# **Montana Department of Transportation Wetland Mitigation Monitoring Report**

#### JTX – TUNNICLIFF RANCH MITIGATION SITE

# **Project Overview**

MDT Project Number: STPX-STWD (056) UPN# 7286 Watershed: Watershed #14 – Middle Yellowstone

**Monitoring Year: 2024** 

Years Monitored: 9th year of monitoring

Corps Permit Number: NWO-2010-01938-MTH

Monitoring Conducted By: Confluence Consulting Inc Dates Monitoring Was Conducted: June 19-21, 2024

# **Purpose of the Approved Project:**

The site was constructed to provide 29.63 acres of compensatory wetland mitigation credits for wetland impacts associated with future transportation project-related projects in Watershed #14 – Middle Yellowstone. Construction consisted of excavating a series of 13 cells ranging in size from 0.33 to 1.50 acres. Eight woody planting enclosures, with 1,650 containerized woody plantings, were constructed around the periphery of excavated cells to establish scrub/shrub wetland and riparian habitat.

#### **Site Location:**

Latitude: 45.83953 Longitude: - 107.59887 County: Big Horn Nearest Town: Hardin, MT

Map Included: Figure 1

Mitigation Site Construction Started: Fall/2015 Construction Ended: Winter/2016 Dates of Any Recent Corrective or Maintenance Activities (since previous report):

Activity: Weed management activities continue to control noxious weed infestations found within the

site. Date: September 2023 & August 2024

**Specific recommendations for any additional corrective actions:** MDT will continue to work with the landowner, Montana Fish, Wildlife and Parks (MFWP) on weed control to bring noxious weed cover back below the 5% threshold. MDT is working towards developing adaptive management activities with MFWP to address woody vegetation deficiencies and fencing enclosures within the site. Two of the bird boxes on the west fence line are no longer present at the site and MDT may want to replace them.

**Anticipated Wetland Credit Acres: 29.63** 

Wetland Credit Acres Generated to Date: 13.51

Previous Monitoring Reports: <a href="https://www.mdt.mt.gov/publications/brochures/wetland-">https://www.mdt.mt.gov/publications/brochures/wetland-</a>

mitigation.aspx

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

<u>Requirements</u> (from approved mitigation plan, banking instrument, or Department of Army (DA) permit conditions)

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

Table 1. Summary of Performance Standards in 2024

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 Great Plains Regional Supplement.	Y	All 13 excavated cells contain wetlands and meet the wetland hydrology, vegetation, and soil requirements. Wetlands had developed across 8.85 acres of the site.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	All 13 excavated cells were saturated near the surface, and some contained standing water during the monitoring event.
	Hydric soil conditions are present or appear to be forming.	Υ	All excavated cells within the mitigation site exhibit hydric soil indicators (e.g., sulfidic odor, depleted matrix, redox dark surface).
Hydric Soil	Soil is sufficiently stable to prevent erosion.	Υ	Disturbed soil is stable and does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Vegetative cover was estimated to be 85% across disturbed upland areas and 75-90% across various wetland areas. Soils on the site are supporting plant cover.
	Wetland plant communities are delineated as hydrophytic by using technical guidelines.	Y	All 13 excavated cells had developed wetland plant communities.
Hydrophytic Vegetation	Hydrophytic vegetation success will include achieving a minimum overall vegetation cover of 70 percent in created wetland areas within 5 years after site construction.	Y	Vegetative cover within the excavated cells ranged from 75-90% and all wetland cells have achieved success for this standard.
Noxious Weeds	Noxious weeds do not exceed 5 percent cover.	N	Noxious weeds were identified in upland locations across the site. Noxious weed cover across the site was 7%.
Woody Plants	Plantings exceed 50 percent survival after 5 years.	N	Less than 1 percent of the woody plants installed at the site were alive.
Open Water	Open water will be considered successful and creditable when wetland vegetation establishes in the form of either emergent, floating and/or submerged species of plants.	Y	Open water seasonally fills the excavated cells which are vegetated with emergent plant communities.
Functional Assessment	The site will be considered fully functional and creditable when it achieves an overall Montana Wetland Assessment Method (MWAM) rating of Category II or better at the end of the compensatory monitoring period.	Y	The site has achieved a Category III rating.

#### **Summary Data**

**Wetland Delineation** – A total of 8.85 emergent wetland acres were delineated within the 13 wetland cells at the JXT Tunnicliff mitigation site during the 2024 monitoring event. Wetland acreage within the site decreased by 0.18 acres between the 2023 and 2024 monitoring events but is still higher than the wetland acreage prior to 2022.

Before construction, MDT identified two small palustrine emergent wetlands in the southeastern corner of the site and a smaller palustrine emergent wetland along the eastern boundary, which altogether totaled 0.03 acre. These small wetlands were preserved during construction and were identified and mapped during the 2024 monitoring event. No changes were noted from previous years (Figure A-3, Appendix A).

**Functional Assessment** – The JTX Tunnicliff mitigation site has developed into a Montana Wetland Assessment Method (MWAM) Category III wetland (Table 2; Appendix B). In 2024, the MWAM determination decreased from category II back to a category III wetland due to a lower MTNHP species habitat score. This score was lower because Merriam's shrew and Preble's shrew were both absent from the 2024 observed species occurrences section of the MTNHP report and had been moved to the other potential species section.

Table 2. MWAM Summary for the JTX – Tunnicliff Ranch Site

Table 2. WWANT Summary for the STA	Turniciii No				
MWAM Function and Value Parameters	2017	2021	2022	2023	2024
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.1)	Low (0.1)	Low (0.1)
MTNHP Species Habitat	Low (0.1)	Mod (0.6)	Mod (0.6)	High (0.9)	Mod (0.6)
General Wildlife Habitat	Mod (0.4)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	N/A
Flood Attenuation	Mod (0.5)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)
Short- and Long-Term Surface Water	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.0)
Storage	10100 (0.6)	півії (0.9)	півіі (0.9)	підії (0.9)	High (0.9)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (1)	High (1)	High (1)	High (1)
Sediment/Shoreline Stabilization	N/A	N/A	N/A	N/A	Mod (0.6)
Production Export/Food Chain Support	Mod (0.4)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)
Groundwater Discharge/Recharge	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Uniqueness	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential	High (0.2)	High (0.2)	High (0.2)	High (0.2)	High (0.2)
Actual Points/Possible Points	4.0/9	5.6/9	5.7/9	6.0/9	6.3/10
% of Possible Score Achieved	44%	62%	63%	67%	63%
Overall Category	III	III	III	II	III

**Vegetation** - All desirable vegetation communities observed within the mitigation site appeared healthy in 2024, and the effects of the previous drought were less noticeable, the cattails (*Typha angustifolia*) appear to be increasing in dominance. Wetland plant communities exhibited increased coverage from obligate and FAC-wet species, and the upland plant communities were healthy even though the intermediate wheatgrass (*Thinopyrum intermedium*) appeared drier than in previous years. A total of 73 plant species have been identified at the site over the last 9 years; with one additional species (*Carex utriculata*) observed in 2024 (Table B-1; Appendix B).

Four upland community types and two wetland community types were identified and mapped at the site in 2024 (Figure A-3, Appendix A). Dominant plant species observed within each community are listed on the Wetland Mitigation Site Monitoring forms (Appendix B). Most of the excavated cells have developed wetland communities dominated by *Schoenoplectus* spp./*Typha angustifolia* (i.e. Wetland Type 14). For the past few years, the wetland plant communities in cells 1, 2, 3, and 10 were still becoming established and thus the community type named "transitional wetland". In 2021, the transitional vegetation in this community changed and the community type renamed as Wetland Type 13 (*Hordeum jubatum/Elymus repens*), which reflected the increase in hydrophytic vegetation that has been observed between 2019 and 2021. In 2024, cell 8/9 saw the largest change with Wetland Type 13 moving in and creating a donut around Wetland Type 14.

The vegetation community types identified on the site in 2024 are as follows:

- Upland Type 6 *Pascopyrum smithii/Poa pratensis*
- Upland Type 7 Schedonorus pratensis
- Upland Type 8 *Thinopyrum intermedium*
- Upland Type 12 Elaeagnus angustifolia/Thinopyrum intermedium
- Wetland Type 13 –Hordeum jubatum/Elymus repens
- Wetland Type 14 Schoenoplectus spp./Typha angustifolia

Vegetation cover was measured along two transects (T-1 and T-2) in 2024 (Figure A-2, Appendix A). T-1 is 792 feet long and intersects plant communities consisting of Upland Type 8 – *Thinopyrum intermedium* and Wetland Type 14 – *Schoenoplectus* spp./*Typha angustifolia*. Sixty three percent of the transect crossed wetland habitat, which is an increase since 2023. Total vegetative cover decreased in 2024, due to increased amounts of open water patches within the wetland cells (Table 3).

Table 3. Data Summary for T-1 from 2018 Through 2024 at the JTX - Tunnicliff Ranch Site.

Monitoring Year	2018	2019	2020	2021	2022	2023	2024
Vegetation Community Transitions Along Transect	6	5	5	6	4	6	6
Vegetation Communities Along Transect	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1
Total Vegetative Species	21	21	26	21	27	33	34
Total Hydrophytic Species	9	9	8	9	12	15	16
Total Upland Species	12	12	18	12	15	18	18
Estimated % Total Vegetative Cover	75	95	95	95	90	93	92
Estimated % Unvegetated	25	5	5	5	10	7	8
% Transect Length Comprising Hydrophytic Vegetation Communities	53	56	58	57	77	59	63
% Transect Length Comprising Upland Vegetation Communities	47	44	42	43	23	41	37
% Transect Length Comprising Standing Water Transitional Wetland	0	0	0	0	0	0	0

T-2 is 900 feet long and intersects Upland Type 8 and Wetland Types 13 and 14. Fifty-three percent of the transect crossed wetland habitat in 2024, which is an increase since 2023. Vegetative cover decreased slightly in 2024, due to increased amounts of standing water patches within the wetland cells (Table 4).

The three small preservation wetlands identified within the monitoring area before site development were not assigned a community type because of their small size (total 0.03 acre). Wetland species associated with these small wetland pockets include creeping meadow foxtail (*Alopecurus arundinaceus*), Baltic rush (*Juncus balticus*), and sedges (*Carex* spp.).

Table 4. Data Summary for T-2 from 2018 Through 2024 at the JTX – Tunnicliff Ranch Site.

Monitoring Year	2018	2019	2020	2021	2022	2023	2024
Vegetation Community Transitions Along Transect	5	5	5	7	8	7	12
Vegetation Communities Along Transect	3	3	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2	2	2
Total Vegetative Species	11	11	21	20	21	30	29
Total Hydrophytic Species	6	6	10	11	11	15	15
Total Upland Species	5	5	11	9	10	15	14
Estimated % Total Vegetative Cover	65	85	85	85	80	87	86
Estimated % Unvegetated	35	15	15	15	20	13	14
% Transect Length Comprising Hydrophytic Vegetation Communities	14	14	68	54	84	48	53
% Transect Length Comprising Upland Vegetation Communities	33	33	32	46	16	52	47
% Transect Length Comprising Standing Water Transitional Wetland	53	53	0	0	0	0	0

Weed infestations containing state-listed Priority 2B noxious weeds were mapped at the JTX – Tunnicliff mitigation site in 2024. Most noxious weed infestations were in the upland buffer areas and assigned trace, low, moderate, and high cover classes (less than 1%, 1-5%, 6-25% and 26-100% cover respectively). This year, a "low" cover occurrence of field bindweed (*Convolvulus arvensis*) was observed (Figure A-3, Appendix A). Multiple "trace" populations of Canada thistle (*Cirsium arvense*) were mapped in 2024. Additionally, a "low" cover class patch and two "high" cover class patches near the northeast corner and southeast corner of the site. Many populations of Russian knapweed (*Acroptilon repens*) ranging from "trace" to "high" were mapped.

Noxious weed cover was estimated at 7% across the site, which is above the performance standard threshold. This level of cover was likely the result of a wet spring. The site was treated in the fall of 2023 by weed contractors for MDT, but Canada thistle and Russian knapweed cover appears to have increased. The site was treated for Canada thistle, houndstongue, and salt cedar plant, on August 21<sup>st</sup>, 2024.

Eight woody plant enclosures (PE-1 through PE-8) were monitored for woody plant survival in 2024 by walking and recording live woody stems (Figure A-3 Appendix A). A total of 1,650 containerized woody plants were installed in the eight plant enclosures in 2016. Woody species planted at the site include silver buffalo-berry (*Shepherdia argentea*), Douglas' Hawthorne (*Crataegus douglasii*), silverberry (*Elaeagnus commutata*), common chokecherry (*Prunus virginiana*), plains cottonwood (*Populus deltoides*), box elder (*Acer negundo*), and bur oak (*Quercus macrocarpa*). Planted woody vegetation survival was estimated at 1% in 2024, with a total of 11 live individuals observed, all contained within PE-6. In July 2020, a lightning sparked grassfire burned approximately 4.5 acres, including approximately half of PE-01 and three quarters of PE-03 (Figure A-3, Appendix A). Any live woody vegetation remaining within PE-01 and PE-03 were destroyed by the fire. Within PE-06, PE-07, and PE-08, numerous volunteer Russian Olive (*Elaeagnus angustifolia*) were observed but appeared to be struggling in 2024. Intact wildlife fencing around enclosures was effective in keeping wildlife away from plantings, as no signs of

browse were noted in those enclosures containing surviving woody plantings. In 2024, PE-05 had a hole in the west end of the fence and multiple other enclosures had sagging points, PE-04, PE-06 and PE-08.

*Hydrology* – Alluvial groundwater is the primary hydrologic source for wetland development at the JTX-Tunnicliff site, with precipitation and overbank flooding from the adjacent Bighorn River serving as secondary hydrologic sources. Pools of shallow surface water were observed in multiple excavated cells at the site during the 2024 site visit, but all contained emergent vegetation and thus were not mapped as open water.

Three groundwater monitoring wells are located within the site, and two of the wells are regularly monitored by the US Geologic Survey (USGS well #455029107355601 and #455016107360402). The 2024 data for these wells indicates that groundwater depths ranged from approximately 3.06-7.46 feet below the ground surface elevation of 2,835.4 feet between May and September. These wells are in upland areas, where the ground surface elevation is approximately 3.4 and 5.6 feet above the wetland cell design elevation of 2832.0 feet, for MW-1 and MW-7A respectively. Therefore, the groundwater depths recorded in the monitoring wells likely correspond with groundwater depths ranging from approximately 1.98 feet above ground surface elevation to 2.86 feet below the ground surface elevation within the excavated wetland cells (Table 5; USGS 2024a, USGS 2024b).

Table 5. 2024 USGS Groundwater Well Data for the JTX – Tunnicliff Ranch Site.

	Canawater wen		Annravimata danth
	Mountain	Depth to water level, feet below	Approximate depth to groundwater
Date	Time		relative to wetland
		land surface	cell design elevation
2024 d	iscrete water-leve	el measurements for V	Vell #1
5/14/2024	1:21 pm	3.06	+0.34
6/27/2024	2:09 pm	4.34	-0.94
8/2/2024	2:45 pm	5.97	-2.57
8/16/2024	2:40 pm	6.02	-2.62
9/30/2024	1:58 pm	6.26	-2.86
2024 di	screte water-leve	l measurements for W	ell #7A
5/14/2024	1:34 pm	3.62	+1.98
6/27/2024	2:37 pm	5.21	+0.39
8/16/2024	10:15 am	7.02	-1.42
8/16/2024	7:20 pm	6.97	-1.37
9/30/2024	7:05	7.46	-1.86
10/16/2024	11:42	7.42	-1.82

Hydrologic indicators encountered within excavated wetland cells across the site included algal mat or crust, hydrogen sulfide odor, geomorphic position, a positive FAC-neutral test, near surface soil saturation, a high-water table, and surface water.

**Soils** – Soil pits were excavated at paired sample plots for all 10 wetland cells (Figure A-2 – Appendix A). Wetland soil pits were located inside the excavated depressions and upland soil pits were located upslope of and outside of the wetland boundaries. Soil textures within the wetland soil pits ranged from loamy sand to clay loam, with one instance of silty clay at SP09w and a thin layer of muck at SP02w. The depleted matrix (F3) hydric soil indicator was observed within every wetland soil pit. Additionally, hydrogen sulfide (A4) and 1 cm muck (A9) indicators were observed at some of the soil pits. Soil textures within upland soil pits ranged from loamy sand to clay. No hydric soil indicators were met in the upland

pits, however a few points displayed redox concentrations (a common criteria seen in depleted matrixes) but were determined not to be an indicator and is explained in the remarks. Although these observations are worth noting, no evidence of wetland hydrology was observed, and an upland vegetation community was present. Saturation was observed at upland sample point SP01u, however this was determined not to qualify as wetland because no indicators were met for hydrophytic vegetation or hydric soil. Additional field observations for the 20 sample plots are provided in the wetland determination data forms in Appendix B.

**Photographs** – Photographs were taken at photo points 1–4 (PP1 to PP4), transect endpoints, and data points and are provided in Appendix C, with comparisons between 2024 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).

#### **Credit Summary**

**Functional Unit Credits** – The 2024 functional unit credits are summarized in Table 6. A total of 55.95 functional unit credits were generated at the JTX – Tunnicliff Ranch Mitigation site after applying the appropriate mitigation ratios to the 2024 wetland acreage and multiplying that value by the points generated from the 2024 MWAM Assessment.

Table 6. Functional Unit Credit Summary for JTX – Tunnicliff Ranch Mitigation Site in 2024.

Mitigation Type	2024 Delineated Acreage	Ratio	2024 Mitigation Credit Acres	MWAM Actual Points <sup>a</sup>	Functional Unit Credits
Creation (Establishment)	8.85	1:1	8.85	6.30	55.76
Creation (Re- establishment)	0.0	5:1	0	6.30	TBD
Preservation	0.03	1:1	0.03	6.30	0.19
Functional Unit Credits (Mitigation Credit Acres × Actual Points)					55.95

<sup>&</sup>lt;sup>a</sup> Montana Wetland Assessment Method (MWAM) forms can be found in Appendix B

**Wetland Mitigation Credits**— As of June 2024, the JTX — Tunnicliff Ranch site had developed 13.51 mitigation credit acres (Table 7). The site received 8.85 credit-acres for wetland development, which is a 0.18 credit-acre decrease from 2023.

The original mitigation credit strategy called for the eight woody plant enclosures to be credited at 5:1 if the enclosures were successful in producing scrub/shrub habitat across the site. With less than 1 percent of the woody plants surviving in 2024, the woody planting credit metric is not being met, and no credits have been achieved for these areas. Additional credits from the site include 0.03 acres for preservation of existing wetlands on the site before construction and 4.63 acres of upland buffer credit. Table 6 summarizes the current estimated wetland credits based on the USACE-approved credit ratios (USACE 2005) and the wetland delineation that was completed in June 2024.

Wildlife – Twelve bird species were identified at the site in 2024. Bird boxes one and eight were full of nesting material. Deer tracks and several beds were observed at the site, as well as a baby rattlesnake, vole, and frog.

Table 7. Wetland Mitigation Credits Estimated for the JTX – Tunnicliff Ranch Site (2016–2024)

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type <sup>(a)</sup>	Anticipated Mitigation Surface Area (acres)	USACE- Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2016 Mitigation Credit (acres)	2022 Mitigation Credit (acres)	2023 Mitigation Credit (acres)	2024 Mitigation Credit (acres)
Creation (Establishment)	Depression al wetlands	Palustrine emergent and palustrine scrub/shrub	26.85	1:1	26.85	0	11.24	9.03	8.85
Creation (Reestablishment)	Woody plant enclosures	Palustrine scrub/shrub	2.73	5:1	0.55	0.5	0	0	0
Preservation	Pre-project Wetlands	Palustrine Emergent	0.03	1:1	0.03	0.03	0.03	0.03	0.03
Upland Buffer	100-foot- wide upland perimeter	N/A	10.98	5:1	2.2	0	4.51	4.61	4.63
	Totals		40.6		29.63	0.5	15.78	13.67	13.51

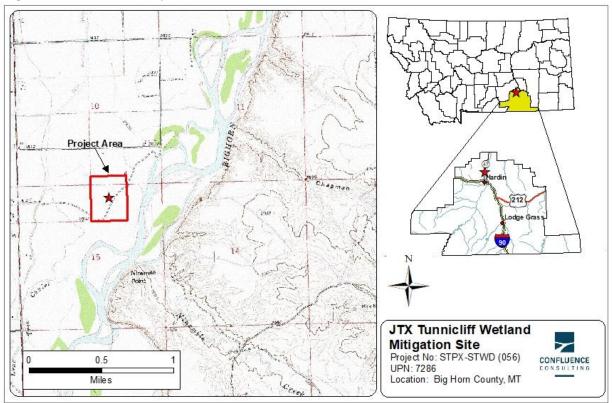
## **Conclusions**

In the ninth year of monitoring, the JTX-Tunnicliff mitigation site met all but two of the established performance standards. Overall, vegetation communities have high amounts of cover, and the wetland areas are becoming well developed. Wetland development is expected to continue without any active management.

However, active management will be required to achieve success for the performance standards not being met. Noxious weed cover increased between 2023 and 2024 with several new infestations observed and higher cover in a couple pre-existing patches. Following the trend seen in 2023, total noxious weed cover is now greater than 5% across the site and no longer meets the performance standards. The standard which requires that woody plant survival exceeds 50 percent after 5 years was not met in 2024 and MDT is discussing adaptive management considerations in cooperation with the landowner MFWP, and the Corps.

#### Maps, Plans, Photos

Figure 1. Site Location Map



**Project Area Maps/Figures:** See Appendix A (Monitoring Activity Locations; Mapped Site Features; and Wetland Delineation)

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

Photos: See Appendix C (Photo Points, Paired Sampling Point Photos, and Transect Photos)

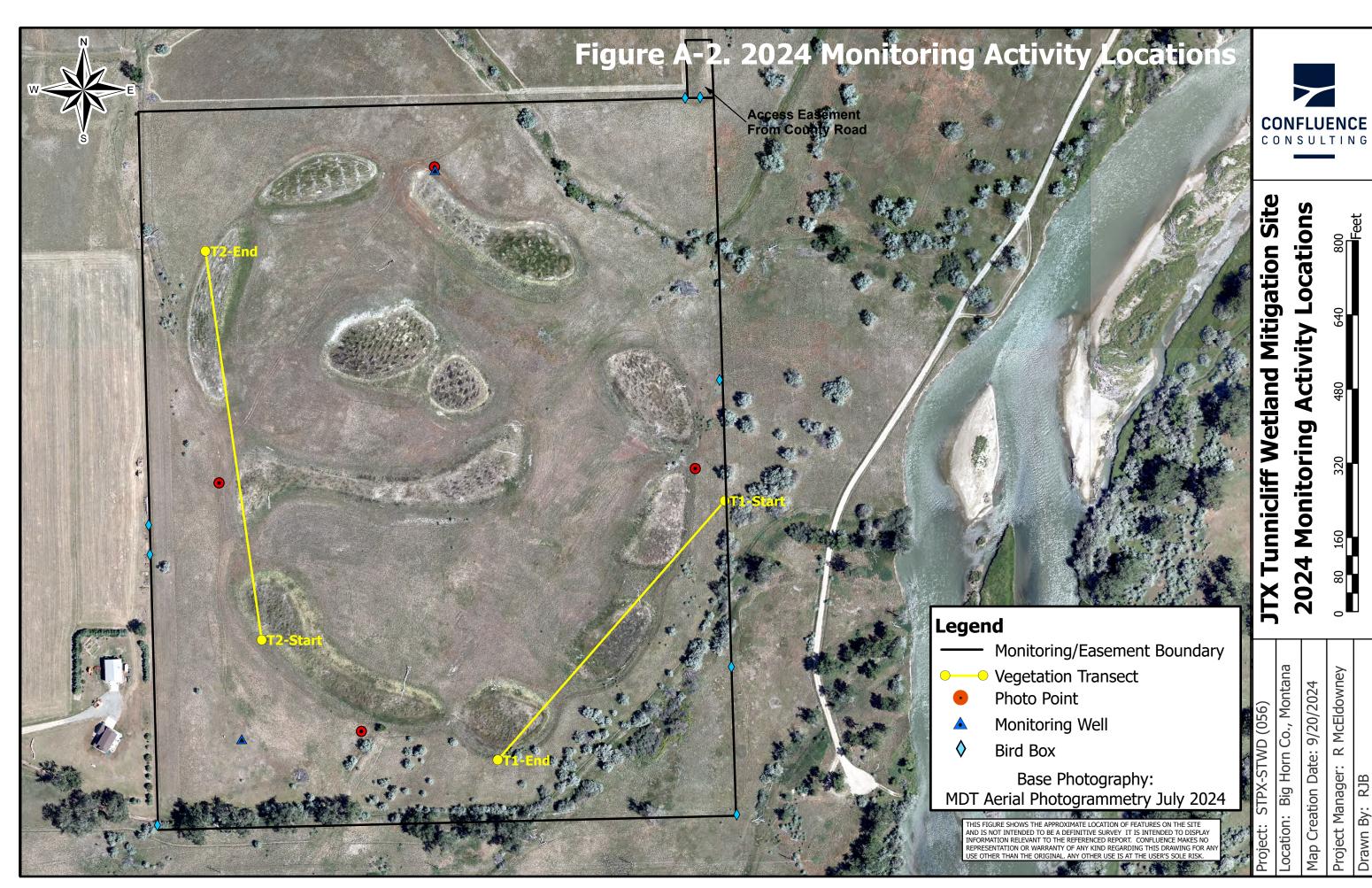
Plans: See Appendix D of 2016 JTX-Tunnicliff Wetland Monitoring Report

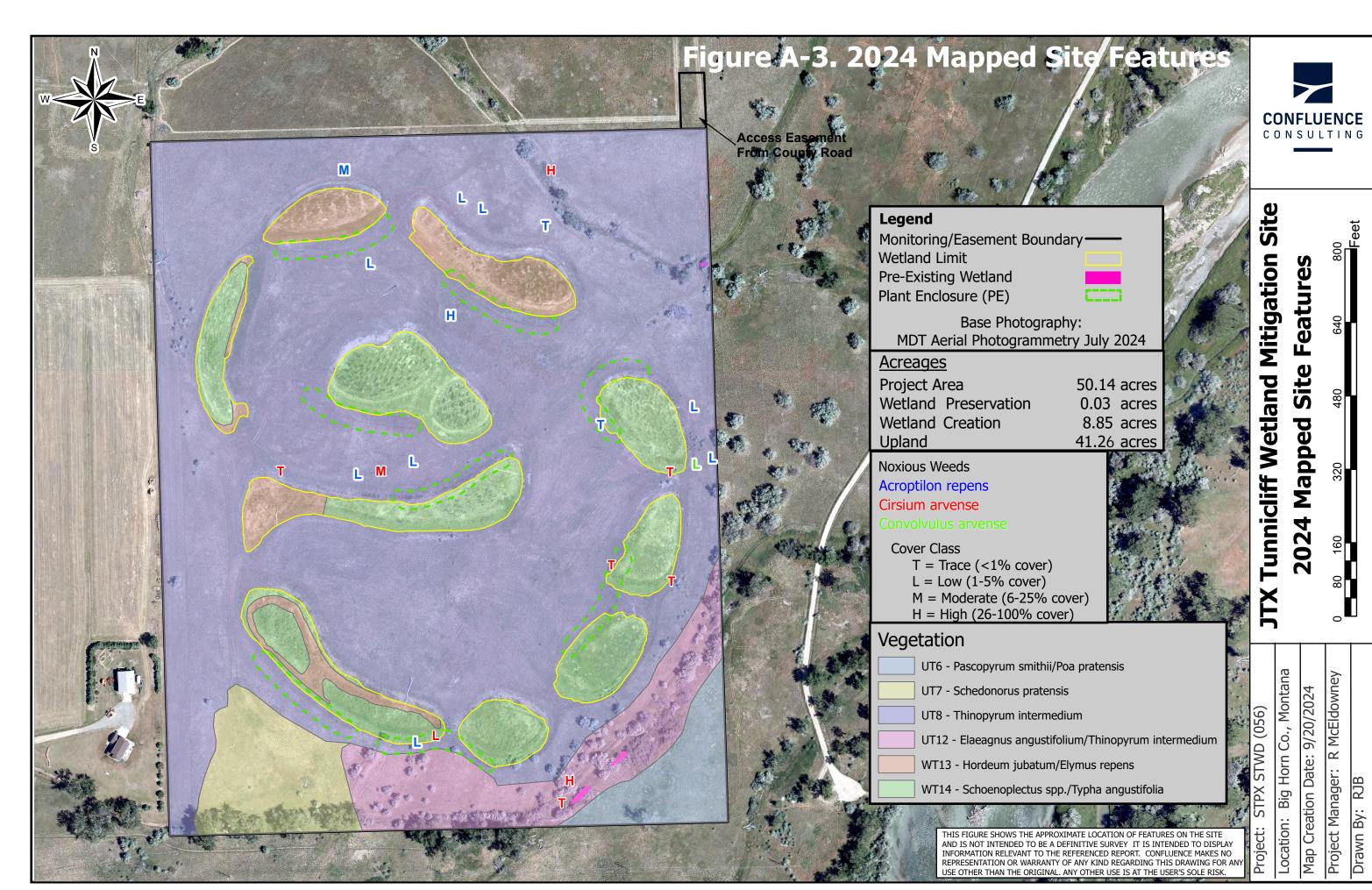
# References

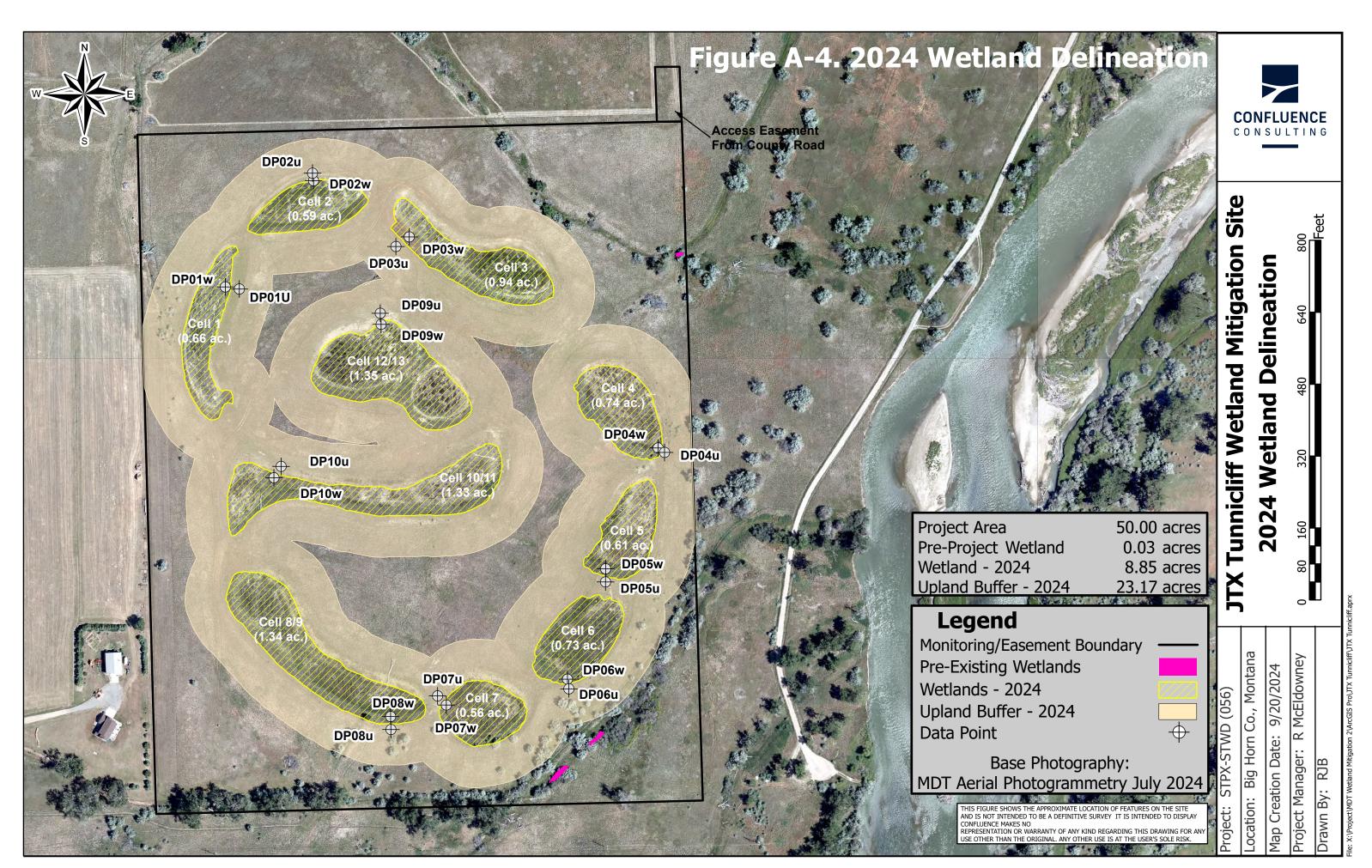
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# APPENDIX A PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana







# APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana

# MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: _	JTX-TunnicliffAssessment Date/Time6/19/20
Person(s) cor	nducting the assessment: R McEldowney, R Baumgarten
Weather: <u>Sur</u>	nny, 76 degrees Location: Hardin
MDT District:	Billings Milepost:
	tion: T <u>1N</u> R <u>33E</u> Section(s) <u>15</u>
Initial Evaluat	ion Date: 6/15/2016Monitoring Year: 9 _#Visits in Year: 1
Size of Evalua	ation Area:50 (acres)
Land use sur	ounding wetland:
Rural home	sites and Grant Marsh Wildlife Management Area.
	HYDROLOGY
Surface Water So	urce: Groundwater, occasional flooding from the Big Horn River.
Inundation:	✓ Average Depth: 0.5 (ft) Range of Depths: 0-1 (ft)
	ment area under inundation: 7 %
Depth at emerger	ut vegetation-open water boundary:0 (ft)
	a is not inundated then are the soils saturated within 12 inches of surface:
	hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:
	er areas contained emergent vegetation and none qualified as "open water".
,	and an early containing and a second a second and a second a second and a second and a second and a second and a second an
Groundwater	Monitoring Wells
	of water surface below ground surface, in feet.
Well ID	Water Surface Depth (ft)
MW-1	4.34
MW-7A	5.21
Additional Activities Ch	ecklist:
, ,	egetation-open water boundary on aerial photograph.
	of surface water during each site visit and look for evidence of past surface water
•	rosion, vegetation staining, etc.)
	vey groundwater monitoring well locations, if present.
lydrology Notes:	
Well readings list Surface (BLS).	ed above are from USGS readings on 6/27/2024. Both depths are Below Land

## **VEGETATION COMMUNITIES**

Site JTX-Tunnicliff

(Cover Class Codes  $\mathbf{0} = < 1\%$ ,  $\mathbf{1} = 1.5\%$ ,  $\mathbf{2} = 6.10\%$ ,  $\mathbf{3} = 11.20\%$ ,  $\mathbf{4} = 21.50\%$ ,  $\mathbf{5} = >50\%$ )

6 Community Type: Pascopyrum smithii / Poa pratensis Community # **Acres** 1.44 **Cover class Species Cover class Species** Acroptilon repens 0 Bromus inermis 3 1 Bromus japonicus 0 Elymus repens Galium aparine 3 Lepidium perfoliatum 0 Pascopyrum smithii 3 Poa pratensis 4 Sisymbrium altissimum 4 Thinopyrum intermedium 3

#### Comments:

Upland plant community located in the southeastern corner of project area; species and cover consistent with previous observations in 2024.

Community # 7 Community Type: Schedonorus pratensis / Acres 2.19

Species	Cover class	Species	Cover class
Acroptilon repens	0	Alopecurus pratensis	0
Arctium lappa	0	Asclepias sp.	0
Bromus inermis	1	Bromus japonicus	1
Cirsium arvense	0	Convolvulus arvensis	0
Cynoglossum officinale	0	Dactylis glomerata	1
Elaeagnus angustifolia	0	Hordeum jubatum	0
lva axillaris	0	Poa pratensis	2
Ribes aureum	0	Rosa woodsii	0
Schedonorus pratensis	3	Sisymbrium altissimum	1
Symphoricarpos albus	0	Thinopyrum intermedium	2
Thlaspi arvense	1	Tragopogon dubius	0

# **Comments:**

Grass dominated upland plant community in the SW portion of the site. No change in acreage observed in 2024.

Community #	8	Community Type:	Thinopyrum intermedium /	Acres	<u>34.2</u>
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Species	Cover class	Species	Cover class
Acroptilon repens	0	Alopecurus arundinaceus	0
Asclepias speciosa	0	Atriplex argentea	0
Bare Ground	1	Bassia scoparia	0
Bromus arvensis	0	Bromus inermis	1
Bromus japonicus	1	Bromus riparius	0
Bromus tectorum	1	Chenopodium album	1
Chenopodium rubrum	0	Cirsium arvense	0
Convolvulus arvensis	1	Descurainia sophia	0
Elaeagnus angustifolia	0	Elymus repens	2
Equisetum arvense	0	Galium aparine	1
Glycyrrhiza lepidota	1	Grindelia squarrosa	0
Hordeum jubatum	0	lva axillaris	1
Juncus balticus	0	Lactuca serriola	0
Lepidium perfoliatum	1	Medicago sativa	0
Melilotus officinalis	0	Pascopyrum smithii	0
Poa pratensis	1	Poa secunda	0
Schedonorus pratensis	2	Sisymbrium altissimum	1
Sporobolus airoides	0	Standing Water	0
Taraxacum officinale	1	Thinopyrum intermedium	5
Thlaspi arvense	1	Tragopogon dubius	0
Xanthium strumarium	0		
_			

# **Comments:**

Upland plant community observed throughout the majority of the mitigation site. Acreage increased slightly in 2024 due to wetland contraction in cells 4, 5, and 6.

Community # 12 Community Type: Elaeagnus angustifolia / Thinopyrum intermedium Acres 3.46

Species	Cover class	Species	Cover class
Acroptilon repens	0	Alopecurus arundinaceus	1
Bromus inermis	2	Carex sp.	0
Cirsium arvense	1	Cynoglossum officinale	0
Echinocystis lobata	0	Elaeagnus angustifolia	3
Fraxinus pennsylvanica	1	Salix fragilis	0
Shepherdia argentea	1	Symphoricarpos albus	1
Taraxacum officinale	1	Thinopyrum intermedium	4

## Comments:

Upland plant community located in the southern portion of project area. In 2024, species and cover was consistent with previous observations.

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	3
Chenopodium album	0	Chenopodium rubrum	0
Distichlis spicata	2	Elaeagnus angustifolia	0
Elymus repens	3	Hordeum jubatum	2
lva axillaris	0	Juncus balticus	0
Juncus torreyi	1	Lepidium perfoliatum	0
Puccinellia nuttalliana	2	Schoenoplectus acutus	1
Schoenoplectus maritimus	2	Schoenoplectus pungens	1
Sisymbrium altissimum	0	Thinopyrum intermedium	1
Thlaspi arvense	0	Typha angustifolia	1
Typha latifolia	0		

#### Comments:

Community continues to trend toward becoming more hydrophytic and salt tolerant. A few areas previously classified as this community type have been reclassified to CT9. In 2024, acreage increased due to new observations of CT13 in cells 8/9.

Community #	14	<b>Community Type:</b>	Schoenoplectus spp. / Typha angustifolia	Acres	6.35
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Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Alopecurus pratensis	0
Asclepias speciosa	0	Bare Ground	2
Beckmannia syzigachne	0	Bromus arvensis	0
Carex utriculata	0	Chenopodium album	0
Chenopodium rubrum	0	Cirsium arvense	0
Descurainia sophia	0	Distichlis spicata	1
Elaeagnus angustifolia	0	Eleocharis palustris	0
Elymus repens	1	Glycyrrhiza lepidota	0
Hordeum jubatum	1	Iva axillaris	0
Juncus balticus	2	Juncus torreyi	2
Lepidium perfoliatum	0	Puccinellia nuttalliana	2
Rumex crispus	0	Schoenoplectus acutus	1
Schoenoplectus americanus	0	Schoenoplectus maritimus	2
Schoenoplectus pungens	1	Sisymbrium altissimum	0
Standing Water	2	Thinopyrum intermedium	0
Thlaspi arvense	0	Typha angustifolia	2
Typha latifolia	0	Xanthium strumarium	0

#### **Comments:**

This community type number and name were changed in 2023 to reflect the reduced dominance of Typha latifolia and increase in Typha angustifolia. In 2024, acreage was lost to CT13 in cell 8/9 and slight wetland reduction in cells 4, 5, and 6.

**Total Vegetation Community Acreage** 

50.14

# **VEGETATION TRANSECTS**

JTX-Tunnicliff		Da	ate:6/19/2024	
Transect Number:	1	Compa	ss Direction from Sta	rt: <u>200</u>
Interval Data: Ending Station	153	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Atriplex argentea		0	Bare Ground	1
Bromus inermis		2	Chenopodium album	1
Cirsium arvense		1	Convolvulus arvensis	0
Descurainia sophia		0	Elymus repens	1
Equisetum arvense		0	Galium aparine	0
lva axillaris		1	Lepidium perfoliatum	0
Melilotus officinalis		1	Poa pratensis	0
Schedonorus pratensis		1	Taraxacum officinale	0
Thinopyrum intermedium		5		
Ending Station	247	Community Type:	Schoenoplectus spp. / Typha	a angustifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		3	Asclepias speciosa	0
Bare Ground		2	Chenopodium rubrum	1
Cirsium arvense		1	Hordeum jubatum	2
lva axillaris		1	Juncus balticus	2
Juncus torreyi		0	Schoenoplectus acutus	0
Schoenoplectus maritimus	3	0	Sisymbrium altissimum	1
Standing Water		1	Thinopyrum intermedium	1
Typha angustifolia		1	Typha latifolia	1
Xanthium strumarium		0		
Ending Station	311	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Atriplex argentea	0
Bare Ground		2	Chenopodium album	1
Galium aparine		0	Hordeum jubatum	2
lva axillaris		1	Lactuca serriola	0
Lepidium perfoliatum		1	Sisymbrium altissimum	1
Thinonyrum intermedium		3	Thlasni arvense	2

Ending Station	563	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		4	Asclepias speciosa	0
Bare Ground		2	Carex utriculata	1
Chenopodium album		1	Chenopodium rubrum	1
Cirsium arvense		0	Hordeum jubatum	2
lva axillaris		1	Juncus balticus	2
Juncus torreyi		0	Lepidium perfoliatum	1
Schoenoplectus acutus		1	Schoenoplectus maritimus	0
Schoenoplectus pungens		2	Sisymbrium altissimum	1
Standing Water		2	Thinopyrum intermedium	1
Thlaspi arvense		2	Typha angustifolia	2
Typha latifolia		1	Xanthium strumarium	0
Ending Station	633	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Bare Ground		2	Bromus inermis	0
Chenopodium album		1	Chenopodium rubrum	1
Cirsium arvense		1	Elaeagnus angustifolia	0
Elymus repens		1	Hordeum jubatum	1
lva axillaris		1	Lepidium perfoliatum	1
Poa pratensis		1	Sisymbrium altissimum	1
Taraxacum officinale		0	Thinopyrum intermedium	3
Thlaspi arvense		1	Xanthium strumarium	0
Ending Station	784	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Bare Ground	1
Chenopodium album		0	Elaeagnus angustifolia	1
Elymus repens		0	Glycyrrhiza lepidota	0
Hordeum jubatum		3	Iva axillaris	2
Juncus balticus		1	Juncus torreyi	0
Schoenoplectus acutus		1	Schoenoplectus maritimus	1
Schoenoplectus pungens		3	Standing Water	3
Typha angustifolia		2	Typha latifolia	0
Ending Station	792	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		2	Bare Ground	3
Chenopodium rubrum		1	Cirsium arvense	0
Elymus repens		0	Iva axillaris	1
Juncus balticus		1	Lepidium perfoliatum	1
Poa secunda		1	Schedonorus pratensis	1
Sisymbrium altissimum		1	Thinopyrum intermedium	3

# Transect Notes:

Wetland area along the transect decreased slightly in 2024 with the receding of wetland boundaries in cells 5 and 6. Sisymbium altissimum and Thlaspi arvense cover appear to be increasing along the transect.

Transect Number: _2	Compas	ss Direction from Sta	rt: <u>330</u>
Interval Data: Ending Station	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	2
Chenopodium album	1	Chenopodium rubrum	0
Descurainia sophia	1	Distichlis spicata	0
Eleocharis palustris	0	Elymus repens	1
Glycyrrhiza lepidota	0	Hordeum jubatum	3
lva axillaris	1	Juncus balticus	1
Juncus torreyi	1	Puccinellia nuttalliana	0
Rumex crispus	0	Schoenoplectus acutus	0
Schoenoplectus maritimus	2	Sisymbrium altissimum	1
Standing Water	1	Thlaspi arvense	1
Typha angustifolia	2	Typha latifolia	0
Ending Station 15	Community Type:	Hordeum jubatum / Elymus r	epens
Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	3
Chenopodium rubrum	1	Distichlis spicata	0
Elymus repens	2	Hordeum jubatum	2
lva axillaris	1	Juncus balticus	1
Juncus torreyi	1	Lepidium perfoliatum	1
Puccinellia nuttalliana	0	Schoenoplectus acutus	1
Schoenoplectus pungens	3	Sisymbrium altissimum	1
Thinopyrum intermedium	1	Thlaspi arvense	1
Ending Station 110	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare Ground	2
Chenopodium album	1	Chenopodium rubrum	0
Descurainia sophia	1	Distichlis spicata	0
Eleocharis palustris	0	Elymus repens	1
Glycyrrhiza lepidota	0	Hordeum jubatum	3
lva axillaris	1	Juncus balticus	1
Juncus torreyi	1	Puccinellia nuttalliana	0
Rumex crispus	0	Schoenoplectus acutus	0
Schoenoplectus maritimus	2	Sisymbrium altissimum	1
Standing Water	0	Thlaspi arvense	1
Typha angustifolia	2	Typha latifolia	0

Ending Station	135	Community Type:	Hordeum jubatum / Elymus re	epens
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		2	Bare Ground	3
Chenopodium rubrum		1	Distichlis spicata	0
Elymus repens		2	Hordeum jubatum	2
Iva axillaris		1	Juncus balticus	1
Juncus torreyi		1	Lepidium perfoliatum	1
Puccinellia nuttalliana		0	Schoenoplectus acutus	1
Schoenoplectus pungens		3	Sisymbrium altissimum	1
Thinopyrum intermedium		1	Thlaspi arvense	2
Ending Station	155	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		2	Bare Ground	2
Chenopodium album		1	Chenopodium rubrum	0
Descurainia sophia		1	Distichlis spicata	0
Eleocharis palustris		0	Elymus repens	1
Glycyrrhiza lepidota		0	Hordeum jubatum	3
Iva axillaris		1	Juncus balticus	1
Juncus torreyi		1	Puccinellia nuttalliana	0
Rumex crispus		0	Schoenoplectus acutus	0
Schoenoplectus maritimus	;	2	Sisymbrium altissimum	1
Standing Water		1	Thlaspi arvense	1
Typha angustifolia		2	Typha latifolia	0
Ending Station	254	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Bare Ground		1	Bromus arvensis	1
Chenopodium album		1	Chenopodium rubrum	1
Descurainia sophia		1	Glycyrrhiza lepidota	0
Hordeum jubatum		2	Iva axillaris	1
Lepidium perfoliatum		1	Sisymbrium altissimum	3
Thinopyrum intermedium		4	Thlaspi arvense	2
Ending Station	354	Community Type:	Hordeum jubatum / Elymus re	epens
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		2	Bare Ground	3
Chenopodium rubrum		1	Distichlis spicata	0
Elymus repens		2	Hordeum jubatum	2
Iva axillaris		1	Juncus balticus	1
Juncus torreyi		1	Lepidium perfoliatum	1
Puccinellia nuttalliana		0	Schoenoplectus acutus	1
Schoenoplectus pungens		3	Sisymbrium altissimum	1
Thinopyrum intermedium		1	Thlaspi arvense	2

Ending Station	546	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Bare Ground		2	Chenopodium album	2
Descurainia sophia		1	Elymus repens	5
Hordeum jubatum		2	Iva axillaris	1
Juncus balticus		1	Lactuca serriola	0
Lepidium perfoliatum		1	Pascopyrum smithii	0
Schedonorus pratensis		0	Sisymbrium altissimum	1
Thinopyrum intermedium		1	Thlaspi arvense	2
Tragopogon dubius		0		
Ending Station	608	Community Type:	Hordeum jubatum / Elymus re	epens
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Bare ground	3
Distichlis spicata		2	Elymus repens	1
Hordeum jubatum		1	Iva axillaris	1
Standing Water		3	Thinopyrum intermedium	1
Typha angustifolia		1		
Ending Station	710	Community Type:	Thinopyrum intermedium /	
Species		Cover class	Species	Cover class
Bare Ground		2	Chenopodium album	1
Descurainia sophia		0	Elymus repens	4
Hordeum jubatum		3	Iva axillaris	1
Standing Water		0	Thinopyrum intermedium	4
Thlaspi arvense		0		
Ending Station	725	Community Type:	Hordeum jubatum / Elymus re	epens
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Bare Ground	3
Distichlis spicata		2	Elymus repens	1
Hordeum jubatum		3	Iva axillaris	1
Standing Water		3	Thinopyrum intermedium	1
Typha angustifolia		1		
Ending Station	870	Community Type:	Schoenoplectus spp. / Typha	angustifolia
Species		Cover class	Species	Cover class
Alopecurus pratensis		2	Bare Ground	2
Chenopodium album		1	Distichlis spicata	1
Elymus repens		1	Hordeum jubatum	4
Iva axillaris		1	Juncus torreyi	0
Puccinellia nuttalliana		1	Schoenoplectus acutus	0
Schoenoplectus maritimu	s	0	Standing Water	5
Typha angustifolia		2		

Ending Station	900 Community Type:	Thinopyrum intermedium /	
Species	Cover class	Species	Cover class
Bare Ground	4	Bromus japonicus	1
Chenopodium album	1	Elymus repens	2
Hordeum jubatum	1	Lepidium perfoliatum	2
Sisymbrium altissimum	1	Thinopyrum intermedium	4
Thlaspi arvense	1		

# Transect Notes:

In 2024, mustard species were observed to be inceasing across multiple intervals in the start of the transect. Typha angustifolia and CT14 continues to follow the trend observed in 2023. Hordeum jabatum and CT 13 appear to be expanding along transect 2 during 2024.

# **PLANTED WOODY VEGETATION SURVIVAL**

# JTX-Tunnicliff

Planting Type	#Planted	#Alive Notes
PE-1	0	0 3/4 burned in July 2020. No survival of planted woody vegetation observed
PE-2	0	<ol> <li>Heavy grass and weedy forb competition has elminated woody vegetation</li> </ol>
PE-3	0	0 1/3 burned in 2020, no survival of planted woody vegetation observed
PE-4	0	0 No survival of planted woody vegetation observed
PE-5	0	0 ~2 volunteer Russian Olives
PE-6	11	11 11 plains cottonwood, ~8 volunteer Russian Olives
PE-7	0	0 No survival of planted woody vegetation observed
PE-8	0	0 No survival of planted woody vegetation observed
Total Live	11	11 1% Survival (of original 1650 planted)

# Comments

1,650 containerized woody plants were installed in 8 planting areas. All plantings were in 1 gallon containers except for cottonwood which were in 5 gallon containers. Very little survivorship of woody species plantings has been observed over the years. Some woody species have volunteered at the site but woody coverage is still quite low.

# JTX-Tunnicliff

# **WILDLIFE**

<b>Birds</b>	
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Were man-made nesting structures installed? If yes, type of structure: Bird boxes	Yes
How many?8	
Are the nesting structures being used?	Yes
Do the nesting structures need repairs?	No
Nesting Structure Comments:	

Nesting Structure Comments.

Nesting boxes one and eight on the site were full of nesting material in 2024. 

Species	#Observed	Behavior	Habitat
House Wren	1	Ĺ	
Mourning Dove	1	Ē	
Red-winged Blackbird	5	L	
Bank Swallow	3	L	
Cliff Swallow	4	L	
Western Meadowlark	3	L	
Killdeer	2	FO	
Phalarope	2	N	
Sandhill Crane	2	F	
Pheasant	3	F	
Yellow Warbler	1	BD	
Mallard	1	F	
<b>Bird Comments</b>			
In 2024, a total of 12 spe	ecies were obse	erved.	

# **BEHAVIOR CODES**

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

## **HABITAT CODES**

AB = Aguatic 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	<b>Burrows Comments</b>
- •		

Rattle Snake	1	No	No	No
Vole sp.	1	No	No	No
White-tailed Deer	1	Yes	No	No

\ <i>\\\</i>	$\sim$	1 - Ar	nn.	ents:

Deer beds common

# **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  $\frac{1}{2}$  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:**

<b>✓</b>	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.

		Αt	least	t one	oho	tograpl	n s	howing	the	buffer	surrounding	g the	wet	land	
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$\checkmark$	One photograph from	n each end of the	vegetation transect.	showing the transect.

Photo #	Latitude	Longitude	Bearing	Description	
DP01u	45.8407441	-107.6006187			
DP01w	45.8407605	-107.6007518			
DP02u	45.8415034	-107.5998952			
DP02w	45.841453	-107.5998869			
DP03u	45.8410019	-107.5991183			
DP03w	45.8410637	-107.5989887			
DP04u	45.8395882	-107.5966079			
DP04w	45.8396189	-107.5966682			
DP05u	45.8387358	-107.5971998			
DP05w	45.8388231	-107.5971956			
DP06u	45.8380302	-107.5975732			
DP06w	45.8380948	-107.5975846			
DP07u	45.8380043	-107.5988251			
DP07w	45.8379424	-107.5987443			
DP08u	45.8377883	-107.5992775			
DP08w	45.8378746	-107.5992771			
DP09u	45.84056	-107.5992825			
DP09w	45.8404864	-107.5992772			
DP10u	45.8395569	-107.6002621			
DP10w	45.8394828	-107.6003329			
PP 1, Photo 2:	45.83945617	-107.5966157	270	PP-1	
PP 1, Photo 3:	45.83945617	-107.5966157	220	PP-1	
PP 2, Photo 1:	45.83785325	-107.5996803	315	PP-2	
PP 2, Photo 2:	45.83785325	-107.5996803	0	PP-2	
PP 2, Photo 3:	45.83785325	-107.5996803	45	PP-2	
PP 3, Photo 1:	45.83943906	-107.6009084	140	PP-3	
PP 3, Photo 2:	45.83943906	-107.6009084	100 B-1	PP-3	

PP 3, Photo 3:	45.83943906	-107.6009084	45	PP-3
PP 4, Photo 1:	45.84139478	-107.5988983	105	PP-4
PP 4, Photo 2	45.84139478	-107.5988983	160	PP-4
PP 4, Photo 3	45.84139478	-107.5988983	240	PP-4
PP1, Photo 1:	45.83945617	-107.5966157	320	PP-1
Transect 1 end:	45.83765226	-107.5984577	50	T-1 end
Transect 1 start:	45.8392488	-107.5963573	200	T-1 start
Transect 2 end:	45.84089981	-107.6009804	160	T-2 end
Transect 2 start:	45.83844422	-107.6005579	330	T-2 start

# **Comments:**

# **ADDITIONAL ITEMS CHECKLIST**

Hydrology
<ul> <li>✓ Map emergent vegetation/open water boundary on aerial photos.</li> <li>✓ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).</li> </ul>
Photos
<ul> <li>✓ One photo from the wetland toward each of the four cardinal directions</li> <li>☐ One photo showing upland use surrounding the wetland.</li> <li>☐ One photo showing the buffer around the wetland</li> <li>✓ One photo from each end of each vegetation transect, toward the transect</li> </ul>
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
Wetland boundaries were mapped in the field, not from aerial imagery
Functional Assessments
☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.
Functional Assessment Comments:
Category III wetland.

# Maintenance

Were man-made nesting structure installed at this site? Yes							
If yes, do they need to be repaired? No							
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.							
See planted veg and bird box comments for repairs needed.							

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: JTX TUNNICLIFF	(	City/County	<sub>/:</sub> Big Horr	n County	Sampling Date: 2024-06-20
Applicant/Owner: MDT		State: Montana	Sampling Point: DP01u		
Investigator(s): McEldowney	:	Section, To	ownship, Ra	nge: S15 T1N R33E	
Landform (hillslope, terrace, etc.): Floodplain		Local relie	f (concave, o	convex, none): Concave	e Slope (%): 2
Subregion (LRR): G 58A	Lat: 45.	8407441		Long: -107.6006187	Datum: NAD 83
Soil Map Unit Name: Hh - Haverson and Lohmiller so				NWI classific	
Are climatic / hydrologic conditions on the site typical for this	s time of yea	ar? Yes	✓ No_	(If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrologys					oresent? Yes No
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eeded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	ng point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes North Hydric Soil Present? Yes North Hydrology Present? Yes North Hydrology Present? Yes North Hydrology Present?	v v		ne Sampled nin a Wetlar		No
Upland sample point at northeast end of cel vegetation and soil at this location.	l 1. Wetla	and hydi	rology is	present, but is not	representative of the
VEGETATION – Use scientific names of plan	ts.				
<u>Tree Stratum</u> (Plot size: <u>30 ft r</u> ) 1 2	% Cover	Species?		Dominance Test work  Number of Dominant Sp That Are OBL, FACW, of (excluding FAC-):	pecies
3	<u> </u>			Total Number of Domin. Species Across All Stra	
Sapling/Shrub Stratum (Plot size: 15 ft r )				Percent of Dominant Sp That Are OBL, FACW, o	
2				Prevalence Index world	
3					Multiply by:
4					x 1 = 0 x 2 = 6
5	·		·		x 3 = 0
Herb Stratum (Plot size: 5 ft r )		= Total Co	ver	FACU species 52	x 4 = 208
1. Elymus repens	45	~	FACU	UPL species 5	
2. Thlaspi arvense	7		FACU	Column Totals: 60	(A) <u>239</u> (B)
3. Sisymbrium altissimum	5	-	UPL	Prevalence Index	- P/A - 3.98
4. Hordeum jubatum	3	-	FACW	Hydrophytic Vegetation	
5				1 - Rapid Test for H	
6				2 - Dominance Tes	• • •
7				3 - Prevalence Inde	
8				4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting
9					s or on a separate sheet)
10.	~~	= Total Co	ver	Problematic Hydrop	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1				<sup>1</sup> Indicators of hydric soil be present, unless distu	l and wetland hydrology must urbed or problematic.
2		= Total Co	ver	Hydrophytic Vegetation Present? Yes	s No_ <u> </u>
Upland sample point dominated by E	ilymus ı	repens	•		

SOIL Sampling Point: DP01u

Profile Desc	ription: (Describe	to the depth	needed to document the indicator or o	confirm t	he absence	of indicators.)		
Depth	Matrix	<u></u> %	Redox Features	Loc <sup>2</sup>	Tanduna	Damanda		
(inches) 0 - 10	Color (moist) 10YR 4/1		Color (moist) % Type <sup>1</sup> L	_	<u>Texture</u> Loam	Remarks		
10 - 14		100				Crovelly		
10 - 14	10YR 4/2			·	Sandy Loam	Gravelly		
-								
¹Type: C=Co	ncentration, D=Dep	oletion, RM=F	Reduced Matrix, CS=Covered or Coated S	Sand Grai	ins. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix.		
			RRs, unless otherwise noted.)			for Problematic Hydric Soils <sup>3</sup> :		
Histosol			Sandy Gleyed Matrix (S4)		1 cm l	Muck (A9) ( <b>LRR I, J</b> )		
	ipedon (A2)		Sandy Redox (S5)		Coast Prairie Redox (A16) (LRR F, G, H)			
Black His	` '			Stripped Matrix (S6) Dark Surface (S7) (LRR G				
	n Sulfide (A4) Layers (A5) ( <b>LRR</b>	<b>E</b> \		Loamy Mucky Mineral (F1)  High Plains Depressions (F16)  Loamy Gloved Matrix (F2)  (LRP Houtside of MLPA 73				
	ck (A9) ( <b>LRR F, G</b> ,		Depleted Matrix (F3)	Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72  Depleted Matrix (F3) Reduced Vertic (F18)				
	Below Dark Surfac	,	Redox Dark Surface (F6)		Red Parent Material (TF2)			
	rk Surface (A12)	, ,	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)			
Sandy M	ucky Mineral (S1)		Redox Depressions (F8)		Other (Explain in Remarks)			
	lucky Peat or Peat				<sup>3</sup> Indicators of hydrophytic vegetation and			
5 cm Mu	cky Peat or Peat (S	33) ( <b>LRR F</b> )	(MLRA 72 & 73 of LRR H)	)	wetland hydrology must be present, unless disturbed or problematic.			
Restrictive L	.ayer (if present):			T	uniess	s disturbed of problematic.		
	ayer (ii present).							
· · ·	:hes):				Hydric Soil	Present? Yes No		
Remarks:					,			
No hydri	c soil indica	tors obs	erved.					
HYDROLO	GY							
_	Irology Indicators							
Primary Indic	ators (minimum of	one required;	check all that apply)		Seconda	ary Indicators (minimum of two required)		
	Water (A1)		Salt Crust (B11)		Surface Soil Cracks (B6)			
	ter Table (A2)		Aquatic Invertebrates (B13)		Sparsely Vegetated Concave Surface (B8)			
<u>✓</u> Saturatio			Hydrogen Sulfide Odor (C1)		Drainage Patterns (B10)			
Water Ma	, ,		Dry-Season Water Table (C2)			dized Rhizospheres on Living Roots (C3)		
	t Deposits (B2)		Oxidized Rhizospheres on Living	Roots (C	,	vhere tilled)		
	osits (B3)		(where not tilled) Presence of Reduced Iron (C4)			yfish Burrows (C8) uration Visible on Aerial Imagery (C9)		
_	t or Crust (B4) osits (B5)			Geomorphic Position (D2)				
	on Vis ble on Aerial	Imagery (R7)		FAC-Neutral Test (D5)				
	ained Leaves (B9)	iiiageiy (b <i>i )</i>		Frost-Heave Hummocks (D7) (LRR F)				
Field Observ	` '			1	110	ot ricave riaminosis (B7) (Enter)		
Surface Water		res No	Depth (inches):					
Water Table I			Depth (inches):					
Saturation Pr			Wetlan	tland Hydrology Present? Yes No				
(includes capillary fringe)								
Describe Rec	corded Data (stream	n gauge, mon	itoring well, aerial photos, previous inspec	ctions), if	available:			
Domonico								
Remarks:								
	on at 10 inch	nes provi	des primary indicator for v	wetlaı	nd hydr	ology.		

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: JTX TUNNICLIFF	(	City/County	, Big Horr	n County	Sampling Date: 2024-06-20				
-									
Applicant/Owner: MDT State: Montana Sampling Point: DP01w Investigator(s): McEldowney Section, Township, Range: S15 T1N R33E									
Landform (hillslope, terrace, etc.): Closed Depression				=	Slone (%): 0				
					B Datum: NAD 83				
Soil Map Unit Name: Hh - Haverson and Lohmiller so									
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation, Soil, or Hydrology si									
Are Vegetation, Soil, or Hydrology no SUMMARY OF FINDINGS – Attach site map s				eeded, explain any answe					
Attach site map t	silowing	Jampin	ig point i		, important reatures, etc.				
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes  V  No  No  No  No  No  No  No  No  No			ne Sampled nin a Wetlar		No				
Wetland sample point located at the	northe	ast end	d of cell	<b>1.</b>					
VEGETATION – Use scientific names of plant	ts.								
		Dominant	t Indicator	Dominance Test work	sheet:				
	% Cover			Number of Dominant Sp	•				
1				That Are OBL, FACW, (excluding FAC-):	or FAC (A)				
2				, , ,					
4				Total Number of Domin Species Across All Stra	_				
		= Total Co	ver	Percent of Dominant Sp	necies				
Sapling/Shrub Stratum (Plot size: 15 ft r )				That Are OBL, FACW, of					
1				Prevalence Index wor	ksheet:				
2				Total % Cover of:	Multiply by:				
3				OBL species 0	x 1 = 0				
4.       5.			·	FACW species 20	x 2 = <u>40</u>				
o		= Total Co	ver		x 3 = <u>9</u>				
Herb Stratum (Plot size: 5 ft r )		10101 00		FACU species 7					
1. Hordeum jubatum	15		FACW	UPL species 0					
2. Alopecurus pratensis	5		FACW	Column Totals: 30	(A) <u>77</u> (B)				
3. Chenopodium album	3 3		FACU	Prevalence Index	= B/A = 2.56				
4. Elymus repens 5. Cirsium arvense	1		FACU FACU	Hydrophytic Vegetation					
6. Lactuca serriola	1		FAC	✓ 1 - Rapid Test for H	Hydrophytic Vegetation				
7 Polygonum erectum	1		FAC	✓ 2 - Dominance Tes	st is >50%				
Rumex crispus	1		FAC	✓ 3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>				
9.					Adaptations <sup>1</sup> (Provide supporting				
10.		-			s or on a separate sheet)				
	00	= Total Co	ver		phytic Vegetation <sup>1</sup> (Explain)				
Woody Vine Stratum (Plot size: 30 ft r )  1				<sup>1</sup> Indicators of hydric soi be present, unless distu	il and wetland hydrology must urbed or problematic.				
2				Hydrophytic					
% Bare Ground in Herb Stratum 70		= Total Co	ver	Vegetation Present? Yes	s No				
Remarks:				.1					
PEM, dominated by Hordeum jubatur	n.								

SOIL Sampling Point: DP01w

Profile Desc	ription: (Describe	to the dep	th needed to docur			or confirm	n the absence of	indicators.)
Depth	Matrix Color (moist)	<u></u> %	Color (moist)	x Feature %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches) 0 - 15	10YR 4/2	- <u>%</u> 85	10YR 4/6	5	C	LUC	Clay Loam	Remarks
0 - 15	101111112		N 4/0	10	 D		Clay Loam	
	-		14 4/0				Oldy Loain	
				- <del></del>				
							·	
							·	
			Reduced Matrix, CS			ed Sand G		on: PL=Pore Lining, M=Matrix.
-		cable to all	LRRs, unless othe					Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1) ipedon (A2)		Sandy (	eyed Mi Redox (St				k (A9) ( <b>LRR I, J</b> ) iirie Redox (A16) ( <b>LRR F, G, H</b> )
Black His			-	d Matrix (				ace (S7) (LRR G)
Hydroge	n Sulfide (A4)		Loamy	Mucky Mi	neral (F1)	)		ns Depressions (F16)
	Layers (A5) (LRR		-	-	atrix (F2)		,	H outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G,</b> I Below Dark Surfac		<u>✓</u> Deplete	d Matrix ( Dark Surf	. ,			Vertic (F18) nt Material (TF2)
	rk Surface (A12)	C (ATT)			urface (F7	<b>'</b> )		low Dark Surface (TF12)
	ucky Mineral (S1)			Depressio	•	,	Other (Ex	plain in Remarks)
	lucky Peat or Peat	. , .			essions (I			hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 &	73 of LRI	R H)		ydrology must be present, sturbed or problematic.
Restrictive L	.ayer (if present):						uniess dis	sturbed of problematic.
	, ( p							
,. <u>—</u>	ches):						Hydric Soil Pro	esent? Yes 🗸 No
Remarks:								
Donloted	d matrix obs	arvad						
Depieted		erveu.						
HYDROLO	GY							
	Irology Indicators	•						
_			l; check all that appl	y)			Secondary	Indicators (minimum of two required)
✓ Surface		•	Salt Crust				<u> </u>	e Soil Cracks (B6)
	ter Table (A2)		Aquatic In		es (B13)			ly Vegetated Concave Surface (B8)
✓ Saturation	n (A3)		Hydrogen	Sulfide O	dor (C1)		Drainaç	ge Patterns (B10)
Water M	, ,		Dry-Seaso					ed Rhizospheres on Living Roots (C3)
	t Deposits (B2)		Oxidized F			ving Roots		re tilled)
-	osits (B3)		•	not tilled	,	.4)		h Burrows (C8)
	t or Crust (B4) osits (B5)		Presence Thin Muck		•	4)		ion Visible on Aerial Imagery (C9) orphic Position (D2)
	on Vis ble on Aerial	Imagery (B7						eutral Test (D5)
	ained Leaves (B9)	-3-7(	,		,			leave Hummocks (D7) (LRR F)
Field Observ	ations:							
Surface Water	er Present?	res 🔽 I	No Depth (in	ches): <u>8</u>				
Water Table	Present?	res I	No <u>′</u> Depth (in	ches):				
Saturation Pr		res 🔽 I	No Depth (in	ches): <u>0</u>		Wetl	and Hydrology P	resent? Yes No
(includes cap Describe Red		n gauge, mo	nitoring well, aerial	photos, p	revious in	spections),	if available:	
	,	<i>J J</i> , -	<b>Q</b> , -	. , ,		. "		
Remarks:								
Soil catu	rated to the	curface	e. Surface w	ıator l	ncate	d A fee	t to west	
Juli Satu	ווופנכט נט נוופ	Suriaci	e. Juliace W	al <del>c</del> i i	ocatet	J 4 166	t to WEST.	

Project/Site: JTX TUNNICLIFF		City/Cou	nty: Big Horr	n County	Sampling Date: 2024-06-20
Applicant/Owner: MDT		_		State: Montana	Sampling Point: DP02u
Investigator(s): McEldowney	Ş			nge: S10 T1N R33E	. 0
Landform (hillslope, terrace, etc.): Floodplain					Slope (%): 0
					2 Datum: NAD 83
Soil Map Unit Name: Hh - Haverson and Lohmiller so				NWI classific	
Are climatic / hydrologic conditions on the site typical for this			_		
Are Vegetation, Soil, or Hydrologysi	-				present? Yes No
Are Vegetation, Soil, or Hydrologyn				eded, explain any answer	
SUMMARY OF FINDINGS – Attach site map s					
Hydrophytic Vegetation Present? Yes No	· ·				
			the Sampled		🗸
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	·	W	rithin a Wetlar	nd? Yes	No
Remarks:		ı			
Upland sample point approx. 5 feet higher th	nan it's w	etlano	d pair, loca	ted in the north-ce	ntral portion of cell 2.
Hydric soil is present, but not representative	e of the v	egeta	ition and h	ydrology at this loc	ation.
VEGETATION – Use scientific names of plant	'S.				
Francisco Prantico		Domina	ant Indicator	Dominance Test work	sheet:
Tree Stratum (Plot size: 30 ft r			s? Status	Number of Dominant Sp	
1				That Are OBL, FACW, o	or FAC (A)
2				(excluding FAC-):	(A)
3				Total Number of Domina Species Across All Stra	_
4					
Sapling/Shrub Stratum (Plot size: 15 ft r )				Percent of Dominant Sp That Are OBL, FACW, of	
1				Prevalence Index worl	ksheet:
2				Total % Cover of:	Multiply by:
3				OBL species 0	x 1 = <u>0</u>
5.					x 2 = <u>0</u>
		= Total (	Cover	FAC species 5	
Herb Stratum (Plot size: 5 ft r				FACU species 10	
1. Thinopyrum intermedium	70		<u>UPL</u>	UPL species 75	
2. Elymus repens 3. Lepidium perfoliatum	<u>10</u> 5		FACU FAC	Column Totals: 90	(A) <u>430</u> (B)
Acroptilon repens	3		UPL	Prevalence Index	= B/A = <u>4.77</u>
5. Bromus arvensis	1		UPL	Hydrophytic Vegetation	on Indicators:
6. Sisymbrium altissimum	1		UPL	1 - Rapid Test for H	lydrophytic Vegetation
7.				2 - Dominance Tes	4
8.				3 - Prevalence Inde	
9.				4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10					ohytic Vegetation <sup>1</sup> (Explain)
W 1 1/2 01 1 1 20 ft r	90	= Total (	Cover	1.	
Woody Vine Stratum (Plot size: 30 ft r				be present, unless distu	I and wetland hydrology must urbed or problematic.
1 2				Hydrophytic	
			Cover	Vegetation	
% Bare Ground in Herb Stratum 10			· -	Present? Yes	s No
Remarks:					
Upland sample point dominated by T	hinopy	rum i	ntermedi	um.	

SOIL Sampling Point: DP02u

Profile Desc	ription: (Describe	to the depth ne	eeded to docun	nent the i	ndicator	or confirn	n the absence	of indicators.)
Depth	Matrix			x Features				_
(inches)	Color (moist)		Color (moist)	<u></u> %	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 5	10YR 4/2	100					Clay	
5 - 16	10YR 3/1	100					Silty Clay	Abundant salt or gypsum crystals.
-								
-								
-		<del></del>		· ——				
	oncentration, D=Dep					d Sand G		cation: PL=Pore Lining, M=Matrix.
_	ndicators: (Applic	able to all LRR						for Problematic Hydric Soils <sup>3</sup> :
Histosol	` ,		Sandy C	-	. ,			Muck (A9) (LRR I, J)
Black His	pipedon (A2)		Sandy F Stripped					Prairie Redox (A16) (LRR F, G, H) surface (S7) (LRR G)
	n Sulfide (A4)			Mucky Min	,			lains Depressions (F16)
	Layers (A5) ( <b>LRR</b>	F)		Gleyed Ma	, ,			R H outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G</b> ,			d Matrix (F			`	ed Vertic (F18)
	Below Dark Surfac			oark Surfa			Red Pa	arent Material (TF2)
Thick Da	rk Surface (A12)			d Dark Su	, ,			hallow Dark Surface (TF12)
	lucky Mineral (S1)			Depression				(Explain in Remarks)
	lucky Peat or Peat (		-		ssions (F			of hydrophytic vegetation and
5 cm iviu	cky Peat or Peat (S	3) (LRR F)	(IVIL	KA 12 & 1	3 of LRR	<b>H</b> )		d hydrology must be present, disturbed or problematic.
Restrictive L	ayer (if present):						unicoo	disturbed of problematic.
Type:	,							
,. <u>—</u>	ches):						Hydric Soil	Present? Yes V No
Remarks:			•				,	
Calt/avna	um orvetale r	arovido a u	niauo bydri	ا انده دا	ndiaata	or for o	lav sails la	cated in the Great Plains.
Sait/gyps	suili Ciystais p	orovide a u	ilique fiyuri	ic soil i	iiuicatt	ט וטו כ	lay solis io	cated in the Great Flains.
	ov.							
HYDROLO								
-	drology Indicators:		11 41 4 1	A			0	on the disease of feet and a feet of the second and the
-	ators (minimum of o	one requirea; ch					'	ary Indicators (minimum of two required)
	Water (A1)		Salt Crust		- (D40)			ace Soil Cracks (B6)
	ter Table (A2)		Aquatic Inv		, ,			rsely Vegetated Concave Surface (B8)
Saturatio			Hydrogen					nage Patterns (B10)  lized Rhizospheres on Living Roots (C3)
	arks (B1) It Deposits (B2)		Dry-Seaso Oxidized R			na Roots		here tilled)
·	osits (B3)			not tilled)	CS OII LIVI	119 110018		rfish Burrows (C8)
	t or Crust (B4)		Presence	,	d Iron (C4	.)		ration Visible on Aerial Imagery (C9)
_	osits (B5)		Thin Muck		,	,	· <del></del>	morphic Position (D2)
-	on Vis ble on Aerial	Imagery (B7)	Other (Exp				' <del></del>	:-Neutral Test (D5)
	tained Leaves (B9)				,			st-Heave Hummocks (D7) ( <b>LRR F</b> )
Field Observ	, ,							, , , , ,
Surface Water	er Present? Y	res No	Depth (inc	ches):				
Water Table			Depth (inc					
Saturation Pr			Depth (inc				and Hydrology	y Present? Yes No
(includes cap	illary fringe)							
Describe Rec	corded Data (stream	n gauge, monito	rıng well, aerial p	ohotos, pre	evious ins	pections),	ıt available:	
Dawrent								
Remarks:								
No evide	ence of wetla	and hydro	logy obse	rved.				
		-						

Project/Site: JTX TUNNICLIFF		City/Cou	unty: Big Ho	rn County	Sampling Date: 2024-06	6-20
Applicant/Owner: MDT				State: Montana	Sampling Point: DP02w	
Investigator(s): McEldowney		Section	, Township, R	ange: S10 T1N R33E		
Landform (hillslope, terrace, etc.): Closed Depression		Local re	elief (concave	, convex, none): Concave	Slope (%): <u>4</u>	ŀ
Subregion (LRR): G 58A	Lat: 45.	.84145	i3	Long: -107.5998869	Datum: NAD	83
Soil Map Unit Name: Hh - Haverson and Lohmiller so						
Are climatic / hydrologic conditions on the site typical for thi						
Are Vegetation, Soil, or Hydrologys	-				oresent? Yes No _	
Are Vegetation, Soil, or Hydrologyı				needed, explain any answei		
SUMMARY OF FINDINGS – Attach site map				locations, transects	, important features,	etc.
Hydrophytic Vegetation Present? Yes ✓ N	lo		o the Cample	d Area		
Hydric Soil Present? Yes N	lo		s the Sample within a Wetla	_	No	
Wetland Hydrology Present? Yes N	lo		William a Would		_ '''	
Remarks:						
Wetland sample point in north-centi	al porti	on of	f cell 2.			
VEGETATION – Use scientific names of plan	ıts.					
20.4			nant Indicator		sheet:	
Tree Stratum (Plot size: 30 ft r			es? Status	Number of Dominant Sp		
1				That Are OBL, FACW, (excluding FAC-):	or FAC (	(A)
2				-		()
3 4				<ul> <li>Total Number of Dominal Species Across All Strate</li> </ul>		(B)
				Percent of Dominant Sp	<del></del> ,	,
Sapling/Shrub Stratum (Plot size: 15 ft r		rotar	00101	That Are OBL, FACW, of		A/B)
1				Prevalence Index worl	kshoot:	
2				Total % Cover of:		
3					x 1 = 1	
4					x 2 = 64	
5	_, 	= Total	Cover	FAC species 1	x 3 = <u>3</u>	
Herb Stratum (Plot size: 5 ft )		Total		FACU species 0		
1. Hordeum jubatum	30		FACW	='	x 5 = 0	
2. Alopecurus pratensis	_ 2		FACW	Column Totals: 34	(A) <u>68</u>	(B)
3. Rumex crispus 4 Typha angustifolia	- <u>1</u>		FAC	Prevalence Index	= B/A = 2.00	
"			OBL_	Hydrophytic Vegetation		
5				1 - Rapid Test for H	Hydrophytic Vegetation	
6				2 - Dominance Tes	t is >50%	
8				3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>	
9.					Adaptations¹ (Provide suppo s or on a separate sheet)	orting
10					phytic Vegetation <sup>1</sup> (Explain)	,
	0.4	= Total	Cover	<u> </u>		
Woody Vine Stratum (Plot size: 30 ft r )  1.				be present, unless distu	l and wetland hydrology mu irbed or problematic.	ist
2.				Hydrophytic		
		= Total	Cover	Vegetation	s No	
% Bare Ground in Herb Stratum 66				Present? Yes	5 NO	
Remarks:						
PEM, sample point meets three hydr	ophytic	veg	etation ir	ndicators indicati	ive of a hydrophy	/tic
plant community.						

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SOIL Sampling Point: DP02w

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the	indicator	or confirm	m the absence	of indicators.)
Depth	Matrix		Redo	x Feature	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 0.5	10YR 2/2	90	N 3/0	10	<u>D</u>	М	Muck	Sulfidic odor.
0.5 - 16	10YR 4/1	95	10YR 4/4	5	С	М	Sandy Loam	
-								
-								
	-			<del> </del>		· <del></del>		
					_			
				<del>.</del>		· <del></del>	· -	
			=Reduced Matrix, CS			ed Sand G		cation: PL=Pore Lining, M=Matrix.
_		able to al	I LRRs, unless other					for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy (	-	, ,			Muck (A9) (LRR I, J)
Black Hi	oipedon (A2)		Sandy F	d Matrix (				Prairie Redox (A16) ( <b>LRR F, G, H</b> ) surface (S7) ( <b>LRR G</b> )
	n Sulfide (A4)			,	ineral (F1)			lains Depressions (F16)
	Layers (A5) (LRR	F)	-	-	latrix (F2)		_	R H outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G,</b>		Deplete	d Matrix	(F3)		Reduc	ed Vertic (F18)
	Below Dark Surfac	e (A11)		Dark Surf	, ,			arent Material (TF2)
	ark Surface (A12)				urface (F7	)		hallow Dark Surface (TF12)
	lucky Mineral (S1) ⁄lucky Peat or Peat (	(S2) (I DD		Depression	ons (F8) essions (F	<b>-16</b> )		(Explain in Remarks) of hydrophytic vegetation and
	cky Peat or Peat (S				73 of LRF			d hydrology must be present,
	ony : out or : out (o	o) (=::::: ,	, (			,		disturbed or problematic.
Restrictive L	ayer (if present):							•
Type:								
Depth (inc	ches):						Hydric Soil	Present? Yes No
Remarks:							I	
Sulfidic	ndor detecte	d in fi	et laver with	a dei	aleted	matriy	in the se	cond horizon.
Gairiaic	odor detect	, G 111 111	Strayer, with	a ac	Jictea	matrix		00110112011.
HYDROLO	GY							
	drology Indicators:							
_			ed; check all that appl				Sacanda	ary Indicators (minimum of two required)
<u>✓</u> Surface	•	nie require	Salt Crust				-	ace Soil Cracks (B6)
	ter Table (A2)		Aquatic In		ec (R13)			rsely Vegetated Concave Surface (B8)
✓ Saturation			Hydrogen					nage Patterns (B10)
	arks (B1)		Dry-Seaso			)		dized Rhizospheres on Living Roots (C3)
	it Deposits (B2)		Oxidized F		•	•	·	here tilled)
·	oosits (B3)			not tilled		J	, ,	/fish Burrows (C8)
	t or Crust (B4)		Presence			4)	Satu	uration Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		<u>✔</u> Geo	morphic Position (D2)
Inundation	on Vis ble on Aerial	lmagery (E	37) Other (Exp	olain in R	emarks)		FAC	-Neutral Test (D5)
Water-S	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ								
Surface Water			No Depth (in					
Water Table			No Depth (in					
Saturation Pr		′es	No Depth (in	ches): <u>0</u>		Wet	land Hydrolog	y Present? Yes 🗸 No
(includes cap		n dalide m	onitoring well, aerial	nhotos n	revious in	spections)	if available	
Describe Nec	Soraea Bata (Stream	i gaage, iii	ormorning went, derical	priotos, p	revious in	эрсопоно),	, ii avaliabic.	
Remarks:								
	estar lagated 0	ft coult	of comple pein	+ Cc+	rotod t	the em	rface and -	culfidio odor dotootad
Surrace W	ater located 2	it south	or sample poin	เ. รสเน	i ated to	ine su	rrace and a	sulfidic odor detected.

Project/Site: JTX TUNNICLIFF	(	Citv/Cou	<sub>ıntv:</sub> Big Ho	rn County	Sampling E	oate: 2024	-06-20
		-	-	State: Montana			
• •				Range: S10 T1N R33E	. 0		
Landform (hillslope, terrace, etc.): Floodplain					e	Slope (%)	3
Subregion (LRR): G 58A							
Soil Map Unit Name: Hh - Haverson and Lohmiller so							
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrologys	-			e "Normal Circumstances"		es N	lo
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematio	c? (If	needed, explain any answe	ers in Remark	ks.)	
SUMMARY OF FINDINGS – Attach site map	showing	samp	ling point	locations, transects	s, importa	nt feature	s, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:	o	v	s the Sample		No	<u> </u>	
Upland sample point on the southwe VEGETATION – Use scientific names of plan		of ce	ell 3.				
VEGETATION – Ose scientific flames of plan		Domin	ant Indicator	Dominance Test work	reheet:		
1	% Cover	Specie	es? Status		pecies or FAC		(A)
2	·			<ul> <li>Total Number of Domir</li> <li>Species Across All Stra</li> </ul>			(B)
Sapling/Shrub Stratum (Plot size: 15 ft r		= Total	Cover	Percent of Dominant S That Are OBL, FACW,		00.00	(A/B)
1	·			Prevalence Index wor			()
2				Total % Cover of:		Aultiply by:	
3					x 1 =		
4			<del></del>	FACW species 1			
5					x 3 =		
Herb Stratum (Plot size: 5 ft r		= Total	Covei		x 4 =		_
1. Lepidium perfoliatum	50		FAC	UPL species 1	x 5 =	: 5	_
2. Elymus repens	10		FACU	Column Totals: 62	(A)	197	(B)
3. Descurainia sophia	1		UPL	Prevalence Index	c = B/A = 3	.17	
4. Hordeum jubatum			FACW	Hydrophytic Vegetati			
5				1 - Rapid Test for			
6				2 - Dominance Tes			
7				3 - Prevalence Ind	ex is ≤3.0 <sup>1</sup>		
8				4 - Morphological	Adaptations <sup>1</sup>	(Provide sup	porting
9				data in Remark		,	
10.	~~	= Total		Problematic Hydro	pnytic veget	ation (Expla	ıın)
Woody Vine Stratum (Plot size: 30 ft r )  1				<sup>1</sup> Indicators of hydric so be present, unless dist			must
2.				Hydrophytic			
		= Total	Cover	Vegetation Present? Ye	esI	No	
% Bare Ground in Herb Stratum 38  Remarks:				7 1030111: 16			
	-41	. 1	: 41:	- mf = 11 = 4 · · · · · · · · · · · · · · · · · ·	1		
Upland sample point although domin	ated by	, сер	olalum pe	errollatum, it doe	s not me	et otne	iL

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SOIL Sampling Point: DP03u

	ription: (Describe	to the depth				or commu	i tile abselice (	of mulcators.)
Depth (inches)	Matrix Color (moist)	<u></u> %	Color (moist)	x Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 15	10YR 4/3	100			.,,,,		Sandy Clay Loam	. tomano
	1011(4/0							
-								
<sup>1</sup> Type: C=Cc	ncentration, D=Dep	oletion, RM=Re	educed Matrix, C	S=Covered	d or Coate	d Sand Gi	rains. <sup>2</sup> Loca	ation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applic	able to all LR	Rs, unless othe	rwise note	ed.)		Indicators f	or Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy	Gleyed Ma	trix (S4)		1 cm M	uck (A9) ( <b>LRR I, J</b> )
Histic Ep	ipedon (A2)		Sandy I	Redox (S5)	)		Coast P	Prairie Redox (A16) (LRR F, G, H)
Black His	stic (A3)		Strippe	d Matrix (S	66)		Dark Sι	urface (S7) (LRR G)
	n Sulfide (A4)		-	Mucky Min			_	ains Depressions (F16)
· <del></del>	Layers (A5) (LRR	•		Gleyed Ma	, ,		•	R H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G,			d Matrix (F	,		_	ed Vertic (F18)
	l Below Dark Surfac rk Surface (A12)	e (ATT)		Dark Surfa d Dark Su	` '			rent Material (TF2) nallow Dark Surface (TF12)
	ucky Mineral (S1)			Depression	, ,			Explain in Remarks)
	lucky Peat or Peat (	(S2) ( <b>LRR G. H</b>		ains Depre		16)		of hydrophytic vegetation and
	cky Peat or Peat (S			RA 72 & 7				hydrology must be present,
							unless	disturbed or problematic.
Restrictive L	.ayer (if present):							
Type:								
Depth (inc	ches):		<u></u>				Hydric Soil F	Present? Yes No
Remarks:								
NI a lavvalui	!! !!!							
No nyari	c soil indicat	tors obse	ervea.					
HYDROLO	GY							
Wetland Hyd	Irology Indicators:	<u> </u>						
	ators (minimum of o		heck all that appl	y)			Secondar	y Indicators (minimum of two required)
	Water (A1)	,	Salt Crust	•		,		ace Soil Cracks (B6)
<del></del>	ter Table (A2)		Aquatic In	` '	s (B13)			sely Vegetated Concave Surface (B8)
Saturatio	, ,		Hydrogen		` ,			nage Patterns (B10)
	arks (B1)		Dry-Seaso				·	zed Rhizospheres on Living Roots (C3)
	t Deposits (B2)		Oxidized F			ina Roots		nere tilled)
	osits (B3)			not tilled)				fish Burrows (C8)
	t or Crust (B4)		Presence		d Iron (C4	-)		ration Visible on Aerial Imagery (C9)
	osits (B5)		Thin Muck			,		morphic Position (D2)
	on Vis ble on Aerial	Imagery (B7)	Other (Ex					Neutral Test (D5)
	ained Leaves (B9)				,			-Heave Hummocks (D7) (LRR F)
Field Observ							<u> </u>	. , , , , ,
Surface Water		es No	Depth (in	ches):				
Water Table			Depth (in					
Saturation Pr			Depth (in				and Hudrology	Present? Yes No
(includes cap		es NO	Deptil (iii	CHES)		_   ***	and riyurology	resent: res No
	corded Data (stream	n gauge, monit	oring well, aerial	photos, pre	evious ins	pections),	if available:	
Remarks:								
No ovida	noo of wet	and budg		ry o d				
ino evide	ence of wetla	ana nyaro	ology obse	rved.				

Project/Site: JTX TUNNICLIFF		City/Co	ounty:	Big Horr	n County	Samplin	g Date: 2024	1-06-20
Applicant/Owner: MDT					State: Montana	Sampling	g Point: DP0	3w
Investigator(s): McEldowney								
Landform (hillslope, terrace, etc.): Closed Depression						Э	Slope (%	): <u>1</u>
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller so					NWI classific			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys	-				'Normal Circumstances" p			No
Are Vegetation, Soil, or Hydrology r					eeded, explain any answe			
SUMMARY OF FINDINGS – Attach site map					•		,	es, etc.
Hydrophytic Vegetation Present? Yes N	lo.							
Hydric Soil Present? Yes V N	lo			Sampled		N.		
Wetland Hydrology Present? Yes N	lo		witni	n a Wetlar	nd? Yes	No		
Remarks:								
Wetland sample point on the southw	est sid	e of	cel	١3.				
VECETATION . Here as 's we''ll a manuscraft along	4-							
VEGETATION – Use scientific names of plan					· · · · · · · · · · · · · · · · · · ·			
Tree Stratum (Plot size: 30 ft r	Absolute % Cover				Dominance Test work			
1					Number of Dominant Sport That Are OBL, FACW, or		_	
2.					(excluding FAC-):		3	_ (A)
3					Total Number of Domin	ant		
4					Species Across All Stra	ta:	3	_ (B)
Ocalia (Obarb Otarbura (Districe 15 ft r		= Total	I Cov	er	Percent of Dominant Sp		400.00	
Sapling/Shrub Stratum (Plot size: 15 ft r					That Are OBL, FACW,	or FAC:	100.00	_ (A/B)
1 2					Prevalence Index wor	ksheet:		
3.					Total % Cover of:			
4.						x		
5.					FACW species 10			
5.0		= Total	l Cov	er			3 = 48	
Herb Stratum (Plot size: 5 ft r )  1. Puccinellia nuttalliana	20	~	,	OBL		X 4		
2. Lepidium perfoliatum	15			FAC	UPL species 0 Column Totals: 47			
3. Hordeum jubatum	10			FACW	Column Totals. 47	(A	) <u>02</u>	(D)
4 Chenopodium album	- <del>10</del>			FACU	Prevalence Index	= B/A =	1.95	
5. Rumex crispus	1			FAC	Hydrophytic Vegetation			
6.					1 - Rapid Test for H		-	
7.					✓ 2 - Dominance Tes			
8					✓ 3 - Prevalence Inde			
9					4 - Morphological A data in Remarks			
10					Problematic Hydro			
Wandu Vina Statum (Blat sing) 30 ft r	47	= Total	I Cov	er	<sup>1</sup> Indicators of hydric soi			
Woody Vine Stratum (Plot size: 30 ft r )  1.					be present, unless distu			must
2.					Hydrophytic			
					Vegetation	~		
% Bare Ground in Herb Stratum 53					Present? Yes	š <u> </u>	No	
Remarks:								
PEM, dominated by OBL and FACW	vegetat	ion a	and	provid	des a prevalence	inde:	x less tha	at 3.

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SOIL Sampling Point: DP03w

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

Depth	Matrix Color (moist)	%		ox Featu %	1	Loc <sup>2</sup>	_ Texture	Remarks
(inches) 0 - 16	Color (moist) 10YR 4/2	97	Color (moist) 10YR 4/6	3	<u>Type'</u> C	M	Silty Clay Loam	Remarks
0 - 10	101K 4/2		10 TK 4/0			- IVI	- Sitty Clay Loani	
-								
							_	_
				_	_			
								<del></del>
	-							
						_		
-								
¹Type: C=C	oncentration, D=Dep	letion RM=	Reduced Matrix C	S=Cove	red or Coat	ed Sand (	Grains <sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.
	Indicators: (Applic					ca cana c		for Problematic Hydric Soils <sup>3</sup> :
Histosol					Matrix (S4)			luck (A9) (LRR I, J)
	oipedon (A2)			Redox (	. ,			Prairie Redox (A16) (LRR F, G, H)
Black Hi			-	d Matrix				urface (S7) (LRR G)
	n Sulfide (A4)				Nineral (F1)	)		lains Depressions (F16)
	Layers (A5) (LRR	F)	-	-	Matrix (F2)		_	R H outside of MLRA 72 & 73)
1 cm Mu	ck (A9) ( <b>LRR F, G</b> ,	H)	✓ Deplete	ed Matrix	(F3)			ed Vertic (F18)
	d Below Dark Surfac	ce (A11)			rface (F6)			arent Material (TF2)
<del></del>	ark Surface (A12)				Surface (F7	<b>'</b> )		hallow Dark Surface (TF12)
-	lucky Mineral (S1)	(00) / <b></b>			sions (F8)			Explain in Remarks)
	Mucky Peat or Peat (				pressions (F			of hydrophytic vegetation and
5 CIII IVIU	cky Peat or Peat (S	3) ( <b>LKK F</b> )	(IVIL	-KA /2 (	& 73 of LRI	ΧП)		I hydrology must be present, disturbed or problematic.
Restrictive I	_ayer (if present):						uniess	distarbed of problematic.
Type:	ayer (ii present).							
	ahaa):		<del></del>				Usalvia Cail	Present? Yes No
Depth (inc							Hydric Soil	Present? Yes V No No
Remarks:								
Deplete	d matrix obs	erved.						
•								
HYDROLO	GY							
	drology Indicators:	•						
_	cators (minimum of o		d: check all that ann	lv)			Seconda	ry Indicators (minimum of two required)
✓ Surface		one required		•			<u>-</u>	
	` ,		Salt Crust	, ,	ates (B13)			ace Soil Cracks (B6)
✓ Saturation	ter Table (A2)				( - /			rsely Vegetated Concave Surface (B8)
	` '				Odor (C1)	`		nage Patterns (B10)
	arks (B1)		-		r Table (C2			lized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)				heres on Liv	virig Roots		here tilled)
	oosits (B3)		(where			·4\		rish Burrows (C8)
	t or Crust (B4)				ced Iron (C	4)		ration Visible on Aerial Imagery (C9)
	osits (B5)	Images: (D	Thin Mucl					morphic Position (D2) -Neutral Test (D5)
	on Vis ble on Aerial	imagery (B	7) Other (Ex	piain in i	Remarks)		<del></del>	, ,
Field Obser	tained Leaves (B9)						FIOS	t-Heave Hummocks (D7) (LRR F)
		, V	N. D. with the	-1	3			
Surface Water			No Depth (ir					
Water Table			No V Depth (ir					
Saturation Projection		es	No Depth (ir	iches): (	J	We	tland Hydrology	Present? Yes No
(includes cap Describe Re	corded Data (stream	n daude mo	nitoring well aerial	photos	previous in	spections	) if available:	
	222 2000 (000000)	J, 1110		,,	,		,,	
Remarks:								
	. 66							
		-	•		the surf	ace and	a the presen	ce of an algal mat or crust
indicate p	revious surfac	e inunda	tion at this loca	ation.				

Project/Site: JTX TUNNICLIFF		City/Co	ounty:	Big Horr	n County	Sampling	Date: 2	:024-06-20
Applicant/Owner: MDT		-	-		State: Montana			
Investigator(s): McEldowney		Section	n, Tov	wnship, Rai	nge: S15 T1N R33E			
Landform (hillslope, terrace, etc.): Side Slope					-	е	Slop	e (%): 15
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller so					NWI classific			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys	ignificantly	disturb	ed?	Are "	Normal Circumstances" p	present? Y	∕es <b>✓</b>	No
Are Vegetation, Soil, or Hydrologyn	aturally pro	blemat	tic?	(If ne	eded, explain any answe	ers in Rema	rks.)	
SUMMARY OF FINDINGS – Attach site map				g point l	ocations, transects	i, import	ant fea	atures, etc
Hydrophytic Vegetation Present? Yes N. Hydric Soil Present? Yes N. Wetland Hydrology Present? Yes N. Remarks:	o 🗸			e Sampled n a Wetlar		No _		
Upland sample point located on upportant versions of plant versions.		of t	he	wetlan	d cell 4.			
	Absolute	Domi	nant	Indicator	Dominance Test work	sheet:		
Tree Stratum (Plot size: 30 ft r )  1					Number of Dominant S That Are OBL, FACW, (excluding FAC-):	or FAC	0	(A)
2					Total Number of Domir Species Across All Stra		3	(B)
4					,	_		
Sapling/Shrub Stratum (Plot size: 15 ft r )  1. Elaeagnus angustifolia				FACU	Percent of Dominant S That Are OBL, FACW,	or FAC:	0.00	(A/B)
2					Prevalence Index wor	ksheet:		
3.					Total % Cover of:			
4.						x 1		
5					FACW species 1			
	7	= Tota	l Cov	er	FAC species 0	x 3	116	
Herb Stratum (Plot size: 5 ft r )	15	/	,	FACU	FACU species 29			
Bromus arvensis     Bromus inermis	15			UPL	UPL species 17 Column Totals: 47		= <u>85</u> <u>203</u>	(D)
3. Elymus repens	5			FACU	Column Totals: 47	(A)	203	(B)
4. Acroptilon repens	2		—	UPL	Prevalence Index	= B/A = _	4.31	
5. Erigeron canadensis	2			FACU	Hydrophytic Vegetation	on Indicato	ors:	
6. Hordeum jubatum	1			FACW	1 - Rapid Test for I		: Vegeta	tion
7.					2 - Dominance Tes			
8.					3 - Prevalence Inde			
9.					4 - Morphological A data in Remark	Adaptations	:' (Provid	de supporting
10					Problematic Hydro			
Woody Vine Stratum (Plot size: 30 ft r )	40	= Tota			<sup>1</sup> Indicators of hydric so be present, unless distr	il and wetla	nd hydro	ology must
1								
2			I Cov		Hydrophytic Vegetation			
% Bare Ground in Herb Stratum 60  Remarks:		- 1018		<del>С</del> І	Present? Ye	es	No	<u></u>
Upland sample point dominated by Uhvdrophytic vegetation indicators.	JPL and	I FAC	CU	vegeta	tion that does r	ot mee	et any	<i>!</i>

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SOIL Sampling Point: DP04u

	cription: (Describe	to the depth n				or confirn	n the absence	of indicators.)		
Depth (inches)	Matrix Color (moist)	<u></u> % (	Color (moist)	ox Feature: %	s Type <sup>1</sup>	Loc <sup>2</sup>	Texture	i	Remarks	
0 - 6	10YR 4/2	100					Sandy Loam			
6 - 14	10YR 4/2	100					Loamy Sand	Gravelly		
0 14	10114/2	100					Loanly Sand	Gravelly		
								-		
-										
-								_		
		<del></del>								
1		<del> </del>								
	oncentration, D=Dep Indicators: (Applic					ed Sand G		cation: PL=Pore		
-		able to all LKF							•	-
Histosol	oipedon (A2)		Sandy	Gleyed Ma Redox (S5				Muck (A9) ( <b>LRR</b> Prairie Redox ( <i>i</i>		H)
Black Hi			-	d Matrix (S				Surface (S7) ( <b>Li</b>		, ••)
_	n Sulfide (A4)			Mucky Mir	,			Plains Depressio		
	d Layers (A5) ( <b>LRR</b>	F)	-	Gleyed Ma			_	RR H outside of		3)
	ıck (A9) ( <b>LRR F, G</b> ,			ed Matrix (I	,			ced Vertic (F18)		
· — ·	d Below Dark Surfac	e (A11)	·	Dark Surfa	, ,			arent Material (		
	ark Surface (A12) Mucky Mineral (S1)			ed Dark Su Depression		1		Shallow Dark Su (Explain in Rem		
-	Mucky Milleral (31) Mucky Peat or Peat (	(S2) (I RR G. H		ains Depre	. ,	16)		of hydrophytic		
	icky Peat or Peat (S		_	RA 72 & 7				d hydrology mus	-	
	, ,	, ,	`			,		s disturbed or pro		
Restrictive I	Layer (if present):									
Type:			_							
Depth (in	ches):		_				Hydric Soil	Present? Ye	esNo	
Remarks:										
No hydr	ic soil indica	tors obse	rved							
HYDROLO	GY									
Wetland Hy	drology Indicators:	<u> </u>								
_	cators (minimum of o		eck all that app	ly)			Seconda	ary Indicators (m	ninimum of two	required)
Surface	Water (A1)		Salt Crust	(B11)			Sur	face Soil Cracks	s (B6)	
· ——	iter Table (A2)		Aquatic Ir		s (B13)			arsely Vegetated		ace (B8)
Saturation			Hydrogen					inage Patterns (		
Water M	larks (B1)		Dry-Seas	on Water T	able (C2)		Oxi	dized Rhizosphe	eres on Living R	Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosphe	res on Liv	ing Roots	(C3) (v	vhere tilled)		
Drift Dep	oosits (B3)		(where	not tilled)			Cra	yfish Burrows (C	28)	
Algal Ma	at or Crust (B4)		Presence	of Reduce	ed Iron (C4	1)	Sat	uration Visible o	n Aerial Imager	y (C9)
Iron Dep			Thin Mucl	k Surface (	C7)			omorphic Positio		
	on Vis ble on Aerial	Imagery (B7)	Other (Ex	plain in Re	marks)			C-Neutral Test (I		
	tained Leaves (B9)						Fro	st-Heave Humm	ocks (D7) (LRI	R F)
Field Obser										
Surface Wat			Depth (ir							
Water Table			Depth (ir							. 4
Saturation P		'es No _	Depth (ir	iches):		Wetl	land Hydrolog	y Present? Y	es No	
(includes car Describe Re	corded Data (stream	n gauge, monito	ring well. aerial	photos, pr	evious ins	pections).	if available:			
	(	3 3:,	J : ,			, ,				
Remarks:										
No ovid	anaa af wati	and budge	loov obca	ruad						
ino evide	ence of wetla	anu nyuro	logy obse	ı vea.						

Project/Site: JTX TUNNICLIFF	(	City/Cou	<sub>unty:</sub> Big	Horn Co	ounty	5	Sampling Date: 20	024-06-20
Applicant/Owner: MDT		•	,				Sampling Point: D	
Investigator(s): McEldowney								
Landform (hillslope, terrace, etc.): Closed Depression							Slone	, (%)· <b>3</b>
Subregion (LRR): G 58A			•		, _			. ,
								10/10/00
Soil Map Unit Name: <u>Hh - Haverson and Lohmiller so</u>								
Are climatic / hydrologic conditions on the site typical for this	time of yea	ar? Yes						
Are Vegetation, Soil, or Hydrologys	ignificantly o	disturbe	ed?	Are "Nor	mal Circums	tances" pre	esent? Yes	No
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematio	c?	(If neede	d, explain an	y answers	in Remarks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling po	oint loca	itions, tra	nsects, i	important fea	tures, etc.
Hydrophytic Vegetation Present? Yes No	n							
Hydric Soil Present? Yes V	0			mpled Are		· · · ·	No	
Wetland Hydrology Present? Yes No	o	V	within a v	Wetland?	Y	es	NO	
Remarks:								
Wetland sample point on southeast of	ornor (	of co	л и					
Wetiand Sample Point on Southeast (	Joiner	JI CE	11 4.					
VEGETATION - Use scientific names of plant	ts.							
20.4	Absolute				ominance Te	est worksh	neet:	
	% Cover				umber of Dor			
1					nat Are OBL, xcluding FA0		FAC 2	(A)
2				— I `	Actuality I Ac	<i>)</i> .		(^)
3					otal Number			(D)
4				<sup>SI</sup>	pecies Acros	S All Strata	: <u>2</u>	(B)
Sapling/Shrub Stratum (Plot size: 15 ft r		= Total	Cover		ercent of Dor			(A (D)
1				''	nat Are OBL,	FACW, or	FAC: 100.00	(A/B)
2				Pi	evalence In	dex works	sheet:	
3.					Total % Co	over of:	Multiply I	oy:
4				o	BL species	12	x 1 = <u>12</u>	
5				F			x 2 = <u>26</u>	
		= Total	Cover				x 3 = <u>3</u>	
Herb Stratum (Plot size: 5 ft r					ACU species		x 4 = <u>20</u>	
1. Juncus balticus	10		FAC				x 5 = 5	
2. Typha angustifolia	7		OBL		olumn Totals	: 32	(A) <u>66</u>	(B)
3. Eleocharis palustris	5		OBL		Provalon	co Indox -	= B/A = 2.06	
4. Erigeron canadensis	3		FAC				Indicators:	
5. Hordeum jubatum	3		FAC			-	drophytic Vegetati	ion
6. Bromus arvensis	1 1		FAC	<u> </u>		_		
7. Chenopodium album			FAC	<u></u>	_ 2			
8. Rumex crispus	1		FAC	_			aptations <sup>1</sup> (Provide	e supporting
9. Sisymbrium altissimum	1		UPL		data in	Remarks of	or on a separate sl	heet)
10				<u>-</u>	_ Problemat	ic Hydroph	ytic Vegetation <sup>1</sup> (E	Explain)
Woody Vine Stratum (Plot size: 30 ft r )	32	= Total	Cover	11,	ndicators of h	vdric soil a	and wetland hydrol	logy must
							ped or problemation	
1								
Z			Cover		ydrophytic egetation			
% Bare Ground in Herb Stratum 68		- TOtal	Covei		esent?	Yes	No	
Remarks:				II.				
PEM, dominated by FACW and OBL v	redetat	ion a	nd ma	aate th	ree hyd	ronhyt	ic venetati	าท
	egetat	ion a	iiiu iile	ะ <del>ะ</del> เจ แ	n <del>ce</del> nyu	торпус	ic vegetation	J11
indicators.								

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SOIL Sampling Point: DP04w

Profile Desc	ription: (Describe	to the dep	th needed to docu	ment the	indicator	or confire	m the absence	of indicators.)
Depth	Matrix			ox Feature	es			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 7	10YR 4/1	98	10YR 4/6	2	<u> </u>	М	Loam	
7 - 16	10YR 4/2	100					Loamy Sand	Gravelly
-								
-					_			
					_		· <del></del>	
	-					-	·	
					-		· -	
					_			
							· <del></del>	
		•	Reduced Matrix, C			ed Sand G		cation: PL=Pore Lining, M=Matrix.
		cable to all	LRRs, unless othe					for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy	-				Nuck (A9) ( <b>LRR I, J</b> ) Prairie Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi	oipedon (A2)		-	Redox (St d Matrix (				Surface (S7) (LRR G)
	en Sulfide (A4)			,	ineral (F1)			Plains Depressions (F16)
	d Layers (A5) ( <b>LRR</b>	F)	-	Gleyed M			_	R H outside of MLRA 72 & 73)
1 cm Mu	ıck (A9) ( <b>LRR F, G</b>	<b>H</b> )		ed Matrix (	. ,		Reduc	ed Vertic (F18)
-	d Below Dark Surfa	ce (A11)		Dark Surf	` '			arent Material (TF2)
	ark Surface (A12)  Mucky Mineral (S1)			ed Dark Si Depressio	urface (F7	)	-	hallow Dark Surface (TF12) (Explain in Remarks)
	Mucky Peat or Peat	(S2) (LRR (		•	essions (F	16)		of hydrophytic vegetation and
	icky Peat or Peat (	` ' '	·		73 of LRF			d hydrology must be present,
							unless	disturbed or problematic.
Restrictive I	Layer (if present):							
Type:								
Depth (inc	ches):						Hydric Soil	Present? Yes No
Remarks:								
Deplete	d matrix indi	icator o	bserved.					
HYDROLO	GY							
	drology Indicators	<u>.</u>						
-			d; check all that app	lv)			Seconda	ary Indicators (minimum of two required)
	Water (A1)		Salt Crust					face Soil Cracks (B6)
	iter Table (A2)		Aquatic Ir		es (B13)			rsely Vegetated Concave Surface (B8)
✓ Saturation			Hydrogen					nage Patterns (B10)
Water M	larks (B1)		Dry-Seas	on Water	Table (C2)	)	Oxic	dized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosphe	eres on Liv	ing Roots	(C3) (w	here tilled)
	oosits (B3)			not tilled				yfish Burrows (C8)
	at or Crust (B4)		Presence			4)		uration Visible on Aerial Imagery (C9)
	oosits (B5)		Thin Mucl					omorphic Position (D2)
	on Vis ble on Aerial		7) Other (Ex	plain in R	emarks)			C-Neutral Test (D5)
Field Obser	tained Leaves (B9)					1	Fros	st-Heave Hummocks (D7) (LRR F)
		Vaa	No V Donth (in	ahaa):				
Surface Water			No Depth (ir No Depth (ir			_		
Water Table			No Depth (ir			\ \/\ot	land Uvdralag	y Present? Yes 🗸 No
Saturation Pi		res	No Depth (ii	icries). <u>o</u>		_ wet	ianu nyurolog	y Fresent? Tes NO
		m gauge, mo	nitoring well, aerial	photos, p	revious ins	spections),	, if available:	
Remarks:								
High wate	er table, satura	ted to th	e surface, pass	ses FAC	-Neutra	al test, a	and geomor	phology position all indicate
wetland h	ydrology.							

Project/Site: JTX TUNNICLIFF	(	City/Cou	inty: Big Hor	n County	Sampling Date: 2024-06-19
-		-	-		Sampling Point: DP05u
Investigator(s): McEldowney					
Landform (hillslope, terrace, etc.): Floodplain				-	Slone (%): 0
					B Datum: NAD 83
Soil Map Unit Name: Hh - Haverson and Lohmiller so				NWI classific	
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology si	-				
Are Vegetation, Soil, or Hydrology no				eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map s				-	
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes No.	, <u>'</u>		s the Sampled		No <u>′</u>
Upland sample point at south end of	cell 5.				
VEGETATION – Use scientific names of plant	ts.				
70 ft r			ant Indicator	Dominance Test work	sheet:
			es? Status	Number of Dominant S	•
1				That Are OBL, FACW, (excluding FAC-):	1 (A)
3				Total Number of Domin	ant
4				Species Across All Stra	_
Sapling/Shrub Stratum (Plot size: 15 ft r				Percent of Dominant Sp That Are OBL, FACW,	
1				Prevalence Index wor	ksheet:
2				Total % Cover of:	Multiply by:
4.					x 1 = 0
5.					x 2 = <u>20</u>
		= Total	Cover		x 3 = 30
Herb Stratum (Plot size: 5 ft r )	25		EACH	FACU species 38	
1. Thlaspi arvense 2. Elymus repens	25 10	- V	FACU FACU	UPL species 3 Column Totals: 61	
3. Lepidium perfoliatum	10		FACO FAC	Column Totals: 01	(A) <u>217</u> (B)
4 Alopecurus pratensis	5		FACW	Prevalence Index	= B/A = 3.55
5. Hordeum jubatum	5		FACW	Hydrophytic Vegetation	on Indicators:
6. Chenopodium album	3		FACU	1 - Rapid Test for H	Hydrophytic Vegetation
7. Sisymbrium altissimum	2		UPL	2 - Dominance Tes	
8. Descurainia sophia	1		UPL	3 - Prevalence Inde	
9				4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10					phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )		= Total			l and wetland hydrology must
1			Cover	Hydrophytic Vegetation	s No
Remarks:				1	
Upland sample point dominated by F	ACU ve	egeta	ition.		

SOIL Sampling Point: DP05u

Profile Desc	ription: (Describe	to the depti	n needed to docum	nent the	indicator	or confiri	m the absence	of indicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 11	10YR 4/2	95	10YR 4/6	5	С	М	Loam	
11 - 15	10YR 4/2	100					Loamy Sand	Gravelly
-								
-				-				
							<del></del>	
	-				· ——		·	
							· <del></del>	
	oncentration, D=Dep					ed Sand G		ation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applic	able to all L						for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy C	-	. ,			Muck (A9) (LRR I, J)
	pipedon (A2)		Sandy F					Prairie Redox (A16) (LRR F, G, H)
Black His	` '		Stripped					urface (S7) ( <b>LRR G</b> ) lains Depressions (F16)
	n Sulfide (A4) I Layers (A5) ( <b>LRR</b> I	F)			neral (F1) atrix (F2)			R H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G,	•	<u>✓</u> Deplete				`	ed Vertic (F18)
	Below Dark Surfac			Dark Surfa	,			arent Material (TF2)
	ark Surface (A12)	` ,			urface (F7)	)		hallow Dark Surface (TF12)
Sandy M	lucky Mineral (S1)		Redox [	Depressio	ns (F8)			Explain in Remarks)
	lucky Peat or Peat (				essions (F			of hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 &	73 of LRR	<b>H</b> )		d hydrology must be present,
Dootrictive I	over (if present).						unless	disturbed or problematic.
_	_ayer (if present):							
Type:	ahaa):		<del></del>				Hydric Soil	Present? Yes ✓ No
Remarks:	ches):						Hydric Soil	Fresent? TesNO
	_	_		_				
Redox pr	esent in uppe	er portion	of profile. M	ay be	relict, c	or a res	sult of soil r	nixing during construction.
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary India	cators (minimum of o	one required;	check all that apply	y)			<u>Seconda</u>	ry Indicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)			Surfa	ace Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Inv	ertebrate/	es (B13)		Spai	rsely Vegetated Concave Surface (B8)
Saturation	on (A3)		Hydrogen	Sulfide O	dor (C1)		Drai	nage Patterns (B10)
Water M	arks (B1)		Dry-Seaso	n Water <sup>-</sup>	Table (C2)		Oxid	lized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized R	Rhizosphe	res on Liv	ing Roots	(C3) (w	here tilled)
-	oosits (B3)		•	ot tilled)				rfish Burrows (C8)
	it or Crust (B4)		Presence		,	1)	Satu	ration Visible on Aerial Imagery (C9)
-	osits (B5)		Thin Muck				·	morphic Position (D2)
	on Vis ble on Aerial	Imagery (B7)	Other (Exp	lain in Re	emarks)			-Neutral Test (D5)
	tained Leaves (B9)						Fros	t-Heave Hummocks (D7) (LRR F)
Field Observ			.,					
Surface Water			o Depth (inc					
Water Table			o V Depth (inc					٠.
Saturation Pr (includes cap		′es N	o Depth (inc	ches):		Wet	land Hydrology	y Present? Yes No
	corded Data (stream	n gauge, mor	nitoring well, aerial p	ohotos, pr	evious ins	pections)	, if available:	
	,	_ 0 / -	- '	, r		. ,		
Remarks:								
	nce of watter	d bydral	ogy obcorvos	1 Tha	cito or	neara	to got inun	adated infraguently
ino evide	nce or wetian	iu riyurdi	ogy observed	a. THE	site at	pears	to get mun	ndated infrequently.

Project/Site: JTX TUNNICLIFF	(	City/Cou	<sub>ınty:</sub> Big Hor	rn County	Sampling Date: 2024-06-19
Applicant/Owner: MDT				State: Montana	Sampling Point: DP05w
Investigator(s): McEldowney					
Landform (hillslope, terrace, etc.): Closed Depression					e Slope (%): 5
Subregion (LRR): G 58A	Lat: 45.	83882	231	Long: -107.5971956	Datum: NAD 83
Soil Map Unit Name: Hh - Haverson and Lohmiller so					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrologysi	-				oresent? Yes No
Are Vegetation, Soil, or Hydrologyn				eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map s					
Hydrophytic Vegetation Present? Yes No	)				
Hydric Soil Present? Yes No			s the Sample vithin a Wetla		No
Wetland Hydrology Present? Yes No	·	V	vitilii a vvetia	iliu: Tes	110
Remarks:					
Wetland sample point on the south s	ide of c	cell 5	•		
···					
VEGETATION – Use scientific names of plant	ts.				
VEGETATION 636 Scientific flames of plant		Domin	ant Indicator	Dominance Test work	sheet:
Tree Stratum (Plot size: 30 ft r )			es? Status	Number of Dominant Sp	
1				That Are OBL, FACW, o	or FAC
2				(excluding FAC-):	<u>3</u> (A)
3				Total Number of Domin	
4				Species Across All Stra	ta: <u>3</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r )		= Total	Cover	Percent of Dominant Sp	
1				That Are OBL, FACW, o	or FAC: 100.00 (A/B)
2.				Prevalence Index worl	ksheet:
3.				Total % Cover of:	
4					x 1 = 18
5					x 2 = 70
		= Total	Cover		x 3 = 6
Herb Stratum (Plot size: 5 ft r  1. Hordeum jubatum	20	~	FACW		x 4 = <u>8</u> x 5 = <u>15</u>
2 Juncus balticus	15		FACW	·	(A) 117 (B)
3. Typha angustifolia	15		OBL	Column Totals.	(A) <u></u> (b)
4. Schoenoplectus pungens	3		OBL	Prevalence Index	= B/A = 1.95
5. Sissymbryium altissimum	3		UPL	Hydrophytic Vegetation	
6. Rumex crispus	2		FAC	1 - Rapid Test for H	
7. Thlaspi arvense	2		FACU	2 - Dominance Tes	
8				✓ 3 - Prevalence Inde	
9				data in Remarks	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10					phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r	60	= Total	Cover		l and wetland hydrology must
1				be present, unless distu	
2				Hydrophytic	
				Vegetation	./
% Bare Ground in Herb Stratum 40				Present? Yes	s No
Remarks:					
PEM, dominated by OBL and FACW v	egetat	ion, r	meeting (	3 hydrophytic ve	getation indicators.
_	_	-		<del>-</del>	

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SOIL Sampling Point: DP05w

Profile Desc	cription: (Describe	e to the de	pth needed to docu	ment the	indicator	or confir	m the absence	of indicators.)
Depth	Matrix		_	x Featur		. 3		
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>		Remarks
0 - 8	10YR 4/1	90	10YR 4/6	10	_ <u>C</u>	M	Clay Loam	
8 - 16	10YR 4/2	95	10YR 4/6	5	<u>C</u>		Sandy Loam	Gravelly
			· -	_				
-								
-							-	
-								
-							_	
¹Type: C=C	oncentration D=De	nletion RM	1=Reduced Matrix, C	S=Cover	ed or Coate	ad Sand G	Prains <sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.
			I LRRs, unless othe			u Garia C		for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy				1 cm N	luck (A9) (LRR I, J)
Histic E	pipedon (A2)			Redox (S			Coast I	Prairie Redox (A16) ( <b>LRR F, G, H</b> )
	istic (A3)			d Matrix (				urface (S7) (LRR G)
	en Sulfide (A4)				ineral (F1)		_	lains Depressions (F16)
	d Layers (A5) ( <b>LRR</b> uck (A9) ( <b>LRR F, G</b>		Loamy <u>✓</u> Deplete		Matrix (F2)		`	R H outside of MLRA 72 & 73) ed Vertic (F18)
	d Below Dark Surfa				face (F6)			arent Material (TF2)
l — ·	ark Surface (A12)	, ,	·		urface (F7	)		hallow Dark Surface (TF12)
-	Mucky Mineral (S1)			Depressi				Explain in Remarks)
	Mucky Peat or Peat				ressions (F	•		of hydrophytic vegetation and
5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H)								d hydrology must be present, disturbed or problematic.
Restrictive	Layer (if present):							distance of problemate.
Type:								
Depth (in	ches):						Hydric Soil	Present? Yes V No No
Remarks:								
Deplete	d matrix wit	h redox	concentration	ons th	rough	out the	e soil profi	le.
							, co p. c	
HYDROLO	GY							
	drology Indicators	S:						
_			ed; check all that appl	v)			Seconda	ry Indicators (minimum of two required)
✓ Surface	•		Salt Crust					ace Soil Cracks (B6)
	ater Table (A2)		Aquatic In		es (B13)			rsely Vegetated Concave Surface (B8)
✓ Saturation	on (A3)		Hydrogen				Drai	nage Patterns (B10)
Water M	larks (B1)		Dry-Seaso	on Water	Table (C2)		Oxid	lized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized F	Rhizosph	eres on Liv	ing Roots	s (C3) (w	here tilled)
	posits (B3)		,	not tilled	•			fish Burrows (C8)
	at or Crust (B4)		Presence			4)	<del></del>	ration Visible on Aerial Imagery (C9)
-	oosits (B5)	l l //	Thin Muck					morphic Position (D2)
	on Vis ble on Aeria stained Leaves (B9)		37) Other (Ex	piain in R	emarks)			-Neutral Test (D5) t-Heave Hummocks (D7) ( <b>LRR F</b> )
Field Obser	, ,						1103	tericave riaminocks (Dr) (ERRT)
Surface Wat		Yes 🗸	No Depth (in	ches): 3				
Water Table			No Depth (in			_		
Saturation P			No Depth (in			Wet	tland Hydrolog	/ Present? Yes No
(includes car	oillary fringe)							
Describe Re	corded Data (strea	m gauge, m	nonitoring well, aerial	pnotos, p	revious ins	pections)	i, if available:	
Domonico								
Remarks:						_		
	aturated soils	to the si	urface, a high w	ater ta	ble. Sur	face wa	ater Is prese	nt within 7 feet of the sample
point.								

Project/Site: JTX TUNNICLIFF	(	City/County	<sub>y:</sub> Big Horr	n County	Sampling Date: 2024-06-19
					Sampling Point: DP06u
Investigator(s): McEldowney					
Landform (hillslope, terrace, etc.): Floodplain				-	e Slope (%): 10
Subregion (LRR): G 58A					
Soil Map Unit Name: Hh - Haverson and Lohmiller soil				NWI classific	
Are climatic / hydrologic conditions on the site typical for this	time of year	ar? Yes _	✓ No	(If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology si	gnificantly o	disturbed?	Are "	'Normal Circumstances" p	oresent? Yes No
Are Vegetation, Soil, or Hydrology na	aturally prol	blematic?	(If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	showing	samplir	ng point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks:			he Sampled hin a Wetlar		No <u> </u>
Upland sample point at south end of	cell 6.				
VEGETATION – Use scientific names of plant	s.				
Tree Stratum (Plot size: 30 ft r			t Indicator	Dominance Test work	sheet:
1	% Cover			Number of Dominant State That Are OBL, FACW, or	•
2.				(excluding FAC-):	<u>0</u> (A)
3				Total Number of Domin	ant
4				Species Across All Stra	ta: <u>1</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1. Elaeagnus angustifolia	2	= Total Co	over FACU	Percent of Dominant Sp That Are OBL, FACW, o	
2				Prevalence Index wor	ksheet:
3.					Multiply by:
4					x 1 = 0
5					x = 0
Herb Stratum (Plot size: 5 ft r	2	= Total Co	over	FAC species 5	x = 0
1. Thinopyrum intermedium	70	~	UPL	UPL species 70	
2. Melilotus officinalis	5		FACU	Column Totals: 77	
3					
4		-		Prevalence Index  Hydrophytic Vegetation	
5				1 - Rapid Test for H	
6				2 - Dominance Tes	
7				3 - Prevalence Inde	
8				4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting
9					s or on a separate sheet)
10	7-	= Total Co		Problematic Hydror	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1				<sup>1</sup> Indicators of hydric soi be present, unless distu	l and wetland hydrology must urbed or problematic.
2				Hydrophytic Vegetation	
% Bare Ground in Herb Stratum 25		- TOTAL CO	vei		s No <u> </u>
Remarks:				•	
Upland sample point dominated by T	hinopy	rum in	termedi	um.	

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SOIL Sampling Point: DP06u

Profile Desc		to the dep	th needed to docu			or confirm	n the absence of	f indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	ox Feature %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches) 0 - 16	2.5Y 5/3	99	10YR 4/6	1	C Type	PL	Loam	Remarks
	2.31 3/3		1011 4/0	_		<u> </u>	LUAIII	
				_				
-								
								·
	-			_	_		-	
	oncentration, D=De					ed Sand G		tion: PL=Pore Lining, M=Matrix.
-	ndicators: (Applie	cable to all	LRRs, unless other	erwise not	ted.)		Indicators fo	or Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy					ck (A9) (LRR I, J)
	oipedon (A2)		-	Redox (St				rairie Redox (A16) (LRR F, G, H)
Black Hi	n Sulfide (A4)			ed Matrix ( Mucky Mi	,		<del></del>	face (S7) ( <b>LRR G</b> ) ins Depressions (F16)
	Layers (A5) (LRR	F)		Gleyed M	, ,	'	-	H outside of MLRA 72 & 73)
	ick (A9) ( <b>LRR F, G,</b>	•	-	ed Matrix (			•	Vertic (F18)
	Below Dark Surfac	•		Dark Surf			Red Pare	ent Material (TF2)
	ark Surface (A12)		Deplete	ed Dark Si	urface (F7	<b>'</b> )		allow Dark Surface (TF12)
	lucky Mineral (S1)			Depression				xplain in Remarks)
	Mucky Peat or Peat			lains Depr				hydrophytic vegetation and
5 CITI IVIU	cky Peat or Peat (S	55) ( <b>LKK F</b> )	(INI)	LRA 72 &	/3 01 LR	КΠ)		nydrology must be present, isturbed or problematic.
Restrictive I	_ayer (if present):						unicos di	starbed of problematic.
	, ,							
	ches):						Hydric Soil P	resent? Yes No
Remarks:							,	
	• • •							
No nyari	ic soil indica	tors ob	served.					
HYDROLO	GY							
Wetland Hyd	drology Indicators	:						
Primary Indic	cators (minimum of	one required	d; check all that app	oly)			Secondary	Indicators (minimum of two required)
Surface	Water (A1)		Salt Crus	t (B11)			Surfac	ce Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Ir	nvertebrate	es (B13)			ely Vegetated Concave Surface (B8)
Saturation				Sulfide O				age Patterns (B10)
	arks (B1)			on Water			·	ed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized			ving Roots		ere tilled)
	posits (B3)		,	not tilled	•			sh Burrows (C8)
	it or Crust (B4)			of Reduc	•	(4)	·	ation Visible on Aerial Imagery (C9)
	osits (B5)	lman mam . (D)	· · · · · · · · · · · · · · · · · · ·	k Surface	` '			orphic Position (D2)
	on Vis ble on Aerial tained Leaves (B9)	imagery (B	(Ex	plain in Re	emarks)			Neutral Test (D5)
Field Observ	. ,					1	FIOSI-	Heave Hummocks (D7) (LRR F)
		<b>/</b> 00	No. V Donth (in	achoo):				
Surface Water			No Depth (in					
Water Table			No Depth (in				amal Hardweller	Dunaanto Van Na V
Saturation Proceed (includes cape		r es	No Depth (in	icnes):		weti	and Hydrology I	Present? Yes No
	corded Data (stream	n gauge, mo	nitoring well, aerial	photos, p	revious in	spections),	if available:	
Remarks:								
No ovide	ance of wot	and by	trology obox	rvod				
INO EVIDE	ence of wetl	and my	ir ology obse	erveu.				

Project/Site: JTX TUNNICLIFF		City/Co	ounty	Big Horr	n County	Samplin	g Date: 2024	1-06-19
Applicant/Owner: MDT		•	•		State: Montana	Sampling	Point: DP0	6w
Investigator(s): McEldowney							-	
Landform (hillslope, terrace, etc.): Closed Depression						9	Slope (%	): 3
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller so					NWI classific			
Are climatic / hydrologic conditions on the site typical for thi								
Are Vegetation, Soil, or Hydrologys	-				Normal Circumstances" p		_	No
Are Vegetation, Soil, or Hydrology r								
SUMMARY OF FINDINGS – Attach site map								es, etc.
Hydrophytic Vegetation Present? Yes N								
Hydric Soil Present? Yes ✓ N	lo			e Sampled		N.		
Wetland Hydrology Present? Yes V	lo		with	in a Wetlan	id? Yes	No		
Remarks:								
Wetland sample point at the south e	nd of c	ell 6						
рот в в в в в в в в в в в в в в в в в в в			•					
VECETATION . Use estantific names of plan	.10							
VEGETATION – Use scientific names of plan		D		La alla atau	D	-1		
Tree Stratum (Plot size: 30 ft r	Absolute % Cover				Dominance Test work  Number of Dominant Sp			
1					That Are OBL, FACW, of			
2					(excluding FAC-):		2	_ (A)
3					Total Number of Domin	ant	_	
4					Species Across All Stra	ta:	2	_ (B)
Continue Observe (District 15 ft r		= Tota	al Cov	ver .	Percent of Dominant Sp		100.00	
Sapling/Shrub Stratum (Plot size: 15 ft r )					That Are OBL, FACW, o	or FAC:	100.00	_ (A/B)
1 2					Prevalence Index wor	ksheet:		
3.					Total % Cover of:		Multiply by:	
4.						x		
5					FACW species 43			
		= Tota	al Cov	ver .	FAC species 1			
Herb Stratum (Plot size: 5 ft r )	0.5		,	E A C\A/		x		
1. Hordeum jubatum 2. Typha angustifolia	_ <u>35</u> 			FACW	UPL species 0			
3. Juncus balticus	- <del>13</del>			OBL FACW	Column Totals: 61	(A	) 109	(B)
Alopecurus pratensis	3			FACW	Prevalence Index	= B/A =	1.78	
5. Rumex crispus	- <del>1</del>			FAC	Hydrophytic Vegetation	n Indica	tors:	
6. Schoenoplectus pungens	1			OBL	✓ 1 - Rapid Test for H	lydrophyt	ic Vegetation	
7. Thlaspi arvense	1			FACU	✓ 2 - Dominance Tes	t is >50%	1	
8.	_				✓ 3 - Prevalence Inde			
9.					4 - Morphological A data in Remarks	daptation	ns¹ (Provide su senarate shee	ipporting
10					Problematic Hydro			
		= Tota		ver				
Woody Vine Stratum (Plot size: 30 ft r )					<sup>1</sup> Indicators of hydric soi be present, unless distu			/ must
2.					Hydrophytic			
					Vegetation	~		
					Present? Yes	š <u> </u>	No	
Remarks:								
PEM dominated by OBL and FACW v	egetati/	on,	me	eting 3	hydrophytic ve	getati	on indica	tors.

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SOIL Sampling Point: DP06w

Profile Desc	ription: (Describe	to the depth	needed to docu	ment the i	indicator	or confirm	the absence of	indicators.)
Depth	Matrix			x Feature	s			
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 16	10YR 4/2	95 10	OYR 4/6	5	С		Silty Clay Loam	
-								
-								
		- <del></del>						
		·			. ——			
	-			_	· ——			<u> </u>
		- <del> </del>		_				
	oncentration, D=Dep					d Sand Gr		on: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applic	able to all LR	Rs, unless othe	rwise not	ed.)		Indicators for	r Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy	-	. ,			ck (A9) ( <b>LRR I, J</b> )
-	ipedon (A2)		Sandy					airie Redox (A16) (LRR F, G, H)
Black His	` '			d Matrix (S	,			face (S7) (LRR G)
	n Sulfide (A4) I Lavers (A5) ( <b>LRR I</b>	E)	-	Mucky Mir Gleyed Ma				ns Depressions (F16) H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G,	,	<u>✓</u> Deplete	-			`	Vertic (F18)
	Below Dark Surfac			Dark Surfa	,			ent Material (TF2)
	rk Surface (A12)	,			ırface (F7)			llow Dark Surface (TF12)
Sandy M	lucky Mineral (S1)		Redox	Depressio	ns (F8)		Other (Ex	plain in Remarks)
	lucky Peat or Peat (	, , ,	<b>i</b> ) High Pl	ains Depre	essions (F	16)		hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 & 7	73 of LRR	<b>H</b> )		ydrology must be present,
<b>5</b> (1)							unless dis	sturbed or problematic.
	ayer (if present):							
,, <u> </u>			_					
. ,	ches):		_				Hydric Soil Pr	esent? Yes V No No
Remarks:								
Sulfidic of	odor and dep	oleted ma	atrix prove	the so	oil is hy	/dric.		
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
-	ators (minimum of c		heck all that app	y)			Secondary	Indicators (minimum of two required)
✓ Surface \			Salt Crust				<u></u>	e Soil Cracks (B6)
	ter Table (A2)		Aquatic In		s (B13)			ely Vegetated Concave Surface (B8)
✓ Saturation			Hydrogen					ge Patterns (B10)
Water Ma			Dry-Seaso					ed Rhizospheres on Living Roots (C3)
Sedimen	t Deposits (B2)		Oxidized I					ere tilled)
Drift Dep	osits (B3)			not tilled)				sh Burrows (C8)
Algal Ma	t or Crust (B4)		Presence	of Reduce	ed Iron (C4	<b>!</b> )	Saturat	tion Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Mucl	Surface (	(C7)		<u>✓</u> Geomo	orphic Position (D2)
Inundatio	on Vis ble on Aerial	Imagery (B7)	Other (Ex	olain in Re	emarks)		FAC-N	eutral Test (D5)
Water-St	tained Leaves (B9)						Frost-H	leave Hummocks (D7) (LRR F)
Field Observ	/ations:							
Surface Water	er Present? Y	′es 🖊 No	Depth (in	ches): 2				
Water Table			Depth (in			_		
Saturation Pr			Depth (in				and Hydrology P	resent? Yes No
(includes cap	illary fringe)							
Describe Red	corded Data (stream	ı gauge, monit	oring well, aerial	photos, pr	evious ins	pections),	ıt available:	
Remarks:								
Saturated	to the surface	and a sulfi	dic odor are	proof o	f wetlar	nd hydro	ology. Surfac	e water occurs 10 ft north of
the sample	e point.							

Project/Site: JTX TUNNICLIFF	(	City/Count	<sub>y:</sub> Big Horr	n County	Sampling Date: 2024-06	6-19
Applicant/Owner: MDT		-			Sampling Point: DP07u	
Investigator(s): McEldowney						
Landform (hillslope, terrace, etc.): Floodplain					Slope (%): 1	
Subregion (LRR): G 58A						
Soil Map Unit Name: Hh - Haverson and Lohmiller so						
Are climatic / hydrologic conditions on the site typical for this						
Are Vegetation, Soil, or Hydrologys	•			· ·	*	
Are Vegetation, Soil, or Hydrologyn				eded, explain any answe		
SUMMARY OF FINDINGS – Attach site map	showing	samplir	ng point le	ocations, transects	, important features,	etc.
Hydrophytic Vegetation Present? Yes No Remarks:	o <u> </u>		he Sampled hin a Wetlar		No	
Upland sample point on northwest si	ide of c	ell 7.				
VEGETATION – Use scientific names of plan	ts.					
Tree Stratum (Plot size: 30 ft r	Absolute % Cover		t Indicator	Dominance Test work		
1				Number of Dominant Sport That Are OBL, FACW, or		
2.				(excluding FAC-):		(A)
3.				Total Number of Domin	ant	
4				Species Across All Stra	_	B)
Sapling/Shrub Stratum (Plot size: 15 ft r )				Percent of Dominant Sp That Are OBL, FACW, o		A/B)
1				Prevalence Index wor	ksheet:	
2				Total % Cover of:	Multiply by:	
4.					x 1 = <u>0</u>	
5					x 2 = 6	
		= Total Co	ver		x 3 = 39	
Herb Stratum (Plot size: 5 ft r )			E 4 O L L		x 4 = 216	
1. Thlaspi arvense	35		FACU	UPL species 0		
2. Elymus repens	15 10		FACU	Column Totals: 70	(A) <u>Z01</u>	(B)
3. Lepidium perfoliatum Chenopodium album	3		FACU	Prevalence Index	= B/A = 3.72	
5. Lactuca serriola	3		FAC	Hydrophytic Vegetation	on Indicators:	
6. Hordeum jubatum	2		FACW	1 - Rapid Test for H	Hydrophytic Vegetation	
7 Alopecurus pratensis	1	-	FACW	2 - Dominance Tes	it is >50%	
8 Bromus arvensis	1		FACU	3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>	
9.					Adaptations <sup>1</sup> (Provide suppo	orting
10.					s or on a separate sheet) phytic Vegetation <sup>1</sup> (Explain)	
Woody Vine Stratum (Plot size: 30 ft r )	70	= Total Co	ver		l and wetland hydrology mu	
1		- Total Co		Hydrophytic Vegetation	s No	
% Bare Ground in Herb Stratum 30  Remarks:				100		
Upland sample point did not meet an	y hydro	ophytic	c vegeta	ation indicators.		

SOIL Sampling Point: DP07u

Profile Desc	ription: (Describe	to the depth i	needed to docu	ment the i	ndicator	or confirm	the absence of ir	ndicators.)	
Depth	Matrix			x Features	4	. 2			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc <sup>2</sup>	Texture	Remark	<u>S</u>
0 - 15	10YR 4/2	100					Loam		
-									
-				- '					
	-								
	_								
							2.		
	ncentration, D=Dep					d Sand Gr		n: PL=Pore Lining Problematic Hydr	
-		able to all LR						-	ic soils .
Histosol	ipedon (A2)		Sandy Sandy	-				(A9) ( <b>LRR I, J</b> ) rie Redox (A16) ( <b>L</b>	RR F G H)
Black His				d Matrix (S	•			ce (S7) ( <b>LRR G</b> )	((( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (
	n Sulfide (A4)			Mucky Mir				Depressions (F16	5)
	Layers (A5) (LRR I	F)		Gleyed Ma			-	outside of MLRA	
1 cm Mu	ck (A9) ( <b>LRR F, G</b> ,	<b>H</b> )	Deplete	ed Matrix (F	=3)		Reduced V	ertic (F18)	
	Below Dark Surfac	e (A11)		Dark Surfa	` '			t Material (TF2)	
	ark Surface (A12)			ed Dark Su				ow Dark Surface (T	F12)
-	lucky Mineral (S1)	(C2) (LDD C L		Depressionains Depre		16)		lain in Remarks)	on and
	lucky Peat or Peat ( cky Peat or Peat (S			ams Depre .RA 72 & 7	,	,		ydrophytic vegetati drology must be pr	
5 6111 1010	cky r car or r car (o	5) ( <b>LIXIX I</b> )	(IVIL	.NA 12 G 1	J OI LIKIK	•••	-	urbed or problema	
Restrictive L	ayer (if present):							·	
Type:			_						
Depth (inc	ches):		_				Hydric Soil Pres	sent? Yes	No <u> </u>
Remarks:							L		
No hydri	c soil indica	tore ohea	rved						
ivo ilyan	c son maica	(013 0036	i vea.						
HYDROLO	GY								
	drology Indicators:								
-	ators (minimum of o		heck all that app	(v)			Secondary In	ndicators (minimum	of two required)
-	Water (A1)	<del>2</del>	Salt Crust					Soil Cracks (B6)	<u>. oo .oqaou,</u>
	ter Table (A2)		Aquatic In		s (B13)			Vegetated Conca	ve Surface (B8)
Saturation			Hydrogen					e Patterns (B10)	(=0)
· <del></del>	arks (B1)			on Water T				Rhizospheres on	Living Roots (C3)
	nt Deposits (B2)		Oxidized			ing Roots (	· <u></u>	e tilled)	<b>3</b>
Drift Dep	oosits (B3)			not tilled)				Burrows (C8)	
Algal Ma	t or Crust (B4)		Presence	of Reduce	d Iron (C4	<b>!</b> )	Saturation	on Visible on Aeria	I Imagery (C9)
_	osits (B5)		Thin Mucl	Surface (	C7)		Geomor	phic Position (D2)	
Inundation	on Vis ble on Aerial	Imagery (B7)	Other (Ex				FAC-Nei	utral Test (D5)	
Water-St	tained Leaves (B9)						Frost-He	ave Hummocks (E	07) ( <b>LRR F</b> )
Field Observ	vations:								
Surface Water	er Present? Y	'es No	Depth (in	ches):					
Water Table			Depth (in						
Saturation Pr (includes cap	oillary fringe)		✓ Depth (in				and Hydrology Pre	esent? Yes	No
Describe Rec	corded Data (stream	n gauge, monito	oring well, aerial	photos, pro	evious ins	pections),	if available:		
Domarka									
Remarks:									
No evide	ence of wetla	and hydro	ology obse	rved.					

Project/Site: JTX TUNNICLIFF	(	Citv/Co	ountv:	Big Horr	n County	Sampling	a Date: 2	2024-06-19
		-	-		State: Montana		-	
Investigator(s): McEldowney							, –	
Landform (hillslope, terrace, etc.): Closed Depression						e	Slor	ne (%): 2
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller so								
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology si	•				Normal Circumstances"			, No
Are Vegetation, Soil, or Hydrology na	aturally prol	blemat	tic?	(If ne	eded, explain any answe	rs in Rem	arks.)	
SUMMARY OF FINDINGS – Attach site map	showing	samı	pling	g point l	ocations, transects	, impor	tant fea	atures, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?  Remarks:  Wetland sample point on west side of	) )			e Sampled in a Wetlar		No		
VEGETATION – Use scientific names of plant		•						
-	Absolute	Domi	nant	Indicator	Dominance Test work	sheet:		
	% Cover				Number of Dominant S	•		
1					That Are OBL, FACW, (excluding FAC-):	or FAC	3	(A)
3.					Total Number of Domir	nant		
4					Species Across All Stra		3	(B)
Sapling/Shrub Stratum (Plot size: 15 ft r )					Percent of Dominant S That Are OBL, FACW,		100.00	) (A/B)
1		,			Prevalence Index wor	ksheet:		
2					Total % Cover of:			/ by:
4						x		
5					FACW species 30			
F. 4		= Tota	l Cov	er		x :		
Herb Stratum (Plot size: 5 ft r )  1. Hordeum jubatum	20	,	,	FACW	FACU species 0 UPL species 0	X 4		
2. Juncus balticus	10			FACW	Column Totals: 42			
3. Schoenoplectus pungens	10			OBL	Column rotals. 42	(A)	, <u>72</u>	(D)
4. Typha angustifolia	2			OBL	Prevalence Index			
5.					Hydrophytic Vegetati			
6.					✓ 1 - Rapid Test for			ation
7					2 - Dominance Tes			
8					3 - Prevalence Ind			
9					4 - Morphological / data in Remark	Adaptation s or on a s	is (Provi separate	de supporting sheet)
10					Problematic Hydro		•	•
Woody Vine Stratum (Plot size: 30 ft r	42	= Tota	l Cov	er	<sup>1</sup> Indicators of hydric so		_	
1					be present, unless dist			
2					Hydrophytic			
		= Tota	I Cov		Vegetation Present? Yes	s 🗸	No	
% Bare Ground in Herb Stratum 58  Remarks:					. 1000.11: 16			
								. •
PEM, dominated by Hordeum jubatur	n and J	Junc	us	palticu	s, meeting 3 of	tne hy	aropr	nytic

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SOIL Sampling Point: DP07w

Profile Desc	ription: (Describe	to the de	pth needed to docu	ment the	indicator	or confi	rm the absence of indicators.)	_
Depth	Matrix		Redo	ox Featur	es		_	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	_
0 - 9	10YR 4/1	95	10YR 4/6	_ 5	_ <u>C</u>		Clay Loam	-
9 - 16	10YR 4/1	90	10YR 4/6	_ <u>5</u>	<u> </u>		Loamy Sand	_
9 - 16			N 3/0	5	D	М	Loamy Sand	_
_								_
-								
-								-
-								-
_					_		-	-
1Typo: C=C	ncontration D-Do	nlotion DM	I=Reduced Matrix, C	S=Cover	od or Coat	nd Sand (	Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.	-
			I LRRs, unless othe			a Sana (	Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol			Sandy				1 cm Muck (A9) (LRR I, J)	
_	oipedon (A2)			Redox (S			Coast Prairie Redox (A16) (LRR F, G, H)	
Black Hi	stic (A3)		Strippe	d Matrix	(S6)		Dark Surface (S7) (LRR G)	
	n Sulfide (A4)			-	lineral (F1)		High Plains Depressions (F16)	
	Layers (A5) (LRR	•	-	-	/latrix (F2)		(LRR H outside of MLRA 72 & 73)	
	ick (A9) (LRR F, G,			ed Matrix	. ,		Reduced Vertic (F18)	
	d Below Dark Surfa ark Surface (A12)	ce (A11)			face (F6) Surface (F7		Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	
·	fucky Mineral (S1)			Depressi		,	Other (Explain in Remarks)	
-	Aucky Peat or Peat	(S2) ( <b>LRR</b>		•	ressions (F	16)	<sup>3</sup> Indicators of hydrophytic vegetation and	
	icky Peat or Peat (S	. , .			73 of LRF		wetland hydrology must be present,	
							unless disturbed or problematic.	
Restrictive I	_ayer (if present):							
Type:								
	ches):						Hydric Soil Present? Yes V No No	
Remarks:								
Depleted	d matrix obs	erved	as primary in	dicate	or for h	ydric	soil.	
<b>HYDROLO</b>	GY							
Wetland Hyd	drology Indicators	:						_
Primary Indic	cators (minimum of	one require	ed; check all that app	ly)			Secondary Indicators (minimum of two required)	1
✓ Surface	Water (A1)		Salt Crus	t (B11)			Surface Soil Cracks (B6)	
✓ High Wa	iter Table (A2)		Aquatic Ir	vertebra	tes (B13)		Sparsely Vegetated Concave Surface (B8)	
<u>✓</u> Saturation	on (A3)		Hydrogen	Sulfide (	Odor (C1)		Drainage Patterns (B10)	
	arks (B1)		Dry-Seas	on Water	Table (C2)		Oxidized Rhizospheres on Living Roots (C3	(,
	nt Deposits (B2)		Oxidized			ing Root		
	oosits (B3)			not tilled			Crayfish Burrows (C8)	
_	at or Crust (B4)		Presence			4)	Saturation Visible on Aerial Imagery (C9)	
Iron Dep	` '		Thin Muc				Geomorphic Position (D2)	
	on Vis ble on Aerial	Imagery (E	37) Other (Ex	plain in F	Remarks)		FAC-Neutral Test (D5)	
	tained Leaves (B9)						Frost-Heave Hummocks (D7) (LRR F)	
Field Obser		/						
Surface Water			No Depth (ir			_		
Water Table			No Depth (ir			_		
Saturation Pi		Yes	No Depth (ir	nches): <u>0</u>		We	etland Hydrology Present? Yes No	
		n gauge, m	onitoring well, aerial	photos, p	orevious ins	pections	s), if available:	
Remarks:								_
Surface w	ater located 1	2 feet to	the east. Same	le poir	ıt is satu	rated t	to the surface and has a high water table.	
				1			5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
I								

Project/Site: JTX TUNNICLIFF	(	City/County	<sub>/:</sub> Big Horr	n County	Sampling Date: 2024-06-19
-					Sampling Point: DP08u
Investigator(s): McEldowney					
Landform (hillslope, terrace, etc.): Floodplain				-	e Slope (%): 5
					Datum: NAD 83
Soil Map Unit Name: Hh - Haverson and Lohmiller so					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrologys					
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eeded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplir	ng point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes No Remarks:	o <u> </u>		ne Sampled nin a Wetlar		No
Upland sample point on southwest s	ide of c	cell 8.			
VEGETATION – Use scientific names of plant	ts.				
Tree Stratum (Plot size: 30 ft r )	% Cover	Species?		Number of Dominant S That Are OBL, FACW, of	pecies or FAC
2				(excluding FAC-):	(A)
3		-	<u> </u>	Total Number of Domin Species Across All Stra	_
		= Total Co	ver	Percent of Dominant Sp	necies
Sapling/Shrub Stratum (Plot size: 15 ft r )  1. Elaeagnus angustifolia		V	FACU	That Are OBL, FACW,	
Elaeagnus angustifolia     Elaeagnus angustifolia			· ——	Prevalence Index wor	ksheet:
3.					Multiply by:
4.					x 1 = 0
5.					x 2 = 10
	7	= Total Co	ver		x 3 = 0
Herb Stratum (Plot size: 5 ft r )	75		LIDI		x 4 = 36
1. Thinopyrum intermedium	<u>75</u> 5		UPL	UPL species 80	
2. Acroptilon repens 3 Alopecurus pratensis	5		FACW	Column Totals: 94	(A) <u>446</u> (B)
Melilotus officinalis	2		FACU	Prevalence Index	= B/A = 4.74
"-				Hydrophytic Vegetation	on Indicators:
5				1 - Rapid Test for H	Hydrophytic Vegetation
6				2 - Dominance Tes	
8				3 - Prevalence Inde	
9				4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10.					phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1	87	= Total Co			l and wetland hydrology must
2 % Bare Ground in Herb Stratum 13		= Total Co		Hydrophytic Vegetation Present? Ye	s No
Remarks:  Upland sample point dominated by T				ium.	

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SOIL Sampling Point: DP08u

Profile Desc	ription: (Describe	to the depth r	needed to document		or confirm	the absence o	f indicators.)
Depth	Matrix		Redox Fea	atures	12	T	Developed to
(inches)	Color (moist)		Color (moist) 9	% Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 16	10YR 4/2	100				Loam	
-							
	-						
_							
-							
¹Type: C=Cd	oncentration D=Der	oletion RM=Re	duced Matrix, CS=Co	vered or Coated	d Sand Gr	rains <sup>2</sup> l oca	tion: PL=Pore Lining, M=Matrix.
•			Rs, unless otherwise		u Garia Gi		or Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Gleye				ick (A9) (LRR I, J)
	pipedon (A2)		Sandy Redox				rairie Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi			Stripped Mat				rface (S7) (LRR G)
Hydroge	n Sulfide (A4)		Loamy Muck	y Mineral (F1)		High Pla	ins Depressions (F16)
Stratified	l Layers (A5) (LRR	F)	Loamy Gleye	ed Matrix (F2)		(LRR	H outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G,</b>	•	Depleted Ma			_	d Vertic (F18)
	Below Dark Surfac	e (A11)	Redox Dark	, ,			ent Material (TF2)
	ark Surface (A12)		Depleted Dai	rk Surface (F7)			allow Dark Surface (TF12) Explain in Remarks)
-	lucky Mineral (S1) /lucky Peat or Peat	(S2) (I RR G H		Depressions (F1	16)		f hydrophytic vegetation and
	cky Peat or Peat (S		-	2 & 73 of LRR			hydrology must be present,
	(2	-, (=:::: ,	(		,		isturbed or problematic.
Restrictive I	_ayer (if present):						·
Type:			_				
Depth (inc	ches):					Hydric Soil P	resent? Yes No
Remarks:							
NI - II-							
No nyari	ic soil indica	tors obse	rvea.				
HYDROLO	GY						
Wetland Hyd	drology Indicators	:					
Primary Indic	ators (minimum of	one required; cl	neck all that apply)			Secondary	/ Indicators (minimum of two required)
Surface	Water (A1)		Salt Crust (B11	)		Surfac	ce Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Invertel	brates (B13)		Spars	ely Vegetated Concave Surface (B8)
Saturatio	on (A3)		Hydrogen Sulfic	de Odor (C1)		Draina	age Patterns (B10)
Water M	arks (B1)		Dry-Season Wa	ater Table (C2)		Oxidiz	zed Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized Rhizo	spheres on Livi	ng Roots	(C3) ( <b>wh</b>	ere tilled)
Drift Dep	oosits (B3)		(where not ti	lled)		Crayfi	sh Burrows (C8)
Algal Ma	it or Crust (B4)		Presence of Re	duced Iron (C4	)	Satura	ation Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck Surfa	ace (C7)		Geom	norphic Position (D2)
Inundation	on Vis ble on Aerial	Imagery (B7)	Other (Explain i	in Remarks)		FAC-1	Neutral Test (D5)
Water-S	tained Leaves (B9)					Frost-	Heave Hummocks (D7) (LRR F)
Field Observ	vations:						
Surface Water	er Present?	'es No	Depth (inches)	:	_		
Water Table	Present?	'es No	Depth (inches)	:	_		
Saturation Pr	resent?	'es No	Depth (inches)	):	Wetla	and Hydrology	Present? Yes No
(includes cap	oillary fringe)						<del>-</del>
Describe Red	corded Data (stream	ı gauge, monito	oring well, aerial photo	s, previous insp	bections),	ıı avallable:	
Remarks:							
No evide	ence of wetla	and hvdro	ology observe	d.			
		,		•			

Project/Site: JTX TUNNICLIFF	(	City/Co	ounty:	Big Horr	n County	Sampling Dat	te: 2024-06-19
Applicant/Owner: MDT		-	-		State: Montana		
Investigator(s): McEldowney		Section	n, Tov	vnship, Raı	nge: S15 T1N R33E		
Landform (hillslope, terrace, etc.): Closed Depression					-	е	Slope (%): 2
Subregion (LRR): G 58A							
Soil Map Unit Name: Hh - Haverson and Lohmiller so					NWI classific		
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology si	gnificantly	disturb	ed?	Are "	Normal Circumstances" p	present? Yes	No
Are Vegetation, Soil, or Hydrologyn					eded, explain any answe		
SUMMARY OF FINDINGS - Attach site map				g point le	ocations, transects	, important	features, etc
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes   V  No  Yes  No  No  No  No  No  No  No  No  No  No	o			e Sampled n a Wetlar		No	
Remarks:  Wetland sample point in the southwe		a of	cell	8 with	nin the enclosur		
Wedana sample point in the southwe		101	OCII	<b>0, Wit</b>	mi the cholosur		
VEGETATION – Use scientific names of plant	ts.						
1		Spec	ies?	Status	Dominance Test work  Number of Dominant S  That Are OBL, FACW, (excluding FAC-):	pecies	(A)
2					Total Number of Domin Species Across All Stra		(B)
4				er	Percent of Dominant Sp	pecies	).00 (A/B)
1					That Are OBL, FACW,		<u>/.00</u> (A/B)
2					Prevalence Index wor		
3					Total % Cover of:	Mu x 1 = <u></u>	
4					OBL species 14 FACW species 47		
5					FAC species 4		
Herb Stratum (Plot size: 5 ft r		= Tota	I Cov	er	FACU species 5		
1. Hordeum jubatum	40	~	•	FACW	UPL species 0		
2. Schoenoplectus maritimus	7			OBL	Column Totals: 70	(A)	140 (B)
3. Schoenoplectus pungens	7			OBL	Prevalence Index	D/A 20	0
4. Alopecurus pratensis	5			FACW	Hydrophytic Vegetation	· ·	
5. Elymus repens	5			FACU	✓ 1 - Rapid Test for H		
6. Rumex crispus	4 2			FAC	✓ 2 - Dominance Tes		getation
7. Juncus balticus				FACW	✓ 3 - Prevalence Inde		
8					4 - Morphological A		Provide supporting
9					data in Remarks	s or on a separ	rate sheet)
10	70				Problematic Hydro	phytic Vegetati	ion¹ (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1		= Tota			<sup>1</sup> Indicators of hydric soi be present, unless distu		
2.					Hydrophytic		
				er	Vegetation	s <u> </u>	
% Bare Ground in Herb Stratum 30  Remarks:					Present? Ye	s No	<b>)</b>
PEM, dominated by FACW and OBL vindicators.	egetat/	ion,	me	eting 3	of the hydroph	ytic vege	etation

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SOIL Sampling Point: DP08w

Deptity   Mark   State   Deptity	Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the	indicator	or confir	m the absence	of indicators.)
0-10 10YR 4/1 97 10YR 4/6 3 C M Loam Sulfidic odor  10-16 10YR 4/2 100							2		
Tope: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.   Tocation: PL=Pore Lining, M=Matrix, Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)   Indicators for Problematic Hydric Soils*;   Histic Expeden (A2)					-				
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Signification, Syndrome Signification, Synd				10YR 4/6	3	<u>C</u>	М	Loam	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	10 - 16	10YR 4/2	100					Loamy Sand	Gravelly
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)									
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	-								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	-				-				
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	_	-		-					
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		-						·	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)								<del></del>	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	1-								
Histosol (A1)							ed Sand G		
Histic Epipedon (A2) Sandy Redox (S5) Coast Praine Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (F8) Air Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Loamy Mucky Mineral (F1) High Plains Depressions (F16) (LRR H outside of MLRAT 2 & 73) Redox Dark Surface (A12) Redox Dark Surface (F6) Redox Dark Surface (F6) Redox Park Surface (F6) Redox Park Surface (F6) Redox Dark Surface (F6) Redox Dark Surface (F6) Redox Dark Surface (F7) Redox Dark Surface (F8) Park Table (A2) Aguate Invertebrates (B1) Surface Soil Cracks (B8) Dark Bart Table (A2) Aguate Invertebrates (B13) Pry-Season Water Table (C2) Dark Bart Table (A2) Pry-Season Water Table (C2) Dark Bart Dark Surface (F7) Presence of Reduced Inn (C4) Redox Dark Surface (F7) Presence of Reduced Inn (C4) Redox Dark Surface (F7) Presence of Reduced Inn (C4) Redox Dark Surface (F7) Presence (F7) Pre	_		cable to all						· · · · · · · · · · · · · · · · · · ·
Black Histlic (A3)	_	` '			-				
Loamy Gleyed Matrix (F2)									
1 cm Muck (A9) (LRR F, G, H)	<u>✓</u> Hydroge	en Sulfide (A4)						High P	lains Depressions (F16)
Depleted Below Dark Surface (A11)						•	,		
Sandy Mucky Mineral (S1)									` ,
			ce (ATT)				)		
5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if present):									
Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes V No Remarks: Sulfidic odor and depleted matrix indicators observed.  HYDROLOGY  Wetland Hydrology Indicators: Primary Indicators (minimum of one required: check all that apply) Secondary Indicators (minimum of two required) Wetland Hydrology Indicators: Primary Indicators (minimum of one required: check all that apply) Secondary Indicators (minimum of two required) Wetland Hydrology Indicators (minimum of two required) Wetland Hydrology Indicators: Primary Indicators (minimum of two required) Wetland Hydrology Indicators (minimum of two required) Secondary Indicators (minimum of two required) Secondary Indicators (minimum of two required) Wetland Hydrology Presente (B8) Sparsely Vegetated Concave Surface (B8) Sparsely Indicators (minimum of two required) Secondary Indicators (minimum of two required) Secondary Indicators (minimum of two required) Secondary Indicators Secondary Indicato									
Restrictive Layer (if present):	5 cm Mu	icky Peat or Peat (S	63) ( <b>LRR F</b> )	(ML	( <b>H</b> )				
Type:	Restrictive I	aver (if present):						uniess	disturbed or problematic.
Remarks:  Sulfidic odor and depleted matrix indicators observed.  HYDROLOGY  Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)  Secondary Indicators (minimum of two required)  V Surface Water (A1)  Aquatic Invertebrates (B13)  Water Table (A2)  Hydrogen Sulfide Odor (C1)  Saturation (A3)  Water Marks (B1)  Drift Deposits (B2)  Adjust or Crust (B4)  Presence of Reduced Iron (C4)  In Indiation Vis ble on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations: Surface Water Present?  Yes V No  Depth (inches): 2  Water Table (Present?  Yes V No  Depth (inches): 2  Wetland Hydrology Present?  Yes V No  Depth (inches): 2  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Depth (inches): 0  Wetland Hydrology Present?  Yes V No  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	_	Layer (ii present).							
Remarks:  Sulfidic odor and depleted matrix indicators observed.  Wetland Hydrology Indicators:  Primary Indicators (minimum of one required; check all that apply)  Surface Water (A1)  Aquatic Invertebrates (B13)  Saturation (A3)  Hydrogen Sulfide Odor (C1)  Sediment Deposits (B2)  Oxidized Rhizospheres on Living Roots (C3)  Algal Mat or Crust (B4)  Presence of Reduced Iron (C4)  Inon Deposits (B5)  Thin Muck Surface (C7)  Water-Stained Leaves (B9)  Field Observations:  Surface Water (A1)  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)  Craffish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Fost-Heave Hummocks (D7) (LRR F)  Field Observations:  Surface Water Present?  Yes V No Depth (inches): 2  Wetland Hydrology Present? Yes No Depth (inches): 0  Wetland Hydrology Present? Yes No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.		ches):						Hvdric Soil	Present? Yes No
HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one required; check all that apply)  ✓ Surface Water (A1)  ✓ Surface Water (A1)  ✓ Surface Water (A2)  ✓ Saturation (A3)  ✓ Hydrogen Sulfide Odor (C1)  — Sediment Deposits (B1)  — Oxidized Rhizospheres on Living Roots (C3)  — Sediment Deposits (B2)  — Oxidized Rhizospheres on Living Roots (C3)  — Drift Deposits (B3)  — Algal Mat or Crust (B4)  — Presence of Reduced Iron (C4)  — Iron Deposits (B5)  — Inundation Vis ble on Aerial Imagery (B7)  — Water-Stained Leaves (B9)  Field Observations:  Surface Water Present?  Ves ✓ No Depth (inches): 2  Wetland Hydrology Present? Yes ✓ No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.		,							
HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one required; check all that apply)  ✓ Surface Water (A1)  ✓ Surface Water (A1)  ✓ Surface Water (A2)  ✓ Saturation (A3)  ✓ Hydrogen Sulfide Odor (C1)  — Sediment Deposits (B1)  — Oxidized Rhizospheres on Living Roots (C3)  — Sediment Deposits (B2)  — Oxidized Rhizospheres on Living Roots (C3)  — Drift Deposits (B3)  — Algal Mat or Crust (B4)  — Presence of Reduced Iron (C4)  — Iron Deposits (B5)  — Inundation Vis ble on Aerial Imagery (B7)  — Water-Stained Leaves (B9)  Field Observations:  Surface Water Present?  Ves ✓ No Depth (inches): 2  Wetland Hydrology Present? Yes ✓ No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.	Culfidio	adar and da	plotod	matriy indiga	tore o	beerve	\d		
Wetland Hydrology Indicators:         Primary Indicators (minimum of one required; check all that apply)       Secondary Indicators (minimum of two required)         ✓ Surface Water (A1)       Salt Crust (B11)       Surface Soil Cracks (B6)         ✓ High Water Table (A2)       Aquatic Invertebrates (B13)       Sparsely Vegetated Concave Surface (B8)         ✓ Saturation (A3)       ✓ Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Water Marks (B1)       Drainage Patterns (B10)       Oxidized Rhizospheres on Living Roots (C3)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       (where tilled)       Crayfish Burrows (C8)         Prisence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)       Saturation Visible on Aerial Imagery (C9)         Inundation Vis ble on Aerial Imagery (B7)       Other (Explain in Remarks)       FAC-Neutral Test (D5)       Frost-Heave Hummocks (D7) (LRR F)         Field Observations:         Surface Water Present?       Yes No Depth (inches): Saturation Present?       Yes No Depth (inches): Surface Soil Hydrology Present? Yes No Depth (inches): Surface Soil Hydrology Present? Yes No Surface Soil Hydrolo	Sumuic	odor and de	pieteu	пантх писа	1015 0	DSCIVE	a.		
Wetland Hydrology Indicators:         Primary Indicators (minimum of one required; check all that apply)       Secondary Indicators (minimum of two required)         ✓ Surface Water (A1)       Salt Crust (B11)       Surface Soil Cracks (B6)         ✓ High Water Table (A2)       Aquatic Invertebrates (B13)       Sparsely Vegetated Concave Surface (B8)         ✓ Saturation (A3)       ✓ Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Water Marks (B1)       Drainage Patterns (B10)       Oxidized Rhizospheres on Living Roots (C3)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       (where tilled)       Crayfish Burrows (C8)         Prisence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)       Saturation Visible on Aerial Imagery (C9)         Inundation Vis ble on Aerial Imagery (B7)       Other (Explain in Remarks)       FAC-Neutral Test (D5)       Frost-Heave Hummocks (D7) (LRR F)         Field Observations:         Surface Water Present?       Yes No Depth (inches): Saturation Present?       Yes No Depth (inches): Surface Soil Hydrology Present? Yes No Depth (inches): Surface Soil Hydrology Present? Yes No Surface Soil Hydrolo	HADBULU	GV							
Primary Indicators (minimum of one required; check all that apply)  Secondary Indicators (minimum of two required)  V Surface Water (A1)  Surface Water (A2)  Aquatic Invertebrates (B13)  Welfigh Water Table (A2)  Aquatic Invertebrates (B13)  Water Marks (B1)  Sediment Deposits (B2)  Oxidized Rhizospheres on Living Roots (C3)  Mere tilled)  Crayfish Burrows (C8)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inim Muck Surface (C7)  Water-Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Yes V No Depth (inches): 2  Water Table Present?  Yes V No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.									
✓ Surface Water (A1)       Salt Crust (B11)       Surface Soil Cracks (B6)         ✓ High Water Table (A2)       Aquatic Invertebrates (B13)       Sparsely Vegetated Concave Surface (B8)         ✓ Saturation (A3)       ✓ Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Water Marks (B1)       Dry-Season Water Table (C2)       Oxidized Rhizospheres on Living Roots (C3)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       (where tilled)         Drift Deposits (B3)       (where not tilled)       Crayfish Burrows (C8)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)         Inundation Vis ble on Aerial Imagery (B7)       Other (Explain in Remarks)       ✓ FAC-Neutral Test (D5)         Water-Stained Leaves (B9)       Frost-Heave Hummocks (D7) (LRR F)         Field Observations:         Surface Water Present?       Yes       No       Depth (inches): 2       Wetland Hydrology Present? Yes       No       No         Saturation Present?       Yes       No       Depth (inches): 0       Wetland Hydrology Present? Yes       No         Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.				di abaak all that anni				Cocondo	muladicators (minimum of two required)
✓ High Water Table (A2)       Aquatic Invertebrates (B13)       Sparsely Vegetated Concave Surface (B8)         ✓ Saturation (A3)       ✓ Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Water Marks (B1)       Dry-Season Water Table (C2)       Oxidized Rhizospheres on Living Roots (C3)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       (where tilled)       Crayfish Burrows (C8)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)         Inno Deposits (B5)       Thin Muck Surface (C7)       ✓ Geomorphic Position (D2)         Inundation Vis ble on Aerial Imagery (B7)       Other (Explain in Remarks)       ✓ FAC-Neutral Test (D5)         Water-Stained Leaves (B9)       Frost-Heave Hummocks (D7) (LRR F)         Field Observations:         Surface Water Present?       Yes ✓ No Depth (inches): 2       Wetland Hydrology Present? Yes ✓ No No         Saturation Present?       Yes ✓ No Depth (inches): 0       Wetland Hydrology Present? Yes ✓ No       No         Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:         Remarks:         Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.	-		one require					'	· · · · · · · · · · · · · · · · · · ·
✓ Saturation (A3)       ✓ Hydrogen Sulfide Odor (C1)       Drainage Patterns (B10)         Water Marks (B1)       Dry-Season Water Table (C2)       Oxidized Rhizospheres on Living Roots (C3)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       (where tilled)         Drift Deposits (B3)       (where not tilled)       Crayfish Burrows (C8)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)         Iron Deposits (B5)       Thin Muck Surface (C7)       ✓ Geomorphic Position (D2)         Inundation Vis ble on Aerial Imagery (B7)       Other (Explain in Remarks)       ✓ FAC-Neutral Test (D5)         Water-Stained Leaves (B9)       Frost-Heave Hummocks (D7) (LRR F)         Field Observations:         Surface Water Present?       Yes ✓ No Depth (inches): 2         Water Table Present?       Yes ✓ No Depth (inches): 2         Water Table Present?       Yes ✓ No Depth (inches): 0         Saturation Present?       Yes ✓ No Depth (inches): 0         Metland Hydrology Present?       Yes ✓ No         Includes capillary fringe)       No         Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:     Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odo						se (R13)			
Water Marks (B1)	_								
Sediment Deposits (B2)  Oxidized Rhizospheres on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Drift Deposits (B3)  (where not tilled)  Crayfish Burrows (C8)  Algal Mat or Crust (B4)  Presence of Reduced Iron (C4)  Saturation Visible on Aerial Imagery (C9)  Iron Deposits (B5)  Thin Muck Surface (C7)  Geomorphic Position (D2)  Inundation Vis ble on Aerial Imagery (B7)  Other (Explain in Remarks)  FAC-Neutral Test (D5)  Water-Stained Leaves (B9)  Frost-Heave Hummocks (D7) (LRR F)  Field Observations:  Surface Water Present?  Yes  No  Depth (inches): 2  Water Table Present?  Yes  No  Depth (inches): 7.5  Saturation Present?  Yes  No  Depth (inches): 0  Wetland Hydrology Present? Yes  No  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.		` ,							-
Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Vis ble on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)		, ,		-				·	
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Vis ble on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F) Frost-Heave Hummocks (D7) (LRR F) Surface Water Present? Yes No Depth (inches): 2 Water Table Present? Yes No Depth (inches): 0 Wetland Hydrology Present? Yes No Depth (inches): 0 Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.	Drift Dep	oosits (B3)		(where	not tilled	)		Cray	fish Burrows (C8)
Inundation Vis ble on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)		` ,					1)		
Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F)  Field Observations:  Surface Water Present? Yes No Depth (inches): 2  Water Table Present? Yes No Depth (inches): 7.5  Saturation Present? Yes No Depth (inches): 0		` '							
Field Observations:  Surface Water Present? Yes V No Depth (inches): 2  Water Table Present? Yes V No Depth (inches): 7.5  Saturation Present? Yes No Depth (inches): 0  Wetland Hydrology Present? Yes No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.			Imagery (B	7) Other (Exp	olain in Re	emarks)			
Surface Water Present? Yes V No Depth (inches): 2  Water Table Present? Yes V No Depth (inches): 7.5  Saturation Present? Yes V No Depth (inches): 0  Wetland Hydrology Present? Yes No No Depth (inches): 0  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.								Fros	t-Heave Hummocks (D7) (LRR F)
Water Table Present? Yes V No Depth (inches): 7.5 Saturation Present? Yes No Depth (inches): 0 Wetland Hydrology Present? Yes No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks: Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.			v <b>v</b>	Na Danth (in	-h\. 2				
Saturation Present? Yes No Depth (inches): 0 Wetland Hydrology Present? Yes No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.						5	_		
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.						<u> </u>	—   NA/64	land Hudrala	(Propont? Voc. V No.
Remarks: Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.			res	No Depth (in	cries). <u>o</u>		_   wei	lianu nyurology	resent? res No
Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.			n gauge, mo	onitoring well, aerial	photos, p	revious ins	pections)	, if available:	
Saturated to the surface with the water table observed at 7.5 inches. Sulfidic odor in the first soil horizon.									
	Remarks:								
Surface water is present 8 feet to the north.	Saturated	to the surface	with the	water table ob	served	l at 7.5 i	nches.	Sulfidic odd	or in the first soil horizon.
	Surface w	ater is presen	t 8 feet t	o the north.					

Project/Site: JTX TUNNICLIFF	(	Citv/Co	ountv:	Big Horr	n County	Sampling	a Date: 2	024-06-20
		-	-		State: Montana		-	
Investigator(s): McEldowney								
Landform (hillslope, terrace, etc.): Floodplain						'e	Slope	e (%): 3
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller so								-
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys								No
Are Vegetation, Soil, or Hydrology n								
SUMMARY OF FINDINGS – Attach site map	showing	sam	plin	g point l	ocations, transects	s, impor	tant fea	tures, etc.
Hydrophytic Vegetation Present? Yes N Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N Remarks:	o			e Sampled n a Wetlar		No		
Upland sample point in the central-n		n po	rtio	n of ce	II 12.			
VEGETATION – Use scientific names of plan					I = · · · ·			
<u>Tree Stratum</u> (Plot size: <u>30 ft r</u> )  1  2		Spec	cies?	Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):	Species	1	(A)
3. 4.					Total Number of Domin Species Across All Stra		2	(B)
Sapling/Shrub Stratum (Plot size: 15 ft r					Percent of Dominant S That Are OBL, FACW,		50.00	(A/B)
1					Prevalence Index wo	ksheet:		
2					Total % Cover of:		Multiply	by:
4					OBL species 0	x	1 = 0	
5					FACW species 15			
		= Tota	al Cov	er	FAC species 0			
Herb Stratum (Plot size: 5 ft r )	25		,	UPL		x 4		
Thinopyrum intermedium     Distichlis spicata	35 15		_	FACW	UPL species 35 Column Totals: 60		$\frac{173}{245}$	(D)
3. Elymus repens	10			FACU				(B)
4					Prevalence Index			
5.					Hydrophytic Vegetati			
6.					1 - Rapid Test for		_	ion
7					2 - Dominance Te			
8					3 - Prevalence Ind 4 - Morphological			o supporting
9					data in Remark	s or on a s	separate s	heet)
10	~~				Problematic Hydro	phytic Veç	getation <sup>1</sup> (I	Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1.		= Tota			<sup>1</sup> Indicators of hydric so be present, unless dist			
2.					Hydrophytic			
% Bare Ground in Herb Stratum 40					Vegetation Present? Ye	es	No 🗸	•
Remarks:								
Upland sample point dominated by T				ermedi	um and Distich	is spic	ata, b	ut did

US Army Corps of Engineers B-51 SOIL Sampling Point: DP09u

Profile Desc	ription: (Describe	to the depth n			or confirn	n the absence of	indicators.)
Depth	Matrix	0/		Features	1.5.2	Toytura	Domarks
(inches)	Color (moist)		Color (moist)	<u>%</u> Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 16	10YR 4/3	100				Clay Loam	
-							
				-			
-							
-			·				
1Type: C=Cc	oncentration, D=Dep	oletion RM=Rec	duced Matrix CS	=Covered or Coat	ed Sand G	rains <sup>2</sup> l ocat	ion: PL=Pore Lining, M=Matrix.
	ndicators: (Applic				ica Garia Gi		or Problematic Hydric Soils <sup>3</sup> :
Histosol				leyed Matrix (S4)			ck (A9) ( <b>LRR I, J</b> )
	pipedon (A2)			edox (S5)			airie Redox (A16) ( <b>LRR F, G, H</b> )
Black His			-	Matrix (S6)			face (S7) (LRR G)
Hydroge	n Sulfide (A4)		Loamy M	Mucky Mineral (F1)	)	<del></del>	ins Depressions (F16)
Stratified	Layers (A5) (LRR	F)	Loamy G	Gleyed Matrix (F2)		(LRR	H outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G</b> ,	•		l Matrix (F3)		Reduced	Vertic (F18)
	Below Dark Surfac	ce (A11)		ark Surface (F6)			ent Material (TF2)
	ark Surface (A12)			Dark Surface (F7	7)		allow Dark Surface (TF12)
-	lucky Mineral (S1)	(S2) (I BB C H		epressions (F8)	E16)		xplain in Remarks) hydrophytic vegetation and
	Mucky Peat or Peat or Reat (S		_	ins Depressions ( RA 72 & 73 of LR			nydrology must be present,
5 cm wa	icky i cat of i cat (o	o) (ERRT)	(IVILI	(A 72 & 73 01 EK	IX 11)		sturbed or problematic.
Restrictive L	_ayer (if present):					1	
	, , ,						
	ches):		=			Hydric Soil Pi	resent? Yes No
Remarks:			=			1 ,	
			_				
No hydri	ic soil indica	tors obsei	rved.				
HYDROLO	GY						
Wetland Hyd	drology Indicators:	:					
_	cators (minimum of o		eck all that apply	·)		Secondary	Indicators (minimum of two required)
	Water (A1)		Salt Crust (	•			e Soil Cracks (B6)
	ter Table (A2)			ertebrates (B13)			ely Vegetated Concave Surface (B8)
Saturation	, ,			Sulfide Odor (C1)			age Patterns (B10)
	arks (B1)			n Water Table (C2	2)		ed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		=	hizospheres on Li		·	ere tilled)
	posits (B3)		(where n	•	9		sh Burrows (C8)
	it or Crust (B4)		,	of Reduced Iron (C	24)		ation Visible on Aerial Imagery (C9)
	osits (B5)		<del></del>	Surface (C7)	,	·	orphic Position (D2)
	on Vis ble on Aerial	Imagery (B7)		lain in Remarks)			Neutral Test (D5)
	tained Leaves (B9)	<b>3</b> , ( ,	` .	,			Heave Hummocks (D7) (LRR F)
Field Observ	vations:						, , , ,
Surface Water	er Present?	es No	✓ Depth (inc	hes):			
Water Table				hes):			
Saturation Pr				hes):		land Hydrology F	Present? Yes No
(includes cap	oillary fringe)						
	corded Data (stream	n gauge, monito	ring well, aerial p	hotos, previous in	spections),	if available:	
Remarks:							
No ovida	anno of week	and budge	logy oboo	wod			
ino evide	ence of wetla	ana nyaro	logy obser	vea.			

Project/Site: JTX TUNNICLIFF	(	City/Count	<sub>ty:</sub> Big Horr	n County	Sampling Date: 2024-06-19
		-	-		Sampling Point: DP09w
Investigator(s): McEldowney					
Landform (hillslope, terrace, etc.): Closed Depression				-	e Slone (%): 5
Subregion (LRR): G 58A					
Soil Map Unit Name: Hh - Haverson and Lohmiller so					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrologysi					
Are Vegetation, Soil, or Hydrologyna				eded, explain any answer	
SUMMARY OF FINDINGS – Attach site map s					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes   No  No  No  No  No  No  No  No  No  N			the Sampled thin a Wetlar		No
Wetland sample point in the central r	norther	n port	ion of ce	ell 12/13.	
VEGETATION – Use scientific names of plant	s.				
Tree Stratum (Plot size: 30 ft r			nt Indicator	Dominance Test work	sheet:
1			? Status	Number of Dominant Sp That Are OBL, FACW, of	
2.				(excluding FAC-):	2 (A)
3				Total Number of Domin	ant
4				Species Across All Stra	ta: <u>2</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r )				Percent of Dominant Sp That Are OBL, FACW, o	
1				Prevalence Index work	ksheet:
3.				Total % Cover of:	Multiply by:
4				OBL species 3	x 1 = <u>3</u>
5					x 2 = <u>94</u>
		= Total Co	over		x 3 = 6
Herb Stratum (Plot size: 5 ft r			E 4 O V4/		x 4 = 16
1. Agrostis stolonifera	25	<u> </u>	FACW		x = 0
2. Distichlis spicata 3 Schoenoplectus maritimus	3		FACW	Column Totals: 56	(A) <u>119</u> (B)
Schoenopiectus maritimus     Hordeum jubatum	2		OBL FACW	Prevalence Index	= B/A = 2.12
5. Polygonum erectum	2		FAC	Hydrophytic Vegetation	on Indicators:
6 Thlaspi arvense	2		FACU	✓ 1 - Rapid Test for F	lydrophytic Vegetation
7 Chenopodium album	1		FACU	✓ 2 - Dominance Tes	t is >50%
8 Descurainia sophia	1			✓ 3 - Prevalence Inde	
g. Erigeron canadensis	1		FACU	4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10.					phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r		= Total Co		<u> </u>	I and wetland hydrology must
1 2		= Total Co		Hydrophytic Vegetation	
% Bare Ground in Herb Stratum 43				Present? Yes	s No
PEM, dominated by FACW vegetation	n.				

SOIL Sampling Point: DP09w

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the	indicator	or confirm	n the absence of inc	dicators.)
Depth	Matrix		Redox	k Feature				
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 16	10YR 4/1	95	10YR 4/6	5	<u>C</u>	М	Silty Clay	
	-							
-								
-								
				-				
				-				
				-	· ——			
				-	· ——			
			_	-				
			Reduced Matrix, CS			d Sand G		PL=Pore Lining, M=Matrix.
-		able to all L	RRs, unless other					roblematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy G	-	. ,		1 cm Muck (	
Black Hi	oipedon (A2)		Sandy R Stripped					e Redox (A16) ( <b>LRR F, G, H</b> ) e (S7) ( <b>LRR G</b> )
	n Sulfide (A4)			,	neral (F1)			Depressions (F16)
	Layers (A5) (LRR	F)			atrix (F2)		-	outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G</b> ,		<u>✓</u> Depleted				Reduced Ve	,
	Below Dark Surfac			ark Surfa	•		Red Parent	Material (TF2)
Thick Da	ark Surface (A12)		Depleted	d Dark Su	urface (F7)	1	Very Shallov	v Dark Surface (TF12)
	lucky Mineral (S1)			epressio)	. ,			in in Remarks)
	lucky Peat or Peat		· · · —		essions (F	•	-	drophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	(MLI	RA 72 &	73 of LRR	(H)		rology must be present,
Restrictive I	_ayer (if present):						uniess distu	rbed or problematic.
_	Layer (ii present).							
,. <u> </u>	ches):						Hydric Soil Pres	ent? Yes 🗸 No
Remarks:							Tiyano con i res	103 <u></u> 110 <u></u>
Depleted	d matrix obs	erved a	s primary inc	licato	r for h	ydric s	SOII.	
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	cators (minimum of o	one required	check all that apply					licators (minimum of two required)
<u>✓</u> Surface			Salt Crust					oil Cracks (B6)
_	ter Table (A2)		Aquatic Inv					Vegetated Concave Surface (B8)
<u>✓</u> Saturation			Hydrogen					Patterns (B10)
	arks (B1)		Dry-Seaso					Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized R			ing Roots		,
	oosits (B3)		(where n					Burrows (C8)
	it or Crust (B4)		Presence of		,	1)		No Visible on Aerial Imagery (C9)
	osits (B5)		Thin Muck					hic Position (D2)
	on Vis ble on Aerial	Imagery (B7	) Other (Exp	lain in Re	emarks)		FAC-Neu	
Field Observ	tained Leaves (B9)					1	Frost-nea	ive Hummocks (D7) (LRR F)
Surface Water		/00 V N	lo Depth (inc	haa): 6				
			lo Depth (inc			_		
Water Table			lo Depth (inc				land Hydrology Bro	sent? Yes 🗸 No
Saturation Pr (includes cap		res N	io Deptii (inc	nes). <u>o</u>		_   well	ianu nyurology Fres	sent? res NO
Describe Red	corded Data (stream	n gauge, mor	nitoring well, aerial p	hotos, pr	evious ins	pections),	, if available:	
Remarks:								
Saturated	to the surface	. Algal ma	at/crust indicat	es hial	ner surf	ace wat	ter levels. Surfa	ce water present 6 feet
	ample point.	•		J				•
	· · ·							

Project/Site: JTX TUNNICLIFF	(	City/Cou	unty:	Big Horn	n County	Sampling D	ate: 2024	-06-19
Applicant/Owner: MDT		-	-		State: Montana			
Investigator(s): McEldowney		Section	, Tov	vnship, Rar	nge: S15 T1N R33E			
Landform (hillslope, terrace, etc.): Floodplain					-	е	Slope (%)	10
Subregion (LRR): G 58A								
Soil Map Unit Name: Hh - Haverson and Lohmiller soil					NWI classific			
Are climatic / hydrologic conditions on the site typical for this				_				
Are Vegetation, Soil, or Hydrology si	gnificantly o	disturbe	ed?	Are "	Normal Circumstances" p	present? Ye	s N	lo
Are Vegetation, Soil, or Hydrology na					eded, explain any answe			
SUMMARY OF FINDINGS – Attach site map s				point lo	ocations, transects	, importar	nt feature	s, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No	)			e Sampled n a Wetlan	Area d? Yes	No	<u> </u>	
Remarks:  Upland sample point in northwest po  VEGETATION – Use scientific names of plant		f cell	10	/11.				
TEGETATION OGG GGIGHRAND HARMOG GI PIAMA	Absolute	Domir	nant	Indicator	Dominance Test work	sheet:		
<u>Tree Stratum</u> (Plot size: <u>30 ft r</u> )  1 2	% Cover	Specie	es?	Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):			(A)
3					Total Number of Domin Species Across All Stra			(B)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1	:			er	Percent of Dominant Sp That Are OBL, FACW,		00	(A/B)
2					Prevalence Index wor	ksheet:		
3.					Total % Cover of:			
4						x 1 =		
5					FACW species 1 1			
Herb Stratum (Plot size: 5 ft r	:	= Total	Cove	er	FAC species FACU species 66			_
1 Elymus repens	65	~		FACU	UPL species 0			_
2 Erigeron canadensis	1			FACU	Column Totals: 68		000	(B)
3. Hordeum jubatum	1			FACW				_ ` ′
4. Lactuca serriola	1			FAC	Prevalence Index			
5					Hydrophytic Vegetatio			
6					1 - Rapid Test for I 2 - Dominance Tes		regetation	
7								
8					3 - Prevalence Inde 4 - Morphological <i>A</i>		(Provide sur	porting
9					data in Remarks	s or on a sep	arate sheet)	porting
10					Problematic Hydro	phytic Vegeta	ation¹ (Expla	ıin)
Woody Vine Stratum (Plot size: 30 ft r )  1		= Total			<sup>1</sup> Indicators of hydric soi be present, unless distu			must
2					Hydrophytic			
% Bare Ground in Herb Stratum 32	:	= Total	Cove	er	Vegetation Present? Ye	s N	lo <u>′</u>	
Remarks:								
Upland sample point dominated by E vegetation indicators.	lymus r	epe	ns a	and dic	l not meet any h	nydroph	ytic	

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SOIL Sampling Point: DP10u

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

Depth	Matrix			x Features		2		
(inches)	Color (moist)	%	Color (moist)	<u></u> %	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 9	10YR 4/1	98	10YR 4/6	2	С	М	Silty Clay Loam	
9 - 16	10YR 4/2	100					Sandy Loam	
	· · · · · · · · · · · · · · · · · · ·							
			_					_
-								
	-	<del></del>						
<sup>1</sup> Type: C=Co	oncentration, D=De	pletion, RM=	Reduced Matrix, C	S=Covered	or Coate	ed Sand G	rains. <sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
			LRRs, unless othe					roblematic Hydric Soils <sup>3</sup> :
Histosol				Gleyed Mat			1 cm Muck (	A9) ( <b>LRR I, J</b> )
	pipedon (A2)			Redox (S5)	, ,			e Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi			-	d Matrix (Se				e (S7) (LRR G)
	n Sulfide (A4)			Mucky Mine	•			Depressions (F16)
	Layers (A5) (LRR	F)	-	Gleyed Mat			-	outside of MLRA 72 & 73)
	ıck (A9) ( <b>LRR F, G</b> ,	•	-	ed Matrix (F			Reduced Ve	rtic (F18)
Depleted	d Below Dark Surfa	ce (A11)	Redox	Dark Surfac	ce (F6)		Red Parent I	Material (TF2)
Thick Da	ark Surface (A12)		Deplete	ed Dark Sur	face (F7	)	Very Shallov	v Dark Surface (TF12)
Sandy M	lucky Mineral (S1)		Redox	Depression	s (F8)			in in Remarks)
2.5 cm N	Mucky Peat or Peat	(S2) (LRR 6	<b>6, H</b> ) High Pl	ains Depres	ssions (F	16)	<sup>3</sup> Indicators of hyd	Irophytic vegetation and
5 cm Mu	icky Peat or Peat (S	33) ( <b>LRR F</b> )	(ML	RA 72 & 7	3 of LRF	RH)	wetland hydr	ology must be present,
							unless distur	bed or problematic.
Restrictive I	_ayer (if present):							
Type:								
Depth (inc	ches):						Hydric Soil Prese	ent? Yes <u>'</u> No
Remarks:								
o :::								
Soil is m	oist. Redox	concer	itrations mag	y be rei	ict.			
HYDROLO	GY							
Wetland Hy	drology Indicators							
_			l; check all that app	lv)			Socondary Ind	licators (minimum of two required)
-		one required					<del></del>	· · · ·
<del></del>	Water (A1)		Salt Crust	, ,	(5.40)		<del></del>	oil Cracks (B6)
	iter Table (A2)			vertebrates				Vegetated Concave Surface (B8)
Saturation	, ,		Hydrogen					Patterns (B10)
·	arks (B1)			on Water Ta				Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizospher	es on Liv	ing Roots		•
Drift Dep	oosits (B3)		(where	not tilled)			Crayfish E	
Algal Ma	at or Crust (B4)		Presence	of Reduced	l Iron (C	4)	Saturation	Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Mucl	Surface (C	27)		Geomorpl	nic Position (D2)
Inundation	on Vis ble on Aerial	Imagery (B7	') Other (Ex	plain in Rer	narks)		FAC-Neut	ral Test (D5)
Water-S	tained Leaves (B9)						Frost-Hea	ve Hummocks (D7) (LRR F)
Field Obser								
Surface Water	vations:			-1 > -				
		Yes 1	No Depth (ir	icnes):				
Water Table	er Present?		No V Depth (ir					
Water Table	er Present?	Yes I	No <u> </u>	ches):			land Hydrology Pres	sent? Yes No V
Saturation Pi	er Present? Present? resent? pillary fringe)	Yes I Yes I	No Depth (ir	ches):		Wet	, ,,	sent? Yes No
Saturation Pi	er Present? Present? resent? pillary fringe)	Yes I Yes I	No <u> </u>	ches):		Wet	, ,,	sent? Yes No <u>'</u>
Saturation Pi	er Present? Present? resent? pillary fringe)	Yes I Yes I	No Depth (ir	ches):		Wet	, ,,	sent? Yes No
Saturation Projection (includes cape Describe Records)	er Present? Present? resent? pillary fringe)	Yes I Yes I	No Depth (ir	ches):		Wet	, ,,	sent? Yes No
Saturation Projection (includes caped Describe Research	er Present? Present? resent? pillary fringe) corded Data (strear	Yes I Yes I n gauge, mo	No V Depth (ir No V Depth (ir nitoring well, aerial	ches): ches): photos, pre		Wet	, ,,	sent? Yes No
Saturation Projection (includes caped Describe Research	er Present? Present? resent? pillary fringe) corded Data (strear	Yes I Yes I n gauge, mo	No Depth (ir	ches): ches): photos, pre		Wet	, ,,	sent? Yes No
Saturation Projection (includes caped Describe Researchers)	er Present? Present? resent? pillary fringe) corded Data (strear	Yes I Yes I n gauge, mo	No V Depth (ir No V Depth (ir nitoring well, aerial	ches): ches): photos, pre		Wet	, ,,	sent? Yes No <u>v</u>

Project/Site: JTX TUNNICLIFF	(	City/Cou	unty:	Big Horr	n County	Sampling	Date:	2024-	06-19
Applicant/Owner: MDT	_	-	-		State: Montana	-			
Investigator(s): McEldowney		Section	, Tov	vnship, Ra	nge: S15 T1N R33E				
Landform (hillslope, terrace, etc.): Closed Depression		Local re	elief	(concave,	convex, none): Concav	е	Slo	pe (%):	0
Subregion (LRR): G 58A									
Soil Map Unit Name: Hh - Haverson and Lohmiller soil					NWI classific				
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation, Soil, or Hydrology si	gnificantly of	disturbe	ed?	Are "	Normal Circumstances" p	resent? `	Yes•	/ N	0
Are Vegetation, Soil, or Hydrology na					eded, explain any answe	rs in Rema	arks.)		
SUMMARY OF FINDINGS – Attach site map s				g point l	ocations, transects	, import	ant fe	eature	s, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:	)	v	withi	e Sampled n a Wetlar	nd? Yes	No _		-	
Wetland sample point in the northwe	<u> </u>	ion o	of c	ell 10/1	l1. 				
VEGETATION – Use scientific names of plant		D		La ali a atau	B	-1			
<u>Tree Stratum</u> (Plot size: <u>30 ft r</u> )  1 2		Specie	es?	Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):	pecies	2		(A)
3. 4.					Total Number of Domin Species Across All Stra		2		(B)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1					Percent of Dominant Sport That Are OBL, FACW,		100.00	0	(A/B)
2.					Prevalence Index wor	ksheet:			
3.					Total % Cover of:				
4						x 1			
5					FACW species 25				
Herb Stratum (Plot size: 5 ft r		= Total	Cove	er	FAC species 0 0				_
1. Hordeum jubatum	15	V		FACW	UPL species 0		$s = \frac{0}{0}$		_
2. Alopecurus pratensis	10	~		FACW	Column Totals: 28				— (B)
3. Schoenoplectus pungens	3			OBL	Prevalence Index	, ,	· ·		_ ( /
4					Hydrophytic Vegetation	·-			_
5					✓ 1 - Rapid Test for I			tation	
6					✓ 2 - Dominance Tes	t is >50%	_		
7					✓ 3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>			
8 9					4 - Morphological A	Adaptations	s¹ (Prov	ide sup	porting
10					data in Remark				
	~~	= Total	Cove	er	Problematic Hydro	_			
Woody Vine Stratum (Plot size: 30 ft r )  1					<sup>1</sup> Indicators of hydric soi be present, unless dist				nust
2.					Hydrophytic				
					Vegetation	s/_	N-		
% Bare Ground in Herb Stratum 72 Remarks:					Present? Ye	s <u> </u>	No _		
Wetland sample point dominated by vegetation indicators.	FACW	vege	etat	ion an	d met 3 of the h	ydropl	nytic	:	

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SOIL Sampling Point: DP10w

Profile Desc	ription: (Describe	to the depth n	eeded to docun	nent the i	ndicator o	or confirm	the absence of i	ndicators.)
Depth	Matrix			x Features				
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 16	10YR 4/1	95 10	YR 4/6	5	<u>C</u>		Loam	
-								
-								
	-							
	-						·	
	oncentration, D=Dep					d Sand Gr		n: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applic	able to all LRF	Rs, unless other	wise note	ed.)		Indicators for	Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy G	-	. ,			(A9) (LRR I, J)
-	pipedon (A2)		Sandy F					rie Redox (A16) (LRR F, G, H)
Black His	, ,		Stripped					ace (S7) (LRR G)
	n Sulfide (A4) I Layers (A5) ( <b>LRR</b> I	E)		Mucky Mir Gleyed Ma			— •	s Depressions (F16) I outside of MLRA 72 & 73)
	ick (A9) (LRR F, G,		<u>✓</u> Depleted				•	/ertic (F18)
	Below Dark Surfac	•		ark Surfa				nt Material (TF2)
-	ark Surface (A12)	(			rface (F7)			ow Dark Surface (TF12)
Sandy M	lucky Mineral (S1)		Redox D	Depression	ns (F8)			olain in Remarks)
2.5 cm N	lucky Peat or Peat (	(S2) ( <b>LRR G, H</b>	) High Pla	ins Depre	essions (F	16)	<sup>3</sup> Indicators of h	ydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 & 7	3 of LRR	H)	wetland hy	drology must be present,
							unless dist	turbed or problematic.
Restrictive L	_ayer (if present):							
Type:			-					
	ches):		-				Hydric Soil Pre	esent? Yes V No No
Remarks:								
Depleted	d matrix with	15% redox	x concentr	ations	obser	rved.		
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of c	one required; ch	eck all that apply	/)			Secondary I	ndicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)			Surface	Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Inv	ertebrate/	s (B13)		Sparsely	y Vegetated Concave Surface (B8)
✓ Saturation	on (A3)		Hydrogen	Sulfide Od	dor (C1)		Drainag	e Patterns (B10)
Water M	arks (B1)		Dry-Seaso	n Water T	able (C2)		Oxidized	d Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized R	hizosphe	res on Livi	ng Roots (	(C3) (wher	e tilled)
Drift Dep	oosits (B3)		(where r	ot tilled)			Crayfish	Burrows (C8)
Algal Ma	it or Crust (B4)		Presence of	of Reduce	d Iron (C4	.)	Saturati	on Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface (	C7)		Geomor	phic Position (D2)
Inundation	on Vis ble on Aerial	lmagery (B7)	Other (Exp	lain in Re	marks)		FAC-Ne	eutral Test (D5)
Water-St	tained Leaves (B9)						Frost-He	eave Hummocks (D7) (LRR F)
Field Observ								
Surface Water	er Present? Y	'es No _	Depth (inc	ches):		_		
Water Table			✓ Depth (inc			_		
Saturation Pr		'es <u>'</u> No _	Depth (inc	ches): 0		_ Wetla	and Hydrology Pr	resent? Yes V No No
(includes cap	oillary fringe) corded Data (stream	n dauge monito	ring well serial r	hotos pr	evious inci	nections)	if available:	
Pescine Vec	Joi aca Dala (Siledii	i gauge, monito	ınıy wen, aenal þ	ποιου, μπ	ovious IIIS	peciioi 13 <i>)</i> ,	n avanabic.	
Remarks:								
Saturate	ed to the surf	race.						

#### MDT Montana Wetland Assessment Form (revised March 2008)

8. Wetland size:

Wetland (FO)

9. Assessment area (AA):

1. Project Name: JTX Tunnicliff 2. MDT Project #: STPP STWD (056) Control #: 9680000

3. Evaluation Date: 06/19/2024 4. Evaluator(s): R McEldowney, R Baumgarten 5. Wetlands/Site #(s): JTX Tunnicliff

**6. Wetland Location(s): i. Legal:** T1N,R33E,10 ;T1N,R33E,15 **Latitude/Longitude:** 45.83953, -107.59887 :

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 14

Watershed Name, County: Middle Yellowstone, Big Horn

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. Wetlands potentially affected by MDT project

2. Mitigation wetlands; pre-construction

3. X Mitigation wetlands; post-construction

**4.** Other:

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA	
D	FM	F	SI	100	

Abbreviations: (see manual for definitions)

HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF); Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested

8.850 acres (measured)

8.850 acres (measured)

Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained

(PD), Farmed (F), Artificial (A)

**Water Regimes:** Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions) COMMON

#### 12. General condition of AA:

 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) list)

	Predomin	ant conditions adjacent to (within 500 t	feet of) AA
Conditions within AA	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

**Comments:** (types of disturbance, intensity, season, etc.): Vegetation in AA is well established. Burn area from 2020 is nearly undetectable.

- ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Convolvulus arvensis, Cirsium arvense, and Acroptilon repens.
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Fishing access site, large parcel homesites, and ranching.
- 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 existence of additiona		Modified Rating
>= 3 (or 2 if 1 is forested) classes	Н	NA	NA	NA
2 (or 1 if forested) classes	М	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: Site contains multiple PEM wetlands.

#### **SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT**

#### 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) Secondary habitat (list species) Incidental hab

Incidental habitat (list species)
Monarch Butterfly(S)

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	.1L	0L

Sources for documented use (e.g. observations, records, etc): USFWS T&E list for Big Horn County

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) Secondary habitat (list species) Incide

Bur oak (2017)(D) - S2S3

Incidental habitat (list species)

Great Blue Heron(S) - S2S3

Greater Sage-Grouse (2023)(D) - S2S3

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6М	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): 2024 MTNHP Environmental Summary Report.

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

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

Substantial (based on any of the following [check]):	Minimal (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	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
X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, e	etc.
X adequate adjacent upland food sources	
interviews with local biologists with knowledge of the AA	
<del>_</del>	

**ii. Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other interms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)		High						Moderate							Low					
Class cover distribution (all vegetated classes)		Ev	en			Une	even			Ev	en			Une	even			Ev	en	
Duration of surface water in >=10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
Low disturbance at AA (see #12i)	Е	E	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М
<b>Moderate</b> disturbance at AA (see #12i)	Н	Н	Н	Н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Н	М	L	L
<b>High</b> disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments: Deer tracks and 12 bird species observed in 2024.

**14D. General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **X NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) \_\_\_ Warm Water (WW) \_\_ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA		Permanent / Peren			nnial	nial Seasonal / Intermittent							Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Opt	imal	Adeo	luate	Po	or	Opt	imal	Adec	quate	Po	or	Opt	imal	Adec	luate	Po	oor
Thermal cover optimal / suboptimal	0	S	0	S	0	Ø	0	S	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? If yes, reduce score in i above by 0.1.

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

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

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	0 ,	entrenche stream typ			ely entrend tream type		Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

700 / 250 = 2.8Flood-prone Bankfull Entrenchment ratio width width (FR)



SI	ightly Entrenche ER = >2.2	d	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
	****			4		

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)?

Comments: AA was flooded by the Bighorn River in 2023. Entrenchment ratio estimated from aerial photography and not measured in field. River is C-type.

- **14F. Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, **NA** and proceed to 14G.)
- i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>.	5 acre fe	et	1.11	to 5 acre	feet	<=	1 acre fo	oot
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: Due to the depth of the excavated cells relative to the surrounding uplands, this site is capable of providing a large amount of surface water storage.

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				
% cover of wetland vegetation in AA	>= 70%		>= 70% < 70%		>= 7	70%	< 7	0%
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: AA has the potential to receive sediment/nutrient/toxicants from surface or groundwater.

**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, **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or	Duration of surface water adjacent to rooted vegetation							
shoreline by species with stability ratings of >=6 (see <b>Appendix F</b> ).	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral					
>= 65%	1H	.9H	.7M					
35-64%	.7M	.6M	.5M					
35%	.3L	.2L	.1L					

**Comments:** Small amounts of shallow surface water observed in 2024. Wetland shoreline dominated by vegetation communities including Schoenoplectus spp., Typha angustifolia, Hordeum jubatum, and Elymus repens.

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

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

	General Fish Habitat	General V	Wildlife Habitat Rating	ı (14C.iii.)
	Rating (14D.iii.)	E/H	M	L
Ì	E/H	Н	Н	М
	М	Н	M	М
	Ĺ	M	M	Ĺ
1	N/A	Н	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

Α	Vegetated component >5 acres					Vegetated component 1-5 acres					Vegetat	ted com	ponent <	< 1 acre				
В	Hi	gh	Mod	erate	Lo	)W	Hi	gh	Mode	erate	Lo	)W	Hi	gh	Mode	erate	Lo	w
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) Vegetated Upland Buffer (VUB): Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference?

X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.50M Comments: Moderate biological activity; qualifying upland buffer exists.

Replacement potential or r wetla  Estimated relative abundance (#11) rar  Low disturbance at AA (#12i) 11  Moderate disturbance at AA (#12i) .9i	season ral slope ught per nlet saturate bove ar excava e matrix ontains mature and or r	ed to the sure and the table Duration DISCH.  P/P 1H  ated wetland x below to a fen, bog, w. (>80 yr-old; plant associ	e below to arran of saturation ARGE OR W. G.I.  d cells that ut  arrive at [circle arm springs ) forested	ive at [circle] on at AA We ITH WATER ROUNDWAT S/I .7M N/ illize high gro e] the function AA does no rare types	etlands FROI R THAT IS RE TER SYSTEM T .4M /A bundwater tab	ains inlet but nown 'losing' al points and M GROUNDY ECHARGING  Joles as the production of the product	rating)  VATER STHE  None .1L  imary hydrole	harge volume	e decreases
Vegetation growing during dormant   Wetland occurs at the toe of a natural AA permanently flooded during drout Wetland contains an outlet, but no in X Shallow water table and the site is so Other:	season ral slope ught per nlet saturate bove ar excava e matrix ontains mature and or r	ed to the sure and the table Duration DISCH.  P/P 1H  ated wetland x below to a fen, bog, w. (>80 yr-old; plant associ	e below to arran of saturation ARGE OR W. G.I.  d cells that ut  arrive at [circle arm springs ) forested	ive at [circle] on at AA We ITH WATER ROUNDWAT S/I .7M N/ ilize high gro e] the function AA does no rare types	Stream is a kr Other:  ] the functional etlands FROM R THAT IS RE TER SYSTEM  T .4M //A coundwater tab onal points an ot contain press and structur	al points and GROUNDY ECHARGING  J  Diles as the pr d rating) viously cited al diversity	rating)  WATER STHE  None .1L  imary hydrole	ogic source.	viously cited
Wetland occurs at the toe of a natur  AA permanently flooded during drou  Wetland contains an outlet, but no ir  X Shallow water table and the site is s  Other:  iii. Rating (use the information from i and ii al  Criteria  Groundwater Discharge or Recharge Insufficient Data/Information  Comments: The site was designed to have  14K. Uniqueness: i. Rating (working from top to bottom, use the or recommend of the contains of the c	excava  e matrix  contains  mature  eand or p	ed to the sure and the table Duration DISCH.  P/P 1H  ated wetland x below to a fen, bog, w. (>80 yr-old; plant associ	e below to arran of saturation ARGE OR W. G.I.  d cells that ut  arrive at [circle arm springs ) forested	ive at [circle] on at AA We //TH WATER ROUNDWAT S/I .7M N/ ilize high gro e] the function AA does no rare types	other:  I the functional etlands FROM TER SYSTEM  T .4M  A coundwater table onal points an ot contain press and structure	al points and M GROUNDN ECHARGING  I  Diles as the production of t	rating)  VATER GTHE  None .1L  imary hydrole  AA does no	ogic source.	viously cited
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Wetland contains an outlet, but no ir X Shallow water table and the site is so Other:  ii. Rating (use the information from i and ii a    Criteria  Groundwater Discharge or Recharge Insufficient Data/Information Comments: The site was designed to have  14K. Uniqueness: Rating (working from top to bottom, use the    Replacement potential    AA co   Or   Wetlat  Estimated relative abundance (#11) rar Low disturbance at AA (#12i) 11-  Moderate disturbance at AA (#12i) .98	bove and excavate matrix portains mature and or particular in the control of the	P/P 1H ated wetland x below to a fen, bog, w. (>80 yr-old; plant associ	e below to arran of saturation ARGE OR W. G.I.  d cells that ut arrive at [circle arm springs of forested]	on at AA We ITH WATER ROUNDWAT  S/I  .7M  N/ illize high gro  AA does no rare types	etlands FROIR THAT IS RETER SYSTEM  T	d GROUNDY ECHARGING  Deles as the production of	None .1L imary hydrole	t contain prev	
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Replacement potential  Estimated relative abundance (#11)  Low disturbance at AA (#12i)  Moderate disturbance at AA (#12i)  Moderate disturbance at AA (#12i)  98	ontains mature and <b>or</b> p	fen, bog, w (>80 yr-old) plant associ	arm springs ) forested	AA does no rare types	ot contain pre s <b>and</b> structur	viously cited al diversity			
Replacement potential  Estimated relative abundance (#11)  Low disturbance at AA (#12i)  Moderate disturbance at AA (#12i)  Moderate disturbance at AA (#12i)  98	ontains mature and <b>or</b> p	fen, bog, w (>80 yr-old) plant associ	arm springs ) forested	AA does no rare types	ot contain pre s <b>and</b> structur	viously cited al diversity			
Replacement potential  Estimated relative abundance (#11) rar  Low disturbance at AA (#12i) 11  Moderate disturbance at AA (#12i) .91	ontains mature and <b>or</b> p	fen, bog, w (>80 yr-old) plant associ	arm springs ) forested	AA does no rare types	ot contain pre s <b>and</b> structur	viously cited al diversity			
Replacement potential or r wetland wet	mature and <b>or</b> p	(>80 yr-old) plant associ	) forested	rare types	s <b>and</b> structur	al diversity			
Estimated relative abundance (#11) rar  Low disturbance at AA (#12i) 1H  Moderate disturbance at AA (#12i) .9I	and <b>or</b> p	plant associ					rare type	es or associat	
Estimated relative abundance (#11) rar Low disturbance at AA (#12i) 11 Moderate disturbance at AA (#12i) 9			iation listed		ingn <b>or</b> conte	ains piant			
Low disturbance at AA (#12i) 11 Moderate disturbance at AA (#12i) .9i		1" by the MT			ion listed as "		structura	I diversity (#1 moderate	3) IS IOW-
Low disturbance at AA (#12i) 11 Moderate disturbance at AA (#12i) .9i	as "S1" by the MTNHP							moderate	-
Moderate disturbance at AA (#12i) .9I	_	common	abundant	rare	common	abundant	rare	common	abundant
		.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
		.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i) .8i Comments: Wetland type is common in the		.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L
comments: wedand type is common in the	ыдпог	III River iioo	офіані.						
4L. Recreation/Education Potential: (affor	ds "bor	nus" points i	if AA provide	s recreation	or education	opportunity)			
. Is the AA a known or potential rec./ed. si							rk <b>NA</b> aı	nd proceed to	the
overall summary and rating page)		· — `							
i. Check categories that apply to the AA:	ΧE	Educational/s	scientific stud	ly; Con	sumptive rec	.; Non-c	onsumptive	rec.;	
	<u> </u>	Other:		_					
ii. Rating:									
Known or Potential Recreation or Education	n Area						Known	Potential	٦
Public ownership or public easement wit		eral public	access (no i	permission	required)		.2H	.15H	7
Private ownership with general public ac					· ,		.15H	.1M	7
Private or public ownership without gene					on for public	access	.1M	.05L	7
Comments: Site owned by MFWP and part					•	<u>.</u>			-
General Site Notes  Wetland area decreased slightly between 2	022 an	d 2024 man	itoring ovent	•					
welland area decreased slightly between 2	023 and	10 2024 11101	illoring event	S.					

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	0.89	
B. MT Natural Heritage Program Species Habitat	М	0.60	1	5.31	
C. General Wildlife Habitat	М	0.70	1	6.20	*
D. General Fish Habitat	NA				
E. Flood Attenuation	М	0.60	1	5.31	
F. Short and Long Term Surface Water Storage	Н	0.90	1	7.97	*
G. Sediment/Nutrient/Toxicant Removal	Н	1.00	1	8.85	*
H. Sediment/Shoreline Stabilization	М	0.60	1	5.31	
I. Production Export/Food Chain Support	М	0.50	1	4.43	
J. Groundwater Discharge/Recharge	М	0.70	1	6.20	*
K. Uniqueness	М	0.40	1	3.54	
L. Recreation/Education Potential (bonus points)	Н	0.20	1	1.77	
Totals: Percent of Possible Score		6.30	10.00 63%	55.78	

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; <b>or</b>
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; <b>or</b>
Score of .9 or 1 functional point for General Fish Habitat; <b>or</b>
"High" to "Exceptional" ratings for <b>both</b> General Wildlife Habitat <b>and</b> General Fish/Aquatic Habitat; <b>or</b>
Score of .9 functional point for Uniqueness; <b>or</b>
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: III

Summary Comments: AA provides valuable functions and services within the Bighorn River floodplain.

**Table B-1.** JTX Tunnicliff Wetland Mitigation Site. Comprehensive Vegetation Species List 2017-2024

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Acer negundo	Box Elder	FAC
Acroptilon repens	Russian Knapweed	UPL
Agropyron cristatum	Crested Wheatgrass	UPL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Arctium lappa	Greater Burdock	UPL
Asclepias speciosa	Showy Milkweed	FAC
Atriplex argentea	Silverscale Saltbush	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Beckmannia syzigachne	American Slough Grass	OBL
Brassica sp.	Mustard sp.	NA
Bromus arvensis (japonicus)	Field Brome	FACU
Bromus ciliatus	Fringed Brome	FAC
Bromus inermis	Smooth Brome	UPL
Carex utriculata	Northwest Territory Sedge	OBL
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium glaucum	Oak-Leaf Goosefoot	FAC
Chenopodium rubrum	Red Goosefoot	OBL
Cirsium arvense	Canadian Thistle	FACU
Convolvulus arvensis	Field Bindweed	UPL
Crataegus douglasii	Douglas Hawthorne	FAC
Cynoglossum officinale	Gypsy-Flower	FACU
Dactylis glomerata	Orchardgrass	FACU
Descurania sophia	Herb Sophia	UPL
Distichlis spicata	Coastal Salt Grass	FACW
Echinocystis lobata	Wild Cucumber	FAC
Elaeagnus angustifolia	Russian-Olive	FACU
Elaeagnus commutata	Silverberry	UPL
Eleocharis palustris	Common Spike-Rush	OBL
Elymus hispidus	Intermediate Wheatgrass	UPL
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Equisetum arvense	Field Horsetail	FAC
Fraxinus pennsylvanica	Green Ash	FAC
Galium aparine	Sticky-Willy	FACU
Glycyrrhiza lepidota	American Licorice	FACU
Hordeum jubatum	Fox-Tail Barley	FACW
Iva axillaris	Deer-root	FAC
Juncus balticus	Baltic rush	FACW
Juncus torreyi	Torrey's Rush	FACW
Lepidium perfoliatum	Clasping Pepperwort	FAC
Leymus cinereus	Great Basin Lyme Grass	UPL
Medicago lupulina	Black Medick	FACU
Medicago sativa	Alfalfa	UPL

**Table B-1.** JTX Tunnicliff Wetland Mitigation Site. Comprehensive Vegetation Species List 2017-2024

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Melilotis albus	White Sweet-Clover	UPL
Melilotis officinalis	Yellow Sweet-Clover	FACU
Pascopyrum smithii	Western Wheatgrass	FACU
Poa pratensis	Kentucky Blue Grass	FACU
Poa secunda	Curly Blue Grass	FACU
Populus deltoides	Eastern Cottonwood	FAC
Prunus virginiana	Common Chokecherry	FACU
Puccinellia nuttaliana	Nutall's Alkali Grass	OBL
Quercus macrocarpa	Bur Oak	FACU
Rosa woodsii	Wood's Rose	FACU
Rumex crispus	Curly Dock	FAC
Salix fragilis	Crack Willow	FAC
Schedonorus pratensis	False Meadow Rye	FACU
Shepherdia argentea	Silver Buffalo-Berry	UPL
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Schoenoplectus americanus	Chairmaker's Club-rush	OBL
Schoenoplectus maritimus	Saltmarsh Club-rush	OBL
Schoenoplectus pungens	Three-Square	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sporobolus airoides	Alkali-sacaton	FAC
Symphoricarpos albus	Common Snowberry	UPL
Taraxacum officinale	Common Dandelion	FACU
Thinopyrum ponticum	Tall Wheatgrass	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium fragiferum	Strawberry-head Clover	FAC
Trifolium repens	White Clover	FACU
Typha angustifolia	Narrow-leaf Cat-tail	OBL
Typha latifolia	Broad-leaf Cat-tail	OBL
Xanthium strumarium	Rough Cocklebur	FAC

<sup>(</sup>a) 2020 NWPL (USACE 2020)

New species identified in 2024 are **bolded**.

# APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana



Photo Point: 1 Bearing: 320 degrees

Location: Looking NW at Cell 4 Year: 2016



Photo Point: 1 Bearing: 320 degrees

Location: Looking NW at Cell 4 Year: 2024



Photo Point: 1 Location: Looking east across property Bearing: 270 degrees Year: 2016



Photo Point: 1 Location: Looking east across property Bearing: 270 degrees Year: 2024



Photo Point: 1 Bearing: 220 degrees

Location: Looking SW at Cell 5 Year: 2016

Photo Point: 1
Bearing: 220 degrees



Location: Looking SW at Cell 5



Photo Point: 2 Bearing: 315 degrees

Location: Looking NW at Cell 9

Year: 2016



Photo Point: 2 Bearing: 315 degrees

Location: Looking NW at Cell 9

egrees Year: 2024



Photo Point: 2 Bearing: 0 degrees

Location: Looking North at Cell 8/9

earing: 0 degrees Year: 2016



Photo Point: 2 Bearing: 0 degrees

Location: Looking North at Cell 8/9

g: 0 degrees Year: 2024



Photo Point: 2 Bearing: 45 degrees

Location: Looking NE at Cell 8

Year: 2016



Photo Point: 2 Bearing: 45 degrees

Location: Looking NE at Cell 8

g: 45 degrees Year: 2024



Photo Point: 3 Location: Looking SE at Cell 13 Bearing: 140 degrees Year: 2016



Photo Point: 3 Location: Looking SE at Cell 13 Bearing: 140 degrees Year: 2024



Photo Point: 3 Location: Looking E. at Cell 13 Bearing: 100 degrees Year: 2016



Photo Point: 3 Location: Looking East at Cell 13 Bearing: 100 degrees Year: 2024



Photo Point: 3 Location: W side of property Looking NE Bearing: 45 degrees Year: 2016



Photo Point: 3 Location: W side of property Looking NE Bearing: 45 degrees Year: 2024



Photo Point: 4 Bearing: 105 degrees

Location: Looking E at Cell 3 Year: 2016



Photo Point: 4 Bearing: 105 degrees

Location: Looking East at Cell 3 Year: 2024



Photo Point: 4 Bearing: 160 degrees

Location: Looking South at Cell 3
Year: 2016



Photo Point: 4 Location: Looking South at Cell 3 Bearing: 160 degrees Year: 2024



Photo Point: 4 Bearing: 240 degrees

Location: Looking West at Cell 2 Year: 2016



Photo Point: 4
Bearing: 240 degrees

Location: Looking West at Cell 2

: 240 degrees Year: 2024

## JTX Tunnicliff: 2024 Transect Photographs



Transect 1: Start Bearing: 230 degrees

Location: SE corner of property Year: 2016



Transect 1: End Bearing: 50 degrees

Location: SE corner of property Year: 2016



Transect 2: Start Bearing: 350 degrees

Location: West side of property Year: 2016



Transect 1: Start Bearing: 230 degrees

Location: SE corner of property Year: 2024



Transect 1: End Bearing: 50 degrees

Location: SE corner of property Year: 2024



Transect 2: Start Bearing: 350 degrees

Location: West side of property



Transect 2: End Bearing: 170 degrees

Location: West side of property Year: 2016



Transect 2: End Bearing: 170 degrees

Location: West side of property Year: 2024



Data Point: DP01w Year: 2024

Location: Cell 1



Data Point: DP01u Year: 2024

Location: Cell 1



Data Point: DP02w Year: 2024

Location: Cell 2



Data Point: DP02u

Location: Cell 2

Location: Cell 3

Location: Cell 4



Data Point: DP03w Year: 2024



Data Point: DP03u Year: 2024

Location: Cell 3



Data Point: DP04w Year: 2024



Data Point: DP04u Year: 2024

: DP04u Location: Cell 4



Data Point: DP05w Year: 2024



Location: Cell 5 Data Point: DP05 Year: 2024



Data Point: DP05u Location: Cell 5



Data Point: DP06w Year: 2024



Location: Cell 6



Data Point: D06u Year: 2024





Data Point: DP07w Year: 2024



Location: Cell 7



Data Point: DP07u Year: 2024

Location: Cell 7



Data Point: DP08w Year: 2024



Location: Cell 8/9



Data Point: DP08u

Location: Cell 8/9



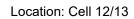
Data Point: DP09w Year: 2024



Location: Cell 12/13



Data Point: DP09u Year: 2024





Data Point: DP10w Year: 2024



Location: Cell 10/11



Data Point: DP10u Year: 2024

Location: Cell 10/11