EASTON RANCH MITIGATION SITE

Project Overview

Watershed: Watershed #13 – Upper Yellowstone River Basin

Monitoring Year: 2022

Years Monitored: 13th year of monitoring

Corps Permit Number: NWO-2006-90370-MTB

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: July 19, 2022

Purpose of the Approved Project:

The site was constructed to provide 27.41 acres of compensatory wetland mitigation credits for wetland impacts associated with future transportation project-related wetland impacts in Watershed #13 – Upper Yellowstone River Basin. Construction entailed excavating a series of wetland cells and a flood channel that bisects the mitigation site of 34.31 acres, more or less protected under a conservation easement between the Montana Department of Transportation (MDT) and the landowner. The wetland project was designed to increase flood storage, improve wildlife habitat, and restore riparian and wetland habitat that had been impacted by past agricultural practices within the Shields River Watershed. The project includes creating, restoring, and preserving wetlands as well as establishing a 50-foot upland buffer around the perimeter of the site for the purpose of developing mitigation credits within the Easton Ranch Wetland Conservation Easement.

Site Location:

Latitude: 46.058174 **Longitude:** –110.638937

County: Park **Nearest Town:** Wilsall, MT

Map Included: See Figure 1, page 11

Mitigation Site Construction Started: 2009 **Construction Ended:** 2009

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

Activity: No weed spraying was conducted in 2022

Specific recommendations for any additional corrective actions: The MDT has an ongoing weed-control program and will assess the need for additional weed treatments in 2023. Soil lifts and riprap installed along the bank of the Shields River are still eroding in the northwestern corner of the site. This bank area is generally dominated by shallow-rooting pasture grasses. MDT will assess this bank erosion and potential need for corrective actions.

Anticipated Wetland Credit Acres: 27.41

Wetland Credit Acres Generated to Date: 15.44

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, associated success criteria, and 2022 achievement status for the Easton Ranch site is provided in Table 1.

Table 1. Summary of Performance Standards

Performance Standards	Success Criteria	Criteria Achieved (Y/N)	Discussion
Wetland Characteristics	Meet the three parameter criteria for hydrology, vegetation, and soils as outlined in the 1987 Wetland Delineation Manual and 2010 Mountains, Valleys, Coast Region.	Y	Areas identified as wetland habitat within the mitigation site meet the three parameter criteria.
Wetland Hydrology	Soil saturation present for at least 12.5 percent of the growing season.	Y	All wetland data points met the USACE criteria for wetland hydrology, hydric soils, and vegetating, which reflects wetlands are saturated for 12.5 percent of the growing season.
	Groundwater wells will be left undisturbed within the site for the purpose of monitoring groundwater elevations during the growing season.	N	No groundwater wells remain on site. Because of construction activities, the original monitoring wells were removed from the site.
	Groundwater is filling the depressional wetlands excavated into the upland areas of the site.	Y	Hydrologic indicators observed within the excavated wetlands include surface water, high water table, saturation, oxidized rhizospheres on living roots, hydrogen sulfide odor, geomorphic position, and a positive FAC-Neutral test.
	Constructed stream channel is stable.	Y	The constructed floodplain channel is stable with minimal bank erosion identified throughout the mitigation area.
Hydric Soil	Hydric soil conditions present or appear to be forming.	Y	All constructed wetlands exhibit hydric soil development (e.g., hydrogen sulfide, depleted matrix, redox dark surface).
	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 continued to develop across disturbed soils.
Hydrophytic Vegetation	Achieved when wetlands delineated as hydrophytic using technical guidelines.	Y	Areas identified as wetland habitat within the mitigation site support a prevalence of hydrophytic vegetation (OBL, FACW, and FAC).
Woody Plants	Trees and shrubs will be installed and survival assessed.	Y	Trees and shrubs have been planted throughout the mitigation site and are assessed during each yearly monitoring visit.

Performance Standards	Success Criteria	Criteria Achieved (Y/N)	Discussion
	Scrub/shrub wetlands habitat will be achieved where 30 percent absolute cover by cuttings, planted, and volunteer woody plants is reached within the defined monitoring period or site is showing signs of progression toward that goal at the end of the defined monitoring period.	Y	Approximately 28 percent of the wetland areas identified within the site are dominated by woody vegetation. Planted woody species were observed with high vigor along the constructed flood channel. Natural recruitment of aspen, willows, and cottonwoods continue to establish across the site. The site has achieved this success criterion because it has nearly achieved the percent cover of woody plants goal and is showing promising signs of progression towards 30% cover.
Herbaceous Plants	At least 80 percent ocular vegetation coverage by desirable hydrophytic vegetation.	Y	Desirable hydrophytic vegetation comprises greater than 80 percent of total vegetation cover within delineated wetlands.
Wetland Acreage Development	Provide 27.41 net credit acres for the project area.	N	A total of 15.44 net wetland credit acres has been generated for the mitigation site and includes 13.24 acres of established wetland, 1.64 acres of restored wetland, 0.28 acres of preserved wetland, and 0.95 acres upland buffer, and 0.67-acre debit from project impacts (See Table 7).
Wetland Acreage Development	Emergent wetland habitat will be 70–75% of mitigation wetland.	Y	Emergent wetland habitat comprises approximately 71% of total wetland areas delineated in 2022.
	Scrub/shrub wetland habitat will be 15–20% of wetland area.	Y	Scrub/shrub wetland habitat comprises approximately 28% of total wetland areas delineated in 2022, exceeding the success criteria of 15-20%.
	Open water will be < 5% of wetland area.	Y	Open water comprised less than .003% of total wetland areas delineated in 2022. The open water area (<3 feet deep) supports a diversity of submergent plant species and less than 5% emergent vegetation. The intent of this criterion was to minimize the amount of deep open-water habitat greater than 3 feet in depth.
Floodplain Channel Restoration	Considered stable when banks are vegetated with a majority of deep-rooting riparian and wetland plant species.	Y	Streambanks along the constructed channel are vegetated with a diversity of deep-rooting riparian and wetland plant species.
	Bank stability will be evaluated by reference reach comparison.	Y	Banks within the constructed floodplain channel are stable and compare to reference reach conditions with no signs of erosion or channel movement.
	Vegetation transect across the floodplain will be monitored.	Y	Vegetation transect across the floodplain has been monitored yearly and supports a prevalence of species with a root-stability index greater than 6.
Bank Stabilization (Shields River)	Area visually inspected and photo-documented.	Y	The results of annual inspection and photo documentation along the Shields River in the northwestern corner of the site are presented in the mitigation monitoring reports.
	Stability achieved when the banks are vegetated with a majority of deep-rooting riparian and wetland plant species.	N	The banks of the Shields River are generally dominated by shallow-rooted upland pasture grasses, with low cover provided by the non-native and deeper-rooted species, reed canary grass. In 2022, soil lifts and the riprap installed along the bank continue to erode near

Performance Standards	Success Criteria	Criteria Achieved (Y/N)	Discussion
			the northwestern corner of the site. Installed willow cuttings did not establish along this bank.
Upland Buffer	Noxious weeds do not exceed 10 percent cover within upland buffer area.	Y	Noxious weed cover is estimated at less than 5 percent within the upland buffer.
	Any area disturbed within creditable buffer zone must have at least 50 percent aerial cover of non-weed species by end of monitoring period.	Y	Disturbed areas have successfully established greater than 50 percent aerial cover by non-weed species.
Weed Control	Less than 5 percent absolute cover of state-listed noxious weed species across the site.	Y	Absolute cover of state-listed noxious weed species is estimated at 2 percent across the site in 2022.
Fencing	Install wildlife-friendly fencing along the easement boundaries.	Y	Wildlife-friendly fencing has been removed from the western and southern portions of the easement boundaries to promote wildlife movement across the wetland and the Shields River riparian corridor. The remaining fences are in good condition, except for one small section of fencing along the northeastern boundary that was damaged from a falling cottonwood tree in 2021 and was not repaired in 2022.
Monitoring	Monitor the site for a minimum period of 5 years or longer as determined by the USACE.	Y	Comprehensive site monitoring has been ongoing for 13 years since the completion of construction activities in 2009.

Summary Data

Wetland Delineation – The total wetland acreage delineated in 2022, including pre-existing wetland areas, was 15.98 acres, which is a decrease of 0.01 acres since 2021 (Table 2; Figures A-2 and A-3, Appendix A). In 2020, the USACE (N. Green, personal communication, May 6, 2020) provided guidance on open water, defining it as "areas of open water of any depth with less than 5% rooted emergent vegetation, no vegetation, submerged non-rooted vegetation, and/or submerged vegetation rooted in the substrate that does not extend above the water surface." In accordance with this recent USACE guidance, open water accounted for 0.05-acre of the mitigation site in 2022. The total wetland area at the site ranged from a low in 2010 of 11.53 acres to a high of 15.99 acres in 2021 with 15.98 acres delineated in 2022.

Overall, the wetland acreage remained nearly identical to the 2021 acreage in 2022. The slight 0.01-acre net loss was due to a small reduction in size of the wetland cell along the southern boundary of the project area. In 2021, wetlands expanded in the northeast portion of the project area, and it was anticipated they may expand further in 2022. However, the 2022 delineation found the boundaries did not change, which could be a result of dry conditions in the latter part of 2021 and continuing into 2022. From July 2021 to June 2022 Park County, MT was rated as D2 (-3 to -4) or D3 (-4 to -5) on the Palmer Drought Severity Index (PSDI), or severe to extreme drought conditions (NMDC, 2022) which may have contributed to the cessation of the wetland expansion observed in 2021.

Table 2. Upland, Wetland & Aquatic Habitat Acreage Delineated in 2022 at the Easton Ranch Site

Habitat Type	2022 Acreage
Uplands	18.33
Wetlands & Aquatic Habitat	
Emergent	11.45
Scrub-Shrub	4.48
Open Water	0.05
Subtotal	*15.98*
Project Area	**34.31**

Vegetation – A total of 178 plant species were identified on the site from 2010 through 2022. Vegetation communities were identified by species composition and dominance. The following six upland and 12 wetland vegetation community types were identified and mapped in 2022:

- Upland Type 1 – *Phleum pratense/Poa pratensis*
- Upland Type 10 – *Bromus inermis/Populus tremuloides*
- Upland Type 13 – *Bromus inermis/Phleum pratense*
- Upland Type 16 – *Elymus repens/Poa pratensis*
- Upland Type 17 – *Phleum pratense/Elymus repens*
- Upland Type 18 – *Lotus corniculatus/Phleum pratense*
- Wetland Type 3 – *Carex* spp.
- Wetland Type 4 – *Salix* spp.
- Wetland Type 5 – *Populus balsamifera*
- Wetland Type 7 – Aquatic Macrophytes
- Wetland Type 11 – *Juncus* spp.
- Wetland Type 12 – *Eleocharis palustris/Typha latifolia*
- Wetland Type 14 – *Juncus* spp./*Populus balsamifera*
- Wetland Type 15 – *Juncus* spp./*Salix* spp.
- Wetland Type 20 – *Lotus corniculatus/Populus balsamifera*
- Wetland Type 21 – *Carex spp./Juncus* spp.
- Wetland Type 22 – *Phleum pratense/Elymus repens*
- Wetland Type 23 – *Lotus corniculatus/Phleum pratense*

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 shown in Figure A-3 (Appendix A). In 2021 in the northeastern portion of the project area, portions of upland community types were split along the expanded wetland boundary into new Wetland Types 22 and 23. Considering the increase in wetland acreage in this area, it was thought the wetland may expand further into Upland Types 17 and 18 converting them into communities dominated by hydrophytic species. In addition, it was thought Wetland Types 22 and 23 might become more dominated by hydrophytic species, warranting a new community type designation. However, the 2022 delineation revealed the wetlands did not expand, nor did the vegetation communities in the northeast portion of the project area

transition to plant communities more dominated by hydrophytic plant species. This area seems to be a marginal wetland area, highly influenced by the year-to-year hydrology of the site, and particular attention should be paid to this area in future monitoring.

Vegetation cover was measured along three transects in 2022 (Figure A-2, Appendix A) and was largely unchanged from 2021. Details of each transect are provided in the site monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C. Table 3 summarizes the data for Transect T-1. Transect 1 is 1,376 feet long; runs south to north across the east side of the site (Figure A-2, Appendix A); and intersects Upland Types (UT) 1, 10, 16, 17, and 18 and Wetland Types (WT) 7, 11, 14, 15, 21, 22, and 23. Sixty-two percent of the transect crossed wetland habitat, and 38 percent crossed upland habitat, which is unchanged since 2021. Wetland Types 22 and 23 are still dominated by facultative (FAC) species and have not yet shifted to a dominance of more FACW and OBL species. Total vegetative species increased by eight, with six of those species being upland and two hydrophytic. Total vegetative cover has remained relatively constant at 85–91 percent from 2017 to 2022.

Table 3. Data Summary for T-1 From 2017 Through 2022 at the Easton Ranch Site

Monitoring Year	2010	2018	2019	2020	2021	2022
Transect Length (feet)	**1,376**	**1,376**	**1,376**	**1,376**	**1,376**	**1,376**
Vegetation Community Transitions Along Transect	11	12	12	13	17	17
Vegetation Communities Along Transect	3	8	10	9	12	12
Hydrophytic Vegetation Communities Along Transect	1	4	4	5	7	7
Total Vegetative Species	33	50	52	54	53	62
Total Hydrophytic Species	15	32	32	38	40	42
Total Upland Species	18	18	20	16	13	19
Estimated % Total Vegetative Cover	65	89	89	90	91	91
Estimated % Unvegetated	35	11	11	10	9	9
% Transect Length Comprising Hydrophytic Vegetation Communities	28	19.1	19.3	42.2	61.7	61.7
% Transect Length Comprising Upland Vegetation Communities	70	80.9	80.7	57.8	38.3	38.3
% Transect Length Comprising Unvegetated Open Water	2.5	0.0	0.0	0.0	0.0	0
% Transect Length Comprising Mud Flat	0.0	0.0	0.0	0.0	0.0	0

Data collected on T-2 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in

Table 4. This transect remained relatively unchanged from 2021. T-2 is 1,333 feet long, runs north to south across the west side of the site, and intersects Upland Types 1, 13, and 18 and Wetland Types 3, 7, 11, 14, 15, and 21. Hydrophytic vegetation communities comprised 61.7 percent of the transect in 2022. Total vegetative species increased by one with a net loss of two hydrophytic species and a gain of three upland species. Total vegetative cover has remained relatively constant at 85–91 percent from 2017 to 2022.

Table 4. Data Summary for T-2 From 2017 Through 2021 at the Easton Ranch Site

Monitoring Year	2010	2018	2019	2020	2021	2022
Transect Length (feet)	**1,333**	**1,333**	**1,333**	**1,333**	**1,333**	**1,333**

Vegetation Community Transitions Along Transect	11	14	14	13	11	11
Vegetation Communities Along Transect	4	8	9	9	9	9
Hydrophytic Vegetation Communities Along Transect	2	5	6	6	6	6
Total Vegetative Species	35	54	59	61	60	61
Total Hydrophytic Species	17	44	46	46	47	45
Total Upland Species	18	10	13	15	13	17
Estimated % Total Vegetative Cover	65	87	90	90	91	91
Estimated % Unvegetated	35	13	10	10	9	9
% Transect Length Comprising Hydrophytic Vegetation Communities	38.7	40.9	46.1	46.5	61.7	61.7
% Transect Length Comprising Upland Vegetation Communities	61.3	59.1	53.9	53.5	38.3	38.3
% Transect Length Comprising Unvegetated Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mud Flat	0.0	0.0	0.0	0.0	0.0	0.0

Data collected on T-3 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 5. This transect remained relatively unchanged since 2021. T-3 is 732 feet long, runs west to east across the south end of the site, and intersects vegetation communities, Upland Types 1 and 13 and Wetland Types 11 and 14. Approximately 55 percent of the transect crossed wetland habitat in 2022. The total number of species (both hydrophytic and upland) were similar in number to that observed in 2021. Total vegetative cover has remained relatively constant at 85–91 percent from 2017 to 2022.

Table 5. Data Summary for T-3 From 2017 Through 2021 at the Easton Ranch Site

Monitoring Year	**2010**	**2018**	**2019**	**2020**	**2021**	**2022**
Transect Length (feet)	**732**	**732**	**732**	**732**	**732**	**732**
Vegetation Community Transitions Along Transect	11	6	6	6	6	6
Vegetation Communities Along Transect	3	4	4	4	4	4
Hydrophytic Vegetation Communities Along Transect	1	2	2	2	2	2
Total Vegetative Species	24	42	40	29	27	27
Total Hydrophytic Species	11	30	27	19	19	19
Total Upland Species	13	12	13	10	8	8
Estimated % Total Vegetative Cover	65	90	91	90	91	91
Estimated % Unvegetated	35	10	9	10	9	9
% Transect Length Comprising Hydrophytic Vegetation Communities	45	51.1	51.5	54.8	54.5	54.5
% Transect Length Comprising Upland Vegetation Communities	55	48.9	48.5	45.2	45.5	45.5
% Transect Length Comprising Unvegetated Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mud Flat	0.0	0.0	0.0	0.0	0.0	0.0

Several hundred cuttings and containerized plant materials were planted along the constructed flood channel to increase channel stability. A thorough inventory of planted woody species was attempted in 2022 but 13 years after construction it was not possible to identify planted versus naturally recruited trees and shrubs. The difficulty in counting the planted materials was largely due to the success of natural recruitment on the site. In 2021 approximately four red-osier dogwood (*Cornus alba*), 51

sandbar willow (*Salix exigua*), 99 speckled alder (*Alnus incana*), and 85 willow cuttings were identified as surviving. During the 2022 monitoring event, only healthy trees and shrubs were observed so it can be assumed all the woody species counted in 2021 were surviving in 2022.

The abundance and canopy cover of woody volunteer species continues to increase across the site. Quaking aspen (*Populus tremuloides*) saplings are thriving and spreading along the north and northeastern project boundaries. Volunteer speckled alder, sandbar willow, and black cottonwood (*Populus balsamifera*) were noted along the channel, are establishing well, and have slightly increased in abundance and cover since 2021. Volunteer sandbar willow, Bebb's willow (*Salix bebbiana*), and yellow willow *(Salix lutea*) have increased in areas outside of the channel and were observed in abundance within Wetland Type (WT) 11, WT14, WT15, and WT21 across the site. Wetland Type 15 absorbed a portion of WT11 at the east-central portion of the site due to an increase of willows and black cottonwood cover. Young cottonwoods were also observed within WT1, WT14, WT18, and WT21 along Transects 1 and 2, and around the perimeter of WT5 and WT14 in the western and southern portions of the project area. Speckled alder and red-osier dogwood were primarily observed along or within the excavated channel.

During the July 2022 monitoring, five small new infestations of Canada thistle (*Cirsium arvense*), a Priority 2B noxious weed in Montana, were identified (Figure A-3, Appendix A). In addition, six of the seven Canada thistle infestations found in 2021 were also identified in 2022 for a combined total of 10 populations. All the Canada thistle infestations were less than 0.1-acre in size. Six of the population's cover class was rated as trace (< 1 percent), three populations were rated low (1–5 percent), and one population was rated moderate (6-25 percent). Canada thistle infestations were found in both upland and wetland habitats. Canada thistle was observed in WT's 4, 5, 11, 14, 15, and 20; TWT 23, and UT 10.

Two infestations of gypsy-flower (*Cynoglossum officinale*) was observed during 2022 (Figure A-3, Appendix A). Both gypsy-flower populations were rated as cover class trace and located in UTs 13 and 14. Overall, annual weed management efforts have effectively reduced infestation size and cover of noxious weed populations across the site. However, a slight increase in weed cover was observed in 2022 compared to 2021. MDT has an ongoing weed-control program, which has successfully kept weed populations low.

Hydrology – The hydrology for the site is supplied from multiple sources, including a shallow seasonal groundwater table, direct precipitation, surface runoff, flood flows from the adjacent Shields River, and two surface-water diversions in the northern portion of the site. The surface-water diversions at the site, a ditch along the northcentral boundary, and an irrigation canal located at the northeastern corner of the mitigation site were not flowing during the July 2022 site visit. Approximately one percent of the site was inundated during the 2022 monitoring event, which is a significant decrease from the 10 percent observed in 2021. The reduction in inundation is likely the result of the monitoring occurring nearly a month later in 2022 than in 2021. Only the deepest depressional areas within the channel in and around the open water at the east-central portion of the site and the large wetland cell located at the southwestern portion of the site were inundated during the 2022 site visit. Inundation within these areas ranged from 0.5 to 18 inches in depth. The open water area observed in 2021 at the west-central portion of the site did not contain open water in 2022 but was saturated. Saturation within the lower elevations of the wetland cells was common, but not as prevalent as in 2021, which is likely due to the monitoring event occurring nearly a month later in the year in 2022. As in 2021, there is no evidence of overland flows from the Shields River within Transect 2 or the overflow channel. The overflow channel remained well vegetated and the channel bottom remained stable.

Soils – Paired soil pits were excavated at ten locations within the area mapped as Meadowcreek soil series by the Natural Resources Conservation Service (NRCS), which is not classified as a hydric soil (Figure A-2, Appendix A). Soil textures within wetland soil pits ranged from sandy loam to silty clay. Hydric soil indicators were observed within all wetland soil pits and included depleted matrix, redox dark surface, and hydrogen sulfide.

Soil textures within upland soil pits ranged from sandy loam to silty clay. No hydric soil indicators were observed in any of the upland soil pits. The USACE wetland determination data forms in Appendix B provide additional field observations for the paired data points.

Photographs – Photographs taken at photo points 1–7 (PP1 to PP7), transect endpoints, and paired data points are provided in Appendix C, with comparisons between 2022 and the first year of monitoring. Please refer to previous years' monitoring reports for all previous annual photographs. https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Functional Assessment – The 2022 results of the functional assessments are summarized in Table 6. Montana Wetland Assessment Method (MWAM) forms for the Easton Ranch Site are provided in Appendix B. Since monitoring began in 2010, the site has been divided into three Assessment Areas (AA) for the purpose of functional assessment. Creation, Restoration, and Preservation AAs all rate as Category II wetlands with moderate to high ratings for many parameters, including General Wildlife Habitat, MT Natural Heritage Program Species Habitat, Flood Attenuation, Short- and Long-Term Surface-Water Storage, and Sediment/Nutrient/Toxicant Removal.

Table 6. Montana Wetland Assessment Method Summary for the Easton Ranch Site

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2022 Restoration	2022 Preservation	2022 Creation
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)
Montana Natural Heritage Program Species (MTNHP) Habitat	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	Mod (0.7)	High (0.9)	High (0.9)
General Fish/Aquatic Habitat	NA	NA	NA
Flood Attenuation	Mod (0.6)	High (0.9)	High (0.8)
Short- and Long-Term, Surface-Water Storage	Mod (0.6)	Mod (0.6)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (1.0)	High (0.9)
Sediment/Shoreline Stabilization	High (0.9)	NA	High (0.9)
Production Export/Food Chain Support	Mod (0.7)	High (0.9)	High (0.8)
Groundwater Discharge/Recharge	Mod (0.7)	Mod (0.7)	Mod (0.7)
Uniqueness	Mod (0.4)	Mod (0.6)	Mod (0.6)
Recreation/Education Potential (bonus points)	NA	NA	NA
Actual Points/Possible Points	**6.60 / 10**	**6.60 / 9**	**7.40 / 10**
% of Possible Score Achieved	**66%**	**73%**	**74%**
Overall Category	**II**	**II**	**II**

Wildlife – Fifteen bird species were identified at the site in 2022, including a Bald Eagle and an immature Golden Eagle (Site Monitoring Form Appendix B). Bird boxes installed in 2017 were checked, and all but three appeared stable and in good condition. In addition to the bird species, chorus frogs were noted in wetlands across the site, and white-tailed deer were observed along the eastern project boundary.

Stream Bank Stabilization – During the spring 2013 high-flow event, significant bank erosion occurred immediately upstream of PP4B. This erosion exposed the riprap and undermined the riprap and coir-wrapped soil lifts along an approximately 85-foot-long reconstructed bank, which caused significant loss of soil and willow cuttings. Photo point PP4B, located at the south end of the reconstructed bank, had to be relocated because of bank erosion and woody debris accumulation. Additional bank erosion has been noted since the dramatic lateral cutting event of 2013, and this bank section remains exposed and vulnerable. The 2018 runoff period was supported by above-average precipitation in June. From 2019 through 2022, bank erosion continued along the downstream (south) portion of the 85-foot-long bank and resulted in areas of undercutting and loss of finer textured subsoils.

Functional Units Summary – The 2022 functional units summary is summarized in Table 7. A total of 109.51 functional units were generated at the Easton site after applying the appropriate mitigation ratios to the 2022 wetland acreage and multiplying that value by the points generated from the assessment area.

Table 7. Functional unit's summary for Easton wetland mitigation site

Mitigation Type	2022 Delineated Acreage	Ratio	2022 Mitigation Credit Acres	MWAM Actual Points	Functional Units
Restoration (Re-establishment)	1.64	1:1	1.64	6.60	10.82
Preservation	0.43[a]	4:1	0.28	6.60	0.71
Establishment (Creation)	13.24	1:1	13.24	7.40	97.98
Functional Units (Mitigation Credit Acres × Actual Points)					**109.51**

[a]0.64 acres of project impacts were subtracted from the total preservation acreage of 1.10

Credit Summary – Table 8 summarizes the estimated wetland credits based on the USACE-approved credit ratios and the wetland delineation completed in July 2022. Proposed mitigation included creating 24.95 acres of emergent and shrub/scrub wetlands, reestablishing a 1.56-acre flood channel, preserving 1.10 acres of pre-existing wetland, and maintaining 6.43 acres of upland buffer. Proposed wetland credits for the project site totaled 27.41 credit acres, which accounted for 0.67 acres of impacts associated with constructing the mitigation wetland. The total mitigation credit estimated in 2022 totaled 15.44 credit acres, which is slightly less than 2021. The site is still approximately 11.97 acres short of the original goal of 27.41 credit acres. Anticipated wetland acreage has not developed as planned in the eastern, west-central, and southwest portions of the site, and is the cause behind this shortfall.

Table 8. Wetland Mitigation Credits Estimated for the Easton Ranch Site (2019–2022)

Proposed Mitigation Features	Compensatory Mitigation Type	USACE Mitigation Ratios	Anticipated Final Credit Acreages	Proposed Final Wetland Credits (Acres)	2019 Wetland Acreages	2019 Credit Estimated (Acres)	2020 Wetland Acreages	2020 Credit Estimated (Acres)	2021 Wetland Acreages	2021 Credit Estimated (Acres)	2022 Wetland Acreages	2022 Credit Estimated (Acres)
Creation of palustrine emergent wetland via shallow excavation	Establishment (Creation)	1:1	24.95	24.95	9.63	9.63	11.15	11.15	13.25	13.25	13.24	13.24
Reestablishment of relic flood channel	Restoration (Reestablishment)	1:1	1.56	1.56	1.56	1.56	1.64	1.64	1.64	1.64	1.64	1.64
Preservation of existing shrub/scrub and palustrine emergent wetland	Preservation	4:1	1.10	0.28	1.10	0.28	1.10	0.28	1.10	0.28	1.10	0.28
Establish a 50-foot-wide upland buffer on the perimeter of the site	Upland Buffer	5:1	6.43	1.29	11.5[a]	2.3	14.28[b]	2.86	5.07[c]	1.01	4.77 [d]	0.95
Project impacts			–0.67	–0.67	–0.67	–0.67	–0.67	–0.67	–0.67	–0.67	–0.67	–0.67
Total Mitigation Credit Acres:				**27.41**		**13.10**		**15.26**		**15.51**		**15.44**

[a]50-foot upland buffer calculated in GIS and carried forward by RESPEC through 2019. Upland buffer established around mapped wetland boundaries, not the perimeter of the site.

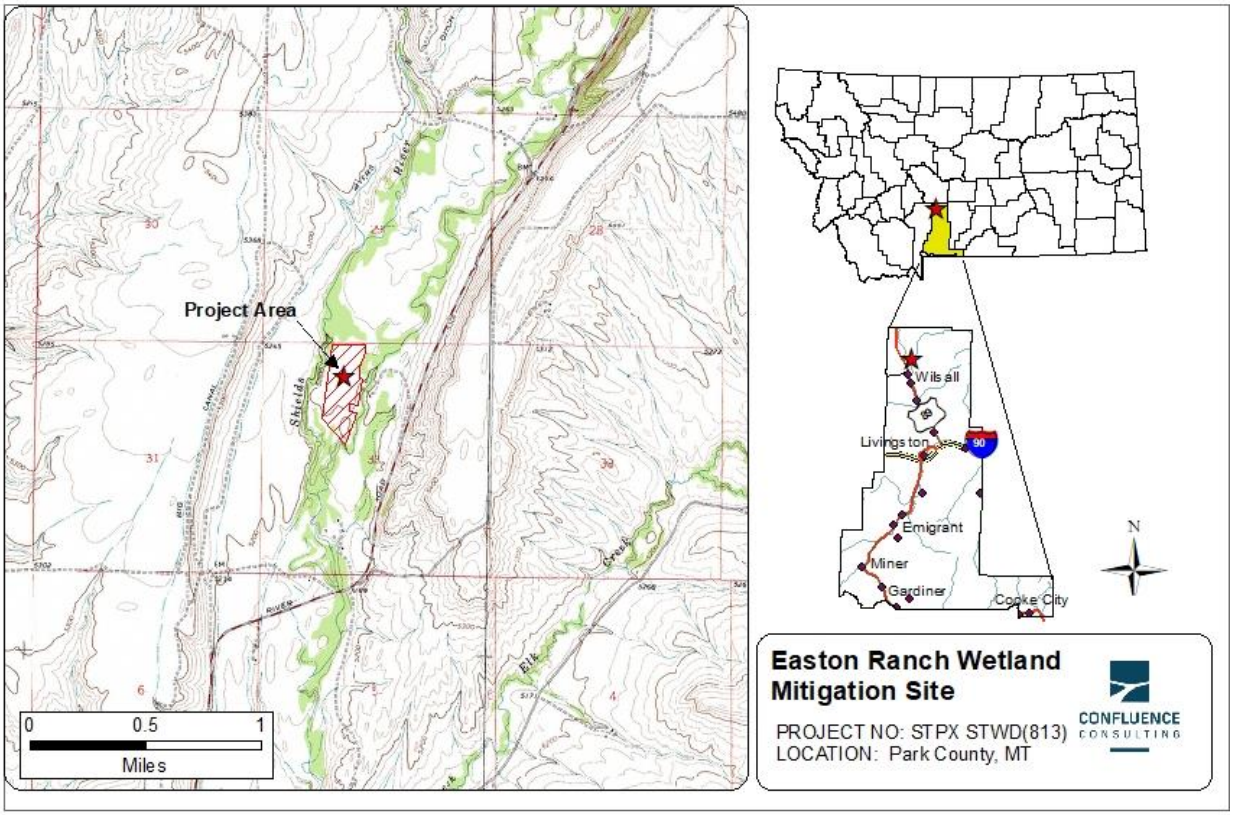
[b]50-foot upland buffer calculated in GIS in 2020 by Confluence. Upland buffer established around 2020 mapped wetland boundaries, not the perimeter of the site.

[c]50-foot upland buffer calculated in GIS in 2021 by Confluence. Upland buffer established around perimeter of site in areas visually identified as upland during the 2021 monitoring event

[d]50-foot upland buffer calculated in GIS in 2022 by Confluence. Upland buffer established around perimeter of site and does not include wetlands within the buffer.

Maps, Plans, Photos

Figure 1. Site Location Map



Project Area Maps/Figures: See Appendix A (Figure A-2 – 2022 Monitoring Activity Locations; Figure A-3 – 2022 Mapped Site Features; and Figure A-4 – 2022 Wetland Delineation)

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

Plant List: See Appendix B (Table B-1)

Photos: See Appendix C

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

Conclusions

Based on the results of the thirteenth year of monitoring, the mitigation site is continuing an upward trend toward a diverse wetland ecosystem. The site is meeting all performance standards except for wetland hydrology (groundwater wells), wetland acreage development, and bank stabilization (deep-rooting riparian vegetation establishment). MDT will discuss the difficulties in meeting these performance standards and potential remedial actions.

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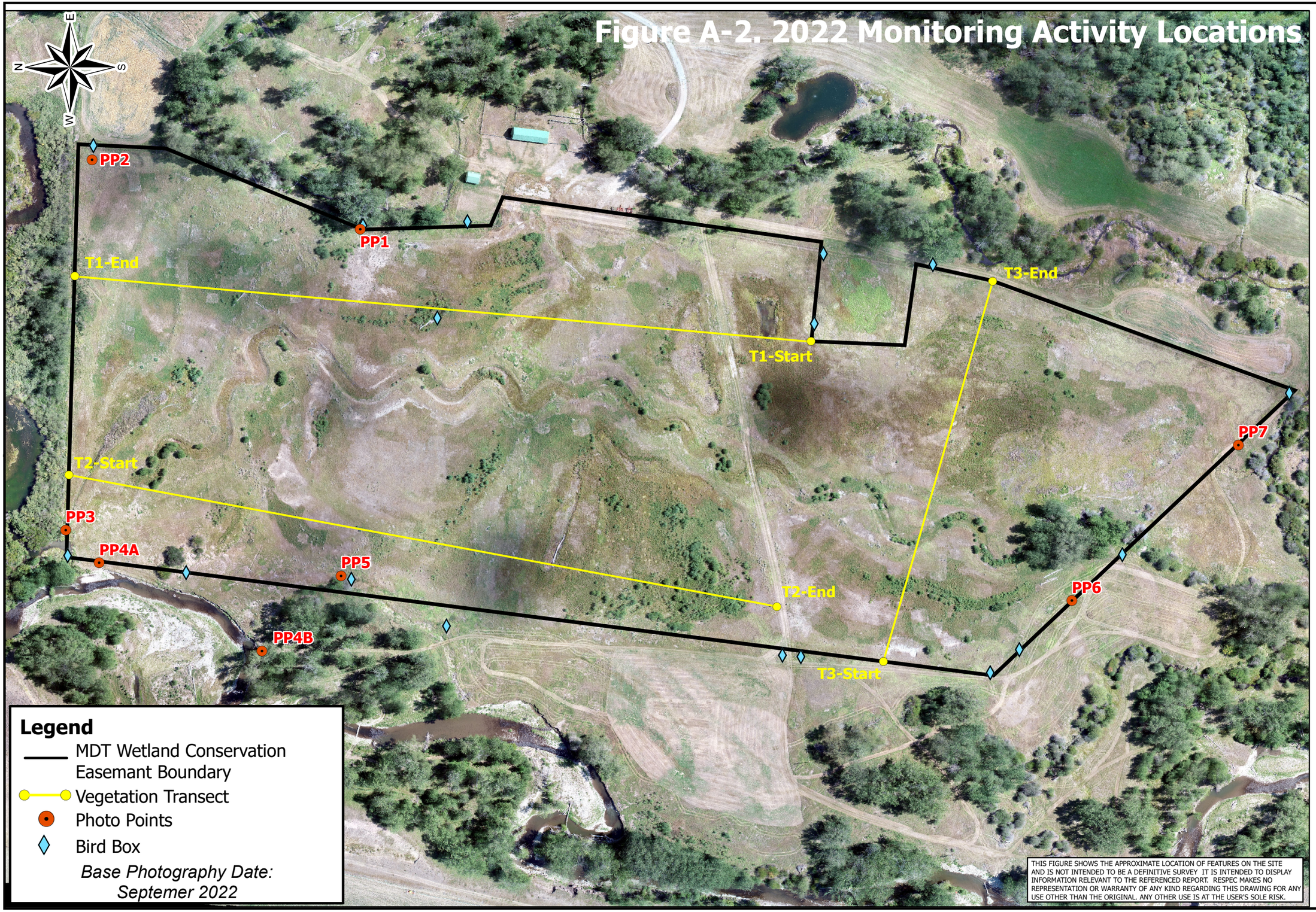
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Easton Ranch
Park County, Montana

Figure A-2. 2022 Monitoring Activity Locations



CONFLUENCE CONSULTING

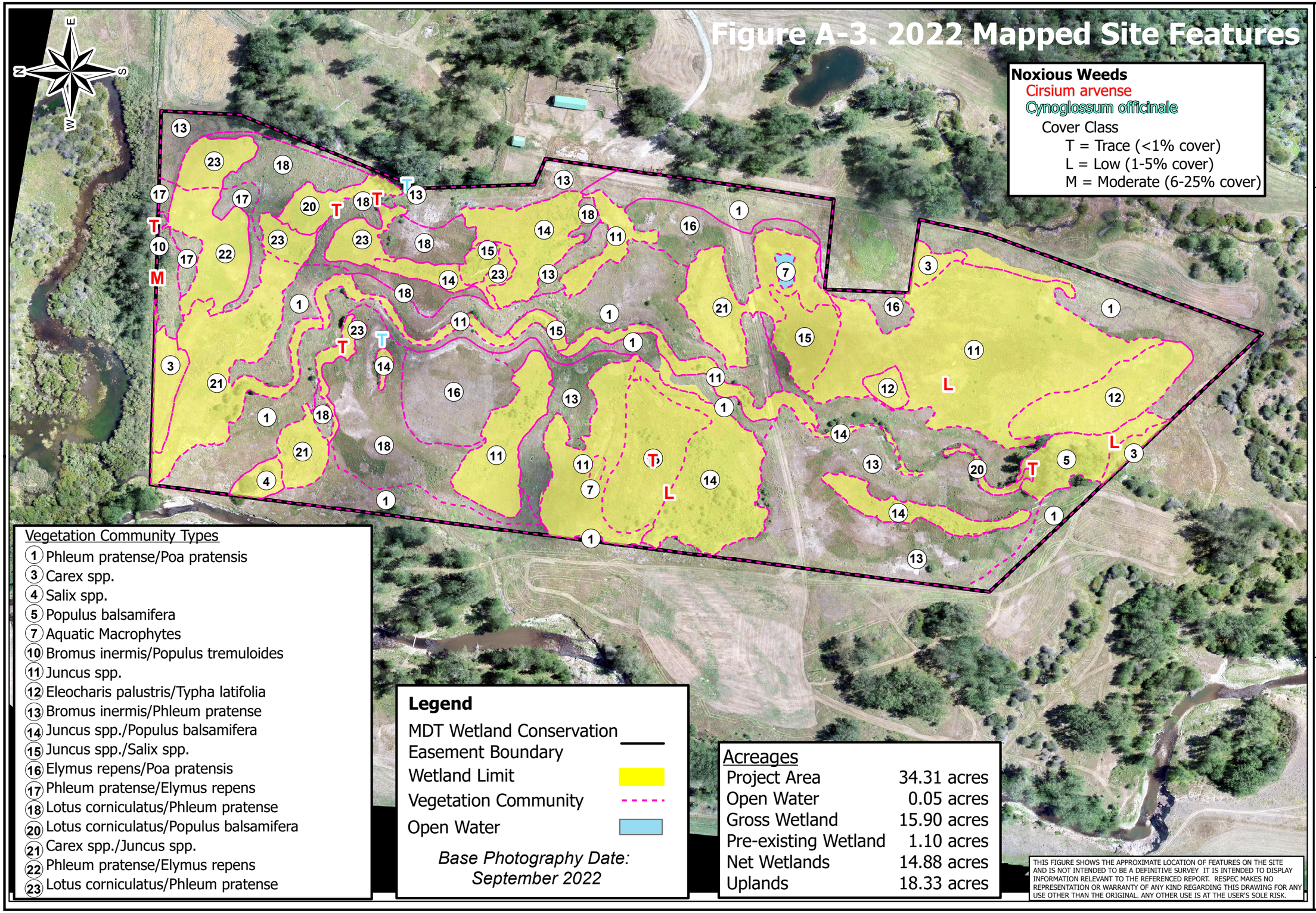
Easton Ranch Wetland Mitigation
2022 Monitoring Activity Locations

0 75 150 300 450 600 750 Feet

Project: STPP STWD (813)
Location: Park Co., Montana
Date Map Created: September 2022
Project Manager: R McEldowney
Drawn By: JT

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

Figure A-3. 2022 Mapped Site Features



CONFLUENCE CONSULTING

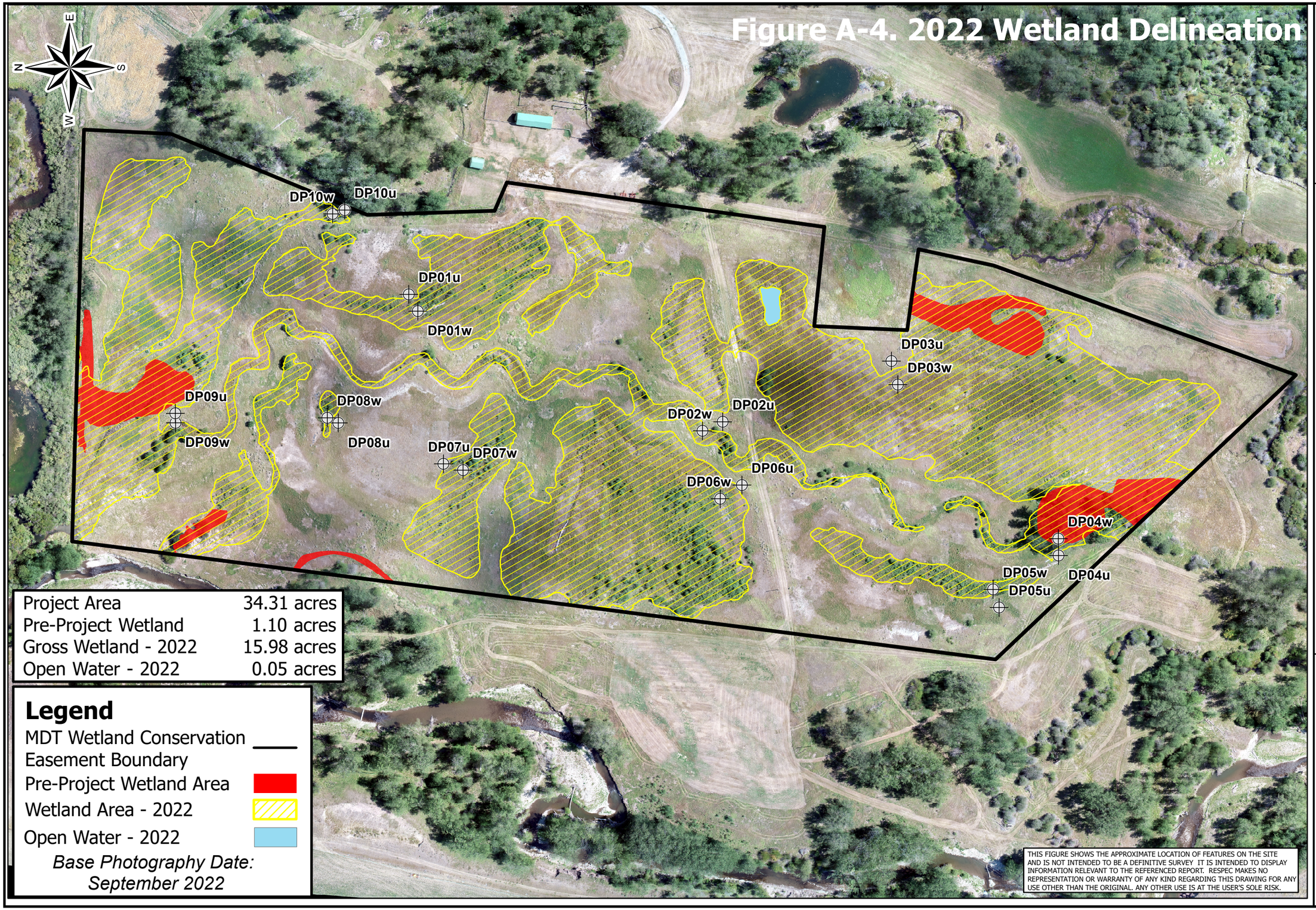
Easton Ranch Wetland Mitigation
2022 Mapped Site Features

0 75 150 300 450 600 750 Feet

Project: STPX-STWD(813)
Location: Park Co., Montana
Date Map Created: September 2022
Project Manager: R McEldowney
Drawn By: JT

File: X:\Project\MDT Wetland Mitigation 2\Maines\Easton\2022\Veg2022_MDT2.mxd

Figure A-4. 2022 Wetland Delineation



Project Area	34.31 acres
Pre-Project Wetland	1.10 acres
Gross Wetland - 2022	15.98 acres
Open Water - 2022	0.05 acres

Legend

- MDT Wetland Conservation Easement Boundary
- Pre-Project Wetland Area
- Wetland Area - 2022
- Open Water - 2022

Base Photography Date: September 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. RESPEC 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

Easton Ranch Wetland Mitigation
2022 Wetland Delineation

0 75 150 300 450 600 750 Feet

Project:	STPX-STWD (813)
Location:	Park Co., Montana
Date Map Created:	September 2022
Project Manager:	R McEldowney
Drawn By:	SW/JT

File: X:\Project\MDT Wetland Mitigation 2\Mains\Easton\2022\Delin2022_MDT2.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
Easton Ranch
Park County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Easton Assessment Date/Time 7/19/2022

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

Weather: 80 degrees, sunny, clear Location: Northeast of Wilsall

MDT District: Butte Milepost: NA

Legal Description: T 4N R 9E Section(s) 32 NW 1/4

Initial Evaluation Date: 8/25/2010 Monitoring Year: 12 #Visits in Year: 1

Size of Evaluation Area: 34.31 (acres)

Land use surrounding wetland:

Agriculture, Shields River, Scrub/Shrub and Forested Riparian corridors.

HYDROLOGY

Surface Water Source: High groundwater, periodic overbank flow from the Shields River, irrigation

Inundation: ☑ Average Depth: 0.2 **(ft)** Range of Depths: 0.1-1.5 **(ft)**

Percent of assessment area under inundation: 1 %

Depth at emergent vegetation-open water boundary: 0.3 **(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 pattern, surface water, high water table, saturation, and sulfidic odor, drainage patterns, oxidized rhizospheres on living roots, geomorphic position, FAC-Neutral, and surface soil cracks.

Groundwater Monitoring Wells

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

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:

Saturation within wetland cells was much less prevalent during the 2022 monitoring event compared to 2021. Less saturation across the site is likely a result of the monitoring being conducted one month later in 2022 than 2021. Surface water levels were also lower across the site compared to 2021.

VEGETATION COMMUNITIES

Site Easton

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

Community # 1 **Community Type:** Phleum pratense / Poa pratensis **Acres:** 6.4

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis stolonifera	1
Alopecurus arundinaceus	0	Bare Ground	1
Bromus inermis	3	Carex nebrascensis	0
Carex pellita	0	Carum carvi	1
Cirsium arvense	1	Dactylis glomerata	1
Deschampsia caespitosa	1	Elymus repens	3
Equisetum arvense	0	Glycyrrhiza lepidota	0
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	2	Lysimachia ciliata	0
Medicago sativa	1	Melilotus officinalis	0
Phalaris arundinacea	1	Phleum pratense	3
Poa palustris	1	Poa pratensis	3
Populus balsamifera	1	Salix lutea	1
Sisyrinchium idahoense	0	Stachys pilosa	0
Taraxacum officinale	1	Trifolium hybridum	1
Trifolium pratense	2		

Comments:

This upland community was thought to be in transition to a wetland community in 2020 and 2021. But in 2022, the community composition and acreage changed little. This community largely occupies the tansition zone between wetlands and uplands and contains a variety of hydrophytic and upland species. Less than 0.1-acre of this community was delineated as wetland in 2022.

Community # 3 **Community Type:** Carex spp. / **Acres:** 0.48

Species	Cover class	Species	Cover class
Bare Ground	0	Calamagrostis canadensis	1
Carex atherodes	4	Carex nebrascensis	2
Carex pellita	2	Carex utriculata	3
Cirsium arvense	1	Equisetum arvense	1
Juncus balticus	2	Juncus longistylis	1
Mentha arvensis	1	Open Water	1
Poa palustris	1	Poa pratensis	0
Salix exigua	1	Scirpus microcarpus	2
Stachys pilosa	1		

Comments:

This CT exhibits a diversity of hydrophytic species.

Community # 4 **Community Type:** Salix spp. / **Acres:** 0.14

Species	Cover class	Species	Cover class
Carex nebrascensis	2	Elymus repens	2
Mentha arvensis	1	Phalaris arundinacea	3
Phleum pratense	1	Ribes inerme	1
Ribes lacustre	2	Salix bebbiana	1
Salix drummondiana	4	Salix lasiandra	3
Scirpus microcarpus	1	Urtica dioica	1

Comments:

Preserved scrub-shrub community along the banks of the Shields River. Dominated by Salix drummondiana and Salix lasiandra. Unchanged from 2021.

Community # 5 **Community Type:** Populus balsamifera / **Acres:** 0.46

Species	Cover class	Species	Cover class
Bromus inermis	2	Cirsium arvense	2
Glyceria striata	2	Populus angustifolia	4
Populus balsamifera	4	Salix bebbiana	2
Salix lasiandra	2	Scirpus microcarpus	2
Scutellaria lateriflora	2		

Comments:

Preserved forested wetland area along the southern project boundary.

Community # 7 **Community Type:** Aquatic macrophytes / **Acres:** 0.05

Species	Cover class	Species	Cover class
Algae, green	3	Alopecurus geniculatus	0
Bare Ground	2	Beckmannia syzigachne	1
Carex nebrascensis	0	Carex pellita	1
Carex utriculata	2	Cornus alba	0
Eleocharis palustris	2	Glyceria grandis	1
Hippuris vulgaris	0	Juncus balticus	2
Juncus effusus	2	Juncus ensifolius	0
Mentha arvensis	1	Open Water	4
Ranunculus aquatilis	0	Ranunculus gmelinii	0
Ruppia maritima	1	Salix lutea	1
Schoenoplectus pungens	1	Scirpus microcarpus	1
Typha latifolia	2		

Comments:

In 2021 this CT consisted of two cells. In 2022 the western most cell no longer contained open water and was absorbed by CT 15. As a result, the acreage of this CT was reduced by approximately two thirds.

Community # 10 **Community Type:** Bromus inermis / Populus tremuloides **Acres:** 0.23

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bromus inermis	4
Carum carvi	1	Cirsium arvense	0
Dactylis glomerata	2	Elymus repens	1
Leymus cinereus	1	Lotus corniculatus	1
Phleum pratense	3	Poa palustris	1
Poa pratensis	1	Populus balsamifera	0
Populus tremuloides	3	Taraxacum officinale	1
Trifolium pratense	1		

Comments:

Small CT along the northern project boundary.

Community # 11 **Community Type:** Juncus spp. / **Acres:** 5.59

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	1
Alopecurus pratensis	1	Bare Ground	1
Carex aquatilis	1	Carex bebbii	1
Carex nebrascensis	1	Carex pachystachya	1
Carex utriculata	2	Carum carvi	0
Cirsium arvense	1	Deschampsia caespitosa	1
Equisetum arvense	1	Juncus balticus	4
Juncus effusus	2	Juncus ensifolius	1
Juncus longistylis	1	Juncus tenuis	1
Lotus corniculatus	2	Lysimachia ciliata	0
Mentha arvensis	1	Phalaris arundinacea	0
Phleum pratense	1	Poa palustris	2
Poa pratensis	1	Populus balsamifera	1
Salix bebbiana	1	Salix lutea	1
Schedonorus pratensis	0	Scirpus microcarpus	1
Solidago gigantea	0	Stachys pilosa	1

Comments:

In 2022 this CT was reduced by 0.09 acres because a portion of the community south of the access road was absorbed by CT 15 as the result of increased willow coverage.

Community # 12 **Community Type:** Eleocharis palustris / Typha latifolia **Acres:** 0.9

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus pratensis	1
Beckmannia syzigachne	1	Carex aquatilis	1
Carex utriculata	2	Eleocharis palustris	1
Glyceria elata	1	Juncus balticus	1
Mentha arvensis	1	Phalaris arundinacea	1
Ruppia maritima	1	Typha latifolia	4

Comments:

The coverage of Eleocharis palustris in this CT was significantly less in 2022 than in 2021.

Community # 13 **Community Type:** Bromus inermis / Phleum pratense **Acres:** 5.43

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus pratensis	0
Alyssum alyssoides	0	Bare Ground	1
Bromus arvensis	0	Bromus inermis	3
Camelina microcarpa	1	Carum carvi	1
Cirsium arvense	1	Dactylis glomerata	1
Elymus repens	2	Equisetum arvense	0
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	3	Phleum pratense	3
Poa palustris	1	Poa pratensis	2
Populus balsamifera	1	Salix exigua	1
Schedonorus pratensis	0	Taraxacum officinale	1
Thlaspi arvense	0	Trifolium hybridum	1
Trifolium pratense	1		

Comments:

In 2018, several areas previously mapped as CT 13 transitioned to CT 16 or 18 due to the increase of Elymus repens or Lotus corniculatus and the reduction of Bromus inermis. Elymus repens increased in cover slightly in this CT in 2022.

Community # 14 **Community Type:** Juncus spp. / Populus balsamifera **Acres:** 2.43

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alnus incana	1
Alopecurus arundinaceus	1	Bare Ground	1
Carex nebrascensis	1	Carex pachystachya	1
Carex pellita	1	Carex utriculata	1
Carum carvi	0	Carum carvi	0
Cirsium arvense	0	Deschampsia caespitosa	1
Elymus repens	0	Equisetum arvense	1
Juncus balticus	4	Juncus effusus	2
Lotus corniculatus	1	Mentha arvensis	1
Phleum pratense	1	Poa palustris	2
Poa pratensis	0	Populus angustifolia	1
Populus balsamifera	4	Potentilla gracilis	0
Salix bebbiana	1	Salix boothii	1
Salix drummondiana	1	Salix exigua	1
Salix lasiandra	0	Salix lutea	2
Sinapis arvensis	0	Sisyrinchium idahoense	0
Symphyotrichum subspicatum	0	Taraxacum officinale	0
Trifolium hybridum	0	Trifolium pratense	0

Comments:

No open water was observed in this CT in 2022. Populus balsamifera was observed as saplings and appear to be increasing in size despite some herbivory.

Community # 15 Community Type: Juncus spp. / Salix spp. **Acres:** 1.45

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alnus incana	1
Bare Ground	1	Carex nebrascensis	2
Carex pachystachya	0	Carex pellita	0
Carex utriculata	1	Carum carvi	0
Cicuta douglasii	1	Cirsium arvense	0
Juncus balticus	4	Juncus effusus	1
Juncus tenuis	1	Lotus corniculatus	0
Mentha arvensis	1	Phalaris arundinacea	0
Poa palustris	0	Populus balsamifera	2
Potentilla anserina	1	Salix bebbiana	2
Salix boothii	0	Salix drummondiana	1
Salix exigua	1	Salix lasiandra	1
Salix lutea	3	Scirpus microcarpus	1
Sisyrinchium idahoense	0	Stachys pilosa	1
Taraxacum officinale	0		

Comments:

In 2022 this CT increased by .41 acres by absorbing a portion of CT 11 that had a significant increase in Salix spp. Cover by willow species within this CT represent greater than 30 percent of the total cover.

Community # 16 Community Type: Elymus repens / Poa pratensis **Acres:** 1.7

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bare Ground	1
Bromus ciliatus	0	Bromus inermis	2
Carex nebrascensis	0	Carum carvi	2
Cirsium arvense	1	Dactylis glomerata	0
Elymus cinereus	1	Elymus repens	3
Leymus cinereus	1	Lotus corniculatus	2
Phleum pratense	2	Poa palustris	1
Poa pratensis	3	Populus balsamifera	0
Ranunculus macounii	0	Taraxacum officinale	2
Thlaspi arvense	0	Trifolium pratense	1

Comments:

Community type created in 2018. No changes were observed during the 2022 monitoring event.

Community # 17 **Community Type:** Phleum pratense / Elymus repens **Acres:** 0.35

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	2
Carum carvi	2	Cirsium arvense	1
Elymus repens	3	Equisetum arvense	1
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	3	Phleum pratense	4
Poa palustris	1	Poa pratensis	2
Taraxacum officinale	1	Trifolium pratense	1

Comments:

A small upland community along the northern end of transect 1, formerly CT 1. Lotus corniculatus cover remained similar to 2021.

Community # 18 **Community Type:** Lotus corniculatus / Phleum pratense **Acres:** 2.74

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis stolonifera	1
Alnus incana	1	Alopecurus arundinaceus	2
Bare Ground	1	Bromus carinatus	0
Bromus inermis	0	Bromus tectorum	0
Camelina microcarpa	1	Carex pachystachya	1
Carex pellita	1	Carum carvi	2
Elymus repens	1	Elymus trachycaulus	0
Equisetum arvense	1	Juncus balticus	2
Leymus cinereus	1	Lotus corniculatus	4
Medicago lupulina	1	Melilotus officinalis	0
Open Water	0	Phalaris arundinacea	0
Phleum pratense	3	Poa palustris	0
Poa pratensis	2	Populus balsamifera	1
Rumex salicifolius	0	Salix exigua	1
Schedonorus pratensis	1	Solidago lepida	0
Stachys pilosa	0	Taraxacum officinale	1
Thlaspi arvense	1	Tragopogon dubius	0
Trifolium hybridum	2	Trifolium pratense	1

Comments:

Upland CT first identified in 2018, mainly across the northeastern portion of project site. Cover of Lotus corniculatus did not increase in this CT as it did in 2021. In 2021 it was thought much of this CT was in transition to wetland, however during the 2022 monitoring event, wetlands in this area did not increase. Total acreage of this CT decreased by 0.17 acres due to a small portion converting to CT 13 in the east central portion of the project area.

Community # 20 Community Type: Lotus corniculatus / Populus balsamifera **Acres:** 0.27

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Elymus repens	2
Equisetum arvense	1	Lotus corniculatus	4
Phleum pratense	3	Populus balsamifera	3
Salix exigua	1		

Comments:

A CT mapped in 2019 in the northeastern corner of the project area replacing a small area within CT 18. There are many young cottonwoods in this CT and it is anticipated this CT will expand slowly in the future. However, there was no noticeable change in this CT from 2021.

Community # 21 Community Type: Carex spp. / Juncus spp. **Acres:** 2.56

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Alopecurus arundinaceus	1
Bare Ground	3	Carex aquatilis	1
Carex atherodes	1	Carex bebbii	1
Carex microptera	1	Carex nebrascensis	1
Carex pachystachya	3	Carex pellita	3
Carex utriculata	1	Carum carvi	0
Cirsium arvense	0	Dactylis glomerata	0
Deschampsia caespitosa	1	Eleocharis palustris	0
Elymus repens	1	Epilobium ciliatum	1
Equisetum arvense	1	Glyceria grandis	1
Juncus balticus	4	Juncus effusus	1
Juncus ensifolius	0	Juncus longistylis	1
Juncus tenuis	1	Lotus corniculatus	1
Lysimachia ciliata	0	Mentha arvensis	1
Open Water	1	Phalaris arundinacea	0
Phleum pratense	1	Poa palustris	0
Poa pratensis	1	Populus balsamifera	1
Ranunculus macounii	0	Salix bebbiana	1
Salix exigua	1	Salix lasiandra	0
Salix lutea	1	Scirpus microcarpus	1
Stachys pilosa	1	Taraxacum officinale	0
Typha latifolia	0		

Comments:

A new CT mapped in 2019, within transects 1 and 2. This CT was reduced in size by 0.9 acres due to a portion of CT 21 cell at the east central portion of the site converting to CT 15 because an increase in shrub cover.

Community # 22 **Community Type:** Phleum pratense / Elymus repens **Acres:** 0.63

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	2
Carum carvi	2	Cirsium arvense	1
Elymus repens	3	Equisetum arvense	1
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	2	Open Water	0
Phleum pratense	4	Poa palustris	1
Poa pratensis	2	Taraxacum officinale	1
Trifolium pratense	1		

Comments:

Transitional wetland CT created in 2021. In 2021, areas within upland CT 17 that were delineated as wetland were separated into this wetland CT. This CT remained static in 2022 and did not expand further into CT 17.

Community # 23 **Community Type:** Lotus corniculatus / Phleum pratense **Acres:** 0.92

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alnus incana	1
Alopecurus arundinaceus	2	Bare Ground	1
Bromus carinatus	0	Bromus inermis	0
Camelina microcarpa	1	Carex pachystachya	1
Carex pellita	1	Carum carvi	2
Elymus repens	1	Equisetum arvense	1
Juncus balticus	2	Leymus cinereus	1
Lotus corniculatus	4	Medicago lupulina	1
Melilotus officinalis	0	Open Water	0
Phleum pratense	3	Poa palustris	0
Poa pratensis	2	Populus balsamifera	1
Rumex salicifolius	0	Salix exigua	1
Schedonorus pratensis	1	Solidago lepida	0
Stachys pilosa	0	Taraxacum officinale	1
Thlaspi arvense	1	Trifolium hybridum	2
Trifolium pratense	1		

Comments:

Transitional wetland CT primarily along the northern end of Transect 1 created in 2021. In 2021, areas within upland CT 18 that were delineated as wetland were separated into this new wetland CT. This CT remained static in 2022 and did not expand further into CT 18.

Total Vegetation Community Acreage **32.73**

VEGETATION TRANSECTS

Site: Easton Date: 7/19/2022

Transect Number: 1 **Compass Direction from Start:** 5

Interval Data:

Ending Station 65 **Community Type:** Carex spp. / Juncus spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Carex nebrascensis	1
Carex pachystachya	1	Carex pellita	3
Carex utriculata	1	Elymus repens	1
Equisetum arvense	1	Juncus balticus	4
Juncus longistylis	1	Juncus tenuis	1
Poa pratensis	1	Stachys pilosa	1

Ending Station 93 **Community Type:** Aquatic macrophytes /

Species	Cover class	Species	Cover class
Algae, green	3	Beckmannia syzigachne	0
Carex nebrascensis	0	Carex pellita	1
Carex utriculata	2	Eleocharis palustris	1
Glyceria grandis	1	Hippuris vulgaris	0
Juncus balticus	2	Juncus effusus	1
Juncus ensifolius	1	Mentha arvensis	1
Open Water	2	Ranunculus aquatilis	1
Ranunculus gmelinii	1	Salix lutea	1
Typha latifolia	2		

Ending Station 137 **Community Type:** Carex spp. / Juncus spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Carex aquatilis	2
Carex nebrascensis	1	Carex utriculata	2
Epilobium ciliatum	1	Juncus balticus	4
Juncus effusus	4	Juncus ensifolius	0
Mentha arvensis	0	Open Water	1
Phleum pratense	0	Poa palustris	0
Poa pratensis	0	Salix bebbiana	1
Salix lutea	1		

Ending Station 193 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Bare Ground	1
Carex nebrascensis	1	Cirsium arvense	0
Dactylis glomerata	1	Elymus repens	4
Leymus cinereus	0	Lotus corniculatus	1
Phleum pratense	2	Poa palustris	0
Poa pratensis	3	Taraxacum officinale	0
Thlaspi arvense	0		

Ending Station 288 **Community Type:** Carex spp. / Juncus spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	3
Carex aquatilis	2	Carex utriculata	2
Carum carvi	0	Equisetum arvense	0
Juncus balticus	4	Juncus effusus	2
Lotus corniculatus	1	Open Water	0
Poa pratensis	1	Populus balsamifera	1
Salix bebbiana	1	Salix exigua	1
Salix lutea	1	Scirpus microcarpus	1
Taraxacum officinale	0	Typha latifolia	2

Ending Station 468 **Community Type:** Phleum pratense / Poa pratensis

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis stolonifera	2
Alopecurus arundinaceus	1	Bromus inermis	3
Carex nebrascensis	2	Carum carvi	2
Cirsium arvense	1	Elymus repens	1
Equisetum arvense	3	Juncus balticus	1
Leymus cinereus	1	Lotus corniculatus	1
Melilotus officinalis	0	Phleum pratense	3
Poa pratensis	3	Populus balsamifera	1
Taraxacum officinale	0	Trifolium hybridum	1
Trifolium pratense	1		

Ending Station 516 **Community Type:** Juncus spp. /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Alopecurus pratensis	1
Bare Ground	1	Carex pachystachya	1
Cirsium arvense	0	Cirsium arvense	0
Juncus balticus	4	Juncus effusus	2
Juncus tenuis	0	Phleum pratense	1
Poa palustris	1	Poa pratensis	1
Schedonorus pratensis	1	Stachys pilosa	1

Ending Station 562 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	4
Carex pachystachya	1	Carum carvi	1
Elymus repens	1	Equisetum arvense	1
Lotus corniculatus	2	Phleum pratense	3
Poa palustris	1	Poa pratensis	3
Populus balsamifera	1	Rumex salicifolius	1
Stachys pilosa	1	Thlaspi arvense	1
Trifolium hybridum	1		

Ending Station 635 **Community Type:** Juncus spp. / Populus balsamifera

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Bare Ground	1	Carex pachystachya	1
Carex pellita	1	Carum carvi	1
Elymus repens	1	Equisetum arvense	1
Juncus balticus	1	Juncus effusus	1
Lotus corniculatus	3	Phleum pratense	1
Poa palustris	1	Poa pratensis	1
Populus balsamifera	2	Potentilla gracilis	0
Salix lutea	1		

Ending Station 667 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	2
Carex pellita	1	Carum carvi	1
Elymus repens	1	Juncus balticus	3
Lotus corniculatus	4	Taraxacum officinale	1
Trifolium pratense	1		

Ending Station 740 **Community Type:** Juncus spp. / Salix spp.

Species	Cover class	Species	Cover class
Alnus incana	1	Carex pachystachya	1
Carex pellita	1	Carum carvi	1
Juncus balticus	4	Lotus corniculatus	2
Phalaris arundinacea	1	Populus balsamifera	3
Salix bebbiana	2	Salix boothii	2
Salix exigua	2	Stachys pilosa	0
Taraxacum officinale	0		

Ending Station 899 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Achillea millefolium	0	Alnus incana	1
Bare Ground	1	Bromus tectorum	0
Carum carvi	2	Elymus trachycaulus	0
Equisetum arvense	1	Juncus balticus	2
Leymus cinereus	1	Lotus corniculatus	5
Medicago lupulina	1	Open Water	1
Phleum pratense	3	Poa pratensis	2
Populus balsamifera	1	Rumex salicifolius	1
Taraxacum officinale	1	Tragopogon dubius	0
Trifolium hybridum	1	Trifolium pratense	2

Ending Station 1013 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Alnus incana	1	Bare Ground	1
Camelina microcarpa	0	Carum carvi	2
Elymus repens	0	Equisetum arvense	1
Juncus balticus	2	Leymus cinereus	1
Lotus corniculatus	4	Medicago lupulina	1
Open Water	0	Phleum pratense	3
Poa pratensis	2	Populus balsamifera	1
Rumex salicifolius	1	Taraxacum officinale	1
Trifolium hybridum	1	Trifolium pratense	2

Ending Station 1038 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Alnus incana	1	Bare Ground	1
Bromus inermis	1	Carum carvi	2
Elymus repens	1	Equisetum arvense	1
Juncus balticus	0	Leymus cinereus	3
Lotus corniculatus	4	Medicago lupulina	1
Phleum pratense	3	Poa pratensis	2
Populus balsamifera	1	Taraxacum officinale	1
Trifolium hybridum	1	Trifolium pratense	2

Ending Station 1152 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Alnus incana	1	Bare Ground	1
Carum carvi	2	Equisetum arvense	1
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	3	Medicago lupulina	1
Phleum pratense	3	Poa pratensis	2
Populus balsamifera	1	Taraxacum officinale	1
Trifolium hybridum	1	Trifolium pratense	2

Ending Station 1172 **Community Type:** Phleum pratense / Elymus repens

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	1
Carum carvi	2	Cirsium arvense	1
Elymus repens	4	Equisetum arvense	2
Leymus cinereus	1	Lotus corniculatus	4
Phleum pratense	3	Poa pratensis	2
Taraxacum officinale	1		

Ending Station 1335 **Community Type:** Phleum pratense / Elymus repens

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	1
Carum carvi	2	Cirsium arvense	1
Elymus repens	4	Equisetum arvense	2
Leymus cinereus	1	Lotus corniculatus	2
Open Water	1	Phleum pratense	3
Poa pratensis	2	Taraxacum officinale	1

Ending Station 1376 **Community Type:** Bromus inermis / Populus tremuloides

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bromus inermis	4
Carum carvi	2	Dactylis glomerata	2
Elymus repens	1	Leymus cinereus	1
Lotus corniculatus	1	Phleum pratense	3
Poa pratensis	2	Populus balsamifera	1
Populus tremuloides	3	Taraxacum officinale	2

Transect Notes:

As in 2021, no ponded water was observed within this transect in 2022. This transect remained largely unchanged from 2021. The vegetation community types 17 and 18 at the northern end of this transect were thought to be in transition to wetlands in 2021. However, no increase in wetland acerage was identified in this area during the 2022 monitoring event.

Transect Number: 2 **Compass Direction from Start:** 185

Interval Data:

Ending Station 31 **Community Type:** Carex spp. /

Species	Cover class	Species	Cover class
Bare Ground	1	Carex atherodes	2
Carex nebrascensis	2	Carex pellita	2
Carex utriculata	4	Cirsium arvense	1
Equisetum arvense	1	Juncus balticus	1
Juncus longistylis	1	Poa palustris	1
Poa pratensis	1	Salix exigua	0
Stachys pilosa	0		

Ending Station 152 **Community Type:** Carex spp. / Juncus spp.

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	1
Carex atherodes	1	Carex bebbii	1
Carex nebrascensis	2	Carex pellita	2
Carex utriculata	3	Cirsium arvense	1
Dactylis glomerata	1	Deschampsia caespitosa	1
Eleocharis palustris	1	Elymus repens	3
Equisetum arvense	1	Glyceria grandis	0
Juncus balticus	3	Lotus corniculatus	1
Lysimachia ciliata	0	Open Water	0
Phalaris arundinacea	1	Phleum pratense	2
Poa palustris	1	Poa pratensis	1
Salix bebbiana	1	Salix lasiandra	1
Salix lutea	1	Scirpus microcarpus	2
Stachys pilosa	0	Taraxacum officinale	1
Typha latifolia	0		

Ending Station 260 **Community Type:** Phleum pratense / Poa pratensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bare Ground	1
Bromus inermis	1	Carum carvi	1
Cirsium arvense	1	Elymus repens	3
Equisetum arvense	2	Leymus cinereus	1
Lotus corniculatus	0	Lysimachia ciliata	0
Medicago sativa	0	Phleum pratense	3
Poa pratensis	3	Populus balsamifera	1
Salix lutea	0	Sisyrinchium idahoense	0
Stachys pilosa	1	Taraxacum officinale	2
Trifolium pratense	0		

Ending Station 358 **Community Type:** Carex spp. / Juncus spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Bare Ground	1
Carex microptera	1	Carex pellita	1
Cirsium arvense	1	Equisetum arvense	1
Juncus balticus	2	Juncus tenuis	1
Lotus corniculatus	2	Lysimachia ciliata	1
Phleum pratense	1	Poa palustris	2
Poa pratensis	1	Populus balsamifera	2
Ranunculus macounii	0	Salix bebbiana	2
Salix lutea	1	Scirpus microcarpus	1
Stachys pilosa	1	Taraxacum officinale	1

Ending Station 633 **Community Type:** Lotus corniculatus / Phleum pratense

Species	Cover class	Species	Cover class
Bare Ground	2	Bromus carinatus	0
Bromus inermis	1	Camelina microcarpa	0
Carex pellita	0	Carum carvi	2
Elymus repens	3	Equisetum arvense	1
Juncus balticus	1	Leymus cinereus	1
Lotus corniculatus	3	Medicago lupulina	1
Melilotus officinalis	1	Phalaris arundinacea	0
Phleum pratense	3	Populus balsamifera	1
Schedonorus pratensis	1	Solidago lepida	1
Taraxacum officinale	1	Thlaspi arvense	1
Trifolium hybridum	1	Trifolium pratense	1

Ending Station 758 **Community Type:** Juncus spp. /

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bare Ground	0
Carex bebbii	1	Carex pachystachya	1
Juncus balticus	3	Juncus effusus	1
Juncus tenuis	1	Lotus corniculatus	4
Lysimachia ciliata	1	Mentha arvensis	1
Phalaris arundinacea	0	Phleum pratense	1
Poa palustris	1	Poa pratensis	2
Populus balsamifera	2	Salix bebbiana	1
Salix lutea	1	Solidago gigantea	1

Ending Station 820 **Community Type:** Bromus inermis / Phleum pratense

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	3
Carum carvi	1	Cirsium arvense	0
Elymus repens	1	Juncus balticus	1
Lotus corniculatus	2	Phleum pratense	3
Poa pratensis	2	Populus balsamifera	0
Taraxacum officinale	1	Trifolium pratense	2

Ending Station 888 **Community Type:** Juncus spp. /

Species	Cover class	Species	Cover class
Carex aquatilis	1	Carex utriculata	1
Equisetum arvense	1	Juncus balticus	4
Juncus effusus	2	Lotus corniculatus	2
Mentha arvensis	1	Poa palustris	2
Poa pratensis	1	Salix bebbiana	1
Scirpus microcarpus	1	Stachys pilosa	0

Ending Station 915 **Community Type:** Aquatic macrophytes /

Species	Cover class	Species	Cover class
Carex pellita	1	Carex utriculata	2
Eleocharis palustris	1	Glyceria grandis	2
Juncus balticus	0	Juncus ensifolius	0
Open Water	0	Schoenoplectus pungens	2
Scirpus microcarpus	1		

Ending Station 1055 **Community Type:** Juncus spp. / Salix spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alnus incana	1
Bare Ground	1	Carex nebrascensis	1
Carex utriculata	2	Cirsium arvense	0
Juncus balticus	4	Juncus effusus	1
Juncus tenuis	1	Mentha arvensis	1
Poa palustris	1	Populus balsamifera	2
Potentilla anserina	0	Salix bebbiana	3
Salix drummondiana	2	Salix exigua	1
Salix lutea	3	Scirpus microcarpus	0
Stachys pilosa	1		

Ending Station 1268 **Community Type:** Juncus spp. / Populus balsamifera

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Alnus incana	0
Carex utriculata	1	Juncus balticus	3
Juncus effusus	1	Lotus corniculatus	2
Mentha arvensis	1	Poa palustris	3
Populus balsamifera	4	Salix bebbiana	3
Salix drummondiana	2	Salix lasiandra	3
Symphyotrichum subspicatu	0		

Ending Station 1333 **Community Type:** Bromus inermis / Phleum pratense

Species	Cover class	Species	Cover class
Alyssum alyssoides	2	Bare Ground	2
Bromus inermis	4	Elymus repens	1
Leymus cinereus	0	Lotus corniculatus	2
Phleum pratense	3	Poa pratensis	2
Populus balsamifera	1	Schedonorus pratensis	1
Taraxacum officinale	1	Trifolium pratense	1

Transect Notes:

The open water reported along this transect in 2021 was observed to be an emergent wetland in 2022, however the vegetation community did not change. The vegetation communities and wetland boundaries across this transect remained relatively unchanged since the 2021 monitoring event.

Transect Number: 3 **Compass Direction from Start:** 95

Interval Data:

Ending Station 120 **Community Type:** Bromus inermis / Phleum pratense

Species	Cover class	Species	Cover class
Bromus arvensis	0	Bromus inermis	3
Camelina microcarpa	0	Carum carvi	2
Elymus repens	1	Leymus cinereus	1
Lotus corniculatus	3	Phleum pratense	3
Poa pratensis	2	Populus balsamifera	1
Taraxacum officinale	1	Trifolium hybridum	1
Trifolium pratense	2		

Ending Station 160 **Community Type:** Juncus spp. / Populus balsamifera

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Carum carvi	1
Equisetum arvense	1	Juncus balticus	4
Lotus corniculatus	4	Phleum pratense	1
Populus balsamifera	3	Salix bebbiana	2
Salix lutea	1	Taraxacum officinale	1
Trifolium hybridum	1	Trifolium pratense	1

Ending Station 215 **Community Type:** Bromus inermis / Phleum pratense

Species	Cover class	Species	Cover class
Bromus inermis	3	Carum carvi	1
Dactylis glomerata	0	Elymus repens	2
Equisetum arvense	1	Juncus balticus	1
Leymus cinereus	1	Lotus corniculatus	1
Phleum pratense	2	Poa pratensis	2
Taraxacum officinale	1	Thlaspi arvense	0

Ending Station 227 **Community Type:** Juncus sp. / Populus balsamifera

Species	Cover class	Species	Cover class
Bare Ground	1	Carex utriculata	2
Carum carvi	2	Cirsium arvense	2
Equisetum arvense	2	Juncus balticus	1
Lotus corniculatus	3	Phleum pratense	1
Poa palustris	1	Poa pratensis	1
Populus balsamifera	4	Salix drummondiana	1
Salix lutea	1	Taraxacum officinale	1

Ending Station 309 **Community Type:** Bromus inermis / Phleum pratense

Species	Cover class	Species	Cover class
Bromus inermis	3	Carum carvi	1
Dactylis glomerata	0	Elymus repens	3
Equisetum arvense	1	Juncus balticus	1
Lotus corniculatus	1	Phleum pratense	4
Poa pratensis	2	Taraxacum officinale	1
Trifolium pratense	1		

Ending Station 656 **Community Type:** Juncus spp. /

Species	Cover class	Species	Cover class
Carex pachystachya	1	Carex utriculata	2
Carum carvi	1	Cirsium arvense	1
Equisetum arvense	1	Juncus balticus	4
Juncus longistylis	1	Lotus corniculatus	1
Poa pratensis	1	Populus balsamifera	1
Salix bebbiana	2	Salix lutea	1
Solidago gigantea	1		

Ending Station 732 **Community Type:** Phleum pratense / Poa pratensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Bromus inermis	3
Carum carvi	1	Dactylis glomerata	0
Elymus repens	2	Equisetum arvense	1
Lotus corniculatus	1	Phleum pratense	2
Poa pratensis	4	Taraxacum officinale	1
Trifolium pratense	1		

Transect Notes:

The vegetation community boundaries and composition within this transect remained nearly unchanged from 2021. This transect has remained relatively stable since 2017.

PLANTED WOODY VEGETATION SURVIVAL

Easton

Planting Type	#Planted	#Alive	Notes
Red-osier dogwood	250	4	
Sandbar willow	250	51	
Thinleaf alder	500	99	
Willow cuttings	200	85	

Comments

Woody shrubs were counted along and adjacent to the floodplain channel. After 13 years, deciphering planted versus volunteer willows was difficult and therefore used best professional judgement. Many of the larger thinleaf alder were 8 to 10 ft tall, robust and thriving where planted. The number of red-osier dogwoods observed continued to decrease, and appear stunted with new growth occurring at the base potentially as a result of herbivory and/or drought. A high percent of woody vegetation cover is provided by Populus balsamifera volunteers that have appeared across the site in the last few years, especially in Juncus spp. communities.

Easton

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Bird boxes

How many? 17

Are the nesting structures being used? Yes

Do the nesting structures need repairs? Yes

Nesting Structure Comments:

Of the 17 installed bird boxes, many were occupied by tree swallows or contained twigs and nesting debris. One box (located between PP4a and PP4b) was knocked over and needs to be resecured to the fencepost. The two boxes at the southwest corner of the project area are missing their roofs.

Species	#Observed	Behavior	Habitat
American Robin	2		
Bald Eagle	1		
Eastern Kingbird	1		
Eastern Kingbird	1		
Golden Eagle	1		
Killdeer	1		
Mourning Dove	3		
Red-naped Sapsucker	1		
Red-winged Blackbird	24		
Sandhill Crane	2		
Starling	3		
Tree Swallow	10		
Wilson's Phalarope	1		
Wilson's Snipe	2		
Yellow-headed Blackbird	4		

Bird Comments

Eagle nest outside of the southwestern portion of project was not occupied this year but an immature Golden Eagle and a mature Bald Eagle were observed soaring over the project area.

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
Raccoon		Yes	No	No	
Tadpoles	15	No	No	No	
White-tailed Deer		Yes	Yes	No	

Wildlife Comments:

Site utilized by diversity of bird and wildlife species.

Easton

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	46.059463	-110.638193		
DP01w	46.059416	-110.638313		
DP02u	46.057866	-110.639085		
DP02w	46.057967	-110.639152		
DP03u	46.057017	-110.638626		
DP03w	46.056983	-110.638796		
DP04u	46.056157	-110.64002		
DP04w	46.05616	-110.639898		
DP05u	46.056454	-110.640404		
DP05w	46.056486	-110.640273		
DP06u	46.057764	-110.639542		
DP06w	46.057872	-110.639644		
DP07u	46.059275	-110.63942		
DP07w	46.059175	-110.639464		
DP08u	46.05981	-110.639133		
DP08w	46.059866	-110.639097		
DP09u	46.060635	-110.639081		
DP09w	46.060633	-110.63915		
DP10u	46.059793	-110.637586		
DP10w	46.059854	-110.637616		
PP1	46.059727	-110.637505		East boundary
PP2	46.061028	-110.637207		Northeast corner
PP3	46.061188	-100.639848		Northeast corner
PP4	46.050705	-110.640434		Shields bank
PP4	46.060993	-110.640121		Shields bank
PP5	46.059883	-110.640404		West boundary
PP6	46.056175	-110.64048		Southwest corner

PP7	46.055286	-110.639137	Southeast corner
T-1 End	46.060627	-110.637779	View of CT 10 and 18
T-1 Start	46.057281	-110.638306	View of CT 11 and 7
T-2 End	46.057594	-110.640343	View of CT 1
T-2 Start	46.060139	-110.639229	View of CT 3
T-3 End	46.056114	-110.637924	View of CT 1 and 11
T-3 Start	46.056984	-110.640656	View of CT 13

Comments:

Easton

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

Total wetland acreage in 2022 remained nearly the same (a 0.01 acre decrease) since 2021. Many of the areas that were thought to be in transition to wetlands, especially in the northeast corner of the site, remained the same unchanged in 2022.

Functional Assessments

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

Functional Assessment Comments:

Functional units remained the same 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? Yes

If yes, describe the problems below.

Bank erosion was noted along the Shields River in the northwest portion of the project area. In the northeast corner of the site, fencing is still in need of repair from 2021. A few bird boxes (see wildlife section) need repair.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Low Terrace | Local relief (concave, convex, none): flat | Slope (%): 5

Subregion (LRR): LRR E | Lat: 46.0594626612 | Long: -110.638192573 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 located about 1 foot higher in elevation than 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)

Agrostis stolonifera	5	☐	FAC
Bromus inermis	3	☐	UPL
Carum carvi	10	☐	FACU
Elymus repens	7	☐	FAC
Lotus corniculatus	50	☑	FAC
Phleum pratense	20	☑	FAC
Poa pratensis	5	☐	FAC

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	87	X 3	261
FACU species	10	X 4	40
UPL species	3	X 5	15
Column Totals	100 (A)		316 (B)

Prevalence Index = B/A = 3.16

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-07	7.5YR 3/2	100					Sandy Loam	**Gravels throughout**
07+							Gravel/Cobble	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soils in this profile were observed to be dry, and no evidence of wetland hydrology was found.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Floodplain/depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 46.0594157214 | Long: -110.638313312 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 in a depressional area at the NE portion of the 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 drummondiana	8	☑	FACW
Salix exigua	15	☑	FACW
Salix lutea	12	☑	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Carex bebbii	2	☐	OBL
Carex nebrascensis	5	☐	OBL
Carex pellita	3	☐	OBL
Juncus balticus	45	☑	FACW
Lotus corniculatus	5	☐	FAC
Phleum pratense	5	☐	FAC
Scirpus microcarpus	1	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 34

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	23 X 1	23
FACW species	68 X 2	136
FAC species	10 X 3	30
FACU species	0 X 4	0
UPL species	0 X 5	0
Column Totals	101 (A)	189 (B)

Prevalence Index = B/A = 1.87129

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrophytic vegetation community.

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 4/2	95	10YR 5/6	5	C	M	Silt Loam	
06+							Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 in in soil matrix 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

A positive FAC-neutral test, saturation to the soil surface, and the point's geomorphic position indicate wetland hydrology at this data point.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Flat/berm | Local relief (concave, convex, none): convex | Slope (%): 5

Subregion (LRR): LRR E | Lat: 46.057865509 | Long: -110.639084843 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 on a berm between excavated cells and an overflow channel.

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	25	☑	UPL
Elymus repens	15	☐	FAC
Phleum pratense	30	☑	FAC
Poa pratensis	10	☐	FAC

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	55	X 3	165
FACU species	0	X 4	0
UPL species	25	X 5	125
Column Totals	80 (A)		290 (B)

Prevalence Index = B/A = 3.625

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:
An upland vegetation community is present at this data point.

SOIL

Sampling Point: DP02u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-05	2.5Y 3/2	100					Clay Loam	**Fine roots**
05-16	2.5Y 3/2	100					Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soils were dry at time of observation, and no evidence of wetland hydrology was present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Overflow channel | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR E | Lat: 46.0579673867 | Long: -110.639152488 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: PEM

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 north of the access road within the overflow channel that runs though the center of the 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)

Carex atherodes	15	☑	OBL
Carex nebrascensis	1	☐	OBL
Carex pellita	15	☑	OBL
Carex utriculata	10	☐	OBL
Juncus balticus	10	☐	FACW
Poa pratensis	6	☐	FAC
Scirpus microcarpus	40	☑	OBL
Stachys pilosa	2	☐	FACW
Unidentified forb	1	☐	

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	81	X 1	81
FACW species	12	X 2	24
FAC species	6	X 3	18
FACU species	0	X 4	0
UPL species	1	X 5	5
Column Totals	100 (A)		128 (B)

Prevalence Index = B/A = 1.28

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:
A positive dominance test and a prevalence index below three indicate hydrophytic vegetation at this data point.

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
0-16	2.5Y 2.5/1	95	10YR 4/6	4	C	M, PL	Silty Clay	
0-16			N 2.5/0	1	C	M	Silty Clay	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

Faint and prominent redoximorphic concentrations common within soil matrix and along dead pore linings within the dark surface layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

A positive FAC-neutral test, saturation to the soil surface, and the point's geomorphic position indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): W Fouts | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0570168796 | Long: -110.638625882 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 in an upland protrusion into the large wetland cell at the SE portion of the project 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)

Agrostis stolonifera	3	☐	FAC
Dactylis glomerata	3	☐	FACU
Elymus repens	10	☐	FAC
Phleum pratense	54	☑	FAC
Poa pratensis	10	☐	FAC

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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	77	X 3	231
FACU species	3	X 4	12
UPL species	0	X 5	0
Column Totals	80 (A)		243 (B)

Prevalence Index = B/A = 3.0375

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:
Although hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-16	10YR 3/2	100					Silty Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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 – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP03w

Investigator(s): W Fouts | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.056982668 | Long: -110.638796163 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: PEM

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 near the SE corner of the site, at the end of transect 3.

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 nebrascensis	10	☐	OBL
Carex utriculata	5	☐	OBL
Juncus balticus	40	☑	FACW
Phleum pratense	10	☐	FAC
Poa pratensis	5	☐	FAC

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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	15 X 1	15
FACW species	40 X 2	80
FAC species	15 X 3	45
FACU species	0 X 4	0
UPL species	0 X 5	0
Column Totals	70 (A)	140 (B)

Prevalence Index = B/A = 2

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrohpytic vegetation community at this data point.

SOIL

Sampling Point: DP03w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	85	7.5YR 4/6	15	C	M, PL	Silty Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 in soil matrix and along dead pore linings within the depleted matrix. Soils moist.

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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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 observed include a positive FAC-neutral test and the point's geomorphic position. Additionally, soils were observed to be moist at the time of observation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): W Fouts | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0561571113 | Long: -110.640019863 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: Rp1SS

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 approximately 4 inches in elevation above and 30 feet away from 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)

Bromus inermis	5	☐	UPL
Elymus repens	65	☑	FAC
Poa pratensis	20	☑	FAC

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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	85	X 3	255
FACU species	0	X 4	0
UPL species	5	X 5	25
Column Totals	90 (A)		280 (B)

Prevalence Index = B/A = 3.11111

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-02	10YR 3/1	100					Clay Loam	**Coarse roots throughout**
02-16	10YR 3/1	100					Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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 – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): W Fouts | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR): LRR E | Lat: 46.0561596631 | Long: -110.639897513 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: Rp1SS

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 in the stand of cottonwoods on the S end of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Populus balsamifera	50	☑	FAC
Salix lutea	5	☐	OBL

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Agrostis gigantea	1	☐	FAC
Cirsium arvense	3	☐	FAC
Poa palustris	5	☐	FAC
Ranunculus macounii	3	☐	OBL
Rumex crispus	1	☐	FAC
Rumex salicifolius	3	☐	FACW
Scirpus microcarpus	30	☑	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 54

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	38	X 1	38
FACW species	3	X 2	6
FAC species	60	X 3	180
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	101 (A)		224 (B)

Prevalence Index = B/A = 2.21782

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrophytic vegetation community.

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
0-05	10YR 2/1	100					Silty Clay Loam	
05-18	2.5Y 4/1	85	2.5YR 3/6	15	C	PL	Silty Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 live pore linings 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

A positive FAC-neutral test, the point's geomorphic position, and oxidized rhizospheres along living roots indicate wetland hydrology at this point. Additionally, soil was almost saturated at the time of observation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): J Trilling | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): undulating | Slope (%): 3

Subregion (LRR): LRR E | Lat: 46.0564540357 | Long: -110.640404241 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 in a flat area at the SW corner of the 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	3	☐	FAC
Bromus inermis	5	☐	UPL
Elymus repens	10	☑	FAC
Equisetum arvense	15	☑	FAC
Leymus cinereus	10	☑	FAC
Phalaris arundinacea	3	☐	FACW
Phleum pratense	30	☑	FAC
Poa pratensis	10	☑	FAC
Taraxacum officinale	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 11

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	3	X 2	6
FAC species	78	X 3	234
FACU species	5	X 4	20
UPL species	5	X 5	25
Column Totals	91	(A)	285 (B)

Prevalence Index = B/A = 3.13187

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-10	10YR 3/2	100					Silty Clay	
10-16	10YR 3/2	100					Sandy Loam	**Gravels, bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Although a positive FAC-Neutral test was observed a secondary indicator is not present to demonstrate wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): J Trilling | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Excavated depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 46.0564856221 | Long: -110.640273281 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 in the SW corner of the 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)

Alnus incana	10	☑	FACW
Populus balsamifera	15	☑	FAC
Salix boothii	10	☑	FACW
Salix exigua	5	☐	FACW
Salix lutea	10	☑	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Carex aquatilis	3	☐	OBL
Carex nebrascensis	5	☐	OBL
Eleocharis palustris	5	☐	OBL
Juncus balticus	25	☑	FACW
Lotus corniculatus	20	☑	FAC
Poa palustris	5	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 37

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	23	X 1	23
FACW species	50	X 2	100
FAC species	40	X 3	120
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	113 (A)		243 (B)

Prevalence Index = B/A = 2.15044

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrophytic vegetation community.

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
0-04	10YR 3/2	97	7.5YR 4/6	3	C	M,PL	Clay	
04-16	10YR 3/2	97	7.5YR 4/6	3	C	M,PL	Sandy Clay Loam	**Cobbles throughout**
16+							Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 in matrix and along live pore linings 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

The point's geomorphic position, saturation to the soil surface, oxidized rhizospheres along living roots, and a positive FAC-neutral test indicate wetland hydrology at this point.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0577640522 | Long: -110.639542406 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 excavated cells, roughly half a foot higher in elevation than DP06-w

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	20	☑	FAC
Lotus corniculatus	5	☐	FAC
Phleum pratense	50	☑	FAC
Poa pratensis	10	☐	FAC

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	85	X 3	255
FACU species	0	X 4	0
UPL species	10	X 5	50
Column Totals	95 (A)		305 (B)

Prevalence Index = B/A = 3.21053

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-06	7.5YR 3/2	100					Silty Clay Loam	**Fine roots throughout**
06-16	7.5YR 3/2	100					Silty Clay Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soil was dry at time of observation, and no evidence of wetland hydrology was present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP06w

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0578723469 | Long: -110.639643963 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 just N of the W portion of the access road that runs though the 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)

Populus balsamifera	4	☑	FAC
Salix bebbiana	1	☐	FACW
Salix lutea	3	☑	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	20	☑	FAC
Carex nebrascensis	1	☐	OBL
Cirsium arvense	1	☐	FAC
Juncus balticus	10	☐	FACW
Lotus corniculatus	55	☑	FAC
Poa pratensis	5	☐	FAC
Potentilla gracilis	3	☐	FAC
Scirpus microcarpus	2	☐	OBL
Stachys palustris	2	☐	NL

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	6	X 1	6
FACW species	11	X 2	22
FAC species	88	X 3	264
FACU species	0	X 4	0
UPL species	2	X 5	10
Column Totals	107 (A)		302 (B)

Prevalence Index = B/A = 2.82243

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:
A prevalence index below three and a positive dominance test indicate the presence of a hydrophytic vegetation community at this data point.

SOIL

Sampling Point: DP06w

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 3/1	100					Silty Clay Loam	
06-12	10YR 3/2	97	7.5YR 4/6	3	C	M	Sandy Clay Loam	
12+							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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 redox concentrations common within soil 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

A positive FAC-neutral test and the point's geomorphic position indicate wetland hydrology at this data point. Additionally, soils were moist at the time of observation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0592754441 | Long: -110.639419588 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 at the W central portion of the 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 ciliatus	5	☐	FAC
Elymus repens	15	☑	FAC
Phleum pratense	30	☑	FAC
Poa pratensis	20	☑	FAC

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: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	70	X 3	210
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	70 (A)		210 (B)

Prevalence Index = B/A = 3

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-06	10YR 3/2	100					Silt Loam	
06-12	10YR 3/2	100					Sandy Clay Loam	**Gravelly**
12+							Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soils were dry at time of observation, and no evidence of wetland hydrology was present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0591753665 | Long: -110.639463743 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 within a depressional area at the W central portion of the 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)

Populus balsamifera	7	☑	FAC
Salix exigua	2	☑	FACW
Salix lutea	1	☐	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Carex pachystachya	1	☐	FAC
Carex pellita	3	☐	OBL
Carum carvi	4	☐	FACU
Elymus repens	5	☐	FAC
Juncus balticus	20	☑	FACW
Lotus corniculatus	50	☑	FAC
Medicago lupulina	2	☐	FACU
Taraxacum officinale	15	☐	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: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	4	X 1	4
FACW species	22	X 2	44
FAC species	63	X 3	189
FACU species	21	X 4	84
UPL species	0	X 5	0
Column Totals	110 (A)		321 (B)

Prevalence Index = B/A = 2.91818

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrophytic vegetation community.

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
0-14	7.5YR 3/2	96	10YR 4/6	5	C	M	Sandy Clay Loam	**Gravels, cobbles**
14+							Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 redox concentrations common thoughout soil martix.

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)
- ☐ Surface Soil Cracks (B6)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soil was observed to be moist, a positive FAC-neutral test and the point's geomorphic position indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Low terrace | Local relief (concave, convex, none): flat | Slope (%): 5

Subregion (LRR): LRR E | Lat: 46.0598096428 | Long: -110.639133156 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 about 0.75 feet above DP08-w.

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	2	☐	UPL
Carum carvi	15	☐	FACU
Elymus repens	25	☑	FAC
Lotus corniculatus	30	☑	FAC
Phleum pratense	10	☐	FAC
Potentilla gracilis	3	☐	FAC
Taraxacum officinale	15	☐	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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	68	X 3	204
FACU species	30	X 4	120
UPL species	2	X 5	10
Column Totals	100 (A)		334 (B)

Prevalence Index = B/A = 3.34

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-04	10YR 3/2	100					Clay Loam	**Dense fine roots**
04-14	10YR 3/2	100					Clay Loam	**Cobbles throughout**
14+							Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed. Soils were dry at time of observation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0598657264 | Long: -110.639097415 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 in a small depressional area at the N central portion of the 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)

Populus balsamifera	30	☑	FAC
Salix exigua	1	☐	FACW
Salix lutea	4	☐	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Elymus repens	1	☐	FAC
Juncus balticus	18	☑	FACW
Lotus corniculatus	50	☑	FAC
Poa palustris	1	☐	FAC

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: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	4	X 1	4
FACW species	19	X 2	38
FAC species	82	X 3	246
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	105 (A)		288 (B)

Prevalence Index = B/A = 2.74286

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:
A prevalence index below three and a positive dominance test indicate the presence of a hydrophytic vegetation community.

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
0-06	2.5Y 4/1	98	10YR 4/6	2	C	PL	Clay Loam	**Gravels, cobbles**
06+							Gravel/Cobbles	**Rock 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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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 redox concentrations along dead root pores were common thoughtout 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soil was observed to be moist. A positive FAC-neutral test and the geomorphic position of the point indicate the presence of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

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

Subregion (LRR): LRR E | Lat: 46.0606349516 | Long: -110.639081156 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: PEM

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 data point is located about 3 feet above DP09-w, between two excavated cells.

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)

Elymus repens	65	☑	FAC
Poa pratensis	20	☑	FAC

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	85	X 3	255
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	85 (A)		255 (B)

Prevalence Index = B/A = 3

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:
Although marginal hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-02	7.5YR 2.5/2	100					Silt Loam	**Dense fine roots**
02-16	7.5YR 2.5/2	100					Silt Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Although the soil was moist in this profile, no evidence of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Floodplain/overflow channel | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRR E | Lat: 46.0606328143 | Long: -110.639149637 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | NWI classification: PEM

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 in the overflow channel at the NW portion of the 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)

Alnus incana	15	☑	FACW
Salix drummondiana	3	☐	FACW
Salix lutea	7	☑	OBL

Herbaceous Stratum Plot size (5 Foot Radius)

Carex pellita	10	☐	OBL
Carex utriculata	10	☐	OBL
Cirsium arvense	3	☐	FAC
Juncus balticus	15	☑	FACW
Phleum pratense	2	☐	FAC
Poa palustris	2	☐	FAC
Scirpus microcarpus	30	☑	OBL
Typha latifolia	8	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 17

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	65	X 1	65
FACW species	33	X 2	66
FAC species	7	X 3	21
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	105 (A)		152 (B)

Prevalence Index = B/A = 1.44762

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:
A positive dominance test and a prevalence index below three indicate the presence of a hydrophytic vegetation community.

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
0-02	2.5Y 3/2	100					Muck/Fibric	**Greasy, high OM**
02-16	2.5Y 4/1	93	2.5Y 4/6	7	C	M	Silty Clay Loam	**Moist, high OM, bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

Hydric soil is indicated by a depleted matrix and a hydrogen sulfide odor. 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Wetland hydrology at this point is indicated by saturation to the soil surface, hydrogen sulfide odor, a positive FAC-neutral test, the point's geomorphic position and drainage patterns. The drainage pattern is to the S/SE and down gradient, where vegetation is laid flat from flowing water.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): Berm | Local relief (concave, convex, none): convex | Slope (%): 50

Subregion (LRR): LRR E | Lat: 46.0597930731 | Long: -110.637586437 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 located about 2.5 feet higher in elevation than DP10w

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Populus balsamifera	40	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	45	☑	UPL
Cirsium arvense	5	☐	FAC
Lotus corniculatus	15	☑	FAC
Medicago lupulina	2	☐	FACU
Phleum pratense	15	☑	FAC
Poa pratensis	14	☐	FAC
Populus balsamifera	2	☐	FAC
Taraxacum officinale	10	☐	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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	91	X 3	273
FACU species	12	X 4	48
UPL species	45	X 5	225
Column Totals	148 (A)		546 (B)

Prevalence Index = B/A = 3.68919

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:
Although weak evidence of hydrophytic vegetation was observed, the data point lacked evidence of hydric soil development and is not supported by wetland hydrology (1987 COE Wetland Delineation Manual).

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
0-02	10YR 3/1	100					Loam	**Dense fine roots**
02-16	10YR 3/1	100					Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Soils in this profile were noted to be dry. No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton Ranch | City/County: Park | Sampling Date: 7/19/2022

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

Investigator(s): S Weyant | Section, Township, Range: S 32 T 4N R 9E

Landform (hillslope, terrace, etc.): toeslope/floodplain | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): LRR E | Lat: 46.0598539372 | Long: -110.637616143 | Datum: NAD 83

Soil Map Unit Name: 155A: Meadowcreek, rarely flooded--Nesda complex, 0 to 2 percent slop | 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 near the property boundary at the NW portion of the 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)

Populus balsamifera	25	☑	FAC

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	5	☐	UPL
Carum carvi	20	☑	FACU
Lotus corniculatus	50	☑	FAC
Poa pratensis	10	☐	FAC
Taraxacum officinale	15	☐	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: 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	0	X 1	0
FACW species	0	X 2	0
FAC species	85	X 3	255
FACU species	35	X 4	140
UPL species	5	X 5	25
Column Totals	125 (A)		420 (B)

Prevalence Index = B/A = 3.36

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:
A positive dominance test indicates the presence of hydrophytic vegetation.

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
0-06	10YR 3/2	95	7.5YR 5/6	5	C	PL	Loam	**Fine roots to 3 inches.**
06-16	2.5Y 4/2	92	10YR 3/6	8	C	M	Sandy Loam	**Bottom of pit**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

Oxidized rhizospheres along living roots and the point's geomorphic position indicate the presence of wetland hydrology at this data point.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Easton Ranch **2. MDT project#** STPP STWD (813) **Control#** 9680000

3. Evaluation Date 7/19/2022 **4. Evaluators** J Trilling, S Weyant **5. Wetland/Site# (s)** Creation

6. Wetland Location(s): **T** 4N **R** 9E **Sec1** 32 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 13 - Upper Yellowstone **Watershed/County** Park

7. Evaluating Agency Confluence Consulting

8. Wetland size acres 13.24

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 13.24

☐ **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
Riverine	Emergent Wetland	Excavated	Seasonal/Intermittent	69
Depressional	Aquatic Bed	Excavated	Seasonal/Intermittent	1
Riverine	Scrub-Shrub Wetland	Excavated	Seasonal/Intermittent	30

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)

Limited agriculture (hay) and a few ranch structures to the east. Undeveloped riparian corridor and herbaceous uplands to north, south, and west. A new house was built west of the Shield River on an upland terrace. Two species of noxious weeds were present within the AA. The AA is managed in a natural state, as are most of the lands within 500 feet of the AA.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense and Cynoglossum officinale

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

The AA consists of five constructed wetland cells. The lowest contours of the wetland cells are seasonally inundated and have developed wetland characteristics. The majority of higher elevations within the site lack wetland characteristics and support upland plant communities. The cells are bordered by limited agriculture (hay and food plots) and an undeveloped riparian corridor.

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: The AA consists of palustrine emergent wetlands (PEM), scrub-shrub (young PSS) and an aquatic bed at the east central portion of the AA. A slight increase in PSS wetlands was documented in 2022.

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	Canada Lynx (LT), North American Wolverine (PT)
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 2022

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	Bobolink (S3B)
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	◉ D ○ S	Golden Eagle (S3)
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 MTNHP, 2013 and 2019-2022 field observations. Bobolink nesting on site documented by MDT staff. Golden Eagle was observed soaring above project area 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 There is a bald eagle (Haliaeetus leucocephalus) nest directly southwest of the site on the west side of the Shields River, the project site is within the primary habitat zone for bald eagles. In 2022 observed white-tailed deer, tadpoles and many bird species.

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**

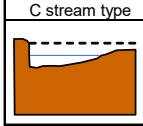
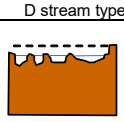
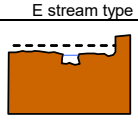
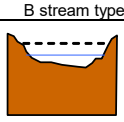
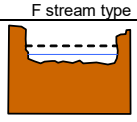
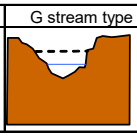
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

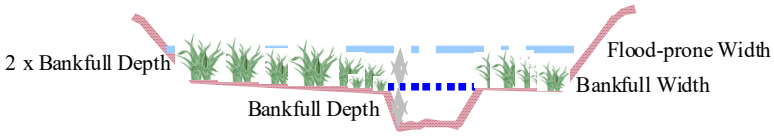
iii. Final Score and Rating: 0 NA **Comments:** Wetland cells are isolated from Shields River with no fish habitat present.

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 133 / **Bankfull width** 28 = **Entrenchment ratio** 4.75

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: AA receives overbank flow from Shields River during high flow events.

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	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: (13.24 acre wetland) * (1 ft. max depth at highwater) = 13.24 acre feet

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: There was evidence of ponding and flooding in 2022. Many of the low lying areas were saturated during the monitoring event.

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: One small open water area in the east central portion of the project area was observed in 2022. Deep-rooted species observed in 2022 include willows, bulrush, spikerush, sedges, and rushes.

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: Vegetated area greater than 5 acres with moderate level of biological activity and seasonal hydrology.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ 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
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [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: Soil saturated to surface across most of the constructed wetlands in 2022.

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: Trees and shrubs are establishing well across the AA, a slight increase in PSS wetlands was observed in 2022. Site disturbance is low.

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:

Landowner does not allow public access or educational use of the site.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Creation

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	1.32	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	11.92	☑
C. General Wildlife Habitat	H	.9	1	11.92	☑
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	H	.8	1	10.59	☐
F. Short and Long Term Surface Water Storage	H	.8	1	10.59	☑
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	11.92	☑
H. Sediment/Shoreline Stabilization	H	.9	1	11.92	☐
I. Production Export/Food Chain Support	H	.8	1	10.59	☐
J. Groundwater Discharge/Recharge	M	.7	1	9.27	☐
K. Uniqueness	M	.6	1	7.94	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0.00	☐
Totals:		7.4	10	97.98	
Percent of Possible Score			**74** %		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Easton Ranch **2. MDT project#** STPP STWD (813) **Control#** 9680000

3. Evaluation Date 7/19/2022 **4. Evaluators** J Trilling, S Weyant **5. Wetland/Site# (s)** Preservation

6. Wetland Location(s): T 4N **R** 9E **Sec1** 32 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 13 - Upper Yellowstone **Watershed/County** Park

7. Evaluating Agency Confluence Consulting Inc

8. Wetland size acres 1.1

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 1.1

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☑ **Other** Preserved PSS/PFO/PEM Habitat

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Scrub-Shrub Wetland		Seasonal/Intermittent	10
Riverine	Forested Wetland		Seasonal/Intermittent	20
Riverine	Emergent Wetland		Seasonal/Intermittent	70

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)

AA consists of existing riverine PFO/PSS/PEM wetlands located adjacent to the created depressional wetlands and flood channel. AA and adjacent areas are managed in a natural state, disturbance is low.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense, Cynoglossum officinale

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA contains small areas of existing PFO/PSS/PEM wetlands located at the northwest (Shields River) and southcentral ends of the mitigation area. The existing PFO/PEM habitat located at the southern end of the AA receives direct hydrologic inputs from the created flood channel. Both wetland features are bordered by created wetlands and the Shields River riparian corridor.

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: PEM, PFO and PSS vegetated communties are present on site.

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	Canada Lynx (LT), North American Wolverine (PT)
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 2022

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	Bobolink (S3B)
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	◉ D ○ S	Golden Eagle (S3)
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 MTNHP, 2013 and 2019-2022 field observations. Bobolink nesting on site documented by MDT staff. Golden Eagle was observed soaring above project area 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 Moderate use of site by moose, deer, Golden Eagle, and other avian species. There is a bald eagle (Haliaeetus leucocephalus) nest directly southwest of the site on the west side of the Shields River but it was not occupied during the 2022 monitoring event. The project site is within the primary habitat zone for bald eagles.

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**

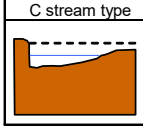
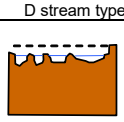
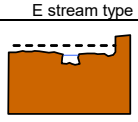
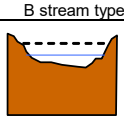
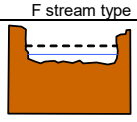
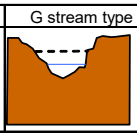
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

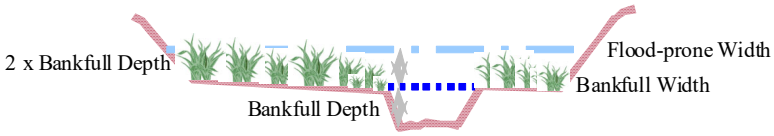
iii. Final Score and Rating: 0 NA **Comments:** No fish habitat within AA.

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 133 / **Bankfull width** 28 = **Entrenchment ratio** 4.75

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: Approximately 30% of the preservation AA contains PFO and/or PSS wetland with surface water outlet to the south into relict channel that empties into the nearby Shields River. The Shields River is slightly entrenched at this location.

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	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: (1.10 acre of preserved wetland) x (approximate average of 1.0 ft. of inundation during high water) = 1.10 acre feet

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: Hydrophytic vegetation cover exceeds 70%. AA contains restricted outlet.

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: No shoreline in the project area.

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** .9H

Comments: A restricted surface water outlet is present to the south.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ 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
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [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: Shallow groundwater table documented at the northern and southern portions of the AA during 2022.

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: Site disturbance is low and structural diversity is high.

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:

Landowner does not allow public access or educational use of the site.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Preservation

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	0.11	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	0.99	☑
C. General Wildlife Habitat	H	.9	1	0.99	☑
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	H	.9	1	0.99	☑
F. Short and Long Term Surface Water Storage	M	.6	1	0.66	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	1.10	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	☐
I. Production Export/Food Chain Support	H	.9	1	0.99	☐
J. Groundwater Discharge/Recharge	M	.7	1	0.77	☐
K. Uniqueness	M	.6	1	0.66	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0.00	☐
Totals:		6.6	9	7.26	
Percent of Possible Score			**73.33** %		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Easton Ranch **2. MDT project#** STPP STWD (813) **Control#** 9680000

3. Evaluation Date 7/19/2022 **4. Evaluators** J Trilling, S Weyant **5. Wetland/Site# (s)** Restoration

6. Wetland Location(s): **T** 4N **R** 9E **Sec1** 32 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 13 - Upper Yellowstone **Watershed/County** Park

7. Evaluating Agency Confluence Consulting Inc

8. Wetland size acres 1.64

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 1.64

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☑ **Other** Restored channel

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland	Excavated	Seasonal/Intermittent	93
Riverine	Scrub-Shrub Wetland	Excavated	Seasonal/Intermittent	7

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)

Limited agriculture (hay) and ranch structures to the east. Undeveloped riparian corridor and herbaceous uplands to north, south, and west. Two species of noxious weeds present within the AA. The AA is managed in a natural state, as are most of the lands within 500 feet of the AA.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense, Cynoglossum officinale

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

The AA consists of one constructed secondary stream channel which bisects the mitigation area. The channel is active during high flow events, is seasonally inundated by shallow ground water early in the growing season, and has developed wetland characteristics.

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: Planted shrubs along channel are surviving and establishing well. Cottonwood and willow seedlings/root suckers were noted along the channel.

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	Canada Lynx (LT), North American Wolverine (PT)
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 2022

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	Bobolink (S3B)
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	◉ D ○ S	Golden Eagle (S3)
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 MTNHP, 2013 and 2019-2022 field observations. Bobolink nesting on site documented by MDT staff. Golden Eagle was observed soaring above project area 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 AA has frequent deer and moose sightings. Food plots located adjacent/east of the project boundary provide supplemental food for wildlife. There is a Bald Eagle nest directly southwest of the site. This nest was not occupied in 2022 but a Golden Eagle was observed soaring above the project area.

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**

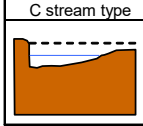
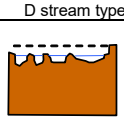
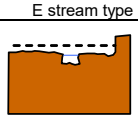
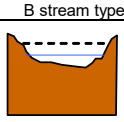
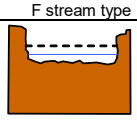
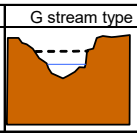
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

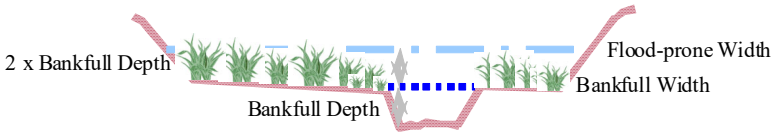
iii. Final Score and Rating: 0 NA **Comments:** Although activated during high-flow events within the Shields River, no permanent fish habitat is present within AA.

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 133 / **Bankfull width** 28 = **Entrenchment ratio** 4.75

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: Outlet is restricted. AA subject to overflow from Shields River and empties into old meanders of the Shields River at the south end of AA. 9% of AA is classified as scrub/shrub.

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	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: (1.64 acre of restoration) x (average 1 ft. ponding/flow at high water) = 1.64 acre feet

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: Cover in AA is greater than 70% and outlet is topographically restricted.

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: Increased vegetation development from 2013 to 2022 of species with high stability ratings including Salix, Populus, Carex, and Juncus species.

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** .7M

Comments: Channel is seasonally inundated and has a restricted outlet at the southern end of the mitigation site.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ 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
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [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: Channel is intermittently inundated by shallow groundwater and high flows from the Shields River.

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 wetland within seasonal flood channel. Common wetland type within basin with 10-50% of area wetlands similar to this one.

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:

Landowner does not allow public access or educational use of the site.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Restoration

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	0.16	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	1.48	☑
C. General Wildlife Habitat	M	.7	1	1.15	☑
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	M	.6	1	0.98	☐
F. Short and Long Term Surface Water Storage	M	.6	1	0.98	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	1.64	☑
H. Sediment/Shoreline Stabilization	H	.9	1	1.48	☑
I. Production Export/Food Chain Support	M	.7	1	1.15	☐
J. Groundwater Discharge/Recharge	M	.7	1	1.15	☐
K. Uniqueness	M	.4	1	0.66	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0.00	☐
Totals:		6.6	10	10.82	
Percent of Possible Score			**66** %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☐ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☑ 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. Easton Ranch Wetland Mitigation Site. Comprehensive Vegetation Species List 2010 – 2022

Scientific Names	Common Names	WMVC Indicator Status[1]
Achillea millefolium	Common Yarrow	FACU
Agrostis gigantea	Black Bent	FAC
Agrostis stolonifera	Spreading Bent	FAC
Algae, green	Algae, green	NA
Alisma gramineum	Narrow-Leaf Water-Plantain	OBL
Alnus incana	Speckled Alder	FACW
Alopecurus geniculatus	Marsh Meadow-Foxtail	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FAC
Alopecurus pratensis	Field Meadow-Foxtail	FAC
Alyssum alyssoides	Pale Alyssum	UPL
Amaranthus retroflexus	Red-Root	FACU
Arctium sp.	Burrdock	UPL
Asclepias speciosa	Showy Milkweed	FAC
Astragalus cicer	Cicer Milkvetch	UPL
Avena fatua	Wild Oats	UPL
Bassia scoparia	Mexican-Fireweed	FAC
Beckmannia syzigachne	American Slough Grass	OBL
Berteroa incana	Hoary False Alyssum	UPL
Bidens cernua	Nodding Burr-Marigold	OBL
Brassica kaber	Brassica kaber	UPL
Brassica napus	Turnip	UPL
Bromus arvensis	Field Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus ciliatus	Fringed Brome	FAC
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Calamagrostis canadensis	Bluejoint	FACW
Camelina microcarpa	Little-Pod False Flax	FACU
Carduus nutans	Nodding Plumeless-Thistle	UPL
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex atherodes	Wheat Sedge	OBL
Carex aurea	Golden-Fruit Sedge	FACW
Carex bebbii	Bebb's Sedge	OBL
Carex limosa	Mud Sedge	OBL
Carex microptera	Small-winged Sedge	FACU
Carex nebrascensis	Nebraska Sedge	OBL
Carex pachystachya	Thick-Head Sedge	FAC
Carex parryana	Parry's Sedge	FACW
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex rostrata	Swollen Beaked Sedge	OBL
Carex scoparia	Pointed Broom Sedge	FACW
Carex sp.	Sedge	NA
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL

Scientific Names	Common Names	WMVC Indicator Status[1]
Carex vesicaria	Lesser Bladder Sedge	OBL
Carum carvi	Caraway	FACU
Cassiope mertensiana	Western Moss-Heather	FACU
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium leptophyllum	Narrow-Leaf Goosefoot	FACU
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium douglasii	Douglas' Thistle	OBL
Cirsium vulgare	Bull Thistle	FACU
Conium maculatum	Poison-Hemlock	FAC
Convolvulus arvensis	Field Bindweed	UPL
Cornus alba	Red Osier	FACW
Cynoglossum officinale	Gypsy-Flower	FACU
Dactylis glomerata	Orchard Grass	FACU
Dasiphora fruticosa	Golden-Hardhack	FAC
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Herb Sophia	UPL
Dracocephalum sp.	Dragonhead	UPL
Eleocharis palustris	Common Spike-Rush	OBL
Elodea sp.	Waterweed	NA
Elymus repens	Creeping Wild Rye	FAC
Elymus sp.	Wild Rye	NA
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum arvense	Field Horsetail	FAC
Equisetum hyemale	Tall Scouring-Rush	FACW
Equisetum laevigatum	Smooth Scouring-Rush	FACW
Fragaria virginiana	Virginia Strawberry	FACU
Galium palustre	Common Marsh Bedstraw	OBL
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria elata	Tall Manna Grass	FACW
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Glycyrrhiza lepidota	American Licorice	FAC
Helianthus annuus	Common Sunflower	FACU
Hippuris vulgaris	**Common Mare's-Tail**	**OBL**
Hordeum jubatum	Fox-Tail Barley	FAC
Juncus balticus	Baltic Rush	FACW
Juncus bufonius	Toad Rush	FACW
Juncus effusus	Lamp Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus longistylis	Long-Style Rush	FACW
Juncus nevadensis	Sierran Rush	FACW
Juncus tenuis	Lesser Poverty Rush	FAC
Juncus torreyi	Torrey's Rush	FACW
Lappula occidentalis	Flatspine Stickseed	UPL
Larix occidentalis	Western Larch	FACU

Scientific Names	Common Names	WMVC Indicator Status[1]
Lepidium campestre	Field Pepperweed	UPL
Lepidium perfoliatum	Clasping Pepperwort	FACU
Leymus cinereus	Great Basin Lyme Grass	FAC
Lotus corniculatus	Garden Bird's-Foot-Trefoil	FAC
Lupinus argenteus	Silvery Lupine	UPL
Lycopus asper	Rough Water-Horehound	OBL
Lysimachia ciliata	Fringed Yellow-Loosestrife	FACW
Medicago lupulina	Black Medick	FACU
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Mimulus guttatus	Seep Monkey-Flower	OBL
Myriophyllum sp.	Water-Milfoil	NA
Panicum miliaceum	Proso Millet	UPL
Pascopyrum smithii	Western-Wheat Grass	FACU
Persicaria amphibia	Water Smartweed	OBL
Persicaria lapathifolia	Dock-Leaf Smartweed	FACW
Persicaria maculosa	Spotted Lady's-Thumb	FACW
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Plantago major	Great Plantain	FAC
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Polypogon monspeliensis	Annual Rabbit's-Foot Grass	FACW
Polypogon viridis	Beardless Rabbit's-Foot Grass	FACW
Populus angustifolia	Narrow-Leaf Cottonwood	FACW
Populus balsamifera	Balsam Poplar	FAC
Populus tremuloides	Quaking Aspen	FACU
Potamogeton gramineus	Grassy Pondweed	OBL
Potamogeton praelongus	White-Stem Pondweed	OBL
Potentilla anserina	Silverweed	OBL
Potentilla gracilis	Graceful Cinquefoil	FAC
Prunus virginiana	Choke Cherry	FACU
Pseudoroegneria spicata	Bluebunch Wheatgrass	UPL
Ranunculus aquatilis	White Water-Crowfoot	OBL
Ranunculus gmelinii	**Lesser Yellow Water Buttercup**	FACW
Ranunculus macounii	Macoun's Buttercup	OBL
Rhamnus alnifolia	Alder-Leaf Buckthorn	FACW
Ribes inerme	White-Stem Gooseberry	FAC
Ribes lacustre	Bristly Black Gooseberry	FAC
Rosa woodsii	Woods' Rose	FACU
Rumex crispus	Curly Dock	FAC
Rumex salicifolius	Willow Dock	FACW
Ruppia maritima	Beaked Ditch-Grass	OBL
Salix amygdaloides	Peach-Leaf Willow	FACW
Salix bebbiana	Gray Willow	FACW

Scientific Names	Common Names	WMVC Indicator Status[1]
Salix boothii	Booth's Willow	FACW
Salix drummondiana	Drummond's Willow	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix lasiandra	Pacific Willow	FACW
Salix lutea	Yellow Willow	OBL
Schedonorus arundinaceus	Tall False Rye Grass	FAC
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenoplectus pungens	Three-square	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Scirpus pallidus	Pale Bulrush	OBL
Scutellaria galericulata	Hooded Skullcap	OBL
Scutellaria lateriflora	Mad Dog Skullcap	FACW
Silene latifolia	White Cockle or Campion	UPL
Sinapis arvensis	Corn Mustard	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sisymbrium loeselii	Small Hedge Mustard	UPL
Sisyrinchium idahoense	Idaho Blue-eyed-Grass	FACW
Sisyrinchium montanum	Strict Blue-eyed-Grass	FAC
Solidago canadensis	Canadian Goldenrod	FACU
Solidago gigantea	Late Goldenrod	FACW
Sonchus arvensis	Field Sow-Thistle	FACU
Stachys pilosa	Hairy Hedge-Nettle	FACW
Stellaria graminea	Grass-Leaf Starwort	FACU
Symphoricarpos albus	Common Snowberry	FACU
Symphyotrichum subspicatum	Leafy-Bract American-Aster	FACW
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium arvense	Rabbit-foot Clover	UPL
Trifolium hybridum	Alsike Clover	FAC
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Triglochin maritima	Seaside Arrow-Grass	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Urtica dioica	Stinging Nettle	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica scutellata	Grass-Leaf Speedwell	OBL
Vicia americana	American Purple Vetch	FAC
Xanthium strumarium	Rough Cockleburr	FAC

[1] 2020 NWPL (USACE 2020)

New species identified in 2022 are **bolded.**

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Easton Ranch
Park County, Montana

Easton Ranch: Photo Point Photos



Photo Point: 1 Location: East Boundary
Bearing: 250 degrees Year: 2010



Photo Point: 1 Location: East Boundary
Bearing: 250 degrees Year: 2022



Photo Point: 2 Location: Northeast Corner
Bearing: 200 degrees Year: 2010



Photo Point: 2 Location: Northeast Corner
Bearing: 200 degrees Year: 2022



Photo Point: 3 Location: Northwest Corner
Bearing: 100 degrees Year: 2010



Photo Point: 3 Location: Northwest Corner
Bearing: 100 degrees Year: 2022

Easton Ranch: Photo Point Photos



Photo Point: 4A
Bearing: 170 degrees
Location: Shields Bank DS
Year: 2010



Photo Point: 4A
Bearing: 170 degrees
Location: Shields Bank DS
Year: 2022



Photo Point: 4B
Bearing: 20 degrees
Location: Shields Bank US
Year: 2010



Photo Point: 4B
Bearing: 20 degrees
Location: Shields Bank US
Year: 2022 – 2021 location*



Photo Point: 5
Bearing: 90 degrees
Location: West Boundary
Year: 2010



Photo Point: 5
Bearing: 90 degrees
Location: West Boundary
Year: 2022

* new (2021) photo point location due to bank loss during high flows in 2018.

Easton Ranch: Photo Point Photos



Photo Point: 6 Location: Southwest Corner
Bearing: 0 degrees Year: 2010



Photo Point: 6 Location: Southwest Corner
Bearing: 0 degrees Year: 2022



Photo Point: 7 Location: Southeast Corner
Bearing: 340 degrees Year: 2010



Photo Point: 7 Location: Southeast Corner
Bearing: 340 degrees Year: 2022

Easton Ranch: Transect Photos



Transect 1: Start Location: Veg Com 8 foreground
Bearing: 5 degrees Year: 2010



Transect 1: Start Location: Veg Com 21 foreground
Bearing: 5 degrees Year: 2022



Transect 1: End Location: Veg Com 8 foreground
Bearing: 185 degrees Year: 2010



Transect 1: End Location: Veg Com 10 foreground
Bearing: 185 degrees Year: 2022



Transect 2: Start Location: Veg Com 1 foreground
Bearing: 185 degrees Year: 2010



Transect 2: Start Location: Veg Com 3 foreground
Bearing: 185 degrees Year: 2022

Easton Ranch: Transect Photos



Transect 2: End Location: Veg Com 1 foreground
Bearing: 0 degrees Year: 2010



Transect 2: End Location: Veg Com 13 foreground
Bearing: 0 degrees Year: 2022



Transect 3: Start Location: Veg Com 1 foreground
Bearing: 95 degrees Year: 2010



Transect 3: Start Location: Veg Com 13 foreground
Bearing: 95 degrees Year: 2022



Transect 3: End Location: Veg Com 1 foreground
Bearing: 265 degrees Year: 2010



Transect 3: End Location: Veg Com 1 foreground
Bearing: 265 degrees Year: 2022

Easton Ranch: Data Point Photos



Data Point: DP01w Location: Veg Com 15
Year: 2022



Data Point: DP01u Location: Veg Com 18
Year: 2022



Data Point: DP02w Location: Veg Com 11
Year: 2022



Data Point: DP02u Location: Veg Com 1
Year: 2022



Data Point: DP03w Location: Veg Com 11
Year: 2022



Data Point: DP03u Location: Veg Com 1
Year: 2022

Easton Ranch: Data Point Photos



Data Point: DP04w Location: Veg Com 5
Year: 2022



Data Point: DP04u Location: Veg Com 1
Year: 2022



Data Point: DP05w Location: Veg Com 14
Year: 2022



Data Point: DP05u Location: Veg Com 13
Year: 2022



Data Point: DP06w Location: Veg Com 14
Year: 2022



Data Point: DP06u Location: Veg Com 13
Year: 2022

Easton Ranch: Data Point Photos



Data Point: DP07w Location: Veg Com 11
Year: 2022



Data Point: DP07u Location: Veg Com 16
Year: 2022



Data Point: DP08w Location: Veg Com 14
Year: 2022



Data Point: DP08u Location: Veg Com 18
Year: 2022



Data Point: DP09w Location: Veg Com 21
Year: 2022



Data Point: DP09u Location: Veg Com 1
Year: 2022

Easton Ranch: Data Point Photos



Data Point: DP10w Location: Veg Com 20
Year: 2022



Data Point: DP10u Location: Veg Com 1
Year: 2022