# ROSTAD RANCH MITIGATION SITE

## Project Overview

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

**Watershed:** Watershed #10 – Musselshell River Basin

**Monitoring Year:** 2022

**Years Monitored**: 10th year of monitoring

**Corps Permit Number**: NWO-2006-90851-MTB

**Monitoring Conducted By:** Confluence Consulting Inc.

**Dates Monitoring Was Conducted:** June 27, 2022

**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 should continue in 2023 so that the site may continue to meet this performance criteria.

**Anticipated Wetland Credit Acres:** 27.4

**Wetland Credit Acres Generated to Date:** 30.57

**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 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 2022. |
| Wetland Hydrology | Soil saturation is present for at least 12.5 percent of the growing season. | Y | Irrigation water was diverted into the site on May 11th and turned off on May 15, 2022. During the site monitoring event in June, precipitation provided overland flow that flooded the site, including non-wetland areas. This criterion is met in 2022. |
| Hydric Soil | Hydric soil conditions are present or appear to be forming. | Y | The constructed wetland complex is beginning to develop hydric soils in areas that were identified as nonhydric prior to construction. Hydric soil characteristics remain present in areas that were identified as wetland prior to construction. |
| | Soil is sufficiently stable to prevent erosion. | Y | Disturbed soil is stable and does not exhibit signs of erosion. |
| | Soil is able to support plant cover. | Y | Plant cover has developed and remains stable across previously disturbed soils. |
| Hydrophytic Vegetation | Combined absolute cover of facultative or wetter species is greater than or equal to 70 percent. | Y | Wetland areas within the mitigation site contain greater than 70% absolute cover from hydrophytic vegetation (OBL, FACW, and FAC). |
| | Noxious weeds do not exceed 5 percent cover. | Y | Weed treatment has been effective, and noxious weed cover is estimated to be approximately 2% across the mitigation site. |
| Woody Plants | Plantings exceed 50 percent survival after 5 years. | Y | Woody plant survival was estimated at 50 percent in 2022 for all plantings, meeting the 50 percent survival rate. Woody volunteers continue to establish around planting zones. |
| Open-Water Areas | Open water that is established within the designated wetland cells will be considered successful and creditable if open water does not exceed 10 percent of the total wetland acreage. | Y | In 2022, no open water was observed at the mitigation site. Inundated areas of ponding related to recent events were ephemeral not identified as open water habitat. This criterion is met. |
| Upland Buffer | Success will be achieved when noxious weeds do not exceed 5 percent cover within the buffer areas on the site. | Y | Noxious weed cover was well below the 5% threshold within the upland buffer areas. |

| Performance Standards | Success Criteria | Criteria Achieved Y/N | Discussion |
|---|---|---|---|
| Upland Buffer | Any area that was disturbed within creditable buffer zone must have at least 50 percent aerial cover of desirable upland plant species by the end of the monitoring period. | Y | Upland buffers that surround wetland areas within the site exhibited greater than 50 percent aerial cover of non-weed species in 2022. |
| 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 managing noxious weed cover. State-listed noxious weed species across the site were estimated at 2 percent absolute cover in 2022. |
| Fencing | Wildlife-friendly fencing is installed along the easement boundaries. | Y | Wildlife-friendly fencing was installed with the construction of this site around the easement boundaries and remains in functional condition. |

## Summary Data

***Wetland Delineation*** – The total wetland acreage delineated in 2022 was 29.48 acres, which included preexisting wetlands (see maps in Appendix A). This is a 0.55-acre increase in wetland acreage from 2021. The adaptive management strategies implemented in 2017 increased the amount of inundation in some places on the site and has supplied hydrology to support the development of wetlands in areas previously identified as upland. Some of the newly inundated and saturated areas are beginning to transition to include more hydrophytic species, and soils are developing hydric features. With sustained hydrology in upcoming years, wetlands are likely to continue to develop and expand across the mitigation site.

***Vegetation*** – A total of 93 plant species were identified on the site from 2013 through 2022, with three new species identified at the site in 2022. A comprehensive species list can be found in Appendix B (Table B-1). Vegetation communities were identified and mapped by plant composition and dominance. Community composition has shifted across the site, with a noticeable change in *Alopecurus pratensis* replacing *Phalaris arundinaceus* as a dominant species. This shift was reflected in the creation of Wetland Type (WT) 14 (*Alopecurus pratensis/Eleocharis palustris)* to replace WT 12 (*Phalaris arundinaceus/Eleocharis palustris).* Similarly, WT 15 (*Typha latifolia)* was created to replace WT 5 (*Typha latifolia/Glyceria grandis*). A new wetland community, WT 16 (*Carex praegracilis/Poa pratensis*) was identified in 2022 north of the berm at T-4 start. This area was previously mapped as Upland Type (UT) 8 (*Bromus inermis*) and has shifted to include a dominance of hydrophytic species related to supplemental hydrology in this area resultant of the adaptive management strategies implemented in 2017. The following vegetation community types were identified in 2022:

- Upland Type 8 – *Bromus inermis*
- Upland Type 11 – *Elymus trachycaulus/Pascopyrum smithii*
- Wetland Type 2 – *Juncus balticus/Carex nebrascensis*
- Wetland Type 3 – *Salix exigua*
- Wetland Type 7 – *Phalaris arundinacea*
- Wetland Type 10 – *Alopecurus pratensis*
- Wetland Type 14 – *Alopecurus pratensis/Eleocharis palustris*
- Wetland Type 15 – *Typha latifolia*

- Wetland Type 16 – *Carex praegracilis/Poa pratensis*

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

Absolute cover of state-listed noxious weeds was estimated at two percent across the entire site. Canada thistle (*Cirsium arvense*) was observed in nine locations with patch sizes ranging from trace to high. Weed management for Canada thistle should focus on the infestations in the southwest portion of the site to be most effective at reducing noxious weed cover and controlling spread. Spotted knapweed (*Centaurea stoebe*) was observed at four locations in trace patch sizes, as well as one trace patch of houndstongue (*Cynoglossum officinale*). Weed locations are identified in Figure A-3, Appendix A.

Vegetation cover was measured along four transects in 2022 (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 and UT 11, and WT 7, WT 14, and WT 15. Wetland habitat along the transect increased five percent from 61% in 2021 to 66% in 2022, and the total number of species observed along the transect increased by two, one upland species and one hydrophytic species. Total vegetative cover has increased slightly from 2021 to 2022.

**Table 2. Data Summary for T-1 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site**

| **Monitoring Year** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|---|
| **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 | 5 | 6 | 6 | 5 |
| Hydrophytic Vegetation Communities Along Transect | 4 | 4 | 4 | 4 | 4 | 3 |
| Total Vegetative Species | 23 | 26 | 23 | 22 | 23 | 25 |
| Total Hydrophytic Species | 10 | 11 | 10 | 8 | 10 | 11 |
| Total Upland Species | 13 | 15 | 13 | 14 | 13 | 14 |
| Estimated % Total Vegetative Cover | 95 | 95 | 95 | 95 | 95 | 96 |
| Estimated % Unvegetated | 5 | 5 | 5 | 5 | 5 | 4 |
| % Transect Length Comprising Hydrophytic Vegetation Communities | 56 | 62 | 62 | 61 | 61 | 66 |
| % Transect Length Comprising Upland Vegetation Communities | 44 | 38 | 38 | 39 | 39 | 34 |
| % Transect Length Comprising Unvegetated Open Water | 0 | 0 | 0 | 0 | 0 | 0 |
| % Transect Length Comprising of Mud Flat | 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 and WT 2 and WT 10. Ninety-two percent of the transect crossed wetland habitat in 2022, which is a one percent decrease from 2021. Total vegetative cover has remained constant at 95 percent from 2016 to 2022.

**Table 3. Data Summary for T-2 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site**

| **Monitoring Year** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|---|
| **Transect Length (feet)** | **453** | **453** | **453** | **453** | **453** | **453** |
| Vegetation Community Transitions Along Transect | 2 | 3 | 3 | 4 | 4 | 5 |
| Vegetation Communities Along Transect | 2 | 3 | 3 | 3 | 3 | 3 |
| Hydrophytic Vegetation Communities Along Transect | 1 | 2 | 2 | 2 | 2 | 2 |
| Total Vegetative Species | 17 | 16 | 16 | 16 | 19 | 21 |
| Total Hydrophytic Species | 6 | 7 | 9 | 6 | 8 | 8 |
| Total Upland Species | 11 | 9 | 7 | 10 | 11 | 13 |
| Estimated % Total Vegetative Cover | 95 | 95 | 95 | 95 | 95 | 95 |
| Estimated % Unvegetated | 5 | 5 | 5 | 5 | 5 | 5 |
| % Transect Length Comprising Hydrophytic Vegetation Communities | 76 | 76 | 78 | 82 | 93 | 92 |
| % Transect Length Comprising Upland Vegetation Communities | 24 | 24 | 22 | 18 | 7 | 8 |
| % Transect Length Comprising Unvegetated Open Water | 0 | 0 | 0 | 0 | 0 | 0 |
| % Transect Length Comprising of Mud Flat | 0 | 0 | 0 | 0 | 0 | 0 |

Data collected on T-3 are summarized in Table 4. T-3 is 320 feet long and intersects WT 2, WT 10, and WT 15. The transect is completely comprised of wetland habitat, which is consistent with findings from 2018-2022. The total number of species observed in 2022 increased by one from the previous year, and the number of hydrophytic species remained consistent at twelve. Total vegetative cover is increased by two percent from 2021 to 2022.

**Table 4. Data Summary for T-3 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site**

| **Monitoring Year** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|---|
| **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 | 2 | 3 | 3 | 3 | 3 | 3 |
| Total Vegetative Species | 23 | 23 | 21 | 22 | 19 | 20 |
| Total Hydrophytic Species | 15 | 16 | 16 | 16 | 12 | 12 |
| Total Upland Species | 8 | 7 | 5 | 6 | 7 | 8 |
| Estimated % Total Vegetative Cover | 80 | 85 | 85 | 90 | 90 | 92 |
| Estimated % Unvegetated | 20 | 15 | 15 | 10 | 10 | 8 |
| % Transect Length Comprising Hydrophytic Vegetation Communities | 91 | 100 | 100 | 100 | 100 | 100 |
| % Transect Length Comprising Upland Vegetation Communities | 9 | 0 | 0 | 0 | 0 | 0 |
| % Transect Length Comprising Unvegetated Open Water | 0 | 0 | 0 | 0 | 0 | 0 |
| % Transect Length Comprising of Mud Flat | 0 | 0 | 0 | 0 | 0 | 0 |

Data collected on T-4 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 5. T-4 was established in 2017 following adaptive management actions at the site and is 412 feet long. T-4 intersects UT 8, and new wetland WT 16. The percent of the transect that crosses wetland increased from 2021 to 2022 by 13 percent as a result of the wetland expanding north of the berm where T-4 starts. Total vegetative cover increased slightly from eighty-five to eighty-seven percent in 2022.

**Table 5. Data Summary for T-4 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site**

| Monitoring Year | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| **Transect Length (feet)** | **412** | **412** | **412** | **412** | **412** | **412** |
| Vegetation Community Transitions Along Transect | 4 | 3 | 3 | 4 | 2 | 2 |
| Vegetation Communities Along Transect | 3 | 2 | 2 | 3 | 2 | 2 |
| Hydrophytic Vegetation Communities Along Transect | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Vegetative Species | 10 | 16 | 14 | 17 | 15 | 17 |
| Total Hydrophytic Species | 1 | 3 | 5 | 4 | 3 | 5 |
| Total Upland Species | 10 | 13 | 9 | 13 | 12 | 12 |
| Estimated % Total Vegetative Cover | 70 | 80 | 80 | 80 | 85 | 87 |
| Estimated % Unvegetated | 30 | 20 | 20 | 20 | 15 | 13 |
| % Transect Length Comprising Hydrophytic Vegetation Communities | 12 | 12 | 21 | 8 | 10 | 23 |
| % Transect Length Comprising Upland Vegetation Communities | 88 | 88 | 79 | 80 | 90 | 77 |
| % Transect Length Comprising Unvegetated Open Water | 0 | 0 | 0 | 0 | 0 | 0 |
| % Transect Length Comprising of Mud Flat | 0 | 0 | 0 | 0 | 0 | 0 |

***Woody Plant Survival*** – Woody plant survival was estimated at 50 percent in 2022 for all plantings. Approximately 2,000 willow cuttings were planted throughout the excavated areas when the site was constructed in 2012. Willow cuttings appeared healthy and vigorous with minimal signs of browse. 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, and survival of these containerized, 5-gallon plant materials was also estimated at 50 percent in 2022. Willow dominance continues to increase via natural recruitment in the southern portion of the site within WT 3 – *Salix exigua*. An additional volunteer *Salix exigua* community has been developing in the north portion of the site, west of the excavated wetland cell (Appendix A, Figure A-3).

***Hydrology*** – The hydrology for the 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 (*Salix exigua*) 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 11, 2022 and was turned off on May 15, 2021. The site was irrigated earlier and for a shorter duration than in previous years due to calls from downstream senior water right users within the Musselshell River basin, similar to 2021. However, during the monitoring event in June, up to 1.25 feet of surface water was observed across in the site in both wetland and upland areas. This precipitation accumulated from a large rain event one week prior to monitoring, and the precipitation was retained and dispersed at the mitigation site demonstrating the success and effectiveness of the adaptive management actions taken in the spring of 2017 (See Figure A-2 for berm locations). One groundwater monitoring well remains at the site and is monitored monthly by the US Geological Survey (USGS). On June 27, 2022 the well measured 4.71 feet to the water table below land surface.

***Photographs*** – Photographs taken in 2022 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-two locations across the sixty-acre 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 2022). Wetland soil pits exhibited the hydric soil indicators redox dark surface and depleted matrix. No hydric soil indicators were observed in upland sample pits, except at DP09u, which demonstrated redox dark surface. This soil pit is located on an upland berm and is surround by wetland. Although concentrations were observed, the three concurrent parameters of hydric soils, evidence of wetland hydrology,

and a hydrophytic vegetation community were not met, and the sample point is therefore considered upland. Soil textures within the wetland plots ranged from sandy clay loam to clay. Gravels and cobbles were common in the soil matrices, and a hard pan layer was observed at 10 inches in DP03u, which limited excavation at this soil pit.

***Wildlife*** – Nine bird species were observed at the site during the 2022 monitoring, and 39 have been reported historically. Many bobolinks (*Dolichonyx oryzivorus*) were observed foraging, nesting, and loafing along the fence line and throughout the site. Six of the seven bird boxes installed at the site are intact. Tree swallows were observed around two bird boxes at the southeast corner of the site, although the rest of the bird boxes appeared vacant and out of use. In addition to avian observations, frogs and a white-tailed deer and fawn were observed at the site, indicating a diversity of wildlife use by amphibians, mammals, and birds.

***Functional Assessment*** – Overall, the site MWAM functional rating improved from a Category III to a Category II wetland in 2022. This increase comes from both an increase in the wetland acreage and the MWAM rating of general wildlife habitat increasing from low to moderate, as the site was not hayed prior to monitoring in 2022 as it was in 2021. The 2022 functional assessment results for the Rostad Ranch Mitigation Site are summarized in Table 6. Completed Montana Wetland Assessment Method (MWAM) forms for the site are provided in Appendix B.

**Table 6. Montana Wetland Assessment Method Summary for the Rostad Ranch Wetland Mitigation Site**

| Function and Value Parameters from the Montana Wetland Assessment Method | 2014[a] | 2015[a] | 2016[a] | 2017[a] | 2018[a] | 2019[a] | 2020[a] | 2021[b] | 2022[b] |
|---|---|---|---|---|---|---|---|---|---|
| Listed/Proposed T&E Species Habitat | Low (0) | Low (0) | Low (0) | Low (0) | Low (0) | Low (0) | Low (0) | Low (0) | Low (0.1) |
| MTNHP Species Habitat | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) |
| General Wildlife Habitat | Low (0.3) | Mod (0.5) | Mod (0.5) | Mod (0.5) | Mod (0.5) | Mod (0.5) | Mod (0.5) | Low (0.3) | Mod (0.5) |
| General Fish/Aquatic Habitat | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Flood Attenuation | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Short- and Long-Term Surface Water Storage | Mod (0.6) | Mod (0.6) | Mod (0.6) | Mod (0.6) | Mod (0.6) | Mod (0.6) | High (0.9) | High (0.9) | High (0.9) |
| Sediment/Nutrient/Toxicant Removal | Mod (0.7) | High (1.0) | High (1.0) | High (1.0) | High (1.0) | High (1.0) | High (1.0) | High (1.0) | High (1.0) |
| Sediment/Shoreline Stabilization | Mod (0.6) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) | High (0.9) |
| Production Export/Food Chain Support | Mod (0.6) | High (0.8) | High (0.8) | High (0.8) | High (0.8) | High (0.8) | High (0.8) | Mod (0.6) | Mod (0.8) |
| Groundwater Discharge/Recharge | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) | Mod (0.7) |
| Uniqueness | Low (0.2) | Low (0.3) | Low (0.3) | Low (0.3) | Low (0.3) | Low (0.3) | Low (0.3) | Low (0.2) | 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) | Low (0.05) | Low (0.05) | Low (0.05) |
| **Actual Points/Possible Points** | **4.65/9** | **5.75/9** | **5.75/9** | **5.75/9** | **5.75/9** | **5.75/9** | **6.05/9** | **5.55/9** | **6.15/9** |
| **% of Possible Score Achieved** | **51.7%** | **63.9%** | **63.9%** | **63.9%** | **63.9%** | **63.9%** | **67.2%** | **61.7%** | **68.33%** |
| **Overall Category** | **III** | **III** | **III** | **III** | **III** | **III** | **III** | **III** | **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 based on the USACE-approved credit ratios and the wetland delineations completed in 2020-2022. Proposed mitigation credits from the Rostad Ranch Mitigation Plan (Montana Department of Transportation 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. The mitigation credits estimated in 2022, including the upland buffer credits, totaled 30.57 credit acres which is an increase of 0.37 credits from 2021.

**Functional Credits** – Table 8 summarizes the functional units generated at the Rostad Ranch mitigation site in 2022. 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 result in increasing the wetland from Category II to Category III, and the planned development of 39.84 acres of wetland would generate 254.91 units after the completed monitoring period. In 2022, the Rostad Ranch site achieved 6.15 of 9 possible points and has generated a total of 173.03 Functional Units to date. This is 81.88 Functional Units short of the anticipated goal established in the 2007 Mitigation Plan, but an increase of 18.72 units from 2021.

**Table 7. Wetland Mitigation Credits Estimated for the Rostad Ranch Site (2020–2022)**

| Compensatory Mitigation Type | Wetland Type (FGDC 2013) | Approved Mitigation Ratios[a] | Anticipated Mitigation Area (acres) | Anticipated Mitigation Credit (acres) | 2020 Delineated Mitigation Areas (acres) | 2020 Estimated Mitigation Credit (acres) | 2021 Delineated Mitigation Areas (acres) | 2021 Estimated Mitigation Credit (acres) | 2022 Delineated Mitigation Areas (acres) | 2022 Estimated Mitigation Credit (acres) |
|---|---|---|---|---|---|---|---|---|---|---|
| Restoration (Re-establishment) | Palustrine Emergent | 1:1 | 27.11 | 27.11[d] | 18.46 | 18.46 | 19.30 | 19.30 | 19.37 | 19.37 |
| Establishment (Creation) | Palustrine Emergent | 1:1 | 9.84 | 9.84[d] | 7.5 | 7.5 | 7.32 | 7.32 | 7.80 | 7.80 |
| Restoration (Rehabilitation) | Palustrine Emergent | 1.5:1 | 2.63 | 1.75[d] | 2.06 | 1.37 | 2.06 | 1.37 | 2.06 | 1.37 |
| 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] | 6.76[b] | 1.35[b] | 12.79[c] | 2.56[c] | 11.90[c] | 2.38[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** | **35.03** | **28.34** | **41.72** | **30.20** | **41.38** | **30.57** |

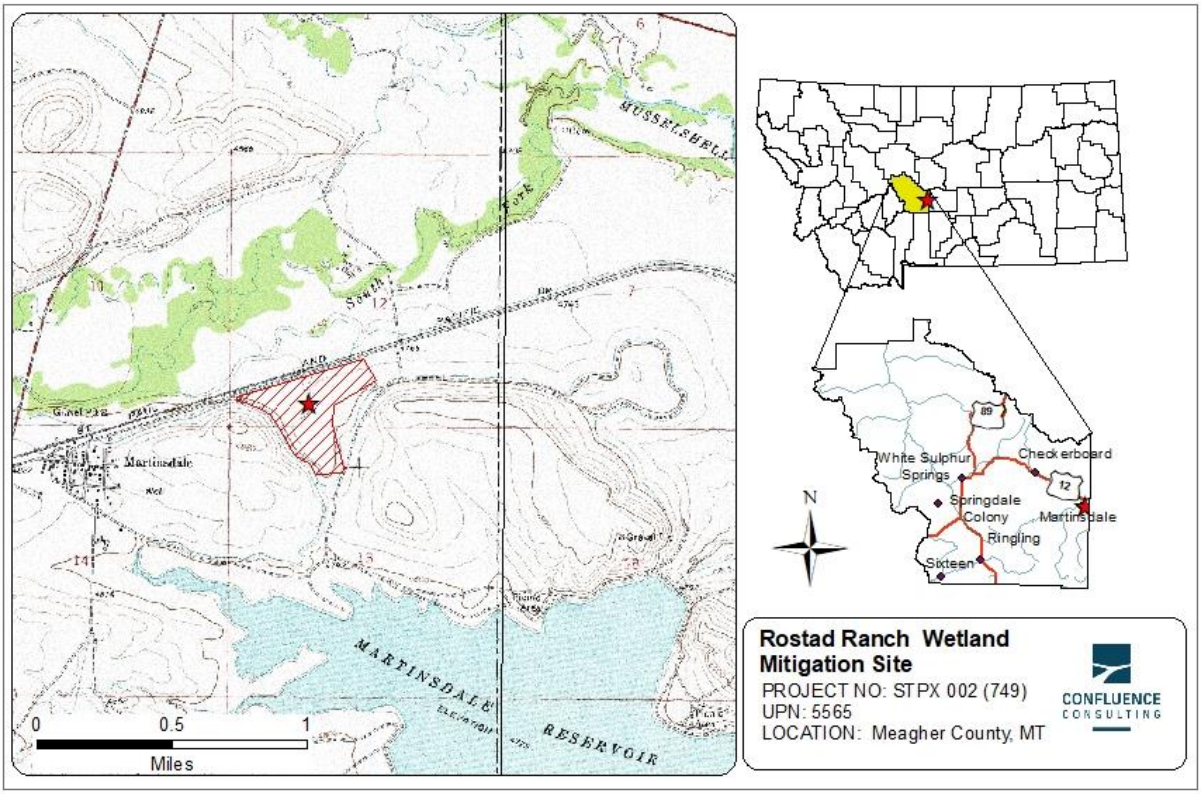
(a) Mitigation credit ratios utilized were from the Montana Corps Regulatory Programs 2005 Wetland Credit Ratios [USACE, 2005].
(b) Anticipated upland buffer credits were used for the first several years of the project.
(c) Upland buffer credit acres were calculated based on the area of a 50-foot buffer 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 | 2022 Delineated Acres | Mitigation Ratio | 2022 Mitigation Credit Acres | MWAM Actual Points | 2022 Functional Units Generated |
|---|---|---|---|---|---|
| Restoration (Reestablishment) | 19.37 | 1:1 | 19.37 | 6.05 | 117.19 |
| Establishment (Creation) | 7.80 | 1:1 | 7.80 | 6.05 | 47.19 |
| Restoration (Rehabilitation) | 2.06 | 1.5:1 | 1.37 | 6.05 | 8.29 |
| Preservation | 0.25 | 4:1 | 0.06 | 6.05 | 0.36 |
| Upland Buffer | 11.90 | 5:1 | 2.38 | N/A | N/A |
| | | | | **(Mitigation Credit Acres × Actual Points)** | **173.03** |

## 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

In 2022, the Rostad Ranch Mitigation Site again met all the established performance standards. 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 were implemented in 2017 to more effectively spread water across the site, the wetland areas on the site have gradually expanded. Effects of the management actions were especially evident during the 2022 monitoring event, as water from precipitation prior to monitoring was effectively retained and distributed across the site by berms and feeder ditches. The results of the 2022 monitoring event estimate the generation of 30.57 mitigation credit acres, which exceeds the target number of 27.4-acres by 3.18 acres. Based on the success of the adaptive management plan and continued wetland expansion observed in 2021-2022, despite drier than normal years (Hartman 2022), the site has the potential to provide additional wetland credits going forward.

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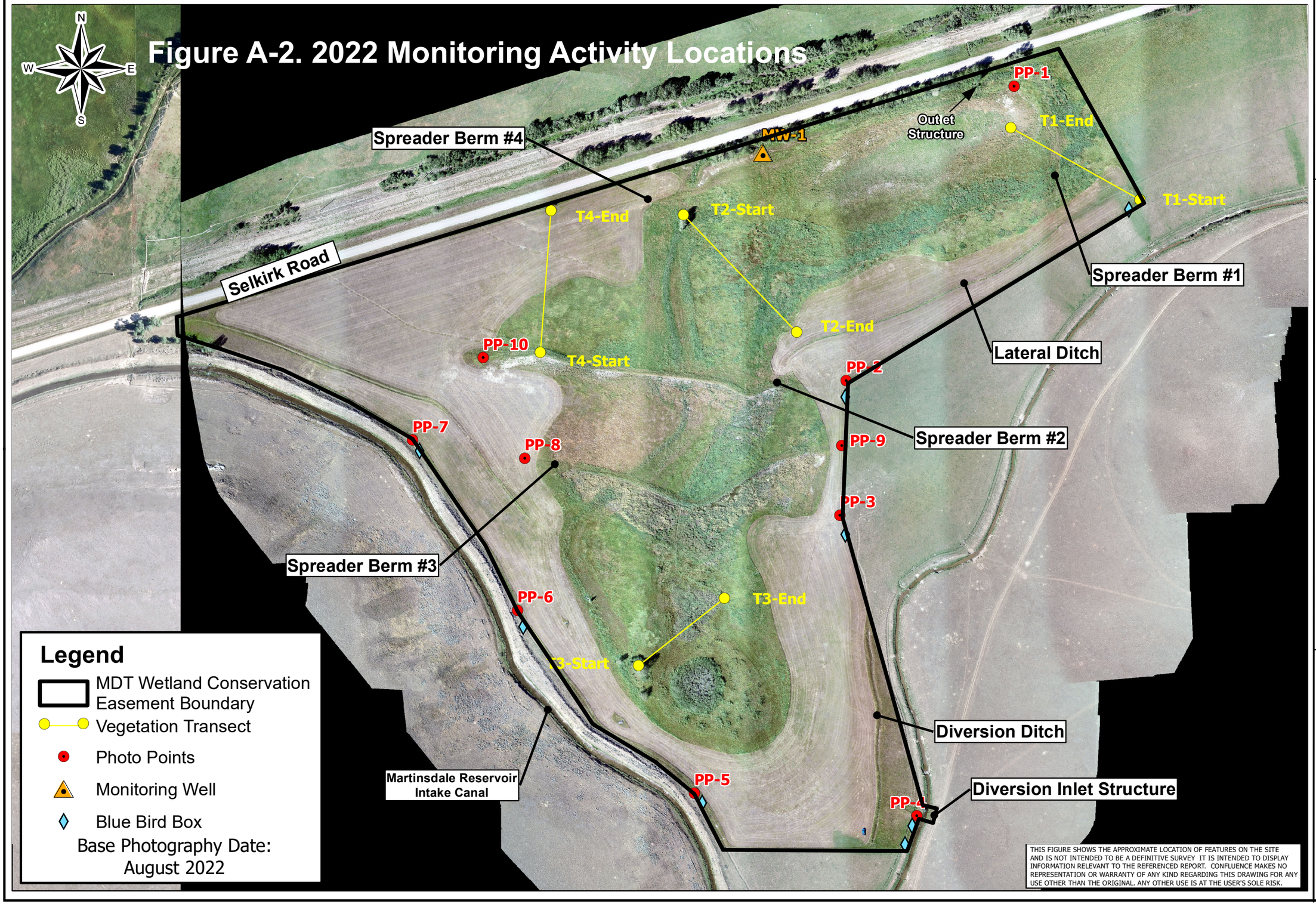
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# APPENDIX A
# PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

# Figure A-2. 2022 Monitoring Activity Locations




CONFLUENCE CONSULTING

**Rostad Ranch Wetland Mitigation Site**
**2022 Monitoring Activity Locations**

0 100 200 400 600 800 1,000 Feet

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

File: X:\Project\MDT Wetland Mitigation 2\Mains\Rostad\2022\Monitor2022_MDT.mxd

# Figure A-3. 2022 Mapped Site Features




Vegetation Community Types

- 2 Juncus balti… Carex nebrascensis
- 3 Salix exigua
- 7 Phalaris arundinacea
- 8 Bromus iner…
- 10 Alopecurus …
- 11 Elymus trac… …pyrum smithii
- 14 Alopecurus … …ris palustris
- 15 Typha latifolia
- 16 Carex praegracilis/Poa pratensis

Acreages

| | |
|---|---|
| Project Area | |
| Upland | |
| Total Wetlands | |
| Re-established | |
| Created Wetlan… | |
| Rehabilitated Wetlands | 2.00 acres |
| Preserved Wetlands | 0.25 acres |

**Noxious Weeds**

- Centaurea stoebe
- Cirsium arvense
- Cynoglossum officinale

Cover Class

- T = Trace (<1%
- L = Low (1-5%
- M = Moderate (
- H = High (26-100% cover)

**Legend**

- MDT Wetland Conservation Easement Boundary
- Wetland Limits

Base Photography Date: August 2022

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.

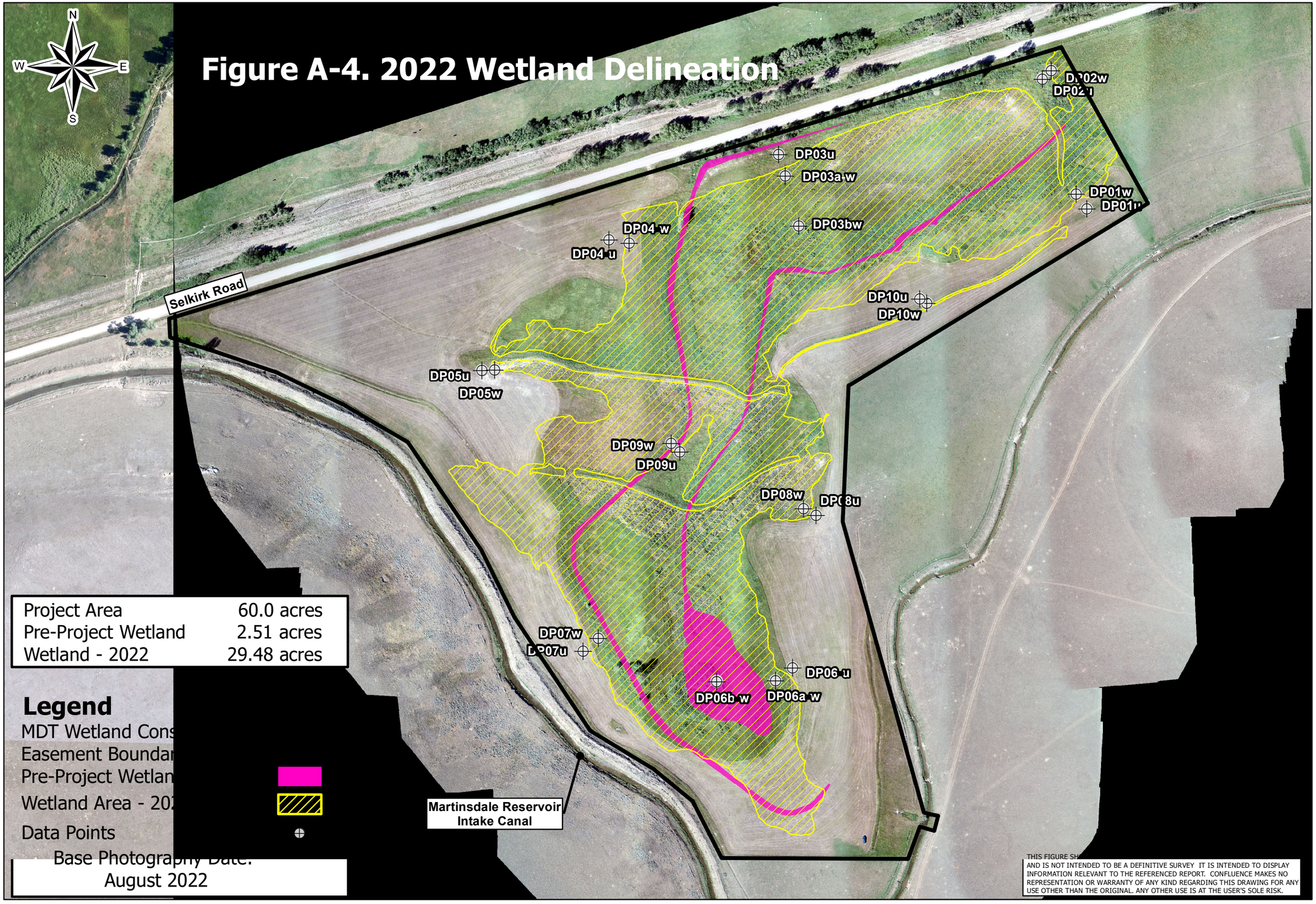
CONFLUENCE CONSULTING

**Rostad Ranch Wetland Mitigation Site**
**2022 Mapped Site Features**

0 100 200 400 600 800 1,000 Feet

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

# Figure A-4. 2022 Wetland Delineation




| | |
|---|---|
| Project Area | 60.0 acres |
| Pre-Project Wetland | 2.51 acres |
| Wetland - 2022 | 29.48 acres |

**Legend**

MDT Wetland Cons
Easement Boundar
Pre-Project Wetlan
Wetland Area - 20
Data Points

Base Photography Date:
August 2022

THIS FIGURE SH
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**
**2022 Wetland Delineation**

0 100 200 400 600 800 1,000 Feet

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

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# 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 6/27/2022

Person(s) conducting the assessment: S Weyant, W Fouts, M Hickey

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: 10 #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: 0.25 **(ft)** Range of Depths: 0-2 **(ft)**

Percent of assessment area under inundation: 0 %

Depth at emergent vegetation-open water boundary: 0.25 **(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, drift lines, and iron deposits.

### 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 6/27/2022 by USGS. Depths are Below Land Surface (BLS). Inundation from abnormally high and flashy overland flow was observed across the site, including in non-wetland areas with upland vegetation communities lacking hydric soils and/or sustained wetland hydrology.

## 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:** 7.66

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Alopecurus pratensis | 3 |
| Beckmannia syzigachne | 0 | Bromus inermis | 0 |
| Carex bebbii | 0 | Carex nebrascensis | 4 |
| Carex pellita | 1 | Carex praegracilis | 2 |
| Carex utriculata | 1 | Cirsium arvense | 0 |
| Deschampsia caespitosa | 0 | Eleocharis palustris | 3 |
| Eleocharis palustris | 0 | Elymus repens | 0 |
| Elymus trachycaulus | 0 | Epilobium ciliatum | 0 |
| Hordeum jubatum | 1 | Juncus balticus | 4 |
| Juncus bufonius | 0 | Mentha arvensis | 1 |
| Open Water | 1 | Pascopyrum smithii | 0 |
| Phalaris arundinacea | 2 | Phleum pratense | 1 |
| Poa palustris | 2 | Poa pratensis | 1 |
| Populus balsamifera | 0 | Rumex crispus | 1 |
| Salix exigua | 1 | Schedonorus pratensis | 0 |
| Schoenoplectus maritimus | 0 | Sonchus arvensis | 1 |
| Taraxacum officinale | 0 | Trifolium pratense | 0 |
| Triglochin maritima | 0 | Typha latifolia | 1 |

**Comments:**

Wet meadow community type. Revegetation successful since 2013. 0-14 inches of surface water observed within this community type, as well as an increase in cover of Carex praegracilis and Eleocharis palustris in 2022.

**Community #** 3 **Community Type:** Salix exigua / **Acres:** 0.8

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 0 | Alopecurus pratensis | 2 |
| Beckmannia syzigachne | 0 | Carex bebbii | 0 |
| Carex nebrascensis | 1 | Carex pellita | 1 |
| Carex praegracilis | 1 | Deschampsia caespitosa | 1 |
| Eleocharis palustris | 2 | Juncus balticus | 1 |
| Poa palustris | 1 | Salix exigua | 5 |
| Salix lutea | 1 | Schedonorus pratensis | 1 |
| Typha latifolia | 0 | Veronica peregrina | 0 |

**Comments:**

Undisturbed Salix community near southern extent of monitoring boundary. A volunteer Salix community is establishing in the middle of the site as well.

**Community #** 7 **Community Type:** Phalaris arundinacea / **Acres:** 1.53

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

**Comments:**

This community has expanded and contracted over the last several years and greatly diminished in 2022. Observable in areas transitioning from non-wetland to more hydrophytic vegetation communities.

**Community #** 8 **Community Type:** Bromus inermis / **Acres:** 29.36

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Achillea millefolium | 0 | Agrostis gigantea | 0 |
| Alopecurus pratensis | 0 | Bromus inermis | 5 |
| Carex praegracilis | 1 | Carum carvi | 1 |
| Centaurea stoebe | 0 | Cirsium arvense | 0 |
| Elymus repens | 2 | Elymus trachycaulus | 2 |
| Juncus balticus | 1 | Medicago sativa | 0 |
| Melilotus officinalis | 0 | Pascopyrum smithii | 1 |
| Phalaris arundinacea | 1 | Phleum pratense | 3 |
| Poa palustris | 0 | Poa pratensis | 3 |
| Populus angustifolia | 1 | Schedonorus arundinaceus | 0 |
| Schedonorus pratensis | 2 | Sinapis arvensis | 0 |
| Symphyotrichum ascendens | 1 | Symphyotrichum ericoides | 0 |
| Taraxacum officinale | 1 | Trifolium pratense | 1 |
| Trifolium repens | 1 | | |

**Comments:**

Graminoid dominated upland community observed in non-wetland areas across the site. Previously recorded as UT1 with a prevalence of Phleum pratense, which has increased in cover from 2021.

**Community #** 10 **Community Type:** Alopecurus pratensis / **Acres:** 11.22

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

**Comments:**

This community has replaced WT 7 (Phalaris arundinaceus) and is the dominant wetland community type observed across the site. Aggressive, introduced species Alopecurus pratensis occurs in monocultures and outcompetes most other species in the area.

**Community #** 11 **Community Type:** Elymus trachycaulus / Pascopyrum smithii **Acres:** 0.83

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Bare Ground | 3 |
| Bromus inermis | 1 | Chenopodium album | 0 |
| Cirsium arvense | 0 | Elymus repens | 2 |
| Elymus trachycaulus | 3 | Melilotus officinalis | 0 |
| Pascopyrum smithii | 3 | Phalaris arundinacea | 0 |
| Poa pratensis | 0 | Sinapis arvensis | 0 |
| Symphyotrichum ascendens | 0 | Symphyotrichum ericoides | 0 |
| Trifolium hybridum | 0 | | |

**Comments:**

This community type was found in areas that were revegetated following the 2017 constuction and has since largely been replaced by UT 8, and is present only south of the berm near T-4 end.

**Community #** 14 **Community Type:** Alopecurus pratensis / Eleocharis palustris **Acres:** 4.22

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 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 maritimus | 1 |
| Typha angustifolia | 1 | Typha latifolia | 1 |

**Comments:**

New community type created in 2022, previously recorded as Phalarus arundinacea/Eleocharis palustris. This wetland community is found around the boundaries of wetter communities that exhibited surface water in 2022.

**Community #** 15 **Community Type:** Typha latifolia / **Acres:** 3.55

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

**Comments:**

Cattail wetland community type which has evolved in 2022 to replace WT 5 (Glyceria grandis/Typha latifolia). Inundation within cattail marshes ranged from 0-1.5 feet.

The open water area previous mapped as WT 13 in 2021 was inundated with 1-1.5' of water during the June 2022 monitoring event, and emergent grasses were observed on the bed of the excavated area. The aerial drone imagery flown in August 2022 shows vegetation growing and no surface water. Upland areas of the site were also inundated in June from recent high runoff related to recent precipitation events. Therefore, the community was mapped as WT 15, which is most representative of the ongoing conditions observed at this location.

**Community #** 16 **Community Type:** Carex praegracilis / Poa pratensis **Acres:** 0.5

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 2 | Bare Ground | 5 |
| Bromus inermis | 1 | Carex praegracilis | 4 |
| Chenopodium album | 0 | Chenopodium rubrum | 0 |
| Distichlis spicata | 0 | Eleocharis palustris | 1 |
| Eleocharis palustris | 2 | Elymus repens | 1 |
| Phalaris arundinacea | 1 | Phleum pratense | 2 |
| Poa palustris | 0 | Poa pratensis | 4 |
| Potentilla gracilis | 0 | Rumex crispus | 0 |
| Salicornia rubra | 0 | Schedonorus pratensis | 1 |
| Schoenoplectus maritimus | 1 | Typha latifolia | 0 |

**Comments:**

New vegetation community created in 2022 to document the transitional species observed along transect 4 where the wetland boundary is expanding. Community is a mix of hydrophytic and upland species.

***Total Vegetation Community Acreage*** **60.0**

## VEGETATION TRANSECTS

**Site:** Rostad Ranch Date: 6/27/2022

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

**Interval Data:**

**Ending Station** 122 **Community Type:** Bromus inermis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 1 | Bromus inermis | 5 |
| Carex praegracilis | 1 | Carum carvi | 1 |
| Cirsium arvense | 0 | Elymus repens | 2 |
| Elymus trachycaulus | 1 | Juncus balticus | 0 |
| Phleum pratense | 2 | Poa pratensis | 3 |
| Schedonorus arundinaceus | 0 | Symphyotrichum ascendens | 0 |
| Taraxacum officinale | 0 | | |

**Ending Station** 261 **Community Type:** Phalaris arundinacea /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Alopecurus pratensis | 2 |
| Bromus inermis | 0 | Carex nebrascensis | 2 |
| Carex praegracilis | 1 | Elymus repens | 1 |
| Juncus balticus | 1 | Phalaris arundinacea | 4 |
| Poa palustris | 2 | | |

**Ending Station** 282 **Community Type:** Elymus trachycaulus / Pascopyrum smithii

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Bare Ground | 3 |
| Elymus repens | 2 | Elymus trachycaulus | 3 |
| Pascopyrum smithii | 1 | Phalaris arundinacea | 2 |
| Poa pratensis | 1 | | |

**Ending Station** 358 **Community Type:** Phalaris arundinacea /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 0 | Alopecurus pratensis | 2 |
| Carex nebrascensis | 0 | Cirsium arvense | 0 |
| Elymus trachycaulus | 1 | Phalaris arundinacea | 5 |
| Phleum pratense | 0 | Rumex crispus | 1 |

**Ending Station** 386 **Community Type:** Alopecurus pratensis / Eleocharis palustris

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 2 | Bare Ground | 0 |
| Carex pellita | 1 | Eleocharis palustris | 1 |
| Elymus trachycaulus | 0 | Glyceria grandis | 5 |
| Phalaris arundinacea | 2 | Rumex crispus | 1 |
| Typha latifolia | 0 | | |

**Ending Station** 422 **Community Type:** Typha latifolia /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Bare Ground | 1 | Beckmannia syzigachne | 1 |
| Eleocharis palustris | 2 | Glyceria grandis | 2 |
| Open Water | 0 | Phalaris arundinacea | 4 |
| Rumex Crispus | 0 | Schoenoplectus maritimus | 0 |
| Typha latifolia | 1 | | |

Transect Notes:

Phalaris arundinacea, Alopecurus pratensis, and Glyceria grandis have greatly increased in cover, reducing bare ground from a cover class of 3 to 1. Open water along the transect ranged from 0-4 inches deep.

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

## Interval Data:

**Ending Station** 130 **Community Type:** Alopecurus pratensis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Alopecurus pratensis | 5 |
| Bromus inermis | 0 | Carex nebrascensis | 1 |
| Carex pellita | 2 | Elymus repens | 1 |
| Elymus trachycaulus | 3 | Juncus balticus | 1 |
| Phalaris arundinacea | 1 | Poa palustris | 1 |
| Populus balsamifera | 0 | Rumex crispus | 0 |

**Ending Station** 234 **Community Type:** Juncus balticus / Carex nebrascensis

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 2 | Bare Ground | 3 |
| Bare Ground | 3 | Bromus tectorum | 4 |
| Bromus tectorum | 4 | Carex nebrascensis | 1 |
| Carex pellita | 1 | Eleocharis palustris | 2 |
| Elymus repens | 0 | Juncus balticus | 5 |
| Pascopyrum smithii | 3 | Pascopyrum smithii | 3 |
| Poa palustris | 1 | Poa pratensis | 1 |
| Poa pratensis | 1 | | |

**Ending Station** 256 **Community Type:** Alopecurus pratensis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 3 | Juncus balticus | 1 |
| Open Water | 5 | Open Water | 5 |
| Phalaris arundinacea | 5 | Poa palustris | 1 |

**Ending Station** 285 **Community Type:** Juncus balticus / Carex nebrascensis

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 2 | Bare Ground | 5 |
| Bare Ground | 5 | Carex nebrascensis | 0 |
| Carex praegracilis | 1 | Eleocharis palustris | 2 |
| Juncus balticus | 5 | Schoenoplectus maritimus | 1 |
| Schoenoplectus maritimus | 1 | Taraxacum officinale | 0 |

**Ending Station** 418 **Community Type:** Alopecurus pratensis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 5 | Bare Ground | 3 |
| Bare Ground | 3 | Chenopodium album | 2 |
| Chenopodium album | 2 | Elymus trachycaulus | 2 |
| Elymus trachycaulus | 2 | Hordeum jubatum | 3 |
| Hordeum jubatum | 3 | Phalaris arundinacea | 2 |
| Poa palustris | 1 | Poa pratensis | 1 |
| Salix exigua | 0 | Schoenoplectus maritimus | 4 |
| Schoenoplectus maritimus | 4 | | |

**Ending Station** 453 **Community Type:** Bromus inermis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Bare Ground | 2 | Bare Ground | 2 |
| Bromus arvensis | 1 | Bromus arvensis | 1 |
| Bromus inermis | 4 | Bromus tectorum | 2 |
| Bromus tectorum | 2 | Chenopodium album | 2 |
| Chenopodium album | 2 | Elymus lanceolatus | 1 |
| Elymus lanceolatus | 1 | Hordeum jubatum | 2 |
| Hordeum jubatum | 2 | Lepidium perfoliatum | 1 |
| Lepidium perfoliatum | 1 | Medicago sativa | 0 |
| Melilotus officinalis | 1 | Melilotus officinalis | 1 |
| Pascopyrum smithii | 3 | Pascopyrum smithii | 3 |
| Phleum pratense | 1 | Poa pratensis | 2 |
| Schedonorus pratensis | 1 | Symphyotrichum ascendens | 0 |
| Taraxacum officinale | 1 | | |

Transect Notes:

WT 2 has expanded and comprises the majority of this transect. Phalaris arundinaceus has been replaced by Alopecurus pratensis, and the vegetation types along this transect are becoming more hydrophytic, consistent with observations in 2021.

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

## Interval Data:

**Ending Station** 10 **Community Type:** Alopecurus pratensis /

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

**Ending Station** 123 **Community Type:** Juncus balticus / Carex nebrascensis

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Agrostis gigantea | 1 | Alopecurus pratensis | 3 |
| Carex nebrascensis | 1 | Carex pellita | 2 |
| Cirsium arvense | 0 | Eleocharis palustris | 2 |
| Juncus balticus | 4 | Phalaris arundinacea | 1 |
| Salix exigua | 1 | Schedonorus pratensis | 0 |
| Sonchus arvensis | 2 | Taraxacum officinale | 1 |
| Triglochin maritima | 1 | Typha latifolia | 1 |

**Ending Station** 288 **Community Type:** Typha latifolia /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus pratensis | 1 | Bare Ground | 1 |
| Carex nebrascensis | 2 | Carex pellita | 1 |
| Carex utriculata | 2 | Eleocharis palustris | 3 |
| Glyceria grandis | 0 | 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 |
|---|---|---|---|
| Agrostis gigantea | 1 | Alopecurus pratensis | 2 |
| Carex nebrascensis | 2 | Carex utriculata | 2 |
| Eleocharis palustris | 3 | Juncus balticus | 3 |
| Open Water | 1 | Salix exigua | 2 |
| Schoenoplectus maritimus | 1 | Typha latifolia | 1 |

Transect Notes:

Transect composed entirely of wetland community types. Open water along the transect ranged from 0-5 inches deep.

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

## Interval Data:

**Ending Station** 17 **Community Type:** Bromus inermis /

| 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 pratensis | 1 | Bromus inermis | 2 |
| Carex praegracilis | 5 | Eleocharis palustris | 1 |
| Elymus repens | 1 | Phalaris arundinacea | 1 |
| Phleum pratense | 2 | Poa palustris | 2 |
| Poa pratensis | 3 | Potentilla gracilis | 0 |
| Schedonorus pratensis | 1 | Typha latifolia | 0 |

**Ending Station** 412 **Community Type:** Bromus inermis /

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Bromus inermis | 5 | Cirsium arvense | 0 |
| Elymus repens | 2 | Elymus trachycaulus | 2 |
| Pascopyrum smithii | 2 | Phleum pratense | 1 |
| Poa pratensis | 4 | Symphyotrichum ascendens | 1 |
| Taraxacum officinale | 0 | | |

Transect Notes:

The second interval along T-4 is a new community type created in 2022 to document the transitional community from upland to hydrophytic species where the wetland boundary is expanding.

## PLANTED WOODY VEGETATION SURVIVAL

Rostad Ranch

| Planting Type | #Planted | #Alive | Notes |
|---|---|---|---|
| Populus balsamifera | 100 | | Estimated 50% survival |
| Populus tremuloides | 100 | | Estimated 50% survival |
| Salix sp. | 2000 | | Estimated 50% survival |

### Comments

Willow stakes were planted in spring 2013. Due to tall herbaceous vegetation, locating all plantings was difficult during the site visit, especially locating stems that had died. Live plants observed looked healthy. Survival in 2022 was estimated at 50% based on the number of live stems observed. Willows are naturally expanding around vegetation community 3 in the southern area of the site. Volunteer Salix exigua and Populus balsamifera are appearing around the edges of WT 3 and WT 2 in the south eastern area of the site, and a new Salix community is establishing in the middle of the site.

Rostad Ranch

## WILDLIFE

### Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Blue Bird Boxes

How many? 7

Are the nesting structures being used? No

Do the nesting structures need repairs? Yes

Nesting Structure Comments:

One bird box, originally located near the start of T-1, in the NE corner of the site was reported missing in 2021 and was not replaced in 2022. All other bird boxes appear in good condition with little evidence of use, except two bird boxes along the SE boundary of the site where Tree Swallows were observed and appeared to be nesting.

| Species | #Observed | Behavior | Habitat |
|---|---|---|---|
| Bobolink | 2 | FO, F, L | |
| Brown-headed Cowbird | 5 | FO | |
| Dusky Flycatcher | 1 | FO, L | |
| Killdeer | 1 | F, L | |
| Mallard | 3 | L | |
| Red-winged Blackbird | 5 | FO, L | |
| Sandhill Crane | 2 | FO, F, L | |
| Swallow sp. | 8 | FO | |
| Wilson's Snipe | 3 | L, FO | |

**Bird Comments**

Nine bird species observed in 2022.

**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 |
|---|---|---|---|---|---|
| Frog sp. | 2 | No | No | No | |
| White-tailed Deer | 2 | 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

| |
|---|
| 29.48 acres of wetland delineated in 2022. |

### Functional Assessments

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

Functional Assessment Comments:

| |
|---|
| Category 2 wetland. Actual functional units increased from 5.55 in 2021 to 6.15 in 2022. |

**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.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP01u

Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): LRR E Lat: 46.462959 Long: -110.291902 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 located slighly upslope from DP01w.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 30 | ☑ | UPL |
| Elymus repens | 40 | ☑ | FACU |
| Elymus trachycaulus | 20 | ☑ | FACU |
| Poa pratensis | 5 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 5

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 65 X 4 | 260 |
| UPL species | 30 X 5 | 150 |
| Column Totals | 95 (A) | 410 (B) |

**Prevalence Index = B/A = 4.32**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-03 | 10YR 3/2 | 100 | | | | | Silty Clay Loam | **Fine roots** |
| 03-16 | 10YR 3/2 | 100 | | | | | Silty 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP01w

Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Valley bottom, toeslope Local relief (concave, convex, none): flat Slope (%): 1

Subregion (LRR): LRR E Lat: 46.46307 Long: -110.292021 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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, slope wetland. Sample point located in south corner of the north east arm of the mititgation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 5 | ☐ | UPL |
| Carex nebrascensis | 25 | ☑ | OBL |
| Carum carvi | 1 | ☐ | UPL |
| Elymus trachycaulus | 15 | ☐ | FACU |
| Phalaris arundinacea | 35 | ☑ | FACW |
| Poa pratensis | 18 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 25 | X 1 | 25 |
| FACW species | 35 | X 2 | 70 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 33 | X 4 | 132 |
| UPL species | 7 | X 5 | 35 |
| Column Totals | 100 (A) | | 262 (B) |

**Prevalence Index = B/A = 2.62**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-06 | 10YR 3/2 | 100 | | | | | Silty Clay Loam | |
| 06-16 | 10YR 5/2 | 95 | 7.5YR 4/6 | 5 | C | M | 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 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 Visible 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): 12

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 9

**Wetland Hydrology Present?** Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation within 9" of the soil surface, and positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP02u

Investigator(s): W Fouts, S Weyant, M Hickey Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): LRR E Lat: 46.463946 Long: -110.292406 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 located on a berm upslope from DP02w.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 30 | ☑ | UPL |
| Elymus repens | 35 | ☑ | FACU |
| Elymus trachycaulus | 25 | ☑ | FACU |
| Phalaris arundinacea | 10 | ☐ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | X 1 | 0 |
| FACW species | 10 | X 2 | 20 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 60 | X 4 | 240 |
| UPL species | 30 | X 5 | 150 |
| Column Totals | 100 (A) | | 410 (B) |

**Prevalence Index = B/A = 4.10**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-05 | 10YR 4/2 | 100 | | | | | Sandy Clay Loam | |
| 05-17 | 2.5Y 4/2 | 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.

## 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP02w

Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope (%): 20

Subregion (LRR): LRR E Lat: 46.464009 Long: -110.29231 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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, slope wetland. Sample point located in lowland in the northeast-most corner of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Agrostis stolonifera | 5 | ☐ | FACW |
| Alopecurus arundinaceus | 10 | ☐ | FACW |
| Glycyrrhiza lepidota | 5 | ☐ | FACU |
| Phalaris arundinacea | 80 | ☑ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | X 1 | 0 |
| FACW species | 95 | X 2 | 190 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 5 | X 4 | 20 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 100 (A) | | 210 (B) |

**Prevalence Index = B/A = 2.10**

**Hydrophytic Vegetation Indicators**

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-04 | 10YR 4/2 | 100 | | | | | Silty Clay Loam | |
| 04-16 | 10YR 4/2 | 98 | 7.5YR 4/6 | 2 | C | M | Silty 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 features 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 Visible 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): 7

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 4

**Wetland Hydrology Present?** Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation within 4" of the soil surface, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP03a-w

Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.463186 Long: -110.295234 Datum: NAD 83

Soil Map Unit Name: Varney-Notter cobbly loams, 2-4% 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, slope wetland. Sample point is approximately 1.5' lower in elevation than DP03u.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus pratensis | 20 | ☑ | FACW |
| Carex nebrascensis | 25 | ☑ | OBL |
| Carex pellita | 15 | ☑ | OBL |
| Eleocharis palustris | 10 | ☐ | OBL |
| Juncus balticus | 10 | ☐ | FACW |
| Phalaris arundinacea | 15 | ☑ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 10

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 50 | X 1 | 50 |
| FACW species | 45 | X 2 | 90 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 0 | X 4 | 0 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 95 (A) | | 140 (B) |

**Prevalence Index = B/A = 1.47**

**Hydrophytic Vegetation Indicators**

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## SOIL

Sampling Point: _____

**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 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |

[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:

## 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 Visible 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): 1

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP03b-w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.462806 Long: -110.29508 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loam, 2-4% 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, slope wetland. Sample point is located in the volunteer Salix exigua community developing in the north portion of the mitigation site.

### VEGETATION - Use scientific names of plants

| Tree Stratum (Plot size (30 Foot Radius)) | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** (Plot size (15 Foot Radius))

| | | | |
|---|---|---|---|
| Salix exigua | 30 | ☑ | FACW |

**Herbaceous Stratum** (Plot size ( 5 Foot Radius))

| | | | |
|---|---|---|---|
| Alopecurus pratensis | 40 | ☑ | FACW |
| Carex praegracilis | 10 | ☐ | FACW |
| Eleocharis palustris | 5 | ☐ | OBL |
| Juncus balticus | 10 | ☐ | FACW |
| Poa palustris | 5 | ☐ | FACW |
| Taraxacum officinale | 2 | ☐ | FACU |

**Woody Vine Stratum** (Plot size ( 30 Foot Radius))

**Percent Bare Ground** 15

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 5 | X 1 | 5 |
| FACW species | 95 | X 2 | 190 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 2 | X 4 | 8 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 102 (A) | | 203 (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
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0. Approximately 15% of the vegetation cover within the herbaceous plot is occupied by shrub cover (Salix exigua).

## SOIL

Sampling Point: DP03b-w

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-08 | 10YR 4/2 | 90 | N 2.5/0 | 2 | C | M | Clay Loam | **Mn concentrations** |
| 0-08 | 10YR 4/2 | 90 | 7.5YR 4/4 | 8 | C | M | Clay Loam | |
| 08-18 | 2.5Y 5/2 | 90 | 7.5YR 4/6 | 10 | C | M | 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: Distinct and 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 Visible 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): 10

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 high water table, saturation to the soil surface, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP03u

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.46335 Long: -110.29531 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 located near preexisting wetland, no longer identified as wetland. The constructed berm is vegetated by upland species and the soil is extremely compacted.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 20 | ☑ | UPL |
| Elymus repens | 72 | ☑ | FACU |
| Elymus trachycaulus | 5 | ☐ | FACU |
| Poa pratensis | 3 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 80 X 4 | 320 |
| UPL species | 20 X 5 | 100 |
| Column Totals | 100 (A) | 420 (B) |

**Prevalence Index = B/A = 4.20**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-04 | 10YR 3/2 | 100 | | | | | Silty Clay Loam | |
| 04-10 | 10YR 4/1 | 100 | | | | | Clay | |
| 10+ | | | | | | | Hardpan | **Refusal** |

[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. Soil is too compacted to dig beyond 10 inches.

## 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP04u

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.462685 Long: -110.29717 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 located approximately 6" higher in elevation than DP04w.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus pratensis | 5 | ☐ | FACW |
| Elymus repens | 15 | ☐ | FACU |
| Elymus trachycaulus | 35 | ☑ | FACU |
| Phleum pratense | 2 | ☐ | FACU |
| Poa pratensis | 30 | ☑ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 10

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 0 X 1 | 0 |
| FACW species | 5 X 2 | 10 |
| FAC species | 0 X 3 | 0 |
| FACU species | 82 X 4 | 328 |
| UPL species | 3 X 5 | 15 |
| Column Totals | 90 (A) | 353 (B) |

**Prevalence Index = B/A = 3.92**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-07 | 10YR 3/2 | 100 | | | | | Clay | |
| 07-16 | 10YR 4/1 | 99 | 10YR 4/4 | 1 | 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: 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP04w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.462662 Long: -110.29695 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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, slope wetland. This data point is located in an area where the vegetation community is transitioning to become more hydrophytic - Phalaris arundinacea is increasing in this area.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Carex praegracilis | 30 | ☑ | FACW |
| Elymus repens | 20 | ☑ | FACU |
| Elymus trachycaulus | 30 | ☑ | FACU |
| Phalaris arundinacea | 5 | ☐ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 15

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | X 1 | 0 |
| FACW species | 85 | X 2 | 170 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 50 | X 4 | 200 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 135 (A) | | 370 (B) |

**Prevalence Index = B/A = 2.74**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

Evidence of hydrophytic vegetation includes a prevalence index less than or equal to 3.0.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-06 | 2.5Y 4/2 | 95 | 7.5YR 4/4 | 5 | C | PL | Clay Loam | |
| 06-16 | 10YR 4/2 | 92 | 7.5YR 5/6 | 8 | 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 along pore linings and 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 Visible 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): 0

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, and saturation to the soil surface.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP05u

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): LRR E Lat: 46.46168 Long: 46.46335 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 located south of berm in the center of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 10 | ☐ | UPL |
| Elymus repens | 60 | ☑ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 30

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 60 X 4 | 240 |
| UPL species | 10 X 5 | 50 |
| Column Totals | 70 (A) | 290 (B) |

**Prevalence Index = B/A =** 4.14

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-02 | 10YR 4/2 | 100 | | | | | Silty Clay Loam | **Roots** |
| 02-16 | 10YR 5/3 | 100 | | | | | Clay | **Cobbly. Shale fragments** |

[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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP05w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRR E Lat: 46.461684 Long: -110.29842 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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, slope wetland. Sample point located south of berm in the central portion of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus arundinaceus | 15 | ☐ | FACW |
| Eleocharis palustris | 35 | ☑ | OBL |
| Elymus repens | 25 | ☑ | FACU |
| Poa pratensis | 5 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 20

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 35 | X 1 | 35 |
| FACW species | 15 | X 2 | 30 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 30 | X 4 | 120 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 80 (A) | | 185 (B) |

**Prevalence Index = B/A = 2.31**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

Evidence of hydrophytic vegetation includes a prevalence index less 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-09 | 10YR 5/1 | 100 | | | | | Clay | |
| 09-14 | 10YR 5/1 | 100 | | | | | Clay | **Hardpan/shale at bottom** |

[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: Depleted matrix 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 Visible 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): 5

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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, and geomorphic position.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP06a-w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.45934 Long: -110.295285 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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, slope wetland. Sample point located in the south east portion of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|
| Alopecurus arundinaceus | 15 | ☑ | FACW |
| Carex nebrascensis | 10 | ☐ | OBL |
| Cirsium arvense | 1 | ☐ | FACU |
| Eleocharis palustris | 15 | ☑ | OBL |
| Juncus balticus | 25 | ☑ | FACW |
| Juncus longistylis | 1 | ☐ | FACW |
| Phalaris arundinacea | 5 | ☐ | FACW |
| Phleum pratense | 1 | ☐ | FACU |
| Poa palustris | 10 | ☐ | FACW |
| Taraxacum officinale | 3 | ☐ | FACU |
| Trifolium hybridum | 14 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 25 | X 1 | 25 |
| FACW species | 56 | X 2 | 112 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 19 | X 4 | 76 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 100 (A) | | 213 (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
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## SOIL

Sampling Point: DP06a-w

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-02 | 10YR 3/2 | 100 | | | | | Clay | |
| 02-08 | 10YR 4/1 | 90 | 7.5YR 5/4 | 10 | C | M,PL | Clay | **C - living roots** |
| 08-16 | 2.5Y 6/2 | 98 | 10YR 6/6 | 2 | C | M,PL | 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 matrix and along pore linings.

## 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 Visible 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): 16

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 oxidized rhizospheres on living roots, geomorphic position, and a positive FAC-Neutral test. High water table observed at 16".

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP06b-w

Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E

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

Subregion (LRR): LRR E Lat: 46.459327 Long: -110.295935 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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, slope wetland. Sample point located in the pre-existing scrub shrub wetland in the south portion of the mitigation site.

### VEGETATION - Use scientific names of plants

| Tree Stratum (Plot size (30 Foot Radius)) | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

| Sapling/Shrub Stratum (Plot size (15 Foot Radius)) | | | |
|---|---|---|---|
| Salix exigua | 40 | ☑ | FACW |

| Herbaceous Stratum (Plot size ( 5 Foot Radius)) | | | |
|---|---|---|---|
| Alopecurus arundinaceus | 10 | ☐ | FACW |
| Juncus balticus | 1 | ☐ | FACW |
| Phalaris arundinacea | 70 | ☑ | FACW |

Woody Vine Stratum (Plot size ( 30 Foot Radius))

**Percent Bare Ground** 20

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 0 X 1 | 0 |
| FACW species | 121 X 2 | 242 |
| FAC species | 0 X 3 | 0 |
| FACU species | 0 X 4 | 0 |
| UPL species | 0 X 5 | 0 |
| Column Totals | 121 (A) | 242 (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
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## SOIL

Sampling Point: DP06b-w

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-05 | 7.5YR 2.5/1 | 100 | | | | | Clay Loam | |
| 05-17 | 2.5Y 4/1 | 80 | 7.5YR 4/6 | 20 | 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 Visible 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): 1

Water Table Present? Yes ☑ No ☐ Depth (inches): 3

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, iron deposits, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP06u

Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating, convex Slope (%): 1

Subregion (LRR): LRR E Lat: 46.459437 Long: -110.295096 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 ☑ |
| Hydric Soil Present? | Yes ☐ | No ☑ |
| Wetland Hydrology Present? | Yes ☐ | No ☑ |

**Is the Sampled Area within a Wetland?** Yes ☐ No ☑

Remarks: Upland sample point located on gentle hillside in the northeast portion of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 10 | ☐ | UPL |
| Cirsium arvense | 3 | ☐ | FACU |
| Elymus repens | 10 | ☐ | FACU |
| Phleum pratense | 25 | ☑ | FACU |
| Poa pratensis | 18 | ☐ | FACU |
| Schedonorus arundinaceus | 25 | ☑ | FACU |
| Taraxacum officinale | 2 | ☐ | FACU |
| Trifolium hybridum | 2 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 5

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 85 X 4 | 340 |
| UPL species | 10 X 5 | 50 |
| Column Totals | 95 (A) | 390 (B) |

**Prevalence Index = B/A =** 4.11

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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 |
|---|---|---|---|---|---|---|---|---|
| 0-04 | 10YR 3/2 | 100 | | | | | Clay Loam | |
| 04-18 | 10YR 5/3 | 100 | | | | | 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/28/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP07u

Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E

Landform (hillslope, terrace, etc.): Valley bottom, low bench Local relief (concave, convex, none): flat Slope (%): 1

Subregion (LRR): LRR E Lat: 46.459547 Long: -110.297411 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 located on low bench in the south west portion of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 55 | ☑ | UPL |
| Elymus repens | 10 | ☐ | FACU |
| Poa pratensis | 15 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 20

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 25 X 4 | 100 |
| UPL species | 55 X 5 | 275 |
| Column Totals | 80 (A) | 375 (B) |

**Prevalence Index = B/A = 4.69**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 2.5Y 3/2 | 100 | | | | | 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: 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 Visible 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. Soil dry.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP07w

Investigator(s): S Weyant, W Fouts Section, Township, Range: 13 8N 11E

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

Subregion (LRR): LRR E Lat: 46.459646 Long: -110.297244 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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, slope wetland. Sample point located near pre-existing wetland in the south west portion of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus arundinaceus | 32 | ☑ | FACW |
| Carex nebrascensis | 15 | ☐ | OBL |
| Cirsium arvense | 1 | ☐ | FACU |
| Juncus balticus | 10 | ☐ | FACW |
| Phalaris arundinacea | 32 | ☑ | FACW |
| Poa palustris | 5 | ☐ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 5

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 15 | X 1 | 15 |
| FACW species | 79 | X 2 | 158 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 1 | X 4 | 4 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 95 (A) | | 177 (B) |

**Prevalence Index = B/A = 1.86**

**Hydrophytic Vegetation Indicators**

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-03 | 10YR 4/2 | 100 | | | | | Sandy Clay Loam | |
| 03-16 | 10YR 4/2 | 98 | 7.5YR 6/8 | 2 | C | M,PL | 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 along pore linings and 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP08u

Investigator(s): W Fouts, S Weyant Section, Township, Range: 13 8N 11E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): LRR E Lat: 46.460599 Long: -110.294856 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 located approximately 3' higher in elevation than DP08w.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 60 | ☑ | UPL |
| Elymus repens | 20 | ☑ | FACU |
| Elymus trachycaulus | 15 | ☐ | FACU |
| Poa pratensis | 5 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 40 X 4 | 160 |
| UPL species | 60 X 5 | 300 |
| Column Totals | 100 (A) | 460 (B) |

**Prevalence Index = B/A = 4.60**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-03 | 10YR 3/2 | 100 | | | | | Silty Clay Loam | **Roots** |
| 03-16 | 10YR 3/2 | 100 | | | | | Silty 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP08w

Investigator(s): W Fouts, S Weyant Section, Township, Range: 13 8N 11E

Landform (hillslope, terrace, etc.): Lowland, toeslope Local relief (concave, convex, none): undulating/concave Slope (%): 0

Subregion (LRR): LRR E Lat: 46.460652 Long: -110.294993 Datum: NAD 83

Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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, slope wetland. Sample point located along the east central boundary of the mitigation site.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus arundinaceus | 15 | ☑ | FACW |
| Carex praegracilis | 5 | ☐ | FACW |
| Cirsium arvense | 1 | ☐ | FACU |
| Eleocharis palustris | 5 | ☐ | OBL |
| Elymus repens | 20 | ☑ | FACU |
| Juncus balticus | 5 | ☐ | FACW |
| Medicago sativa | 5 | ☐ | UPL |
| Phalaris arundinacea | 15 | ☑ | FACW |
| Phleum pratense | 2 | ☐ | FACU |
| Rumex crispus | 1 | ☐ | FAC |
| Symphyotrichum ascendens | 2 | ☐ | FACU |
| Taraxacum officinale | 3 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 20

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 5 | X 1 | 5 |
| FACW species | 40 | X 2 | 80 |
| FAC species | 1 | X 3 | 3 |
| FACU species | 26 | X 4 | 104 |
| UPL species | 7 | X 5 | 35 |
| Column Totals | 79 (A) | | 227 (B) |

**Prevalence Index = B/A = 2.87**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 4/2 | 98 | N 2.5/0 | 2 | C | M, PL | Silty 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: Distinct redoximorphic concentrations common along pore linings and 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 Visible 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): 10

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 high water table, saturation to the soil surface, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP09u

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRR E Lat: 46.461073 Long: -110.296365 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-8% 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 located on upland peninsula in the center of the mitigation site. The upland area is approximately 1.5' higher than the surrounding wetland.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 75 | ☑ | UPL |
| Cirsium arvense | 2 | ☐ | FACU |
| Elymus repens | 15 | ☐ | FACU |
| Poa pratensis | 3 | ☐ | FACU |
| Taraxacum officinale | 5 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 20

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 25 X 4 | 100 |
| UPL species | 75 X 5 | 375 |
| Column Totals | 100 (A) | 475 (B) |

**Prevalence Index = B/A = 4.75**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation. No hydrophytic plant species observed.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-04 | 10YR 3/2 | 100 | | | | | Sandy Clay Loam | **Roots** |
| 04-16 | 10YR 3/2 | 92 | 7.5YR 3/4 | 8 | | | 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. Although redoximorphic concentrations were observed, they may be relict. The sample point lacked a hydrophytic vegetation community and evidence of wetland hydrology and is therefore considered non-wetland.

## 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 Visible 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 Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP09w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

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

Subregion (LRR): LRR E Lat: 46.461141 Long: -110.296461 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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, slope wetland. Sample point located near pre-existing wetland.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Alopecurus arundinaceus | 95 | ☑ | FACW |
| Phalaris arundinacea | 5 | ☐ | FACW |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 0

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | X 1 | 0 |
| FACW species | 100 | X 2 | 200 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 0 | X 4 | 0 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 100 (A) | | 200 (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
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-01 | 10YR 3/1 | 100 | | | | | Silty Clay Loam | |
| 01-16 | 10YR 4/2 | 97 | N | 2.5/0 | 1 | C | M | Clay |
| 01-16 | | | 7.5YR | 4/6 | 2 | C | M | 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 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 Visible 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 moist.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP10u

Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): undulating Slope (%): 5

Subregion (LRR): LRR E Lat: 46.462259 Long: -110.293734 Datum: NAD 83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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: This point is located between an irrigation ditch and a large wetland cell, and is currently receiving overland flow.

### VEGETATION - Use scientific names of plants

**Tree Stratum** Plot size (30 Foot Radius)

| | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Bromus inermis | 75 | ☑ | UPL |
| Medicago sativa | 1 | ☐ | UPL |
| Phleum pratense | 5 | ☐ | FACU |
| Poa pratensis | 15 | ☐ | FACU |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 10

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (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 | 76 | X 5 | 380 |
| Column Totals | 96 (A) | | 460 (B) |

**Prevalence Index = B/A = 4.79**

**Hydrophytic Vegetation Indicators**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☐ NO ☑

**Remarks:**

Data point is dominated by upland vegetation.

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-04 | 10YR 3/1 | 100 | | | | | Sandy Clay Loam | |
| 04-17 | 10YR 4/2 | 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.

## 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 Visible 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): 3

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: Observations of surface water and saturation were related to recent above average precipitation events, and are not sustained through the growing season to support the development of hydric soil conditions or to support a hydrophytic vegetation community.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP10w

Investigator(s): W Fouts Section, Township, Range: 12 8N 11E

Landform (hillslope, terrace, etc.): Channel (active) Local relief (concave, convex, none): undulating Slope (%): 0

Subregion (LRR): LRR E Lat: 46.462229 Long: -110.293657 Datum: NAD83

Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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, slope wetland. Sample point is located in the feeder ditch in the north east arm of the mitigation site.

### VEGETATION - Use scientific names of plants

| **Tree Stratum** Plot size (30 Foot Radius) | Absolute % Cover: | Domiant Species? | Indicator Status |
|---|---|---|---|

**Sapling/Shrub Stratum** Plot size (15 Foot Radius)

| | | | |
|---|---|---|---|
| Salix exigua | 1 | ☑ | FACW |

**Herbaceous Stratum** Plot size ( 5 Foot Radius)

| | | | |
|---|---|---|---|
| Eleocharis palustris | 14 | ☐ | OBL |
| Elymus repens | 10 | ☐ | FACU |
| Phalaris arundinacea | 55 | ☑ | FACW |
| Rumex occidentalis | 5 | ☐ | OBL |

**Woody Vine Stratum** Plot size ( 30 Foot Radius)

**Percent Bare Ground** 25

**Dominance Test worksheet**

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 19 | X 1 | 19 |
| FACW species | 56 | X 2 | 112 |
| FAC species | 0 | X 3 | 0 |
| FACU species | 10 | X 4 | 40 |
| UPL species | 0 | X 5 | 0 |
| Column Totals | 85 (A) | | 171 (B) |

**Prevalence Index = B/A = 2.01**

**Hydrophytic Vegetation Indicators**

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

**Hydrophytic Vegetation Present?** Yes ☑ NO ☐

**Remarks:**

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

## 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) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-03 | 10YR 4/1 | 100 | | | | | Silty Clay Loam | **Roots** |
| 03-16 | 10YR 5/1 | 100 | | | | | Silty 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: Depleted matrix 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 Visible 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): 6

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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, geomorphic position, and positive FAC-Neutral test.

# MDT Montana Wetland Assessment Form (revised March 2008)

**1. Project name** Rostad Ranch **2. MDT project#** STPX 002(749) **Control#** 9680000

**3. Evaluation Date** 6/27/2022 **4. Evaluators** S. Weyant **5. Wetland/Site# (s)** Rostad Mitigation Site

**6. Wetland Location(s): T** 8 N **R** 11 E **Sec1** 12 **T** 8 N **R** 11 E **Sec2** 13

**Approx Stationing or Mileposts**

**Watershed** 10 - Musselshell **Watershed/County** Meagher

**7. Evaluating Agency** CCI for MDT

**8. Wetland size acres** 29.48

**Purpose of Evaluation**

**How assessed:** Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

**9. Assesssment area (AA) size (acres)** 29.48

☐ **Mitigation Wetlands: pre-construction**

**How assessed:** Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

**10. Classification of Wetland and Aquatic Habitats in AA**

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---|---|---|---|---|
| Slope | Emergent Wetland | Excavated | Seasonal/Intermittent | 77 |
| Slope | Scrub-Shrub Wetland | | Seasonal/Intermittent | 3 |
| Depressional | Emergent Wetland | Excavated | Seasonal/Intermittent | 6 |
| Depressional | Emergent Wetland | Excavated | Seasonal/Intermittent | 14 |
| | | | | |
| | | | | |

**11. Estimated Relative Abundance** 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**) lists)

| *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 <=30%. | 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 species:**

*Centaurea stoebe, Cirsium arvense,* and *Cynoglossum officinale*.

**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 (check one based on definitions contained in instructions):**

| | | |
|---|---|---|
| **Primary or critical habitat (list species)** | ○ D ○ S | |
| **Secondary habitat (list Species)** | ○ D ○ S | |
| **Incidental habitat (list species)** | ○ D ◉ S | Grizzly bear |
| **No usable habitat** | ☐ S | |

**ii. Rating** (use the conclusions from i above and the matrix below to arrive at [check] 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 | .8H | .7M | .3L | .1L | 0L |

**Sources for documented use** 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 (check one based on definitions contained in instructions):**

| | | |
|---|---|---|
| **Primary or critical habitat (list species)** | ◉ D ○ S | *Downingia laeta* (S2S3), Bobolink (S3B) |
| **Secondary habitat (list Species)** | ◉ D ○ S | Long-billed curlew (S3B); Mountain plover (S2B) |
| **Incidental habitat (list species)** | ○ D ○ S | |
| **No usable habitat** | ☐ S | |

**ii. Rating** (use the conclusions from i above and the matrix below to arrive at [check] 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** Observations of *Downingia laeta* in wetland during 2013-15 site visits. Long-billed curlews and upland sandpipers were observed by MDT staff in 2019-20. Bobolinks observed at the site in 2022.

**14C. General Wildlife Habitat Rating:**

**i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):**

Moderate

***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]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ 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, check 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 in terms 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 [check] the functional points and rating)

| *Evidence of wildlife use (i)* | *Wildlife habitat features rating (ii)* | | | |
|---|---|---|---|---|
| | Exceptional | High | Moderate | Low |
| **Substantial** | 1E | .9H | .8H | .7M |
| **Moderate** | .9H | .7M | .5M | .3L |
| **Minimal** | .6M | .4M | .2L | .1L |

**Comments** Site is being used by deer and various bird species. Active Sandhill Crane nesting observed in wetlands in 2016, 2018, and 2019 (observed by MDT), and again 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 check ☑ **NA** here and proceed to 14E.)

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [check 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 | .3L |
| **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?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

*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?* ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
**Modifed Rating**

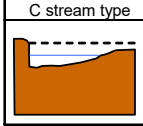
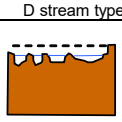
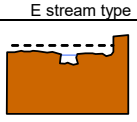
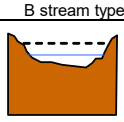
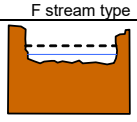
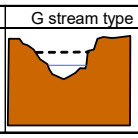
**iii. Final Score and Rating:** 0 NA **Comments:** AA does not support perennial water to provide fish habitat.

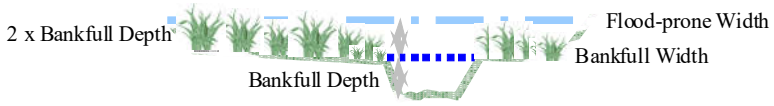
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**14E. Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [check] 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 |

| **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 |
|  |  |  |  |  |  |  |




**Floodprone width** / **Bankfull width** = **Entrenchment ratio**

**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 (check)? **Y** ◯ **N** ◉

**Comments:** No flooding occurs via in-channel or overbank flow.

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**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, click ☐ **NA** here and proceed to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [check] 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* | | | | 1.1 to 5 acre feet | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Duration of surface water at wetlands within the AA* | | | | 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 area 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, click ☐ **NA** here and proceed to 14H.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [check] 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, click ☐ **NA** here and proceed to 14I.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [check] 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:** Ponded water was present in the northeast corner of the site, surrounded by a vegetation community dominated by *Phalaris arundinacea*, which has a stability rating of 9.

**14I. Production Export/Food Chain Support:**

**i. Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [check])

| **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 [check] 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** | 1E | .7H | .8H | .5M | .6M | .4M | .9H | .6M | .7H | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| **S/I** | .9H | .6M | .7H | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7H | .5M | .5M | .3L | .3L | .2L |
| **T/E/A** | .8H | .5M | .6M | .3L | .4M | .2L | .7H | .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?* **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .8H

**Comments:** Moderate biologial activity; qualifying upland buffer exisits.

**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
- [ ] Seeps are present at the wetland edge
- [ ] 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
- [x] 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 [check] 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** | | NA | | |

**Comments:** Seasonal/intermittent water regime within the AA.

**14K. Uniqueness:**

**i. Rating** (working from top to bottom, use the matrix below to arrive at [check] 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 | .7H | .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:** (check) **Y** (●) **N** (○) (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

**ii. Check categories that apply to the AA:** ☐ Educational/scientific study; ☐ Consumptive rec.; ☑ Non-consumptive rec.; ☐ Other

**iii. Rating** (use the matrix below to arrive at [check] the functional points and 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**

**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 Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|---|---|---|---|---|---|
| A. Listed/Proposed T&E Species Habitat | L | .1 | 1 | 2.95 | ☐ |
| B. MT Natural Heritage Program Species Habitat | H | .9 | 1 | 26.53 | ☑ |
| C. General Wildlife Habitat | M | .5 | 1 | 14.74 | ☑ |
| D. General Fish Habitat | NA | 0 | 0 | 0.00 | ☐ |
| E. Flood Attenuation | NA | 0 | 0 | 0.00 | ☐ |
| F. Short and Long Term Surface Water Storage | H | .9 | 1 | 26.53 | ☑ |
| G. Sediment/Nutrient/Toxicant Removal | H | 1 | 1 | 29.48 | ☐ |
| H. Sediment/Shoreline Stabilization | H | .9 | 1 | 26.53 | ☐ |
| I. Production Export/Food Chain Support | H | .8 | 1 | 23.58 | ☐ |
| J. Groundwater Discharge/Recharge | M | .7 | 1 | 20.64 | ☑ |
| K. Uniqueness | L | .3 | 1 | 8.84 | ☐ |
| L. Recreation/Education Potential (bonus points) | L | .05 | NA | 1.47 | ☐ |
| Totals: | | 6.15 | 9 | 181.30 | |
| Percent of Possible Score | | | **68.33** % | | |

**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**
- ☑ 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)
- ☐ "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:
## (check appropriate category based on the criteria outlined above)

| I | II | III | IV |
|---|---|---|---|

**Table B-1.** Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

| Scientific Names | Common Names | GP Indicator Status[(1)] |
|---|---|---|
| *Achillea millefolium* | Common Yarrow | FACU |
| *Agropyron cristatum* | Crested Wheatgrass | UPL |
| *Agrostis gigantea* | Black 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 |
| *Cardaria draba* | Whitetop | UPL |
| *Carex bebbii* | Bebb's Sedge | OBL |
| *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 acicularis* | Needle Spike-Rush | OBL |
| *Eleocharis palustris* | Common Spike-Rush | OBL |
| *Elymus hispidus* | Intermediate Wheatgrass | UPL |

**Table B-1.** Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

| Scientific Names | Common Names | GP Indicator Status[(1)] |
|---|---|---|
| *Elymus repens* | Creeping Wild Rye | FACU |
| *Elymus trachycaulus* | Slender Wild Rye | FACU |
| *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 |
| *Rumex crispus* | Curly Dock | FAC |
| *Rumex occidentalis* | Western Dock | OBL |
| *Salix exigua* | Narrow-Leaf Willow | FACW |
| *Schedonorus pratensis* | Meadow False Rye Grass | FACU |
| *Schoenoplectus maritimus* | Saltmarsh Club-Rush | OBL |
| *Sinapis arvensis* | Wild Mustard | UPL |

**Table B-1.** Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

| 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 |
| *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 2022 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 2022**



**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 2022**

## 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 2022**



**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 2022**

## 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 2022**



**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 2022**

## 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:** 2022



**Photo Point 6** **Location:** West Fence Line
**Bearing**: 100 degrees **Year**: 2013



**Photo Point 6** **Location**: West Fence Line
**Bearing**: 100 degrees **Year**: 2022



**Photo Point 8** **Location:** West Central
**Bearing**: 90 degrees **Year**: 2017



**Photo Point 8** **Location:** West Central
**Bearing**: 90 degrees **Year**: 2022

## 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**: 2022



**Photo Point 10** **Location**: West Central
**Bearing**: 80 degrees **Year**: 2017

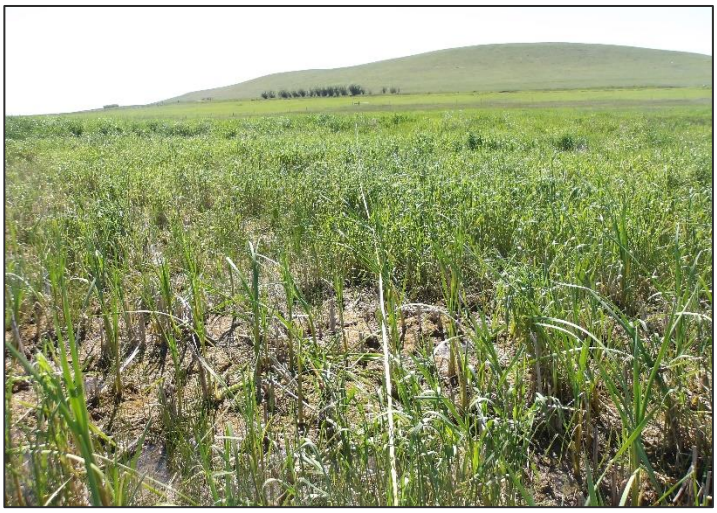


**Photo Point 10** **Location**: West Central
**Bearing**: 80 degrees **Year**: 2022

# Rostad Ranch: Transect Photographs



**Transect 1: Start** **Location:** NE Branch of site
**Bearing:** 290 degrees **Year**: 2013



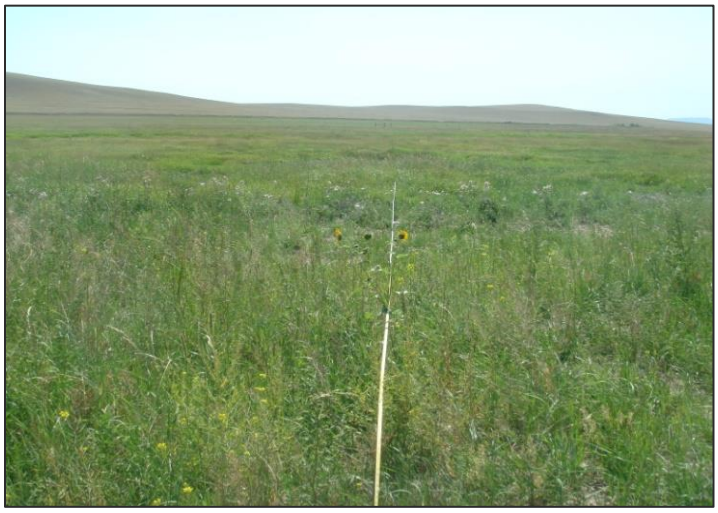
**Transect 1: Start** **Location:** NE Branch of site
**Bearing:** 290 degrees **Year:** 2022



**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:** 2022



**Transect 2: Start** **Location:** North Central
**Bearing:** 130 degrees **Year**: 2013



**Transect 2: Start** **Location:** North Central
**Bearing:** 130 degrees **Year:** 2022

# Rostad Ranch: Transect Photographs



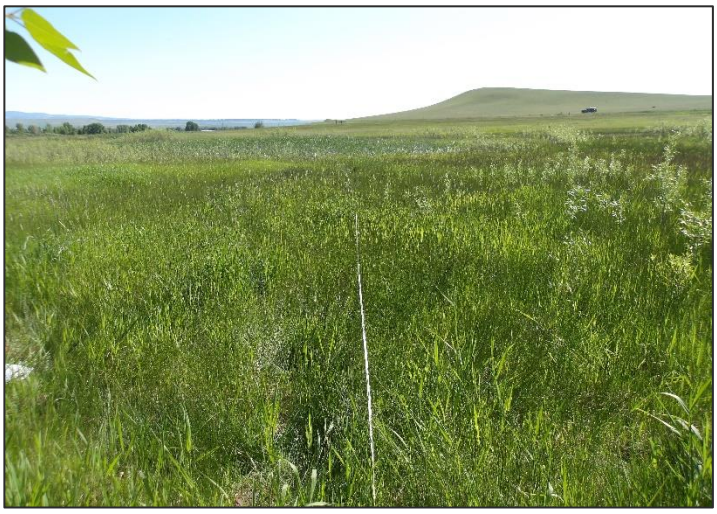
**Transect 2: End** **Location:** North Central
**Bearing:** 310 degrees **Year**: 2013



**Transect 2: End** **Location:** North Central
**Bearing:** 310 degrees **Year:** 2022



**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:** 2022



**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:** 2022

## 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:** 2022



**Transect 4: End** **Location:** Northwest Portion
**Bearing:** 180 degrees **Year:** 2017



**Transect 4: End** **Location:** Northwest Portion
**Bearing:** 180 degrees **Year:** 2022

# Rostad Ranch: Data Point Photographs



**Data Point:** DP01w
**Location:** NE corner of site. Veg CT 2. **Year:** 2022



**Data Point:** DP01u
**Location:** NE corner of site. Veg CT 8. **Year:** 2022



**Data Point:** DP02w
**Location:** NE corner of site. Veg CT 2. **Year:** 2022



**Data Point:** DP02u
**Location:** NE corner of site. Veg CT 8. **Year:** 2022



**Data Point:** DP03a-w
**Location:** Near N boundary of site. Veg CT 10. **Year:** 2022



**Data Point:** DP03b-w
**Location:** Near N boundary of site. Veg CT 3. **Year:** 2022

# Rostad Ranch: Data Point Photographs



**Data Point:** DP03-u
**Location:** Near N boundary of site. Veg CT 8. **Year:** 2022



**Data Point:** DP04w
**Location:** Near N boundary of site. Veg CT 10. **Year:** 2022



**Data Point:** DP04u
**Location:** Near N boundary of site. Veg CT 8. **Year:** 2022



**Data Point:** DP05w
**Location:** NW corner of site. Veg CT 14. **Year:** 2022



**Data Point:** DP05u
**Location:** NW corner of site. Veg CT 11. **Year:** 2022

# Rostad Ranch: Data Point Photographs



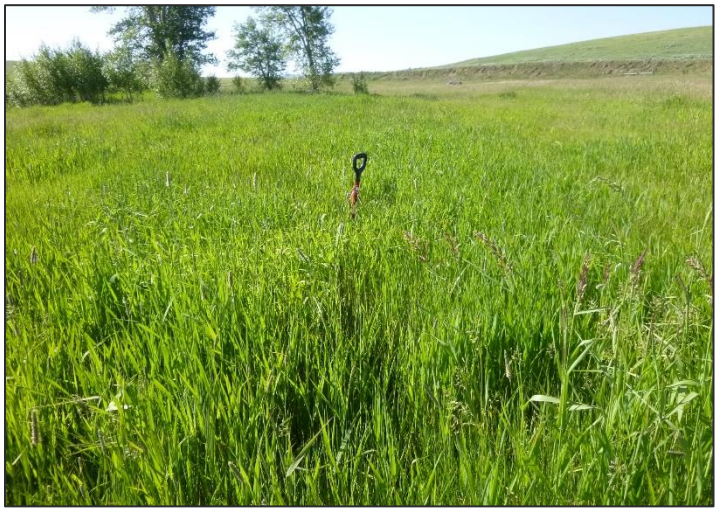
**Data Point:** DP06a-w
**Location:** S central project area. Veg CT 3. **Year:** 2022



**Data Point:** DP06b-w
**Location:** SE project area. Veg CT 10. **Year:** 2022



**Data Point:** DP06u
**Location:** SE project area. Veg CT 8. **Year:** 2022



**Data Point:** DP07w
**Location:** SW project area. Veg CT 10. **Year:** 2022



**Data Point:** DP07u
**Location:** SW project area. Veg CT 8. **Year:** 2022

# Rostad Ranch: Data Point Photographs



**Data Point:** DP08w
**Location:** E-central project area. Veg CT 15. **Year:** 2022



**Data Point:** DP08u
**Location:** E-central project area. Veg CT 8. **Year:** 2022



**Data Point:** DP09w
**Location:** Center of project area. Veg CT 10. **Year:** 2022



**Data Point:** DP09u
**Location:** Center of project area. Veg CT 8. **Year:** 2022



**Data Point:** DP10w **Location:** Feeder ditch in NE project area. Veg CT 7. **Year:** 2022



**Data Point:** DP10u **Location:** N of Feeder ditch in NE project area. Veg CT 8. **Year:** 2022