Montana Department of Transportation Wetland Mitigation Monitoring Report

ROSTAD RANCH MITIGATION SITE

Project Overview

MDT Project: STPX 002(749), UPN #5565

Watershed: Watershed #10 – Musselshell River Basin

Monitoring Year: 2023

Years Monitored: 11th year of monitoring

Corps Permit Number: NWO-2006-90851-MTB

Monitoring Conducted By: Confluence Consulting Inc.

Dates Monitoring Was Conducted: June 27, 2023

Purpose of the Approved Project:

The site was originally constructed to provide 39.70 acres of compensatory wetland mitigation credits for wetland impacts associated with future transportation projects in Watershed #10 – Musselshell River Basin. The initial project consisted of filling drainage ditches, excavating and grading the site to distribute water across the site, and creating open-water areas. Adaptive Management actions were undertaken in 2017 to install several spreader berms to improve distribution of supplemental irrigation water across the site. After discussions with the Corps and the Design Consultant, the overall wetland development goal was reduced to 27.4 wetland credit acres.

Site Location:

Latitude: 46.462457 **Longitude:** –110.294063

County: Meagher **Nearest Town:** Martinsdale, MT

Map Included: Figure 1 – Site Location Map on page #10.

Mitigation Site Construction Started: 2012 **Construction Ended:** 2012

Adaptive Management: In 2017, several berms were installed to improve overall water management and distribution for increased wetland expansion across the site.

Dates of Any Recent Corrective or Maintenance Activities (since previous report):

Activity: N/A **Date:** N/A

Specific recommendations for any additional corrective actions: Weed treatment occurred in the fall of 2023 and will continue in 2024 so that the site may continue to meet this performance criteria.

Anticipated Wetland Credit Acres: 27.40

Wetland Credit Acres Generated to Date: 30.53

Previous Monitoring Reports:
https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Requirements: (from approved mitigation plan, banking instrument, or Department of Army (DA) permit conditions)

Monitoring Period: 5 years from construction completion or until concurrence by the US Army Corps of Engineers (USACE).

Performance Standards: A summary of performance standards established for the Rostad Ranch site and whether they are being achieved is provided in Table 1.

Table 1. Summary of Performance Standards.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three concurrent parameter criteria for hydrology, vegetation, and soils as outlined in the 1987 Wetland Manual and 2010 Great Plains Regional Supplement.	Y	Wetland habitat areas within the mitigation site meet the three parameters required to qualify as wetlands. This criterion is met in 2023.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	Irrigation water was turned onto the site from May 1st-June 6th (36 days), meeting and exceeding the required 12.5 percent of the growing season (15 of 120 days).
Hydric Soil	Hydric soil conditions present or appear to be forming.	Y	Hydric soils have been documented in restoration, rehabilitation, creation, and preservation wetlands across the mitigation site.
	Soil is sufficiently stable to prevent erosion.	Y	Disturbed soil is stable and does not demonstrate signs of erosion.
	Soil is able to support plant cover.	Y	Plant cover has established and is stable across areas previously disturbed during site construction.
Hydrophytic Vegetation	Combined absolute cover of facultative or wetter species is greater than or equal to 70 percent.	Y	Wetland data points demonstrate that the delineated wetlands contain a dominance of hydrophytic vegetation. Wetlands exhibit ≥ 70% absolute cover from hydrophytic vegetation.
	Noxious weeds do not exceed 5 percent cover.	Y	Weed treatment has been effective at the mitigation site, and noxious weed cover is estimated at 1% across the mitigation site. This criterion is met.
Woody Plants	Plantings exceed 50 percent survival after 5 years.	Y	This criterion was met after 5 years (2017). In the 11th year of monitoring, woody plantings persist, and volunteers are observed around planting zones and other areas of the site.
Open Water Areas	Open water that is established within the designated wetland cells will be considered successful and creditable if it does not exceed 10 percent of the total wetland acreage.	Y	No open water was present at the mitigation site in 2023. This criterion is therefore met.
Upland Buffer	Success will be achieved when noxious weeds do no exceed 5 percent cover within the buffer areas on site.	Y	Noxious weed cover in the upland buffer is 1% or less. This criterion is met.
	Any area disturbed within creditable buffer zones must have at least 50 percent aerial cover of desirable upland plant species by end of monitoring period.	Y	Upland buffers within the site exhibited greater than 50 percent aerial cover of desirable (non-weed) species in 2023.
Weed Control	Weed-control measures are implemented to minimize and/or eliminate infestations of state-listed noxious weed species within the site.	Y	Noxious weed treatment has been effective at the site. State-listed noxious weed species are estimated at 1 percent absolute cover across the entire site in 2023.
Fencing	Wildlife-friendly fencing is installed along the easement boundaries.	Y	Wildlife-friendly fencing installed along the easement boundaries has been maintained in good condition.

Summary Data

Wetland Delineation – Total wetland acreage delineated in 2023 is 29.5-acres, which includes 2.59-acres of preservation wetlands at the mitigation site. This is a slight increase of 0.02 acres from 2022. The dominant wetland type at the mitigation site is palustrine emergent (PEM), and palustrine scrub-shrub (PSS) habitat is present in the preservation wetland areas in the south end of the site, and in the north central area where volunteer willows (*Salix* spp.) have established. In 2017, adaptive management strategies were implemented to increase the amount of inundation in some areas of the site. However, no open water areas were observed during the June 2023 monitoring event. Despite the lack of open water areas, groundwater hydrology at the site has been sufficient to sustain wetlands, and wetland boundaries appear to be expanding in certain areas. These areas are indicated by the notable transition from smooth brome (*Bromus inermis*) dominant plant communities to the inclusion of more facultative and hydrophytic species.

Vegetation – A total of 94 plant species have been identified on the site from 2013 through 2023, with two new species observed in 2023. A comprehensive species list is included in Appendix B (Table B-1).

One upland type (UT) and 8 wetland type (WT) vegetation communities were identified and mapped at the mitigation site in 2023 (Figure A-3, Appendix A). Upland type 11 (*Elymus trachycaulus / Pascopyrum smithii)* is no longer present and has been replaced with UT 8 (*Bromus inermis / Trifolium* spp.), the single UT at the site. Upland type 8 was updated to include Trifolium spp. as codominant species, consistent with 2021 vegetation community types. Community composition at the site has been relatively stable, except for the transition documented in 2022 of reed canarygrass (*Phalaris arundinacea)* to creeping meadow foxtail (*Alopecurus arundinaceus)* as the dominant wetland graminoid in most WTs. Additionally, the vegetation community in the excavated cell in the northeast corner of the site has changed annually since 2020. In 2023, WT 17 (*Glyceria grandis / Eleocharis palustris*) was created to document current conditions. The following vegetation community types were identified in 2023:

- Upland Type 8 – *Bromus inermis / Trifolium spp.*
- Wetland Type 2 – *Juncus balticus / Carex nebrascensis*
- Wetland Type 3 – *Salix exigua*
- Wetland Type 7 – *Phalaris arundinacea*
- Wetland Type 10 – *Alopecurus arundinaceus*
- Wetland Type 14 – *Alopecurus arundinaceus / Eleocharis palustris*
- Wetland Type 15 – *Typha latifolia*
- Wetland Type 16 – *Carex praegracilis / Poa pratensis*
- Wetland Type 17 – *Glyceria grandis/Eleocharis palustris*

Species composition of each community type is provided in detail in the Wetland Mitigation Site Monitoring form (Appendix B), and community boundaries are depicted on Figure A-3 (Appendix A).

Infestations of state-listed Priority 2B noxious weeds were mapped at the Rostad Ranch site in 2023, with an estimate of one percent absolute cover of noxious weed across the entire site (Figure A-3, Appendix A). Infestations are assigned a cover class (Trace = <1%; Low = 1-5%; Moderate = 6-25%; high = 26-50%) assessed at a 0.1-acre area. The number of Canada thistle (*Cirsium arvense*) infestations decreased and ranged from trace to moderate. Spotted knapweed (*Centaurea stoebe*) was observed at two locations in trace patches.

Vegetation cover was measured along four transects in 2023 (Figure A-2, Appendix A). Summaries of the data collected at these transects are presented in Tables 2-5 below and detailed data for each

transect are provided in the monitoring forms in Appendix B. Photographs of the transect start and end points are provided in Appendix C.

Table 2 summarizes the data for T-1, which is 422 feet long and intersects UT 8, WT 2, WT 7, and WT 17. UT 11 is no longer present at the site, and the upland berm that T-1 crosses was remapped as UT 8, resulting in a decrease in the number of communities along the transect. Wetland habitat increased one percent from 2022, and the total number of species recorded along the transect increased by one. Consistent with trends observed in 2022, total vegetative cover continues to increase slightly along this transect.

Table 2. Data Summary for T-1 From 2018 Through 2023 at the Rostad Ranch Wetland Mitigation Site.

Monitoring Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Transect Length (feet)	**422**	**422**	**422**	**422**	**422**	**422**
Vegetation Community Transitions along Transect	5	5	5	5	5	5
Vegetation Communities along Transect	5	5	6	6	5	4
Hydrophytic Vegetation Communities Along Transect	4	4	4	4	3	3
Total Vegetative Species	26	23	22	22	25	26
Total Hydrophytic Species	11	10	8	8	11	10
Total Upland Species	15	13	14	14	14	16
Estimated % Total Vegetative Cover	95	95	95	95	96	97
Estimated % Unvegetated	5	5	5	5	4	3
% Transect Length Comprising Hydrophytic Vegetation Communities	62	62	61	61	66	67
% Transect Length Comprising Upland Vegetation Communities	38	38	39	39	34	33
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0

Data collected on T-2 are summarized in Table 3. T-2 is 453 feet long and intersects UT 8, WT 2 and WT 10. Ninety-three percent of the transect crossed wetland habitat in 2023, which is a one percent increase from 2022. Total vegetative cover has remained constant at 95 percent from 2016 to 2023. Remapping of vegetation community boundaries in 2023 decreased the number of community transitions along the transect from 5 to 3.

Table 3. Data Summary for T-2 From 2018 Through 2023 at the Rostad Ranch Wetland Mitigation Site.

Monitoring Year	**2018**	**2019**	**2021**	**2022**	**2023**
Transect Length (feet)	**453**	**453**	**453**	**453**	**453**
Vegetation Community Transitions along Transect	3	3	6	5	3
Vegetation Communities along Transect	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2
Total Vegetative Species	16	16	19	21	22
Total Hydrophytic Species	7	9	8	8	7
Total Upland Species	9	7	11	13	15
Estimated % Total Vegetative Cover	95	95	95	95	95
Estimated % Unvegetated	5	5	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	76	78	93	92	93
% Transect Length Comprising Upland Vegetation Communities	24	22	7	8	7
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

Data collected on T-3 are summarized in Table 4. T-3 is 320 feet long and is composed entirely of wetland habitat, intersecting WT 2, WT 10, and WT 15. The total number of species observed in 2023 remained consistent from 2022, and total vegetative cover increased by one percent.

Table 4. **Data Summary for T-3 From 2018 Through 2023 at the Rostad Ranch Wetland Mitigation Site.**

Monitoring Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Transect Length (feet)	**320**	**320**	**320**	**320**	**320**	**320**
Vegetation Community Transitions along Transect	3	3	3	3	3	3
Vegetation Communities along Transect	3	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	3	3	3	3	3	3
Total Vegetative Species	23	21	22	19	20	20
Total Hydrophytic Species	16	16	16	12	12	10
Total Upland Species	7	5	6	7	8	10
Estimated % Total Vegetative Cover	85	85	90	90	92	93
Estimated % Unvegetated	15	15	10	10	8	7
% Transect Length Comprising Hydrophytic Vegetation Communities	100	100	100	100	100	100
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0	0
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0

Data collected on T-4 are summarized in Table 5. T-4 is 412 feet long and was established in 2017 following adaptive management actions. T-4 intersects UT 8 and WT 16. Wetland habitat along the transect increased by one percent in 2023. Total vegetative cover increased from eighty-seven percent to 93 percent in 2023.

Table 5. Data Summary for T-4 From 2018 Through 2023 at the Rostad Ranch Wetland Mitigation Site

Monitoring Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Transect Length (feet)	**412**	**412**	**412**	**412**	**412**	**412**
Vegetation Community Transitions along Transect	3	3	4	2	2	2
Vegetation Communities along Transect	2	2	3	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	16	14	17	15	17	20
Total Hydrophytic Species	3	5	4	3	5	5
Total Upland Species	13	9	13	12	12	15
Estimated % Total Vegetative Cover	80	80	80	85	87	93
Estimated % Unvegetated	20	20	20	15	13	7
% Transect Length Comprising Hydrophytic Vegetation Communities	12	21	8	10	23	24
% Transect Length Comprising Upland Vegetation Communities	88	79	92	90	77	76
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0

Woody Plant Survival – The success criteria of at least 50% survival for woody plantings five years post-construction was achieved in 2017. Therefore, woody plant survival was not quantitatively assessed during the 2023 monitoring event. Approximately 2,000 willow cuttings were planted

throughout the excavated areas when the site was constructed in 2012. A total of 100 black cottonwoods (*Populus balsamifera*) and 100 quaking aspens (*Populus tremuloides*) were installed around the perimeter of the proposed open-water areas in 2012. The preservation wetland in the southern portion of the site is a willow dominant community (WT 3), which continues to expand via natural recruitment. An additional WT 3 community has been established from volunteer narrow-leaf willow (*Salix exigua*) in the north central portion of the site (Appendix A, Figure A-3).

Hydrology – Hydrology at the Rostad Ranch mitigation site is supplied from multiple sources including a shallow seasonal groundwater table, groundwater that emerges from a natural spring located near the narrow-leaf willow stand in the southern portion of the site, direct precipitation, surface runoff, and surface-water diversion out of an adjacent irrigation canal. Irrigation water was diverted onto the site on May 1, 2023 and maintained a flow volume of approximately 1.45 cubic foot per second (cfs). Due to heavy rains, irrigation was turned off at the site on June 1, 2023. Based on a 50% probability of an ambient temperature of 28°F or higher, the growing season at Rostad Ranch extends from approximately May 22 – September 23 (120) days (NRCS 20203b). Wetland hydrology, defined as 12.5% of the growing season, requires a minimum of 15 days of soil saturation. These conditions were ensured to be met in 2023 by the diversion of irrigation water across the site. During June monitoring event, no open water areas were observed at the mitigation site. Standing water was observed in the cattail marsh in the south portion of the site up to 8" deep. This was the only area of inundation observed. One groundwater monitoring well remains at the site and is monitored monthly by the US Geological Survey (USGS). On June 27, 2023 the well measured 4.71 feet to the water table below land surface.

Photographs – Photographs were taken in 2023 at photo points 1–10 (PP1 to PP10), transect endpoints, and data points (Appendix C). Please refer to previous years' monitoring reports for photographs from all other years.

https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Soils – Soil test pits were excavated at twenty-one locations across the mitigation site. Soil series mapped within the site include the Veryney-Notter cobbly loams soil unit and the Delpoint variant-Marmarth-Cabbart loam soil unit (NRCS 2023a). Wetland soil pits exhibited several hydric soil indicators including loamy mucky mineral, redox dark surface, and depleted matrix. No hydric soil indicators were observed in upland sample pits, although redoximorphic concentrations were present in some. In these upland points, the three concurrent parameters of hydric soil development, wetland hydrology, and a hydrophytic vegetation community were not met, and the sample point is therefore identified as non-wetland (upland). Soil textures within the wetland plots ranged from sandy clay loam to clay. Gravels and cobbles were common in soil profiles across the site.

Wildlife – Twenty-nine bird species were documented at the site during the 2023 monitoring event, including bobolinks (*Dolichonyx oryzivorus*), an S2/S3 rated species. The bobolinks were observed foraging, nesting, and loafing. Tree swallows were observed around two bird boxes at the southeast corner of the site, although the rest of the bird boxes were unoccupied. In addition to avian observations, boreal chorus frogs (*Pseudacris maculata*), Columbia spotted frogs (*Rana luteiventris*), white-tailed deer (*Odocoileus virginianus*), and antelope (*Antilocapra americana*) were observed at and around the site, indicating a diversity of wildlife use by amphibians, mammals, and birds.

Functional Assessment – The mitigation site is rated as a Category II wetland per the Montana Wetland Assessment Method (MWAM). Following the 2022 assessment, the Rostad Ranch mitigation wetland site increased from wetland Category III to wetland Category II. This change corresponded with an increase in delineated wetland acreage and wildlife habitat rating. Sediment/Shoreline Stabilization was rated N/A in the 2023 MWAM as a reflection of no open water at the site, decreasing the number of points possible from 9 to 8. The 2023 functional assessment results for the Rostad Ranch Mitigation Site are summarized in Table 6. Completed MWAM forms for the site are provided in Appendix B.

Table 6. MWAM Summary for the Rostad Ranch Wetland Mitigation Site (2018-2023).

Function and Value Parameters from the Montana Wetland Assessment Method	2018[a]	2019[a]	2020[a]	2021[b]	2022[b]	2023[b]
Listed/Proposed T&E Species Habitat	Low (0)	Low (0)	Low (0)	Low (0)	Low (0.1)	Low (0.1)
MTNHP Species Habitat	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	Mod (0.5)	Mod (0.5)	Mod (0.5)	Low (0.3)	Mod (0.5)	Mod (0.5)
General Fish/Aquatic Habitat	NA	NA	NA	NA	NA	NA
Flood Attenuation	NA	NA	NA	NA	NA	NA
Short- and Long-Term Surface Water Storage	Mod (0.6)	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	NA
Production Export/Food Chain Support	High (0.8)	High (0.8)	High (0.8)	Mod (0.6)	Mod (0.8)	Mod (0.8)
Groundwater Discharge/Recharge	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Uniqueness	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.2)	Low (0.3)	Low (0.3)
Recreation/Education Potential (bonus points)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)
Actual Points/Possible Points	**5.75/9**	**5.75/9**	**6.05/9**	**5.55/9**	**6.15/9**	**5.25/8**
% of Possible Score Achieved	**63.9%**	**63.9%**	**67.2%**	**61.7%**	**68.3%**	**66%**
Overall Category	**III**	**III**	**III**	**III**	**II**	**II**

(a) 1999 MWAM form (Berglund, 1999)

(b) 2008 MWAM form (Berglund and McEldowney, 2008)

Credit Summary

Wetland Credits - Table 7 summarizes the estimated wetland credits generated at Rostad Ranch based on the USACE-approved credit ratios and the wetland delineations completed in 2021-2023. Proposed mitigation credits from the Rostad Ranch Mitigation Plan (MDT 2007) included reestablishing 27.11 wetland acres, rehabilitating 2.63 wetland acres, creating 9.84 wetland acres, preserving 0.25 wetland acres, and maintaining 6.76 acres of upland buffer to produce a total of 39.7 mitigation credit acres. Adaptive management activities on the site in 2017 resulted in a shift of crediting which decreased the overall rehabilitated wetland acreage and increased the reestablished and created wetland acreage such that the total number of anticipated wetland credit acres was reduced to 27.4. Mitigation credits (including upland buffer credits) totaled 30.53 in 2023.

Functional Credits – Table 8 summarizes the functional units generated at the Rostad Ranch mitigation site in 2023. The *2007 Rostad Ranch Mitigation Plan, Meagher County, Montana* (MDT 2007) anticipates increasing functional points at the site from 3.2 of 9 possible points pre-construction to 6.4

of 9 possible points post-construction. The associated increase in functional points would increase the wetland from Category III to Category II, and the planned development of 39.84 acres of wetland would generate 254.91 units after the completed monitoring period. Following the eleventh year of monitoring, the site achieved 5.25 of 8 possible points and has generated a total of 150.27 Functional Units. While the site has achieved the objective of increasing from Category III to Category II, the site has yet to generate the desired functional credits and achieve the desired actual and possible points.

Table 7. Wetland Mitigation Credits Estimated for the Rostad Ranch Site (2021–2023).

Compensatory Mitigation Type	Wetland Type (FGDC 2013)	Approved Mitigation Ratios[a]	Anticipated Mitigation Area (acres)	Anticipated Mitigation Credit (acres)	2021 Delineated Mitigation Areas (acres)	2021 Estimated Mitigation Credit (acres)	2022 Delineated Mitigation Areas (acres)	2022 Estimated Mitigation Credit (acres)	2023 Delineated Mitigation Areas (acres)	2023 Estimated Mitigation Credit (acres)
Restoration (Re-establishment)	Palustrine Emergent	1:1	27.11	27.11[d]	19.30	19.30	19.37	19.37	19.30	19.30
Establishment (Creation)	Palustrine Emergent	1:1	9.84	9.84[d]	7.32	7.32	7.80	7.80	7.88	7.88
Restoration (Rehabilitation)	Palustrine Emergent	1.5:1	2.63	1.75[d]	2.06	1.37	2.06	1.37	2.07	1.38
Preservation	Palustrine, Scrub/shrub	4:1	0.25	0.06	0.25	0.06	0.25	0.06	0.25	0.06
Upland Buffer	N/A	5:1	6.76[b]	1.35[b]	12.79[c]	2.56[c]	11.90[c]	2.38[c]	11.62[c]	2.32[c]
Permanent Wetland Impact	N/A	1:1	N/A	-0.41	N/A	-0.41	N/A	-0.41	N/A	-0.41
		Totals	**46.59**	**39.70**	**41.72**	**30.20**	**41.38**	**30.57**	**41.12**	**30.53**

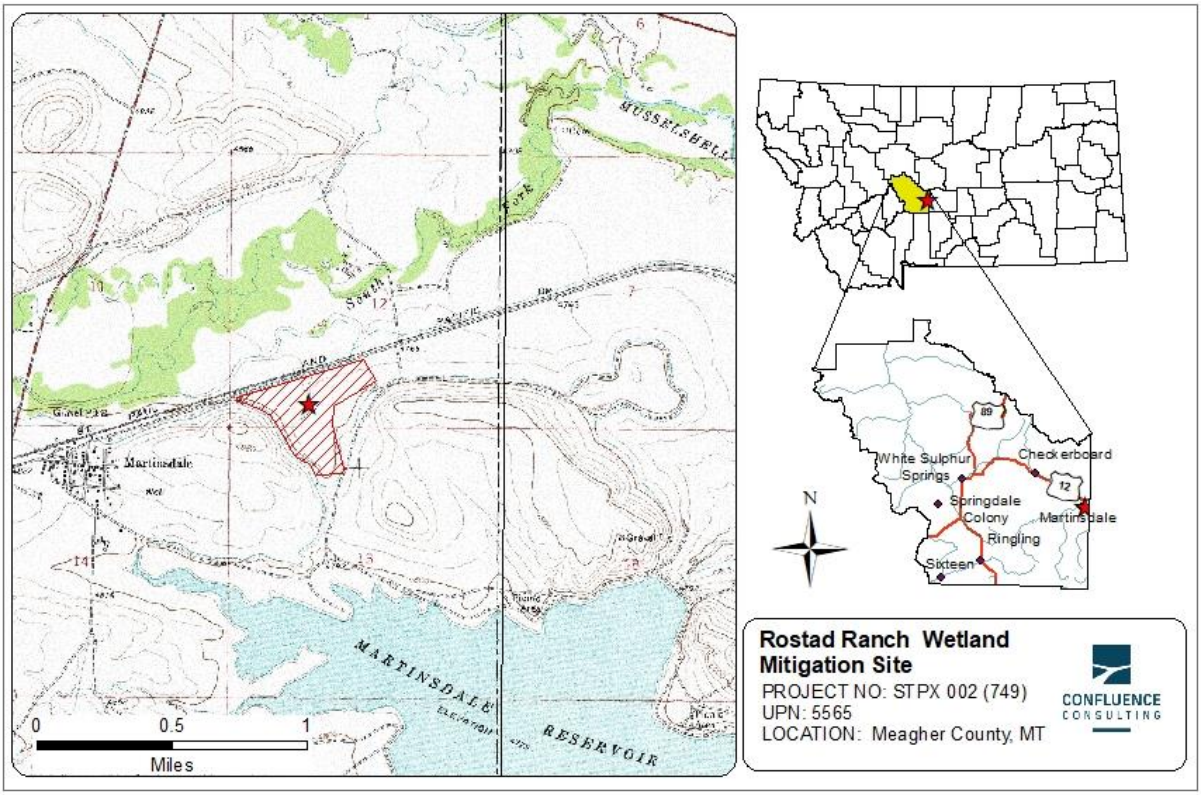
(a) Mitigation credit ratios utilized were from the Montana Corps Regulatory Program 2005 Wetland Credit Ratios [USACE, 2005].
(b) Anticipated upland buffer credits were used for the first several years of the project.
(c) Upland buffer credit acres were calculated based on the area of a 50-foot buffer around the most to-date delineated wetland boundary.
(d) Adaptive management activities on the site in 2017 resulted in a shift of crediting such that the total number of anticipated wetland credit acres was reduced to 27.4

Table 8. Functional Unit Credits for the Rostad Ranch Wetland Mitigation Site.

Compensatory Mitigation Type	2023 Delineated Acres	Mitigation Ratio	2023 Mitigation Credit Acres	MWAM Actual Points	2023 Functional Units Generated
Restoration (Reestablishment)	19.30	1:1	19.30	5.25	101.33
Establishment (Creation)	7.88	1:1	7.88	5.25	41.37
Restoration (Rehabilitation)	2.07	1.5:1	1.38	5.25	7.25
Preservation	0.25	4:1	0.06	5.25	0.32
Upland Buffer	11.62	5:1	2.32	N/A	N/A
	Functional Units (Mitigation Credit Acres × Actual Points)				**150.27**

Maps, Plans, Photos

Figure 1: Site Location Map



Project Area Maps/Figures: See Appendix A (A-2 – Monitoring Activity Locations, A-3 – Mapped Site Features and A-4 – Wetland Delineation).

Data Forms: See Appendix B (Site Monitoring form, plant list, USACE data forms, and MWAM forms).

Photos: See Appendix C.

Plans: See Appendix D of 2018 Monitoring Report
https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Conclusions

The Rostad Ranch Wetland Mitigation Site has again achieved each of the performance standards outlined in the mitigation plan. Wetland habitat is expanding and developing into a diverse system with volunteer woody species, which contributes to a diversity of habitat types. Since adaptive management actions to spread water across the site were implemented in 2017, wetland habitat at the site has gradually expanded. The results of the 2023 monitoring event estimate the generation of 30.53 mitigation credit acres, which exceeds the target number of 27.4-acres. Based on the success of the adaptive management plan and continued wetland expansion which has been documented annually since 2021, the mitigation site has the potential to provide additional wetland credits going forward.

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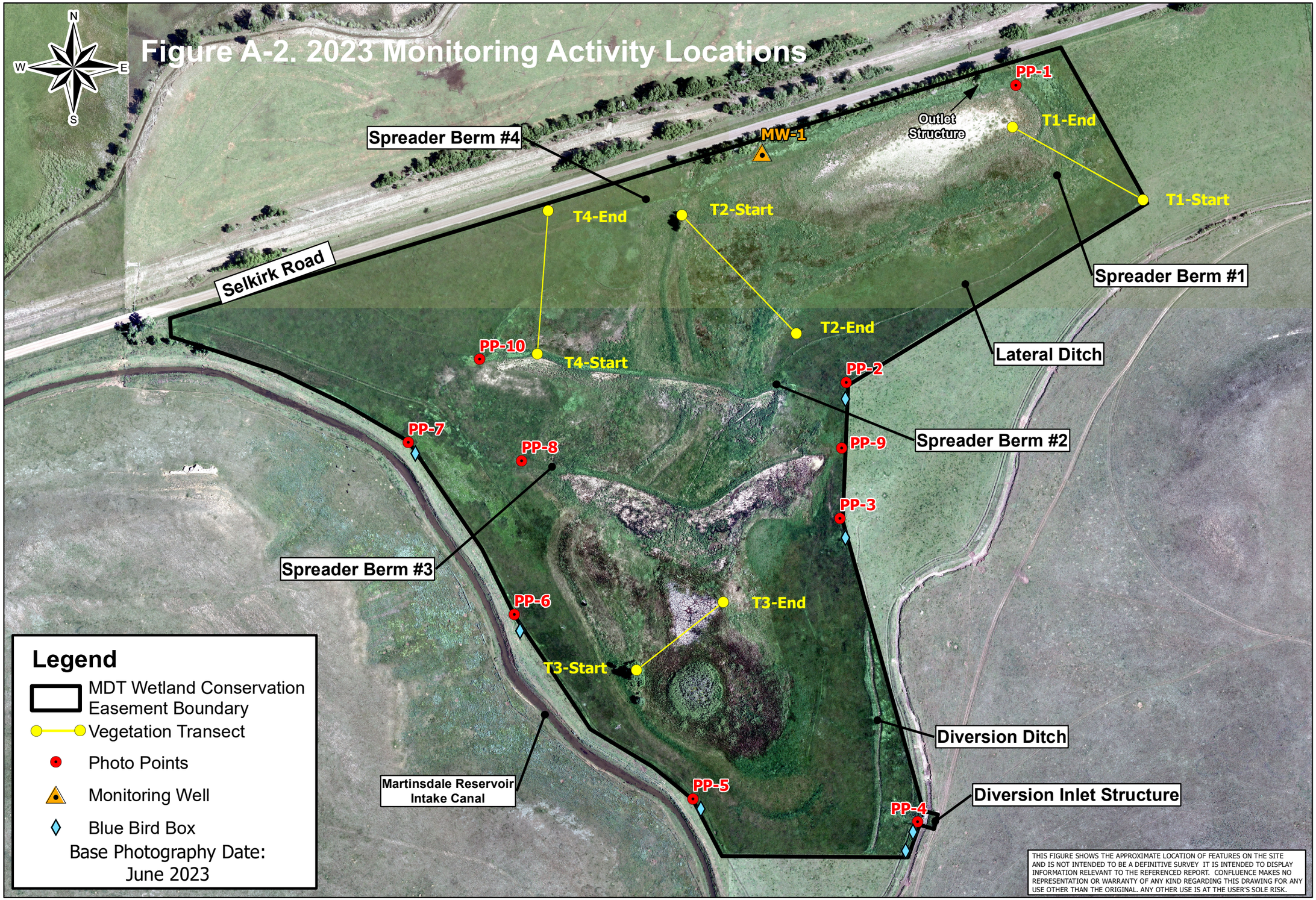
APPENDIX A
PROJECT AREA
MAPS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

Figure A-2. 2023 Monitoring Activity Locations



THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

CONFLUENCE CONSULTING

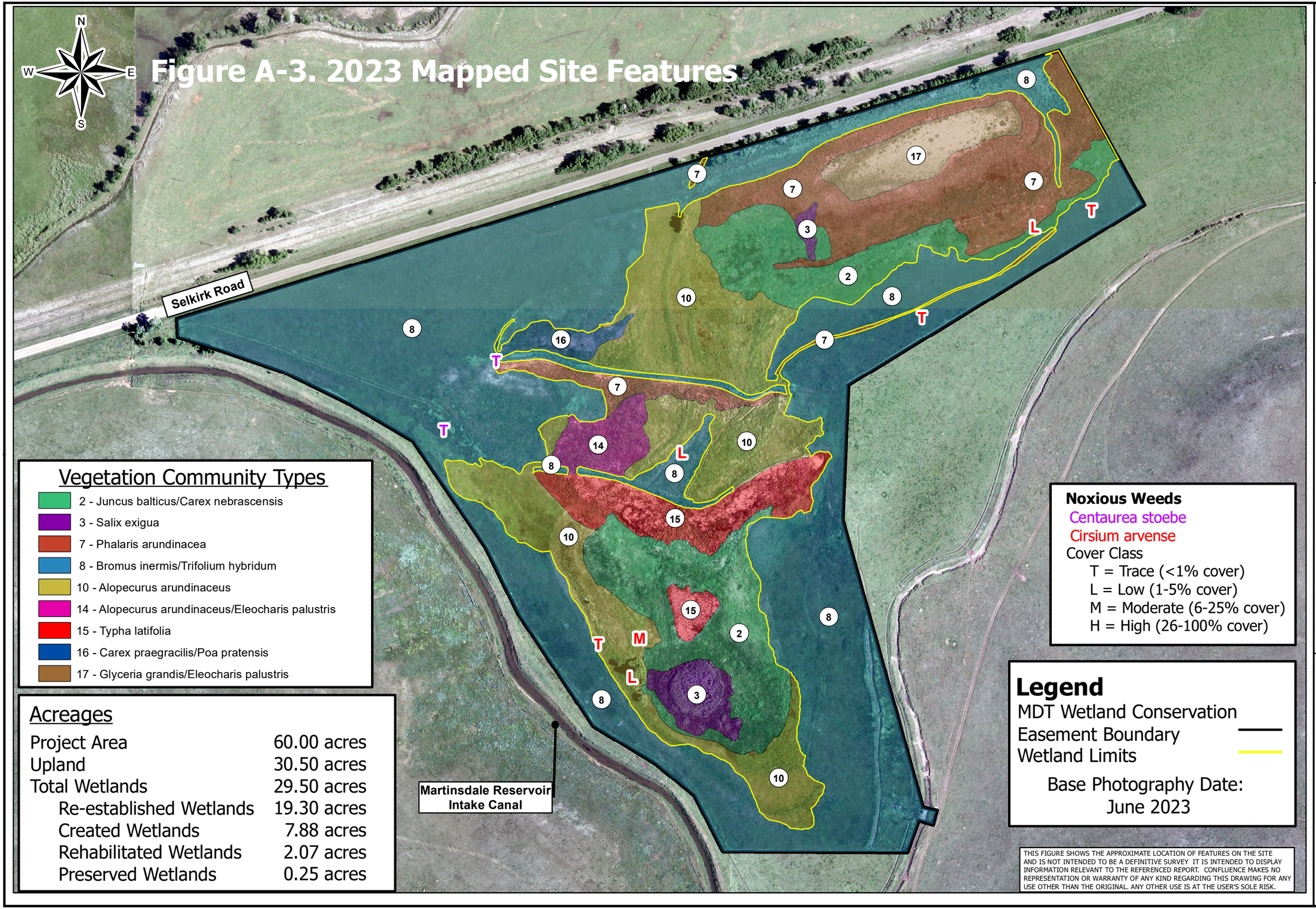
Rostad Ranch Wetland Mitigation Site
2023 Monitoring Activity Locations

0 100 200 400 600 800 1,000 Feet

Project: STPX 002 (749)
Location: Meagher Co., Montana
Map Creation Date: January 2024
Project Manager: R. McEldowney
Drawn By: SNW

File: X:\Project\MDT Wetland Mitigation 2\Mains\Rostad\2023\Monitor2023_MDT.mxd

Figure A-3. 2023 Mapped Site Features



Vegetation Community Types

- 2 - Juncus balticus/Carex nebrascensis
- 3 - Salix exigua
- 7 - Phalaris arundinacea
- 8 - Bromus inermis/Trifolium hybridum
- 10 - Alopecurus arundinaceus
- 14 - Alopecurus arundinaceus/Eleocharis palustris
- 15 - Typha latifolia
- 16 - Carex praegracilis/Poa pratensis
- 17 - Glyceria grandis/Eleocharis palustris

Acreages

Project Area	60.00 acres
Upland	30.50 acres
Total Wetlands	29.50 acres
Re-established Wetlands	19.30 acres
Created Wetlands	7.88 acres
Rehabilitated Wetlands	2.07 acres
Preserved Wetlands	0.25 acres

Noxious Weeds
Centaurea stoebe
Cirsium arvense
Cover Class
T = Trace (<1% cover)
L = Low (1-5% cover)
M = Moderate (6-25% cover)
H = High (26-100% cover)

Legend

MDT Wetland Conservation Easement Boundary
Wetland Limits

Base Photography Date: June 2023

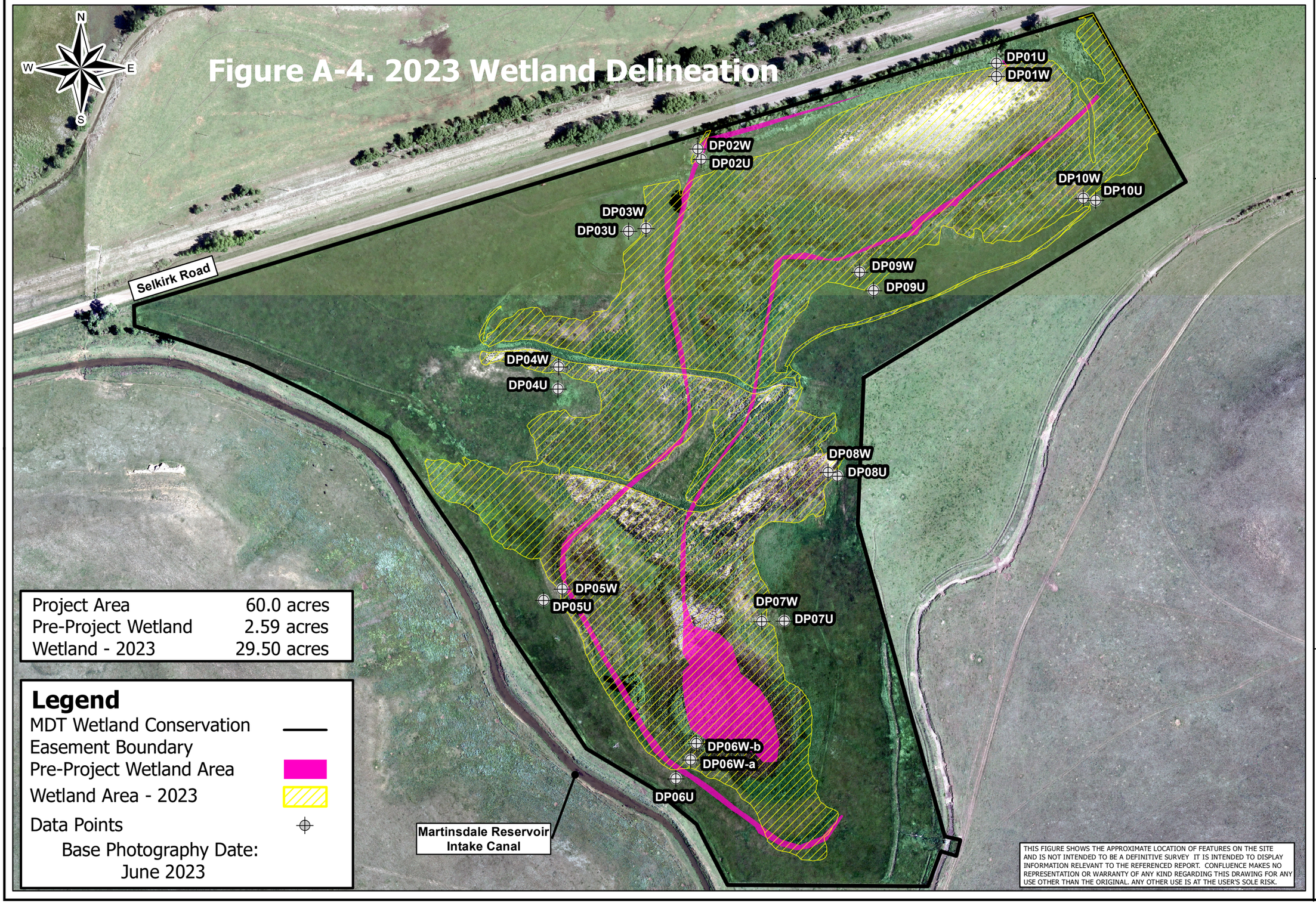
CONFLUENCE CONSULTING

Rostad Ranch Wetland Mitigation Site
2023 Mapped Site Features

0 100 200 400 600 800 1,000 Feet

Project: STPX 002 (749)
Location: Meagher Co., Montana
Map Creation Date: October 2023
Project Manager: R. McEldowney
Drawn By: SNW

Figure A-4. 2023 Wetland Delineation



Project Area	60.0 acres
Pre-Project Wetland	2.59 acres
Wetland - 2023	29.50 acres

Legend

- MDT Wetland Conservation Easement Boundary
- Pre-Project Wetland Area
- Wetland Area - 2023
- Data Points

Base Photography Date: June 2023

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY. IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

CONFLUENCE CONSULTING

Rostad Ranch Wetland Mitigation Site
2023 Wetland Delineation

0 100 200 400 600 800 1,000 Feet

Project: STPX 002 (749)
Location: Meagher Co., Montana
Map Creation Date: October 2023
Project Manager: R. McEldowney
Drawn By: SNW

File: X:\Project\MDT Wetland Mitigation 2\Mains\Rostad\2023\Deln2023_MDT.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Rostad Ranch Assessment Date/Time 6/27/2023

Person(s) conducting the assessment: S Weyant, K Kane

Weather: Sunny, 90 degrees Location: Martinsdale, MT

MDT District: Billings Milepost:

Legal Description: T 8N R 11E Section(s) 12 and 13

Initial Evaluation Date: 8/21/2013 Monitoring Year: 11 #Visits in Year: 1

Size of Evaluation Area: 60 (acres)

Land use surrounding wetland:

Agriculture

HYDROLOGY

Surface Water Source: Groundwater, supplemental hydrology from ditch/headgate, surface runoff

Inundation: ☑ Average Depth: 0 **(ft)** Range of Depths: 0-0.25 **(ft)**

Percent of assessment area under inundation: 1 %

Depth at emergent vegetation-open water boundary: 0 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes

Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:

Drainage patterns, soil saturation, water marks, geomorphic position, FAC-neutral test, soil surface cracks, highwater table, sulfidic odor, surface water.

Groundwater Monitoring Wells

Record depth of water surface below ground surface, in feet.

Well ID	Water Surface Depth (ft)
MW-1	4.71

Additional Activities Checklist:

☐ Map emergent vegetation-open water boundary on aerial photograph.

☑ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)

☑ Use GPS to survey groundwater monitoring well locations, if present.

Hydrology Notes:

Groundwater well measured 6/27/2023 by USGS. Depths are Below Land Surface (BLS). The total well depth of MW-1 is 14' below land surface in the Clagget Shale of the Montana Group local aquifer.

VEGETATION COMMUNITIES

Site Rostad Ranch

(Cover Class Codes **0** = < 1%, **1** = 1-5%, **2** = 6-10%, **3** = 11-20%, **4** = 21-50% , **5** = >50%)

Community # 2 **Community Type:** Juncus balticus / Carex nebrascensis **Acres:** 6.94

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Alopecurus pratensis	0	Bare Ground	1
Beckmannia syzigachne	0	Bromus inermis	0
Carex nebrascensis	4	Carex pellita	3
Carex praegracilis	2	Carex utriculata	2
Cirsium arvense	0	Deschampsia caespitosa	0
Eleocharis palustris	2	Elymus repens	1
Epilobium ciliatum	0	Hordeum jubatum	1
Juncus balticus	5	Mentha arvensis	1
Open Water	0	Pascopyrum smithii	0
Phalaris arundinacea	2	Phleum pratense	1
Poa palustris	2	Poa pratensis	2
Populus balsamifera	0	Rumex crispus	1
Salix exigua	1	Schedonorus pratensis	0
Schoenoplectus acutus	0	Sonchus arvensis	1
Taraxacum officinale	0	Thinopyrum intermedium	0
Trifolium hybridum	1	Trifolium pratense	0
Triglochin maritima	0	Typha latifolia	1

Comments:

Wet meadow community type. In 2023, this WT expanded around the preservation wetland in the south portion of the site and receeded in the northeast portion where reed canarygrass (WT 7) replaced it.

Community # 3 **Community Type:** Salix exigua / **Acres:** 1.02

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus arundinaceus	3
Beckmannia syzigachne	0	Carex nebrascensis	1
Carex pellita	1	Carex praegracilis	1
Deschampsia caespitosa	1	Eleocharis palustris	2
Juncus balticus	2	Poa palustris	1
Salix exigua	5	Salix lutea	1
Schedonorus pratensis	1	Typha latifolia	0

Comments:

Undisturbed Salix community in the southern extent of the mitigation site that has expanded in 2023. Volunteer willows have established in this WT in the north central portion of the site as well.

Community # 7 **Community Type:** Phalaris arundinacea / **Acres:** 6.46

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	3
Alopecurus pratensis	1	Amaranthus retroflexus	0
Bare Ground	0	Bromus inermis	0
Carex aquatilis	0	Carex nebrascensis	2
Carex pellita	2	Carex praegracilis	2
Cirsium arvense	0	Deschampsia caespitosa	0
Eleocharis palustris	2	Elymus repens	2
Elymus trachycaulus	0	Juncus balticus	2
Medicago sativa	0	Phalaris arundinacea	4
Phleum pratense	1	Poa palustris	1
Poa pratensis	2	Populus balsamifera	1
Rumex crispus	0	Salix exigua	0
Thlaspi arvense	0	Trifolium hybridum	2
Typha latifolia	1		

Comments:

This area has expanded and contracted over the last several years, and is present in areas that appear to be transitioning from upland to wetland and supporting more hydrophytic vegetation.

Community # 8 **Community Type:** Bromus inermis / Trifolium spp. **Acres:** 30.17

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis stolonifera	0
Alopecurus arundinaceus	0	Bromus inermis	5
Camelina microcarpa	0	Carex pellita	0
Carex praegracilis	1	Carum carvi	2
Centaurea stoebe	0	Cirsium arvense	0
Dactylis glomerata	1	Elymus repens	3
Elymus trachycaulus	1	Juncus balticus	2
Medicago sativa	0	Melilotus albus	1
Pascopyrum smithii	1	Phalaris arundinacea	1
Phleum pratense	3	Poa palustris	0
Poa pratensis	3	Populus angustifolia	1
Schedonorus pratensis	2	Sinapis arvensis	0
Symphyotrichum ascendens	1	Symphyotrichum ericoides	0
Taraxacum officinale	1	Thinopyrum intermedium	0
Trifolium hybridum	3	Trifolium repens	1

Comments:

UT 11 (Elymus trachycaulus/Pascopyrum smithii) is no longer present at the site and was removed in 2023, leaving UT 8 as the single UT observed at the mitigation site. In 2023, Trifolium spp., which was removed in 2021, was added again as codominant in this community.

Community # 10 **Community Type:** Alopecurus arundinaceus / **Acres:** 9.6

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	5
Alopecurus pratensis	1	Bare Ground	1
Bromus inermis	0	Carex aquatilis	1
Carex nebrascensis	2	Carex pellita	2
Cirsium arvense	0	Eleocharis palustris	1
Elymus repens	2	Elymus trachycaulus	0
Hordeum jubatum	0	Juncus balticus	3
Phalaris arundinacea	2	Poa palustris	1
Poa pratensis	2	Populus balsamifera	1
Rumex crispus	1	Salix exigua	0
Typha latifolia	1		

Comments:

Dominant wetland community type at the mitigation site. Alopecurus arundinaceus occurs in near monoculutures, with other species in the community occuring on the outter fringe of the mapped community boundaries.

Community # 14 **Community Type:** Alopecurus arundinaceus / Eleocharis palustris **Acres:** 0.93

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Bare Ground	0
Beckmannia syzigachne	1	Carex nebrascensis	2
Carex pellita	0	Eleocharis palustris	3
Elymus trachycaulus	0	Glyceria grandis	0
Open Water	2	Phalaris arundinacea	0
Rumex crispus	1	Schoenoplectus acutus	1
Typha latifolia	1		

Comments:

Wetland community observed south of berm in central portion of site.

Community # 15 **Community Type:** Typha latifolia / **Acres:** 2.52

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Alopecurus pratensis	0
Bare Ground	2	Beckmannia syzigachne	1
Carex nebrascensis	1	Carex pellita	2
Carex utriculata	1	Eleocharis palustris	3
Elymus trachycaulus	1	Glyceria grandis	0
Hippuris vulgaris	0	Open Water	1
Phalaris arundinacea	2	Rumex crispus	1
Salix exigua	1	Schoenoplectus acutus	1
Typha latifolia	4		

Comments:

Cattail marsh. In 2023, inundation was observed only in this community type in the south portion of the site from 0-8" deep. Other cattail marshes were saturated at or near the soil surface.

Community # 16 **Community Type:** Carex praegracilis / Poa pratensis **Acres:** 0.55

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Bromus inermis	2	Carex praegracilis	4
Eleocharis palustris	2	Elymus repens	2
Phalaris arundinacea	1	Phleum pratense	2
Poa palustris	1	Poa pratensis	4
Potentilla gracilis	0	Rumex crispus	0
Schedonorus pratensis	1	Schoenoplectus acutus	0
Trifolium hybridum	0	Typha latifolia	0

Comments:

WT created in 2022 to document the transitional species observed along transect 4 where the wetland boundary is expanding north from the berm. The community includes marginal wetland areas that demonstrate wetland hydrology and hydric soil development, but may include more upland rated species.

Community # 17 **Community Type:** Glyceria grandis / Eleocharis palustris **Acres:** 1.56

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	2
Beckmannia syzigachne	0	Deschampsia caespitosa	2
Eleocharis palustris	4	Elymus repens	0
Glyceria grandis	4	Juncus balticus	1
Phalaris arundinacea	3	Rumex crispus	1
Schoenoplectus acutus	2	Typha latifolia	3

Comments:

WT created in 2023. This community is present in the excavated cell in the northeast corner of the site.

Total Vegetation Community Acreage **59.75**

VEGETATION TRANSECTS

Site: Rostad Ranch Date: 6/27/2023

Transect Number: 1 **Compass Direction from Start:** 290

Interval Data:

Ending Station 120 Community Type: Bromus inermis / Trifolium spp.

Species	Cover class	Species	Cover class
Bromus inermis	5	Carex pellita	0
Carex praegracilis	0	Carum carvi	1
Cirsium arvense	0	Dactylis glomerata	1
Elymus repens	1	Juncus balticus	0
Melilotus albus	0	Phleum pratense	2
Poa pratensis	3	Schedonorus pratensis	0
Symphyotrichum ascenden	0	Taraxacum officinale	1
Trifolium hybridum	2		

Ending Station 220 Community Type: Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Carex pellita	1
Carex praegracilis	3	Elymus repens	0
Juncus balticus	0	Phleum pratense	1
Poa pratensis	3	Trifolium hybridum	1
Trifolium pratense	1		

Ending Station 255 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Carex nebrascensis	1	Carex pellita	1
Carex praegracilis	1	Eleocharis palustris	0
Elymus repens	1	Juncus balticus	2
Phalaris arundinacea	4	Poa pratensis	3

Ending Station 273 Community Type: Bromus inermis / Trifolium spp.

Species	Cover class	Species	Cover class
Elymus repens	4	Elymus trachycaulus	1
Phalaris arundinacea	4	Poa pratensis	2

Ending Station 388 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	1
Bare Ground	1	Carex nebrascensis	1
Carex pellita	1	Carex praegracilis	1
Eleocharis palustris	1	Elymus trachycaulus	1
Juncus balticus	1	Phalaris arundinacea	5
Poa pratensis	2		

Ending Station 422 Community Type: Glyceria grandis / Eleocharis palustris

Species	Cover class	Species	Cover class
Bare Ground	2	Eleocharis palustris	2
Glyceria grandis	1	Phalaris arundinacea	3
Rumex crispus	0	Schoenoplectus acutus	0
Typha latifolia	1		

Transect Notes:

No open water was observed along transect 1 in 2023. UT 11 is no longer present at the site and has been replaced with UT 8, decreasing the number of communities observed along the transect.

Transect Number: 2 **Compass Direction from Start:** 120

Interval Data:

Ending Station 42 Community Type: Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus arundinaceus	1
Bare Ground	2	Bromus inermis	0
Carex nebrascensis	1	Carex pellita	2
Eleocharis palustris	1	Elymus repens	1
Elymus trachycaulus	1	Juncus balticus	2
Phalaris arundinacea	3	Poa palustris	0
Poa pratensis	2	Populus balsamifera	1

Ending Station 288 Community Type: Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	1
Carex nebrascensis	3	Carex pellita	3
Carex utriculata	1	Eleocharis palustris	2
Elymus repens	1	Juncus balticus	4
Phalaris arundinacea	3	Phleum pratense	0
Poa palustris	1	Poa pratensis	2
Thinopyrum intermedium	0		

Ending Station 420 Community Type: Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	2
Carex aquatilis	0	Juncus balticus	1
Phalaris arundinacea	5	Poa pratensis	2

Ending Station 453 Community Type: Bromus inermis / Trifolium spp.

Species	Cover class	Species	Cover class
Bromus inermis	5	Cirsium arvense	0
Phalaris arundinacea	1	Phleum pratense	2
Poa pratensis	3	Schedonorus pratensis	0
Taraxacum officinale	1	Thinopyrum intermedium	0
Trifolium hybridum	2	Trifolium repens	0

Transect Notes:

In 2023, WT2 expanded east and the associated remapping of community boundaries decreased the number of community transitions along the transect from 5 to 3.

Transect Number: 3 **Compass Direction from Start:** 30

Interval Data:

Ending Station 6 Community Type: Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Cirsium arvense	0	Eleocharis palustris	0
Juncus balticus	3	Phalaris arundinacea	3
Poa pratensis	1	Populus balsamifera	4

Ending Station 115 Community Type: Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Carex nebrascensis	2	Carex pellita	2
Cirsium arvense	0	Eleocharis palustris	2
Juncus balticus	4	Phalaris arundinacea	1
Phleum pratense	2	Salix exigua	1
Schedonorus pratensis	0	Sonchus arvensis	2
Taraxacum officinale	1	Typha latifolia	1

Ending Station 288 Community Type: Typha latifolia /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	1
Carex nebrascensis	2	Carex pellita	1
Carex utriculata	2	Eleocharis palustris	3
Glyceria grandis	2	Open Water	1
Phalaris arundinacea	0	Salix exigua	1
Typha latifolia	5		

Ending Station 306 Community Type: Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Carex nebrascensis	1
Carex pellita	1	Carex utriculata	1
Eleocharis palustris	1	Juncus balticus	3
Phalaris arundinacea	2	Salix exigua	2
Typha latifolia	1		

Transect Notes:

This transect spans the preservation wetland in the south portion of the mitigation site and is composed entirely of wetland habitat. Open water along the transect ranged from 0-8' deep.

Transect Number: 4 **Compass Direction from Start:** 0

Interval Data:

Ending Station 12 Community Type: Bromus inermis / Trifolium spp.

Species	Cover class	Species	Cover class
Bromus inermis	2	Elymus repens	2
Phalaris arundinacea	4		

Ending Station 110 Community Type: Carex praegracilis / Poa pratensis

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bromus inermis	1
Carex praegracilis	4	Eleocharis palustris	1
Elymus repens	2	Phalaris arundinacea	1
Phleum pratense	2	Poa pratensis	4
Potentilla gracilis	0	Schedonorus pratensis	0
Trifolium hybridum	2	Typha latifolia	0

Ending Station 412 Community Type: Bromus inermis / Trifolium spp.

Species	Cover class	Species	Cover class
Bromus inermis	5	Camelina microcarpa	0
Cirsium arvense	0	Elymus repens	2
Elymus trachycaulus	2	Melilotus albus	0
Pascopyrum smithii	0	Phleum pratense	1
Poa pratensis	4	Symphyotrichum ascenden	1
Taraxacum officinale	0	Thinopyrum intermedium	2
Trifolium hybridum	2		

Transect Notes:

This transect starts on an upland berm vegetated with reed canarygrass, but lacks hydric soil development and evidence of wetland hydrology.

PLANTED WOODY VEGETATION SURVIVAL

Rostad Ranch

Planting Type	#Planted	#Alive	Notes
Populus balsamifera	100		
Populus tremuloides	100		
Salix sp.	2000		

Comments

Willow stakes were planted in spring 2013. Survival was not quantitatively assessed in 2023, as the performance standard for woody vegetation was met five years post-construction. Willows in the planting zones and the preservation PSS wetland appeared healthy with minimal signs of browse. Volunteer Salix exigua and Populus balsamifera are establishing around the edges of WT 3 and WT 2 in the south portion of the site, and an additional willow community has established in the north central portion of the project area.

Rostad Ranch

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Blue Bird Boxes

How many? 6

Are the nesting structures being used? No

Do the nesting structures need repairs? Yes

Nesting Structure Comments:

A bird box originally located on the fence southwest of T1-Start has been missing since 2021 and has not been replaced, so number of bird boxes at the site has been reduced. All other bird boxes appear in good condition with little evidence of use, except for the two bird boxes located near the diversion inlet structure. These were surrounded by birds on the fenceline.

Species	#Observed	Behavior	Habitat
American Crow	1	L, FO	
American Robin	1	L, FO	
American White Pelican	5	FO, N	
Bald Eagle	1	L, FO	
Black-headed Grosbeak	1	L	
Bobolink	12	N, L, F, FO	
Brown-headed Cowbird	12	L, FO	
Canada Goose	1	FO	
Cinnamon Teal	2	FO	
Common Yellowthroat	1	L, FO	
Killdeer	1	F	
Least Flycatcher	1	L	
Long-billed Curlew	1	L	
Mallard	3	FO	
Northern Harrier	1	FO	
Red-winged Blackbird	15	N, L, F	
Ring-billed Gull	7	FO	
Sandhill Crane	1	FO, F, N	
Savannah Sparrow	1	L, FO	
Song Sparrow	1	L, FO	
Tree Swallow	3	L	
Turkey Vulture	3	FO	
Warbling Vireo	1	L	

Western Meadowlark	1	L
Western Tanager	1	L
White-breasted Nuthatch	1	L
Wilson's Snipe	2	F, L
Yellow Warbler	1	L, FO

Bird Comments

28 bird species observed in 2023.

BEHAVIOR CODES

BP = One of a breeding pair **BD** = Breeding display **F** = Foraging **FO** = Flyover **L** = Loafing **N** = Nesting

HABITAT CODES

AB = Aquatic bed **SS** = Scrub/Shrub **FO** = Forested **UP** = Upland buffer **I** = Island

WM = Wet meadow **MA** = Marsh **US** = Unconsolidated shore **MF** = Mud Flat **OW** = Open Water

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Antelope	2	No	No	No	
Boreal Chorus Frog		No	No	No	
White-tailed Deer	3	Yes	Yes	Yes	

Wildlife Comments:

Evidence of wildlife on site include observations, tracks, scat, and burrows.

Rostad Ranch

PHOTOGRAPHS

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

Photograph Checklist:

☑ One photograph for each of the four cardinal directions surrounding the wetland.

☑ At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.

☑ At least one photograph showing the buffer surrounding the wetland.

☑ One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01u	46.462959	-110.291902		
DP01w	46.46307	-110.292021		
DP02u	46.463946	-110.292406		
DP02w	46.464009	-110.29231		
DP03a-w	46.463186	-110.295234		
DP03b-w	46.462806	-110.29508		
DP03u	46.46335	-110.29531		
DP04u	46.462685	-110.29717		
DP04w	46.462662	-110.29695		
DP05u	46.46168	-110.29856		
DP05w	46.461684	-110.29842		
DP06a-w	46.45934	-110.295285		
DP06b-w	46.459327	-110.295935		
DP06u	46.459437	-110.295096		
DP07u	46.459547	-110.297411		
DP07w	46.459646	-110.297244		
DP08u	46.460599	-110.294856		
DP08w	46.460652	-110.294993		
DP09u	46.461073	-110.296365		
DP09w	46.461141	-110.296461		
DP10u	46.462259	-110.293734		
DP10w	46.462229	-110.293657		
MW-01	46.463359	-110.295505		
Photo point 1	46.463894	-110.292697		
Photo point 10	46.461759	-110.298593		
Photo point 2	46.461612	-110.294535		
Photo point 3	46.460573	-110.294591		
Photo point 4	46.458259	-110.293701		

Photo point 5	46.458417	-110.296185
Photo point 6	46.459813	-110.298179
Photo point 7	46.461119	-110.299371
Photo point 8	46.460987	-110.298118
Photo point 9	46.461106	-110.294579
Transect 1 End	46.463576102426	-110.2927263717
Transect 1 Start	46.463029103021	-110.291276
Transect 2 End	46.461978946056	-110.295094
Transect 2 Start	46.462875830304	-110.29637
Transect 3 End	46.459923761462	-110.2958697392
Transect 3 Start	46.459397471592	-110.296821
Transect 4 End	46.4629	-110.297851
Transect 4 Start	46.461803077753	-110.297953

Comments:

Rostad Ranch

ADDITIONAL ITEMS CHECKLIST

Hydrology

☐ Map emergent vegetation/open water boundary on aerial photos.
☑ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).

Photos

☑ One photo from the wetland toward each of the four cardinal directions
☑ One photo showing upland use surrounding the wetland.
☑ One photo showing the buffer around the wetland
☑ One photo from each end of each vegetation transect, toward the transect

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

☑ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
☐ Delineate wetland – upland boundary onto aerial photograph.

Wetland Delineation Comments

29.50 acres of wetland delineated in 2023.

Functional Assessments

☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.

Functional Assessment Comments:

The wetland mitigation site is rated as a category II wetland.

Maintenance

Were man-made nesting structure installed at this site? Yes

If yes, do they need to be repaired? Yes

If yes, describe the problems below and indicate if any actions were taken to remedy the problems

Were man-made structures built or installed to impound water or control water flow

into or out of the wetland? Yes

If yes, are the structures in need of repair? No

If yes, describe the problems below.

The birdbox near the start of T-1 is missing and could be replaced.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP01U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Convex Slope (%): 25

Subregion (LRR): E 46 Lat: 46.463832 Long: -110.293185 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Elevated berm between excavated wetland cell and irrigation ditch (south). Approximately 3' higher in elevation than paired wetland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	55	✔	UPL
2. Elymus repens	35	✔	FACU
3. Poa pratensis	10		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	55	x 5 =	275
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Bromus inermis is dominant in this vegetation community. Phalaris arundinacea is beginning to creep up the berm in some areas.

SOIL

Sampling Point: DP01U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 5	2.5Y 3/2	100					Clay Loam	
5 - 16	2.5Y 4/3	95	10YR 6/4	5	C	M	Sandy Clay Loam	Shale fragments and cobbles
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Although concentrations were observed, this soil does not meet hydric soil requirements.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed. Soils moist in upper horizon, and drier below.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP01W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Open Depression Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): E 46 Lat: 46.463738 Long: -110.293183 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

PEM, depressional wetland. Sample point is located in the excavated wetland cell in the northeast portion of the mitigation site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Eleocharis palustris	20	✔	OBL
2. Phalaris arundinacea	15	✔	FACW
3. Typha latifolia	4		OBL
4. Elymus repens	2		FACU
5. Glyceria grandis	1		OBL
6.			
7.			
8.			
9.			
10.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 58

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	42 (A)		63 (B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Bare ground includes algal mats and cattail litter.

SOIL

Sampling Point: DP01W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 7	10YR 3/2	100					Sandy Clay Loam	Roots
7 - 16	2.5Y 4/2	90	2.5Y 5/6	10	C	M	Sandy Clay Loam	Shale fragments throughout.
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✔ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes saturation to the soil surface, algal mats, geomorphic position, and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP02U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 46 Lat: 46.463132 Long: -110.296205 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point on terrace above historic wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	45	✔	UPL
2. Elymus repens	20	✔	FACU
3. Poa pratensis	8		FACU
4. Sisymbrium altissimum	5		FACU
5. Thlaspi arvense	2		FACU
6.			
7.			
8.			
9.			
10.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	45	x 5 =	225
Column Totals:	80 (A)		365 (B)

Prevalence Index = B/A = 4.56

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Bromus inermis and Elymus repens are the dominant species at the sample point.

SOIL

Sampling Point: DP02U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 5	10YR 4/2	100					Sandy Clay Loam	
5 - 12	2.5Y 4/2	100					Sandy Loam	Gravelly
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Cobble bottom

Depth (inches): 12

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed. Sample pit could not be reasonably excavated deeper due to an extremely cobbley layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP02W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Artificial Drainage Pattern Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): E 46 Lat: 46.463202 Long: -110.296241 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

PEM, riverine wetland. Sample point within historic wetland near the north boundary of the mitigation site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Populus balsamifera	10	✔	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	75	✔	FACW
2. Juncus balticus	5		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Vegetation is a near monoculture of Phalaris arundinacea. Trees visible on the aerial are outside of the wetland boundaries.

SOIL

Sampling Point: DP02W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 4/2	100					Mucky Loam/Clay	High root/litter content. OM/Mineral
6 - 16	10YR 4/1	98	10YR 5/8	2	C	M	Sandy Loam	Gravelly
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Mucky mineral upper layer. Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✔ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 2

Water Table Present? Yes ✔ No ___ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes surface water, high water table, saturation to the soil surface, algal mats, water-stained leaves, geomorphic position, and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP03U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 5

Subregion (LRR): E 46 Lat: 46.462615 Long: -110.296945 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Elymus trachycaulus	50	✔	FACU
2. Elymus repens	15	✔	FACU
3. Poa pratensis	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	70 (A)		280 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point is dominated by Elymus species.

SOIL

Sampling Point: DP03U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 7	10YR 3/2	100					Sandy Clay Loam	Fine roots throughout.
7 - 16	10YR 4/2	93	7.5YR 4/6	7	C	PL / M	Sandy Clay	Small gravels.
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Although concentrations are present in the matrix, this sample point does not support hydrophytic vegetation and no evidence of wetland hydrology was observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP03W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 46 Lat: 46.462636 Long: -110.296764 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PEM, depressional wetland. Sample point located in wet meadow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	65	✔	FACW
2. Agrostis stolonifera	10		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	75 (A)		150 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Phalaris arundinacea is the dominant species at this sample point.

SOIL

Sampling Point: DP03W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	98	7.5YR 5/8	2	C	M	Sandy Clay	
6 - 16	2.5Y 3/2	93	10YR 5/8	7	C	M	Sandy Clay	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP04U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): E 46 Lat: 46.461491 Long: -110.297651 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	80	✔	UPL
2. Poa pratensis	10		FACU
3. Thinopyrum intermedium	5		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	80	x 5 =	400
Column Totals:	90 (A)		440 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Bromus inermis is the dominant species at this sample point.

SOIL

Sampling Point: DP04U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	7.5YR 4/2	100					Sandy Clay Loam	
6 - 15	2.5Y 5/3	98	2.5Y 6/8	1	C	M	Sandy Loam	Gravelly. Cobble shelf at 12
-			7.5YR 4/4	1	C	M		
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP04W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): E 46 Lat: 46.461646 Long: -110.297648 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PEM, depressional wetland. Sample point located south of berm. Concave area holds surface water during precipitation and irrigation events.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	50	✔	FACW
2. Juncus balticus	8		FACW
3. Alopecurus arundinaceus	5		FACW
4. Eleocharis palustris	5		OBL
5. Typha latifolia	2		OBL
6.			
7.			
8.			
9.			
10.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	63	x 2 =	126
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		133 (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Phalaris arundinacea is the dominant species at this sample point.

SOIL

Sampling Point: DP04W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	96	2.5Y 6/6	3	C	M	Sandy Clay Loam	
-			7.5YR 5/8	1	C	PL / M	Sandy Clay Loam	C on living roots
5 - 11	2.5Y 4/2	92	2.5Y 6/2	3	D	M	Sandy Loam	
-			7.5YR 3/4	5	C	M	Sandy Loam	
11 - 17	2.5Y 6/2	98	10YR 5/8	2	C	M		
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 12

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes saturation within 12" of the soil surface, geomorphic position, and a positive fac-neutral test. Oxidized rhizospheres observed along living roots (1%).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP05U

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR): E 46 Lat: 46.459991 Long: -110.297778 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	80	✔	UPL
2. Poa pratensis	15		FACU
3. Elymus repens	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	80	x 5 =	400
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Bromus inermis is the dominant species at this sample point.

SOIL

Sampling Point: DP05U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 11	7.5YR 3/2	100					Sandy Loam	
11 - 17	2.5Y 5/3	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP05W

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 5

Subregion (LRR): E 46 Lat: 46.460072 Long: -110.297588 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

PEM, depressional/slope wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	30	✔	FACW
2. Carex nebrascensis	25	✔	OBL
3. Juncus balticus	20	✔	FACW
4. Alopecurus arundinaceus	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 15.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		145 (B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index greater than or equal to 3.0.

SOIL

Sampling Point: DP05W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/2	2					Sandy Clay Loam	Pockets of coated sand grains. 10YR 6/6
4 - 17	10YR 4/2	85	10YR 4/6	15	C	M	Sandy Clay Loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP06U

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 10

Subregion (LRR): E 46 Lat: 46.458732 Long: -110.296401 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point down gradient of canal. Local shelf is approximately 3' higher in elevation than the paired wetland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	70	✔	UPL
2. Poa pratensis	15		FACU
3. Phleum pratense	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	70	x 5 =	350
Column Totals:	90 (A)		430 (B)

Prevalence Index = B/A = 4.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Bromus inermis is the dominant species at this sample point.

SOIL

Sampling Point: DP06U

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 4/3	100					Sandy Loam	
6 - 16	10YR 4/3		2.5Y 4/6	2	CS	M	Sandy Loam	Sand content increases with depth.
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP06W-a

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): E 46 Lat: 46.458868 Long: -110.29625 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PEM, depressional/slope wetland. Sample point located at toe slope of hillside.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix exigua	5	✔	FACW
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	75	✔	FACW
2. Phalaris arundinacea	7		FACW
3. Taraxacum officinale	7		FACU
4. Trifolium hybridum	4		FACU
5. Alopecurus arundinaceus	3		FACW
6. Juncus ensifolius	2		FACW
7. Melilotus officinalis	1		FACU
8.			
9.			
10.			
	99	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	92	x 2 =	184
FAC species	0	x 3 =	0
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	104 (A)		232 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Juncus balticus is the dominant species at this sample point.

SOIL

Sampling Point: DP06W-a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 10	10YR 4/2	95	2.5Y 5/6	2	CS	M	Sandy Clay Loam	Pockets of sand in matrix
-			2.5Y 6/2	3	D	M		
10 - 18	2.5Y 4/3	95	2.5Y 6/8	5	CS	M	Sandy Loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-28

Applicant/Owner: MDT State: Montana Sampling Point: DP06W-b

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): E 46 Lat: 46.458985 Long: -110.296196 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PSS, depressional/slope wetland. Sample point located preservation wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix exigua	35	✔	FACW
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	70	✔	FACW
2. Carex pellita	10		OBL
3. Carex praegracilis	5		FACW
4. Mentha arvensis	3		FACW
5. Phleum pratense	2		FACU
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	113	x 2 =	226
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	125 (A)		244 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Juncus balticus is the dominant species in the herbaceous strata.

SOIL

Sampling Point: DP06W-b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 7	10YR 4/2	94	2.5Y 6/6	4	CS	M	Sandy Clay Loam	
-			7.5YR 4/6	2	C	M		
7 - 17	2.5Y 5/3	90	2.5Y 5/6	10	CS	M	Loamy Sand	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes a positive FAC-neutral test and geomorphic position.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP07U

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 5

Subregion (LRR): E 46 Lat: 46.459862 Long: -110.295303 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	55	✔	UPL
2. Poa pratensis	20	✔	FACU
3. Trifolium hybridum	10		FACU
4. Phleum pratense	8		FACU
5. Cirsium arvense	3		FACU
6. Melilotus officinalis	2		FACU
7. Taraxacum officinale	2		FACU
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	55	x 5 =	275
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Bromus inermis and Poa pratensis are the dominant species at this sample point.

SOIL

Sampling Point: DP07U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	100					Sandy Clay Loam	
6 - 16	2.5Y 4/2	98	10YR 6/6	2	CS	M	Sandy Clay Loam	Sand increases with depth
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Although concentrations were observed, this soil profile does not meet the requirements for a hydric soil, hosts an upland vegetation community, and is not supported by wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP07W

Investigator(s): S Weyant, K Kane Section, Township, Range: S13 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR): E 46 Lat: 46.459855 Long: -110.295536 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped.

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PEM, depressional/slope wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	35	✔	FACW
2. Eleocharis palustris	15	✔	OBL
3. Juncus balticus	8		FACW
4. Alopecurus arundinaceus	5		FACW
5. Agrostis stolonifera	4		FACW
6. Trifolium hybridum	4		FACU
7. Carex praegracilis	3		FACW
8. Poa pratensis	3		FACU
9. Carex pellita	2		OBL
10. Cirsium arvense	1		FACU
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	80 (A)		159 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Phalaris arundinacea and Eleocharis palustris are the dominant species at this sample point.

SOIL

Sampling Point: DP07W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/2	98	10YR 5/8	2	C	M	Sandy Clay Loam	
4 - 14	10YR 3/2	93	10YR 5/8	7	C	M	Sandy Clay Loam	
14 - 16	10YR 4/2	90	10GY 4/1	1	C	M	Sandy Clay	
-			N 2.5/0	2	C	M		Mn concentrations
-			10YR 5/8	7	C	M		
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes saturation within 8" of the soil surface, geomorphic position, and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP08U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Flat Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 46 Lat: 46.460894 Long: -110.294775 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point is approximately 2' higher in elevation than the paired wetland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Trifolium hybridum	85	✔	FACU
2. Bromus inermis	5		UPL
3. Phleum pratense	5		FACU
4. Melilotus officinalis	4		FACU
5. Poa pratensis	1		FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	95	x 4 =	380
UPL species	5	x 5 =	25
Column Totals:	100 (A)		405 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Trifolium hybridum is the dominant species at the sample point.

SOIL

Sampling Point: DP08U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 2	10YR 4/2	100					Clay Loam	
2 - 16	2.5Y 4/3	60					Clay Loam	Mixed matrix.
2 - 16	2.5Y 5/4	40					Clay Loam	Mixed matrix.
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No hydric soil indicators observed. Clay content increased with depth in the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP08W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Concave Slope (%): 15

Subregion (LRR): E 46 Lat: 46.460917 Long: -110.29487 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

PEM, depressional wetland. Sample point located in low area north of berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Carex pellita	30	✔	OBL
2. Alopecurus arundinaceus	20	✔	FACW
3. Eleocharis palustris	20	✔	OBL
4. Juncus balticus	10		FACW
5. Phalaris arundinacea	10		FACW
6. Carex nebrascensis	5		OBL
7. Juncus ensifolius	2		FACW
8.			
9.			
10.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 3

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	42	x 2 =	84
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	97 (A)		139 (B)

Prevalence Index = B/A = 1.43

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

This vegetation community passes the rapid test for hydrophytic vegetation.

SOIL

Sampling Point: DP08W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	2.5Y 5/2	95	10YR 5/6	5	C	M	Clay Loam	
6 - 14	2.5Y 5/2	85	10YR 5/8	15	C	M	Clay Loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✔ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes saturation within 8" of the soil surface, algal mats, water-stained leaves, geomorphic position, and a positive fac-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP09U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Undulating Slope (%): 10

Subregion (LRR): E 46 Lat: 46.462212 Long: -110.294421 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Dactylis glomerata	30	✔	FACU
2. Poa pratensis	20	✔	FACU
3. Bromus inermis	15	✔	UPL
4. Phleum pratense	10		FACU
5. Trifolium hybridum	10		FACU
6. Taraxacum officinale	5		FACU
7. Carex praegracilis	3		FACW
8. Carum carvi	3		UPL
9. Elymus repens	2		FACU
10. Medicago lupulina	2		FACU
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	79	x 4 =	316
UPL species	18	x 5 =	90
Column Totals:	100 (A)		412 (B)

Prevalence Index = B/A = 4.12

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Dominant vegetation at the sample point is a mixture of common upland pasture grasses.

SOIL

Sampling Point: DP09U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 8	10YR 3/2	100					Sandy Clay Loam	
8 - 16	2.5Y 4/3	80	2.5Y 5/6	1	C	M	Sandy Clay Loam	Mixed matrix
8 - 16	2.5Y 5/2	20					Sandy Clay Loam	Mixed matrix
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No hydric soil indicators observed. Clay content increases with depth through the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP09W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR): E 46 Lat: 46.462341 Long: -110.294568 Datum: NAD 83

Soil Map Unit Name: 854B - Varney-Coyoteflats complex, 2 to 4 percent slopes NWI classification: Not mapped

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 _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

PEM, depressional wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Carex pellita	35	✔	OBL
2. Alopecurus arundinaceus	28	✔	FACW
3. Poa pratensis	15		FACU
4. Phleum pratense	7		FACU
5. Carex nebrascensis	5		OBL
6. Elymus repens	2		FACU
7. Trifolium hybridum	2		FACU
8. Juncus balticus	1		FACW
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	29	x 2 =	58
FAC species	0	x 3 =	0
FACU species	26	x 4 =	104
UPL species	0	x 5 =	0
Column Totals:	95 (A)		202 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Dominant species are hydrophytic.

SOIL

Sampling Point: DP09W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	100					Sandy Clay Loam	Fine sand grains
6 - 16	2.5Y 4/2	83	10YR 5/8	15	C	PL / M	Sandy Clay	
-			N 2.5/0	2	C	M		Mn concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive fac-neutral test. Soils moist.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP10U

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Linear Slope (%): 10

Subregion (LRR): E 46 Lat: 46.462868 Long: -110.292153 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Upland sample point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	45	✔	UPL
2. Poa pratensis	30	✔	FACU
3. Phleum pratense	15		FACU
4. Elymus repens	10		FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	45	x 5 =	225
Column Totals:	100 (A)		445 (B)

Prevalence Index = B/A = 4.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Bromus inermis and Poa pratensis are the dominant species at the sample point.

SOIL

Sampling Point: DP10U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 10	10YR 4/2	100					Sandy Clay Loam	
10 - 16	2.5Y 5/2	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No hydric soil indicators observed. Clay content increases with depth in this area of the site.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad City/County: Meagher County Sampling Date: 2023-06-27

Applicant/Owner: MDT State: Montana Sampling Point: DP10W

Investigator(s): S Weyant, K Kane Section, Township, Range: S12 T8N R11E

Landform (hillslope, terrace, etc.): Valley Floor Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR): E 46 Lat: 46.462881 Long: -110.292278 Datum: NAD 83

Soil Map Unit Name: 86C - Delpoint-Marmarth-Cabbart complex, 2 to 8 percent slopes NWI classification: Not mapped

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 ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

PEM, depressional wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Carex nebrascensis	80	✔	OBL
2. Alopecurus pratensis	8		FACW
3. Elymus repens	3		FACU
4. Poa pratensis	2		FACU
5. Camelina microcarpa	1		UPL
6. Carex praegracilis	1		FACW
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	9	x 2 =	18
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	1	x 5 =	5
Column Totals:	95 (A)		123 (B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Community in this area is transitioning. Previously included more Bromus and Elymus spp., but is now transitioning to a Carex dominant community.

SOIL

Sampling Point: DP10W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	7.5YR 3/2	100					Sandy Clay Loam	
6 - 18	10YR 4/2	92	7.5YR 6/6	5	C	M	Sandy Clay Loam	
-			5Y 5/1	3	D	M		Gravelly
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ 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)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive fac-neutral test. Soil is extremely moist.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Rostad Ranch **2. MDT Project #:** STPX 002 (749) **Control #:** 9680000

3. Evaluation Date: 06/27/2023 **4. Evaluator(s):** S Weyant **5. Wetlands/Site #(s):** Rostad Mitigation Site

6. Wetland Location(s): i. Legal: T8N,R11E,12 ;T8N,R11E,13 **Latitude/Longitude:** 46.461326, -110.296089 : Centroid of

ii. Approx. Stationing or Mileposts:

iii. Watershed: 10

Watershed Name, County: Musselshell, Meagher

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 29.500 acres (measured)

9. Assessment area (AA): 29.500 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	E	SI	6.00
D	EM	E	SI	14.00
S	EM	E	SI	77.00
S	SS	NA	SI	3.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	**moderate disturbance**	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Rangeland surrounds the site to the West, South, and East, and is bordered by a lightly used county road to the North.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Spotted knapweed (Centaurea stoebe) and Canada thistle (Cirsium arvense).

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA was historically drained and heavily grazed by cattle. A drainage ditch bisected the property prior to construction of the mitigation wetland. Historic and existing wetlands were expanded through construction activities with the goal of establishing or re-establishing emergent and scrub-shrub wetland. Surrounding land use includes transportation corridors (county road, historic railroad berm), and agriculture (hay production and cattle grazing). The South Fork of the Musselshell River is located to the north of the mitigation site.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	**Initial Rating**	**Is current management preventing (passive) existence of additional vegetated classes?**		**Modified Rating**
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	**M**	NA	NA	NA
1 class, but not a monoculture	M	<-- NO	YES -->	L
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA

Comments: Emergent and scrub-shrub vegetation classes present.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Grizzly Bear(S)

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): USFWS IPaC Report (Project Code 2022-0090125) , MTNHP Environmental Summary Report for Lat 46.44560 and Long -110.26057

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
Downingia laeta, Bobolink (D) - S2S3	Long-billed curlew, Mountain plover(D) -	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
***S1 Species:** Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
***S2 and S3 Species:** Functional Points and Rating*	**.9H**	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): Observations of Downingia laeta in wetland during 2013-15 site visits. Long-billed curlews and upland sandpipers were observed by MDT staff annually when irrigation is turned onto the site. Bobolinks observed at the site in 2023.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):
- ___ observations of abundant wildlife #s or high species diversity (during any period)
- ___ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ presence of extremely limiting habitat features not available in the surrounding area
- ___ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- X observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other interms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in >=10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	**M**	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	**.5M**	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: Site is used by deer and various bird species. Active Sandhill Crane nesting observed in wetlands in 2016, 2018, and 2019 (observed by MDT), and in 2022.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **X NA** and proceed to 14E.)

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ If yes, reduce score in i above by 0.1.

*b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ___ If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: NA **Comments:** AA does not support perennial water to provide fish habitat.

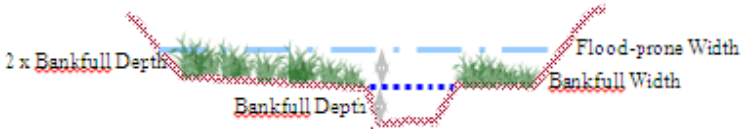
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

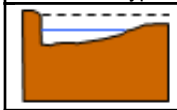
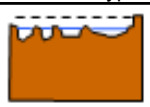
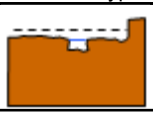
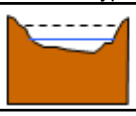
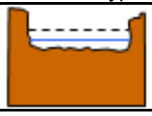
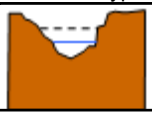
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** No flooding occurs via in-channel or overbank flow.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, ___**NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			<=1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **>= 5 out of 10 years**	1H	**.9H**	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Depressional areas, especially the excavated cell in the northeast corner of the site, and portions of slope wetlands maintain water seasonally/intermittently. Adaptive management in 2017 resulted in an increased score for this function.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___**NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	**1H**	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: More than 80 percent of the wetlands are vegetated. A restricted outlet is located in the depressional area as a constructed overflow channel.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, **X** **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: No standing water bodies were present at the site in 2023.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	**M**	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	**.7M**	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 0.80H **Comments:** Moderate biological activity; qualifying upland buffer exists.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- X The AA is a slope wetland
- X Springs or seeps are known or observed
- X Vegetation growing during dormant season/drought
- X Wetland occurs at the toe of a natural slope
- ___ AA permanently flooded during drought periods
- ___ Wetland contains an outlet, but no inlet
- X Shallow water table and the site is saturated to the surface
- ___ Other:

ii. Recharge Indicators

- X Permeable substrate present without underlying impeding layer
- ___ Wetland contains inlet but no outlet
- ___ Stream is a known 'losing' stream; discharge volume decreases
- ___ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	**.7M**	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Seasonal/intermittent water regime within the AA.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	**.3L**	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: PEM & PSS wetlands are common in the area. Structural diversity and disturbance are moderate.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **X** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; **X** Non-consumptive rec.; ___Other :

iii. Rating:

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	**.05L**

Comments: Currently no recreation/education occurs at the site.

General Site Notes
29.50 acres of wetland delineated at the mitigation site in 2023.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Rostad Mitigation Site

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	2.95	
B. MT Natural Heritage Program Species Habitat	H	0.90	1	26.55	*
C. General Wildlife Habitat	M	0.50	1	14.75	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	0.90	1	26.55	*
G. Sediment/Nutrient/Toxicant Removal	H	1.00	1	29.50	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.80	1	23.60	
J. Groundwater Discharge/Recharge	M	0.70	1	20.65	*
K. Uniqueness	L	0.30	1	8.85	
L. Recreation/Education Potential (bonus points)	L	0.05	1	1.48	
Totals:		5.25	8.00	154.88	
Percent of Possible Score			66%		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)

____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
____ Score of 1 functional point for Uniqueness; **or**
____ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; **or**
____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)

____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
____ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
____ Score of .9 or 1 functional point for General Fish Habitat; **or**
____ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
X Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

X "Low" rating for Uniqueness; **and**
____ Vegetated wetland component 1 acre (do not include upland vegetated buffer); **and**
____ Percent of possible score 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

Summary Comments: Category II Wetland.

Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2023.

Scientific Names	Common Names	GP Indicator Status[(1)]
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis stolonifera	Spreading Bent	FACW
Algae, green	Algae, green	NL
Alopecurus arundinaceus	Creeping-Meadow Foxtail	FACW
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Amaranthus retroflexus	Red-Root	FACU
Ambrosia acanthicarpa	Flat-spine Ragweed	UPL
Artemisia ludoviciana	White Sagebrush	UPL
Aster sp.	Aster	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Beckmannia syzigachne	American Slough Grass	OBL
Berteroa incana	Hoary False-alyssum	UPL
Bromus arvensis	Field Brome	FACU
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Camelina macrocarpa	Little-Pod False Flax	UPL
Cardaria draba	Whitetop	UPL
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Carum carvi	Caraway	UPL
Centaurea stoebe	Spotted Knapweed	UPL
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium sp.	Goosefoot	UPL
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FACU
Convolvulus arvensis	Field Bindweed	UPL
Cynoglossum officinale	Gypsy-Flower	FACU
Cyrtorhyncha cymbalaria	Alkali Buttercup	OBL
Dactylis glomerata	Orchard Grass	FACU
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Herb Sophia	UPL
Downingia laeta	Great Basin Calico-Flower	OBL
Eleocharis palustris	Common Spike-Rush	OBL
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU

Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2023.

Scientific Names	Common Names	GP Indicator Status[(1)]
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum arvense	Field Horsetail	FAC
Equisetum laevigatum	Smooth Scouring-Rush	FAC
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Glycyrrhiza lepidota	American Licorice	FACU
Helianthus annuus	Common Sunflower	FACU
Hippuris vulgaris	Common Mare's-Tail	OBL
Hordeum jubatum	Fox-Tail Barley	FACW
Juncus articulatus	Joint-Leaf Rush	OBL
Juncus balticus	Baltic Rush	FACW
Juncus bufonius	Toad Rush	OBL
Juncus longistylis	Llong-Style Rush	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium densiflorum	Miner's Pepperwort	FAC
Medicago sativa	Alfalfa	UPL
Melilotus albus	White Sweetclover	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Pascopyrum smithii	Western-Wheat Grass	FACU
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FACU
Plantago major	Great Plantain	FAC
Poa palustris	Fowl Blue Grass	FACW
Poa pratensis	Kentucky Blue Grass	FACU
Polypogon monspeliensis	Annual Rabbit's-Foot Grass	FACW
Populus angustifolia	Narrow-Leaf Cottonwood	FACW
Populus balsamifera	Balsam Poplar	FACW
Populus tremuloides	Quaking Aspen	FAC
Potentilla anserina	Silverweed	FACW
Potentilla gracilis	Graceful Cinquefoil	FAC
Ranunculus acris	**Tall Buttercup**	**FACW**
Rumex crispus	Curly Dock	FAC
Rumex occidentalis	Western Dock	OBL
Salix exigua	Narrow-Leaf Willow	FACW
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenoplectus acutus	Hardstem Bulrush	OBL
Sinapis arvensis	Wild Mustard	UPL
Solidago gigantea	**Late Goldenrod**	**FAC**

Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2023.

Scientific Names	Common Names	GP Indicator Status[1]
Sonchus arvensis	Field Sow-Thistle	FAC
Symphyotrichum ascendens	Western American-Aster	FACU
Symphyotrichum ericoides	White Heath American-Aster	FACU
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thinopyrum intermedium	Intermediate Wheatgrass	UPL
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium arvense	Rabbit-foot Clover	UPL
Trifolium hybridum	Aslsike Clover	FACU
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FACU
Triglochin maritima	Seaside Arrow-Grass	OBL
Typha angustifolia	Narrow-Leaf Cat-tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Veronica peregrina	Neckweed	FACW

[1] 2020 NWPL (USACE 2020)

New species identified in 2023 are **bolded**.

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

Rostad Ranch: Photo Point Photographs

Photo Point 1 – Panorama; Location: Northeast Corner; Bearing 200 degrees; Year 2013

Photo Point 1 – Panorama; Location: Northeast Corner; Bearing 200 degrees; Year 2023

Photo Point 2 – Panorama; Location: East Fence Corner; Bearing 125 degrees; Year 2013

Photo Point 2 – Panorama; Location: East Fence Corner; Bearing 125 degrees; Year 2023

Rostad Ranch: Photo Point Photographs

Photo Point 3 – Panorama; Location: East Fence Line; Bearing 280 degrees; Year 2013

Photo Point 3 – Panorama; Location: East Fence Line; Bearing 280 degrees; Year 2023

Photo Point 4 – Panorama; Location: SE Fence Corner; Bearing 240 degrees; Year 2013

Photo Point 4 – Panorama; Location: SE Fence Corner; Bearing 240 degrees; Year 2023

Rostad Ranch: Photo Point Photographs

Photo Point 5 – Panorama; Location: SW Fence Corner; Bearing 200 degrees; Year 2013

Photo Point 5 – Panorama; Location: SW Fence Corner; Bearing 200 degrees; Year 2023

Photo Point 7 – Panorama; Location: West Fence Corner; Bearing 90 degrees; Year 2013

Photo Point 7 – Panorama; Location: West Fence Corner; Bearing 90 degrees; Year 2023

Rostad Ranch: Photo Point Photographs

Photo Point 6 **Location**: West Fence Line
Bearing: 30 degrees **Year**: 2013

Photo Point 6 **Location**: West Fence Line
Bearing: 30 degrees **Year:** 2023

Photo Point 6 **Location:** West Fence Line
Bearing: 100 degrees **Year**: 2013

Photo Point 6 **Location**: West Fence Line
Bearing: 100 degrees **Year**: 2023

Photo Point 8 **Location:** West Central
Bearing: 90 degrees **Year**: 2017

Photo Point 8 **Location:** West Central
Bearing: 90 degrees **Year**: 2023

Rostad Ranch: Photo Point Photographs

Photo Point 9 **Location:** East Fence Line
Bearing: 240 degrees **Year**: 2017

Photo Point 9 **Location:** East Fence Line
Bearing: 240 degrees **Year**: 2023

Photo Point 10 **Location**: West Central
Bearing: 80 degrees **Year**: 2017

Photo Point 10 **Location**: West Central
Bearing: 80 degrees **Year**: 2023

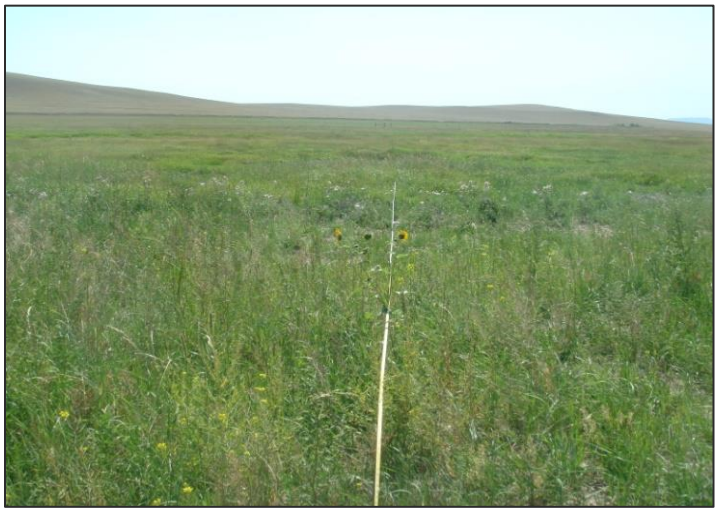
Rostad Ranch: Transect Photographs

Transect 1: Start **Location:** NE Branch of site
Bearing: 290 degrees **Year**: 2013

Transect 1: Start **Location:** NE Branch of site
Bearing: 290 degrees **Year:** 2023

Transect 1: End **Location:** NE Branch of site
Bearing: 110 degrees **Year:** 2013

Transect 1: End **Location:** NE Branch of site
Bearing: 110 degrees **Year:** 2023



Transect 2: Start **Location:** North Central
Bearing: 130 degrees **Year**: 2013

Transect 2: Start **Location:** North Central
Bearing: 130 degrees **Year:** 2023

Rostad Ranch: Transect Photographs

Transect 2: End **Location:** North Central
Bearing: 310 degrees **Year**: 2013

Transect 2: End **Location:** North Central
Bearing: 310 degrees **Year:** 2023

Transect 3: Start **Location:** South Portion of site
Bearing: 30 degrees **Year:** 2013

Transect 3: Start **Location:** South Portion of site
Bearing: 30 degrees **Year:** 2023

Transect 3: End **Location:** South Portion of site
Bearing 30: degrees **Year:** 2013

Transect 3: End **Location:** South Portion of site
Bearing: 30: degrees **Year:** 2023

Rostad Ranch: Transect Photographs

Transect 4: Start **Location:** Northwest Portion
Bearing: 0 degrees **Year:** 2017

Transect 4: Start **Location:** Northwest Portion
Bearing: 0 degrees **Year:** 2023

Transect 4: End **Location:** Northwest Portion
Bearing: 180 degrees **Year:** 2017

Transect 4: End **Location:** Northwest Portion
Bearing: 180 degrees **Year:** 2023

Rostad Ranch: Data Point Photographs

Data Point: DP01w
Location: NE corner of site. Veg CT 2. **Year:** 2023

Data Point: DP01u
Location: NE corner of site. Veg CT 8. **Year:** 2023

Data Point: DP02w
Location: NE corner of site. Veg CT 2. **Year:** 2023

Data Point: DP02u
Location: NE corner of site. Veg CT 8. **Year:** 2023

Data Point: DP03w
Location: Near N boundary of site. Veg CT 10. **Year:** 2023

Data Point: DP03u
Location: Near N boundary of site. Veg CT 3. **Year:** 2023

Rostad Ranch: Data Point Photographs

Data Point: DP04w
Location: Near N boundary of site. Veg CT 10. **Year:** 2023

Data Point: DP04u
Location: Near N boundary of site. Veg CT 8. **Year:** 2023

Data Point: DP05w
Location: NW corner of site. Veg CT 14. **Year:** 2023

Data Point: DP05u
Location: NW corner of site. Veg CT 11. **Year:** 2023

Data Point: DP06a-w (PEM)
Location: S central project area. Veg CT 3. **Year:** 2023

Data Point: DP06b-w (PSS)
Location: SE project area. Veg CT 10. **Year:** 2023

Rostad Ranch: Data Point Photographs

Data Point: DP06u
Location: SE project area. Veg CT 8. **Year:** 2023

Data Point: DP07w
Location: SW project area. Veg CT 10. **Year:** 2023

Data Point: DP07u
Location: SW project area. Veg CT 8. **Year:** 2023

Data Point: DP08w
Location: E-central project area. Veg CT 15. **Year:** 2023

Data Point: DP08u
Location: E-central project area. Veg CT 8. **Year:** 2023

Rostad Ranch: Data Point Photographs

Data Point: DP09w
Location: Center of project area. Veg CT 10. **Year:** 2023

Data Point: DP09u
Location: Center of project area. Veg CT 8. **Year:** 2023

Data Point: DP10w **Location:** Feeder ditch in NE project area. Veg CT 7. **Year:** 2023

Data Point: DP10u **Location:** N of Feeder ditch in NE project area. Veg CT 8. **Year:** 2023