Montana Department of Transportation Wetland Mitigation Monitoring Report

KINDSFATER MITIGATION SITE

Project Overview

MDT Project Number: STPX 56 (56) UPN # 5034

Watershed: Watershed #13 – Upper Yellowstone River Basin

Monitoring Year: 2022

Years Monitored: 10th year of monitoring

Corps Permit Number: NWO-2007-00824-MTB

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: June 21-22, 2022

Purpose of the Approved Project:

The site is intended to provide 32.7 acres of wetland mitigation credits to assist the Montana Department of Transportation (MDT) in meeting compensatory mitigation requirements for proposed construction projects in Watershed #13 – Upper Yellowstone. The objectives of this project include the creation, restoration, enhancement, and preservation of wetland habitat within the historic Kindsfater gravel pit. Construction included excavating 14 wetland cells to shallow groundwater elevation that range in size from 0.24 to 1.39 acres.

Site Location:

Latitude: 45.693478 **Longitude:** –108.693517

County: Yellowstone **Nearest Town:** Laurel, MT

Map Included: See Figure 2, page 10

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

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

Activity: Weed spraying was conducted in October 2021 but not in 2022.

Specific recommendations for additional corrective actions: Fence by the green access gate at the SW portion of the site is down and needs repair.

Anticipated Wetland Credit Acres: 32.7

Wetland Credit Acres Generated to Date: 24.7

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

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

Requirements (from approved mitigation plan, banking instrument, and US Army Corps of Engineers (USACE) permit conditions)

Performance Standards: A summary of performance standards established for the Kindsfater site and a discussion of achievement status for each criterion are provided in Table 1. In 2022, the site achieved 13 of the 14 success criteria.

Table 1. Summary of Performance Standards

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils are met as outlined in the 1987 Wetland Manual and 2010 Regional Supplement.	Y	Areas identified as wetland habitat within the mitigation site meet the three-parameter criteria, as documented in the USACE wetland determination data forms (Appendix B).
Wetland Hydrology	Soil saturation present for at least 12.5 percent of the growing season.	Y	Areas identified as wetland habitat within the mitigation site exhibit soil saturation for a minimum 12.5 percent of the growing season, as documented by areas of inundation shown in aerial imagery and in the USACE wetland determination data forms (Appendix A and B).
Hydric Soil	Hydric soil conditions present or appear to be forming.	Y	The constructed wetland complex exhibits hydric soil development, with redoximorphic features and the presence of other prominent hydric soil indicators observed within many of the excavated depressions.
	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 and expand across disturbed soils.
Hydrophytic Vegetation	Achieved when hydrophytic vegetation is dominant, per technical guidelines outlined in the 1987 Wetland Manual and 2010 Regional Supplement.	Y	Areas identified as wetland habitat within the mitigation site support a prevalence of hydrophytic vegetation (OBL, FACW, and FAC) as documented in the USACE wetland determination data forms (Appendix B).
	Noxious weeds do not exceed 5 percent cover.	Y	Although several noxious weed infestations have been mapped across the site, these infestations are generally located outside of excavated wetlands. Overall, the estimated noxious weed cover within delineated wetlands is less than 5 percent.
	Hydrophytic vegetation success will include achieving a minimum overall vegetation cover of 80 percent in created wetland areas within 5 years following site construction.	Y	The majority of created wetlands exhibited 80 percent hydrophytic vegetation cover during the 2022 monitoring event. All wetlands that were designed to provide 80 percent vegetative cover are currently achieving that performance standard.
Woody Plants	Plantings will be considered successful where they exceed 50 percent survival after 5 years.	N	Approximately 14 percent of the woody plantings observed were alive in 2022, which does not meet the 50 percent survival criteria. However, volunteer woody cover within wetland cells 13 and 14 exhibited a cover class of 5 (>50 percent), and within wetland cell 9 a cover class of 4 (21-50 percent). Total aerial cover of woody species within wetlands is approximately 35%.
Open-Water Areas	Open water that is established within the designated wetland cells will be considered successful and creditable.	Y	Open water areas, with less than 5 percent vegetative cover, were mapped within cells 1, 2, and 3. Shallow ponded water areas, with greater than 5 percent vegetative cover, were also observed on site within many of the other wetland cells. Overall water depths ranged from 1 to 36 inches deep. A variety of herbaceous and woody hydrophytic species comprised the vegetated areas.
Upland Buffer	Success will be achieved when noxious weeds do not exceed 5 percent cover within the buffer areas on site.	Y	Noxious weed cover was less than 5 percent within upland buffer areas, including infestations of field bindweed, leafy spurge, and Canada thistle. MDT will continue to implement weed-control measures to maintain this criterion.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Upland Buffer	Any area disturbed within creditable buffer zones must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.	Y	Upland buffers surrounding wetland areas exhibited greater than 50 percent aerial cover of non-weed species.
Weed Control	Success will be achieved where <5 percent absolute cover of noxious weed species occurs across the site.	Y	The absolute cover of state-listed noxious weed species across the entire site was estimated at less than 5 percent in 2022. Field bindweed infestations were the most prevalent noxious weed occurrences observed during the 2022 monitoring event.
Fencing	Install wildlife-friendly fencing along the easement boundaries.	Y	Wildlife-friendly fencing has been installed around the easement boundaries and is in good condition.

Summary Data

Wetland Delineation – The wetland acreage continued to tend upwards in 2022 due to improved hydrology across the site. The total wetland acreage delineated in 2022 (including preexisting wetland areas) was 39.2 acres, which is a 1.7-acre increase from the 2021 acreage (37.5 acres). The most significant increase in wetland acreage occurred within the reestablishment (restoration) areas, with an additional 0.8 acres delineated in 2022. The delineation confirmed 19.1 acres in preservation areas, 11.2 acres in the restoration areas (reestablishment (10.1-acres) and rehabilitation (1.1-acres)), 3.0 acres in the enhancement area, and 5.9 acres of created wetland in the excavated cells (Table 2). 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 0.7-acre of the mitigation site in 2022 (Table 2). Uplands accounted for the remaining 75.8 acres of the mitigation site. USACE wetland determination data forms [USACE, 2010] are provided in Appendix B.

Table 2. Wetland & Aquatic Habitat Acreage Delineated From 2015 Through 2022 at the Kindsfater Site

Habitat Type	2015 Acreage	2016 Acreage	2017 Acreage	2018 Acreage	2019 Acreage	2020 Acreage	2021 Acreage	2022 Acreage
Preservation	21.3	20.3	20.5	17.6	17.4	18.4	18.8	19.1
Reestablishment (Restoration)	7.9	7.8	6.8	6.1	7.3	7.4	9.3	10.1
Rehabilitation (Restoration)	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1
Enhancement	3.0	3.4	3.0	3.0	2.9	2.9	3.0	3.0
Establishment (Creation)	1.8	2.0	2.2	4.7	4.7	4.9	5.3	5.9
Open Water	--	--	--	--	--	0.4	0.5	0.7
Total Wetland & Aquatic Habitat	**34.9**	**34.4**	**33.4**	**32.4**	**33.3**	**35.1**	**38.0**	**39.9**

Vegetation – A total of 152 plant species were identified on the site from 2013 through 2022, including six new species in 2022. However, *Juncus compressus* (round-fruit rush) was found to be misidentified as *Juncus gerardii* (saltmarsh rush) in previous years, and this error was corrected in 2022 (see plant list in Appendix B). Vegetation communities were identified by species composition and dominance. In 2022, significant shifts in upland and wetland vegetation communities were observed. Shifts in upland vegetation communities were primarily driven by the continued increase in cheatgrass (*Bromus tectorum*) cover. Consequently, a new community, Upland Type 18 – *Bromus tectorum* was created. This new community absorbed the old Upland Type 15 and much of Upland Type 14 communities in 2022. In addition, Wetland Types 10 and 3 were eliminated because *Poa palustris* (fowl blue grass) was nearly absent from the site in 2022. These communities were primarily absorbed into the new community Wetland Type 19 – *Alopecurus arundinaceus*. Some areas have combined vegetation communities such as Upland Communities 4/14 and 4/18 because a mosaic of two communities exits within an area and could not be individually mapped.

The following vegetation community types were identified in 2022:

- Upland Type 4 – *Elaeagnus angustifolia*
- Upland Type 14 – *Elymus* spp*./Bromus* spp*.*
- Upland Type 17 – *Bromus* spp*./Poa pratensis*
- Upland Type 18 – *Bromus tectorum*
- Wetland Type 2 – *Eleocharis palustris/Schoenoplectus* spp.
- Wetland Type 5 – *Typha latifolia*
- Wetland Type 8 – *Populus deltoides*
- Wetland Type 9 – *Salix exigua*
- Wetland Type 11 – *Phalaris arundinacea*
- Wetland Type 16 – *Juncus* spp*./Carex* spp*.*
- Wetland Type 19 – *Alopecurus arundinaceus*

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

Vegetation cover was measured along three transects in 2022 (Figure A-2, Appendix A). Details of each transect are provided in the Wetland Mitigation Site Monitoring form (Appendix B). Photographs of the transect endpoints are provided in Appendix C. Table 3 summarizes the data for T-1. T-1 is 300 feet long and intersects Upland Type 14 and Wetland Types 8 and 9. The number of vegetation communities decreased by one in 2022 due to the transect beginning in vegetation Wetland Type 9 and not Upland Type 14 as it did in 2021. Total vegetative cover along this transect was 85 percent in 2022. The number of hydrophytic species increased in 2022, but due to a decrease in upland species, the total number of species decreased by two in 2022.

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

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**300**	**300**	**300**	**300**	**300**	**300**
Vegetation Community Transitions Along Transect	4	4	4	4	4	3
Vegetation Communities Along Transect	4	5	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2	2
Total Vegetative Species	38	35	40	35	34	32

Monitoring Year	2017	2018	2019	2020	2021	2022
Total Hydrophytic Species	13	12	12	8	8	12
Total Upland Species	25	23	28	27	26	20
Estimated % Total Vegetative Cover	75	85	84	85	85	85
Estimated % Unvegetated	25	15	16	15	15	15
% Transect Length Comprising Hydrophytic Vegetation Communities	40.3	49.3	55	53	53	48
% Transect Length Comprising Upland Vegetation Communities	59.7	50.7	45	47	47	52
% Transect Length Comprising Unvegetated Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	0.0	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. T-2 is 388 feet long and intersects Wetland Types 5 and 19; 100 percent of the transect crossed wetland habitat in 2022, which has remained constant since monitoring began in 2013. Total vegetative cover along this transect was 25 percent in 2022, a significant decrease since 2021. The decrease in vegetation cover was due to cell 8 being inundated with water, facilitating a transition from Wetland Type 2 to Wetland Type 5 vegetation communities. The total number of hydrophytic and upland plant species observed along the transect remained nearly constant from 2021 to 2022.

Table 4. Data Summary for T-2 From 2017 Through 2022 at the Kindsfater Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**388**	**388**	**388**	**388**	**388**	**388**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	3	2	2	2
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2	2
Total Vegetative Species	39	26	27	21	21	22
Total Hydrophytic Species	23	20	20	12	12	13
Total Upland Species	16	6	7	9	9	9
Estimated % Total Vegetative Cover	65	75	88	90	92	25
Estimated % Unvegetated	35	25	12	10	8	75
% Transect Length Comprising Hydrophytic Vegetation Communities	100	100	100	100	100	100
% Transect Length Comprising Upland Vegetation Communities	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Unvegetated Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	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. T-3 is 292 feet long and intersects Wetland Types 5 and 19. Wetland habitat represented 100 percent of the transect in 2022, consistent with 2021. Total vegetative cover along this transect was 85 percent in 2022, representing a decrease of 7 percent since 2021 due to increased inundation in 2022. The total number of hydrophytic and upland plant species observed along the transect was significantly less in 2022 than in 2021, likely due to a dominance of rhizomatous nonnative grasses and cattails within the wetland fringe of wetland cell 8.

Table 5. Data Summary for T-3 From 2017 Through 2022 at the Kindsfater Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**292**	**292**	**292**	**292**	**292**	**292**
Vegetation Community Transitions Along Transect	1	1	2	2	2	2
Vegetation Communities Along Transect	2	2	3	3	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	2	2	2	2
Total Vegetative Species	31	23	24	27	27	17
Total Hydrophytic Species	19	11	15	14	14	6
Total Upland Species	12	12	9	13	13	11
Estimated % Total Vegetative Cover	75	85	88	90	92	90
Estimated % Unvegetated	25	15	12	10	8	10
% Transect Length Comprising Hydrophytic Vegetation Communities	89.7	91.8	91.8	91.8	100	100
% Transect Length Comprising Upland Vegetation Communities	10.3	8.2	8.2	8.2	0.0	0.0
% Transect Length Comprising Unvegetated Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	0.0	0.0	0.0	0.0	0.0	0.0

Montana State-Listed Priority 2B noxious weeds identified within the Kindsfater mitigation site in 2022 included spotted knapweed (*Centaurea stoebe*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*) field bindweed (*Convolvulus arvensis*), and isolated occurrences of salt cedar (*Tamarix chinensis*), and gypsy-flower (*Cynoglossum officinale*). Infestation areas, with the exception of isolated occurrences, were mapped in 2022 and are shown in Figure A-3 in Appendix A. MDT has an ongoing weed-control program for their mitigation sites that includes an annual assessment of identified weed populations and application of herbicide treatment for the specific weed species and location. Noxious weed spraying at the Kindsfater site was conducted in October 2021 but not in 2022. The absolute cover of state-listed noxious weed species across the entire site was estimated at less than 5 percent in 2022, which narrowly meets the achievement threshold for this performance standard.

Cuttings and containerized materials were planted in approximately 27 clusters (Figure A-2, Appendix A) around the Kindsfater site following construction completion. The woody planting zones were generally located around the excavated wetland cells. Each individual cluster was monitored in 2022, with the number of live plants counted and recorded by species. Approximately 14 percent of the observed plantings were alive during the 2022 evaluations, which is consistent with that observed in 2021. Low survival is likely a result of insufficient moisture availability when the plantings were initially installed. A few additional volunteer *Juniperus scopulorum*, *Rosa woodsii*, and *Shepherdia argentea* plants were observed during the June 2020-2022 monitoring events. Volunteer cover by species such as *Populus deltoides, Salix exigua,* and *Salix lutea* within wetland cells 13 and 14 exhibited a cover class of 5 (>50 percent), and within wetland cell 9 a cover class of 4 (21-50 percent). The planted and surviving species are listed on the Wetland Mitigation Site Monitoring form (Appendix B).

Hydrology – The hydrology for the site is supplied from multiple sources, including a shallow seasonal groundwater table, direct precipitation, and surface runoff. During the June 2022 monitoring, all areas defined as wetlands across the site were inundated, saturated, or exhibited signs of periodic saturation within 12 inches of the ground surface. The site was generally wetter in 2022 than in 2021, as evidenced by the increase in wetland acreage and surface water. Shallow surface water was documented within all cells and ranged in depth from 1-36 inches. Constructed cells 1-3 were identified as open water areas in 2022, surrounded by an emergent wetland fringe. Constructed cells 7, 9, 13, and 14 represented

isolated wetland depressions surrounded by upland habitat. The remaining constructed cells were situated within a contiguous wetland mosaic with frequent surface drainages between cells. Shallow groundwater flows through the cells that were constructed along the upper terrace, then discharges into the natural slope wetlands to recharge the depressional wetlands along the lower terrace. Two reactivated wetland areas that connect the upper terrace to the lower terrace were identified in 2022. Both of these connections were delineated as wetlands before the project was constructed in 2012.

Long-term groundwater monitoring conducted by the US Geological Survey (USGS) at the Kindsfater site indicates that groundwater levels steadily declined from 2006 through 2015, potentially a result of prolonged drought conditions in the region (Figure 1). According to the USGS, groundwater elevations in some areas of the site are also influenced by the active gravel mining operation north of the site and, to a lesser extent, by a large irrigation canal just south of the site (USGS, 2020). Groundwater levels within the site have steadily increased since 2015, which may be a result of higher-than-average precipitation in the region from 2017 through 2019, a change in irrigation discharge, and/or dewatering practices from the nearby gravel operation. Precipitation accumulation for this area in 2022 was 10.99 inches from January through September, which is higher than the 9.6 inches reported in 2021 and lower than the 20-year historical average of 11.7 inches from January to September (NRCS 2022). Monitoring efforts completed by the USGS in 2022 show groundwater levels are relatively consistent with the previous few years and comparable to pre-2015 levels overall (Figure 1).

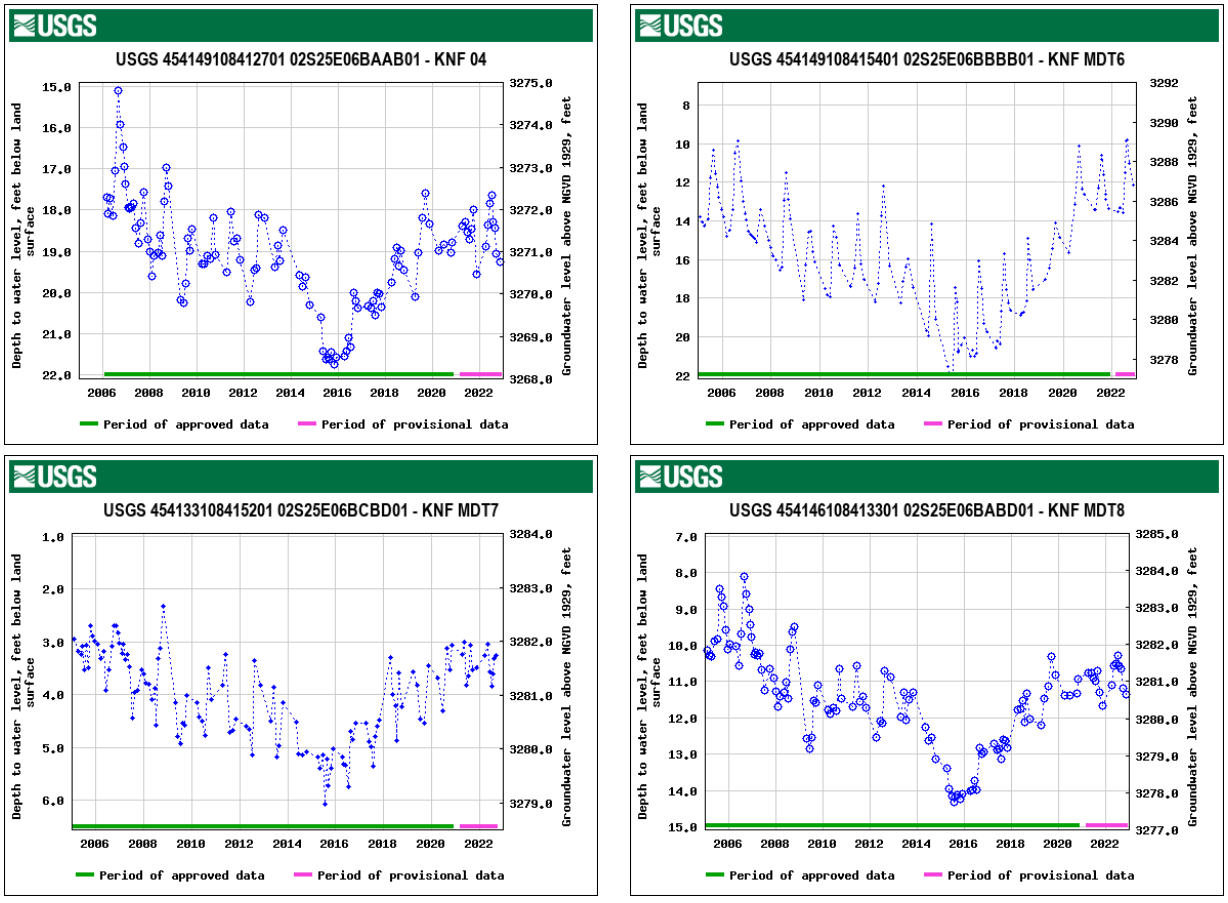


Figure 1. USGS Groundwater Well Data from 2006-2022

Soils – The Yellowstone County Soil Survey (NRCS, 2021) indicates that five soil series were mapped within the monitoring area, including the Bew silty clay loam, Shorey gravelly loam, Wanetta clay loam, Larim gravelly loam, and alluvial land (wet). In the 1970s, much of the site was excavated for gravel and borrow material; consequently, the original soil mapping may not necessarily represent existing conditions at the site. Paired soil pits were excavated at 12 locations (24 pits) across the site (Figure A-2, Appendix A). Soil textures within wetland test pits ranged from sandy loam to clay. Hydric soil indicators were observed in all but two wetland test pits (DP02w and DP12w) because of extremely shallow soils (Appendix B). Hydric soil indicators included thick dark surface, sandy mucky mineral, loamy mucky mineral, depleted matrix, redox dark surface, and loamy gleyed matrix. Wetland test pits DP02w, and DP12w lacked hydric soil indicators but displayed wetland hydrology and vegetation indicators.

Soil textures within upland test pits ranged from loamy sand to clay. There were no hydric soil indicators observed in any upland test pits. Additional field observations for the 24 data points are provided in the wetland determination data forms in Appendix B.

Photographs – Photographs were taken at photo points 1–12 (PP1 to PP12), transect endpoints, and data points and 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. A completed Montana Wetland Assessment Method (MWAM) form (Berglund and McEldowney, 2008) for the Kindsfater Site is provided in Appendix B. Overall, the existing and created wetlands are rated Category II wetlands. Functional Unit Crediting for the Kindsfater site can be found in Table 8.

Table 6. Montana Wetland Assessment Method Summary for the Kindsfater Site

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2022 AA1 (Existing Wetlands)	2022 AA2 (Established (Created) Wetlands)
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0)	Low (0)
Montana Natural Heritage Program Species (MTNHP) Habitat	High (0.9)	High (0.9)
General Wildlife Habitat	Mod (0.5)	Mod (0.7)
General Fish/Aquatic Habitat	N/A	N/A
Flood Attenuation	N/A	N/A
Short- and Long-Term, Surface-Water Storage	High (0.9)	Mod (0.6)
Sediment/Nutrient/Toxicant Removal	High (0.9)	High (1.0)
Sediment/Shoreline Stabilization	High (0.9)	Mod (0.7)
Production Export/Food Chain Support	High (0.8)	High (0.8)
Groundwater Discharge/Recharge	Mod (0.7)	Mod (0.7)
Uniqueness	Low (0.3)	Low (0.3)
Recreation/Education Potential (bonus points)	High (0.2)	High (0.2)
Actual Points/Possible Points	**6.1/9**	**5.9/9**
% of Possible Score Achieved	**67.78%**	**65.56%**
Overall Category	**II**	**II**

*AA1 – 'Existing Wetlands' includes Preserved, Restored, and Enhanced Wetland Areas

Wildlife – sixteen bird species were identified in 2022 across the site. In addition to the bird species, chorus frogs were heard in wetlands across the site, and white-tailed deer were observed.

Credit Summary – Table 7 summarizes the estimated wetland credits based on the USACE-approved credit ratios (USACE, 2005) and the wetland delineation that was completed in June 2022. A total of 39.2 acres of wetland habitat were delineated at the Kindsfater site in 2022, including 5.9 acres of creation, 10.1 acres of reestablishment, 1.1 acres of rehabilitation, 3.0 acres of enhancement, and 19.1 acres of wetland preservation. A total of 47.2 acres, including 7.3 acres of upland buffer and 0.7-acre of open water, were used to calculate the mitigation credit acres. After applying the USACE-approved ratios to these values, a total of 24.7 acres of mitigation credits were estimated in 2022, which is 8.0 credit acres below the targeted 32.7 credit acres anticipated at this site. Wetland and aquatic habitat acreage has increased over the last three years and is expected to continue if groundwater elevations remain high across the site.

Table 7. Wetland Mitigation Credits Estimated for the Kindsfater Ranch Site (2019–2022)

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type[(a)]	Anticipated Mitigation Surface Area (acres)	USACE-Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2019 Delineated Acres	2019 Mitigation Credit (acres)	2020 Delineated Acres	2020 Mitigation Credit (acres)	2021 Delineated Acres	2021 Mitigation Credit (acres)	2022 Delineated Acres	2022 Mitigation Credit (acres)
Creation (Establishment)	Wetland Cells 7, 9, 13, & 14	Lacustrine emergent	4.6	1:1	4.6	4.7	4.7	4.9	4.9	5.3	5.3	5.9	5.9
Restoration (Reestablishment)	Wetland Cells 1–6 and partial Cell 18	Lacustrine emergent and Palustrine emergent, scrub-shrub	14.0	1:1	14.0	7.3	7.3	7.4	7.4	9.3	9.3	10.1	10.1
Restoration (Rehabilitation)	Areas adjacent to Wetland Cells 1–12	Palustrine emergent, scrub-shrub	9.2	1.5:1	6.1	1.0	0.7	1.1	0.7	1.1	0.8	1.1	0.7
Enhancement	Wetland Cells 10–12 & Partial Cell 8	Palustrine emergent, scrub-shrub	3.1	3:1	1.0	2.9	0.9	2.9	1.0	3.0	1.0	3.0	1.0
Preservation	Existing Wetland Areas	Palustrine emergent, scrub-shrub	21.9	4:1	5.5	17.4	4.4	18.4	4.6	18.8	4.7	19.1	4.8
Upland Buffer	50-foot-wide upland perimeter around the site boundary	N/A	7.3	5:1	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.3	1.5
Open Water	Wetland Cells 1, 2, and 3	Palustrine emergent, aquatic bed	N/A	1:1	N/A	N/A	N/A	0.4	0.4	0.5	0.5	0.7	0.7
Total			**60.1**		**32.7**	**40.6**	**19.5**	**42.4**	**20.5**	**45.3**	**23.0**	**47.2**	**24.7**

(a) FGDC 2013.

(b) Mitigation crediting for Open Water was approved by the USACE in permit # NWO-2007-00824-MTB for this project.

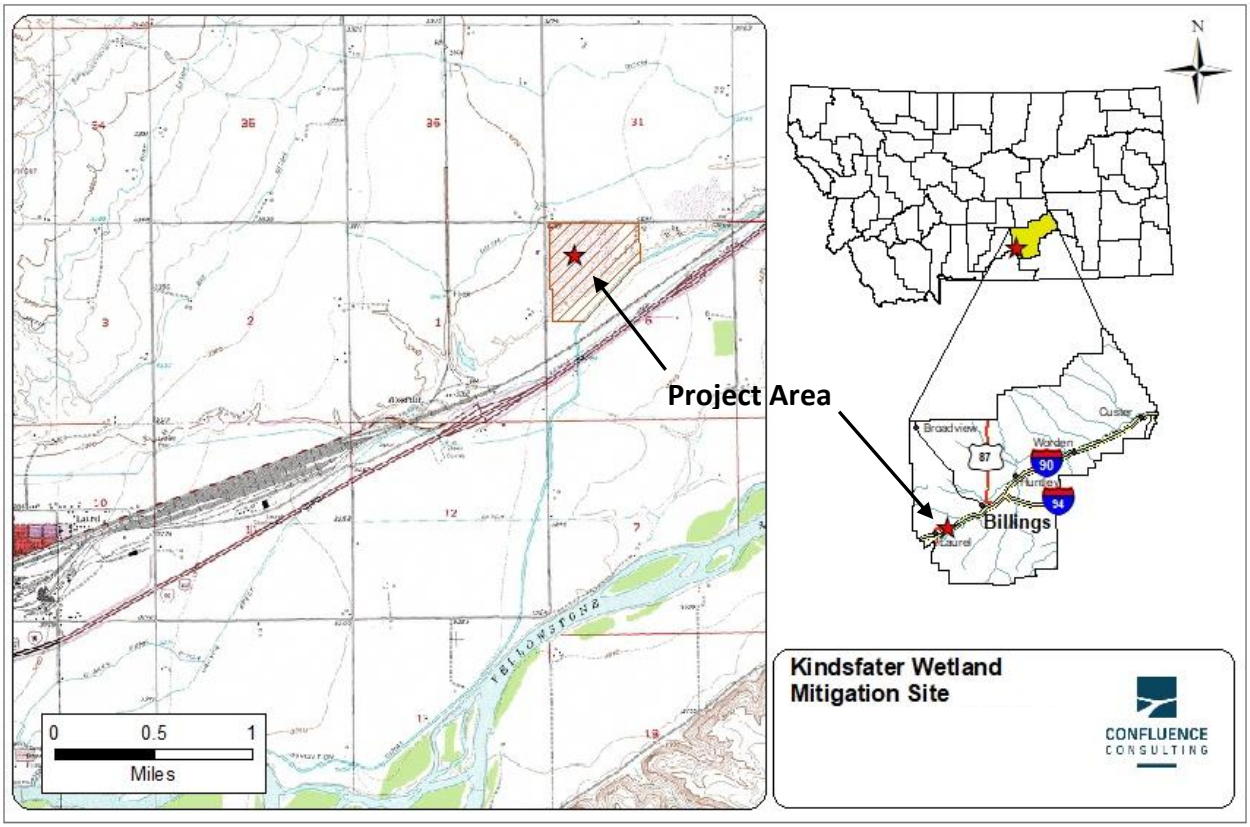
Functional Unit Credits Summary – The 2022 functional units summary is summarized in Table 8. A total of 133.6 functional units were generated at the Kindsfater site after applying the appropriate mitigation ratios to the 2022 wetland acreage and multiplying that value by the points generated from each assessment area.

Table 8. Functional Units Credit Summary for the Kindsfater Site

Mitigation Type	2022 Delineated Acreage	Ratio	2022 Mitigation Credit Acres	MWAM Actual Points	Functional Units
Creation (Establishment)	5.9	1:1	5.9	5.9	34.8
Restoration (Reestablishment)	10.1	1:1	10.1	5.9	59.6
Restoration (Rehabilitation)	1.1	1.5:1	0.7	5.9	4.1
Enhancement	3.0	3:1	1.0	5.9	5.9
Preservation	19.1	4:1	4.78	6.1	29.2
Functional Units (Mitigation Credit Acres × Actual Points)					**133.6**

Maps, Plans, Photos

Figure 2. 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, MWAM forms)

Plant List: See Table B-1 in Appendix B

Photos: See Appendix C

Plans: See Appendix D of 2018 Kindsfater Monitoring Report located at this website**:** https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Conclusions

Based on the results of the tenth year of monitoring, the Kindsfater mitigation site is developing into a diverse wetland ecosystem. The site is meeting all but one of the project's performance standards. Woody planting survival was estimated at 14 percent in 2022. However, volunteer cover by species such as *Populus deltoides, Salix exigua,* and *Salix lutea* within wetland cells 13 and 14 exhibited a cover class of 5 (>50 percent), and within wetland cell 9 a cover class of 4 (21-50 percent). Of concern is the increase in cheatgrass (*Bromus tectorum*), which has been observed colonizing bare ground in seasonally flooded areas such as in cell 1. However, the site is slowly trending positively toward anticipated mitigation credit goals.

References

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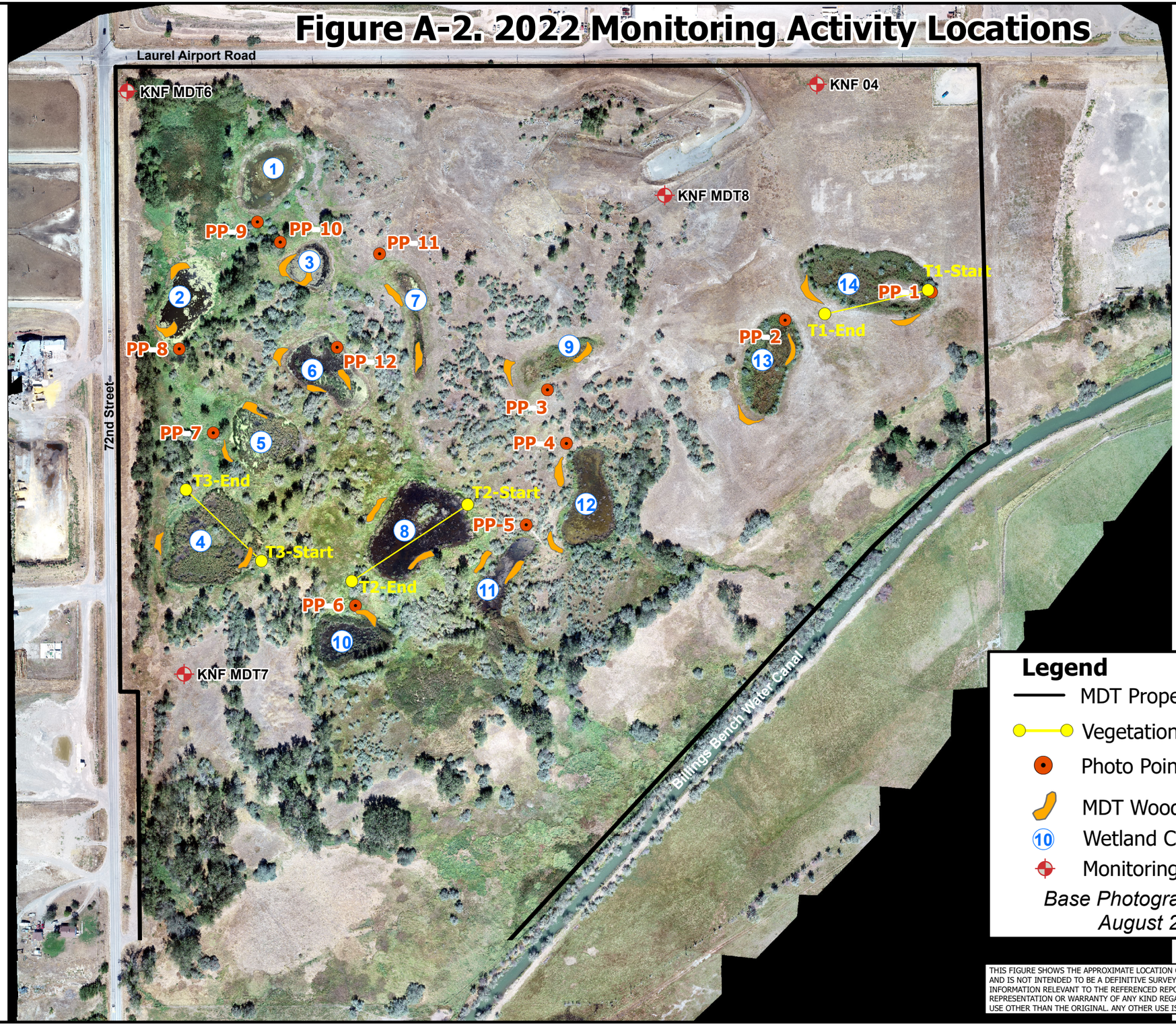
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Kindsfater
Yellowstone County, Montana

Figure A-2. 2022 Monitoring Activity Locations



Legend

- MDT Property Boundary
- Vegetation Transect
- Photo Points
- MDT Woody Plantings
- 10 Wetland Cell
- Monitoring Well

Base Photography Date: August 2022

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. 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

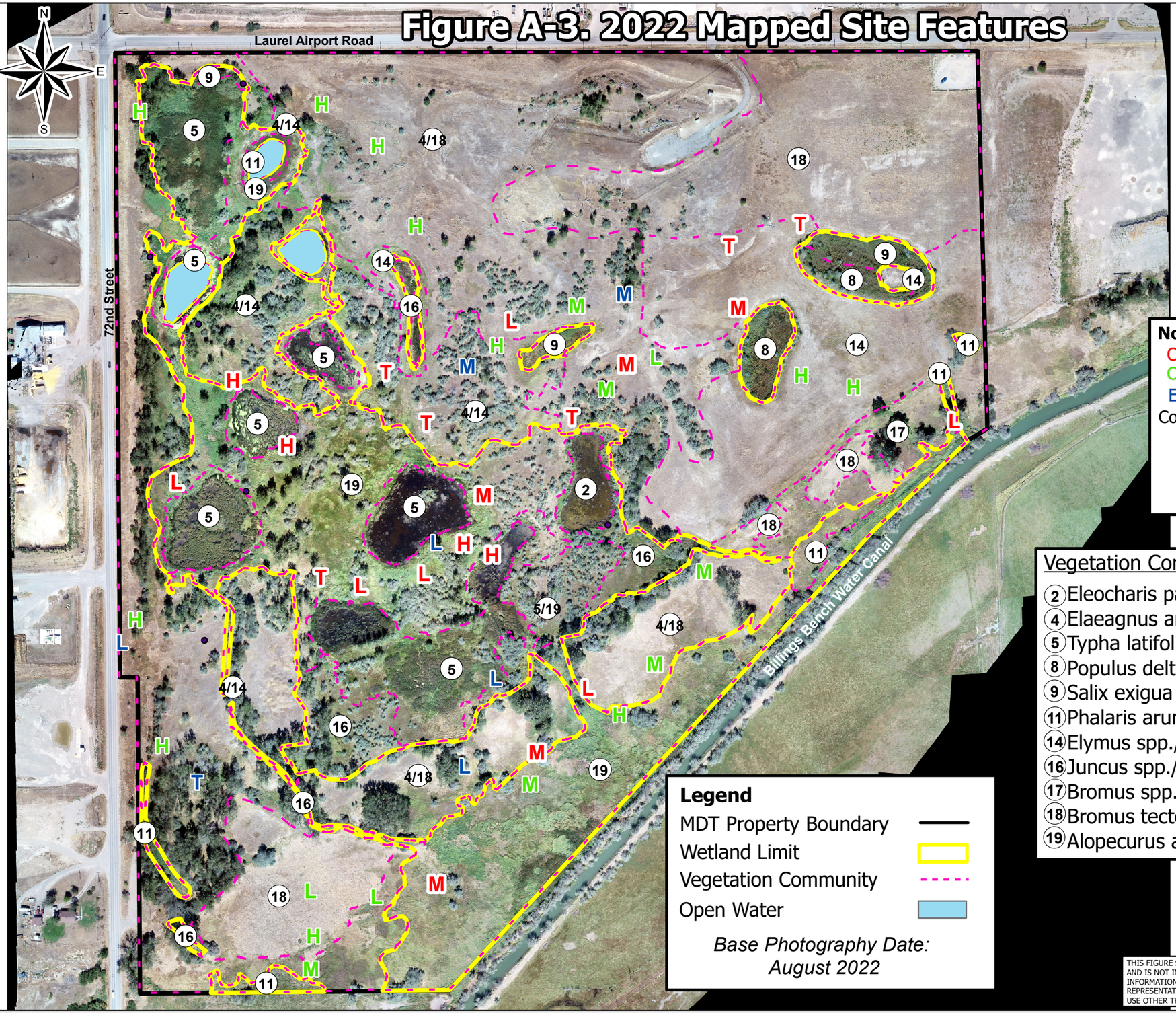
Kindsfater Wetland Mitigation Site
2022 Monitoring Activity Locations

0 150 300 600 900 1,200 Feet

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

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

Figure A-3. 2022 Mapped Site Features



Noxious Weeds
- Cirsium arvense
- Convolvulus arvensis
- Euphorbia esula

Cover Class
- T = Trace (<1% cover)
- L = Low (1-5% cover)
- M = Moderate (6-25% cover)
- H = High (26-100% cover)

Vegetation Community Types
- (2) Eleocharis palustris/Schoenoplectus spp.
- (4) Elaeagnus angustifolia
- (5) Typha latifolia
- (8) Populus deltoides
- (9) Salix exigua
- (11) Phalaris arundinacea
- (14) Elymus spp./Bromus spp.
- (16) Juncus spp./Carex spp.
- (17) Bromus spp./Poa pratensis
- (18) Bromus tectorum
- (19) Alopecurus arundinaceus

Legend
- MDT Property Boundary
- Wetland Limit
- Vegetation Community
- Open Water

Base Photography Date: August 2022

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. 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

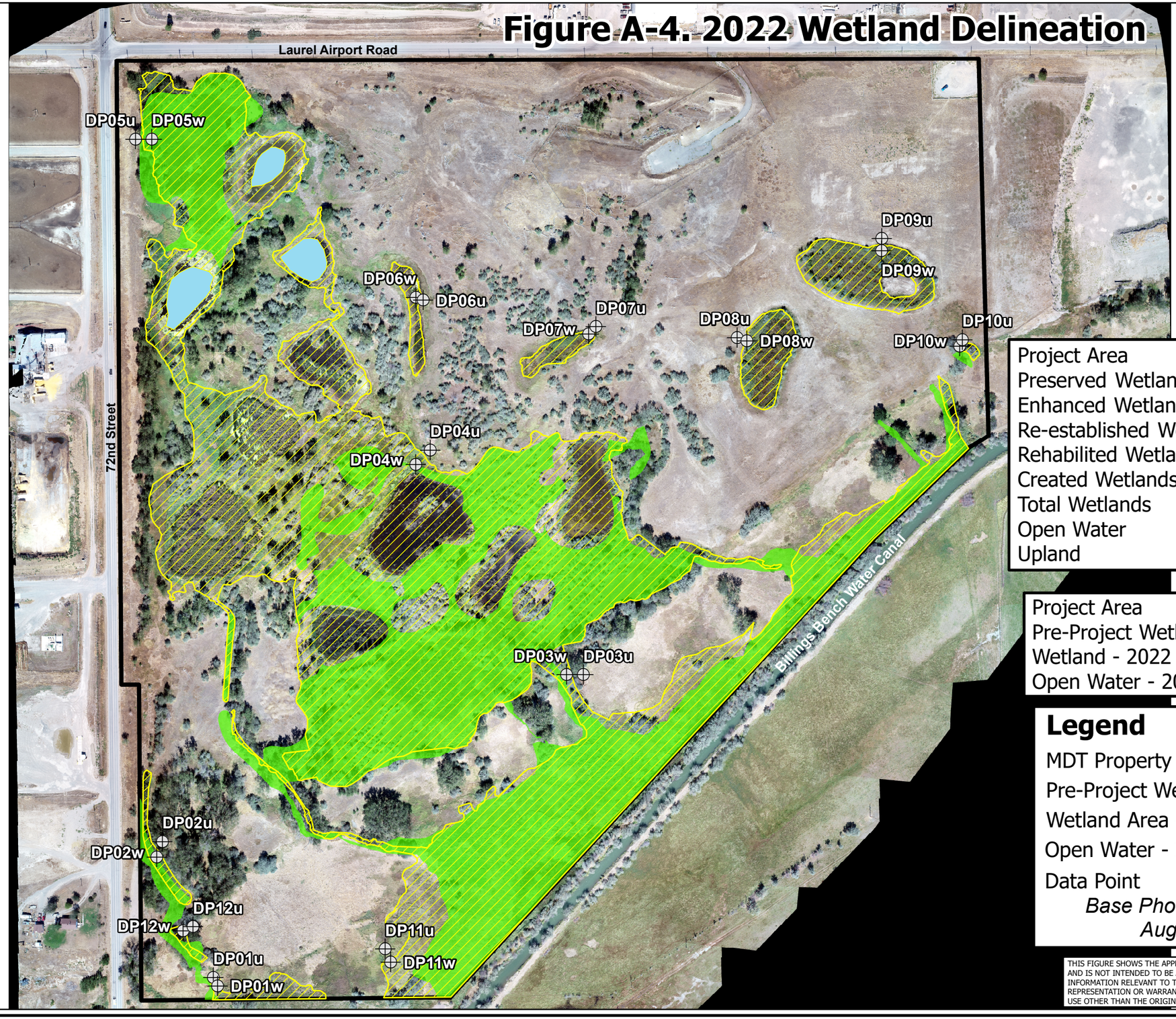
Kindsfater Wetland Mitigation Site
2022 Mapped Site Features

0 125 250 500 750 1,000 1,250 Feet

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

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Figure A-4. 2022 Wetland Delineation



N
W E
S

Project Area	115.7 acres
Preserved Wetlands	19.1 acres
Enhanced Wetlands	3.0 acres
Re-established Wetlands	10.1 acres
Rehabilited Wetlands	1.1 acres
Created Wetlands	5.9 acres
Total Wetlands	39.2 acres
Open Water	0.7 acres
Upland	75.8 acres

Project Area	115.7 acres
Pre-Project Wetland	22.4 acres
Wetland - 2022	39.2 acres
Open Water - 2022	0.7 acres

Legend

- MDT Property Boundary
- Pre-Project Wetland Area
- Wetland Area - 2022
- Open Water - 2022
- Data Point

Base Photography Date: August 2022

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. 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

Kindsfater Wetland Mitigation Site
2022 Wetland Delineation

0 150 300 600 900 1,200 Feet

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

File: X:\Project\MDT Wetland Mitigation 2\Mains\Kindsfater\2022\Deiln2022_MDT.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
Kindsfater
Yellowstone County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Kindsfater Assessment Date/Time 6/21/2022

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

Weather: 80 degrees, sunny Location: Laurel, MT

MDT District: Billings Milepost: NA

Legal Description: T 2S R25E Section(s) 6

Initial Evaluation Date: 8/22/2013 Monitoring Year: + #Visits in Year: 1

Size of Evaluation Area: 115.7 (acres)

Land use surrounding wetland:

Commercial and agriculture including a gravel mining operation to the north, hay fields to the NW, and a feedlot to the west.

HYDROLOGY

Surface Water Source: Groundwater

Inundation: ☑ Average Depth: 0.5 **(ft)** Range of Depths: 0.1-3 **(ft)**

Percent of assessment area under inundation: 15 %

Depth at emergent vegetation-open water boundary: 0.4 **(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:

Saturation visible on aerial imagery, saturation to surface, shallow ponded water/recent ponding in several of the wetland cells, sulfidic odor, algal mats, soil surface cracks, iron deposits, water marks, geomorphic position, and drainage patterns.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
KNF 04	17.6
KNF MDT 8	10.3
KNF MDT6	13.6
KNF MDT7	3.84

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:

There are several wells within this site that are monitored by the USGS and are included on Figure A-2. Depths are Below Land Surface (BLS) and measurements were taken by the USGS on 7/8/2022.

VEGETATION COMMUNITIES

Site Kindsfater

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

Community # 2 **Community Type:** Eleocharis palustris / Schoenoplectus spp. **Acres:** 0.74

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	2
Carex pellita	2	Eleocharis palustris	1
Juncus balticus	1	Juncus compressus	1
Open Water	4	Phalaris arundinacea	2
Populus deltoides	1	Salix exigua	2
Salix lutea	1	Schoenoplectus acutus	2
Schoenoplectus pungens	2	Scirpus microcarpus	1
Typha latifolia	1	Veronica anagallis-aquatica	1

Comments:

PEM wetland community. Area was reduced in size in 2022 due to an increase in open water. Cover of Eleocharis palustris was reduced in 2022.

Community # 4 **Community Type:** Elaeagnus angustifolia / **Acres:**

Species	Cover class	Species	Cover class
Bromus inermis	1	Bromus tectorum	2
Elaeagnus angustifolia	5	Elaeagnus commutata	1
Elymus repens	1	Elymus trachycaulus	1
Populus balsamifera	1	Populus deltoides	2

Comments:

Scrub-shrub and forested community interspersed throughout upland community types 14 and 18. Acreages for 4/14 and 4/18 mixed communities are 21.45 acres and 26.64 acres, respectively. Acreages for community types 4, 14, and 18 were not calculated for each individual community type.

Community # 5 **Community Type:** Typha latifolia / **Acres:** 9.69

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	1
Carex nebrascensis	1	Carex pellita	2
Carex utriculata	1	Elaeagnus angustifolia	1
Eleocharis palustris	1	Juncus balticus	1
Juncus compressus	2	Lemna minor	0
Marrubium vulgare	1	Open Water	2
Persicaria amphibia	1	Phalaris arundinacea	1
Poa palustris	0	Polypogon monspeliensis	1
Populus deltoides	1	Salix exigua	1
Salix lutea	1	Schoenoplectus acutus	2
Schoenoplectus pungens	1	Solanum dulcamara	1
Typha latifolia	5	Veronica anagallis-aquatica	0

Comments:

Pre-construction existing wetland community that has expanded from 2018 to 2022. This community is also interspersed throughout wetland CT 19, in a 1.70-acre area, which is not included in the 9.69 acre area provided above.

Community # 8 **Community Type:** Populus deltoides / **Acres:** 1.2

Species	Cover class	Species	Cover class
Asclepias speciosa	0	Bare Ground	2
Bromus inermis	0	Carex nebrascensis	1
Carex praegracilis	1	Cirsium arvense	0
Convolvulus arvensis	1	Elaeagnus angustifolia	1
Eleocharis palustris	2	Elymus repens	1
Elymus trachycaulus	1	Juncus balticus	1
Juncus gerardii	1	Lactuca serriola	0
Medicago lupulina	0	Medicago lupulina	0
Poa palustris	1	Polypogon monspeliensis	1
Populus deltoides	4	Salix exigua	3
Salix lutea	1	Schoenoplectus pungens	2
Sonchus arvensis	0	Taraxacum officinale	0

Comments:

Natural encroachment of young Populus deltoides seedlings and saplings were the dominant species across several of the depressional wetlands. This CT slightly increased in acreage in 2022.

Community # 9 Community Type: Salix exigua / **Acres:** 1.02

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus inermis	0
Carex praegracilis	1	Cirsium arvense	0
Eleocharis palustris	1	Elymus trachycaulus	1
Epilobium ciliatum	1	Juncus balticus	2
Juncus compressus	1	Nepeta cataria	0
Poa palustris	1	Populus deltoides	2
Salix exigua	4	Salix lutea	1
Schoenoplectus acutus	2	Schoenoplectus pungens	2
Scirpus microcarpus	1	Typha latifolia	1

Comments:

Wetland CT first classified in 2016. Since 2016, it has continued to expand slowly across portions of the depressional wetlands, including NW of Cell 1 near N site boundary, Cell 9, and Cell 14.

Community # 11 Community Type: Phalaris arundinacea / **Acres:** 1.31

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Elymus repens	1
Phalaris arundinacea	5	Taraxacum officinale	0

Comments:

A significant decrease in this CT was observed in 2022 due to an increase an increase in new CT 19.

Community # 14 Community Type: Elymus spp. / Bromus spp. **Acres:** 11

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Alopecurus arundinaceus	0
Artemisia frigida	1	Bare Ground	1
Bromus inermis	2	Bromus japonicus	2
Bromus tectorum	4	Cirsium arvense	1
Convolvulus arvensis	1	Elaeagnus angustifolia	1
Elymus lanceolatus	1	Elymus repens	4
Elymus trachycaulus	1	Erodium cicutarium	0
Heterotheca villosa	0	Lactuca serriola	0
Marrubium vulgare	0	Medicago lupulina	0
Melilotus officinalis	0	Nassella viridula	1
Pascopyrum smithii	1	Phalaris arundinacea	0
Poa compressa	0	Poa pratensis	1
Schedonorus pratensis	1	Sisymbrium loeselii	1
Sonchus arvensis	0	Sporobolus cryptandrus	0
Thlaspi arvense	1	Tragopogon dubius	1
Verbascum thapsus	0		

Comments:

Upland CT first classified in 2018 that has continued to expand across upland areas at the site in 2022. Much of the area that was classified at CT 14 and 4/14 in 2021 was converted to new CT 18 and 4/18 due to Bromus tectorum becoming the dominant herb in these areas. This CT primarily exists at the eastern portion of the site where Elymus species are still a major component of the dry upland areas.

Community # 16 Community Type: Juncus spp. / Carex spp. **Acres:** 3.16

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Carex aquatilis	1
Carex nebrascensis	2	Carex pellita	3
Carex utriculata	1	Eleocharis palustris	1
Juncus balticus	3	Juncus compressus	1
Juncus torreyi	1	Persicaria amphibia	1
Phalaris arundinacea	2	Typha latifolia	2

Comments:

Wetland CT first classified in 2018 where Juncus spp. had replaced small areas of CT 5 and CT 2. In 2019 Carex spp. was added as a codominant. This CT was largely unchanged in 2022.

Community # 17 Community Type: Bromus spp. / Poa pratensis **Acres:** 1.74

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	1
Bromus inermis	3	Bromus tectorum	3
Cirsium arvense	1	Convolvulus arvensis	1
Elymus repens	1	Elymus trachycaulus	1
Lactuca serriola	1	Pascopyrum smithii	2
Poa compressa	1	Poa pratensis	3

Comments:

CT 17 was significantly reduced in size due to the new CT 18 replacing a large portion of this CT in 2022.

Community # 18 Community Type: Bromus tectorum / **Acres:** 14.99

Species	Cover class	Species	Cover class
Agropyron cristatum	2	Alyssum alyssoides	1
Artemisia frigida	0	Bare Ground	2
Bassia scoparia	0	Bromus inermis	2
Bromus japonicus	1	Bromus tectorum	5
Convolvulus arvensis	1	Elaeagnus angustifolia	0
Elymus repens	2	Elymus trachycaulus	1
Erodium cicutarium	0	Juncus balticus	0
Lactuca serriola	0	Nassella viridula	1
Poa pratensis	2	Sisymbrium altissimum	1
Sisymbrium loeselii	0	Sporobolus cryptandrus	1
Thlaspi arvense	0	Tragopogon dubius	0

Comments:

This new CT replaced many areas of CTs 4/14, 4/15,15, and 17 due to the increased dominance of Bromus tectorum throughout much of the drier portions of the site. Bromus tectorum within the new CT accounts for 50-100 percent of the herbaceous cover within this CT. The prevalence of Bromus tectorum has increased throughout the years and is expected to replace more of CTs 4/14, 14, and 17 in the future. The acreage reported for this CT does not include 26.44 acres identified as 4/18.

Community # 19 **Community Type:** Alopecurus arundinaceus / **Acres:** 20.89

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus arundinaceus	4
Asclepias speciosa	1	Bare Ground	1
Bromus inermis	1	Bromus tectorum	2
Carex aquatilis	0	Carex nebrascensis	1
Carex pellita	2	Carex utriculata	1
Cirsium arvense	0	Conium maculatum	1
Convolvulus arvensis	0	Elaeagnus angustifolia	3
Eleocharis palustris	0	Elymus repens	3
Elymus trachycaulus	1	Juncus balticus	2
Lactuca serriola	0	Lycopus asper	1
Mentha arvensis	0	Pascopyrum smithii	1
Persicaria amphibia	0	Phalaris arundinacea	1
Poa palustris	0	Poa pratensis	3
Populus deltoides	2	Salix lutea	0
Schedonorus pratensis	1	Schoenoplectus acutus	1
Schoenoplectus pungens	1	Sisymbrium loeselii	0
Sonchus arvensis	1	Taraxacum officinale	0
Thlaspi arvense	0	Tragopogon dubius	0
Typha latifolia	0		

Comments:

New wetland community in 2022. This community replaced former wetland CT 3 because Poa palustris was nearly absent from the site in 2022. In addition to replacing CT3, this CT also replaced some of CT 11 due to the decrease in Phalaris arundinacea at the SE boundary of the site.

Total Vegetation Community Acreage **65.74**

VEGETATION TRANSECTS

Site: Kindsfater Date: 6/21/2022

Transect Number: 1 **Compass Direction from Start:** 240

Interval Data:

Ending Station 35 **Community Type:** Salix exigua /

Species	Cover class	Species	Cover class
Bare Ground	0	Carex praegracilis	2
Juncus balticus	2	Juncus compressus	1
Populus deltoides	2	Salix exigua	5
Salix lutea	1	Schoenoplectus pungens	1

Ending Station 118 **Community Type:** Elymus spp. / Bromus spp.

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Bare Ground	3
Bromus inermis	2	Bromus japonicus	0
Bromus tectorum	4	Cirsium arvense	1
Convolvulus arvensis	2	Elymus repens	1
Elymus trachycaulus	0	Heterotheca villosa	1
Lactuca serriola	1	Marrubium vulgare	1
Nassella viridula	3	Sporobolus cryptandrus	2
Verbascum thapsus	0		

Ending Station 226 **Community Type:** Populus deltoides /

Species	Cover class	Species	Cover class
Asclepias speciosa	1	Bare Ground	0
Bromus inermis	1	Carex nebrascensis	0
Carex praegracilis	2	Cirsium arvense	1
Convolvulus arvensis	1	Elaeagnus angustifolia	1
Eleocharis palustris	2	Elymus repens	0
Elymus trachycaulus	1	Juncus balticus	2
Lactuca serriola	1	Medicago lupulina	0
Poa palustris	1	Populus deltoides	4
Salix exigua	5	Salix lutea	3
Schoenoplectus pungens	1	Sonchus arvensis	1
Taraxacum officinale	0		

Ending Station 300 **Community Type:** Elymus spp. / Bromus spp.

Species	Cover class	Species	Cover class
Agropyron cristatum	0	Bare Ground	2
Bromus inermis	2	Bromus japonicus	1
Bromus tectorum	3	Cirsium arvense	1
Convolvulus arvensis	1	Erodium cicutarium	1
Lactuca serriola	0	Medicago lupulina	0
Nassella viridula	2	Poa compressa	1
Poa pratensis	0	Salix exigua	1
Sonchus arvensis	0	Sporobolus cryptandrus	1

Transect Notes:

Start of transect was found to be within Salix sp. in 2022. It appears in previous years the transect started within the upland communities surrounding the willows in error.

Transect Number: 2 **Compass Direction from Start:** 225

Interval Data:

Ending Station 11 **Community Type:** Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	3	Carex pellita	1
Cirsium arvense	1	Elaeagnus angustifolia	3
Elymus repens	2	Juncus balticus	1
Phalaris arundinacea	4	Poa palustris	1
Salix lutea	0	Schoenoplectus pungens	1
Taraxacum officinale	1		

Ending Station 334 **Community Type:** Typha latifolia /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	2
Carex nebrascensis	0	Carex pellita	0
Juncus balticus	0	Juncus compressus	1
Lemna minor	0	Open Water	5
Salix exigua	0	Salix lutea	1
Schoenoplectus acutus	1	Schoenoplectus pungens	1
Stuckenia pectinata	0	Typha latifolia	2
Veronica anagallis-aquatica	1		

Ending Station 388 **Community Type:** Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Bare Ground	1
Cirsium arvense	1	Elaeagnus angustifolia	2
Juncus balticus	1	Phalaris arundinacea	1
Poa pratensis	3	Populus deltoides	1

Transect Notes:

Transect changed significantly in 2022 due to most of the transect being inundated with water which reduced the coverage of wetland species within the inundation area.

Transect Number: 3 **Compass Direction from Start:** 290

Interval Data:

Ending Station 27 **Community Type:** Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Bare Ground	0
Carex aquatilis	1	Carex utriculata	1
Persicaria amphibia	1	Phalaris arundinacea	1
Poa pratensis	2	Schoenoplectus acutus	1
Typha latifolia	1		

Ending Station 243 **Community Type:** Typha latifolia /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	1
Carex aquatilis	1	Carex utriculata	1
Open Water	2	Persicaria amphibia	1
Phalaris arundinacea	1	Schoenoplectus acutus	3
Typha latifolia	5		

Ending Station 292 **Community Type:** Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	3	Bare Ground	1
Convolvulus arvensis	1	Elaeagnus angustifolia	1
Elymus repens	3	Phalaris arundinacea	3
Poa pratensis	1	Schedonorus pratensis	2
Sisymbrium loeselii	1	Taraxacum officinale	1
Tragopogon dubius	0		

Transect Notes:

Most of transect appears to be more inundated than in previous years which resulted in a slight decrease of vegetation cover within the inundation area.

PLANTED WOODY VEGETATION SURVIVAL

Kindsfater

Planting Type	#Planted	#Alive	Notes
Cornus alba	130	0	
Crataegus douglasii	50	0	
Juniperus scopulorum	50	7	
Populus spp.	140	45	
Prunus virginiana	50	0	
Rosa woodsii	50	2	
Salix spp.	2800	415	Salix exigua best survival
Shepherdia argentea	50	2	
TOTAL	3320	472	~14% survival

Comments

Approximately 27 woody planting areas were mapped by MDT in 2013, generally located around the excavated basins. Locations for the planted vegetation are shown on Figure A-2. During the 2022 monitoring, each individual planting group was monitored and live woody plants were counted by species. Approximately 14% of the planted woody plants were alive in 2022. Salix spp. and Populus spp. volunteers are filling in around several wetland cells. No change from 2021.

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WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure: _____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
American Coot	2		
American Wigeon	2		
Barn Swallow	2		
Eastern Kingbird	2		
Great Blue Heron	1		
Kingfisher	1		
Mallard	15		
Red-tailed Hawk	1		
Red-winged Blackbird	45		
Ring-necked Pheasant	1		
Rock Pigeon	2		
Sandhill Crane	3		
Tree Swallow	12		
Yellow Warbler	5		
Yellow-headed Blackbird	3		

Bird Comments

Abundance of birds observed.

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
Chorus frogs	5	No	No	No	
White-tailed Deer	5	No	No	No	

Wildlife Comments:

This site provides a diversity of habitat features for bird and other wildlife.

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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	45.6900802336	-108.698205335		
DP01w	45.6900154272	-108.698160944		
DP02u	45.6911205117	-108.698745795		
DP02w	45.691002	-108.698809		
DP03u	45.692359833	-108.694143141		
DP03w	45.6923621695	-108.694325721		
DP04u	45.6940866367	-108.695785155		
DP04w	45.6939758369	-108.69594475		
DP05u	45.6964817294	-108.698960098		
DP05w	45.6964806162	-108.698781856		
DP06u	45.6952313368	-108.695845299		
DP06w	45.6952547663	-108.695922994		
DP07u	45.6950151108	-108.693966692		
DP07w	45.6949613873	-108.694046955		
DP08u	45.6949200192	-108.692429852		
DP08w	45.6948962881	-108.69232316		
DP09u	45.6968233172	-108.692058699		
DP09w	45.6969674436	-108.692092404		
DP10u	45.6948859713	-108.689977235		
DP10w	45.6948399696	-108.690007833		
DP11u	45.6902833164	-108.696331532		
DP11w	45.6901823569	-108.696272837		
DP12u	45.6904682345	-108.698421515		
DP12w	45.6904387448	-108.69852863		
PP-1	45.69342	-108.690247	280	Wetland cell 14
PP-10	45.694847	-108.698418	140	Wetland cell 3
PP-11	45.695892	-108.697601	350	Wetland cell 7

PP-12	45.694939	-108.696663	230	Wetland cell 6
PP-2	45.695136	-108.691839	280	Wetland cell 13
PP-3	45.694612	-108.69443	0	Wetland cell 9
PP-4	45.694935	-108.691902	200	Wetland cell 12
PP-5	45.694748	-108.694458	10	Wetland cell 11
PP-6	45.694084	-108.694321	150	Wetland cell 10
PP-7	45.698065	-108.698065	90	Wetland cell 5
PP-8	45.694939	-108.698429	315	Wetland cell 2
PP-9	45.694302	-108.698044	90	Wetland cell 1
T-1-E	45.695072	-108.691437	50	Transect 1 end
T-1-S	45.695357	-108.690285	240	Transect 1 start
T-2-E	45.693184	-208.696573	40	Transect 2 end
T-2-S	45.693763	-108.695288	225	Transect 2 start
T-3-E	45.693317	-108.698486	110	Transect 3 end
T-3-S	45.693317	-108.697517	290	Transect 3 start

Comments:

Kindsfater

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

The total wetland acreage delineated in 2022 was 39.2 acres, which is a 1.7-acre increase from the 2021 acreage (37.5 acres).

Functional Assessments

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

Functional Assessment Comments:

Overall the existing and created wetlands rate as Category 3 wetlands.

Maintenance

Were man-made nesting structure installed at this site? No

If yes, do they need to be repaired?

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? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

Fence near the MDT green entrance gate along the southwest boundary is down and needs repair. Unchanged from 2021.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): undulating/concave Slope (%): 25

Subregion (LRR): LRR F Lat: 45.69008 Long: -108.698205 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15-35% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located near SW boundary 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)

Alopecurus arundinaceus	5	☐	FACW
Elymus lanceolatus	70	☑	FACU
Elymus repens	20	☑	FACU
Phalaris arundinacea	5	☐	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	X 1	0
FACW species	10	X 2	20
FAC species	0	X 3	0
FACU species	90	X 4	360
UPL species	0	X 5	0
Column Totals	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP01u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	98	7.5YR 6/6	2	C	M	Sandy Loam	**soil dry**
16-24	7.5YR 4/1	95	10YR 5/6	5	C	PL	Sandy Loam	**soil dry**

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: Although redoximorphic concentrations were observed within the matrix and dead pore linings, none of the criteria for any hyric soil indicators was met.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: Although the secondary hydrologic indicator geomorphic position was observed, this data point does not meet the criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.690015 Long: -108.69816 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15-35% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located near SW boundary 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)

Alopecurus arundinaceus	25	☑	FACW
Elymus repens	40	☑	FACU
Elymus trachycaulus	15	☐	FACU
Phalaris arundinacea	20	☑	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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	45	X 2	90
FAC species	0	X 3	0
FACU species	55	X 4	220
UPL species	0	X 5	0
Column Totals	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive dominance test.

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
0-03	7.5YR 2.5/1	100					Sandy Loam	**Fine roots**
03-14	7.5YR 2.5/1	100					Sandy Loam	
14-20	10YR 5/1	91	N 4/0	7	D	M	Sandy Clay Loam	
14-20			10YR 6/8	2	C	M	Sandy Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☑ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations and depletions common below a thick dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes geomorphic position and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.69112 Long: -108.698745 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15-35% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located in cottonwood forest near the SW boundary of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)	Absolute % Cover:	Domiant Species?	Indicator Status
Populus deltoides	20	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)			
Elaeagnus angustifolia	5	☑	FACU

Herbaceous Stratum Plot size (5 Foot Radius)			
Bromus inermis	25	☑	UPL
Bromus tectorum	45	☑	UPL
Dactylis glomerata	3	☐	FACU
Elymus repens	5	☐	FACU
Galium aparine	5	☐	FACU
Lactuca serriola	1	☐	FAC
Phalaris arundinacea	3	☐	FACW
Poa pratensis	5	☐	FACU
Thlaspi arvense	2	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	X 1	0
FACW species	3	X 2	6
FAC species	21	X 3	63
FACU species	25	X 4	100
UPL species	70	X 5	350
Column Totals	119 (A)		519 (B)

Prevalence Index = B/A = 4.36

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:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP02u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-06	10YR 3/2	100					Sandy Loam	**Cobbly. Woody roots**
6+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Cobbles and rock refusal limited excavation beyond 6".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.691002 Long: -108.698809 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located in a small wetland at the SW portion of the site. Hydric soil was not present due to a rock/cobble barrier that limited excavation to 2".

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)

Cirsium arvense	1	☐	FACU
Phalaris arundinacea	80	☑	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 20

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	80 X 2	160
FAC species	0 X 3	0
FACU species	1 X 4	4
UPL species	0 X 5	0
Column Totals	81 (A)	164 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: DP02w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-01	10YR 3/1	100					Sandy Loam	
01-02	2.5Y 5/1	100					Sandy loam	**Gravelly**
02+							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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 2

Hydric Soil Present? Yes ☐ No ☑

Remarks: Although no hydric soil indicators were observed, wetland hydrology was present, all dominant plant species were hydrophytic, and the wetland boundary had an abrupt edge (1987 COE Wetland Delineation Manual). Cobbles and rock refusal limited excavation beyond 2".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 0.5

Water Table Present? Yes ☑ No ☐ Depth (inches): 6

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

Wetland Hydrology Present? Yes ☑ No ☐

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

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

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

Landform (hillslope, terrace, etc.): Hillside/undulating Local relief (concave, convex, none): convex Slope (%): 50

Subregion (LRR): LRR F Lat: 45.692359 Long: -108.694143 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located on a hillslope at the SE-central portion of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Elaeagnus angustifolia	2	☑	FACU
Populus deltoides	3	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	5	☐	UPL
Convolvulus arvensis	20	☑	UPL
Pascopyrum smithii	15	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 20

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	3 X 3	9
FACU species	17 X 4	68
UPL species	25 X 5	125
Column Totals	45 (A)	202 (B)

Prevalence Index = B/A = 4.49

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP03u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sandy loam	**Cobbly**
12+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Rock refusal limited excavation beyond 12".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.692362 Long: -108.694325 Datum: NAD 83

Soil Map Unit Name: LI: larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: This point is located in an ephemeral seep within a sedge community.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Elaeagnus angustifolia	3	☑	FACU
Populus deltoides	5	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	25	☑	FACW
Carex nebrascensis	55	☑	OBL
Juncus sp.	5	☐	UPL
Rumex crispus	1	☐	FAC
Schedonorus arundinaceus	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	55	X 1	55
FACW species	25	X 2	50
FAC species	6	X 3	18
FACU species	8	X 4	32
UPL species	5	X 5	25
Column Totals	99 (A)		180 (B)

Prevalence Index = B/A = 1.82

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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
0-04	2.5Y	2.5/1	100					Sandy Peat	**Many roots**
04-10	2.5Y	3/1	100					Sandy Fibric	**Gravelly**
10+								Gravel bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☑ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 10

Hydric Soil Present? Yes ☑ No ☐

Remarks: Greasy. Sandy fibric soil. Gravels and rock refusal limited excavation beyond 10".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 1

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, drainage patterns, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.694086 Long: -108.695785 Datum: NAD 83

Soil Map Unit Name: So: Shorey gravelly loam, 1 to 4 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located near 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)

Bromus tectorum	44	☑	UPL
Euphorbia esula	1	☐	UPL
Juncus balticus	1	☐	FACW
Poa pratensis	35	☑	FACU
Sporobolus cryptandrus	2	☐	FACU
Verbascum thapsus	2	☐	UPL

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: 0 (A)

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	X 1	0
FACW species	1	X 2	2
FAC species	0	X 3	0
FACU species	37	X 4	148
UPL species	47	X 5	235
Column Totals	85 (A)		385 (B)

Prevalence Index = B/A = 4.53

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP04u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-03	10YR 3/4	100					Silt Loam	
03-10	10YR 4/3	100					Sand	**Cobbly**
10+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Cobbles and rock refusal limited excavation beyond 10".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.693975 Long: -108.695944 Datum: NAD 83

Soil Map Unit Name: So: Shorey gravelly loam, 1 to 4 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located at the N boundary of wetland cell 8.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	45	☑	FACW
Juncus balticus	30	☑	FACW
Poa pratensis	15	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	75	X 2	150
FAC species	0	X 3	0
FACU species	15	X 4	60
UPL species	0	X 5	0
Column Totals	90 (A)		210 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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
0-01	10YR 2/2	100					Silty Clay Loam	
01-08	10YR 5/1	100					Sandy Clay Loam	**Cobbly**
8+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Depleted matrix observed. Cobbles and rock refusal limited excavation beyond 8".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 8

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes saturation within 8 inches of the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): J Trilling Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.696481 Long: -108.69896 Datum: NAD83

Soil Map Unit Name: Kh: Keiser and Hesper silty clay loams, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located near the NW corner of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)	Absolute % Cover:	Domiant Species?	Indicator Status
Populus deltoides	10	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	15	☐	UPL
Convolvulus arvensis	25	☑	UPL
Elymus canadensis	5	☐	FACU
Elymus repens	50	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	10 X 3	30
FACU species	55 X 4	220
UPL species	40 X 5	200
Column Totals	105 (A)	450 (B)

Prevalence Index = B/A = 4.29

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP05u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Loamy Sand	**Cobbly**

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.69648 Long: -108.698781 Datum: NAD 83

Soil Map Unit Name: Bm: Bew silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located 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
Populus angustifolia	10	☑	FACW
Populus deltoides	5	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Phalaris arundinacea	99	☑	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	109	X 2	218
FAC species	5	X 3	15
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	114 (A)		233 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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
0-16	10YR 4/1	93	7.5YR 4/6	7	C	PL, M	Silty Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations common along pore linings and within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes oxidized rhizospheres on living roots, geomorphic position, and a positive FAC-Neutral test. Soils moist.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.695231 Long: -108.695845 Datum: NAD 83

Soil Map Unit Name: Bm: Bew silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located at the E edge of wetland cell 7.

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	40	☑	FACU
Poa pratensis	50	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	0 X 3	0
FACU species	90 X 4	360
UPL species	0 X 5	0
Column Totals	90 (A)	360 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP06u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/2	100					Silty Clay	**Cobbly**

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.695254 Long: -108.695922 Datum: NAD 83

Soil Map Unit Name: Bm: Bew silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located within cell 7.

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 tectorum	5	☐	UPL
Juncus balticus	80	☑	FACW
Poa palustris	10	☐	FACW
Rumex crispus	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: 1 (A)

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	90 X 2	180
FAC species	5 X 3	15
FACU species	0 X 4	0
UPL species	5 X 5	25
Column Totals	100 (A)	220 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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
0-16+	10YR 5/2	96	7.5YR 4/6	1	C	M,PL	Silty Clay	
0-16+			N 2.5/0	3	D	M,PL	Silty Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations few and prominent depletetions many within the depleted matrix and along pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Water Table Present? Yes ☑ No ☐ Depth (inches): 7

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation to the soil surface, geomorphic position, oxidized rhizospheres on living roots, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): J Trilling Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.695015 Long: -108.693966 Datum: NAD 83

Soil Map Unit Name: Wf: Wanetta clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located near the NE corner of cell 9.

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)

Agropyron cristatum	20	☑	UPL
Bromus tectorum	45	☑	UPL
Elymus repens	20	☑	FACU
Erodium cicutarium	5	☐	UPL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

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

Prevalence Index = B/A = 4.78

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP07u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/3	100					Sandy Loam	**Cobbly**

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): W Fouts Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.694961 Long: -108.694046 Datum: NAD 83

Soil Map Unit Name: Wf: Wanetta clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located within wetland cell 9.

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 deltoides	5	☐	FAC
Salix exigua	40	☑	FACW

Herbaceous Stratum Plot size (5 Foot Radius)

Juncus balticus	52	☑	FACW
Poa pratensis	30	☑	FACU
Schoenoplectus pungens	15	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 3

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	15	X 1	15
FACW species	92	X 2	184
FAC species	5	X 3	15
FACU species	30	X 4	120
UPL species	0	X 5	0
Column Totals	142 (A)		334 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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	10YR 5/1	98	7.5YR 4/6	2	C	PL	Clay	
14+							Rock bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations common along pore linings of the depleted matrix. Rock refusal limited excavation beyond 14".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Water Table Present? Yes ☑ No ☐ Depth (inches): 4

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation to the soil surface, oxidized rhizospheres on living roots, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.69492 Long: -108.692429 Datum: NAD 83

Soil Map Unit Name: Wf: Wanetta clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located near W edge of cell 15.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	30	☑	UPL
Bromus tectorum	45	☑	UPL
Elymus repens	10	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 15

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	0 X 3	0
FACU species	10 X 4	40
UPL species	75 X 5	375
Column Totals	85 (A)	415 (B)

Prevalence Index = B/A = 4.88

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP08u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-04	2.5Y 4/2	100					Clay Loam	**Fine and coarse roots**
04-12	10YR 4/3	100					Sandy Clay Loam	
12+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Gravels and cobbles common throughout the profile. Cobbles and rock refusal limited excavation beyond 12".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.694896 Long: -108.692323 Datum: NAD 83

Soil Map Unit Name: Wf: Wanetta clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located within cell 15.

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 deltoides	3	☐	FAC
Salix lutea	45	☑	FACW
Salix sp.	1	☐	UPL

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	1	☐	UPL
Elymus repens	7	☐	FACU
Juncus balticus	20	☑	FACW
Poa pratensis	18	☑	FACU
Unidentified forb	5	☐	

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 49

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	65	X 2	130
FAC species	3	X 3	9
FACU species	25	X 4	100
UPL species	7	X 5	35
Column Totals	100 (A)		274 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: DP08w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-06	2.5Y 4/2	98	2.5Y 5/4	2	C	M	Clay Loam	
06-10	10YR 4/2	100					Sand	
10+							Rock bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Distinct redoximorphic concentrations common within the depleted matrix. Rock refusal limited excavation beyond 10".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Water Table Present? Yes ☑ No ☐ Depth (inches): 9

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

Wetland Hydrology Present? Yes ☑ No ☐

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

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

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.696823 Long: -108.692058 Datum: NAD 83

Soil Map Unit Name: Bm: Bew silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located along N edge of cell 14.

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 tectorum	80	☑	UPL
Convolvulus arvensis	5	☐	UPL
Nassella viridula	10	☐	UPL
Sisymbrium altissimum	1	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 4

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	0 X 3	0
FACU species	1 X 4	4
UPL species	95 X 5	475
Column Totals	96 (A)	479 (B)

Prevalence Index = B/A = 4.99

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

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
0-06	10YR 4/3	100					Clay Loam	
06-13	2.5Y 4/2	100					Loamy Sand	
13+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 13

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Cobbles and rock refusal limited excavation beyond 13".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.696967 Long: -108.692092 Datum: NAD 83

Soil Map Unit Name: Bm: Bew silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located within cell 14.

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 deltoides	5	☐	FAC
Salix exigua	60	☑	FACW

Herbaceous Stratum Plot size (5 Foot Radius)

Asclepias viridiflora	2	☐	UPL
Cirsium arvense	10	☑	FACU
Lactuca serriola	3	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 40

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	60	X 2	120
FAC species	8	X 3	24
FACU species	10	X 4	40
UPL species	2	X 5	10
Column Totals	80 (A)		194 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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
0-16	2.5Y 4/2	98	7.5YR 5/4	2	C	M	Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes saturation within 12" of the soil surface and geomorphic position.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.694885 Long: -108.689977 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located near E boundary 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 inermis	30	☑	UPL
Elymus repens	60	☑	FACU
Poa compressa	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: 0 (A)

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	0 X 3	0
FACU species	70 X 4	280
UPL species	30 X 5	150
Column Totals	100 (A)	430 (B)

Prevalence Index = B/A = 4.30

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP10u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Sandy Clay Loam	**Cobbly**
10+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Cobbles and rock refusal limited excavation beyond 10".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed. Soils dry.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

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

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope (%): 30

Subregion (LRR): LRR F Lat: 45.694839 Long: -108.690007 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland data point located within small wetland along E boundary of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Elaeagnus angustifolia	10	☑	FACU

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Cirsium arvense	1	☐	FACU
Phalaris arundinacea	98	☑	FACW
Typha latifolia	1	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	1 X 1	1
FACW species	98 X 2	196
FAC species	0 X 3	0
FACU species	11 X 4	44
UPL species	0 X 5	0
Column Totals	110 (A)	241 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: 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 2/2	100					Mucky mineral	**Mucky mineral**
06-16+	10GY 4/1	95	10YR 4/6	5	C	M	Sandy Clay Loam	**Cobbly**

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Mucky mineral over prominent redoximorphic concentrations within a gleyed matrix. Many roots in the upper 6".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes saturation to the soil surface and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP11u

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.690283 Long: -108.696331 Datum: NAD 83

Soil Map Unit Name: An: Alluvial land, wet NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks: Upland data point located near SE 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 inermis	3	☐	UPL
Conium maculatum	1	☐	FACW
Convolvulus arvensis	1	☐	UPL
Elymus repens	85	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	1 X 2	2
FAC species	0 X 3	0
FACU species	85 X 4	340
UPL species	4 X 5	20
Column Totals	90 (A)	362 (B)

Prevalence Index = B/A = 4.02

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP11u

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 2/2	100					Loam	**Fine roots**
05-16	2.5Y 4/3	98	10YR 4/6	2	C	M	Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: Soils dry, compact. Mottles are hard, infrequent, and appear relict. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed. Soils dry.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP11w

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

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

Subregion (LRR): LRR F Lat: 45.69018 Long: -108.696272 Datum: NAD 83

Soil Map Unit Name: An: Alluvial land, wet 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: Wetland data point located along large wetland cell at the SE 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 inermis	3	☐	UPL
Conium maculatum	10	☐	FACW
Convolvulus arvensis	1	☐	UPL
Elymus repens	70	☑	FACU
Sisymbrium altissimum	1	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	X 1	0
FACW species	10	X 2	20
FAC species	0	X 3	0
FACU species	71	X 4	284
UPL species	4	X 5	20
Column Totals	85 (A)		324 (B)

Prevalence Index = B/A = 3.81

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:

This site lacks hydrophytic vegetation due to aggressive and adaptable nonnative grass Elymus repens that has invaded a wetland. This data point is located at a toeslope and contains wetland hydrology and hydric soils and qualifies as a wetland.

SOIL

Sampling Point: DP11w

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	2.5Y 3/1	100					Clay Loam	**Many fine roots**
07-16	2.5Y 4/2	88	N 4/0	5	D	M	Clay Loam	
07-16			7.5YR 4/6	7	C	M,PL	Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations and depletions common within the matrix and along pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 14

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes oxidized rhizospheres on living roots and geomorphic position.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP12u

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope (%): 100

Subregion (LRR): LRR F Lat: 45.690468 Long: -108.698421 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Upland data point located near SW corner of the site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)	Absolute % Cover:	Domiant Species?	Indicator Status
Elaeagnus angustifolia	3	☑	FACU
Populus deltoides	10	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)			
Elaeagnus angustifolia	30	☑	FACU
Prunus virginiana	5	☐	FACU
Ribes aureum	1	☐	FACU

Herbaceous Stratum Plot size (5 Foot Radius)			
Arctium minus	2	☐	FACU
Bromus inermis	75	☑	UPL
Bromus tectorum	5	☐	UPL
Convolvulus arvensis	8	☐	UPL
Galium aparine	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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	10	X 3	30
FACU species	51	X 4	204
UPL species	88	X 5	440
Column Totals	149 (A)		674 (B)

Prevalence Index = B/A = 4.52

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP12u

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 2/1	100					Loam	**Many fine roots**
06-12	10YR 3/1	100					Loam	**Cobbly**
12+							Cobble bottom	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed. Cobbles and rock refusal limited excavation beyond 12".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No evidence of wetland hydrology observed. Soils dry.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Kindsfater City/County: Yellowstone Sampling Date: 6/21/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP12w

Investigator(s): S Weyant Section, Township, Range: 6 2S 25E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope (%): 100

Subregion (LRR): LRR F Lat: 45.690438 Long: -108.698528 Datum: NAD 83

Soil Map Unit Name: LI: Larim gravelly loam, 15 to 35 percent slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☑, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Water is flowing over the point at a rate of about 1 CFS. The seep has expanded across the hillside and widened the wetland near the top and base of the hill.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)	Absolute % Cover:	Domiant Species?	Indicator Status
Populus deltoides	5	☑	FAC

Sapling/Shrub Stratum Plot size (15 Foot Radius)			
Elaeagnus angustifolia	20	☑	FACU
Prunus virginiana	1	☐	FACU

Herbaceous Stratum Plot size (5 Foot Radius)			
Bromus inermis	15	☑	UPL
Nasturtium officinale	40	☑	OBL
Pascopyrum smithii	3	☐	FACU
Rumex crispus	5	☐	FAC
Unidentified grass	7	☐	

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: 2 (A)

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

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

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	40	X 1	40
FACW species	0	X 2	0
FAC species	10	X 3	30
FACU species	24	X 4	96
UPL species	22	X 5	110
Column Totals	96 (A)		276 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

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

SOIL

Sampling Point: DP12w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-03	10YR 2/1	100					Mucky mineral	
3+							Bedrock	**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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 3

Hydric Soil Present? Yes ☑ No ☐

Remarks: This soil meets the Natural Resource Conservation Service (NRCS) definition of hydric soil (NRCS 2018) as having formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). Rock refusal limited excavation beyond 3". No hydric soil indicators were met due to restrictive rock layer

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 1

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, saturation to the soil surface, high water table, drainage patterns, and geomorphic position.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Kindsfater **2. MDT project#** STPX 56 (56) **Control#** 5034

3. Evaluation Date 10/17/2022 **4. Evaluators** J Trilling **5. Wetland/Site# (s)** Kindsfater - created wetland

6. Wetland Location(s): **T** 2S **R** 25E **Sec1** 6 **T** **R** **Sec2**

Approx Stationing or Mileposts

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

7. Evaluating Agency CCI for MDT

8. Wetland size acres 5.9

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 5.9

☐ **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
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittent	50
Depressional	Scrub-Shrub Wetland	Excavated	Seasonal/Intermittent	45
Depressional	Aquatic Bed	Excavated	Seasonal/Intermittent	5

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)

The site is managed in a natural state and contains less than 5% noxious weeds.

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

Euphorbia esula, Cirsium arvense, Convolvusus arvensis

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

The AA consists of excavated depressional wetland cells within a historic gravel pit/wetland site and created wetlands that were not classified as another mitigation type such as preserved, enhanced, re-established, and rehabilitated. Wetland mitigation construction was completed in 2013 and 2022 is the tenth monitoring year for the expanded wetland site. Land use surrounding the AA includes commercial developments, a gravel pit, agriculture (grazing), transportation (railroad and interstate), and a shooting range within the site.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Palustrine emergent vegetation, aquatic bed and young palustrine scrub-shrub communities developing.

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

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 database

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 Plains spadefoot (S3)

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☐ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use Observed approximately 40 plains spadefoot during the 2013 site visit and MDT identified this species during a 2019 site visit ; none observed in 2014-2018 or 2020-22.

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 Much of the upland areas surrounding the AA are decreasing in plant diversity due to the establishment of Bromus tectorum which may have detrimental impacts on wildlife within the site.

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**

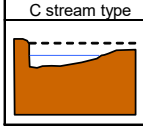
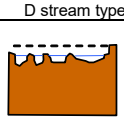
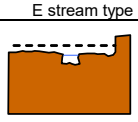
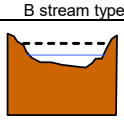
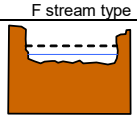
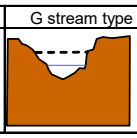
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

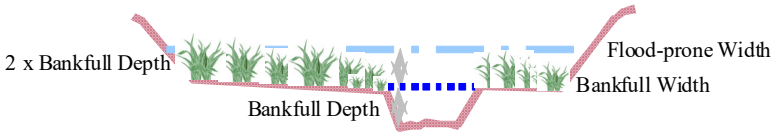
iii. Final Score and Rating: 0 NA **Comments:** No fish habitat within mitigation site; no perennial water.

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

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments: Flooding does not occur on the site as groundwater is the primary hyrdology source; no flooding occurs from in channel or overbank flow.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, 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: Estimated that AA ponds greater than 5 out of 10 years with approximately 5.3 acres inundated to approximately 0.5 feet (5.3*0.5=2.65 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: Isolated depressional wetland cells do not have outlets. Percent cover of wetland vegetation increased to greater than 70% within the majority of wetland cells.

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: Seasonal open water exists within excavated wetland cells. Most of the shorelines are dominated by deep rooted pants such as reed canary grass but some cells in the northern portion of the site have shorelines vegetated with shallow rooted annuals such as cheat grass.

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: Adjacent upland buffer with greater than 30% plant cover. 5.9 acres primarily vegetated of wetland within AA

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: All wetland cells with shallow surface water or cells saturated to surface; gravel substrate in created depressional wetland areas.

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: Wetlands are considered common, site has moderate disturbance, and structural diversity is moderate.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

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

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

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

Access is permitted without permission with the exception of the police shooting range.

General Site Notes

Wetland acreage increased by 0.6 acres since 2021. The site was slightly wetter in 2021 than in 2022.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Kindsfater - created wetland

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	0	1	0.00	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	5.31	☑
C. General Wildlife Habitat	M	.7	1	4.13	☑
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	NA	0	0	0.00	☐
F. Short and Long Term Surface Water Storage	M	.6	1	3.54	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	5.90	☑
H. Sediment/Shoreline Stabilization	M	.7	1	4.13	☐
I. Production Export/Food Chain Support	H	.8	1	4.72	☑
J. Groundwater Discharge/Recharge	M	.7	1	4.13	☐
K. Uniqueness	L	.3	1	1.77	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	1.18	☐
Totals:		5.9	9	34.81	
Percent of Possible Score			**65.56** %		

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 Kindsfater **2. MDT project#** STPX 56 (56) **Control#** 5034

3. Evaluation Date 10/17/2022 **4. Evaluators** J Trilling **5. Wetland/Site# (s)** Kindsfater - existing wetland

6. Wetland Location(s): **T** 2S **R** 25E **Sec1** 6 **T** **R** **Sec2**

Approx Stationing or Mileposts

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

7. Evaluating Agency CCI for MDT

8. Wetland size acres 33.3

Purpose of Evaluation

How assessed:

- ☐ **Wetlands potentially affected by MDT project**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

9. Assesssment area (AA) size (acres) 33.3

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Slope	Emergent Wetland	Partly Drained	Seasonal/Intermittent	80
Slope	Scrub-Shrub Wetland	Partly Drained	Seasonal/Intermittent	20

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)

The site is managed in a natural state and contains less than 5% noxious weeds.

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

Euphorbia esula, Cirsium arvense, Convolvulus arvensis, Cynoglossum officinale

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

The AA consists of pre-existing slope/depressional wetland areas located within a historic gravel pit/wetland site. Wetland mitigation constructed was completed in early spring 2013 and 2022 is the tenth monitoring year for the expanded wetland site. Land use surrounding the AA includes commercial developments, agriculture (grazing), transportation (railroad and interstate), and a shooting range within the site.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Emergent wetland community is dominant with areas of scrub-shrub wetland.

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

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 database

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 Plains spadefoot (S3)

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ■ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use Observed approximately 40 plains spadefoot during the 2013 site visit and MDT identified this species during a 2019 site visit ; none observed in 2014-2018 or 2020-22 but still belived to occupy site.

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 Much of the upland areas surrounding the AA are decreasing in plant diversity due to the establishment of Bromus tectorum which may have detrimental impacts on wildlife within the site.

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**

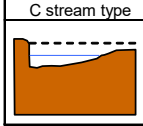
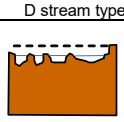
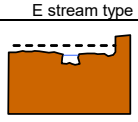
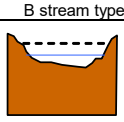
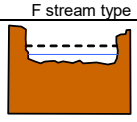
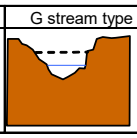
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

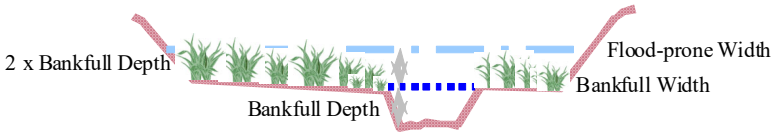
iii. Final Score and Rating: 0 NA **Comments:** No fish habitat within mitigation site.

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

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments: Wetlands are not subject to flooding via in-channel or overbank flow as there are no waterways on site.

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: Estimated that AA ponds greater than 5 out of 10 years with approximately 27 acres inundated to approximately 0.5 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: Unrestricted drainage from the bench down to meadow below.

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: Seasonal open water exists within excavated wetland cells. Most of the shorelines are dominated by deep rooted pants such as reed canary grass, broadleaf cattail, and Russian olive.

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: Adjacent upland buffer with greater than 30% plant cover.

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

i. Discharge Indicators

- [x] The AA is a slope wetland
- [ ] Springs or seeps are known or observed
- [ ] Vegetation growing during dormant season/drought
- [x] Wetland occurs at the toe of a natural slope
- [ ] Seeps are present at the wetland edge
- [ ] AA permanently flooded during drought periods
- [x] 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: PEM/PSS wetland present at the toe of slope; receives groundwater from terrace above.

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 is not unique for this area.

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:

Access is permitted without permission with the exception of the police shooting range.

General Site Notes

Wetland acreage within this AA increased in 2022 as compared to 2021. Many of the upland areas are converting to a near monoculture of Bormus tectorum.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Kindsfater - existing wetland

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	0	1	0.00	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	29.97	☑
C. General Wildlife Habitat	M	.5	1	16.65	☐
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	NA	0	0	0.00	☐
F. Short and Long Term Surface Water Storage	H	.9	1	29.97	☑
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	29.97	☑
H. Sediment/Shoreline Stabilization	H	.9	1	29.97	☐
I. Production Export/Food Chain Support	H	.8	1	26.64	☑
J. Groundwater Discharge/Recharge	M	.7	1	23.31	☐
K. Uniqueness	L	.3	1	9.99	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	6.66	☐
Totals:		6.1	9	203.13	
Percent of Possible Score			**67.78** %		

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. Kindsfater Wetland Mitigation Site. Comprehensive Vegetation Species List 2013-2022

Scientific Names	Common Names	GP Indicator Status(a)
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis stolonifera	Spreading Bent	FACW
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Alyssum alyssoides	Pale or Yellow Alyssum	UPL
Alyssum desertorum	Dwarf Alyssum	UPL
Amaranthus retroflexus	Red-Root	FACU
Arctium minus	**Lesser Burdock**	**FACU**
Artemisia absinthium	Common Sagewort	UPL
Artemisia dracunculus	Wild Tarragon	UPL
Artemisia frigida	Fringed Sage	UPL
Artemisia michauxiana	Michaux Sagewort	FAC
Asclepias speciosa	Showy Milkweed	FAC
Asclepias incarnata	**Swamp Milkweed**	**FACW**
Atriplex suckleyi	Suckley's Saltbush	UPL
Bassia scoparia (Kochia scoparia)	Mexican-Fireweed	FACU
Berteroa incana	Hoary False Alyssum	UPL
Brassica nigra	Black Mustard	UPL
Bromus arvensis	Field Brome	FACU
Bromus inermis	Smooth Brome	UPL
Bromus japonicus	Japanese Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Calamagrostis canadensis	Bluejoint	FACW
Carduus nutans	Musk Thistle	UPL
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex aurea	**Golden-Fruit Sedge**	**OBL**
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Wooly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex utriculata	Northwest Territory Sedge	OBL
Centaurea stoebe	Spotted Knapweed	UPL
Centaurium exaltatum	Centaury	UPL
Ceratophyllum demersum	Coon's-Tail	OBL
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium sp.	Goosefoot	NA
Cirsium arvense	Canadian Thistle	FACU
Cirsium vulgare	Bull Thistle	UPL
Conium maculatum	Poison-Hemlock	FACW
Convolvulus arvensis	Field Bindweed	UPL
Cornus alba	Red Osier	FACW
Crepis atribarba	Hawksbeard	UPL
Cynoglossum officinale	Gypsy-Flower	FACU

Table B-1. Kindsfater Wetland Mitigation Site. Comprehensive Vegetation Species List 2013-2022

Scientific Names	Common Names	GP Indicator Status(a)
Dactylis glomerata	**Orchard Grass**	**FACU**
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Flixweed Tansymustard	UPL
Elaeagnus angustifolia	Russian-Olive	FACU
Elaeagnus commutata	American Silver-Berry	UPL
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	**Nodding Wild Rye**	**FACU**
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum hyemale	Tall Scouring-Rush	FACW
Equisetum laevigatum	Smooth Scouring Rush	FACW
Erigeron caespitosus	Tufted Fleabane	UPL
Erigeron canadensis	Canada Horseweed	FACU
Erodium cicutarium	Stork's bill	UPL
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Fraxinus pennsylvanica	Green Ash	FAC
Fumaria vaillantii	Fumitory	UPL
Galium aparine	Sticky-Willy	FACU
Gaura parviflora	Butterfly Weed	UPL
Glycyrrhiza lepidota	American Licorice	FACU
Grindelia squarrosa	Curly-Cup Gumweed	FACU
Helianthus annuus	Common Sunflower	FACU
Hesperostipa comata	Needle-and-Thread	UPL
Heterotheca villosa	Golden-Aster	UPL
Hordeum jubatum	Fox-Tail Barley	FACW
Hyoscyamus niger	Black Henbane	UPL
Juncus articulatus	Joint-Leaf Rush	OBL
Juncus balticus	Baltic Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus compressus	**Round-Fruit Rush**	**FACW**
Juncus longistylis	Long-style Rush	FACW
Juncus torreyi	Torrey's Rush	FACW
Juniperus scopulorum	Rocky Mountain Juniper	UPL
Koeleria macrantha	Prairie Junegrass	UPL
Lactuca serriola	Prickly Lettuce	FAC
Lemna minor	Common Duckweed	OBL
Lepidium campestre	Field Pepperweed	UPL
Lepidium perfoliatum	Clasping Pepperwort	FACU
Logfia arvensis	Fluffweed	UPL

Table B-1. Kindsfater Wetland Mitigation Site. Comprehensive Vegetation Species List 2013-2022

Scientific Names	Common Names	GP Indicator Status(a)
Lycopus asper	Rough Water-Horehound	OBL
Marrubium vulgare	White Horehound	FACU
Medicago lupulina	Black Medick	FACU
Medicago sativa	Alfalfa	UPL
Melilotus albus	White Sweetclover	FACU
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Muhlenbergia asperiflora	Alkali Muhly	FACW
Nassella viridula	Green Needlegrass	UPL
Nasturium officinale	Water Cress	OBL
Nepeta cataria	Catnip	FACU
Oenothera villosa	Hairly Evening-Primrose	FACU
Onopordum acanthium	Scotch Thistle	UPL
Opuntia polyacantha	Plains Pricklypear	UPL
Panicum capillare	Common Panic Grass	FAC
Pascopyrum smithii	Western-Wheat Grass	FACU
Persicaria amphibia	Water Smartweed	OBL
Persicaria lapathifolia	Dock-Leaf Smartweed	OBL
Phalaris arundinacea	Reed Canary Grass	FACW
Physalis longifolia	Long-leaf Ground Cherry	UPL
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FACW
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Polypogon monspeliensis	Annual Rabbit's-Foot Grass	FACW
Populus angustifolia	Narrow-Leaf Cottonwood	FACW
Populus deltoides	Eastern Cottonwood	FAC
Potentilla pensylvanica	Pennsylvania Cinquefoil	FACU
Prunus virginiana	Choke Cherry	FACU
Ranunculus gmelinii	Lesser Yellow Water Buttercup	FACW
Ratibida columnifera	Prairie Coneflower	UPL
Ribes aureum	Golden Currant	FACU
Rosa woodsii	Wood's Rose	FACU
Rumex crispus	Curly Dock	FAC
Rumex salicifolius	Willow Dock	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix lutea (S. eriocephala)	Yellow Willow	FACW
Salix sp.	Willow	NA
Salsola tragus	Prickly Russian-Thistle	FACU
Schedonorus arundinaceus	Tall False Rye Grass	FAC
Schedonorus pratensis	False Meadow Rye	FACU
Schoenocrambe linifolia	Flax-leaf Plains Mustard	UPL
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL

Table B-1. Kindsfater Wetland Mitigation Site. Comprehensive Vegetation Species List 2013-2022

Scientific Names	Common Names	GP Indicator Status(a)
Schoenoplectus pungens	Three-Square	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Silene latifolia	White Cockle	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sisymbrium loeselii	Smallpod Tumble Mustard	UPL
Solanum dulcamara	Climbing Nightshade	FACU
Solidago canadensis	Canadian Goldenrod	FACU
Sonchus arvensis	Field Sow-Thistle	FAC
Sphaeralcea coccinea	Scarlet Globemallow	UPL
Sporobolus cryptandrus	Sand Dropseed	FACU
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Ulmus americana	American Elm	FAC
Verbascum thapsus	Great Mullein	UPL
Verbena bracteata	Carpet Vervain	FACU
Veronica anagallis-aquatica	Blue Water Speedwell	OBL
Veronica peregrina	Neckweed	FACW
Vicia americana	American Purple Vetch	FACU
Vicia sativa	Garden Vetch	FACU
Xanthium strumarium	Rough Cockleburr	FAC
Zeltnera exaltata	Desert Mountain-pink	FACW

(a) 2020 NWPL (USACE 2020)

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

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Kindsfater
Yellowstone County, Montana

Kindsfater: Photo Point Photographs



Photo Point: 1. View of eastern edge of Cell 14 looking W
Bearing: 280 degrees Year: 2013



Photo Point: 1. View of eastern edge of Cell 14 looking W
Bearing: 280 degrees Year: 2022



Photo Point: 2. View of western side of Cell 13 looking SW
Bearing: 280 degrees Year: 2013



Photo Point: 2. View of western side of Cell 13 looking SW
Bearing: 280 degrees Year: 2022



Photo Point: 3. View of southern edge of Cell 9 looking NE
Bearing: 0 degrees Year: 2013



Photo Point: 3. View of southern edge of Cell 9 looking NE
Bearing: 0 degrees Year: 2022

Kindsfater: Photo Point Photographs



Photo Point: 4. View of Cell 12 looking S
Bearing: 200 degrees Year: 2013



Photo Point: 4. View of Cell 12 looking S
Bearing: 200 degrees Year: 2022



Photo Point: 5. View of Cell 11 looking SW
Bearing: 10 degrees Year: 2013



Photo Point: 5. View of Cell 11 looking SW
Bearing: 10 degrees Year: 2022



Photo Point: 6. View of western side of Cell 10 looking SW
Bearing: 150 degrees Year: 2013



Photo Point: 6. View of western side of Cell 10 looking SW
Bearing: 150 degrees Year: 2022

Kindsfater: Photo Point Photographs



Photo Point: 7. View of western side of Cell 5 looking east
Bearing: 90 degrees Year: 2013



Photo Point: 7. View of western side of Cell 5 looking east
Bearing: 90 degrees Year: 2022



Photo Point: 8. View of western edge of Cell 2 looking NW
Bearing: 315 degrees Year: 2013



Photo Point: 8. View of western edge of Cell 2 looking NW
Bearing: 315 degrees Year: 2022



Photo Point: 9. View of Cell 1 looking N
Bearing: 90 degrees Year: 2013



Photo Point: 9. View of Cell 1 looking N
Bearing: 90 degrees Year: 2022

Kindsfater: Photo Point Photographs



Photo Point: 10. View of northern portion of Cell 3 looking SE
Bearing: 140 degrees Year: 2013



Photo Point: 10. View of northern portion of Cell 3 looking SE
Bearing: 140 degrees Year: 2022



Photo Point: 11. View of Cell 7 looking SE
Bearing: 150 degrees Year: 2013



Photo Point: 11. View of Cell 7 looking SE
Bearing: 150 degrees Year: 2022



Photo Point: 12. View of Cell 6 looking W
Bearing: 230 degrees Year: 2013



Photo Point: 12. View of Cell 6 looking W
Bearing: 230 degrees Year: 2022

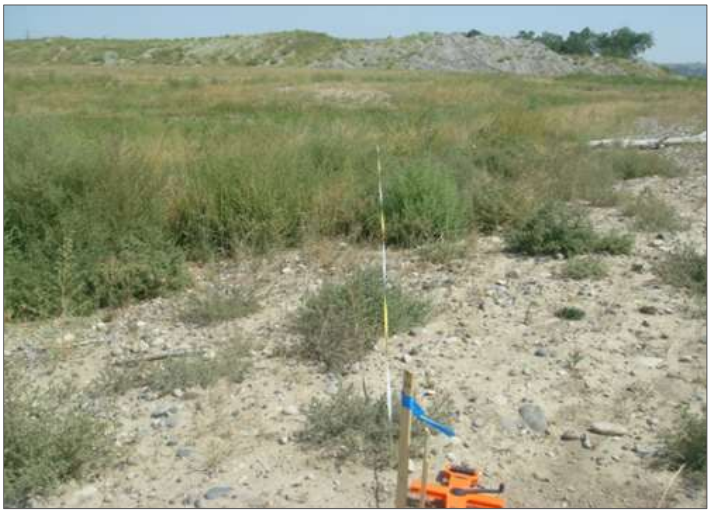
Kindsfater: Transect Photographs



Transect 1: Start Location: Wetland Cell 14
Bearing: 240 degrees Year: 2013



Transect 1: Start Location: Wetland Cell 14
Bearing: 240 degrees Year: 2022



Transect 1: End Location: Wetland Cell 14
Bearing: 50 degrees Year: 2013



Transect 1: End Location: Wetland Cell 14
Bearing: 50 degrees Year: 2022



Transect 2: Start Location: Wetland Cell 8
Bearing: 225 degrees Year 2013



Transect 2: Start Location: Wetland Cell 8
Bearing: 225 degrees Year 2022

Kindsfater: Transect Photographs



Transect 2: End
Bearing: 40 degrees
Location: Wetland Cell 8
Year 2013



Transect 2: End
Bearing: 40 degrees
Location: Wetland Cell 8
Year 2022



Transect 3: Start
Bearing: 290 degrees
Location: Wetland Cell 4
Year 2013



Transect 3: Start
Bearing: 290 degrees
Location: Wetland Cell 4
Year 2022



Transect 3: End
Bearing: 290 degrees
Location: Wetland Cell 4
Year 2013



Transect 3: End
Bearing: 290 degrees
Location: Wetland Cell 4
Year 2022

Kindsfater: Data Point Photographs



Data Point: DP01w Location: Veg Community 11
Year 2022



Data Point: DP01u Location: Veg Community 14
Year 2022



Data Point: DP02w Location: Veg Community 11
Year 2022



Data Point: DP02u Location: Veg Community 14
Year 2022



Data Point: DP03w Location: Veg Community 5
Year 2022



Data Point: DP03u Location: Veg Community 14
Year 2022

Kindsfater: Data Point Photographs



Data Point: DP04w Location: Veg Community 5
Year 2022



Data Point: DP04u Location: Veg Community 12
Year 2022



Data Point: DP05w Location: Veg Community 14
Year 2022



Data Point: DP05u Location: Veg Community 4/15
Year 2022



Data Point: DP06w Location: Veg Community 16
Year 2022



Data Point: DP06u Location: Veg Community 4/14
Year 2022

Kindsfater: Data Point Photographs



Data Point: DP07w Location: Veg Community 9
Year 2022



Data Point: DP07u Location: Veg Community 10
Year 2022



Data Point: DP08w Location: Veg Community 8
Year 2022



Data Point: DP08u Location: Veg Community 17
Year 2022



Data Point: DP09w Location: Veg Community 9
Year 2022



Data Point: DP09u Location: Veg Community 17
Year 2022

Kindsfater: Data Point Photographs



Data Point: DP10w Location: Veg Community 11
Year 2022



Data Point: DP10u Location: Veg Community 17
Year 2022



Data Point: DP11w Location: Veg Community 3
Year 2022



Data Point: DP11u Location: Veg Community 17
Year 2022



Data Point: DP12w Location: Veg Community 16
Year 2022



Data Point: DP12u Location: Veg Community 14
Year 2022