	Hydrology	naturally p	roblematic?	(If needed, expla	in any answers in Remar	ks.)	
SUMMARY OF FINDINGS - A	ttach site ma	ıp showin	g sampling p	oint locations,	transects, importa	nt featur	es, etc.
Hydrophytic Vegetation Present?	Yes 🖌	No	- Is the Sa	mpled Area			
Hydric Soil Present?	Yes 🖌	No		•	Yes 🖌 No		
Wetland Hydrology Present?	Yes 🖌	No	-				
Remarks:							
VEGETATION – Use scientific r	names of plan	ts.					
		Absolute			ce Test worksheet:		
Tree Stratum (Plot size: 30			r Species? St		f Dominant Species		
1 Populus deltoides		50	V F	AC That Are (BI FACW or FAC	2	(Δ)

1. <u>Populus deltoides</u>	50	<u>Y</u>	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4			·	Percent of Dominant Species
5			- <u> </u>	That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
Sapling/Shrub Stratum (Plot size:15)	50.0	= Total Co	ver	Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
2				OBL species 0.00 x 1 = 0.00
3				FACW species $90.00 \times 2 = 180.00$
4				FAC species $50.00 \times 3 = 150.00$
5.				FACU species 0.00 x 4 = 0.00
···		= Total Co		UPL species $0.00 \times 5 = 0.00$
Herb Stratum (Plot size: 5)				Column Totals: <u>140.00</u> (A) <u>330.00</u> (B)
1. <i>Phalaris arundinacea</i>	80	Y	FACW	
2. <u>Carex spp.</u>	10	N	FACW	Prevalence Index = $B/A = 2.36$
3			. <u> </u>	Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				
6				\checkmark 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
10				
		= Total Co		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30)				
1				Hydrophytic
2			·	Vegetation Present? Yes ✔ No
	0	= Total Co	ver	Present? Yes 🖌 No
Remarks: (Include photo numbers here or on a separate s	sheet.)			

		Matrix				x Features						
(inches)	Color	(moist)	%	Color (r	noist)	%	Type ¹	Loc ²	Texture	Remarks		
0-4	10YR	3/1	100						MMI	Roots in upper 2in.		
4-18	10YR	3/1	85	5YR	3/4	5	С	M/PL	MMI	Sand and loam inclusions		
				5YR	4/6	10	С	M/PL	MMI			
18-24	<u> N</u>	2.5/0	98	7.5YR	4/6	2	C	M	SIL			
Hydric Soil Histosol Histic Ep Black Hi	Indicators (A1) pipedon (A istic (A3)	2)	etion, RM	I=Reduced M	Sandy C Sandy F Stripped	Gleyed Ma Redox (S5 d Matrix (S	trix (S4)) 66)	 ains.	Indicator Coas Dark	ocation: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Soils ³ : st Prairie Redox (A16) Surface (S7) Manganese Masses (F12)		
Stratified	en Sulfide (d Layers (A				Loamy	Mucky Mir Gleyed Ma	atrix (F2)		Very Shallow Dark Surface (TF12)			
Thick Da Sandy M 5 cm Mu	d Below Da ark Surface /lucky Mine ucky Peat o	eral (S1) or Peat (S3			Redox [Deplete	d Matrix (I Dark Surfa d Dark Su Depression	ce (F6) rface (F7)	³ Indicato wetla	r (Explain in Remarks) rs of hydrophytic vegetation and nd hydrology must be present, ss disturbed or problematic.		
Restrictive	•	bserved):										
	ches):								Hydric So	oil Present? Yes <u>✔</u> No		

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; che	eck all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	_ Aquatic Fauna (B13)	Drainage Patterns (B10)
✓ Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1)	_ Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living R	oots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	_ Recent Iron Reduction in Tilled Soil	s (C6) Geomorphic Position (D2)
Iron Deposits (B5)	Thin Muck Surface (C7)	✓ FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7)	Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)	
Field Observations:		
Surface Water Present? Yes No _	Depth (inches):	
Water Table Present? Yes <u>v</u> No	Depth (inches): 12	
Saturation Present? Yes <u>v</u> No <u>(includes capillary fringe)</u>	Depth (inches):0	Wetland Hydrology Present? Yes 🖌 No
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspection	ons), if available:
Remarks:		

Project/Site: Midwater BESS	City/County: Freeborn County Sampling Date: 2024-04-29
Applicant/Owner: Spearmint Renewable Development	State: <u>Minnesota</u> Sampling Point: <u>WB-03/04-up</u>
Investigator(s): <u>M. Stone, C. Gunn</u>	Section, Township, Range: <u>sec 08 T101N R020W</u>
Landform (hillslope, terrace, etc.): Flat	Local relief (concave, convex, none): None
Slope (%): 0-2 Lat: 43.559107	Long: <u>-93.265814</u> Datum: <u>WGS84</u>
Soil Map Unit Name: Pits, sand and gravel	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of ye	rear? Yes 🖌 No (If no, explain in Remarks.)
Are Vegetation _ v _, Soil _ v _, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pr	roblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes 🖌 No	Is the Sampled Area
Hydric Soil Present? Yes No	
Wetland Hydrology Present? Yes No _	
Remarks:	

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover	Species?	Status	Number of Dominant Species
1. <u>Populus deltoides</u>	40	Y	FAC	That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				
5				Percent of Dominant Species That Are OBL. FACW. or FAC: 66.67 (A/B)
·		= Total Cov		That Are OBL, FACW, or FAC: 66.67 (A/B)
Sapling/Shrub Stratum (Plot size: 15)	40.0			Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
				OBL species 0.00 x 1 = 0.00
2				FACW species $30.00 \times 2 = 60.00$
3				FAC species $80.00 \times 3 = 240.00$
4				· · · · · · · · · · · · · · · · · · ·
5				FACU species $95.00 \times 4 = 380.00$
Harth Otractions (Distribution E	0	= Total Cov	/er	UPL species <u>0.00</u> x 5 = <u>0.00</u>
Herb Stratum (Plot size: <u>5</u>)				Column Totals: <u>205.00</u> (A) <u>680.00</u> (B)
1. <u>Bromus inermis</u>		<u> Y </u>		Drevelance lades $= D/A = -2.22$
2. <u>Poa pratensis</u>		<u> Y </u>		Prevalence Index = B/A = <u>3.32</u>
3. <u>Echinochloa crus-galli</u>	30	<u> N </u>	FACW	Hydrophytic Vegetation Indicators:
4. Taraxacum officinale	20	N	FACU	1 - Rapid Test for Hydrophytic Vegetation
5. <u>Trifolium pratense</u>	10	N	FACU	
6. Erigeron canadensis	10	N	FACU	3 - Prevalence Index is ≤3.0 ¹
7. Solidago canadensis	5	N	FACU	4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation ¹ (Explain)
9				
10				¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	165.0	= Total Cov	/er	be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation Present? Yes <u>V</u> No
	0	= Total Cov	/er	Present? Yes V No
Remarks: (Include photo numbers here or on a separate				1
	sneet.)			

Depth		Matrix				x Feature			
(inches)	Color (r	noist)	%	Color (r	noist)	%	Type ¹	Loc ²	Texture Remarks
0-4	10YR	3/2	100						COSL
4-12	10YR	4/2	90	10YR	4/6	10	C	M	COSL
17 0 0									
¹ Type: C=C Hydric Soil			etion, RM	=Reduced I	Matrix, MS	S=Masked	Sand Gr	ains.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :
Black H Hydroge Stratified 2 cm Mu Depleted Thick Da Sandy M	pipedon (A2 istic (A3) en Sulfide (A d Layers (A5 uck (A10) d Below Dar ark Surface Mucky Miner ucky Peat or	.4) 5) k Surface (A12) al (S1) · Peat (S3	. ,		Sandy F Stripped Loamy I Loamy 0 Deplete Redox I Deplete	Gleyed Ma Redox (S5 d Matrix (S Mucky Mir Gleyed Ma d Matrix (Dark Surfa d Dark Su Depressio) 66) heral (F1) atrix (F2) F3) hce (F6) irface (F7))	 Coast Prairie Redox (A16) Dark Surface (S7) Iron-Manganese Masses (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Type: <u>Fi</u>	•	serveu).							Hydric Soil Present? Yes No 🛩
Remarks:	ctive lay	ver at 1	2in.						

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Staine	d Leaves (B9) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Faur	a (B13) Drainage Patterns (B10)
Saturation (A3) True Aquatic	Plants (B14) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Su	Ifide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhi	cospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of	Reduced Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron I	Reduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck St	rface (C7) FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or We	ll Data (D9)
Sparsely Vegetated Concave Surface (B8) Other (Expla	n in Remarks)
Field Observations:	
Surface Water Present? Yes No Depth (inche	s):
Water Table Present? Yes No Depth (inche	s):
Saturation Present? Yes <u>No</u> Depth (inche (includes capillary fringe)	es): Wetland Hydrology Present? Yes No 🔽
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:
Remarks:	
None observed.	

Midwater BESS Project Delineation Site Photograph



Westwood

Toll Free (888) 937-5150 westwoodps.com

Project/Site: Midwater BESS	City/County: Freeborn County Sampling Date: 2024-04-29			
Applicant/Owner: Spearmint Renewable Development	State: Minnesota Sampling Point: WB-05-WET			
Investigator(s): M. Stone, C. Gunn	Section, Township, Range: <u>sec 17 T101N R020W</u>			
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none): Concave			
Slope (%): 0-2 Lat: 43.556635	Long: -93.265435 Datum: WGS84			
Soil Map Unit Name: Estherville sandy loam, 6 to 12 percent	t slopes NWI classification: None			
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗹 No (If no, explain in Remarks.)			
Are Vegetation, Soil, or Hydrology significantly	/ disturbed? Are "Normal Circumstances" present? Yes <u>v</u> No			
Are Vegetation, Soil, or Hydrology naturally pro	roblematic? (If needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: Yes No	Is the Sampled Area within a Wetland? Yes <u>v</u> No			

Suspect area identified in Offsite Hydrology Review.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: 1 (A)
2				Tatal Number of Deminant
3				Total Number of Dominant Species Across All Strata: 2 (B)
4				
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
Sapling/Shrub Stratum (Plot size: 15)	0	= Total Cov	er	Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
2				OBL species <u>0.00</u> x 1 = <u>0.00</u>
3				FACW species <u>50.00</u> x 2 = <u>100.00</u>
4				FAC species 0.00 x 3 = 0.00
5				FACU species <u>37.00</u> x 4 = <u>148.00</u>
		= Total Cov		UPL species 0.00 x 5 = 0.00
Herb Stratum (Plot size: 5)				Column Totals: <u>87.00</u> (A) <u>248.00</u> (B)
1. Phalaris arundinacea	50	Y	FACW	(A) = 240.00 (B)
2. <u>Bromus inermis</u>				Prevalence Index = $B/A = 2.85$
				Hydrophytic Vegetation Indicators:
3. <u>Pastinaca sativa</u>				1 - Rapid Test for Hydrophytic Vegetation
4				
5				2 - Dominance Test is >50%
6				✓ 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
10	07.0	Tatal Oa		¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	97.0	= Total Cov	er	be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation
	0	= Total Cov	or	Present? Yes 🖌 No
Remarks: (Include photo numbers here or on a separate		10101 000	0.	
	,			

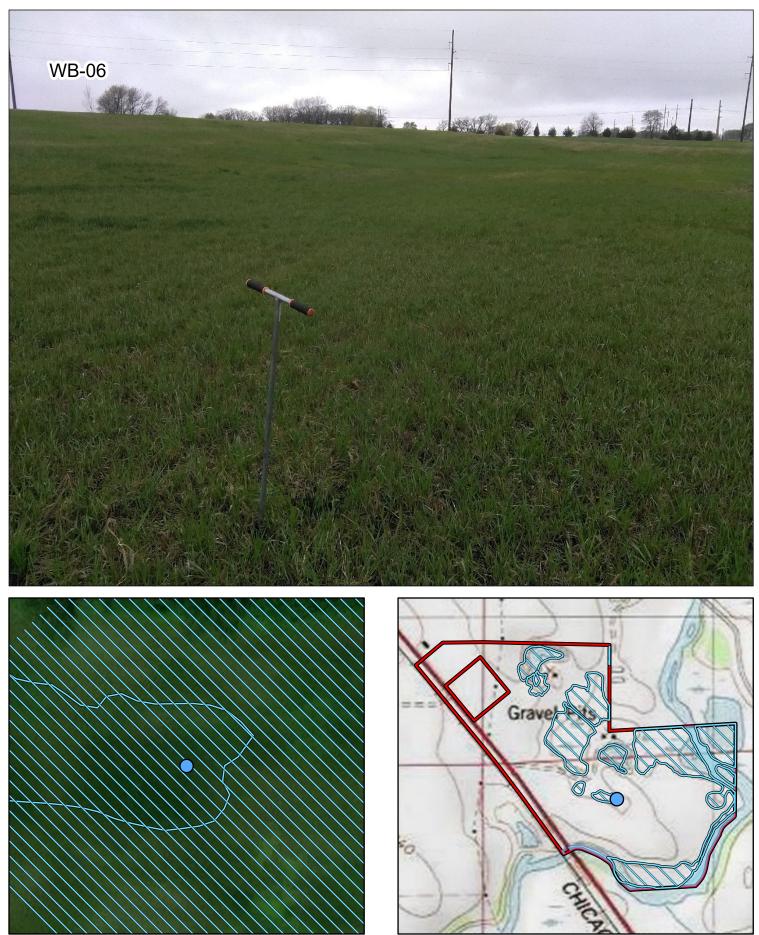
Profile Desc	cription: (D	escribe t	o the dept	h needed to docur	nent the i	ndicator of	or confirm	n the absence	e of indicators.)
Depth		Matrix		Redo	x Feature				
(inches)	Color (r	noist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-14	10YR	2/1	100					FSL	
14-18	<u>10YR</u>	2/1	100					FSL	Some silty inclusions
18-26	10YR	3/1	50					FSL	Mixed matrix, silty inclusions
	10YR	2/1	50					FSL	
								_	
			etion, RM=	Reduced Matrix, M	S=Masked	I Sand Gra	ins.		cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:							Indicators	s for Problematic Hydric Soils ³ :
Histosol	· · ·				Gleyed Ma	. ,		Coast	Prairie Redox (A16)
	pipedon (A2 istic (A3))			Redox (S5			- Dark	Surface (S7)
	en Sulfide (A	4)			d Matrix (S Mucky Mir			Iron-N	/langanese Masses (F12)
	d Layers (A	,			Gleyed Ma			Very S	Shallow Dark Surface (TF12)
	uck (A10)				d Matrix (I	,		Other	(Explain in Remarks)
-	d Below Dai		e (A11)		Dark Surfa	• •		31	
Thick Da	ark Surface /lucky Miner	. ,			o Dark Su Depressio	rface (F7)			s of hydrophytic vegetation and nd hydrology must be present,
-	ucky Peat or)		5661633101	13 (10)			s disturbed or problematic.
Restrictive									· · ·
Туре:									
Depth (in	ches):							Hydric Soi	l Present? Yes 🖌 No
Remarks:								•	
Assume	JAIZ								
HYDROLO									
Wetland Hy				d, chook all that ar				Casand	land Indiantora (minimum of two required)
			le is require	ed; check all that ap Water Sta		oo (P0)			ary Indicators (minimum of two required)
	Water (A1) ater Table (A	(2)		Water-Sta Aquatic Fa					face Soil Cracks (B6) ainage Patterns (B10)
Saturati		~		True Aqua					/-Season Water Table (C2)
	larks (B1)			Hydrogen		. ,			ayfish Burrows (C8)
	nt Deposits	(B2)		Oxidized F			ng Roots		turation Visible on Aerial Imagery (C9)
Drift De	posits (B3)			Presence	of Reduce	d Iron (C4)	Stu	inted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)		Recent Iro	n Reducti	on in Tilleo	l Soils (Ce	6) <u>~</u> Ge	omorphic Position (D2)
-	oosits (B5)			Thin Muck				FA	C-Neutral Test (D5)
	on Visible o					. ,			
	y Vegetated	Concave	Surface (B	8) Other (Exp	plain in Re	marks)			
Field Obser Surface Wat		V	NG 1	Donth (in	choc):				
				lo 🖌 Depth (in					
Water Table Present? Yes No _ Depth (inches): Saturation Present? Yes No _ Depth (inches): Wetland Hydrology Present? Yes _							gy Present? Yes 🖌 No		
(includes ca	oillary fringe)							,,
Describe Re	corded Data	a (stream	gauge, mor	nitoring well, aerial	photos, pr	evious ins	pections),	if available:	

Remarks:

Map Document N:1004608900. GISI. ArcFroR0046089 040 WetlandPhotologs 20240510IR0046089 040 WetlandPhotologs 20240510IR0046089 040 WetlandPhotologs 20240510IR004208

Midwater BESS Project Delineation Site Photograph





Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-29				
Applicant/Owner: Spearmint Renewable Developmen	t State:_	Minnesota Sampling Point: <u>WB-06-wet</u>				
Investigator(s): M. Stone, C. Gunn	Section, Township, Range: <u>Sec 1</u>	7 T101N R020W				
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, co	onvex, none): <u>Concave</u>				
Slope (%): 0-2 Lat: 43.556407	Long: <u>-93.263917</u>	Datum: <u>WGS84</u>				
Soil Map Unit Name: Estherville sandy loam, 6 to 12 pe	ercent slopes	NWI classification: None				
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>V</u> No (If no, explain in Remarks.)						
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No						
Are Vegetation, Soil, or Hydrology natur	ally problematic? (If needed, expla	in any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locations,	transects, important features, etc.				
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No	is the Sampled Area	Yes No				
Wetland Hydrology Present? Yes <u>Ves</u> No						
Pomarka:						

Remarks: Suspect area identified in Offsite Hydrology Review.

	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30</u>) 1.		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata:3(B)
4 5	<u> </u>			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.67</u> (A/B)
Sapling/Shrub Stratum (Plot size:15)			er	Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
2				OBL species 0.00 x 1 = 0.00
				FACW species $35.00 \times 2 = 70.00$
3				FAC species $20.00 \times 3 = 60.00$
4 5				FACU species $40.00 \times 4 = 160.00$
		= Total Cov		UPL species $0.00 \times 5 = 0.00$
Herb Stratum (Plot size: 5)			CI	Column Totals: <u>95.00</u> (A) <u>290.00</u> (B)
1. <u>Bromus inermis</u>	40	Y	FACU	
2. <u>Phalaris arundinacea</u>		Y	FACW	Prevalence Index = $B/A = 3.05$
3. <u>Poa pratensis</u>		Y	FAC	Hydrophytic Vegetation Indicators:
4. <u>Pastinaca sativa</u>		N	NI	1 - Rapid Test for Hydrophytic Vegetation
5				✓ 2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
89				Problematic Hydrophytic Vegetation ¹ (Explain)
10		= Total Cov		¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	100.0		ei	be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation
	0	= Total Cov	er	Present? Yes 🖌 No
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Depth Matrix Redox Features (inches) Color (moist) % Type ¹ Loc ² Texture Remarks 0-18 10YR 2/2 100 FSL								
0-18 10YR 2/2 100 FSL								
<u>18-28</u> <u>10YR 2/1</u> <u>100</u> <u> FSL Some silty inclusions</u>								
	-							
	—							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :								
Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16)								
Histic Epipedon (A2) — Sandy Redox (S5) — Dark Surface (S7)								
Black Histic (A3) Stripped Matrix (S6) Iron-Manganese Masses (F12)								
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Iron-Manganese Masses (F12) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12)								
Depleted Below Dark Surface (A11) Redox Dark Surface (F6)								
Thick Dark Surface (A12) Depleted Dark Surface (F7) ³ Indicators of hydrophytic vegetation and								
Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present,								
5 cm Mucky Peat or Peat (S3) unless disturbed or problematic.								
Restrictive Layer (if observed):								
Туре:								
Depth (inches): Hydric Soil Present? Yes 🖌 No	-							
Remarks: Assumed A12								
HYDROLOGY								
Wetland Hydrology Indicators:								
Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required	<u>1)</u>							
Surface Water (A1)Water-Stained Leaves (B9)Surface Soil Cracks (B6)								
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10)								
Saturation (A3)True Aquatic Plants (B14)Dry-Season Water Table (C2)								
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)								
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1)								
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5)								
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)								
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)								
Field Observations:								
Surface Water Present? Yes No _✔_ Depth (inches):								
Water Table Present? Yes No 🖌 Depth (inches):								
Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes _/ No								

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

Remarks:

(includes capillary fringe)

Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-29
Applicant/Owner: Spearmint Renewable Development	State: Minnesota	Sampling Point: WB-05/06-UP
Investigator(s): M. Stone, C. Gunn	Section, Township, Range: <u>sec 17 T101N</u>	R020W
Landform (hillslope, terrace, etc.): Summit	Local relief (concave, convex, none	e): <u>Convex</u>
Slope (%): <u>0-2</u> Lat: <u>43.556572</u>	Long: <u>-93.265063</u>	_ Datum: <u>WGS84</u>
Soil Map Unit Name: Estherville sandy loam, 6 to 12 percen	nt slopes NWI classi	fication: None
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🖌 No (If no, explain in	Remarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances"	" present? Yes _ ✔_ No
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed, explain any answ	vers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transect	ts, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	Is the Sampled Area within a Wetland?	Yes	No
Remarks:				

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</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: 2 (B)
4				
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
Sapling/Shrub Stratum (Plot size: 15)	0	= Total Cov	er	Prevalence Index worksheet:
				Total % Cover of: Multiply by:
1				
2			·	OBL species 0.00 x 1 = 0.00
3				FACW species <u>0.00</u> x 2 = <u>0.00</u>
4				FAC species <u>50.00</u> x 3 = <u>150.00</u>
5				FACU species <u>20.00</u> x 4 = <u>80.00</u>
		= Total Cov		UPL species 0.00 x 5 = 0.00
Herb Stratum (Plot size: 5)				Column Totals: 70.00 (A) 230.00 (B)
1. <u>Poa pratensis</u>	50	Y	FAC	
2. <u>Bromus inermis</u>			FACU	Prevalence Index = $B/A = 3.29$
3				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
4				2 - Dominance Test is >50%
5				
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
10			·	
10		= Total Cov		¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	70.0		ei	be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation Present? Yes No _ ✓
	0	= Total Cov	er	Present? resNo
Remarks: (Include photo numbers here or on a separate s			-	1
	,			

Profile Desc	ription: (D	Describe	to the dept	h needed to docu	ment the	indicator	or confirm	n the absence	e of indicators.)
Depth		Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR	2/2	100					FSL	Silty inclusions, grass roots inc
6-12	10YR	4/2	100			·		FSL	Gravel inclusions
12-20	10YR	4/4	100					FSL	gravel inclusions
20-26	10YR	5/4	100		<u> </u>			FSL	Gravel inclusions
		n D=Dep	letion RM=	Reduced Matrix, M	S=Maskee			2l c	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I									s for Problematic Hydric Soils ³ :
Black Hi Hydroge Stratified 2 cm Mu Depleted Thick Da	oipedon (A2	44) 5) rk Surface (A12)	e (A11)	 Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) 				— Dark — Iron-N — Very — Other ³ Indicator	t Prairie Redox (A16) Surface (S7) Manganese Masses (F12) Shallow Dark Surface (TF12) • (Explain in Remarks) • of hydrophytic vegetation and nd hydrology must be present,
5 cm Mucky Peat or Peat (S3)					unles	s disturbed or problematic.			
Restrictive L	•								
Type: Depth (inc	ches):							Hydric Soi	il Present? Yes No 🖌
Remarks:									

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3) True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Re	oots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soil	s (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)	
Field Observations:	
Surface Water Present? Yes No _ 	
Water Table Present? Yes No 🖌 Depth (inches):	
Saturation Present? Yes <u>Ves</u> Depth (inches): <u>Ves</u> (includes capillary fringe)	Wetland Hydrology Present? Yes No 🖌
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection	ons), if available:
Remarks: None observed.	

Midwater BESS Project Delineation Site Photograph





Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-30
Applicant/Owner: Spearmint Renewable Development	State: <u>Mi</u>	innesota Sampling Point: WB-07-wet
Investigator(s): M. Stone	Section, Township, Range: <u>Sec 08</u>	T101N R020W
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, con	vex, none): <u>Concave</u>
Slope (%): <u>0-2</u> Lat: <u>43.560501</u>	Long: <u>-93.264208</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Aquents and Histosols, ponded	N	WI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrology signific	antly disturbed? Are "Normal Circun	nstances" present? Yes 🔽 No
Are Vegetation, Soil, or Hydrology natura	lly problematic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ving sampling point locations, t	ransects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Promotes: Yes No	within a Wetland?	Yes /_ No
Remarks:		

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover Species? Status</u>	Number of Dominant Species
1		That Are OBL, FACW, or FAC: 1 (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
	0 = Total Cover	Development had a second dealer of the
Sapling/Shrub Stratum (Plot size: 15)		Prevalence Index worksheet:
1		Total % Cover of: Multiply by:
2		OBL species <u>20.00</u> x 1 = <u>20.00</u>
3		FACW species <u>90.00</u> x 2 = <u>180.00</u>
4		FAC species $0.00 \times 3 = 0.00$
5		FACU species <u>0.00</u> x 4 = <u>0.00</u>
	0 = Total Cover	UPL species 0.00 x 5 = 0.00
Herb Stratum (Plot size: 5)		Column Totals: <u>110.00</u> (A) <u>200.00</u> (B)
1. <u>Phalaris arundinacea</u>	<u>90 Y FACW</u>	
2. <u>Salix nigra</u>	<u>20 N OBL</u>	Prevalence Index = B/A = <u>1.82</u>
3		Hydrophytic Vegetation Indicators:
4		✓ 1 - Rapid Test for Hydrophytic Vegetation
5		✓ 2 - Dominance Test is >50%
6		\checkmark 3 - Prevalence Index is ≤3.0 ¹
7		4 - Morphological Adaptations ¹ (Provide supporting
8		data in Remarks or on a separate sheet)
9		— Problematic Hydrophytic Vegetation ¹ (Explain)
10		
10	110.0 = Total Cover	¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	<u>110.0</u> - 10tal Cover	be present, unless disturbed or problematic.
1		
2		Hydrophytic Vegetation
		Present? Yes <u>V</u> No
	0 = Total Cover	
Remarks: (Include photo numbers here or on a separate	sheet.)	

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth		Matrix		Redox Features								
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-16	10YR	2/1	100						SIL			
16-24	N	2.5/0	95	10Y	4/1	3	D	M	SCL			
				5GY	3/1	2	D	M	SCL			
							<u>.</u>					
						<u> </u>	. <u> </u>					
							<u> </u>					
¹ Type: C=Co	oncentratic	on, D=Depl	etion, RM=	Reduced	Matrix, MS	S=Masked	d Sand Gra	ains.	² Loca	tion: PL=Pore Lining, M=Matrix.		
Hydric Soil	Indicators	:							Indicators for Problematic Hydric Soils ³ :			
Histosol	(A1)				Sandy C	Gleyed Ma	atrix (S4)		Coast Prairie Redox (A16)			
	oipedon (A	2)		— Sandy Redox (S5)					— Dark Surface (S7)			
	stic (A3)			 Stripped Matrix (S6) Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2) 					 Iron-Manganese Masses (F12) Very Shallow Dark Surface (TF12) 			
	en Sulfide (
	d Layers (A	(CA			-	-						
	ick (A10) d Below Da	ork Surfood	(11)			d Matrix (Dark Surfa	,		Other (Explain in Remarks)			
·			(ATT)	_	-		. ,		³ Indicators of hydrophytic vegetation and			
	Thick Dark Surface (A12) Depleted Dark Surface (F7) Canded Mineral (C1)						hydrology must be present,					
	Mucky Mineral (S1) Redox Depressions (F8) ucky Peat or Peat (S3) Redox Depressions (F8)							listurbed or problematic.				
Restrictive I	•	•	7									
Туре:												
Depth (ind	ches):								Hydric Soil P	Present? Yes 🖌 No		
Remarks:									•			

HYDROLOGY

Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is required; chec	Secondary Indicators (minimum of two required)			
Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)		
_ High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)		
✓ Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)		
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)		
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Ro	oots (C3) Saturation Visible on Aerial Imagery (C9)		
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)		
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils	s (C6) <u>v</u> Geomorphic Position (D2)		
Iron Deposits (B5)	Thin Muck Surface (C7)	FAC-Neutral Test (D5)		
Inundation Visible on Aerial Imagery (B7)	Gauge or Well Data (D9)			
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)			
Field Observations:				
Surface Water Present? Yes No _	Depth (inches):			
Water Table Present? Yes <u>v</u> No	_ Depth (inches):12			
Saturation Present? Yes <u>v</u> No (includes capillary fringe)	_ Depth (inches): <u>8</u>	Netland Hydrology Present? Yes 🖌 No		
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspectio	ns), if available:		
Remarks:				

Project/Site: Midwater BESS	City/County: Freeborn County Sampling	City/County: Freeborn County Sampling Date: 2024-04-30					
Applicant/Owner: Spearmint Renewable Development	t State: <u>Minnesota</u> Sampling Po	oint: WB-07-up					
Investigator(s): M. Stone	Section, Township, Range: <u>sec 08 T101N R020W</u>						
Landform (hillslope, terrace, etc.): Footslope	Local relief (concave, convex, none): <u>Concave</u>	9					
Slope (%): <u>0-2</u> Lat: <u>43.560492</u>	Long: <u>-93.264297</u> Datum: <u>W</u>	/GS84					
Soil Map Unit Name: Estherville sandy loam, 2 to 6 percent	cent slopes NWI classification: NO	10					
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)							
Are Vegetation, Soil, or Hydrology signific	icantly disturbed? Are "Normal Circumstances" present? Y	es 🖌 No					
Are Vegetation, Soil, or Hydrology natura	ally problematic? (If needed, explain any answers in Remar	roblematic? (If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map show	SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.						
Hydrophytic Vegetation Present? Yes No	✓ Is the Sampled Area						
Hydric Soil Present? Yes No		<i>.</i>					
Wetland Hydrology Present? Yes No	<u>v</u>	<u> </u>					
Remarks:							

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)		Species?		Number of Dominant Species
1. <u>Salix nigra</u>	5	<u> </u>	OBL	That Are OBL, FACW, or FAC: 1 (A)
2	. <u> </u>			Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
Sapling/Shrub Stratum (Plot size:15)	5.0	= Total Cov	er	Prevalence Index worksheet:
				Total % Cover of: Multiply by:
1				
2				OBL species $5.00 \times 1 = 5.00$
3				FACW species <u>0.00</u> x 2 = <u>0.00</u>
4	. <u> </u>			FAC species <u>0.00</u> x 3 = <u>0.00</u>
5				FACU species <u>90.00</u> x 4 = <u>360.00</u>
		= Total Cov		UPL species0.00 x 5 =0.00
Herb Stratum (Plot size: 5)	<u> </u>			Column Totals: <u>95.00</u> (A) <u>365.00</u> (B)
1. <u>Bromus inermis</u>	90	Y	FACU	
2				Prevalence Index = $B/A = 3.84$
				Hydrophytic Vegetation Indicators:
3				1 - Rapid Test for Hydrophytic Vegetation
4				
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
10				¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	90.0	= Total Cov	er	be present, unless disturbed or problematic.
1				Hydrophytic
2	·			Vegetation
	0	= Total Cov	or	Present? Yes No 🖌
Remarks: (Include photo numbers here or on a separate s	_	- 10101 000	CI	

Profile Desc	cription: (Describe	to the depth	needed to docur	nent the i	ndicator	or confirm	n the absenc	e of indicators.)
Depth	Matrix		Redo	x Feature	s			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-18	<u>10YR 2/1</u>	100					SL	
18-24	10YR 3/1	100					COSL	
	oncentration, D=Dep	letion, RM=F	Reduced Matrix, MS	S=Maskec	I Sand Gra	ains.		ocation: PL=Pore Lining, M=Matrix.
Hydric Soil								s for Problematic Hydric Soils ³ :
Histosol	. ,			Gleyed Ma			Coas	t Prairie Redox (A16)
	pipedon (A2) istic (A3)		— Sandy F	•			— Dark	Surface (S7)
	en Sulfide (A4)			d Matrix (S Mucky Mir	,		Iron-I	Manganese Masses (F12)
	d Layers (A5)			Gleyed Ma			Very	Shallow Dark Surface (TF12)
	uck (A10)		-	d Matrix (I			Other	(Explain in Remarks)
Deplete	d Below Dark Surfac	e (A11)	Redox I	Dark Surfa	ice (F6)			
	ark Surface (A12)			d Dark Su	,			rs of hydrophytic vegetation and
-	Aucky Mineral (S1)	2)	Redox I	Depressio	ns (F8)			nd hydrology must be present,
	ucky Peat or Peat (S Layer (if observed):	-					unles	s disturbed or problematic.
_	2							
Туре:			_					
Donth (in	choc).						Hydric So	il Prosont? Vos No 🖌
Depth (in	ches):						Hydric So	il Present? Yes No 🖌
Remarks:		o farm ro	 ad.				Hydric So	il Present? Yes No 🖌
Remarks:	ches): en adjacent to	o farm ro	ad.				Hydric So	il Present? Yes No 🖌
Remarks:		o farm ro	ad.				Hydric So	il Present? Yes No 🖌
Remarks:		o farm ro	 ad.				Hydric So	il Present? Yes No <u>✔</u>
Remarks: Point tak	en adjacent to	o farm ro	ad.				Hydric So	il Present? Yes No <u>✔</u>
Remarks: Point tak HYDROLO	en adjacent to GY		ad.				Hydric So	il Present? Yes No 🖌
Remarks: Point tak HYDROLO Wetland Hy	en adjacent to GY drology Indicators:							
Remarks: Point tak HYDROLO Wetland Hy Primary India	en adjacent to GY drology Indicators: cators (minimum of c		d; check all that ap				Second	lary Indicators (minimum of two required)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface	en adjacent to GY drology Indicators: cators (minimum of c Water (A1)		d; check all that ap Water-Sta	ined Leav	. ,		<u>Second</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface High Wa	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2)		<u>d; check all that ar</u> Water-Sta Aquatic Fa	ined Leav auna (B13)		<u>Second</u> Su Dra	dary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface High Wa Saturatia	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3)		<u>d; check all that ar</u> Water-Sta Aquatic Fa True Aqua	ined Leav auna (B13 atic Plants) (B14)		<u>Seconc</u> Su Dra Dra	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface High Wa Saturatia Water M	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1)		d; check all that ap Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leave auna (B13 atic Plants Sulfide Oc) (B14) dor (C1)		<u>Second</u> Su Dr Dr Cr:	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimen	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)		d; check all that ap Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe) (B14) dor (C1) res on Liv	-	<u>Second</u> <u>Second</u> <u>Su</u> Dr <u>Dr</u> (C3) Sa	dary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
Remarks: Point tak HYDROLO Wetland Hy Primary India Surface High Wa Saturatia Water M Sedimen Drift Deg	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		d; check all that ar Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce) (B14) dor (C1) res on Liv ed Iron (C4	+)	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u>	dary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
Remarks: Point tak	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		d; check all that ap Water-Sta Aquatic Fa True Aqua True Aqua Hydrogen Oxidized F Presence Recent Iro	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille	+)	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) comorphic Position (D2)
Remarks: Point tak	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) 1arks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ne is require	d: check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce in Reducti s Surface () (B14) dor (C1) res on Liv ed Iron (C4 on in Tiller C7)	+)	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	dary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
Remarks: Point tak	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	me is require	d; check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or	ined Leav auna (B13 stic Plants Sulfide Oo Rhizosphe of Reduce on Reducti Surface (Well Data) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille C7) (D9)	+)	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) comorphic Position (D2)
Remarks: Point tak	GY drology Indicators: cators (minimum of co Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave	me is require	d; check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or	ined Leav auna (B13 stic Plants Sulfide Oo Rhizosphe of Reduce on Reducti Surface (Well Data) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille C7) (D9)	+)	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) comorphic Position (D2)
Remarks: Point tak	GY drology Indicators: cators (minimum of co Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial y Vegetated Concave vations:	me is require	d; check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or	ined Leav auna (B13 stic Plants Sulfide Oo Rhizosphe of Reduce on Reducti Surface (Well Data blain in Re) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille C7) (D9) marks)) d Soils (C6	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) comorphic Position (D2)
Remarks: Point tak	GY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: ter Present? Y	magery (B7) Surface (B8	d; check all that ar Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or 1 Other (Exp	ined Leave auna (B13 stic Plants Sulfide Oo Rhizosphe of Reduce on Reducti Surface (Well Data blain in Re) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille C7) (D9) marks)	4) d Soils (C6	<u>Second</u> <u>Second</u> <u>Su</u> <u>Dr</u> <u>Dr</u> <u>Cr</u> (C3) <u>Sa</u> (C3) <u>Sa</u> (C3) <u>Sa</u>	lary Indicators (minimum of two required) rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) comorphic Position (D2)

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

Remarks: None observed.

Midwater BESS Project Delineation Site Photograph





Project/Site: Midwater BESS	City/County: Freeborn County	Sampling Date: 2024-04-30
Applicant/Owner: Spearmint Renewable Development	State: Minr	nesota Sampling Point: WB-08-wet
Investigator(s): M. Stone	Section, Township, Range: <u>Sec 08 T</u>	101N R020W
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, conve	x, none): <u>Concave</u>
Slope (%): <u>0-2</u> Lat: <u>43.558105</u>	Long: -93.263211	Datum: WGS84
Soil Map Unit Name: Muskego soils, 0 to 1 percent slope	NW	classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of	of year? Yes 🖌 No (If no, exp	plain in Remarks.)
Are Vegetation, Soil, or Hydrology significa	Intly disturbed? Are "Normal Circums	tances" present? Yes 🖌 No
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, explain ar	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ing sampling point locations, tra	nsects, important features, etc.
Hydrophytic Vegetation Present? Yes _ No Hydric Soil Present? Yes _ No Wetland Hydrology Present? Yes _ No	within a Wetland? Y	″es∕No

Remarks:

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	<u>% Cover Species? Status</u>	Number of Dominant Species
1		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: <u>2</u> (B)
4		
5		Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)
	0 = Total Cover	
Sapling/Shrub Stratum (Plot size: 15)		Prevalence Index worksheet:
1		Total % Cover of: Multiply by:
2		OBL species 30.00 x 1 = 30.00
3		FACW species 70.00 x 2 = 140.00
4		FAC species $0.00 \times 3 = 0.00$
		FACU species $0.00 \times 4 = 0.00$
5		UPL species $0.00 \times 5 = 0.00$
Herb Stratum (Plot size: <u>5</u>)	0 = Total Cover	
1. <u>Phalaris arundinacea</u>		Column Totals: <u>100.00</u> (A) <u>170.00</u> (B)
2. <u>Typha X glauca</u>		Prevalence Index = $B/A = 1.7$
		Hydrophytic Vegetation Indicators:
3		 ✓ 1 - Rapid Test for Hydrophytic Vegetation
4		✓ 2 - Dominance Test is >50%
5		
6		✓ 3 - Prevalence Index is ≤3.0 ¹
7		4 - Morphological Adaptations ¹ (Provide supporting
8		data in Remarks or on a separate sheet)
9		— Problematic Hydrophytic Vegetation ¹ (Explain)
10		
	100.0 = Total Cover	¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)		be present, unless disturbed or problematic.
1		the described in
2		Hydrophytic Vegetation
		Present? Yes 🖌 No
	0 = Total Cover	
Remarks: (Include photo numbers here or on a separate s	sneet.)	

Profile Desc	ription: (I	Describe t	o the dep	th needed	to docur	nent the	indicator	or confirm	the absence	e of indicators.)		
Depth		Matrix		Redox Features					_			
(inches)	Color ((moist)	%	Color (r	noist)	%	Type ¹	Loc ²	Texture	Remarks		
0-2	<u>10YR</u>	2/1	100						MMI			
2-6	10YR	2/2	100						COS			
6-18	N	2.5/0	95	2.5Y	4/2	5	D	M	MMI	Sandy mucky mineral		
18-24	N	2.5/0	100						MMI	Loamy and silty		
							·					
1 									2,			
¹ Type: C=Co Hydric Soil		· ·	etion, RM=	Reduced I	Matrix, Ma	S=Masked	d Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :			
Histosol					Sandy (Gleyed Ma	atrix (S4)		Coast Prairie Redox (A16)			
	oipedon (A	2)				•	. ,					
Black Hi	• •	_,			 — Sandy Redox (S5) — Stripped Matrix (S6) 					— Dark Surface (S7)		
	n Sulfide (A4)		~	 Loamy Mucky Mineral (F1) 					— Iron-Manganese Masses (F12)		
Stratified	d Layers (A	.5)		Loamy Gleyed Matrix (F2)					Very Shallow Dark Surface (TF12)			
👱 2 cm Mu	ıck (A10)				Deplete	d Matrix (F3)		Other (Explain in Remarks)			
Thick Da Sandy № 5 cm Mu	icky Peat c	e (A12) eral (S1) or Peat (S3		 Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) 					wetlar	s of hydrophytic vegetation and id hydrology must be present, s disturbed or problematic.		
Restrictive I	Layer (if ol	bserved):										
Туре:												
Depth (ind	ches):								Hydric Soi	l Present? Yes 🖌 No		
Remarks:												

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
✓ High Water Table (A2) Aquatic Fauna (B13)	Drainage Patterns (B10)
✓ Saturation (A3) True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres on Living	Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled S	oils (C6) <u>~</u> Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)	
Field Observations:	
Surface Water Present? Yes No 🖌 Depth (inches):	
Water Table Present? Yes <u>v</u> No Depth (inches): <u>6</u>	
Saturation Present? Yes <u><</u> No <u>Depth (inches)</u> : <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>✓</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspe	ctions), if available:
Remarks:	

Project/Site: Midwater BESS	City/County: Freeborn County Sampling Date: 2024-04-30
Applicant/Owner: Spearmint Renewable Development	State: <u>Minnesota</u> Sampling Point: <u>WB-08-up</u>
Investigator(s): M. Stone	Section, Township, Range: <u>Sec 08 T101N R020W</u>
Landform (hillslope, terrace, etc.): <u>Headslope</u>	Local relief (concave, convex, none): <u>Convex</u>
Slope (%): <u>3-7</u> Lat: <u>43.558125</u>	Long: <u>-93.263314</u> Datum: <u>WGS84</u>
Soil Map Unit Name: Pits, sand and gravel	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of	f year? Yes 🗹 No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significant	ntly disturbed? Are "Normal Circumstances" present? Yes 🖌 🖌 No
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	ing sampling point locations, transects, important features, etc
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a Wetland? Yes <u>No</u>

Remarks:

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 1 (B)
4				(=)
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
Sapling/Shrub Stratum (Plot size: 15)		= Total Cov	er	Prevalence Index worksheet:
				Total % Cover of: Multiply by:
1				
2				OBL species 0.00 x 1 = 0.00
3	·			FACW species $0.00 \times 2 = 0.00$
4				FAC species X 3 =
5				FACU species <u>25.00</u> x 4 = <u>100.00</u>
		= Total Cov		UPL species <u>5.00</u> x 5 = <u>25.00</u>
Herb Stratum (Plot size: 5)				Column Totals: <u>100.00</u> (A) <u>335.00</u> (B)
1. <u>Poa pratensis</u>	70	Y	FAC	
2. Androsace occidentalis	15	N	FACU	Prevalence Index = $B/A = 3.35$
3. <u>Danthonia compressa</u>	10	N	FACU	Hydrophytic Vegetation Indicators:
4. <u>Descurainia incana</u>	_	Ν	UPL	1 - Rapid Test for Hydrophytic Vegetation
5				✓ 2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
				4 - Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8				— Problematic Hydrophytic Vegetation ¹ (Explain)
9				
10				1
	100.0	= Total Cov	er	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30)				
1				Hydrophytic
2				Vegetation
	0	T 1 1 C		Present? Yes 🖌 No
Remarks: (Include photo numbers here or on a separate s		= Total Cov	er	
	sieel.)			

Profile Desc	cription: (De	scribe	to the dept	th needed to docu	ment the i	ndicator	or confirm	the absence of in	dicators.)		
Depth		/latrix			ox Feature						
(inches)	Color (m	oist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-6	10YR	4/4	100					COS			
6-20	10YR	3/6						COS			
20-24	<u>10YR</u>	3/4	100								
		D=Depl	etion, RM=	Reduced Matrix, M	S=Masked	I Sand Gra	ains.		: PL=Pore Lining, N		
Hydric Soil									Problematic Hydric	Soils':	
Histosol	. ,			Sandy	Gleyed Ma	atrix (S4)		Coast Prairie Redox (A16)			
· ·	pipedon (A2)			,	Redox (S5	,		— Dark Surface (S7)			
	istic (A3) en Sulfide (A4	1)			d Matrix (S Mucky Mir			Iron-Manganese Masses (F12)			
	d Layers (A5)	,			Gleyed Ma			Very Shallow Dark Surface (TF12)			
	uck (A10)	·			ed Matrix (Other (Explain in Remarks)			
	d Below Dark	Surface	e (A11)		Dark Surfa				,		
·	ark Surface (A		()	Depleted Dark Surface (F7)				³ Indicators of hydrophytic vegetation and			
Sandy M	/lucky Minera	l (S1)		Redox Depressions (F8)				wetland hydrology must be present,			
5 cm Mu	ucky Peat or I	Peat (S3	5)					unless distu	rbed or problematic		
Restrictive I	Layer (if obs	erved):									
Туре:											
Depth (in	ches):							Hydric Soil Pres	ent? Yes	No 🖌	
Remarks:											
HYDROLO	GY										

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required;	Secondary Indicators (minimum of two required)	
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) 	 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Thin Muck Surface (C7) Gauge or Well Data (D9) 	 Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) (C6) Geomorphic Position (D2) FAC-Neutral Test (D5)
Sparsely Vegetated Concave Surface (B8) Field Observations:	Other (Explain in Remarks)	
Surface Water Present? Yes No Water Table Present? Yes No		Vetland Hydrology Present? Yes No ⊻ ns), if available:
Remarks: None observed.		



Appendix B

Non-Wetland Data Forms & Photographs

Midwater BESS

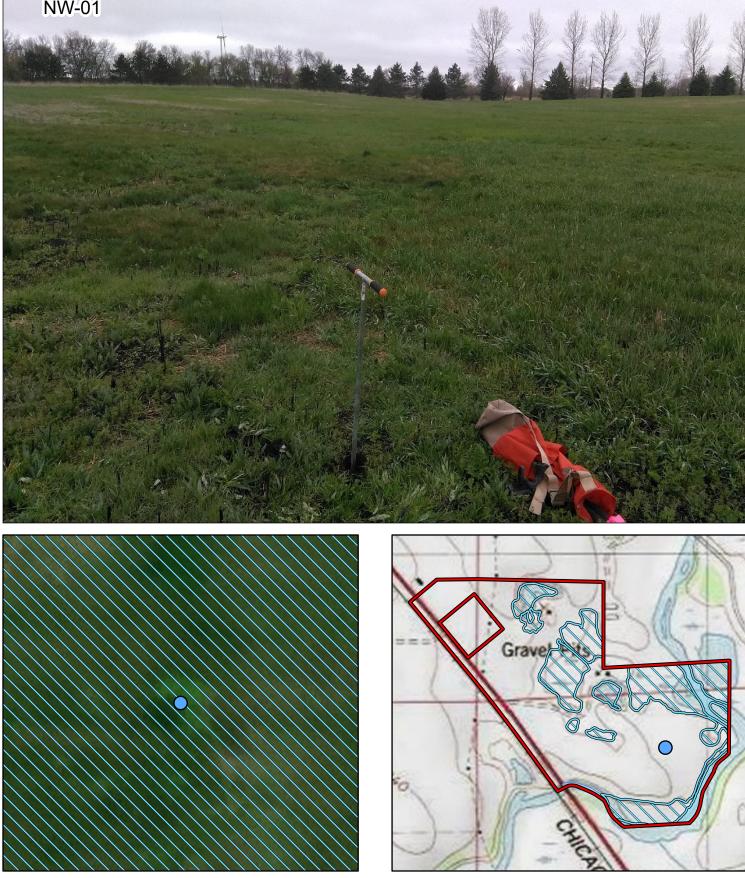
Shell Rock Township, Freeborn County, Minnesota

Midwater BESS Project Delineation Site Photograph



NW-01

Map Document. N:0046089.001. GIS. ArcPro/R0046089.040. WetlandPhotologs. 20240510/R0046089.040. WetlandPhotologs. 20240510/R0046089.040. WetlandPhotologs. 20240510/R0046089.040. GIS. ArcPro/R0046089.040. GIS. ArcPro/R0046089.040. WetlandPhotologs. 20240510/R0046089.040. WetlandPhotologs. 20240510/R0046089.040. GIS. ArcPro/R0046089.040. GIS. ArcPro/R004



Project/Site: Midwater BESS	_ City/County: Freeborn County	Sampling Date: 2024-04-29					
Applicant/Owner: Spearmint Renewable Development	State: Minnesota Sampling Point: NW-01						
Investigator(s): M. Stone, C. Gunn	_ Section, Township, Range: <u>sec 17 T101N R020W</u>						
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none): Concave						
Slope (%): 0-2 Lat: 43.556092	Long: <u>-93.261782</u>	Datum: WGS84					
Soil Map Unit Name: Shandep Ioam		NWI classification: None					
Are climatic / hydrologic conditions on the site typical for this time of y	year? Yes 🖌 No (If n	o, explain in Remarks.)					
Are Vegetation, Soil, or Hydrologysignificant	ly disturbed? Are "Normal Cire	cumstances" present? Yes 🖌 No					
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, expla	(If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.							
Hydronhytic Vegetation Present? Yes No 🖌							

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	v v v	Is the Sampled Area within a Wetland?	Yes	No
Remarks:						

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: 1 (A)
2				Total Number of Deminent
3				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4			·	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>33.33</u> (A/B)
Conting (Christian (Distring)	0	= Total Cov	rer	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15)				
1				Total % Cover of: Multiply by:
2				OBL species <u>0.00</u> x 1 = <u>0.00</u>
3				FACW species <u>0.00</u> x 2 = <u>0.00</u>
4				FAC species <u>50.00</u> x 3 = <u>150.00</u>
5				FACU species <u>105.00</u> x 4 = <u>420.00</u>
··		= Total Cov		UPL species $0.00 \times 5 = 0.00$
Herb Stratum (Plot size: 5)		- 10101 001		Column Totals: <u>155.00</u> (A) <u>570.00</u> (B)
1. <u>Bromus inermis</u>	50	Y	FACU	$\frac{100.00}{1000} (A) = \frac{100.00}{1000} (B)$
2. <u>Poa pratensis</u>		Y		Prevalence Index = B/A = <u>3.68</u>
3. <u>Galium aparine</u>	00	Y	FACU	Hydrophytic Vegetation Indicators:
4. <u>Panicum capillare</u>		N	FAC	1 - Rapid Test for Hydrophytic Vegetation
5. <u>Cirsium arvense</u>			FACU	2 - Dominance Test is >50%
6. <u>Pastinaca sativa</u>	10		NI	3 - Prevalence Index is ≤3.0 ¹
7. <u>Solidago canadensis</u>		 N	FACU	4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				— Problematic Hydrophytic Vegetation ¹ (Explain)
			·	
10				¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 30)	165.0	= Total Cov	er	be present, unless disturbed or problematic.
1				
				Hydrophytic Venetation
2	·			Vegetation Present? Yes No _ 🖌
	0	= Total Cov	rer	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Depth						
(inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type ¹	Loc ²	Texture	Remarks
0-24	10YR 2/1	100			L	
24-28	10YR 2/2	100			FSL	Some silty inclusions
2720						
		<u> </u>				
Type: C=C	oncentration, D=Dep	letion, RM=R	educed Matrix, MS=Masked Sand Gr	ains.	² Lo	cation: PL=Pore Lining, M=Matrix.
lydric Soil	Indicators:					s for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy Gleyed Matrix (S4)		Coast	Prairie Redox (A16)
	pipedon (A2)		— Sandy Redox (S5)		- Dark S	Surface (S7)
	istic (A3)		Stripped Matrix (S6)			langanese Masses (F12)
	en Sulfide (A4)		Loamy Mucky Mineral (F1)			Shallow Dark Surface (TF12)
	d Layers (A5) Jck (A10)		Loamy Gleyed Matrix (F2) Depleted Matrix (F3)		-	(Explain in Remarks)
	d Below Dark Surfac	e (A11)	Redox Dark Surface (F6)			
	ark Surface (A12)	- (/ · · · /)	Depleted Dark Surface (F7)	³ Indicator	s of hydrophytic vegetation and
	/lucky Mineral (S1)		Redox Depressions (F8)	/		id hydrology must be present,
-	ucky Peat or Peat (S	3)	,			s disturbed or problematic.
estrictive l	Layer (if observed):					
Туре:			_			
Depth (in	ches):				Hydric Soi	l Present? Yes No 🖌
Vetland Hy	drology Indicators:				Constant	
Vetland Hy Primary Indic	drology Indicators: cators (minimum of o		I; check all that apply)			ary Indicators (minimum of two required
Vetland Hy Primary India Surface	drology Indicators: cators (minimum of o Water (A1)		Water-Stained Leaves (B9)		Sur	face Soil Cracks (B6)
Vetland Hyd Primary India Surface High Wa	drology Indicators: cators (minimum of o Water (A1) ater Table (A2)		Water-Stained Leaves (B9) Aquatic Fauna (B13)		Sur Dra	face Soil Cracks (B6) inage Patterns (B10)
Vetland Hy Primary India Surface High Wa Saturatio	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3)		Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14)		Sur Dra Dry	face Soil Cracks (B6) iinage Patterns (B10) r-Season Water Table (C2)
Vetland Hy Primary India Surface High Wa Saturatia Water M	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1)		Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1)	ing Boots (Sur Dra Dry Cra	face Soil Cracks (B6) inage Patterns (B10) r-Season Water Table (C2) iyfish Burrows (C8)
Vetland Hy Primary Indid Surface High Wa Saturatid Water M Sedimer	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)		 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv 		Sur Dra Dry Cra C3) Sat	face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Deg	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)		Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C-	4)	Sur Dra Dry Cra C3) Sat Stu	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille 	4)	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	one is required	 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C-Recent Iron Reduction in Tille Thin Muck Surface (C7) 	4)	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I	ne is required	 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9) 	4)	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Vetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Iron Dep Sparsely	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave	ne is required	 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9) 	4)	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Vetland Hy Primary India Surface High Wa Saturatia Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations:	ne is required magery (B7) e Surface (B8	 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) 	4) d Soils (C6	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Primary India Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Wate	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y	me is required magery (B7) e Surface (B8 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks)	4) d Soils (C6	Sur Dra Dry Cra C3) Sat Stu) Gev	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Primary India Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Wate Vater Table Saturation P	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Present? Y	Imagery (B7) e Surface (B8 ges No ges No	 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) 	4) d Soils (C6	Sur Dra Dry Cra C3) Sat Stu) Gea FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Primary India Primary India Surface High Wa High Wa Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundation Sparsely Field Obser Surface Water Vater Table Saturation P Dincludes cap	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y Present? Y resent? Y pillary fringe)	Imagery (B7) e Surface (B8 'es No 'es No 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	4) d Soils (C6	C3) Ger C3) Sat C3) Sat Stu) Ger FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Water Vater Table Saturation P includes cap	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y Present? Y resent? Y pillary fringe)	Imagery (B7) e Surface (B8 'es No 'es No 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks)	4) d Soils (C6	C3) Ger C3) Sat C3) Sat Stu) Ger FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Vetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Water Vater Table Saturation P includes cap Describe Re	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y Present? Y resent? Y pillary fringe)	Imagery (B7) e Surface (B8 'es No 'es No 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	4) d Soils (C6	C3) Ger C3) Sat C3) Sat Stu) Ger FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Wate Water Table Saturation P (includes cap	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y Present? Y resent? Y pillary fringe)	Imagery (B7) e Surface (B8 'es No 'es No 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	4) d Soils (C6	C3) Ger C3) Sat C3) Sat Stu) Ger FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Vetland Hyv Primary India Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Field Obser Surface Wate Vater Table Saturation P includes cap Describe Re	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial I y Vegetated Concave vations: er Present? Y Present? Y resent? Y pillary fringe)	Imagery (B7) e Surface (B8 'es No 'es No 'es No	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C- Recent Iron Reduction in Tille Thin Muck Surface (C7) Gauge or Well Data (D9)) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	4) d Soils (C6	C3) Ger C3) Sat C3) Sat Stu) Ger FAd	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)

Midwater BESS Project Delineation Site Photograph

Westwood



Project/Site: Midwater BESS		City/County: Freeborn County Sampling Date: 2024-04						
Applicant/Owner: Spearmint Renewab	le Development	State: Minnesota Sampling Point: NW-02						
Investigator(s): M. Stone, C. Gunn		Section, Township, Range: <u>sec 08 T101N R020W</u>						
Landform (hillslope, terrace, etc.): Rise		Local relief (concave, convex, none): <u>Convex</u>						
Slope (%): <u>0-2</u> Lat: <u>43.558246</u>		Long: <u>-93.263813</u>	Datum: WGS84					
Soil Map Unit Name: Pits, sand and gra	vel		NWI classification: None					
Are climatic / hydrologic conditions on the sit	e typical for this time of ye	ear? Yes 🖌 No (If	no, explain in Remarks.)					
Are Vegetation, Soil, or Hydr	ology significantly	disturbed? Are "Normal C	ircumstances" present? Yes 🖌 No					
Are Vegetation, Soil, or Hydr	ology naturally pr	oblematic? (If needed, exp	plain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
	″es No∕ ″es No∕	Is the Sampled Area						

Hydric Soil Present? Wetland Hydrology Present?	Yes Yes	No _ No _	✓ ✓	within a Wetland?	Yes	No	<u>~</u>
Remarks:							

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</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: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 50.00 (A/B)
		= Total Cov		
Sapling/Shrub Stratum (Plot size: 15)	<u>v</u>			Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
				OBL species 0.00 x 1 = 0.00
2				FACW species $0.00 \times 2 = 0.00$
3				· · · · · · · · · · · · · · · · · · ·
4				FAC species $30.00 \times 3 = 90.00$
5				FACU species <u>60.00</u> x 4 = <u>240.00</u>
	0	= Total Cov	er	UPL species <u>0.00</u> x 5 = <u>0.00</u>
Herb Stratum (Plot size: 5)				Column Totals: <u>90.00</u> (A) <u>330.00</u> (B)
1. <u>Bromus inermis</u>	60	Y	FACU	()
2. <u>Poa pratensis</u>	30	Y	FAC	Prevalence Index = B/A = <u>3.67</u>
3				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
4				2 - Dominance Test is >50%
5				
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
				— Problematic Hydrophytic Vegetation ¹ (Explain)
9				
10				¹ Indicators of hydric soil and wetland hydrology must
	90.0	= Total Cov	er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30)				
1				Hydrophytic
2				Vegetation
				Present? Yes No 🖌
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Profile Des	cription: (D	escribe	to the dep	th needed to docun	nent the ir	ndicator	or confirm	the absence	e of indicators.)		
Depth		Matrix		Redo	x Features	6					
(inches)	Color (n	noist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-4	10YR	2/2	100					COSL			
4-8	10YR	3/2	100					COSL	Gravel inclusions		
<u> </u>	<u>10YR</u>	2/2	100				. <u></u> .	SL	Gravel inclusions		
										<u> </u>	
¹ Type: C=C	oncentration	, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.		cation: PL=Pore Lining, M=Matrix.		
Hydric Soil	Indicators:							Indicators	s for Problematic Hydric Soils ³ :		
Histoso	l (A1)			Sandy C	Bleyed Mat	trix (S4)		Coast	Prairie Redox (A16)		
	pipedon (A2))			Redox (S5)			- Dark	Surface (S7)		
	istic (A3)				I Matrix (S	,		Iron-N	langanese Masses (F12)		
	en Sulfide (A	,			Mucky Min			Very Shallow Dark Surface (TF12)			
Stratified Layers (A5) Loamy Gleyed Matrix (F2) 2 cm Muck (A10) Depleted Matrix (F3)							-	Other (Explain in Remarks)			
Depleted Matrix (F3)							(
Thick Dark Surface (A12) Depleted Dark Surface (F7)						³ Indicator	s of hydrophytic vegetation and				
Sandy M	Mucky Minera	al (S1)		Redox [Depression	ns (F8)		wetlar	nd hydrology must be present,		
	ucky Peat or		-					unles	s disturbed or problematic.		
	Layer (if ob	served):									
Type: <u>Fi</u>											
	iches): <u>16</u>							Hydric Soi	I Present? Yes No 🖌	<u> </u>	
Remarks: Rock lay	er of res	istanc	e at 16	in.							
HYDROLO	GY										
Wetland Hy	drology Ind	icators:									
Primary Indi	cators (minin	<u>num of o</u>	ne is requi	red; check all that ap	ply)			Second	ary Indicators (minimum of two requi	ired)	
Surface	Water (A1)			Water-Stai	ned Leave	es (B9)		Su	face Soil Cracks (B6)		
High Wa	ater Table (A	2)		Aquatic Fa	una (B13)			Dra	ainage Patterns (B10)		
Saturati	ion (A3)			True Aqua	tic Plants ((B14)		Dry	-Season Water Table (C2)		
Water M	/larks (B1)			Hydrogen	Sulfide Od	lor (C1)		Cra	ayfish Burrows (C8)		
Sedime	nt Deposits (B2)		Oxidized F	hizospher	es on Liv	ing Roots (C3) Sat	uration Visible on Aerial Imagery (CS	Э)	
Drift De	posits (B3)			Presence	of Reduced	d Iron (C4	+)	Stu	nted or Stressed Plants (D1)		
Algal Ma	Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6)								omorphic Position (D2)		

____ Thin Muck Surface (C7)

____ Gauge or Well Data (D9)

 Yes
 No
 ✔
 Depth (inches):

 Yes
 No
 ✔
 Depth (inches):

Yes _____ No ___ Depth (inches): ____

Other (Explain in Remarks)

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

____ Inundation Visible on Aerial Imagery (B7)

Sparsely Vegetated Concave Surface (B8)

None observed.

Iron Deposits (B5)

Field Observations: Surface Water Present?

Water Table Present?

Saturation Present?

____ FAC-Neutral Test (D5)

Wetland Hydrology Present? Yes ____ No <u>/</u>

Midwater BESS Project Delineation Site Photograph





Project/Site: Midwater BESS	City/County: Freeborn Co	unty Sampling Date: 2024-04-30						
Applicant/Owner: Spearmint Renewable Developme	ntSf	tate: <u>Minnesota</u> Sampling Point: <u>NW-03</u>						
Investigator(s): <u>M. Stone</u>	Section, Township, Range: <u>S</u>	ec 17 T101N R020W						
Landform (hillslope, terrace, etc.): Ditch	Local relief (conca	ve, convex, none): <u>Concave</u>						
Slope (%): <u>0-2</u> Lat: <u>43.555223</u>	Long: <u>-93.265921</u>	Datum: WGS84						
Soil Map Unit Name: Kalmarville loam, frequently floo	ded	NWI classification: None						
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>V</u> No (If no, explain in Remarks.)								
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Are "Norma	I Circumstances" present? Yes No						
Are Vegetation, Soil, or Hydrology natu	rally problematic? (If needed,	explain any answers in Remarks.)						
SUMMARY OF FINDINGS – Attach site map sh	owing sampling point location	ons, transects, important features, etc.						
Hydrophytic Vegetation Present? Yes No _	Is the Sampled Area							
Hydric Soil Present? Yes No	IS LIE Sallipieu Alea	Yes No 🗸						
Wetland Hydrology Present? Yes No _								
Remarks:								

Tree Stratum (Plot size: 30) % Cover Species? Status. 1. <i>Fraxinus americana</i> 10 Y FACU 3. 5 Y FAC 3. 5 Y FAC 4		Absolute	Dominant		Dominance Test worksheet:
2 Populus deltoides 5 Y FAC 3.					
3.	1. <u>Fraxinus americana</u>				That Are OBL, FACW, or FAC: (A)
3.	2. <u>Populus deltoides</u>	5	<u> </u>	FAC	Total Number of Dominant
5.	3				
5.	4				
Sapling/Shrub Stratum (Plot size:15.0 = Total Cover Intervention of the size (total size) 1. 2. 3. 4. 5. 90 Y FACU FACU species 1. Brownus inermis 90 Y FACU Prevalence Index worksheet: 1. Brownus inermis 90 Y FACU Species 1. Brownus inermis 90 Y FACU Species 1. Brownus inermis 90 Y FACU Prevalence Index = B/A = 3.95 3.					
Sapling/Shrub Stratum (Plot size:15) Prevalence Index worksheet: 1			= Total Cov	er	
2.	Sapling/Shrub Stratum (Plot size: 15)				Prevalence Index worksheet:
2.	1				Total % Cover of: Multiply by:
3.					OBL species <u>0.00</u> x 1 = <u>0.00</u>
4.					FACW species 0.00 x 2 = 0.00
5. \square					· <u> </u>
\square					
Herb Stratum (Plot size: 5) 90 Y FACU 1. Bromus inermis 90 Y FACU 2. 90 Y FACU 3. 1 Prevalence Index = B/A = 3.95 4. 1 Rapid Test for Hydrophytic Vegetation 5. 1 Prevalence Index is \$50% 6. 3 Prevalence Index is \$301 7. 4 Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 9. 90.0 10. 90.0 Woody Vine Stratum (Plot size: 30) 90.0 1. 90.0 2. 0 0 = Total Cover					· · · · · · · · · · · · · · · · · · ·
1. Bromus inermis 90 Y FACU FACU 2.	Herb Stratum (Plot size: 5)			ei	· · · · · · · · · · · · · · · · · · ·
2.	,	90	Y	FACU	Column rotals. 105.00 (A) 415.00 (B)
3					Prevalence Index = $B/A = 3.95$
4.					Hydrophytic Vegetation Indicators:
5.					
0.					
7.					
8.					
8.					
9.					, , , , , , , , , , , , , , , , , , , ,
Woody Vine Stratum (Plot size: 30) 90.0 = Total Cover Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 1.					
Woody Vine Stratum (Plot size: 30)	10				¹ Indiantena of hydric poil and wetland hydrology, myst
1	Woody Vine Stratum (Plot size: 30)	90.0	= Total Cov	er	
2 Vegetation 0_ = Total Cover Yes No _ ✔					
= Total Cover					
0 = Total Cover	۲۲۰				
Remarks: (Include photo numbers here or on a separate sheet.)		0	= Total Cov	er	
	Remarks: (Include photo numbers here or on a separate s	sheet.)			·

	Depth Mat		Redox Features	
16:24 10YR 3/2 100 SIL "Type: C-Concentration, D-Depletion, RM-Reduced Matrix, MS-Masked Sand Grains. *Location: PL-Pore Lining, M-Matrix. "Histosol (A) Sandy Gleyed Matrix (S4) Indicators for Problematic Hydric Solls': Histosol (A) Sandy Redox (S5) Dark Surface (S7) Black Histic (A) Sandy Redox (S5) Dark Surface (S7) Black Histic (A) Learny Mucky Mineral (F1) Very Shallow Dark Surface (T12) Stratified Layers (A5) Learny Mucky Mineral (F1) Very Shallow Dark Surface (T12) 2 cm Muck (A10) Depleted Matrix (F3) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Dark Surface (F7) *Indicators of hydrophylic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type:	(inches) Color (mois	it) %	<u>Color (moist)</u> % <u>Type¹</u> L	
Image: Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ¹ Location: PL=Pore Lining, M=Matrix. Histic Epretor (A2) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S3) Sandy Redox (S5) Sandy Matrix (S4) Sandy Matrix (S6) Sandy Matrix (S1) Sandy Matrix (S1) Depleted Berk Surface (F1) Sandy Matrix (S1) Sandy Matrix (S1) Sandy Matrix (S1) Sandy Matrix (Mineral (S1) Sandy Matrix (Mineral (S1) Sandy Matrix (Mineral (S1) Sandy Matrix (Mineral (S1) Redox Depressions (F8) waltand hydrology multie present, unless disturbed or problematic. KYDROLOCY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required, check all that apply) Secondary Indicators (minimum of two required therapite) Secondary Indicators (minimum of two required therapite) Secondary Indicators (minimum of two required therapite) Sandy Matrix (B1) Hydrogon Site (B2) Oxidized Rhize (C2) Sandy Andrix (B1) Hydrogon Site (B2) Oxidized Rhize (C3) Saturation Yaber Table (C2) Carylish Burrows (C3) Saturation Sites (B1) Hydrogons (B3) Presence of Reduced Init (C4) Saturation Sites Patterns (B1) Hydrogons (B3) Presence of Reduced Init (C4) Saturation Sites Patterns (B1) Hydrogons (B3) Presence of Reduced Init (C4)	<u>0-16 10YR 2/</u>	/2 100		SIL
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)	<u> 16-24 10YR 3/</u>	/2 100		
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Hydric Soil Indicators: Indicators (Problematic Hydric Soils ² : Histos (A1)				
Histosol (A1)		Depletion, RM	=Reduced Matrix, MS=Masked Sand Grains	
Histic Epipedon (A2) Sandy Redox (S5) Dark Surface (S7) Biack Histic (A3) Stripped Matrix (S6) Ion-Manganese Masses (F12) Hydrogen Surface (A4) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (T12) 2 cm Muck (A10) Depleted Matrix (F2) Very Shallow Dark Surface (T12) 2 cm Muck (A10) Depleted Matrix (F2) Very Shallow Dark Surface (T12) 3 sandy Mucky Mineral (S1) Redox Dark Surface (F7) ³ Indicators of hydrophytic vegetation and wetand hydrology must be present, unless disturbed or problematic. S com Mucky Peat or Peat (S3) Redox Depressions (F8) wetand hydrology must be present, unless disturbed or problematic. Pype:	•			-
Black Histic (A3)			Sandy Gleyed Matrix (S4)	Coast Prairie Redox (A16)
				— Dark Surface (S7)
Indigen Joint (Park (Par				Iron-Manganese Masses (F12)
2 cm Muck (A10)				
				Other (Explain in Remarks)
	Depleted Below Dark Su	urface (A11)	Redox Dark Surface (F6)	
5 cm Mucky Peat or Peat (S3) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No ✓ Mo ✓ Mo Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two require		,		
Restrictive Layer (if observed):: Type:			Redox Depressions (F8)	
Type:	-			unless disturbed or problematic.
Depth (inches):	_ • •			
Remarks: Unable to sample further due to auger length. INPROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Field Observations: Surface Water Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes	<u>, , , , , , , , , , , , , , , , , , , </u>			
Unable to sample further due to auger length. WDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) Secondary Indicators (minimum of two required)	Deptn (Inches):			Hydric Soll Present? Yes No V
Wetland Hydrology Indicators: Secondary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required)	Unable to sample it	unther due	to auger length.	
Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1)	Unable to sample it		to auger length.	
			to auger length.	
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes No ✓ Saturation Present? Yes No ✓ Depth (inches): Metland Hydrology Present? Yes No ✓ Mater Table Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY			
	IYDROLOGY Wetland Hydrology Indicat	tors:		Secondary Indicators (minimum of two require
	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum	tors:	red; check all that apply)	Surface Soil Cracks (B6)
	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1)	tors:	red; check all that apply) Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)	tors:	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)
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	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	tors: n of one is requi	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8)Other (Explain in Remarks) Field Observations: Surface Water Present? YesNo _ ✓ Depth (inches): Water Table Present? YesNo _ ✓ Depth (inches): Saturation Present? YesNo _ ✓ Depth (inches): Saturation Present? YesNo _ ✓ Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	tors: n of one is requi	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)
Sparsely Vegetated Concave Surface (B8)Other (Explain in Remarks) Field Observations: Surface Water Present? YesNo _ ✓ Depth (inches): Water Table Present? YesNo _ ✓ Depth (inches): Saturation Present? YesNo _ ✓ Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	HYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum	tors: n of one is requi	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sc	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Field Observations: Surface Water Present? Yes No _ Depth (inches): Water Table Present? Yes No _ Depth (inches): Saturation Present? Yes No _ Depth (inches): Saturation Present? Yes No _ Depth (inches): (includes capillary fringe) Depth (inches): Wetland Hydrology Present? Yes No _ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum 	tors: n of one is requi	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sc Thin Muck Surface (C7)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Surface Water Present? Yes No v Depth (inches): Water Table Present? Yes No v Depth (inches): Saturation Present? Yes No v Depth (inches): Saturation Present? Yes No v Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes No v Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae	t ors: <u>a of one is requi</u> erial Imagery (B	red; check all that apply) — Water-Stained Leaves (B9) — Aquatic Fauna (B13) — True Aquatic Plants (B14) — Hydrogen Sulfide Odor (C1) — Oxidized Rhizospheres on Living I — Presence of Reduced Iron (C4) — Recent Iron Reduction in Tilled So — Thin Muck Surface (C7) 7) — Gauge or Well Data (D9)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Water Table Present? Yes No v Depth (inches): Wetland Hydrology Present? Yes No v Depth (inches): Wetland Hydrology Present? Yes No v [includes capillary fringe] Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Cor	t ors: <u>a of one is requi</u> erial Imagery (B	red; check all that apply) — Water-Stained Leaves (B9) — Aquatic Fauna (B13) — True Aquatic Plants (B14) — Hydrogen Sulfide Odor (C1) — Oxidized Rhizospheres on Living I — Presence of Reduced Iron (C4) — Recent Iron Reduction in Tilled So — Thin Muck Surface (C7) 7) — Gauge or Well Data (D9)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Saturation Present? Yes No _ ✓ Depth (inches): Wetland Hydrology Present? Yes No _ ✓ (includes capillary fringe) No _ ✓ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Cor Field Observations:	tors: n of one is requi erial Imagery (B ncave Surface (red; check all that apply)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum 	t ors: <u>n of one is requi</u> erial Imagery (B ncave Surface (Yes	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sc Thin Muck Surface (C7) 7) Gauge or Well Data (D9) B8) Other (Explain in Remarks)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	HYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Cor Field Observations: Surface Water Present? Water Table Present?	tors: <u>n of one is requi</u> erial Imagery (B ncave Surface (Yes Yes	red; check all that apply)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Roots (C3)Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Seomorphic Position (D2) FAC-Neutral Test (D5)
Remarks:	HYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum	tors: <u>n of one is requi</u> erial Imagery (B ncave Surface (Yes Yes	red; check all that apply)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Roots (C3)Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Secomorphic Position (D2) FAC-Neutral Test (D5)
Remarks:	HYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum	tors: a of one is requi erial Imagery (B ncave Surface (Yes Yes Yes	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sc Thin Muck Surface (C7) 7) Gauge or Well Data (D9) B8) Other (Explain in Remarks) No Depth (inches): No Depth (inches): No Depth (inches):	
	HYDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum	tors: a of one is requi erial Imagery (B ncave Surface (Yes Yes Yes	red; check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sc Thin Muck Surface (C7) 7) Gauge or Well Data (D9) B8) Other (Explain in Remarks) No Depth (inches): No Depth (inches): No Depth (inches):	



Appendix C

Watercourse Data Forms & Photographs

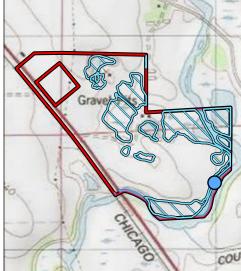
Midwater BESS

Shell Rock Township, Freeborn County, Minnesota

Midwater BESS Project Watercourse Photograph











Midwater BESS Project Watercourse Data Form

	Attributes	
Feature ID	WC-01	
Defined Bed & Bank	Yes	
Mapped on NHD	Yes	
Mapped on NWI	Yes	
Investigator		
Flow Characteristics	Perennial	
Direction of the Flow	S	
Water Width at Observation Point (ft)	50	
Water Depth at Observation Point (ft)	15	
Left Bank Height (ft) - Looking Downstream	3	
Right Bank Height (ft) - Looking Downstream	4	
OHWM Width (ft)	50+	
OHWM Height (ft from Substrate)	12	
Evidence of Scour or Erosion	Yes	
OHWM Criteria	Bed and banks	
Pools, Riffles, Runs Present?	Riffles	
Substrate	Clay	





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Appendix D

Offsite Hydrology Review

Midwater BESS

Shell Rock Township, Freeborn County, Minnesota

Hydrology Assessment with Aerial Imagery-Recording Form¹

Project Name: <u>Midwater BESS</u>

Investigator: M. Stone

Date: <u>03/08/2024</u> County: <u>Freeborn</u> Legal Description (S, T, R): <u>08/17-101N-20W</u> Summary Table

Photo Year²	Image Source ²	Actual/ Estimated Photo	Climate condition (wet, dry,			list hydro op stress		
		Date ³	normal) ^{4,5}	SA-01	SA-02	SA-03		
2003	NAIP	07/18/2003	Normal	CS	CS	NV		
2005	NAIP	06/22/2005	Normal	CS	CS	CS		
2006	NAIP	07/18/2006	Dry	CS	NV	CS		
2008	NAIP	08/30/2008	Normal	DO	DO	NV		
2009	NAIP	06/13/2009	Normal	CS	CS	NV		
2010	NAIP	10/28/2010	Normal	SW, DO	NV	NV		
2013	NAIP	07/12/2013	Wet	CS (sm)	NV	NV		
2015	NAIP	09/30/2015	Wet	CS	CS	CS (sm)		
2017	NAIP	09/20/2017	Normal	NC, WS	NC, WS	NC, WS		
2019	NAIP	07/27/2019	Normal	CS, AP	AP	AP, CS		
2021	NAIP	08/14/2021	Dry	NV	NV	NV		
2023*	NAIP	07/30/2023	Dry	CS	CS	CS		

Summary Table

	SA-01	SA-02	SA-03
# Years of aerial photography	13	13	13
# Normal Years (1991-2017)	8	8	8
# signatures in Normal years	7	6	3
# signatures in Wet years	2	2	1
# Signatures in Dry years	2	1	2
# signatures in all years	11	9	6
% Usable Yrs with wet signatures ⁷	7/8 = 87.5%	6/8 = 75%	3/8 = 37.5%

(sm)= smaller area than whole area showed signature

¹ Form adapted from BWSR/USACE Technical Guidance, July 1, 2016.

²Photo selection for historical aerial photography review are from the MnGEO WMS GIS server, Google Earth, and GIS sources such as County, watersheds, or cities. ³July 1 was used as the date for aerial photographs when determining antecedent precipitation when an actual date could not be determined. Other aerial photography from County GIS, Google imagery, NAIP, etc. was dated based on available information.

⁴MN State Climatology website used to produce three-prior-month (NRCS) method for parcel being investigated.

⁵Photo dates at the end of the month were advanced to the next month to determine climate conditions using the NRCS/3-prior-month method if the daily precipitation data from that month warranted it.

⁶Key below is used label photo interpretations. It is imperative the reviewer read and understand the guidance associated with the use of the labels.

⁷Equal number of most recent wet and dry years used if 5 normal years were not available. Otherwise only Normal years.

*Base photo for suspect areas

Definitions

CS-crop stress SGO-something going onINC not croppedInt ancrea patternDive dry not croppedNSS- no soil wetness (sm)- smaller area

WS is typically used for interpretation in non-cropped areas or green areas in dry conditions

Wetland Determination from Aerial Imagery – Recording Form

Project Name:	Midwater BESS	Date: 03/11/2024	County:	Freeborn	
Investigator:	M. Stone	Legal Description (T, R, S):	101N	20W	17

Use the Decision Matrix below to complete Table 1.

Hydric Soils present ¹	Identified on NWI or other wetland map ²	Percent with wet signatures from Exhibit 1	Field verification required ³	Wetland?
Yes	Yes	>50%	No	Yes
Yes	Yes	30-50%	No	Yes
Yes	Yes	<30%	Yes	Yes, if other hydrology indicators present
Yes	No	>50%	No	Yes
Yes	No	30-50%	Yes	Yes, if other hydrology indicators present
Yes	No	<30%	No	No
No	Yes	>50%	No	Yes
No	Yes	30-50%	No	Yes
No	Yes	<30%	No	No
No	No	>50%	Yes	Yes, if other hydrology indicators present
No	No	30-50%	Yes	Yes, if other hydrology indicators present
No	No	<30%	No	No

¹The presence of hydric soils can be determined from the "Hydric Rating by Map Unit Feature" under "Land Classifications" from the Web Soil Survey. "Not Hydric" is the only category considered to not have hydric soils. Field sampling for the presence/absence of hydric soil indicators can be used in lieu of the hydric rating if appropriately documented by providing completed field data sheets.

 2 At minimum, the most updated NWI data available for the area must be reviewed for this step. Any and all other local or regional wetland maps that are publically available should be reviewed.

 3 Area should be reviewed in the field for the presence/absence of wetland hydrology indicators per the applicable 87 Manual Regional Supplement, including the D2 indicator (geomorphic position).

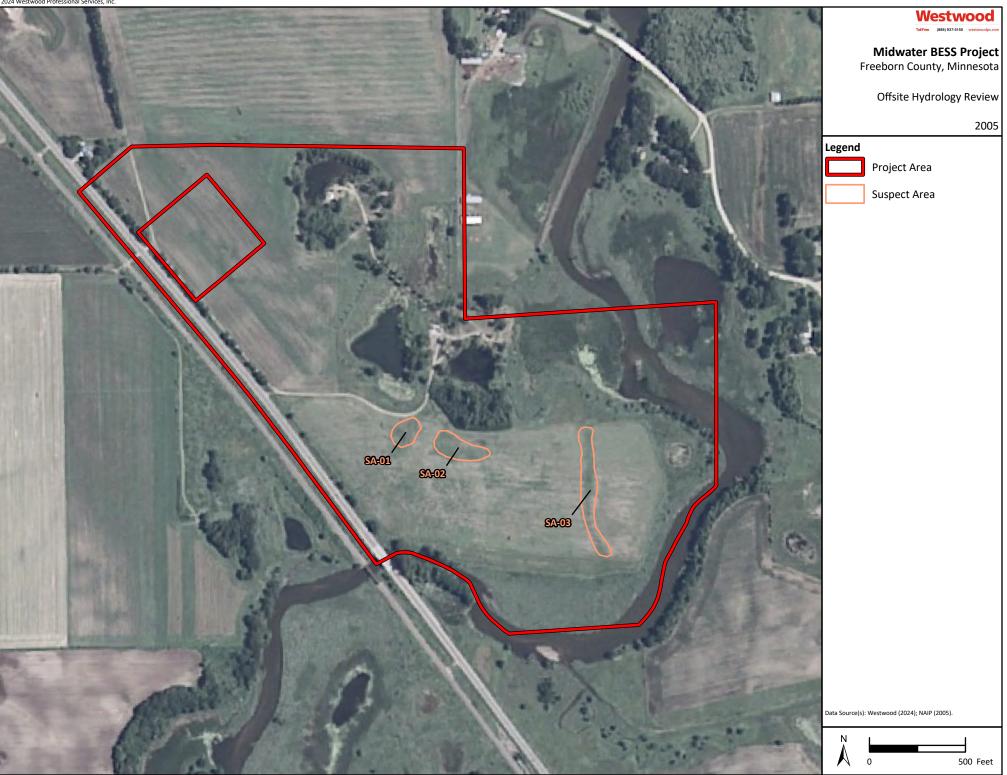
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Suspect Area	Hydric Soils Present	Identified on NWI or other wetland map	Percent with wet signatures from Exhibit 1	Other hydrology indicators present ¹	Wetland?
1	Yes	No	87.5		Yes
2	Yes	No	75		Yes
3	Yes	No	37.5		Yes, if other hydrology indicators present

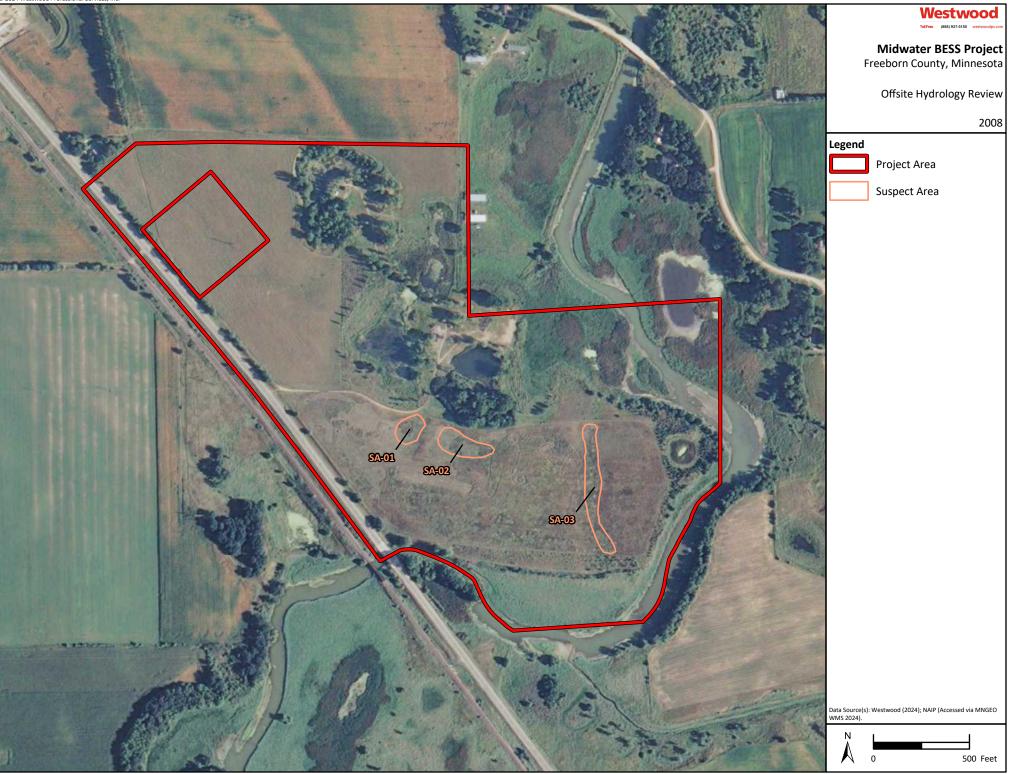
¹ Answer "N/A" if field verification is not required and was not conducted.

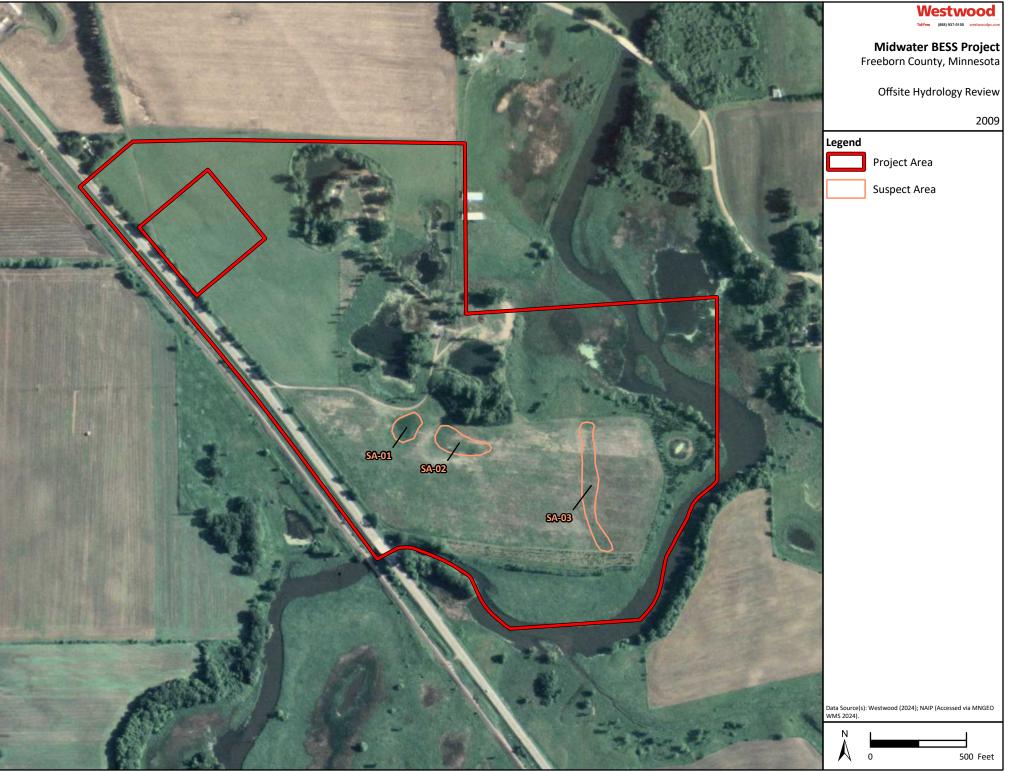




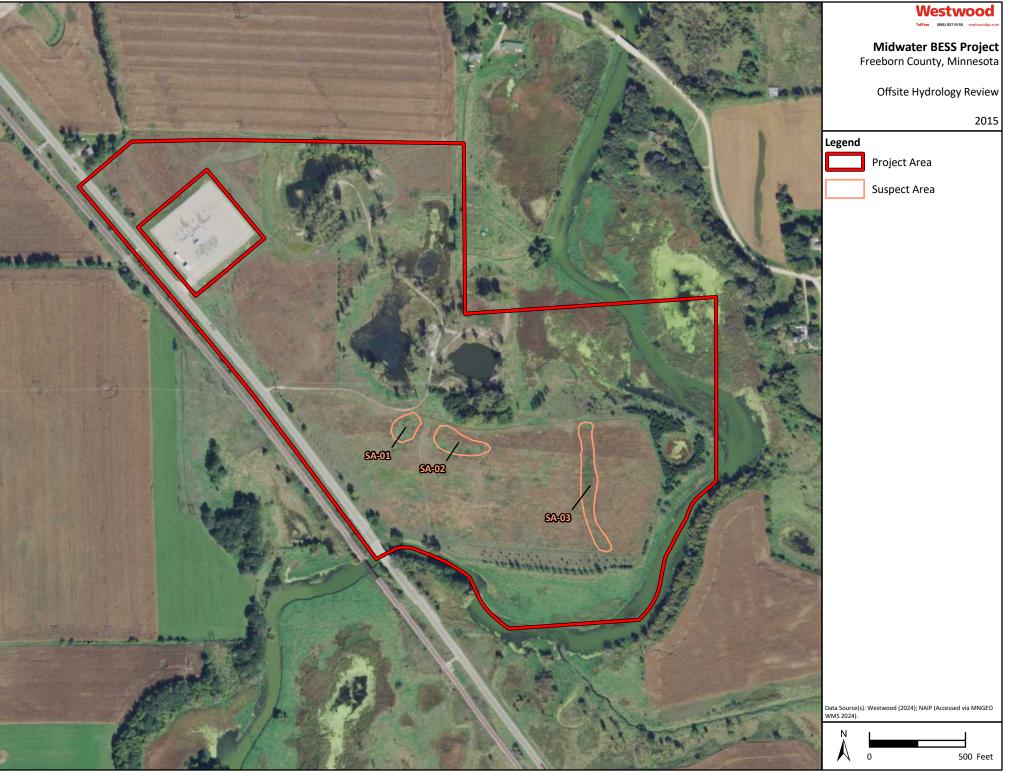


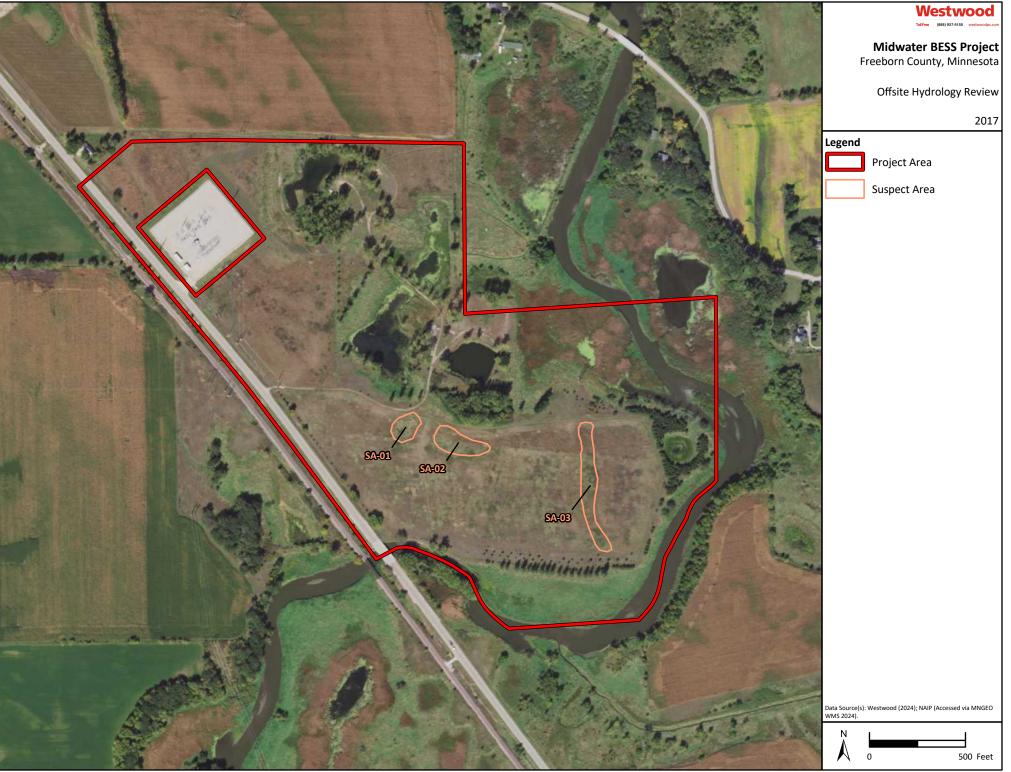


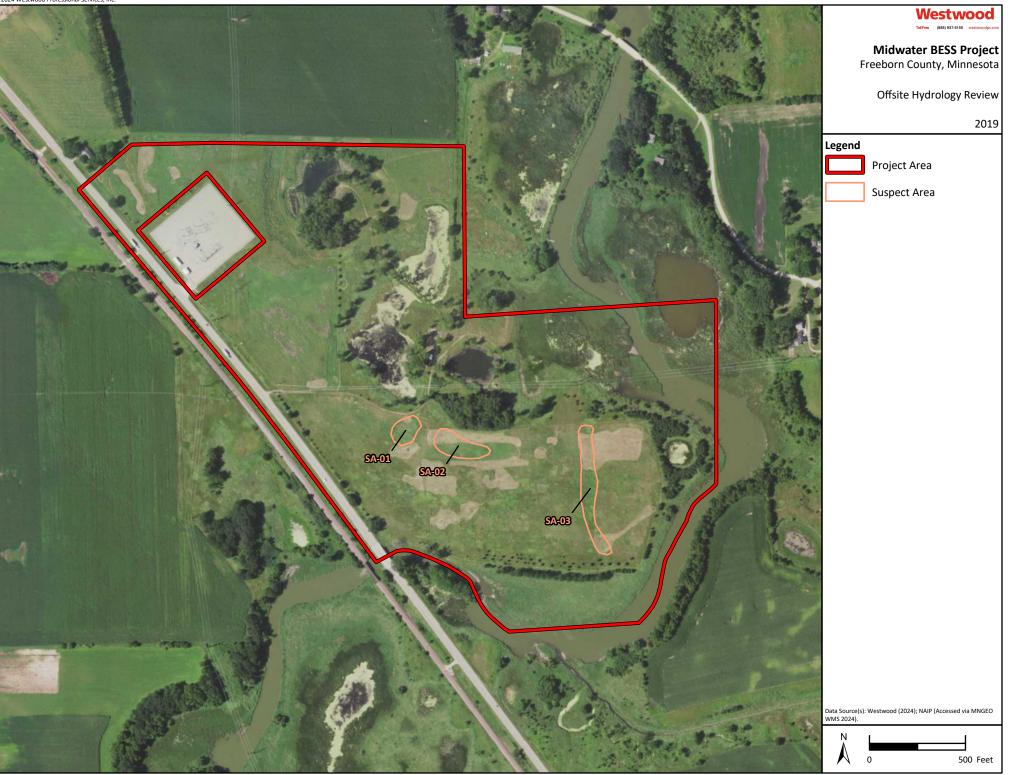


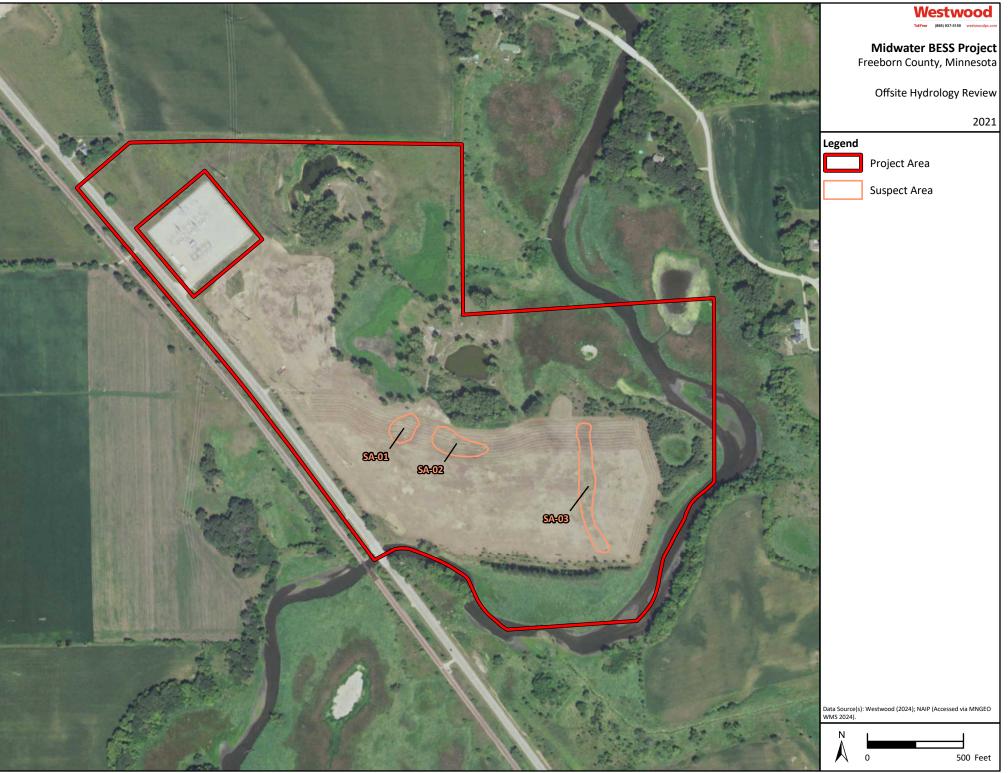


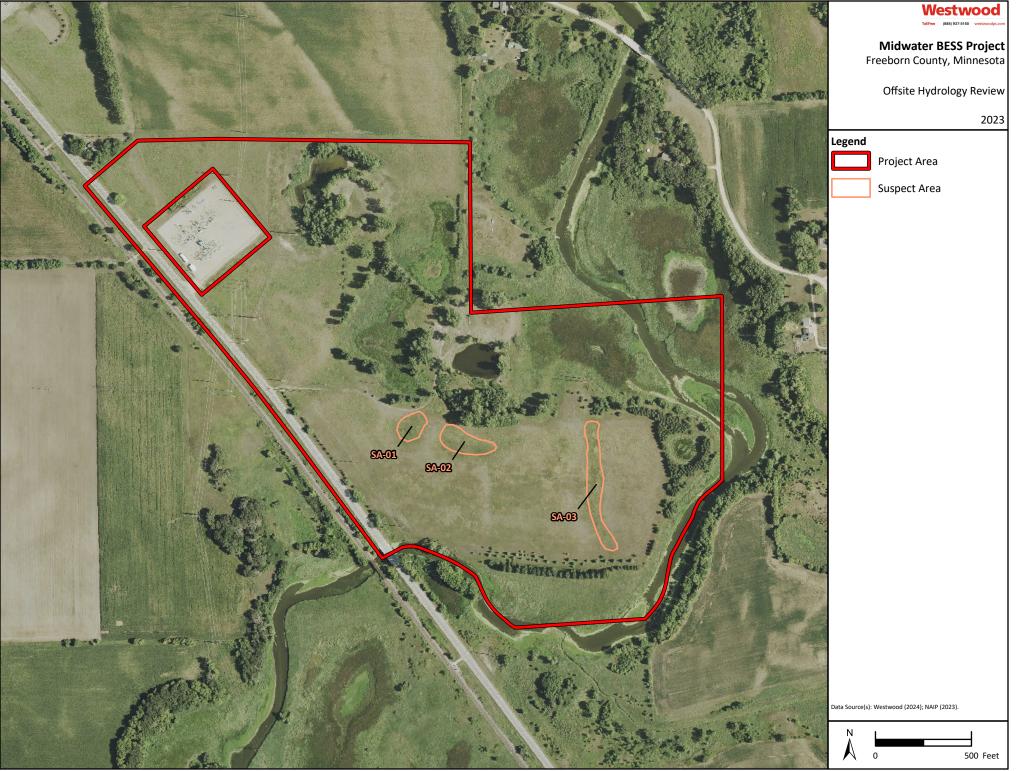




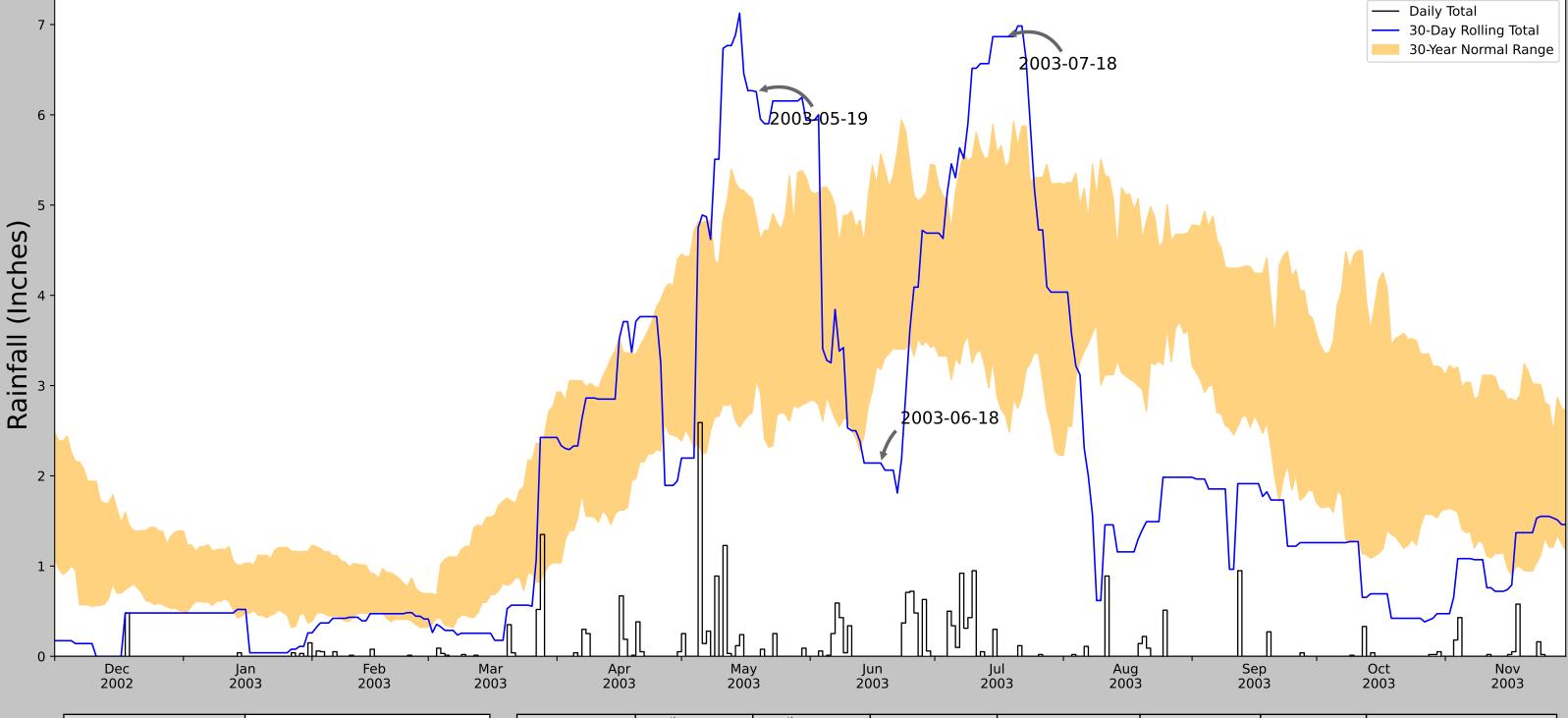








Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.5556353, -93.2642970
Observation Date	2003-07-18
Elevation (ft)	1225.833
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Dry Season

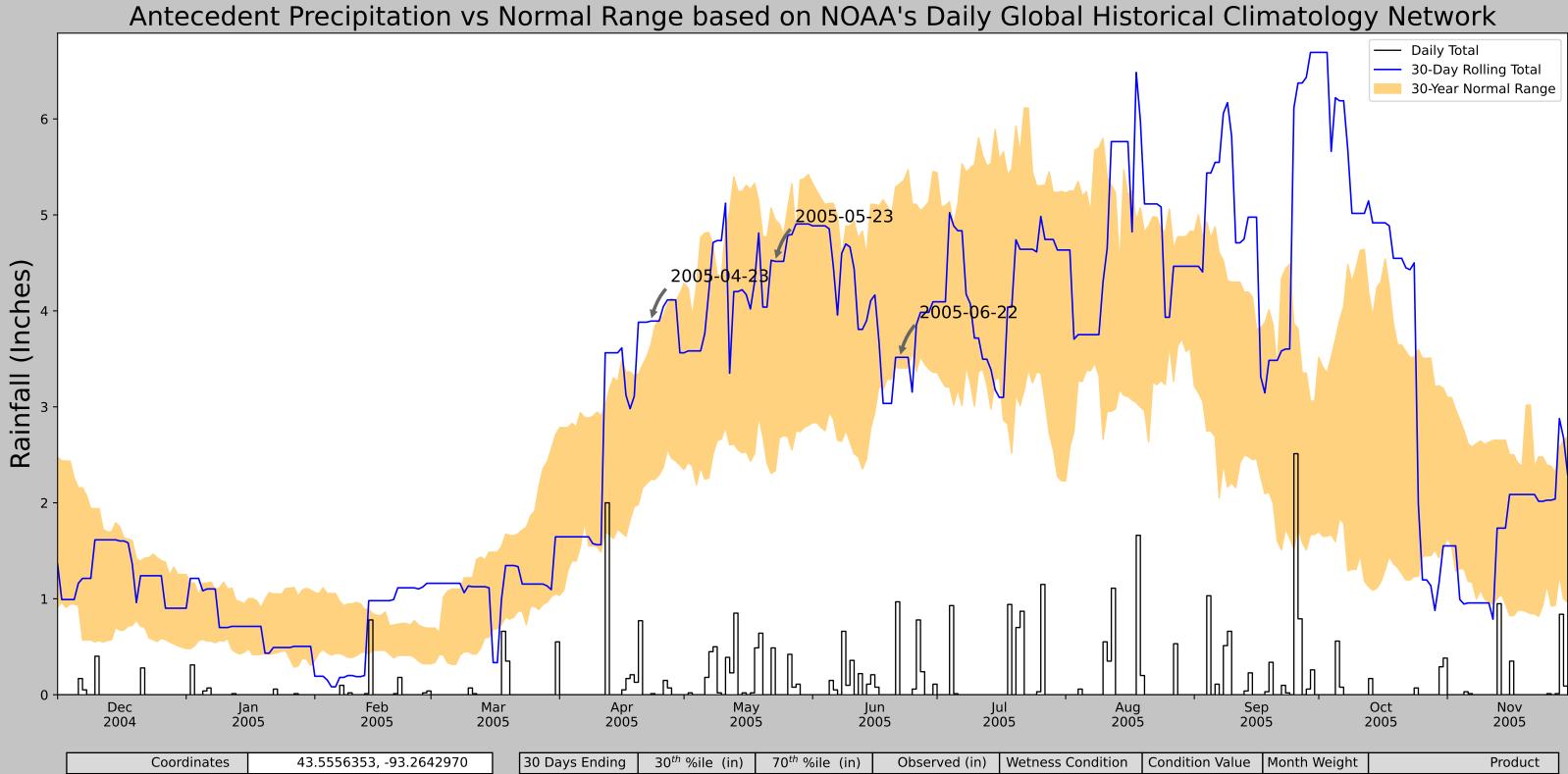
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2003-07-18	2.67126	5.419685	6.866142	Wet	3	3	9
2003-06-18	3.179921	5.565748	2.141732	Dry	1	2	2
2003-05-19	3.059843	4.861024	6.255906	Wet	3	1	3
Result							Normal Conditions - 14



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Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11299	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	54	0



Coordinates	43.5556353, -93.2642970
Observation Date	2005-06-22
Elevation (ft)	1225.833
Drought Index (PDSI)	Severe wetness
WebWIMP H ₂ O Balance	Dry Season

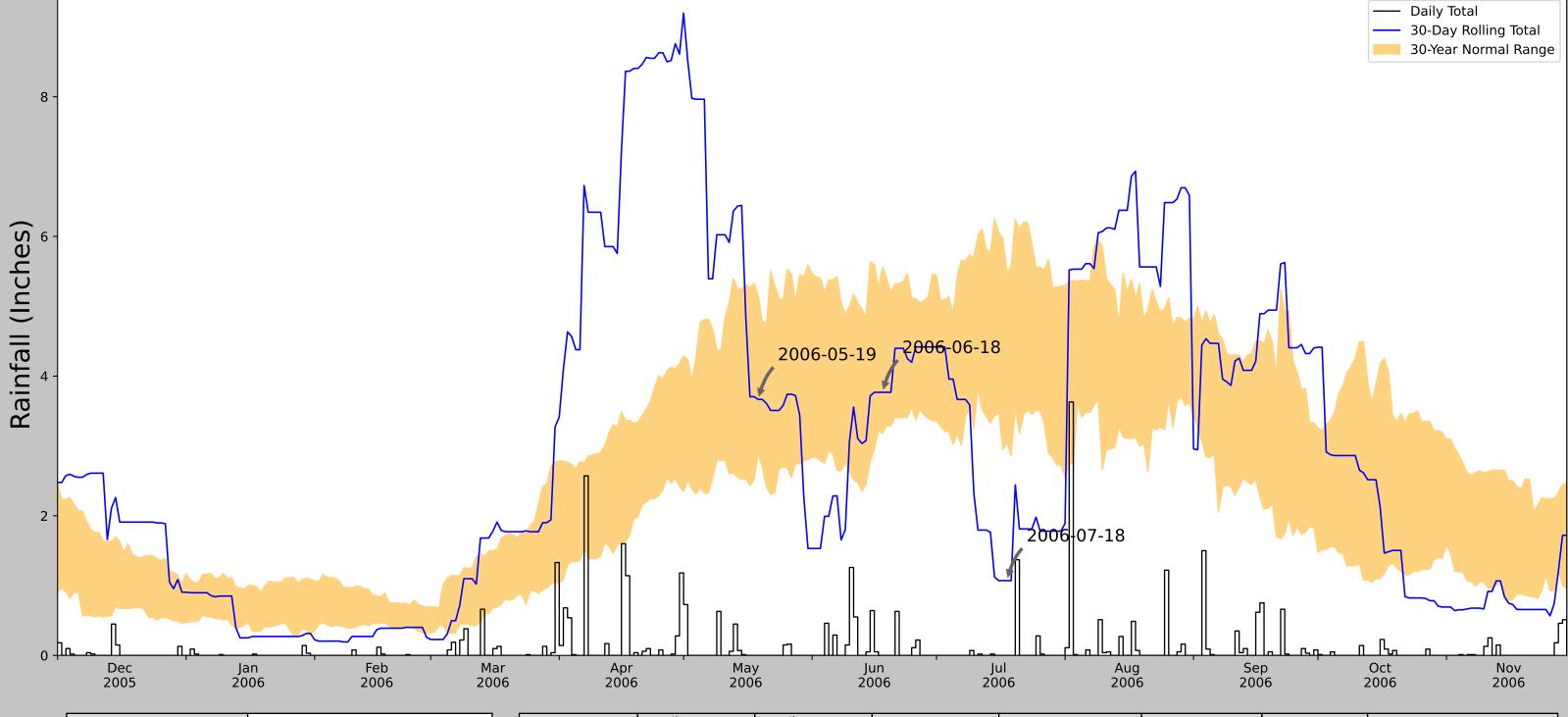
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2005-06-22	3.404331	5.325197	3.515748	Normal	2	3	6
2005-05-23	2.333465	4.948425	4.515748	Normal	2	2	4
2005-04-23	2.243701	3.645276	3.893701	Wet	3	1	3
Result							Normal Conditions - 13



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11299	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	54	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.5556353, -93.2642970
Observation Date	2006-07-18
Elevation (ft)	1225.833
Drought Index (PDSI)	Mild drought
WebWIMP H ₂ O Balance	Dry Season

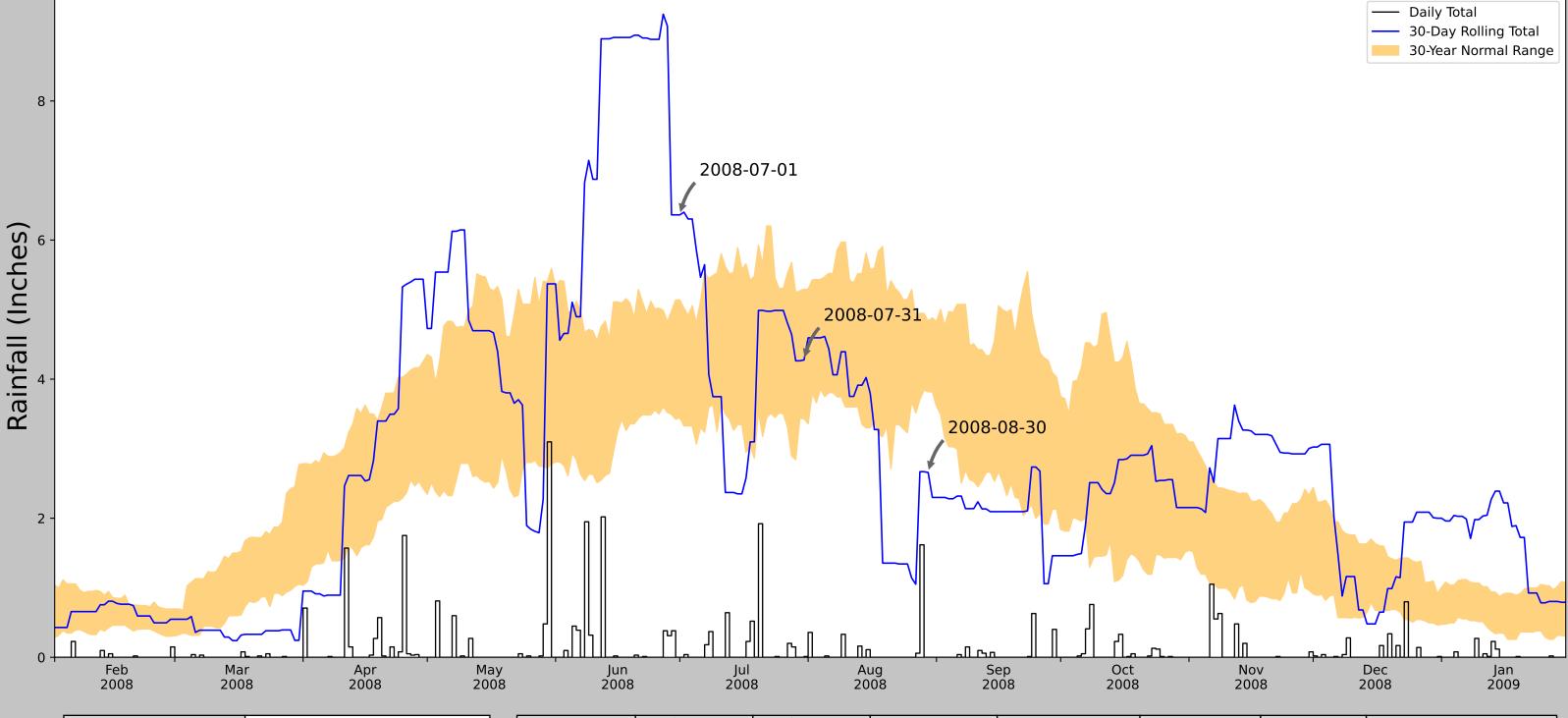
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2006-07-18	3.038583	5.481496	1.070866	Dry	1	3	3
2006-06-18	3.179921	5.565748	3.767717	Normal	2	2	4
2006-05-19	2.901575	5.151181	3.665354	Normal	2	1	2
Result							Drier than Normal - 9



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11299	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	54	0





Coordinates	43.5556353, -93.2642970
Observation Date	2008-08-30
Elevation (ft)	1225.833
Drought Index (PDSI)	Incipient drought
WebWIMP H ₂ O Balance	Dry Season

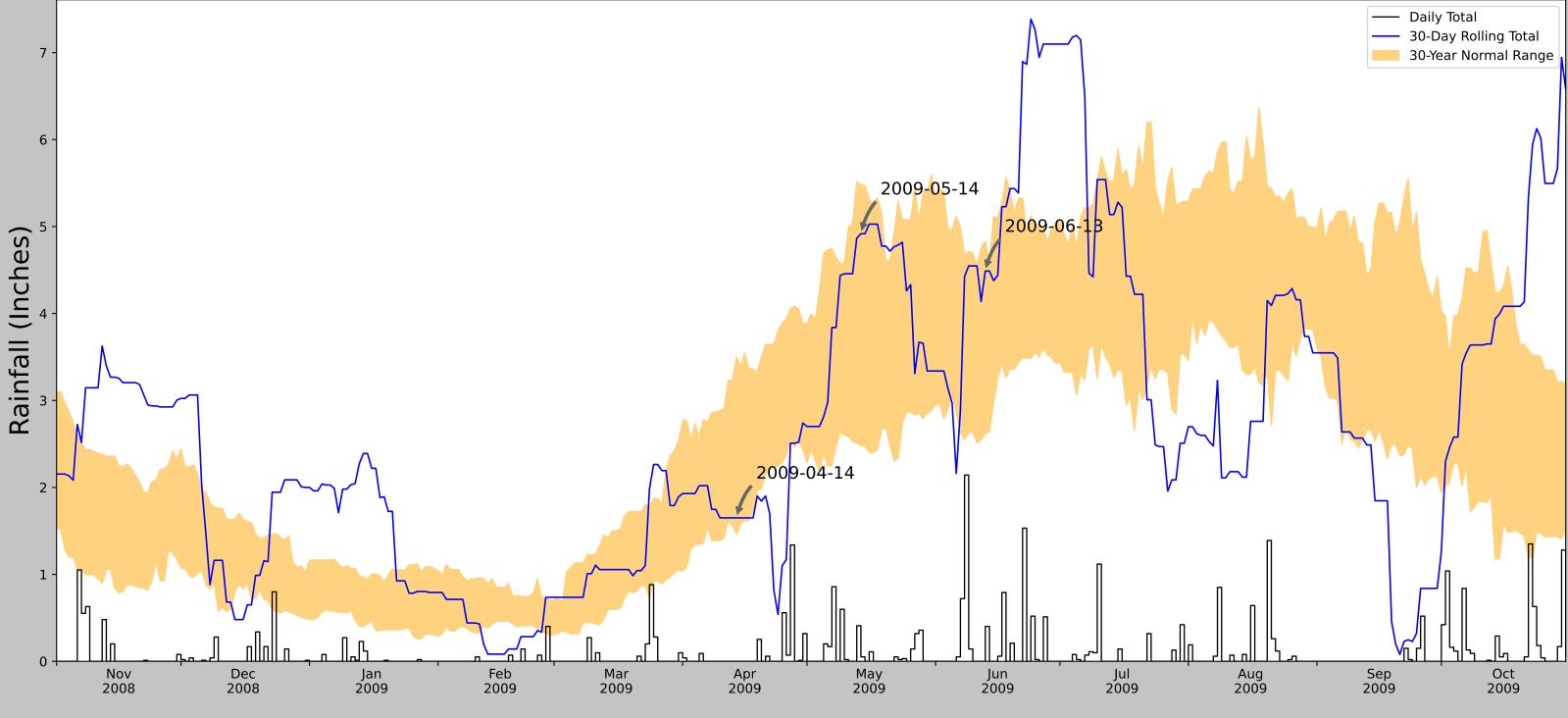
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2008-08-30	3.817717	4.837008	2.65748	Dry	1	3	3
2008-07-31	3.433465	5.29252	4.275591	Normal	2	2	4
2008-07-01	3.445276	5.138583	6.362205	Wet	3	1	3
Result							Normal Conditions - 10



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11297	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	55	0





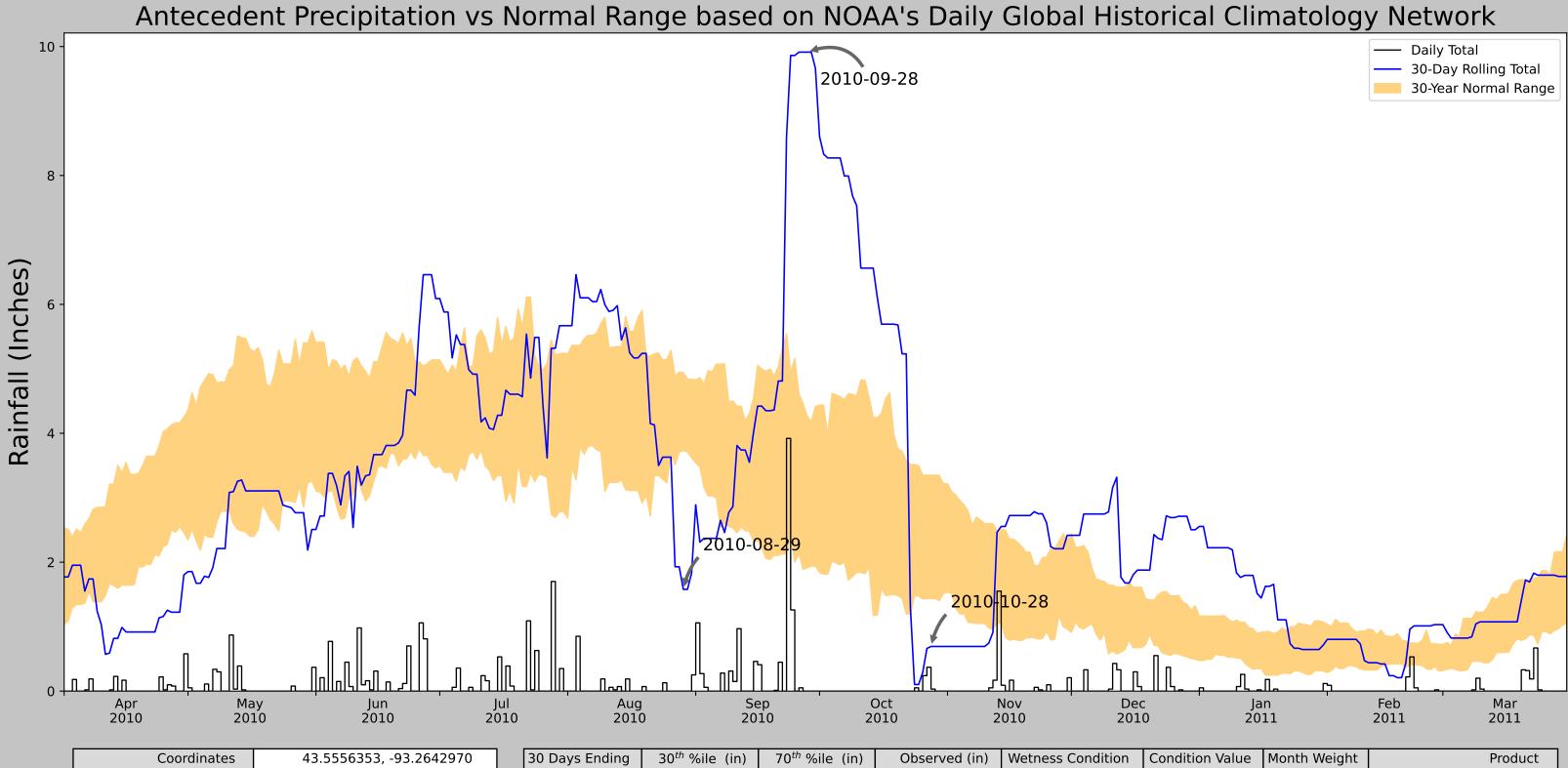
Coordinates	43.5556353, -93.2642970
Observation Date	2009-06-13
Elevation (ft)	1225.833
Drought Index (PDSI)	Mild drought
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile(in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2009-06-13	2.616142	4.833465	4.488189	Normal	2	3	6
2009-05-14	2.484252	5.481496	4.917323	Normal	2	2	4
2009-04-14	1.460236	3.505118	1.649606	Normal	2	1	2
Result							Normal Conditions - 12



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11299	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	54	0



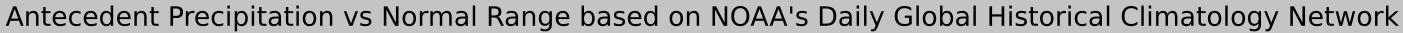
Coordinates	43.5556353, -93.2642970
Observation Date	2010-10-28
Elevation (ft)	1225.833
Drought Index (PDSI)	Extreme wetness
WebWIMP H ₂ O Balance	Wet Season

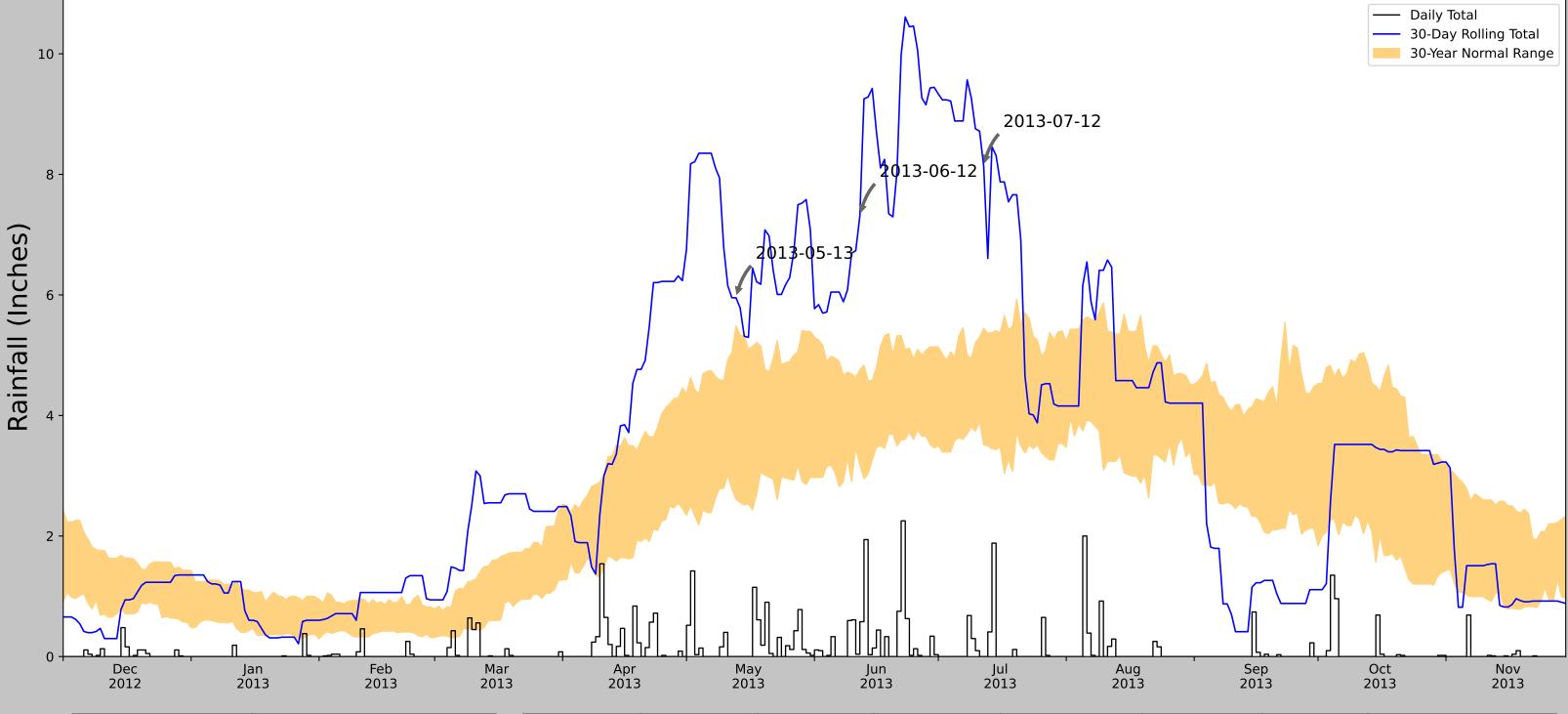
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2010-10-28	1.436221	3.350394	0.692913	Dry	1	3	3
2010-09-28	1.911811	4.267717	9.913386	Wet	3	2	6
2010-08-29	3.735039	4.943701	1.57874	Dry	1	1	1
Result							Normal Conditions - 10



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11296	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	57	0





Coordinates	43.5556353, -93.2642970
Observation Date	2013-07-12
Elevation (ft)	1225.833
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Dry Season

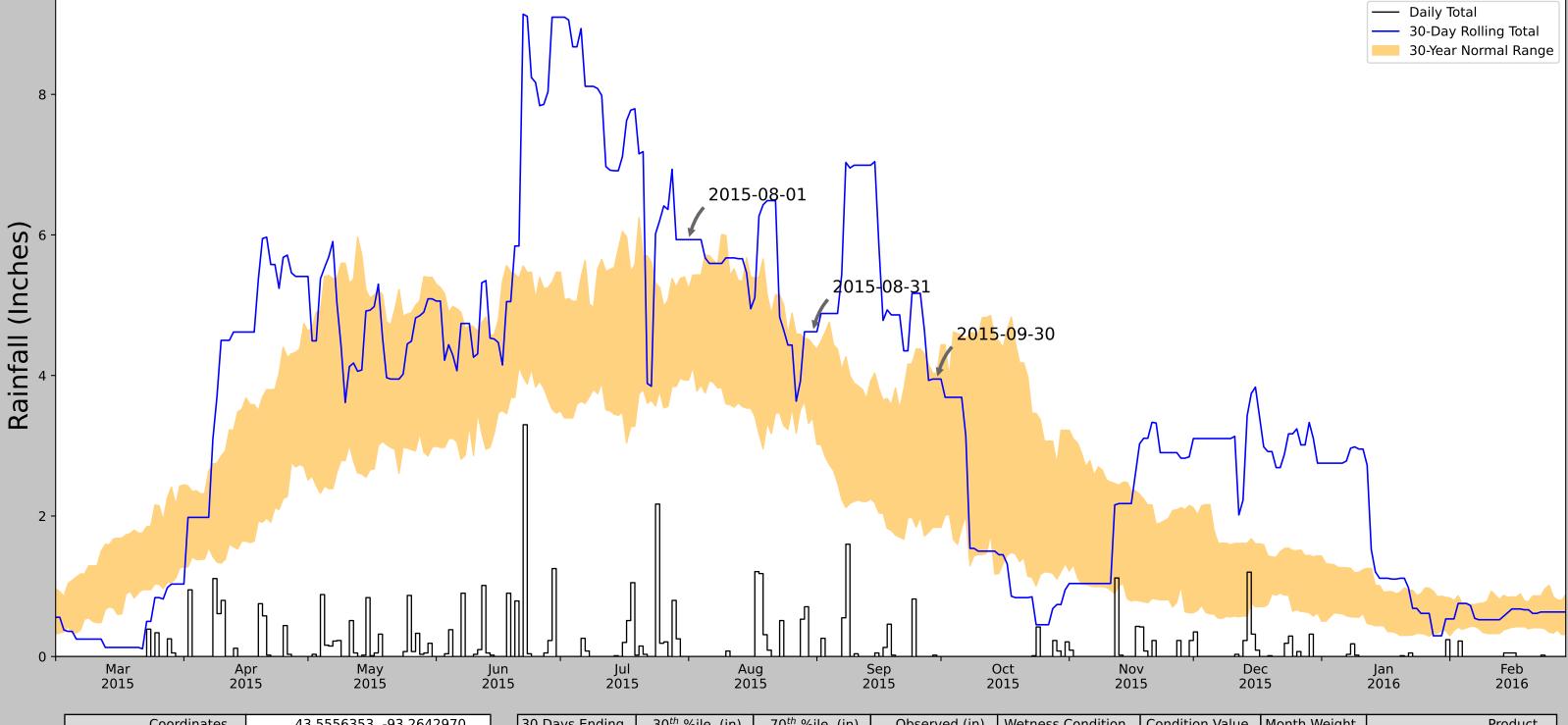
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2013-07-12	3.509843	5.445669	8.137796	Wet	3	3	9
2013-06-12	3.179134	4.755118	7.311024	Wet	3	2	6
2013-05-13	2.612205	5.486221	5.952756	Wet	3	1	3
Result							Wetter than Normal - 18



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11296	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	57	0





Coordinates	43.5556353, -93.2642970
Observation Date	2015-09-30
Elevation (ft)	1225.833
Drought Index (PDSI)	Moderate wetness
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2015-09-30	1.838583	4.032284	3.948819	Normal	2	3	6
2015-08-31	3.399606	4.44252	4.622047	Wet	3	2	6
2015-08-01	3.933858	5.230709	5.933071	Wet	3	1	3
Result							Wetter than Normal - 15

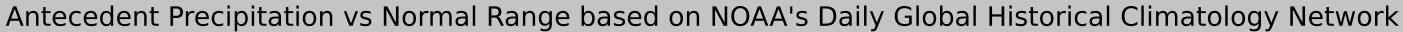


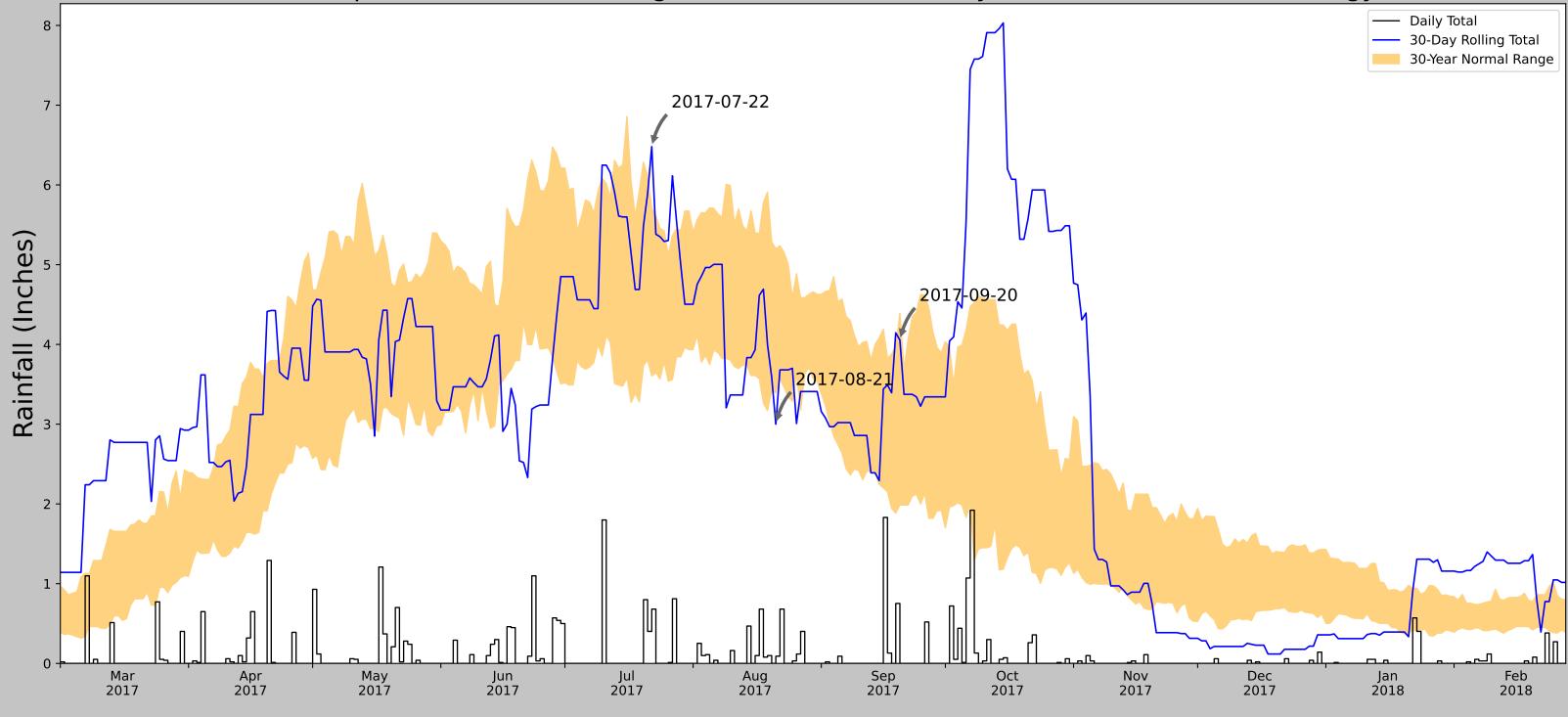
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Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11310	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	43	0





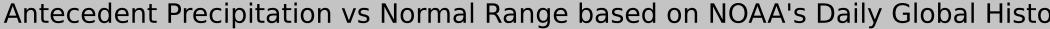
Coordinates	43.5556353, -93.2642970
Observation Date	2017-09-20
Elevation (ft)	1225.833
Drought Index (PDSI)	Severe wetness
WebWIMP H ₂ O Balance	Wet Season

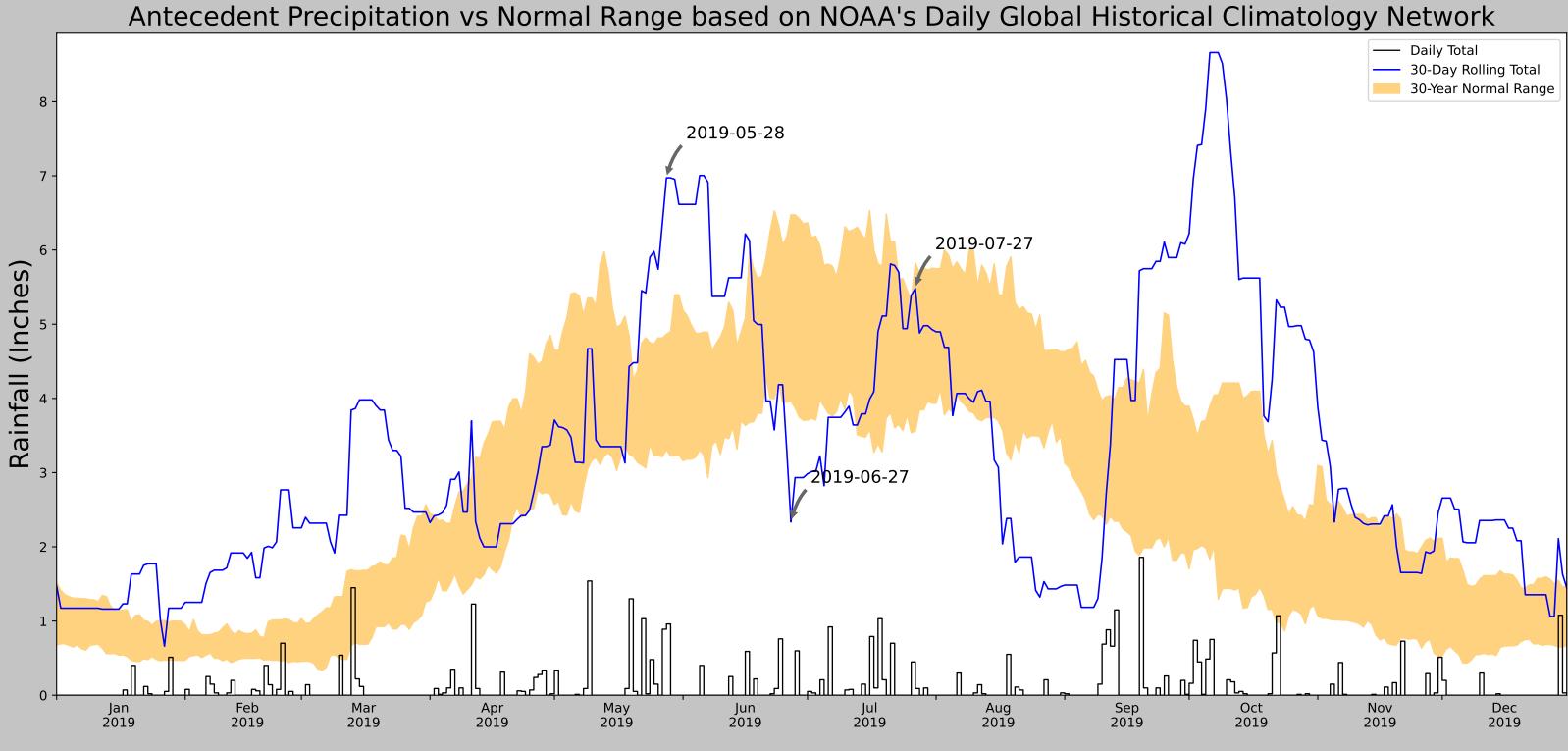
30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2017-09-20	1.985827	4.392914	4.055118	Normal	2	3	6
2017-08-21	3.392913	5.196851	3.0	Dry	1	2	2
2017-07-22	3.604331	5.705906	6.480315	Wet	3	1	3
Result							Normal Conditions - 11



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11310	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	43	0





Coordinates	43.5556353, -93.2642970
Observation Date	2019-07-27
Elevation (ft)	1225.833
Drought Index (PDSI)	Extreme wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2019-07-27	3.557874	5.826772	5.480315	Normal	2	3	6
2019-06-27	3.959449	6.474803	2.334646	Dry	1	2	2
2019-05-28	3.305512	4.866929	6.972441	Wet	3	1	3
Result							Normal Conditions - 11



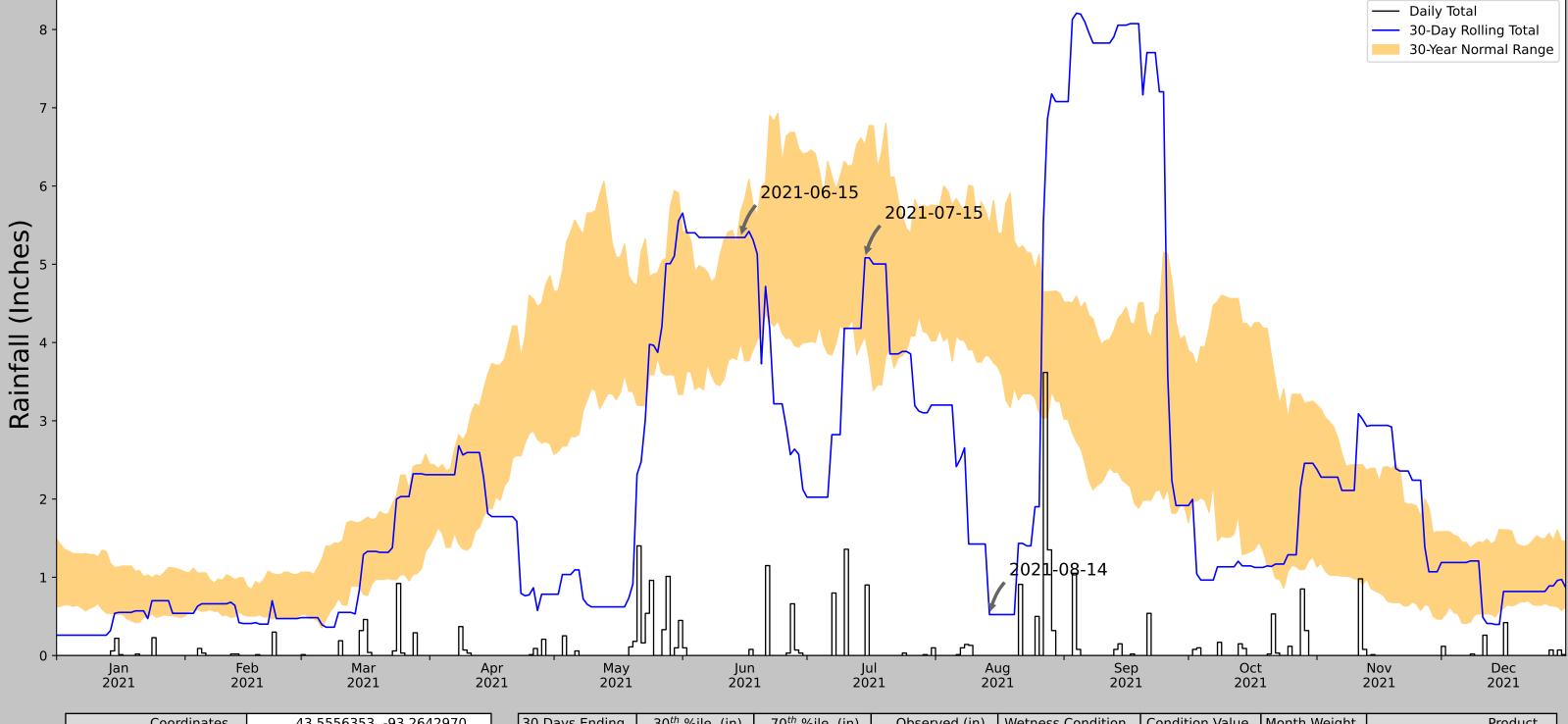
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ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11310	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	43	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.5556353, -93.2642970
Observation Date	2021-08-14
Elevation (ft)	1225.833
Drought Index (PDSI)	Mild drought
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-08-14	3.822835	5.512599	0.523622	Dry	1	3	3
2021-07-15	4.075197	6.52126	5.082677	Normal	2	2	4
2021-06-15	4.002362	5.675591	5.34252	Normal	2	1	2
Result							Drier than Normal - 9



ERDC

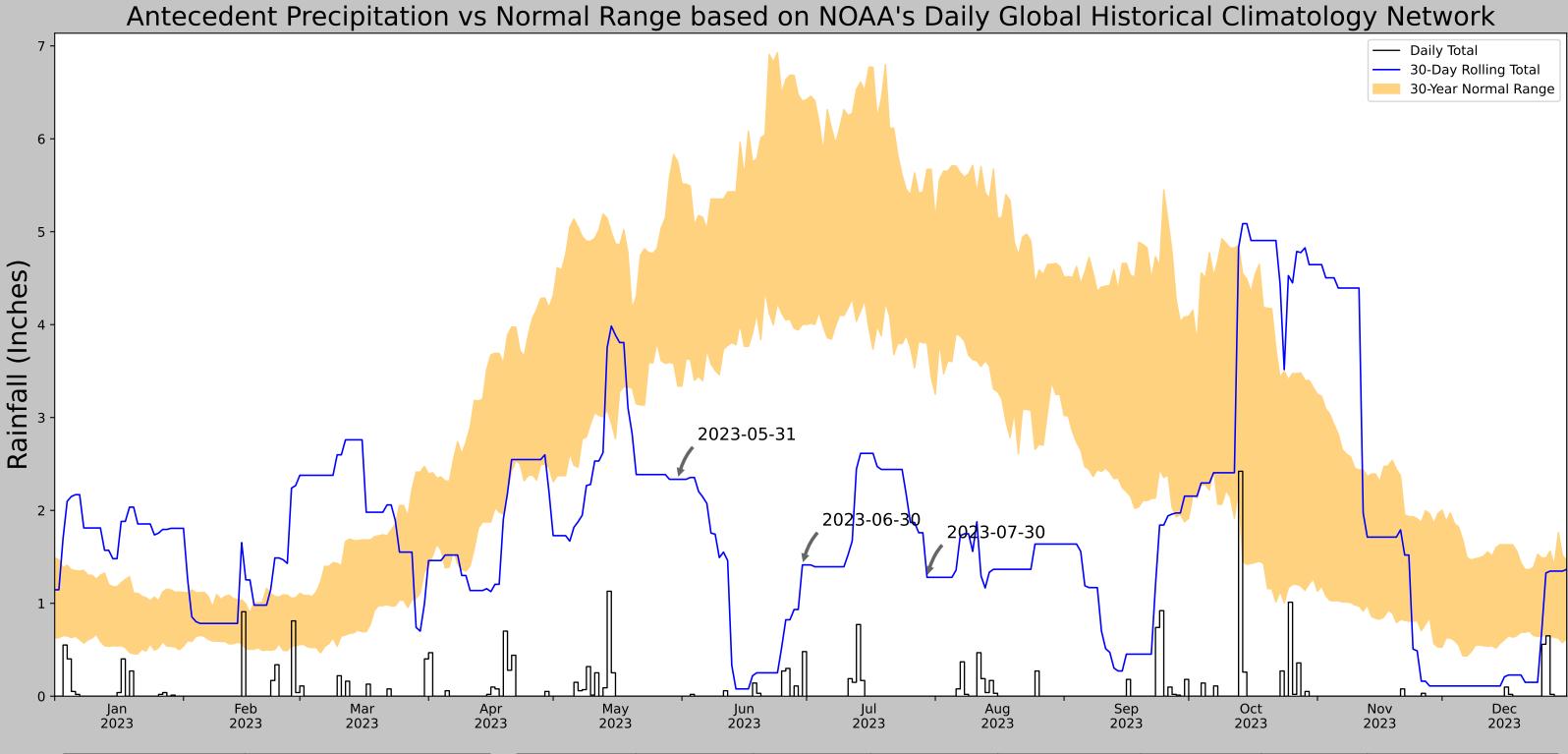
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11310	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	43	0









Coordinates	43.5556353, -93.2642970
Observation Date	2023-07-30
Elevation (ft)	1225.833
Drought Index (PDSI)	Mild drought
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile(in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-07-30	3.800788	5.672835	1.279528	Dry	1	3	3
2023-06-30	4.001181	6.405906	1.413386	Dry	1	2	2
2023-05-31	3.337402	5.753543	2.334646	Dry	1	1	1
Result							Drier than Normal - 6



Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ALBERT LEA 3SE	43.6064, -93.3019	1229.987	3.981	4.154	1.808	11310	90
NORTHWOOD	43.4386, -93.2253	1189.961	12.213	40.026	5.985	43	0