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

## FORSYTH – NORTHWEST MITIGATION SITES: FORSYTH WEST, MIDDLE, AND EAST

**Project Overview** 

MDT Project: STTP 14 (9)259, UPN #4059

Watershed: Watershed #14 - Middle Yellowstone

**Monitoring Year: 2023** 

Years Monitored: 11th year of monitoring

Corps Permit Number: NWO-2002-90-599 and NWO-2006-90676 MTB

Monitoring Conducted By: Confluence Consulting Inc. for MDT Dates Monitoring Was Conducted: June 6<sup>th</sup> – June 9<sup>th</sup>, 2023

**Purpose of the Approved Project:** 

The Forsyth – Northwest (FNW) sites were developed to mitigate for a cumulative total of 8.98 acres of wetland impacts associated with two Montana Department of Transportation (MDT) highway construction projects: (1) the Volborg – North and South project, constructed in 2004, and (2) the FNW project, constructed in 2012. Wetland compensatory mitigation ratios from the Montana Regulatory Program of the US Army Corps of Engineers, dated April 2005, were used to determine the anticipated mitigation credits outlined in the approved wetland mitigation plan, which indicated that the project could earn 11.79 acres of wetland mitigation credit. Four individual mitigation sites in close proximity to each other were constructed as part of this project and include the Treasure County Line, Forsyth West, Forsyth Middle, and Forsyth East. Monitoring at the Treasure County Line site was completed in 2017. This report encompasses only the three remaining Forsyth sites monitored in 2023.

#### **Site Locations:**

West site - Latitude: 46.33927, Longitude: -106.876743 Middle site - Latitude: 46.323159, Longitude: -106.843010 East site - Latitude: 46.31969, Longitude: -106.83657

County: Rosebud Nearest Town: Forsyth, MT

Map Included: Yes, Figure 1

Mitigation Site Construction Started: Spring 2012 Construction Ended: Fall 2012 Embankment repairs

made in Spring 2017

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

Activity: None Date: NA

Specific recommendations for corrective actions: Continue to treat noxious weeds, especially at the

Middle site.

**Anticipated Wetland Credit Acres: 11.79** 

Wetland Credit Acres Generated to Date: 5.92

Wetland Acreage within the Project Area: 5.67 Mudflat Acreage within the Project Area: 0.0 Open Water within the Project Area: 6.42 acres

**Previous Monitoring Reports:** 

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

**Monitoring Period:** 5 years from construction completion or until concurrence by the US Army Corps of Engineers (USACE). The monitoring period was extended because of adaptive management actions in 2017 to repair a failed dike structure at the FNW-West mitigation site.

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

**Summary of Performance Standards:** Formal performance standards were not developed as part of the mitigation plan for these sites. All three sites have developed wetland habitat as intended and contain wetland vegetation, hydric soils, and indicators of wetland hydrology. All of the sites are stable; the East and West sites have less than 5 percent total noxious weed cover, and the Middle site has less than 10 percent noxious weed cover. All three sites are functioning as designed, however, the West site has recently lost wetland acreage credits due to changes in how the USACE is awarding credit for open water and mud flats.

#### Summary Data: Combined West, Middle, and East Sites

**Wetland Delineation** – The total wetland acreage delineated at the three FNW sites in 2023 was 5.67 acres of palustrine emergent (PEM) wetland. Additionally, 6.42-acres of open water were mapped at the FNW-West site. No open water or mud flats were identified at the FNW -Middle or FNW-East sites. Across the three sites, wetland area increased by 2.36 in 2023. Open water acreage at the West site decreased by 1.84 acres, and no mudflats were observed (Table 1; Figures A-3 and A-4, Appendix A).

The adaptive management strategies implemented in 2017 (repair of a breached earthen embankment to original design) at the FNW-West site has resulted in broader inundation across the site, and in response to the inundation, some areas that were previously delineated as wetland were delineated as open water in 2020-2023. Less open water was observed in 2023 than in 2022, owing entirely to increased *Schoenoplectus maritimus* growth at the FNW-West site, which created enough cover to be considered wetland habitat rather than open water. All areas delineated as mudflat habitat in 2021 and 2022 were either inundated or had developed enough vegetation to be considered PEM wetland in 2023. The increased inundation also resulted in minor expansions of the wetland boundaries in a few areas around the wetland perimeter (Table 1).

In 2020, the USACE provided guidance on open water, defining it as, "areas of open water of any depth with less than 5% rooted emergent vegetation, no vegetation, submerged non-rooted vegetation, and/or submerged vegetation rooted in the substrate that does not extend above the water surface" (Green 2022). Options to assign credit acres for open water and mud flat habitats are still pending, and therefore wetland acreage credited to this site from 2020-2023 is significantly less than what was reported in 2019 and earlier.

	2015	2021 (acres)			2022 (acres)			2023 (acres)		
Site	(acres)	Wetland	Open Water	Mud flat	Wetland	Open Water	Mud flat	Wetland	Open Water	Mud flat
FNW-West	6.01	1.66	7.60	1.36	1.86	8.26	0.51	4.25	6.42	0.00
FNW-Middle	0.49	0.58	-	-	0.58	-	-	0.58	-	-
FNW-East	0.46	0.59	-	1	0.74	-	ı	0.84	-	-
Total	6.96	2.83	7.6	1.36	3.18	8.26	0.51	5.67	6.42	0.00

**Functional Assessment** – The FNW-East and FNW-Middle sites are considered Category III wetlands, and the FNW- West site is a Category II wetland (Table 2) that received MWAM scores of 68%, 44%, and 53% respectively. All three sites generated a combined total of 30.66 Functional Units in 2023 (Table 9).

**Photographs** — Photographs were taken at all three FNW sites in 2023 and are provided in Appendix C. The photographs taken at permanent photo points, transect endpoints, and data points are presented alongside photos from the first year of monitoring. Please refer to previous years' monitoring reports for photographs from all other years (https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx).

**Wildlife** — Wildlife species that were observed directly or indirectly at the three monitoring sites during the 2023 field surveys are listed in the Wetland Mitigation Site Monitoring forms for each site (Appendix B). Many bird species were observed at the West site, some birds were observed at the East site, and no birds were observed at the Middle site.

Table 2. 2023 Montana Wetland Assessment Method (MWAM) Functional Value Summary for the Forsyth Northwest Sites. Values shown are the actual functional points scored by each site.

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	FNW- West	FNW- Middle	FNW- East
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)
Montana Natural Heritage Program (MTNHP) Species Habitat	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	Exceptional (1)	Mod (0.4)	Mod (0.4)
General Fish/Aquatic Habitat	Low (0.2)	N/A	N/A
Flood Attenuation	Mod (0.5)	Mod (0.5)	Mod (0.5)
Short- and Long-Term, Surface-Water Storage	High (1)	Low (0.3)	Mod (0.6)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (0.8)	High (1.0)
Sediment/Shoreline Stabilization	Mod (0.7)	NA	N/A
Production Export/Food Chain Support	High (0.8)	Low (0.3)	Mod (0.4)
Groundwater Discharge/Recharge	High (1)	N/A	Mod (0.7)
Uniqueness	Mod (0.4)	Low (0.2)	Low (0.2)
Recreation/Education Potential (bonus points)	High (0.2)	N/A	N/A
Actual Points/Possible Points	7.5/11	3.5/8	4.8/9
% of Possible Score Achieved	68%	44%	53%
Overall Category	II	III	III

<sup>(</sup>a) Assessment area included wetland, open water, and mud flats.

#### **Summary Data: Specific to the FNW-West Site**

**FNW-West Site Vegetation** — Nine vegetation communities, identified based on plant composition and dominance, were mapped on the FNW-West site in 2023. The vegetation communities have changed significantly over the last few years as a result of increased inundation across the site. Much of the vegetation that previously grew in the inundated areas has died off, including woody species such as cottonwood and willow, and the inundated areas have developed emergent vegetation communities comprising of cattail and bullrush species.

In 2023, the plant community composition had changed enough in some areas of the site to necessitate the elimination of a few previously described community types and the addition of a few new community types. In 2023, Upland Type 5 – Symphoricarpos albus/Pascopyrum smithii was changed to Upland Type 23 – Symphoricarpos albus/Elymus repens, and Wetland Type 18 - Hordeum jubatum/Typha spp. was changed to Wetland Type 22 - Eleocharis palustris/bare ground. A new community type, Wetland Type 21 – Schoenoplectus spp./Open water was also added in 2023. Emergent wetland communities are found scattered throughout the inundated areas of the site and around the fringes of the inundated areas. Inundated areas with less than 5% cover of emergent vegetation are

represented by Wetland Type 17 – Open Water/Aquatic Macrophytes. The Mudflat Community was created to classify previously inundated areas that were exposed in 2021 and 2022 and have less than 5% vegetative cover, however none of these areas were observed during the 2023 site visit due to the expansion of vegetation communities with greater than >5% vegetative cover.

The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring forms (Appendix B), and the community boundaries are shown on Figure A-3 (Appendix A). The following vegetation community types were identified at the FNW-West mitigation site in 2023:

- Upland Type 1 Bromus tectorum/Sarcobatus vermiculatus
- Upland Type 6 Pascopyrum smithii/Bromus tectorum
- Upland Type 20 Thlaspi arvense/Lepidium perfoliatum
- Upland Type 23 Symphoricarpos albus/Elymus repens
- Wetland Type 8 Typha latifolia/Eleocharis palustris
- Wetland Type 16 Alopecurus arundinaceus/Hordeum jubatum
- Wetland Type 17 Open Water/Aquatic Macrophytes.
- Wetland Type 21 Schoenoplectus sp./Open Water
- Wetland Type 22 Eleocharis palustris/Bare ground

Vegetation cover was measured along two transects in 2023, on foot for the terrestrial portions and by kayak for the aquatic portions (Tables 3 & 4; Figure A-2, Appendix A). Table 3 summarizes the data for T-1 which is 282 feet long and intersects Upland Type 6, Wetland Type 18, Wetland Type 21, and aquatic community 17 (open water). The amount of open water along T-1 increased from 88 to 89 percent between 2022 and 2023 and mudflat coverage decreased from 4% to 0%. The total amount of vegetation increased by 9% (Table 3).

Table 3. Data Summary for T-1 From 2016 Through 2023 at the FNW-West Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023
Transect Length (feet)	282	282	282	282	282	282	282	282
Vegetation Community Transitions Along Transect	7	5	1	1	2	3	2	3
Vegetation Communities Along Transect	5	5	1	1	2	3	2	4
Hydrophytic Vegetation Communities Along Transect	4	2	0	1	1	1	1	1
Total Vegetative Species	26	18	5	4	9	7	8	13
Total Hydrophytic Species		4	0	1	3	1	1	1
Total Upland Species	21	14	5	4	6	6	7	12
Estimated % Total Vegetative Cover	90	46	5	10	3	3	4	13
Estimated % Unvegetated	10	54	95	65	97	97	96	87
% Transect Length Comprising Hydrophytic Vegetation Communities	37	34	0	30	3	4	3	6
% Transect Length Comprising Upland Vegetation Communities		66	5	5	5	5	5	5
% Transect Length Comprising Unvegetated Open Water		0	95	65	92	89	88	89
% Transect Length Comprising of Mudflat	0	0	0	0	0	2	4	0

T-2 is 261 feet long and intersects Upland Types 5 and 6, and Wetland Types 21 and 17 (open water). Eighty-seven percent of the transect crossed open water habitat in 2023. Total vegetative cover along the transect was 11 percent (Table 4).

Detailed data collected along each transect are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C.

Sixteen noxious weed patches were mapped at FNW-West in 2023, which is an increase of 6 patches since 2023. All noxious weed patches were comprised of four Priority 2B species. Canada thistle (*Cirsium arvense*) was observed in trace, low and moderate cover classes at seven locations. One moderately sized patch and one low cover class patch of leafy spurge (*Euphorbia esula*) were observed. Six salt cedar (*Tamarix chinensis*) individuals that had not been previously observed were found along the northeast boundary of the project area. (Figure A-3; Appendix A). Two other noxious weed patches were added in 2023 and were comprised of Canada thistle and field bindweed (*Convolvulus arvensis*), and two Canada thistle patches increased in size and percent cover. The amount of leafy spurge cover on the southeast portion of the site also increased from trace to moderate cover in one patch, and from trace to low cover in another patch. Across all plant communities, a total of 84 plant species have been identified on the site from 2013 through 2023 (Table B-1; Appendix B).

Table 4. Data Summary for T-2 From 2016 Through 2023 at the FNW-West Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023
Transect Length (feet)	261	261	261	261	261	261	261	261
Vegetation Community Transitions Along Transect	2	3	2	2	3	3	3	2
Vegetation Communities Along Transect	3	4	3	3	3	2	2	3
Hydrophytic Vegetation Communities Along Transect	1	2	1	1	1	1	0	0
Total Vegetative Species	28	19	13	15	19	20	21	19
Total Hydrophytic Species	8	9	4	5	6	7	6	5
Total Upland Species	20	10	9	10	13	13	15	14
Estimated % Total Vegetative Cover	82	92	20	20	3	3	5	11
Estimated % Unvegetated	13	8	80	80	97	97	95	89
% Transect Length Comprising Hydrophytic Vegetation Communities	87	87	90	90	2	3	0	0
% Transect Length Comprising Upland Vegetation Communities		13	10	10	7	7	10	13
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	91	87	85	87
% Transect Length Comprising of Mudflat	0	0	0	0	0	5	5	0

**FNW-West Site Hydrology** — The main source of hydrology at the FNW-West site is surface runoff from precipitation events in the East Spring Coulee, which flows directly into the site. Additional hydrology is provided by a seasonally high groundwater table and flood flows from nearby Big Porcupine Creek. The mitigation site likely received heavy runoff from Big Porcupine Creek and East Spring Coulee in the spring of 2023, which was unusually wet. In addition, MDT aerial photographs taken several weeks after the site visit show the FNW-West site inundated by floodwater.

Indicators of wetland hydrology observed at the FNW-West site included surface water, high water table, surface soil cracks, algal mats, inundation on aerial imagery, and oxidized rhizospheres on living roots.

**FNW-West Site Soils** — Soil test pits were excavated at six locations (DP01-03w and DP01-03u; Appendix A). All test pits were located in areas originally mapped as the Marvan silty clay soil series (NRCS 2022). Nearly all soil horizons had matrix colors on the 2.5Y soil color chart, and textures ranged from silty clay to sandy loam. Wetland soils contained 5-30% redoximorphic features in the form of concentrations and depletions. The two hydric soil indicators observed were redox dark surface and depleted matrix.

## **Summary Data: Specific to FNW-Middle Site**

**FNW-Middle Site Vegetation** – Vegetation communities were identified based on plant composition and dominance. The following vegetation community types were identified at FNW-Middle in 2022:

- Upland Type 6 Pascopyrum smithii/Convulvulus arvensis
- Wetland Type 5 Hordeum jubatum/Eleocharis palustris

The community type name for the upland areas was updated from Upland Type 3 (*Pascopyrum smithii/Elymus canadensis*) in 2023 to Upland Type 6 (*Pascopyrum smithii/Convulvulus arvensis*) as this name is more reflective of the current composition. The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and the community boundaries are shown on Figure A-6 (Appendix A). Eighteen occurrences of Priority 2B noxious weeds, Canada thistle and field bindweed were observed at the site in 2023. Cover classes of the weed infestations ranged from trace to moderate (Figure A-6, Appendix A) with four previously observed patches increasing in cover. Field bindweed cover increased notably between 2022 and 2023, and infestations now range from low to high. One Canada thistle patch mapped in the central portion of the site was not observed in 2023, and another Canada thistle patch decreased from moderate to low cover. A total of 61 plant species were identified on the site from 2013 through 2023 (for a comprehensive plant list, see Table B-2; Appendix B).

Vegetation cover was measured along one transect (T-1) at FNW-Middle in 2023 (Figure A-5, Appendix A). T-1 is 50 feet long and intersects Upland Type 3 and Wetland Type 5. Twenty-eight percent of the transect crossed wetland habitat in 2023, the number of hydrophytic species observed decreased by one, and the amount of hydrophytic species cover remained the same as in 2022. Twenty-one species were observed along T-1 in 2022, and the total amount of vegetative cover remained the same as in 2023 (Table 5). Detailed data collected along T-1 are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C.

Table 5. Data Summary for T-1 From 2016 Through 2023 at the FNW-Middle Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023
Transect Length (feet)	50	50	50	50	50	50	50	50
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1	1
Total Vegetative Species	11	17	17	16	24	22	23	21
Total Hydrophytic Species	3	4	5	4	11	6	7	6
Total Upland Species	8	13	12	12	13	16	16	15
Estimated % Total Vegetative Cover	85	83	85	85	85	85	87	87
Estimated % Unvegetated	15	17	15	15	15	15	13	13
% Transect Length Comprising Hydrophytic Vegetation Communities	30	38	38	38	24	24	28	28
% Transect Length Comprising Upland Vegetation Communities		62	62	62	76	76	72	72
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0	0	0

**FNW-Middle Site Hydrology** – This site is situated near an abandoned meander bend that is associated with Big Porcupine Creek. The site may experience occasional flooding during high flows in Big Porcupine Creek but is not intended to exhibit perennial hydrology because of its proximity to Montana Highway 12. The excavated depression was likely saturated earlier in the year, but was not inundated or saturated on June 9<sup>th</sup>, 2023 when the field survey was completed. Hydrologic indicators that were

observed at this site included water-stained leaves, oxidized rhizospheres on living roots, inundation observed on aerial imagery, and surface soil cracks.

**FNW-Middle Site Soils** — Soil test pits were examined at four locations (DP01-2w and DP01-2u; Figure A-5, Appendix A), and all locations were within what was originally mapped as the Harlem silty clay soil series by the NRCS (2022). DP01w and DP02w are located within Wetland Type 5, Hordeum jubatum/Eleocharis palustris while DP01u and DP02u are in Upland Type 3 — Pascopyrum smithii/Elymus canadensis. Soil colors for all sample points were found on the 2.5Y color chart, and textures were either clay or silty clay. In the wetland sample pits, 1-25% redoximorphic concentrations were observed, and both profiles met requirements for the depleted matrix hydric soil indicator. No hydric soil indicators were observed within either upland sample pit.

#### **Summary Data: Specific to FNW-East Site**

**FNW-East Site Vegetation** – Vegetation communities were identified based on plant composition and dominance. The following vegetation community types were identified in 2022:

- Upland Type 3 Pascopyrum smithii/Elymus spp.
- Wetland Type 5 Hordeum jubatum/Aloepecurus spp.

The community type name for the wetland areas was updated from Wetland Type 4 (*Hordeum jubatum/Eleocharis palustris*) in 2023 to Wetland Type 5 (*Hordeum jubatum/Aloepecurus spp.*) as this name is more reflective of the current composition. The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and community boundaries are shown on Figure A-3 (Appendix A).

A total of 59 plant species were identified on the site from 2013 through 2023 (for a comprehensive plant list, see Table B-3; Appendix B). Infestations of three Priority 2B noxious weeds, field bindweed, Canada thistle, and saltcedar were mapped in seven locations (Figure A-9, Appendix A). Saltcedar appeared to have been eradicated in 2022, but one individual was observed in the southeast corner of the site in 2023. One new Canada thistle patch was mapped in the southwest portion of the site, and one field bindweed patch increased from low to moderate cover. No woody plants were installed at the FNW-East site. However, mature cottonwoods and willows adjacent to the site appear to be acting as a source population for the cottonwood and willow seedlings that have begun to colonize the site.

Vegetation cover was measured along two transects (T-1 and T-2) at FNW-East in 2023 (Figure A-8, Appendix A). T-1 is 125 feet long and intersects Upland Type 3, and Wetland Type 5. Fifty-two percent of the transect crossed wetland habitat, and total vegetative cover was 97% which is an increase of 1% since 2022. The number of vegetative species decreased by 1 and-the number of hydrophytic species observed along the transect remained the same between 2022 and 2023 (Table 6). Detailed data collected along each transect are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C.

T-2 is 181 feet long and intersects Upland Type 3 and Wetland Type 5. In 2023, sixty-one percent of the transect crossed wetland habitat, a one percent increase from 2022. The number of hydrophytic species observed along the transect increased by 1 since 2022, and the total number of upland species observed decreased by one. Total vegetative cover has remained constant at 98 percent since 2017 (Table 7).

**FNW-East Site Hydrology** — The FNW-East site is very similar to the FNW-Middle site. The main sources of hydrology at the FNW-East site are shallow groundwater, direct precipitation, surface runoff from adjacent uplands, and overland flooding from nearby Big Porcupine Creek. In fact, MDT aerial photography taken several weeks after the site visit show this site inundated by floodwater from Big Porcupine Creek. Old meander scars of Big Porcupine Creek with relict and contemporary wetland characteristics are located directly adjacent to the site. Hydrologic indicators that were observed at this site included sulfidic odor, soil saturation, inundation visible on aerial imagery, and high-water table.

Table 6. Data Summary for T-1 From 2016 Through 2022 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023
Transect Length (feet)	125	125	125	125	125	125	125	125
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1	1
Total Vegetative Species	22	17	17	16	16	14	15	14
Total Hydrophytic Species	9	7	7	7	4	2	2	2
Total Upland Species	11	10	10	9	12	12	13	12
Estimated % Total Vegetative Cover	90	95	95	95	95	95	96	97
Estimated % Unvegetated	10	5	5	5	5	5	4	3
% Transect Length Comprising Hydrophytic Vegetation Communities	50	50	52	52	52	52	52	52
% Transect Length Comprising Upland Vegetation Communities		50	48	48	48	48	48	48
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0	0	0

Table 7. Data Summary for T-2 From 2016 Through 2022 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023
Transect Length (feet)	181	181	181	181	181	181	181	181
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1	1
Total Vegetative Species	26	11	14	15	10	12	15	15
Total Hydrophytic Species	6	4	6	6	2	3	4	5
Total Upland Species	20	7	8	9	8	9	11	10
Estimated % Total Vegetative Cover	94	98	98	98	98	98	98	98
Estimated % Unvegetated	6	2	2	2	2	2	2	2
% Transect Length Comprising Hydrophytic Vegetation Communities	44	55	55	55	55	60	60	61
% Transect Length Comprising Upland Vegetation Communities		45	45	45	45	40	40	39
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0	0	0

FNW-East Site Soils — Soil test pits were examined in six locations (DP01-03w and DP01-03u; Appendix A), and all locations were within what was originally mapped as the Harlem silty clay soil series (NRCS 2022). All dominant matrix colors were found on the 2.5Y soil color chart. Wetland soils contained 1-5% redoximorphic concentrations and had textures ranging from silty clay loam to clay. One hydric soil indicator, depleted matrix, was observed across all wetland sample pits. No hydric soil indicators were observed in the upland sample pits, although soils were moist from recent rains.

#### **Mitigation Credit Summary: All Sites**

The three FNW sites produced 6.79 credit acres combined in 2023. However, the number of credit acres earned does not include any credits for either the open water or the mud flats that are present at the FNW West site. Once credit ratios are determined for these two habitat types, the site will likely receive additional credit acres. Options to include open water and mudflats in the mitigation crediting scheme require approval from USACE and are currently pending. Given that crediting ratios are unknown for these two habitat types, the FNW mitigation sites will need to earn an additional 8.33 credits to satisfy the 12.95 debits acres impacted by the Volborg – North and South and Forsyth Northwest construction projects (Table 8).

Table 8.	2023 Credit	/Debit Summary	v for the Forsy	th – Northwest Project
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Project Site	Actual Acres	Mitigation Credit Type	Debit Ratio	Credit Acres
	2.96	Establishment (Creation) (all wetland minus preservation)	1:1	2.96
West Site	1.29	Preservation	4:1	0.32
(Site 1)	3.01	Upland Buffer	5:1	0.60
	6.42	Open Water <sup>a</sup>	TBD	TBD
	0.0	Mud Flat <sup>a</sup>	TBD	TBD
Middle Site	0.58	Establishment (Creation)	1:1	0.58
(Site 2)	1.22	Upland Buffer	5:1	0.24
East Site	0.84	Establishment (Creation)	1:1	0.84
(Site 3)	1.90	Upland Buffer	5:1	0.38
Total	18.22	То	tal Credits	5.92

<sup>(</sup>a) Open water and mud flat credit ratio and associated credit acreage are to be determined (TBD)

#### **Functional Unit Credit Summary: All Sites**

The 2023 functional unit credits summary is summarized in Table 9. A total of 30.66 functional unit credits were generated at the Forsyth NW site after applying the appropriate mitigation ratios to the 2023 wetland acreage and multiplying that value by the points generated from the 2023 MWAM Assessment.

Table 9. Functional Unit Credits Summary for Forsyth NW

Project Site	Mitigation Credit Type	2023 Delineated acres	Ratio	2023 Mitigation Credit Acres	MWAM Actual Points	Functional Unit Credits
West Site	Establishment (Creation) (all wetland minus preservation)	2.96	1:1	2.96	7.50	22.20
(Site 1)	Preservation	1.29	4:1	0.32	7.50	2.40
	Open Water	6.42	TBD	TBD	TBD	TBD
	Mud Flat	0.0	TBD	TBD	TBD	TBD
Middle Site (Site 2)	Establishment (Creation)	0.58	1:1	0.58	3.5	2.03
East Site (Site 3)	Establishment (Creation)	0.84	1:1	0.84	4.8	4.03
	Total	12.09	-	4.12	-	30.66

#### **Conclusions**

Formal performance standards were not developed as part of the mitigation plan for the FNW sites. All three sites have developed wetland habitat as intended and positive indicators of wetland vegetation, hydric soils, and wetland hydrology have been consistently observed across all monitoring years. All sites are stable and have appropriate amounts of vegetative cover. Noxious weed cover increased slightly between the 2022 and 2023 monitoring events, but all three sites still have less than 10 percent total noxious weed cover.

The FNW-East and West sites were wetter in 2023 than in the previous four years while the Middle site remained relatively dry. Wetland acreage remained the same at the FNW-Middle site between 2022 and 2023 and increased by 0.1 acres and by 2.36 acres at the FNW-East and West sites respectively during the same timeframe. These changes are likely the result of large amounts of precipitation experienced in the spring of 2023, and the corresponding continued drought cessation. Should similar conditions persist over the next year, the wetland acreage is likely to increase again in 2024. The FNW-West site contained less open water in 2023 than in 2022 and 2021 due to increased vegetation growth (especially from *Schoenoplectus maritimus*) which changed the classification of some areas from open water to PEM wetland. All of the habitat mapped as mudflat in 2021 and 2022 was mapped as PEM wetland in 2023 largely owing to recent rain events which increased inundation at the site (at least temporarily). Maps, Plans, Photos

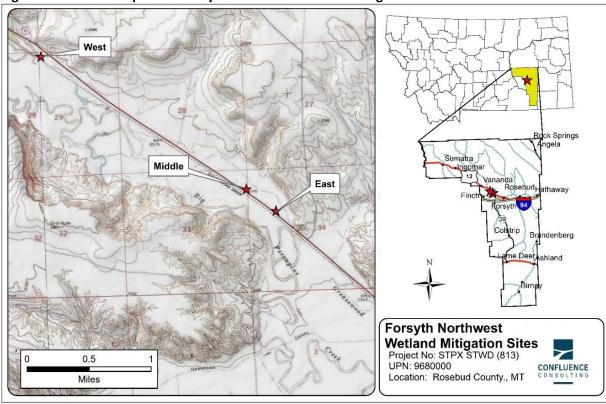


Figure 1. Location map of the Forsyth Northwest wetland mitigation sites.

Project Area Maps/Figures: See Appendix A.

**Data Forms:** See Appendix B (Site Monitoring form, Table B-1: plant list, USACE data forms, and MWAM forms).

Photos: See Appendix C.

**Plans:** See Appendix D of 2013 Forsyth Northwest Monitoring Report located on the MDT website at this link:

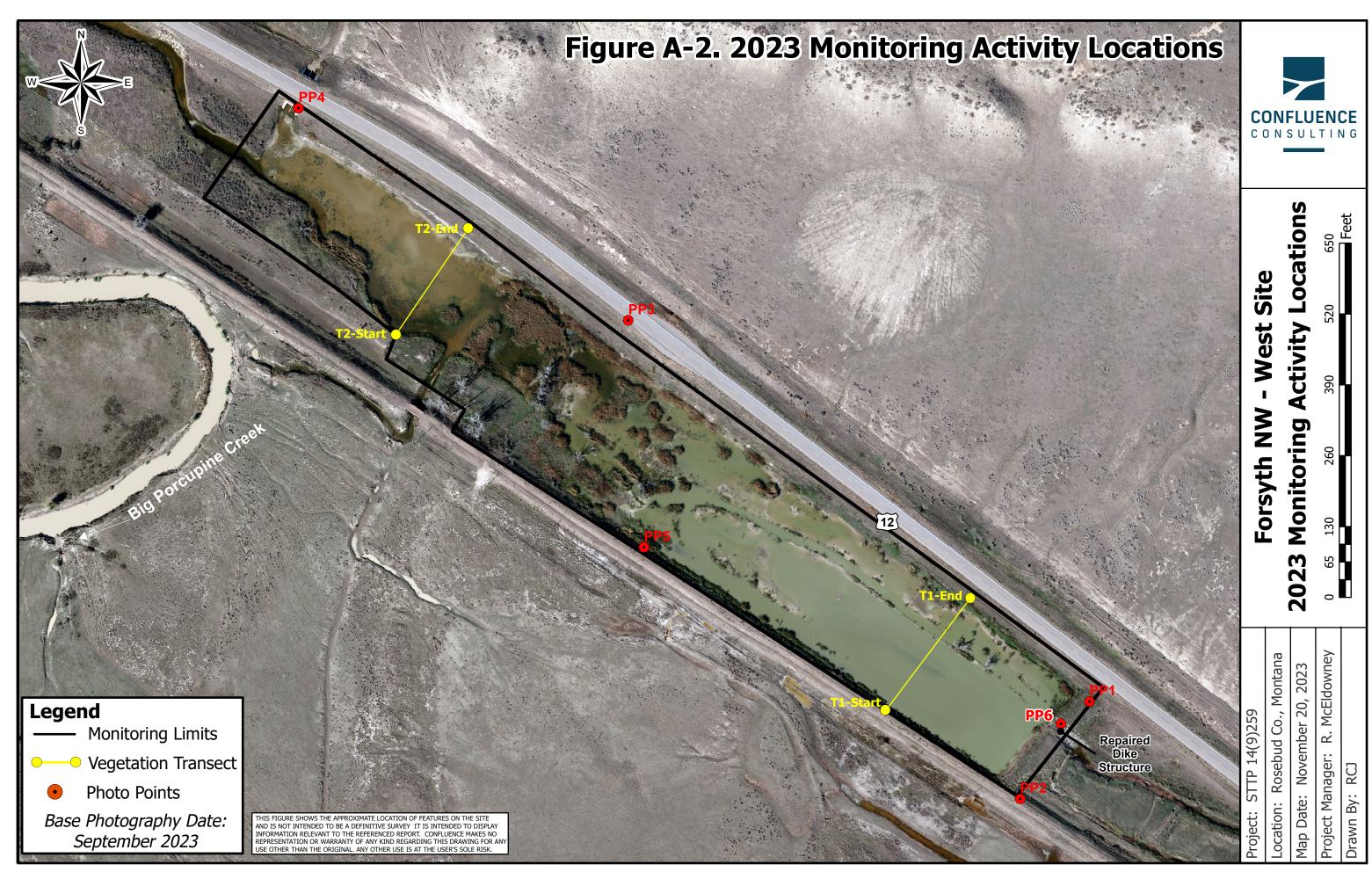
https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

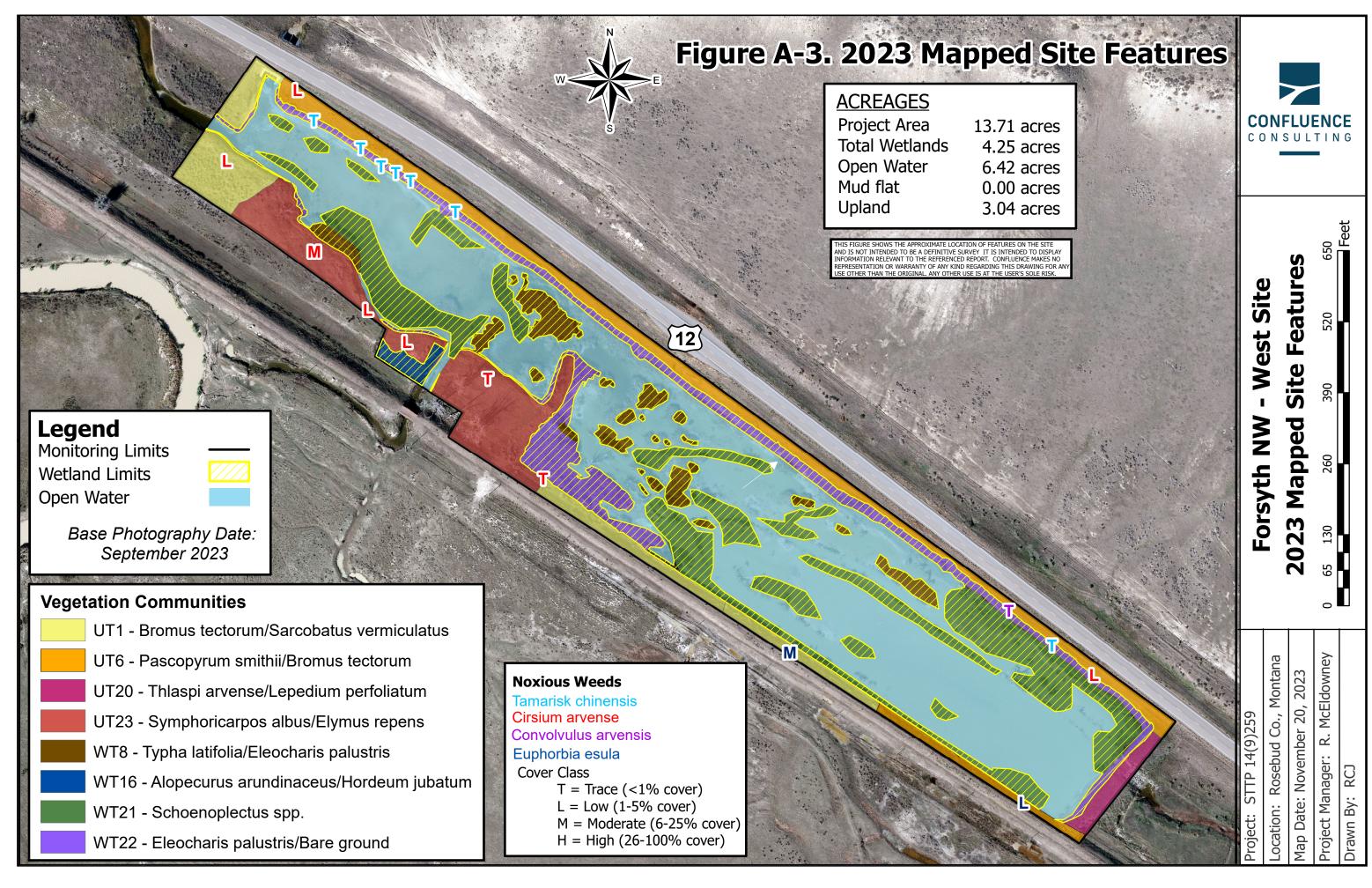
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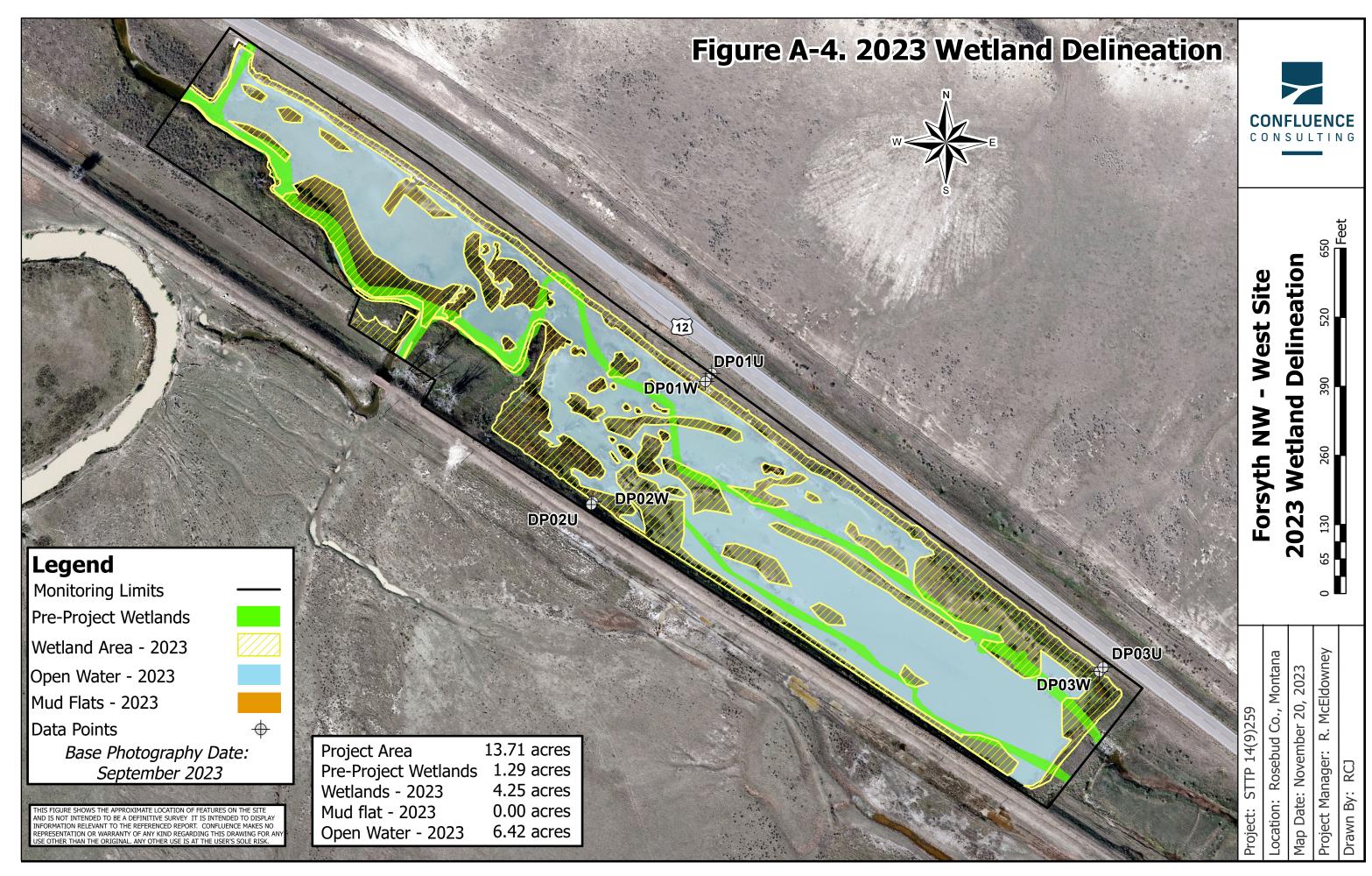
- Berglund, J. and R. McEldowney. 2008. MDT Montana Wetland Assessment Method, PBS&J Project B43072.00, prepared by Post, Buckley, Schuh, & Jernigan, Helena, MT, for the Montana Department of Transportation, Helena, MT.
- **Environmental Laboratory.** 1987. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Corps of Engineers. Washington, DC.
- **Federal Geographic Data Committee (FGDC).** 2013. *Classification of wetlands and deepwater habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- **Green, N.** May 6, 2020. Personal communication.
- Montana Natural Heritage Program (MTNHP). 2023. Montana Species of Concern Report. Montana Natural Heritage Program. Accessed on 1 September 2021 at <a href="http://mtnhp.org/SpeciesOfConcern/?AorP=p">http://mtnhp.org/SpeciesOfConcern/?AorP=p</a>
- Natural Resources Conservation Service (NRCS). 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils. 55 p.
- Natural Resources Conservation Service (NRCS). 2022. Soil Survey (SSURGO) Database for Meagher County, Montana. Accessed on 22 November 2022 at http://websoilsurvey.nrcs.usda.gov/
- **U.S. Army Corps of Engineers, 2005.** "Montana Mitigation Information," *army.mil*, retrieved October 10, 2016, from <a href="http://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/Mitigation">http://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/Mitigation</a>
- U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), prepared by U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, MS.
- U.S. Army Corps of Engineers (USACE). 2020. National Wetland Plant List (Version 3.4), prepared by U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.
- **U.S. Fish and Wildlife Service (USFWS).** 2023. *IPaC Resource List*. Environmental Conservation Online System (ECOS). Accessed on 22 October 2022 at <a href="https://ecos.fws.gov/ipac/">https://ecos.fws.gov/ipac/</a>

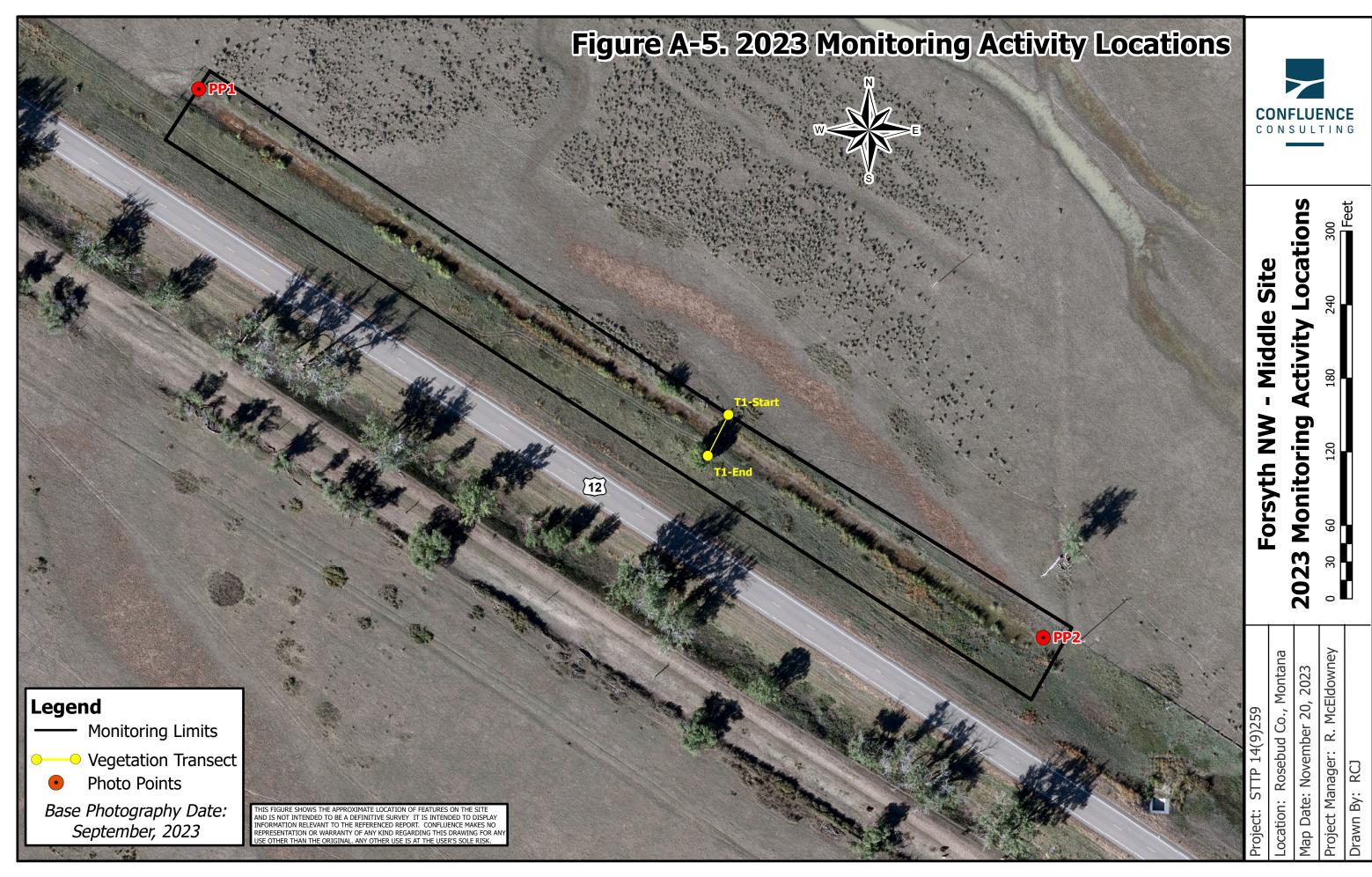
# APPENDIX A PROJECT AREA MAPS

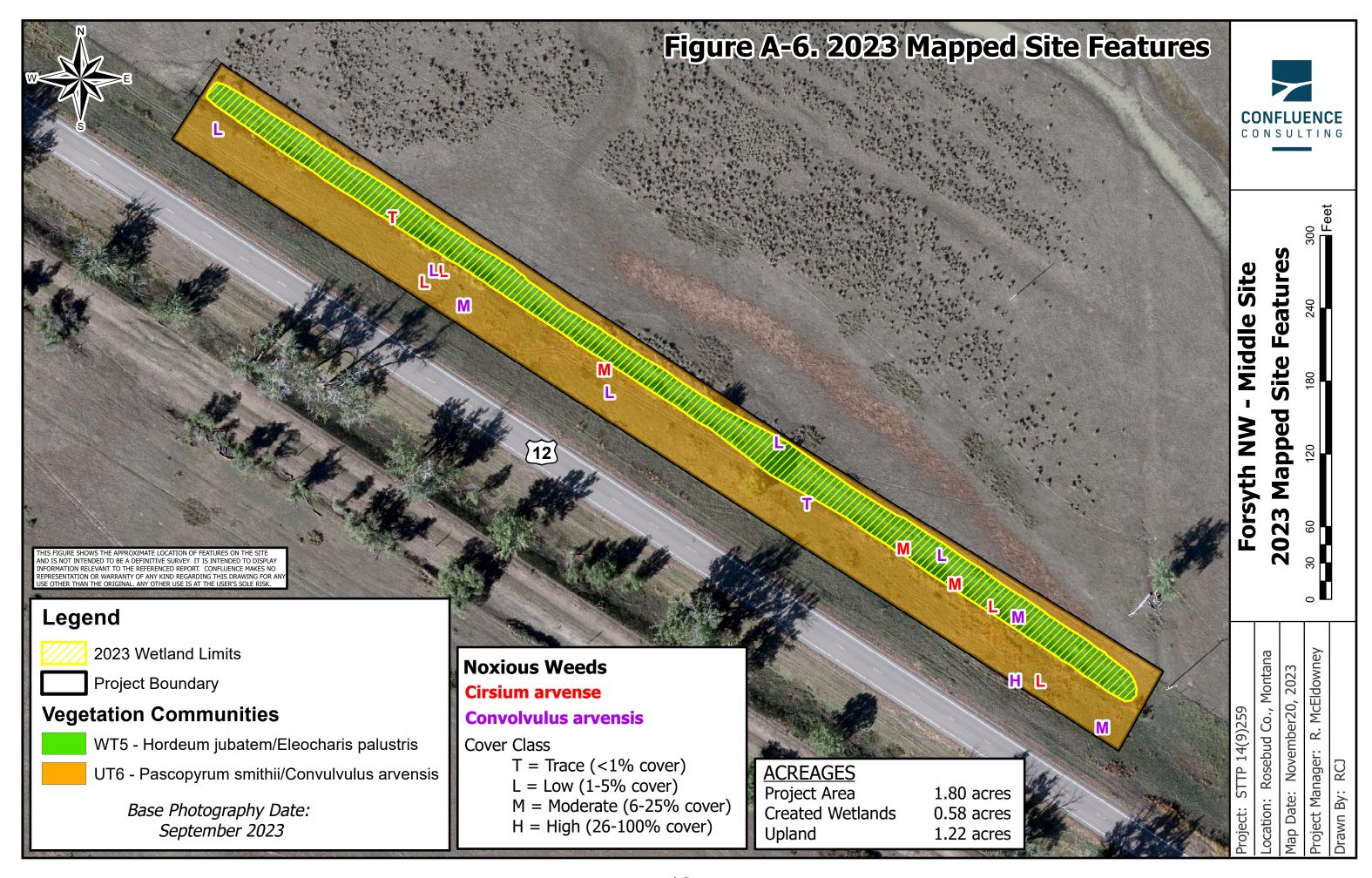
MDT Wetland Mitigation Monitoring Forsyth Northwest – West, Middle, and East Sites Rosebud County, Montana

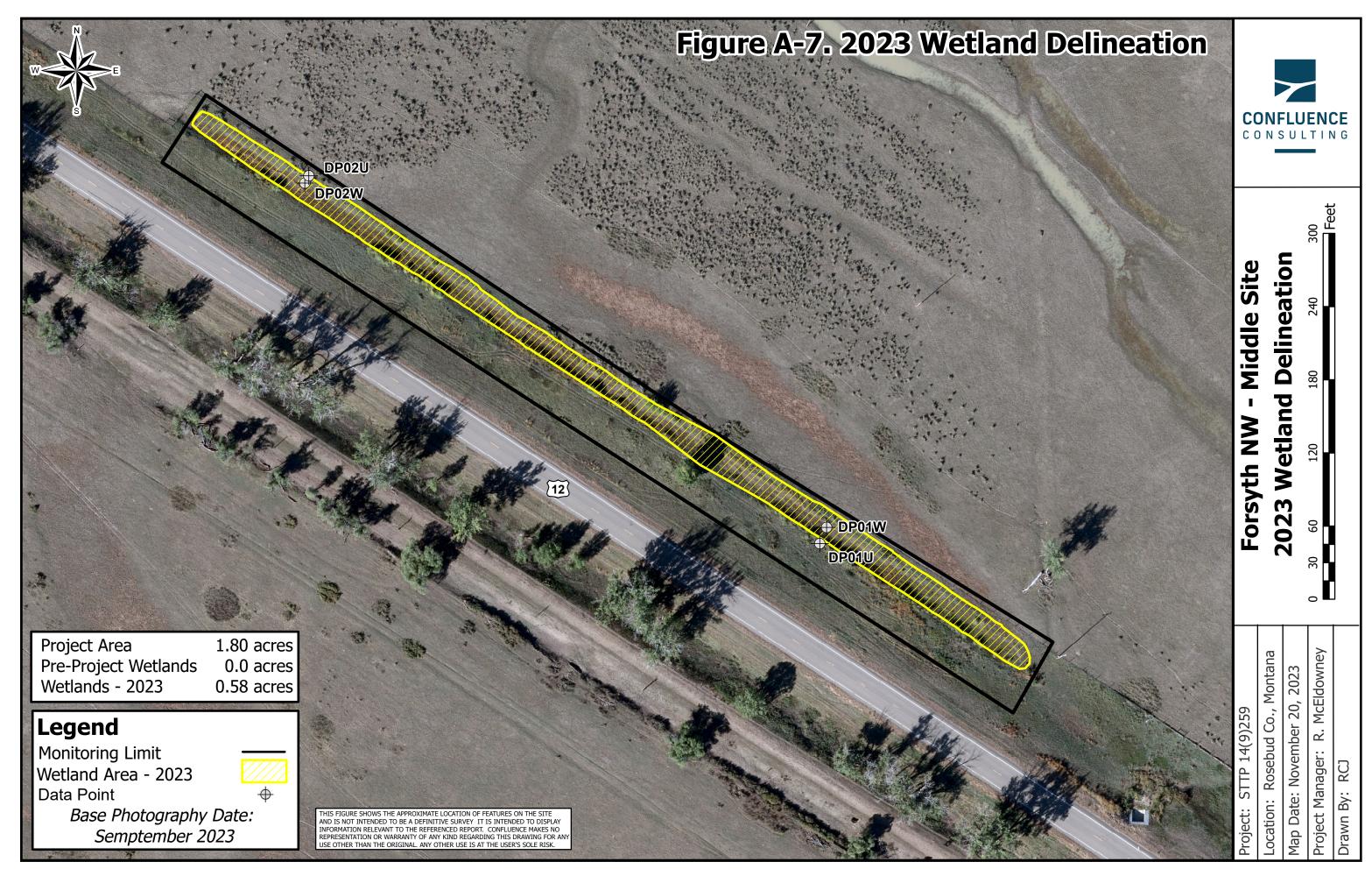


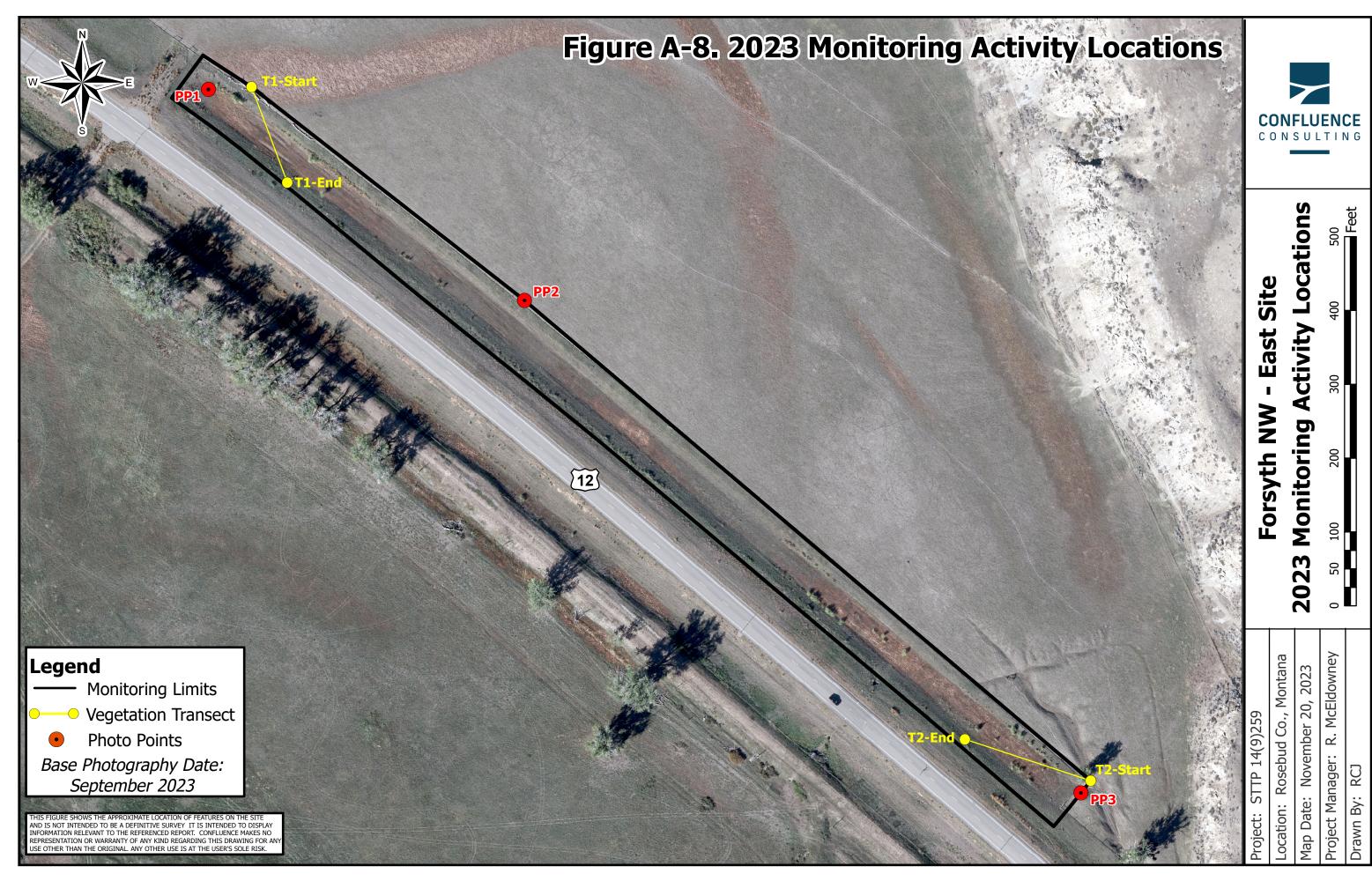


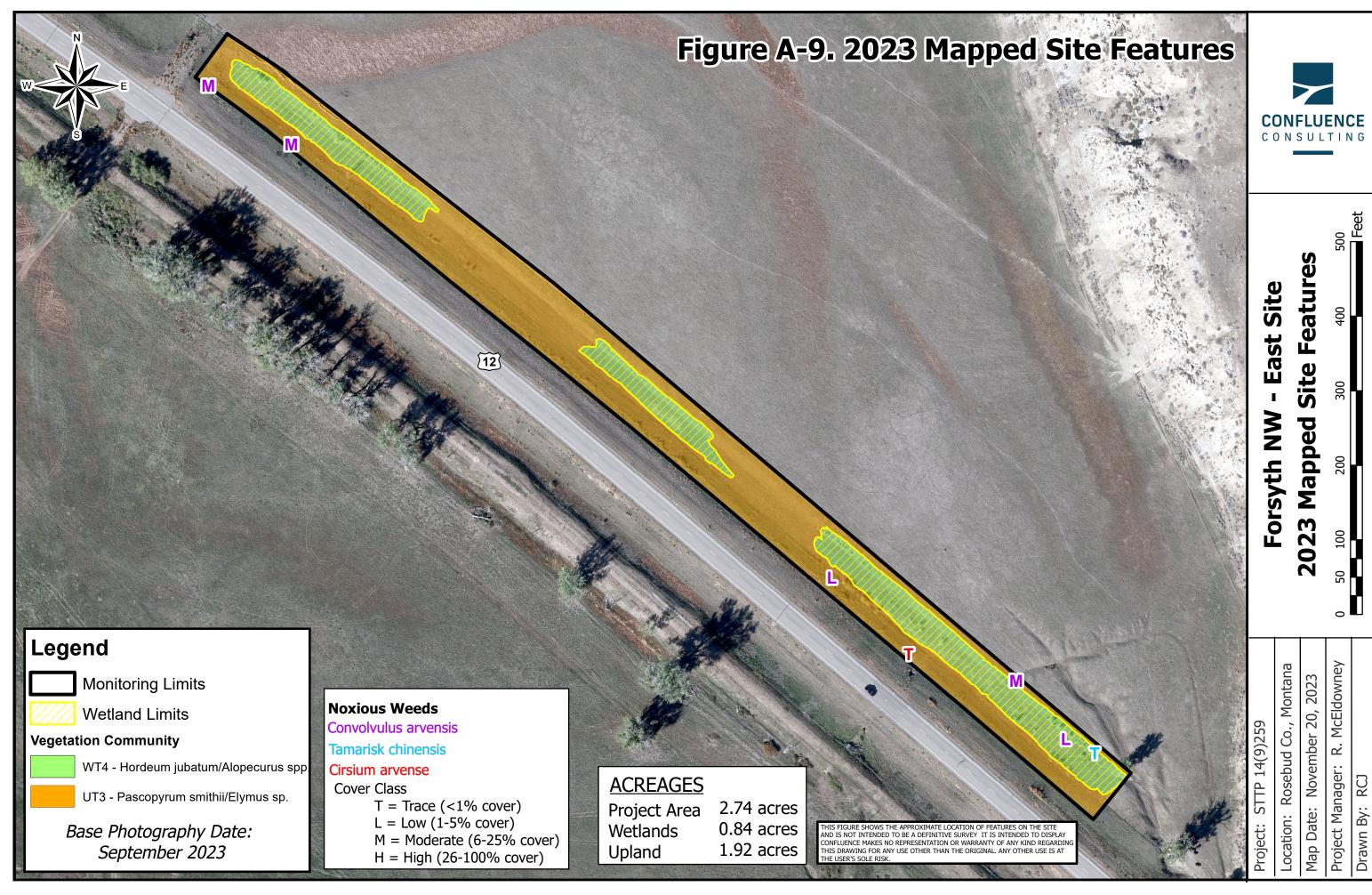


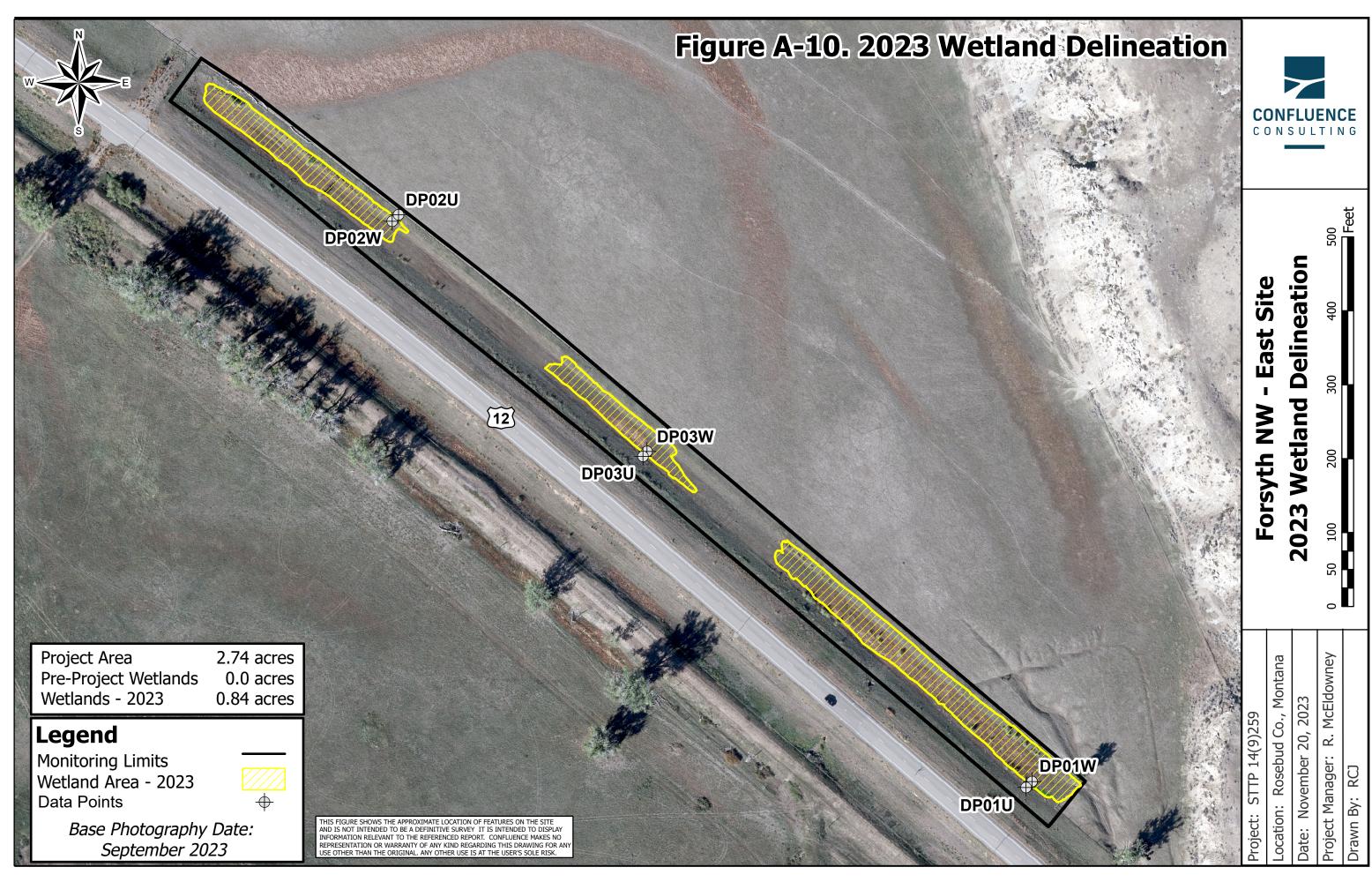












# APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring Forsyth Northwest – West, Middle, and East Sites Rosebud County, Montana

# MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: <u>Forsyth NW - East</u> Assessment Date/Time	6/9/20
Person(s) conducting the assessment: R. Jones	
Weather: Partly sunny, 70 degrees F Location: ~8 miles NW of Forsyth	
MDT District: Glendive Milepost: ~262.3 on US 12	
Legal Description: T <u>7N</u> R <u>39E</u> Section(s) <u>34</u>	
Initial Evaluation Date: 8/15/2013 Monitoring Year:11_#Visits in Year: 1	
Size of Evaluation Area: 2.74 (acres)	
Land use surrounding wetland:	
Agriculture and US Highway 12.	
HYDROLOGY	
Surface Water Source: Precipitation, runoff, flooding from Big Porcupine Creek	
Inundation: Average Depth:0.75 (ft) Range of Depths:0.5-1.0 (ft)	
Percent of assessment area under inundation:80 %	
Depth at emergent vegetation-open water boundary:0 (ft)	
If assessment area is not inundated then are the soils saturated within 12 inches of surface: No	)
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc <u>:</u>	_
Surface water, saturated to surface, geomorphic position, oxidized rhizospheres on living roots.	
Groundwater Monitoring Wells	
_	
Record depth of water surface below ground surface, in feet.	
Additional Activities Checklist:	
Map emergent vegetation-open water boundary on aerial photograph.	
Observe extent of surface water during each site visit and look for evidence of past surface water	
elevations (drift lines, erosion, vegetation staining, etc.)	
Use GPS to survey groundwater monitoring well locations, if present.	
łydrology Notes:	
Site was very wet on the day of investigation. The site visit was initially planned for 06/08/2023 be due to high water levels the wetlands could not be delineated and thus the site visit was conduct on 06/09/2023.	

### **VEGETATION COMMUNITIES**

# Site Forsyth NW - East

(Cover Class Codes  $\mathbf{0} = < 1\%$ ,  $\mathbf{1} = 1-5\%$ ,  $\mathbf{2} = 6-10\%$ ,  $\mathbf{3} = 11-20\%$ ,  $\mathbf{4} = 21-50\%$ ,  $\mathbf{5} = >50\%$ )

Community # 3	Community Type:	Pascopyrum smithii / Elymus spp.	Acres	<u>1.92</u>
Species	Cover class	Species	Cover class	
Agropyron cristatum	1	Alopecurus arundinaceus	1	
Ambrosia psilostachya	0	Bare Ground	3	
Bassia scoparia	0	Bromus arvensis	1	
Bromus japonicus	3	Bromus tectorum	0	
Chenopodium album	1	Convolvulus arvensis	1	
Elymus canadensis	1	Elymus repens	1	
Elymus trachycaulus	1	Helianthus annuus	0	
Hordeum jubatum	1	Lactuca serriola	2	
Lepidium perfoliatum	2	Linum lewisii	0	
Medicago sativa	0	Melilotus officinalis	0	
Opuntia sp	0	Pascopyrum smithii	4	
Poa compressa	1	Poa pratensis	2	
Populus angustifolia	0	Populus tremuloides	0	
Ratibida columnifera	0	Rumex crispus	0	
Schedonorus pratensis	1	Sisymbrium altissimum	0	
Thlaspi arvense	1	Tragopogon dubius	1	
Comments:				

## Comments:

Total cover has increased since 2022.

Community # 5 Co	mmunity Type:	Hordeum jubatum / Alopecurus spp	. Acres	<u>0.84</u>
Species	Cover class	Species	Cover class	
Alopecurus arundinaceus	3	Alopecurus pratensis	2	
Bare Ground	0	Convolvulus arvensis	0	
Eleocharis palustris	1	Elymus repens	0	
Hordeum jubatum	2	Lactuca serriola	1	
Lepidium perfoliatum	0	Open Water	3	
Pascopyrum smithii	1	Poa compressa	1	
Poa pratensis	1	Populus deltoides	1	
Puccinellia nuttalliana	0	Rumex crispus	0	
Salix fragilis	1	Schedonorus pratensis	1	
Schoenoplectus maritimus	0	Thlaspi arvense	2	
Tragopogon dubius	0			
Cammanta				

#### **Comments:**

Reduced cover from Hordeum jubatum across site, and increased cover from Eleocharis palustris and Alopecurus arundinaceus in wetlands.

# **VEGETATION TRANSECTS**

Interval Data:				
Ending Station	32	Community Type:	Pascopyrum smithii / Elymus	sp.
Species		Cover class	Species	Cover class
Bare Ground		3	Bromus japonicus	0
Helianthus annuus		1	Lactuca serriola	1
Lepidium perfoliatum		1	Medicago sativa	0
Pascopyrum smithii		5	Sisymbrium altissimum	0
Thlaspi arvense		2	Tragopogon dubius	0
Ending Station	97	Community Type:	alopecurus sp. / Open Water	
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		5	Alopecurus pratensis	2
Open Water		5		
Ending Station	125	Community Type:	Pascopyrum smithii / Elymus	sp.
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Bare Ground	1
Bromus japonicus		5	Chenopodium album	0
Convolvulus arvensis		2	Elymus trachycaulus	0
Lactuca serriola		0	Lepidium perfoliatum	0
Pascopyrum smithii		0	Poa compressa	2
Thlaspi arvense		0		

Transect Number:	2	Compa	ss Direction from Star	t: <u>280</u>
Interval Data:				
Ending Station	21	Community Type:	Pascopyrum smithii / Elymus	spp
Species		Cover class	Species	Cover class
Bare Ground		3	Convolvulus arvensis	0
Hordeum jubatum		0	Lactuca serriola	0
Pascopyrum smithii		5	Poa compressa	1
Populus angustifolia		0	Tragopogon dubius	0
Ending Station	131	Community Type:	Hordeum jubatum / Eleochari	s palustris
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Convolvulus arvensis	1
Eleocharis palustris		0	Hordeum jubatum	1
Lactuca serriola		3	Open Water	3
Pascopyrum smithii		5	Poa compressa	3
Puccinellia nuttalliana		1	Salix fragilis	1
Tragopogon dubius		0		
Ending Station	181	Community Type:	Pascopyrum smithii / Elymus	spp.
Species		Cover class	Species	Cover class
Bare Ground		4	Bromus japonicus	1
Chenopodium album		1	Lactuca serriola	0
Pascopyrum smithii		4	Poa compressa	2

#### Transect Notes:

Rumex crispus

Increased vegetative cover from Eleocharis palustris and Alopecurus arundinaceus since 2022. Open water was due to inundation from recent heavy precipitation.

# **PLANTED WOODY VEGETATION SURVIVAL**

Thlaspi arvense

Forsyth NW - East

# Comments

No planted woody vegetation.

Wildlife Comments:

No wildlife noted during the 2023 field survey.

Birds

# **WILDLIFE**

Were man-made ne	•			
How many?				
Are the nesting stru		ed?	No	
Do the nesting struc	_		No No	
•	·			
Nesting Struct	ture Comments	S:		
Species	#Observed	Behavior	Habitat	
Eastern Kingbird	1	L, FO, BP	UP	
Mallard	2			
Meadowlark	2	FO		
Western Kingbird	2	L, FO, BP	UP	
Bird Comments				
BEHAVIOR CODES				
<b>3P</b> = One of a <u>breeding p</u> <u>HABITAT</u> CODES	air <b>BD</b> = Breeding d	isplay <b>F</b> = Foragin	g <b>FO</b> = Flyover <b>L</b> = Loafing <b>N</b> = Nesting	
AB = Aquatic bed SS = \$	Scrub/Shrub <b>FO</b> = F	orested <b>UP</b> = Unla	and buffer I = Island	
•		·	IF = Mud Flat OW = Open Water	
mmals and Herpt	iles			

## Forsyth NW - East

#### **PHOTOGRAPHS**

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

# **Photograph Checklist:**

V	One photograph for each of the four cardinal directions surrounding the	e wetiand.
	At least one photograph showing upland use surrounding the wetland.	If more than one upland
exists	then take additional photographs.	

At least one photograph showing the buffer surrounding the wetland.

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

Photo #	Latitude	Longitude	Bearing	Description	
DP01u	46.320907	-106.838693			
DP01w	46.32093	-106.83866			
DP02u	46.32043	-106.83774			
DP02w	46.320438	-106.837783			
DP03u	46.318974	-106.835472			
DP03w	46.318997	-106.835454			
DP04u	46.319845	-106.836901			
DP04w	46.319879	-106.836857			
PP-1	46.321003	-106.838814	125	Photo Point 1	
PP-2	46.320068	-106.837128	210	Photo Point 2	
PP-3	46.318233	-106.834335	305	Photo Point 3	
T-1 end	46.320297	-106.838493	325	Transect 1 end	
T-1 start	46.321045	-106.838486	145	Transect 1 start	
T-2 end	46.318417	-106.834923	100	Transect 2 end	
T-2 start	46.318336	-106.834175	280	Transect 2 start	

#### Comments:

# ADDITIONAL ITEMS CHECKLIST

	Hydrology
☐ ✓ Iines,	Map emergent vegetation/open water boundary on aerial photos.  Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift vegetation staining, erosion, etc).
	Photos
	One photo from the wetland toward each of the four cardinal directions One photo showing upland use surrounding the wetland. One photo showing the buffer around the wetland One photo from each end of each vegetation transect, toward the transect
	Vegetation
✓ Ma	p vegetation community boundaries
✓ Cor	nplete Vegetation Transects
	Soils
✓ Ass	sess soils
	Wetland Delineations
<b>☑</b> Supple	Delineate wetlands according to applicable USACE protocol (1987 form or ement)
	Delineate wetland – upland boundary onto aerial photograph.
Wetlar	nd Delineation Comments
In 2	2023, 0.84-acres or wetland were delineated, an increase of 0.10-acres from 2022.
	Functional Assessments
<b>✓</b> forms.	Complete and attach full MDT Montana Wetland Assessment Method field
Functi	onal Assessment Comments:
Cat	egory 3 wetland.

# Maintenance

Were man-made nesting structure installed at this site?

If yes, do they need to be repaired?
If yes, describe the problems below and indicate if any actions were taken to remedy the problems
Were man-made structures built or installed to impound water or control water flow
into or out of the wetland? No
If yes, are the structures in need of repair?
If yes, describe the problems below.
N/A

# MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - Middle	Assessment Date/Time	6/8/2023
Person(s) conducting the assessment: R.	Jones	
Weather: Partly sunny, 75 degrees F	Location: ~9 miles NW of Forsyth	
MDT District: Glendive	Milepost: ~262 on US 12	
Legal Description: T <u>7N</u> R <u>39E</u> Sectio	n(s) 33	
Initial Evaluation Date: 8/15/2013 Mo	onitoring Year: <u>11</u> #Visits in Year: <u>1</u>	
Size of Evaluation Area: 1.8 (acres)		
Land use surrounding wetland:		
Rangeland adjacent to Highway 12.		
	HYDROLOGY	
Surface Water Source: Precipitation, runoff,	and overflow from ditch	
Inundation: Average Depth:	0 (ft) Range of Depths: 0 (ft)	
Percent of assessment area under inundation:	0 %	
Depth at emergent vegetation-open water bou	ndary:0 (ft)	
If assessment area is not inundated then are t	he soils saturated within 12 inches of surface:l	No
Other evidence of hydrology on the site (ex. –	drift lines, erosion, stained vegetation, etc:	
Geomorphic position, surface soil cracks, w		
Groundwater Monitoring Wells		
Record depth of water surface below grou	und surface in feet	
record depth of water surface below groc	and surface, in feet.	
Additional Activities Checklist:		
Map emergent vegetation-open water boundary on a	aerial photograph.	
Observe extent of surface water during each site vis	it and look for evidence of past surface water	
elevations (drift lines, erosion, vegetation staining, etc.)		
Use GPS to survey groundwater monitoring well local Hydrology Notes:	ations, if present.	
nyurology Notes.		
	and habitat again in 2023. This trend has been	
consistent over the last 4 years.		

### **VEGETATION COMMUNITIES**

Site Forsyth NW - Middle

**Comments:** 

(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%)

Community # 5	Community Type:	Hordeum jubatum / Eleocharis palu	<u>stris</u> Acres	<u>0.58</u>
Species	Cover class	Species	Cover class	
Bare Ground	2	Bromus arvensis	1	
Chenopodium album	1	Cirsium arvense	2	
Convolvulus arvensis	1	Deschampsia elongata	1	
Eleocharis palustris	2	Elymus lanceolatus	1	
Elymus repens	1	Elymus trachycaulus	2	
Grindelia squarrosa	3	Hordeum jubatum	0	
Juncus balticus	0	Lactuca serriola	3	
Lepidium perfoliatum	0	Medicago sativa	0	
Nassella viridula	1	Pascopyrum smithii	4	
Poa compressa	2	Poa palustris	0	
Poa pratensis	1	Populus deltoides	1	
Puccinellia nuttalliana	1	Rumex crispus	0	
Salix lutea	1	Schedonorus pratensis	1	
Schoenoplectus maritimu	s 1	Thlaspi arvense	0	
Tragopogon dubius	1			

As in previous years, this community continued to display reduced cover from hyrophytic species and increased cover from FACU in 2023.

	<u> </u>			
Species	Cover class	Species	Cover class	
Bare Ground	2	Bromus arvensis	2	
Bromus inermis	2	Bromus japonicus	0	
Bromus tectorum	0	Chenopodium album	1	
Cirsium arvense	2	Convolvulus arvensis	3	
Elymus canadensis	1	Elymus elymoides	1	
Elymus trachycaulus	1	Grindelia squarrosa	2	
Hordeum jubatum	0	Juncus balticus	0	
Lactuca serriola	2	Linum lewisii	1	
Melilotus officinalis	0	Pascopyrum smithii	4	
Poa palustris	0	Poa pratensis	2	
Populus deltoides	1	Ratibida columnifera	1	
Rosa woodsii	2	Rumex crispus	0	
Sarcobatus vermiculatus	1	Schedonorus pratensis	1	
Symphoricarpos albus	2	Taraxacum officinale	0	
Thlaspi arvense	0	Tragopogon dubius	1	
Comments:				

Upland community surrounding wetland swale. Community type name changed from CT3 in 2023 to reflect

Community # 6 Community Type: Pascopyrum smithii / Convolvulus arvensis

decrease in Elymus canadensis and increase in Convulvulus arevensis.

Total Vegetation Community Acreage

1.8

Acres

### **VEGETATION TRANSECTS**

Transect Number: <u>1</u> Compa		ss Direction from Star	t: <u>205</u>
Interval Data:	44.5		
Ending Station	14 Community Type:	Pascopyrum smithii / Elymus	canadensis
Species	Cover class	Species	Cover class
Bare Ground	2	Chenopodium album	2
Convolvulus arvensis	1	Elymus canadensis	2
Grindelia squarrosa	0	Juncus balticus	1
Pascopyrum smithii	4	Schedonorus pratensis	0
Taraxacum officinale	0	Tragopogon dubius	0
Ending Station	28 Community Type:	Hordeum jubatum / Eleocharis	s palustris
Species	Cover class	Species	Cover class
Bare Ground	2	Deschampsia elongata	1
Eleocharis palustris	0	Elymus repens	0
Hordeum jubatum	2	Juncus balticus	1
Lactuca serriola	1	Pascopyrum smithii	2
Poa palustris	2	Poa pratensis	1
Puccinellia nuttalliana	1	Schedonorus pratensis	4
Thlaspi arvense	0	Tragopogon dubius	0
Ending Station	50 Community Type:	Pascopyrum smithii / Elymus	canadensis
Species	Cover class	Species	Cover class
Bare Ground	3	Elymus trachycaulus	0
Pascopyrum smithii	2	Poa pratensis	3
Populus deltoides	4	Schedonorus pratensis	0
Symphoricarpos albus	2	-	

#### PLANTED WOODY VEGETATION SURVIVAL

Forsyth NW - Middle

#### **Comments**

No planted woody vegetation. Young volunteer cottonwoods and willows are becoming more common around edge of wetland.

Increase in prickly lettuce along wetland portion of transect in 2023.

### **WILDLIFE**

Birds							
Were man-made nes	sting structures	installed? _	No				
If yes, type of structure:							
How many?							
Are the nesting struc	tures being use	ed?	No				
Do the nesting struct	ures need repa	irs?	No				
Nesting Structu	ire Comments	<u>.</u>					
Species	#Observed	Behavior		Habitat			
•							
Bird Comments							
No birds observed in 20	)23.						
BEHAVIOR CODES  BP = One of a breeding pai	r <b>RD</b> – Brooding dis	eplay <b>E</b> – Foragin	a <b>FO</b> - Elvoyer I - I	oofing N - Nesting			
HABITAT CODES	– breeding dis	piay I – I Oragiii	g 10 - Hyover L - L	Loaning IV - IVESTING			
AB = Aquatic bed SS = Sc	rub/Shrub <b>FO</b> = Fo	rested <b>UP</b> = Upla	and buffer I = Island				
WM = Wet meadow MA = I	Marsh <b>US</b> = Uncons	solidated shore N	<b>IF</b> = Mud Flat <b>OW</b> = 0	Open Water			
Mammals and Herp	tiloe						
Maillillais allu neip	uies						
Wildlife Comments:							
No wildlife or sian ob		the 2023 fie	ld survev				

#### Forsyth NW - Middle

#### **PHOTOGRAPHS**

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

### **Photograph Checklist:**

- ✓ One photograph for each of the four cardinal directions surrounding the wetland.
- At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.
- At least one photograph showing the buffer surrounding the wetland.
- One photograph from each end of the vegetation transect, showing the transect.

Latitude	Longitude	Bearing	Description
46.322287	-106.841307		
46.322321	-106.841281		
46.322174	-106.840996	300	Photo Point 1:
46.323803	-106.844337	120	Photo Point 2:
46.322754	-106.842438	25	Transect 1 end:
46.322948	-106.842323	205	Transect 1 start:
	46.322287 46.322321 46.322174 46.323803 46.322754	46.322287       -106.841307         46.322321       -106.841281         46.322174       -106.840996         46.323803       -106.844337         46.322754       -106.842438	46.322287       -106.841307         46.322321       -106.841281         46.322174       -106.840996       300         46.323803       -106.844337       120         46.322754       -106.842438       25

#### **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>	
The photo from each end of each vegetation transect, toward the transect	
Vegetation	
✓ Map vegetation community boundaries	
✓ Complete Vegetation Transects	
Soils	
✓ Assess soils	
Mada at Balland San	
Wetland Delineations	
✓ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)	
☑ Delineate wetland – upland boundary onto aerial photograph.	
Wetland Delineation Comments	
0.58 acres of wetlands delineated in 2023.	_
Functional Assessments	_
Complete and attach full MDT Montana Wetland Assessment Method field forms.	
Functional Assessment Comments:	
Category 3 wetland	_

### Maintenance

Were man-made nesting structure installed at this site?

### MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - WestAssessment Date/Time	<u>6/8/</u> 2023
Person(s) conducting the assessment: R. Jones	
Weather: Partly sunny, 75 degrees F Location: ~15 miles NW of Forsyth	
MDT District: Glendive Milepost: RP 280 on US 12	
Legal Description: T <u>7N</u> R <u>39E</u> Section(s) 20 & 29	
Initial Evaluation Date: 8/15/2013 Monitoring Year: 11 #Visits in Year: 1	
Size of Evaluation Area: 13.71 (acres)	
Land use surrounding wetland:	
Agriculture, grazing, US 12	
HYDROLOGY	
Surface Water Source: Big Porcupine Cr., E.Spring Coulee, runoff, seasonally high ground water	<u>:r.</u>
Inundation: Average Depth: 2 (ft) Range of Depths: 0.5-4 (ft)	
Percent of assessment area under inundation: 85 %	
Depth at emergent vegetation-open water boundary: 2 (ft)	
If assessment area is not inundated then are the soils saturated within 12 inches of surface: No	<u>)                                    </u>
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:	
Majority of the wetland area inundated in 2023. Much of the mudflats observed in 2021 and 202	22
were inundated in 2023. Water was flowing over the dike at time of monitoring.	
Groundwater Monitoring Wells	
•	
Record depth of water surface below ground surface, in feet.	
Additional Activities Checklist:	
Map emergent vegetation-open water boundary on aerial photograph.	
Observe extent of surface water during each site visit and look for evidence of past surface water	
elevations (drift lines, erosion, vegetation staining, etc.)	
Use GPS to survey groundwater monitoring well locations, if present.	
Hydrology Notes:	
Hydrologic sources include Big Porcupine Creek, East Spring Coulee, and a high water table.	
Mitigation area receives surface water from East Spring Creek Coulee and periodic flooding of E Porcupine Creek. The majority of the site was inundated during the 2023 site visit and average water depth was estimated to be 18-24". The site supports extended periods of inundation as is evidenced by drowned woody vegetation, absence of herbaceous vegetation around the edges the open water, and the development of a Schoenoplectus spp. community.	

### **VEGETATION COMMUNITIES**

Site Forsyth NW - West

(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%)

Community # 1 Co	mmunity Type: 🛚	Bromus tectorum / Sarcobatus ve	<u>rmiculatus</u>	Acres	<u>0.79</u>
Species	Cover class	Species	Cover cl	ass	
Bare Ground	2	Bassia scoparia	1		
Bromus inermis	2	Bromus tectorum	2	2	
Chenopodium album	1	Elymus repens	2	2	
Euphorbia esula	1	Galium triflorum	(	)	
Hordeum jubatum	1	Opuntia polyacantha	(	)	
Pascopyrum smithii	2	Poa pratensis	2	2	
Sarcobatus vermiculatus	2	Schedonorus pratensis	2	<u>)</u>	
Thlaspi arvense	1	Yucca glauca	C	)	
Comments:					

Sarcobartus vermiculatus observed in poor condition.

Community #	6 Community Type	: Pascopyrum smithii / Bromus tectorum	Acres	<u>0.99</u>
-------------	------------------	--	-------	-------------

Species	Cover class	Species	Cover class
Achnatherum hymenoides	1	Agropyron cristatum	0
Bare Ground	2	Bassia scoparia	1
Bromus arvensis	1	Bromus japonicus	2
Bromus tectorum	1	Chenopodium album	1
Elymus canadensis	1	Elymus lanceolatus	1
Elymus trachycaulus	2	Euphorbia esula	0
Helianthus annuus	1	Hordeum jubatum	0
Lepidium perfoliatum	1	Linum lewisii	1
Medicago sativa	0	Melilotus officinalis	2
Pascopyrum smithii	5	Poa pratensis	1
Sisymbrium altissimum	1	Thlaspi arvense	2

Some areas previously classified as CT 6 have transitioned to CT 1.

Comments:

	illillullity Type.	Typha latifolia / Eleocharis palustris	Acres	<u>0.58</u>
Species	Cover class	Species	Cover class	
Eleocharis palustris	0	Open Water	2	
Populus deltoides	0	Schoenoplectus acutus	0	
Schoenoplectus maritimus	1	Sonchus arvensis	1	
Spartina pectinata	1	Typha angustifolia	3	
Typha latifolia	4			
Comments:				
CT 8 acreage did not appea	r to increase in 2023	, but the exisiting stands have increa	aed in density.	
Community # 16 Co	mmunity Type:	Alopecurus arundinaceus / Hordeu	m jubatum Acres	0.08
Species	Cover class	Species	Cover class	
Alopecurus arundinaceus	4	Bare Ground	1	
Cirsium arvense	0	Eleocharis lanceolata	0	
Elymus repens	0	Glycyrrhiza lepidota	0	
Hordeum jubatum	2	Pascopyrum smithii	0	
Poa compressa	1	Rumex crispus	1	
Sagittaria cuneata	1			
Comments:				
Hordeum jubatum cover incr	reased in 2023.			
Community # 17 Co	mmunity Type:	Open Water / Aquatic macrophytes	<u>Acres</u>	<u>6.42</u>
Species	Cover class	Species	Cover class	
Aquatic macrophytes	0	Bare Ground	1	
Eleocharis palustris	0	Open Water	5	
Schedonorus pratensis	0	Schoenoplectus maritimus	1	
	U	Ochochopicolas mantinas	•	
Typha angustifolia	1	Typha latifolia	1	
Typha angustifolia  Comments:		•	1	
Comments:	1	•	· 	7
Comments:  Open water decresed in 202 water cell.	1 23 due to increased o	Typha latifolia	nus throughout the open	
Comments:  Open water decresed in 202 water cell.	1 23 due to increased o	Typha latifolia	nus throughout the open	<u>0.14</u>
Comments:  Open water decresed in 202 water cell.  Community # 20 Co	23 due to increased community Type:	Typha latifolia dominace of Schoenoplectus maritim Thlaspi arvense / Lepidium perfolia	nus throughout the open	
Comments:  Open water decresed in 202 water cell.  Community # 20 Co	23 due to increased on the contract of the con	Typha latifolia  dominace of Schoenoplectus maritim  Thlaspi arvense / Lepidium perfolia  Species	nus throughout the open  tum Acres  Cover class	<u>0.14</u>
Comments:  Open water decresed in 202 water cell.  Community # 20 Co  Species  Bare Ground	23 due to increased on the community Type:  Cover class	Typha latifolia  dominace of Schoenoplectus maritim  Thlaspi arvense / Lepidium perfolia  Species  Bromus tectorum	nus throughout the open  tum Acres  Cover class	<u>0.14</u>
Comments:  Open water decresed in 202 water cell.  Community # 20 Co  Species  Bare Ground Chenopodium album	23 due to increased of the community Type:  Cover class 2 2 2	Typha latifolia  dominace of Schoenoplectus maritim  Thlaspi arvense / Lepidium perfolia  Species  Bromus tectorum  Lepidium perfoliatum	nus throughout the open  tum Acres  Cover class  2 4	<u>0.14</u>
Comments:  Open water decresed in 202 water cell.  Community # 20 Co  Species  Bare Ground Chenopodium album Pascopyrum smithii	23 due to increased of the community Type:  Cover class 2 2 2 2	Typha latifolia  dominace of Schoenoplectus maritim  Thlaspi arvense / Lepidium perfolia  Species  Bromus tectorum  Lepidium perfoliatum	nus throughout the open  tum Acres  Cover class  2 4	<u>0.14</u>

Community # 21 Community Type: Schoenoplectus sp. / Open Water Acres 0.31

Species	Cover class	Species	Cover class
Open Water	5	Schoenoplectus maritimus	4

Comments:

New community type added in 2023.

Community # 22 Community Type: Eleocharis palustris / Bare Ground Acres 1.19

Species	Cover class	Species	Cover class
are Ground	4	Carex sp.	0
nenopodium album	2	Distichlis spicata	1
eocharis palustris	3	Elymus trachycaulus	0
ordeum jubatum	1	Iva axillaris	1
ctuca serriola	0	Open Water	1
scopyrum smithii	1	Poa pratensis	0
ygonum aviculare	0	Populus deltoides	0
ccinellia nuttalliana	2	Rumex crispus	0
licornia rubra	0	Schoenoplectus maritimus	1
artina pectinata	0	Typha angustifolia	2
oha latifolia	1		

#### **Comments:**

This community type was created to replace CT9, Eleocharis palustris/Open Water as a result of the need to classify open water as its own community type and the need for a new wetland community that fringes open water. CT was renamed from CT18 Hordeum jubatum/Typha spp. in 2023.

Community # 23	Community Type:	Symphoricarpos albus / Elymus repens	Acres 1	1.18
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Species	Cover class	Species	Cover class
Bare Ground	1	Bassia scoparia	0
Bromus inermis	1	Carex sp.	0
Chenopodium album	1	Cirsium arvense	2
Eleocharis lanceolata	0	Elymus repens	3
Glycyrrhiza lepidota	2	Hordeum jubatum	0
lva axillaris	2	Pascopyrum smithii	1
Poa compressa	2	Poa pratensis	3
Ribes sp.	1	Sarcobatus vermiculatus	1
Symphoricarpos albus	3	Thlaspi arvense	1

#### Comments:

Upland community type changes from CT5 (Symphoricarpos albus/Pascopyrum smithii) in 2023 due to reduction of Pascopyrum smithii and increase in Elymus repens.

**Total Vegetation Community Acreage** 

11.68

## **VEGETATION TRANSECTS**

Interval Data:				
Ending Station	11	Community Type:	Pascopyrum smithii / Bromus	s tectorum
Species		Cover class	Species	Cover class
Agropyron cristatum		1	Bare Ground	1
Bromus tectorum		3	Euphorbia esula	3
Medicago sativa		1	Pascopyrum smithii	2
Poa pratensis		3	Sisymbrium altissimum	1
Ending Station	18	Community Type:	Schoenoplectus spp. /	
Species		Cover class	Species	Cover class
Open Water		4	Rumex crispus	1
Schoenoplectus maritim	nus	4		
Ending Station	264	Community Type:	Aquatic macrophytes / Open	Water
Species		Cover class	Species	Cover class
Open Water		5	Schoenoplectus maritimus	0
Ending Station	282	Community Type:	Hordeum jubatum / Typha sp	pp.
Species		Cover class	Species	Cover class
Bare Ground		1	Chenopodium album	2
Elymus trachycaulus		1	Hordeum jubatum	1
Pascopyrum smithii		3	Poa pratensis	2
Schoenoplectus maritim	านร	0		

Transect Number:	2	Compas	ss Direction from Star	<b>t</b> : <u>25</u>
Interval Data: Ending Station	7	Community Type:	Symphoricarpos albus / Pasc	opyrum smithii
Species		Cover class	Species	Cover class
Bare Ground		1	Cirsium arvense	0
Eleocharis lanceolata		0	Elymus repens	4
Glycyrrhiza lepidota		0	Hordeum jubatum	0
Iva axillaris		3	Pascopyrum smithii	0
Poa pratensis		2	Symphoricarpos albus	0
Ending Station	19	Community Type:	Open Water / Aquatic macrop	hytes
Species		Cover class	Species	Cover class
Eleocharis palustris		0	Open Water	4
Schoenoplectus maritimu	s	1	Typha angustifolia	1
Ending Station	42	Community Type:	Schoenoplectus maritimus /	
Species		Cover class	Species	Cover class
Open Water		4	Schoenoplectus maritimus	4
Ending Station	155	Community Type:	Open Water / Aquatic macrop	hytes
Species		Cover class	Species	Cover class
Open Water		5	Schoenoplectus maritimus	1
Ending Station	231	Community Type:	Schoenoplectus maritimus /	
Species		Cover class	Species	Cover class
Open Water		4	Schoenoplectus maritimus	4
Ending Station	261	Community Type:	Pascopyrum smithii / Bromus	tectorum
Species		Cover class	Species	Cover class
Bare Ground		1	Bromus arvensis	0
Bromus tectorum		1	Chenopodium album	1
Elymus lanceolatus		1	Elymus trachycaulus	1
Hordeum jubatum		0	Lepidium perfoliatum	1
Pascopyrum smithii		2	Poa pratensis	2
Sisymbrium altissimum		1		

Transect Notes:

Significant increase in Schoenoplectus maritimus along transect, enough to necessitate the addtion of a new community type (CT 21).

### **PLANTED WOODY VEGETATION SURVIVAL**

Forsyth NW - West

### Comments

No woody vegetation planted at site. Natural recruitment of cottonwoods and willows is occurring.

### Forsyth NW - West

#### **WILDLIFE**

#### **Birds**

Were man-made nesting structures installed?	? No	
If yes, type of structure:		
How many?		
Are the nesting structures being used?	No_	
Do the nesting structures need repairs?	No	
Nesting Structure Comments:		

Species	#Observed	Behavior	Habitat	
Bald Eagle	1			
Common Nighthawk	2	FO	UP	
Killdeer	2	F, N	MF, UP	
Mallard	4	F, L	OW, MA	
Northern Shoveler	2	F	OW	
Red-winged Blackbird	2	L, N	MA	
Sandhill Crane	1			
Sandpiper Sp.	1	F	MF	
Snipe	1	F	MF	
Turkey Vulture	1			
Western Kingbird	3			
Western Tanager	1			
Willet	3	F	MF, MA	
Bird Comments				
Many ducks on the site,	not all could be	identified.		

#### **BEHAVIOR CODES**

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

#### **HABITAT CODES**

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

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

# **Mammals and Herptiles**

Species	# Observed	Tracks	Scat	<b>Burrows</b>	Comments
Badger?		No	No	Yes	uncertian which species this den belongs to
Deer		Yes	Yes	No	
Fox	1	No	No	Yes	
Muskrat	1	No	No	Yes	Swimming
Raccoon	2	Yes	No	No	
Turtle sp.	9	No	No	No	Observed sunning

## Wildlife Comments:

A diversity of wildlife and bird species utilize this site.

#### **PHOTOGRAPHS**

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

### **Photograph Checklist:**

- ✓ One photograph for each of the four cardinal directions surrounding the wetland.
- At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.
- At least one photograph showing the buffer surrounding the wetland.
- One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01u	46.338269	-106.875452		
DP01w	46.338301	-106.875412		
DP02u	46.336647	-106.871571		
DP02w	46.336665	-106.871635		
DP03u	46.339438	-106.875645		
DP03w	46.339408	-106.875679		
DP04u	46.340222	-106.877354		
DP04w	46.340203	-106.877312		
PP-1	46.336914	-106.871132	270	Photo Point 1 (Pano):
PP-2	46.336468	-106.871811	350	Photo Point 2 (Pano):
PP-3	46.339088	-106.874611	230	Photo Point 3 (Pano):
PP-4	46.340237	-106.877312	210	Photo Point 4 (Pano):
PP-5	46.337817	-106.874587	45	Photo Point 5 (Pano):
PP-6	46.3368	-106.8714	300	Completed Dike:
PP-6a	46.3368	-106.8714	120	Completed Dike:
T-1 end	46.337456	-106.872063	205	Transect 1 end:
T-1 start	46.33691	-106.872772	25	Transect 1 start:
T-2 end	46.339561	-106.875854	205	Transect 2 end:
T-2 start	46.339001	-106.87645	25	Transect 2 start:

#### **Comments:**

### **ADDITIONAL ITEMS CHECKLIST**

	Hydrology
□ ✓ lines,	Map emergent vegetation/open water boundary on aerial photos.  Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift vegetation staining, erosion, etc).
	Photos
	One photo from the wetland toward each of the four cardinal directions One photo showing upland use surrounding the wetland. One photo showing the buffer around the wetland One photo from each end of each vegetation transect, toward the transect
	Vegetation
<b>✓</b> Ma	ap vegetation community boundaries
<b>✓</b> Co	mplete Vegetation Transects
	Soils
<b>✓</b> As	sess soils
	Wetland Delineations
<b>✓</b> Cunnl	Delineate wetlands according to applicable USACE protocol (1987 form or
Suppi	lement) Delineate wetland – upland boundary onto aerial photograph.
Wetla	and Delineation Comments
W	etland boundaries continue to expand.
<u>.                                    </u>	Functional Assessments
<b>✓</b> forms	Complete and attach full MDT Montana Wetland Assessment Method field
Funct	ional Assessment Comments:
Ca	ategory II wetland.

### Maintenance

Were man-made nesting structure installed at this site? No
If yes, do they need to be repaired?
If yes, describe the problems below and indicate if any actions were taken to remedy the problems
Were man-made structures built or installed to impound water or control water flow
into or out of the wetland? Yes
If yes, are the structures in need of repair? No
If yes, describe the problems below.
The dike appears to be functioning well.

Project/Site: Forsyth NW West	(	Citv/Count	v: Rosebu	d County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		-	-		Sampling Point: DP01U
•				nge: S29 T7N R39E	
Landform (hillslope, terrace, etc.): Hillside					Slope (%): 10
					Datum: NAD 83
Soil Map Unit Name: 138 - Marvan silty clay, warm, (				-	
Are climatic / hydrologic conditions on the site typical for this					·
Are Vegetation, Soil, or Hydrologys	-				oresent? Yes No
Are Vegetation, Soil, or Hydrology r				eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map	showing	samplir	ng point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes N Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N Remarks:	lo <u> </u>		he Sampled hin a Wetlar		No
Very wet conditions					
VEGETATION – Use scientific names of plan	its.				
Tree Stratum (Plot size: 30 ft r )		Species?		Dominance Test work  Number of Dominant S That Are OBL, FACW, (excluding FAC-):	pecies
2			 	Total Number of Domin Species Across All Stra	ant
Sapling/Shrub Stratum (Plot size: 15 ft r )		= Total Co	over	Percent of Dominant Sp That Are OBL, FACW,	
2.				Prevalence Index wor	
3.					Multiply by:
4					x 1 = 0
5					x 2 = <u>4</u> x 3 = <u>15</u>
Herb Stratum (Plot size: 5 ft r	0	= Total Co	over	FACU species 53	
Hesperostipa comata	30	~	UPL	UPL species 30	
2. Pascopyrum smithii	25	~	FACU	Column Totals: 90	(A) 381 (B)
3. Bromus arvensis	10		FACU		
4. Elymus trachycaulus	10		FACU	Prevalence Index	
5. Iva axillaris	5		FAC	Hydrophytic Vegetation	
6. Elymus repens	5		FACU	1 - Rapid Test for F 2 - Dominance Tes	
7. Melilotus officinalis	3		FACU	3 - Prevalence Inde	
8. Distichlis spicata	_ 2		FACW		Adaptations <sup>1</sup> (Provide supporting
9				data in Remarks	s or on a separate sheet)
10	00			Problematic Hydro	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1.		= Total Co		<sup>1</sup> Indicators of hydric soi be present, unless distu	I and wetland hydrology must urbed or problematic.
2 % Bare Ground in Herb Stratum 10	_	= Total Co	over	Hydrophytic Vegetation Present? Yes	s No <u> </u>
No dominant hydrophytic vegetation	n was pi	resent	at the s	sample site.	

SOIL Sampling Point: DP01U

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

Depth	Matrix			ox Features				
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 2	2.5Y 5/3	100					Sandy Clay Loam	
2 - 16	2.5Y 5/3	99	2.5Y 3/6	1			Sandy Clay	
-		· <del></del> -						
								_
							<u></u> _	
-								
_								
17		- DM	Dadwa d Matrice O		0 1 -	1010	21	Di Dana Linina M Matrix
			Reduced Matrix, C LRRs, unless other			a Sana G		PL=Pore Lining, M=Matrix. roblematic Hydric Soils <sup>3</sup> :
-		cable to all t						•
Histosol	oipedon (A2)			Gleyed Ma Redox (S5	. ,			A9) ( <b>LRR I, J</b> ) e Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi			-	d Matrix (S				e (S7) ( <b>LRR G</b> )
	n Sulfide (A4)			Mucky Mir				Depressions (F16)
-	l Layers (A5) ( <b>LRR</b>	<b>F</b> )		Gleyed Ma			_	outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G</b>		-	ed Matrix (F			Reduced Ve	,
Depleted	Below Dark Surfa	ce (A11)	Redox	Dark Surfa	ce (F6)		Red Parent I	Material (TF2)
	ark Surface (A12)			ed Dark Su		1		v Dark Surface (TF12)
	lucky Mineral (S1)	(00) (1		Depression		4.00		in in Remarks)
	Mucky Peat or Peat			ains Depre				drophytic vegetation and
5 CM IVIU	cky Peat or Peat (	53) ( <b>LRR F</b> )	(IVIL	RA 72 & 7	3 OT LKK	. П)	-	ology must be present, rbed or problematic.
Restrictive I	_ayer (if present):						uniess distai	bed of problematic.
Type:	zayer (ii present).							
Depth (inc	shoe).		<del></del>				Hydric Soil Prese	ent? Yes No
							Tryunc Son Frese	
Remarks:								
No hydri	ic soil indica	itors obs	served.					
HYDROLO	GY							
Wetland Hyd	drology Indicators	 S:						
			; check all that app	lv)			Secondary Ind	licators (minimum of two required)
	Water (A1)	Ono roquirou	Salt Crust	•			· ·	oil Cracks (B6)
	iter Table (A2)		Aquatic Ir	. ,	e (B13)			Vegetated Concave Surface (B8)
Saturatio				Sulfide Od				Patterns (B10)
<del></del>	arks (B1)			on Water T			<del></del>	Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		-	Rhizosphe				
	oosits (B3)			not tilled)	ICO OII EIV	ing recoto		Burrows (C8)
	it or Crust (B4)		•	of Reduce	d Iron (C4	1)	<del></del>	Nisible on Aerial Imagery (C9)
	osits (B5)			Surface (		.,	<del></del>	hic Position (D2)
	on Vis ble on Aerial	I Imagery (B7	· · · · · · · · · · · · · · · · · · ·	plain in Re				tral Test (D5)
<del></del>	tained Leaves (B9)			p.a			<del></del>	ive Hummocks (D7) ( <b>LRR F</b> )
Field Observ	,							( , ()
Surface Water		Yes N	No Depth (ir	iches):				
Water Table			No Depth (ir					
Saturation P			No <u> </u>				land Hydrology Pros	sent? Yes No
(includes cap	oillary fringe)	. co I	40 Dehiii (ii			_   ***	iana nyarology Fies	NO
		m gauge, mo	nitoring well, aerial	photos, pro	evious ins	pections),	if available:	
Remarks:								
No wet								
ino wetla	االمنتمل المصر	<b></b>						
	and hydrolo	gy prese	ent.					
	and hydrolo	gy prese	ent.					

Project/Site: Forsyth NW West	(	City/Co	ounty:	Rosebu	d County	Sampling	Date: 20	23-06-09
Applicant/Owner: MDT		-	-		State: Montana			
• • • • • • • • • • • • • • • • • • • •					nge: S29 T7N R39E			
Landform (hillslope, terrace, etc.): Valley Floor						)	Slope	(%)· 5
Subregion (LRR): G 60B								
Soil Map Unit Name: 138 - Marvan silty clay, warm, 0					-			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology si					Normal Circumstances" p		<b>'</b> 00	No. V
								_ NO
Are Vegetation, Soil, or Hydrologyn					eded, explain any answer			
SUMMARY OF FINDINGS – Attach site map s	showing	sam	pling	g point l	ocations, transects,	importa	ant feati	ures, etc.
Hydrophytic Vegetation Present? Yes No	o		Is the	e Sampled	Area			
Hydric Soil Present? Yes No				-	nd? Yes	No		
Wetland Hydrology Present? Yes No	<u> </u>							
Remarks:								
Raining hard and very muddy conditi	ons at	this	we	tland s	ample point.			
VEGETATION – Use scientific names of plant	s.							
Tree Stratum (Plot size: 30 ft r	Absolute				Dominance Test works	sheet:		
	% Cover				Number of Dominant Sp			
1					That Are OBL, FACW, c (excluding FAC-):	IFAC .	2	(A)
3.					Total Number of Domina	ant		
4					Species Across All Strat		2	(B)
	0	= Tota	al Cov	er	Percent of Dominant Sp	ecies		
Sapling/Shrub Stratum (Plot size: 15 ft r )					That Are OBL, FACW, o		100.00	(A/B)
1					Prevalence Index work	sheet:		
2					Total % Cover of:		Multiply by	v:
3					OBL species 8			
4 5.					FACW species 20			
	0	= Tota	al Cov	er	FAC species 7			
Herb Stratum (Plot size: 5 ft r )		1010	ai 00v		FACU species 0	x 4	= 0	
1. Distichlis spicata	20			FACW		x 5		
2. Iva axillaris	7			FAC	Column Totals: 35	(A)	69	(B)
3. Puccinellia nuttalliana Chenopodium rubrum	5			OBL	Prevalence Index	= B/A = 1	1.97	
T	3			OBL	Hydrophytic Vegetatio			
5					1 - Rapid Test for H			n
6					✓ 2 - Dominance Test	is >50%		
7					✓ 3 - Prevalence Inde	x is ≤3.0 <sup>1</sup>		
8					4 - Morphological A	daptations	1 (Provide	supporting
10.					data in Remarks Problematic Hydrop			•
	35	= Tota	al Cov	er	Problematic Hydrop	nylic vege	tation (⊏)	хріаігі)
Woody Vine Stratum (Plot size: 30 ft r )					<sup>1</sup> Indicators of hydric soil be present, unless distu			gy must
1						— Theu of pro	biematic.	
2.	_				Hydrophytic Vegetation			
% Bare Ground in Herb Stratum 68	0	= Tota	al Cov	er	Present? Yes	s_ <b></b>	No	_
Remarks:					l			
Hydrophytic vegetation is present by	, nassir	na ti	ne r	lomina	nce test and ger	neratin	n a	
	Passii	יש ני	10 0		iloo toot alla gel	.c.atiii	9 4	
prevalence index below three.								

US Army Corps of Engineers

B-31

Great Plains – Version 2.0

SOIL Sampling Point: DP01W

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the	indicator	or confirn	n the absence of i	ndicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 5	2.5Y 4/2	70	7.5YR 4/4	30	<u>D</u>	PL / M	Sandy Clay Loam	
5 - 16	2.5Y 4/3	70	N 4/2	25	D	М	Sandy Clay	
5 - 16			7.5YR 3/4	5	С	PL / M		
-		_						
_					-			
-	-				_			
					_	· <del></del>		<del>-</del>
				-	_			
17			Deduced Metric Of				21 41 -	n. Di Dana Lining M Matrix
			=Reduced Matrix, CS LRRs, unless other			ed Sand Gi		n: PL=Pore Lining, M=Matrix.  Problematic Hydric Soils <sup>3</sup> :
_		able to all						•
Histosol	oipedon (A2)		Sandy ( Sandy F	-				(A9) ( <b>LRR I, J</b> ) rie Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi				d Matrix (				ce (S7) (LRR G)
	n Sulfide (A4)				ineral (F1)			s Depressions (F16)
-	Layers (A5) (LRR	F)			noral (F2)		_	outside of MLRA 72 & 73)
	ck (A9) ( <b>LRR F, G</b> ,			d Matrix			Reduced V	,
	d Below Dark Surfac				face (F6)		Red Paren	t Material (TF2)
Thick Da	ark Surface (A12)		Deplete	d Dark S	urface (F7	)	Very Shallo	ow Dark Surface (TF12)
Sandy M	lucky Mineral (S1)		Redox [	Depression	ons (F8)			lain in Remarks)
	lucky Peat or Peat (			ains Dep	ressions (F	16)		ydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	) (ML	RA 72 &	73 of LRF	R H)	-	drology must be present,
Postriotivo I	_ayer (if present):						unless dist	urbed or problematic.
_								
, <u> </u>	ahaa);						Uvdria Sail Dra	sent? Yes ✓ No
Remarks:	ches):						nyuric Son Fre	sent: res NO
Many pr	ominent red	oximor	phic concent	ration	าร with	in the	depleted ma	atrix.
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of o	one require	ed; check all that appl	y)			Secondary Ir	ndicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)			✓ Surface	Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic In	vertebrat	es (B13)		Sparsely	Vegetated Concave Surface (B8)
✓ Saturation	on (A3)		Hydrogen	Sulfide C	Odor (C1)		Drainage	e Patterns (B10)
	arks (B1)		Dry-Seaso					Rhizospheres on Living Roots (C3)
·	nt Deposits (B2)		Oxidized F	Rhizosph	eres on Liv	ing Roots	(C3) (where	e tilled)
	oosits (B3)		(where i	not tilled	l)			Burrows (C8)
Algal Ma	it or Crust (B4)		Presence	of Reduc	ed Iron (C	4)		on Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)			phic Position (D2)
	on Vis ble on Aerial	Imagery (E	37) Other (Exp	olain in R	emarks)			utral Test (D5)
Water-S	tained Leaves (B9)						Frost-He	eave Hummocks (D7) (LRR F)
Field Observ								
Surface Water			No Depth (in			_		
Water Table			No Depth (in			<u> </u>		
Saturation Pr		′es	No Depth (in	ches): <u>0</u>		Wetl	and Hydrology Pr	esent? Yes No
(includes cap Describe Red		n daude m	onitoring well, aerial	ohotos n	revious ins	spections)	if available:	
		J		,, p		. , , ,		
Remarks:								
	er within 5 feet of	samnle cit	e Δlaal mate estur	ation to	the soil er	ırface a w	vater table at a de	pth of 10 inches, surface soil
			oint, and a positive					
.,			,				,	

Project/Site: Forsyth NW West	C	City/Co	ounty:	Rosebuc	d County	Sampling [	<sub>Date:</sub> 2023-	06-09
Applicant/Owner: MDT		•	-		State: Montana		· ·	
•					nge: S29 T7N R39E	, 0		
Landform (hillslope, terrace, etc.): Hillslope							Slope (%):	30
Subregion (LRR): G 60B								
Soil Map Unit Name: 138 - Marvan silty clay, warm, 0					-			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology si	•				Normal Circumstances" p	•	es N	, <i>'</i>
Are Vegetation, Soil, or Hydrology na					eded, explain any answe			J
SUMMARY OF FINDINGS – Attach site map s								s. etc.
			•	<b>J</b> F		, ,		
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No			Is the	e Sampled			,	
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	,		withi	n a Wetlan	nd? Yes	No		
Remarks:								
Due to recent rains, the sample site is wette	r than nr	evio	us v	ears wh	nich were much drie	er than th	ne lona-te	rm
average.	r than pr	0110	uo y	ouro, wr	non word maon and	or triair tr	io long to	
VEGETATION – Use scientific names of plant	s.							
- 20 ft r	Absolute				Dominance Test work	sheet:		
	% Cover				Number of Dominant Sp			
1					That Are OBL, FACW, (excluding FAC-):	or FAC 0	)	(A)
2 3					,			` ,
4		-			Total Number of Domin Species Across All Stra	_		(B)
	0 :	= Tota	al Cov	er	Percent of Dominant Sp	necies		
Sapling/Shrub Stratum (Plot size: 15 ft r )					That Are OBL, FACW, of		0.00	(A/B)
1					Prevalence Index wor	ksheet:		
2					Total % Cover of:		Multiply by:	
3							= 0	
4		-			FACW species 0			
5	0 :	 = Tota	l Cov				= 0	
Herb Stratum (Plot size: 5 ft r		- 1012	ai COV	CI	FACU species 0	x 4 =	<u> </u>	_
1. Bromus inermis	50			UPL	UPL species 60		300	_
2. Symphoricarpos albus	5			UPL	Column Totals: 60	(A)	300	(B)
3. Ribes sp.	3			UPL	Prevalence Index	= R/Δ = 5	.00	
4. Convolvulus arvensis	2	-		UPL	Hydrophytic Vegetation			
5					1 - Rapid Test for H			
6					2 - Dominance Tes		J	
7					3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>		
8					4 - Morphological A			
9					data in Remarks			
10	60	= Tota	al Cov		Problematic Hydrop	hytic Veget	tation' (Expla	in)
Woody Vine Stratum (Plot size: 30 ft r					<sup>1</sup> Indicators of hydric soi be present, unless distu			nust
1					Hydrophytic			
	•	= Tota	al Cov	er	Vegetation		./	
% Bare Ground in Herb Stratum 42					Present? Yes	s	No	
Remarks:								
No hydrophytic vegetation present a	t samp	le si	ite.					
	•							

SOIL Sampling Point: DP02U

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

Depth	Matrix			x Features					
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks	
0 - 4	10YR 2/1	100					Sandy Loam		
4 - 12	10YR 2/1	100					Loamy Sand		
-									
				. ——					
-									
_									
1Typo: C=C	oncentration, D=De	nlotion PM-Por	Jucod Matrix CS	E=Covered	l or Coato	d Sand G	raine <sup>2</sup> Location:	DI -Doro Lining M-Matrix	
	Indicators: (Appli					u Sanu Gi		PL=Pore Lining, M=Matrix. roblematic Hydric Soils <sup>3</sup> :	
Histosol		babic to all Litt		Sleyed Ma	•			A9) ( <b>LRR I, J</b> )	
	oipedon (A2)			Redox (S5	. ,			e Redox (A16) ( <b>LRR F, G, H</b> )	
Black His			-	Matrix (S				e (S7) (LRR G)	
_	n Sulfide (A4)			Mucky Min				Depressions (F16)	
	Layers (A5) (LRR	F)		Gleyed Ma			_	utside of MLRA 72 & 73)	
	ck (A9) ( <b>LRR F, G</b> ,	•		d Matrix (F	•		Reduced Ve	` '	
	d Below Dark Surface	ce (A11)		Oark Surfa				Material (TF2)	
	ark Surface (A12)			d Dark Su				Dark Surface (TF12)	
-	lucky Mineral (S1)	(S2) (LBB C !!		Depression		16)		in in Remarks)	
	Mucky Peat or Peat cky Peat or Peat (S			ains Depre				Irophytic vegetation and ology must be present,	
5 611 1010	ony i cal oi Feat (c	, ( <b>∟</b> IXIX I⁻)	(IVIL	NA 12 01	J OI LKK	••,	•	bed or problematic.	
Restrictive L	_ayer (if present):								
	ck refusal								
Depth (inc			-				Hydric Soil Prese	ent? Yes No 🗸	
Remarks:			-				1.,		
	••								
Very dry	soils.								
HYDROLO	GY								
Wetland Hyd	drology Indicators	:							
_	cators (minimum of		eck all that apply	<b>v</b> )			Secondary Ind	icators (minimum of two require	ed)
	Water (A1)	<del>-</del>	Salt Crust					oil Cracks (B6)	
_	ter Table (A2)		Aquatic Inv	. ,	s (B13)			/egetated Concave Surface (B	8)
Saturatio			Hydrogen					Patterns (B10)	-,
· · · · · · · · · · · · · · · · · · ·	arks (B1)		Dry-Seaso					Rhizospheres on Living Roots (	(C3)
	nt Deposits (B2)		Oxidized R			ng Roots		· ·	/
	posits (B3)			not tilled)		0 : 2.3		Burrows (C8)	
	it or Crust (B4)		Presence	,	d Iron (C4	·)		Visible on Aerial Imagery (C9)	)
	osits (B5)		Thin Muck			-	·	nic Position (D2)	-
	on Vis ble on Aerial	Imagery (B7)	Other (Exp	•				ral Test (D5)	
· · · · · · · · · · · · · · · · · · ·	tained Leaves (B9)		•		•		Frost-Hea	ve Hummocks (D7) (LRR F)	
Field Observ	vations:							<u> </u>	
Surface Water	er Present?	Yes No _	✓ Depth (ind	ches):					
Water Table			Depth (inc						
Saturation Pr			Depth (inc				and Hydrology Pres	sent? Yes No	•
(includes cap	oillary fringe)								
Describe Red	corded Data (stream	n gauge, monito	ring well, aerial p	photos, pre	evious ins	pections),	if available:		
Remarks:									
No wetla	and hydrolog	ny nresent	+						
INO WELL	and mydrolog	ay bicacii	••						

Project/Site: Forsyth NW West	(	City/Count	<sub>v:</sub> Rosebu	d County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		-			Sampling Point: DP02W
• •				nge: S29 T7N R39E	. 0
Landform (hillslope, terrace, etc.): Valley Floor				=	e Slope (%): 3
, ,			•		Datum: NAD 83
Soil Map Unit Name: 138 - Marvan silty clay, warm, (					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrologys	-				oresent? Yes No
Are Vegetation, Soil, or Hydrology n				eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map				ocations, transects	, important features, etc.
	o o		he Sampled hin a Wetlar		No
Narrow fringe next to old railroad be	rm.				
VEGETATION – Use scientific names of plan	ts.				
Tree Stratum (Plot size: 30 ft	Absolute % Cover		t Indicator	Dominance Test work	
1				Number of Dominant S That Are OBL, FACW,	or FAC
2.				(excluding FAC-):	1 (A)
3				Total Number of Domin	
4				Species Across All Stra	ata: <u>2</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r	0		over	Percent of Dominant Sp That Are OBL, FACW,	
1				Prevalence Index wor	ksheet:
3.				Total % Cover of:	Multiply by:
4					x 1 = <u>0</u>
5.				-	x 2 = 120
- 6	0	= Total Co	over		x 3 = 15
Herb Stratum (Plot size: 5 ft r	ΕO	.,	FACW	FACU species 0	
Alopecurus arundinaceus     Bromus inermis	<u>50</u> 20		UPL	UPL species 20 Column Totals: 85	
3. Distichlis spicata	10		FACW	Column Totals: 05	(A) <u>235</u> (B)
Rumex crispus	5	-	FAC	Prevalence Index	= B/A = <u>2.76</u>
5.	<del></del>		· ——	Hydrophytic Vegetation	on Indicators:
6.				1 - Rapid Test for I	
7.				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		= Total Co		<sup>1</sup> Indicators of hydric soi be present, unless distu	il and wetland hydrology must urbed or problematic.
2				Hydrophytic Vegetation Present? Ye	s No
Remarks: A prevalence index of less than 3 inc	dicates	hydro	ohytic v	egetation at this	s point.

SOIL Sampling Point: DP02W

Profile Desc	ription: (Describe	to the dep	oth needed to docum	nent the	indicator	or confirm	n the absence	of indicators.)
Depth	Matrix		Redox	k Feature	s			
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 7	10YR 2/1	100					Sandy Clay Loam	May be darker due to bits of charcoal
7 - 10	2.5Y 4/2	90	2.5Y 4/6	10			Sandy Clay	
-	-			-	· ——			·
-								
_								
		-			· ——			
1Typo: C=C	ncontration D=Don	lotion PM	=Reduced Matrix, CS	-Covere	d or Coato	d Sand G	raine <sup>2</sup> l or	cation: PL=Pore Lining, M=Matrix.
			LRRs, unless other			u Sanu G		for Problematic Hydric Soils <sup>3</sup> :
Histosol		abio to an			atrix (S4)			Muck (A9) (LRR I, J)
	oipedon (A2)		Sandy R	-	, ,			Prairie Redox (A16) ( <b>LRR F, G, H</b> )
Black His			-	Matrix (				Surface (S7) (LRR G)
	n Sulfide (A4)				neral (F1)		<del></del>	Plains Depressions (F16)
	Layers (A5) (LRR I	F)		-	atrix (F2)		_	RR H outside of MLRA 72 & 73)
	ick (A9) ( <b>LRR F, G,</b> I	,	-	d Matrix (			,	ed Vertic (F18)
	Below Dark Surfac		Redox D	ark Surf	ace (F6)		Red Pa	arent Material (TF2)
Thick Da	ark Surface (A12)		Depleted	d Dark Si	urface (F7)		Very S	Shallow Dark Surface (TF12)
	lucky Mineral (S1)			epressio	ns (F8)			(Explain in Remarks)
2.5 cm N	lucky Peat or Peat (	S2) ( <b>LRR</b>	<b>G, H</b> ) High Pla	ins Depr	essions (F	16)	<sup>3</sup> Indicators	of hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) ( <b>LRR F</b> )	) (MLI	RA 72 &	73 of LRR	H)		d hydrology must be present,
							unless	disturbed or problematic.
	_ayer (if present):							
	ock refusal							
Depth (inc	ches): 10		<del></del>				Hydric Soil	Present? Yes V No No
Remarks:								
								cators due to the shallow depth of the pi, this soil
conditions in the	•	c soil in that i	t, "formed under condition	s or saturat	tion, flooding	or ponaing i	ong enougn auring	g the growing season to develop anaerobic
	CV							
HYDROLO								
_	drology Indicators:							
-	•	ne require	ed; check all that apply					ary Indicators (minimum of two required)
	Water (A1)		Salt Crust					face Soil Cracks (B6)
	ter Table (A2)		Aquatic Inv					rsely Vegetated Concave Surface (B8)
<u>✓</u> Saturation	on (A3)		Hydrogen \$	Sulfide O	dor (C1)		Drai	inage Patterns (B10)
Water M	arks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized R	hizosphe	eres on Livi	ng Roots	(C3) (w	here tilled)
Drift Dep	oosits (B3)		(where n	ot tilled	)			yfish Burrows (C8)
Algal Ma	it or Crust (B4)		Presence of	of Reduce	ed Iron (C4	·)		uration Visible on Aerial Imagery (C9)
	osits (B5)		Thin Muck	Surface	(C7)			omorphic Position (D2)
Inundation	on Vis ble on Aerial I	lmagery (E	37) Other (Exp	lain in Re	emarks)		FAC	C-Neutral Test (D5)
Water-S	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ								
Surface Water	er Present? Y	'es	No Depth (inc	ches):		_		
Water Table	Present? Y	es 🔽	No Depth (inc	hes): <u>5</u>		_		
Saturation Pr	resent? Y	es 🔽	No Depth (inc	hes): 0		Wetl	and Hydrolog	y Present? Yes <u> </u>
(includes cap								
Describe Red	corded Data (stream	gauge, m	onitoring well, aerial p	motos, pi	evious ins	pections),	ıı avalladle:	
Remarks:								
-	=	-				-		tion visible on aerial imagery, oxidized
rnizospheres a	along living roots, the	geomorph	ic position of the point,	and a po	sitive FAC-	neutral tes	st indicate wetla	na nyarology.

Project/Site: Forsyth NW West	(	City/Count	<sub>ty:</sub> Rosebud	d County	Sampling Date: 2023-06-09
-		-	-		Sampling Point: DP03U
				nge: S29 T7N R39E	
		Local relie	ef (concave,	convex, none): Linear	Slope (%): 5
Subregion (LRR): G 60B	Lat: 46.	337084		Long: -106.871305	Datum: NAD 83
Soil Map Unit Name: 138 - Marvan silty clay, warm, (					
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	ignificantly of	disturbed?	Are "	'Normal Circumstances" p	present? 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	samplii	ng point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes No. Hydric Soil Present? Yes No. Wetland Hydrology Present? Yes No. Remarks:	o <u> </u>		he Sampled		No
Upland point located at southeaster	n portio	n of th	ne site.		
VEGETATION – Use scientific names of plan	ts.				
Tree Stratum (Plot size: 30 ft r	Absolute % Cover		nt Indicator Status	Dominance Test work  Number of Dominant S	
1				That Are OBL, FACW, (excluding FAC-):	or FAC <u>0</u> (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	0		over	Percent of Dominant Sp That Are OBL, FACW, o	
1 2				Prevalence Index wor	ksheet:
3.					Multiply by:
4					x 1 = 0
5					x 2 = 0
Eft.	0	= Total Co	over		x 3 = 0 x 4 = 160
Herb Stratum (Plot size: 5 ft r  1. Pascopyrum smithii	20	~	FACU	FACU species 40 UPL species 0	
2 Elymus trachycaulus	20		FACU	Column Totals: 40	<del>-</del>
3	·				
4				Prevalence Index	
5				Hydrophytic Vegetation 1 - Rapid Test for H	
6				2 - Dominance Tes	• • •
7				3 - Prevalence Inde	
8					Adaptations <sup>1</sup> (Provide supporting
9				data in Remarks	s or on a separate sheet)
10	4.0			Problematic Hydro	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1		= Total Co		<sup>1</sup> Indicators of hydric soi be present, unless distu	l and wetland hydrology must urbed or problematic.
2				Hydrophytic Vegetation Present? Ye	s No
No hydrophytic vegetation present a	ıt samp	le site	•		

SOIL Sampling Point: DP03U

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the	indicator	or confirn	n the absence	of indicators.)
Depth	Matrix			x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 2	2.5Y 4/3	100					Silty Clay Loam	
2 - 15	2.5Y 4/3	<u>75</u>	2.5Y 3/2	10			Silty Clay	10% Relict redox.
-								
-								
-					· ——			
<del>-</del>				<del></del>	·			
			=Reduced Matrix, CS LRRs, unless other			d Sand Gi		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
_		able to all						•
Histosol	oipedon (A2)			Gleyed Ma Redox (S5	. ,			Nuck (A9) ( <b>LRR I, J</b> ) Prairie Redox (A16) ( <b>LRR F, G, H</b> )
Black His			-	Matrix (S				Surface (S7) (LRR G)
	n Sulfide (A4)				neral (F1)			Plains Depressions (F16)
	Layers (A5) (LRR I	F)	-	Gleyed M			(LR	R H outside of MLRA 72 & 73)
1 cm Mu	ck (A9) ( <b>LRR F, G,</b>	H)		d Matrix (			Reduc	ed Vertic (F18)
	Below Dark Surfac	e (A11)	·	Dark Surfa	, ,			arent Material (TF2)
	ark Surface (A12)				urface (F7)			Shallow Dark Surface (TF12)
	lucky Mineral (S1) ⁄lucky Peat or Peat (	(S2) (I DD (		Depressio	ns (F8) essions (F	16)		(Explain in Remarks) of hydrophytic vegetation and
	cky Peat or Peat (S		· · · · · · · · · · · · · · · · · · ·		73 of LRR			d hydrology must be present,
0 0111110	ony i out of i out (o	o, ( <b>=</b> ,	(			••,		disturbed or problematic.
	ayer (if present):							· · · · · · · · · · · · · · · · · · ·
, , <u> </u>	ck refusal		<u></u>					
Depth (inc	hes): <u>15</u>		<u></u>				Hydric Soil	Present? Yes No
Remarks:							•	
Soils looke	ed purple wher	dry, bu	t turned brown	when v	vet. Red	oximor	phic conce	ntrations were observed to be
relict feat	ures, and no hy	dric soil	indicators were	e obser	ved.			
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of c	one require	d; check all that appl	y)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)			Surf	face Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic In		es (B13)		Spa	rsely Vegetated Concave Surface (B8)
Saturatio	on (A3)		Hydrogen	Sulfide O	dor (C1)		Drai	nage Patterns (B10)
Water M	arks (B1)		Dry-Seaso	n Water <sup>-</sup>	Γable (C2)		Oxio	dized Rhizospheres on Living Roots (C3)
Sedimer	t Deposits (B2)		Oxidized F	Rhizosphe	res on Livi	ing Roots	(C3) (w	here tilled)
Drift Dep	oosits (B3)		(where i	not tilled)			Cra	yfish Burrows (C8)
Algal Ma	t or Crust (B4)		Presence	of Reduce	ed Iron (C4	·)	Satu	uration Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		Geo	omorphic Position (D2)
Inundation	on Vis ble on Aerial	Imagery (B	7) Other (Exp	olain in Re	emarks)			C-Neutral Test (D5)
· <del></del>	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ								
Surface Water			No Depth (in					
Water Table			No Depth (in					٠.
Saturation Pr (includes cap		'es	No Depth (in	ches):		_ Wetl	and Hydrolog	y Present? Yes No
		gauge, mo	onitoring well, aerial p	ohotos, pr	evious ins	pections),	if available:	
Remarks:								
No wetla	and hydrolog	v pres	ent.					
	,	,, 1:						

Project/Site: Forsyth NW West	(	City/Co	ounty:	Rosebu	d County	Sampling	Date:	2023-	06-09
Applicant/Owner: MDT		-	-		State: Montana		_		
Investigator(s): R Jones		Section	n, Tov	wnship, Ra	nge: S29 T7N R39E				
Landform (hillslope, terrace, etc.): Fringe					-	е	Slo	ope (%):	5
Subregion (LRR): G 60B	_ Lat: 46.	3370	64		Long: -106.871331		Datı	um: NA	D 83
Soil Map Unit Name: 138 - Marvan silty clay, warm, (									
Are climatic / hydrologic conditions on the site typical for this	s time of yea	ar? Ye	es	No	(If no, explain in F	Remarks.)			
Are Vegetation, Soil, or Hydrologys	ignificantly of	disturb	ed?	Are "	Normal Circumstances"	present?	Yes	No	
Are Vegetation, Soil, or Hydrologyn					eded, explain any answe				
SUMMARY OF FINDINGS – Attach site map	showing	sam	pling	g point l	ocations, transects	s, impor	tant fo	eatures	s, etc.
Wetland Hydrology Present? Yes N Remarks:	0		withi	e Sampled in a Wetlar	nd? Yes	No		<del>-</del>	
Due to recent rains, sample site is w VEGETATION – Use scientific names of plan		an u	ısua	aı. 					
	Absolute	Domi	inant	Indicator	Dominance Test work	sheet:			
Tree Stratum (Plot size: 30 ft r )  1 2	% Cover	Spec	ies?	Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):	pecies or FAC	2		(A)
3. 4.					Total Number of Domir Species Across All Stra		2		(B)
Sapling/Shrub Stratum (Plot size: 15 ft r )	0				Percent of Dominant S That Are OBL, FACW,		100.0	00	(A/B)
2.					Prevalence Index wor	ksheet:			
3.					Total % Cover of:			oly by:	_
4						x 1			
5					FACW species 65 FAC species 0				
Herb Stratum (Plot size: 5 ft r )	0	= Tota	l Cov	er	FACU species 15				_
1. Distichlis spicata	35	V	,	FACW	UPL species 0		5 = <u>0</u>		_
2. Hordeum jubatum	30	-	,	FACW	Column Totals: 80		19		(B)
3. Elymus trachycaulus	15			FACU	Prevalence Index	r = Β/Δ =	2.38		
4					Hydrophytic Vegetati				_
5					✓ 1 - Rapid Test for			tation	
6					✓ 2 - Dominance Tes	st is >50%			
7					✓ 3 - Prevalence Ind	ex is ≤3.0 <sup>1</sup>			
8					4 - Morphological	Adaptation	s¹ (Pro	vide supp	porting
10					data in Remark				
	00	= Tota	al Cov	er	Problematic Hydro				
Woody Vine Stratum (Plot size: 30 ft r )  1		-			<sup>1</sup> Indicators of hydric so be present, unless dist				nust
2					Hydrophytic				
% Bare Ground in Herb Stratum 20	0	= Tota	l Cov	er	Vegetation Present? Ye	es	No _		
Hydrophytic vegetation is present had dominace test.	aving a	pre	vale	ence in	dex less than 3	and pa	assin	g the	

US Army Corps of Engineers B-39 Great Plains – Version 2.0

SOIL Sampling Point: DP03W

Profile Desc	rintion: (Describe	to the den	th needed to docun	nent the	indicator	or confirm	n the absence	of indicators )
Depth	Matrix	to the dep		x Feature		or commi	ii tiie abserice	or maicators.)
(inches)	Color (moist)	%	Color (moist)	<u> </u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 2	2.5Y 4/2	100					Silty Clay	Very wet
2 - 10	2.5Y 4/2	90	2.5Y 5/6	10	С	М	Clay	
10 - 14	2.5Y 4/2	30	2.5Y 5/6	15			Sandy Clay Loam	
		· <u> </u>	7.5YR 3/4	15				
		· ——	7.511( 5/4	15				
		·			· ——			
				· - <u></u>				
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, CS	=Covere	d or Coate	d Sand G	rains. <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Application	able to all	LRRs, unless other	wise not	ed.)		Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histosol				-	atrix (S4)			Muck (A9) ( <b>LRR I, J</b> )
	pipedon (A2)		-	Redox (S5			<del></del>	Prairie Redox (A16) (LRR F, G, H)
Black Hi				Matrix (	•			Surface (S7) (LRR G)
	n Sulfide (A4)	<del>-</del> \		-	neral (F1)		_	Plains Depressions (F16)
· <del></del>	l Layers (A5) ( <b>LRR F</b> ick (A9) ( <b>LRR F, G, I</b>	•	Loamy (	-	atrix (F2)		,	R H outside of MLRA 72 & 73) ed Vertic (F18)
	Below Dark Surface			o Mairix ( Dark Surfa	•			arent Material (TF2)
	ark Surface (A12)	· (, )			urface (F7)		<del></del>	Shallow Dark Surface (TF12)
	lucky Mineral (S1)			Depressio				(Explain in Remarks)
2.5 cm N	Mucky Peat or Peat (	S2) ( <b>LRR (</b>	<b>3, H</b> ) High Pla	ins Depr	essions (F	16)	<sup>3</sup> Indicators	of hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S3	3) ( <b>LRR F</b> )	(MLI	RA 72 &	73 of LRR	H)		d hydrology must be present,
							unless	disturbed or problematic.
	_ayer (if present):							
Type:	- L V-						11	Duna 10 Van V
	ches):						Hydric Soil	Present? Yes No
Remarks:		_				_		
-		_	atter located at	14+ inc	ches. Pr	ominen	t redoximor	phic concentrations common
within the	depleted matri	х.						
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of o	ne required	d; check all that apply	y)			Seconda	ary Indicators (minimum of two required)
✓ Surface	Water (A1)		Salt Crust	(B11)			Surf	face Soil Cracks (B6)
✓ High Wa	ter Table (A2)		Aquatic Inv	ertebrate/	es (B13)		Spa	rsely Vegetated Concave Surface (B8)
✓ Saturation	on (A3)		Hydrogen					nage Patterns (B10)
Water M	arks (B1)		Dry-Seaso	n Water <sup>-</sup>	Table (C2)		Oxio	dized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized R	Rhizosphe	res on Liv	ng Roots	(C3) (w	here tilled)
Drift Dep	oosits (B3)		(where r	ot tilled)	)		Cray	yfish Burrows (C8)
Algal Ma	it or Crust (B4)		Presence of			.)		uration Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		·	omorphic Position (D2)
Inundation	on Vis ble on Aerial I	magery (B	7) Other (Exp	lain in Re	emarks)		FAC	C-Neutral Test (D5)
Water-S	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ		.,						
Surface Water			No Depth (inc			_		
Water Table		_	No Depth (inc					
Saturation Pr		es 🔽	No Depth (inc	ches): 0		Wetl	and Hydrolog	y Present? Yes No
(includes cap Describe Red		gauge mo	onitoring well, aerial p	ohotos ni	evious ins	nections)	if available:	
Peroning I/G	Jordon Data (Strediti	gaage, me	Amoning won, acrial p	ιοιο <b>σ</b> , μι	CVIOUS IIIS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	avaliable.	
Remarks:								
	enturated Ainches	of curfor-	water within the -	lot inus	dation vis	blo on on	rial imagass -	water table at a depth of 5 inches,
								tes wetland hydrology at this point.

Project/Site: Forsyth NW Middle	(	City/Coun	ntv. Rosebu	d County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		-	-		Sampling Point: DP01U
• • • • • • • • • • • • • • • • • • • •				nge: S33 T7N R39E	Camping Cont.
Landform (hillslope, terrace, etc.): Valley Floor					Slone (%): 1
					Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe				<u></u>	·
Are climatic / hydrologic conditions on the site typical for this	-				
Are Vegetation, Soil, or Hydrologys	ignificantly of	disturbed	? Are "	'Normal Circumstances" p	resent? Yes No
Are Vegetation, Soil, or Hydrology n	aturally pro	blematic?	? (If ne	eeded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ing point le	ocations, transects	, important features, etc.
	./				
Hydrophytic Vegetation Present? Yes No.		Is	the Sampled		
Hydric Soil Present? Yes No.  Wetland Hydrology Present? Yes No.	· ·	wi	ithin a Wetlar	nd? Yes	No
Remarks:	<u> </u>				
	24147				
Upland sample point adjacent to DP0	JIVV.				
VEGETATION – Use scientific names of plan	ts.				
Too Otestano (Diet siese 30 ft r			nt Indicator	Dominance Test work	sheet:
Tree Stratum (Plot size: 30 ft r			s? Status	Number of Dominant Sp	
1				That Are OBL, FACW, (excluding FAC-):	0 (A)
2					
4				Total Number of Domini Species Across All Stra	_
7.	0	= Total C	:over	Demonstrat Demoissant Co	
Sapling/Shrub Stratum (Plot size: 15 ft r )		rotal o		Percent of Dominant Sp That Are OBL, FACW, of	
1. Rosa woodsii	15			Decualance Index word	labart.
Populus angustifolia	3	-	FACW	Prevalence Index worl	Multiply by:
3	·				x 1 = 0
4	·				x 2 = 6
5	10				x 3 = 3
Herb Stratum (Plot size: 5 ft r	18	= Total C	over	FACU species 90	
1. Poa pratensis	25	~	FACU	UPL species 2	
2. Pascopyrum smithii	20	~	FACU	Column Totals: 96	
3. Rosa woodsii	15	-	FACU		2 05
4. Poa compressa	10		FACU	Prevalence Index	·
5. Cirsium arvense	5		FACU	Hydrophytic Vegetation 1 - Rapid Test for H	
6. Convolvulus arvensis	2		UPL	2 - Dominance Tes	
7. Lactuca serriola	1	-	FAC	3 - Prevalence Inde	
8					Adaptations <sup>1</sup> (Provide supporting
9					s or on a separate sheet)
10	70			Problematic Hydrop	ohytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r	76	= Total C	Cover	<sup>1</sup> Indicators of hydric soil	l and wetland hydrology must
1				be present, unless distu	
2.				Hydrophytic	
	_	= Total C	Cover	Vegetation	🗸
% Bare Ground in Herb Stratum 22				Present? Yes	s No
Remarks:					
No hydrophytic vegetation present a	it samp	le site	€.		
	-				

SOIL Sampling Point: DP01U

Profile Desc	ription: (Describe	to the depth	needed to docu	nent the i	ndicator	or confirn	n the absence	of indicators.)		
Depth	Matrix			x Feature:						
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks		
0 - 0.5	2.5Y 3/2	100					Clay			
0.5 - 12	2.5Y 4/2	100					Silty Clay			
12 - 16	2.5Y 4/3	100		- (			Clay	15% gypsum salts		
				<u> </u>						
_										
-										
-		<u> </u>		<u> </u>						
¹Type: C=Co	oncentration, D=Dep	oletion, RM=R	educed Matrix, CS	S=Covered	d or Coate	d Sand G	rains. <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.		
Hydric Soil	Indicators: (Applic	able to all LR	Rs, unless othe	rwise note	ed.)		Indicators	for Problematic Hydric Soils <sup>3</sup> :		
Histosol	(A1)		Sandy (	Gleyed Ma	ıtrix (S4)		1 cm N	Muck (A9) ( <b>LRR I, J</b> )		
Histic Ep	oipedon (A2)		Sandy I	Redox (S5	)		Coast Prairie Redox (A16) (LRR F, G, H)			
Black Hi	stic (A3)		Stripped	d Matrix (S	66)		Dark Surface (S7) (LRR G)			
Hydroge	n Sulfide (A4)		Loamy	Mucky Mir	neral (F1)		High Plains Depressions (F16)			
	d Layers (A5) ( <b>LRR</b>	•	Loamy	Gleyed Ma	atrix (F2)		(LR	(LRR H outside of MLRA 72 & 73)		
1 cm Mu	ıck (A9) ( <b>LRR F, G,</b>	H)	Deplete	d Matrix (I	=3)		Reduced Vertic (F18)			
Depleted	d Below Dark Surfac	e (A11)		Dark Surfa	. ,		Red Parent Material (TF2)			
	ark Surface (A12)			d Dark Su			Very Shallow Dark Surface (TF12)			
-	lucky Mineral (S1)			Depressio				(Explain in Remarks)		
	Mucky Peat or Peat (			ains Depre	•	•	<sup>3</sup> Indicators of hydrophytic vegetation and			
5 cm Mu	icky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 & 7	73 of LRR	H)		d hydrology must be present,		
							unless	disturbed or problematic.		
	_ayer (if present):									
			_							
. ,	ches):		_				Hydric Soil	Hydric Soil Present? Yes No		
Remarks:										
Gypsum c	rystals were pi	esent with	nin the soil co	lumn, a	nd coul	d be a s	sign of a hig	gh water table or due to the		
surroundi	ng sedimentary	rock form	nations and p	arent m	aterials	of the	soils.			
HYDROLO	GY									
Wetland Hy	drology Indicators:									
_	cators (minimum of o		check all that appl	y)			Seconda	ary Indicators (minimum of two required)		
	Water (A1)		Salt Crust				Surface Soil Cracks (B6)			
	iter Table (A2)		Aquatic In		s (B13)			ursely Vegetated Concave Surface (B8)		
Saturation			Hydrogen					inage Patterns (B10)		
	arks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots (C3)		
· ——	, ,					na Boota				
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)							,			
Drift Deposits (B3) (where not tilled)							yfish Burrows (C8)			
_	at or Crust (B4)		Presence		•	.)	· <u> </u>	uration Visible on Aerial Imagery (C9)		
	osits (B5)		Thin Muck				· <u> </u>	omorphic Position (D2)		
Inundation Vis ble on Aerial Imagery (B7) Other (Explain in Remarks)						FAC-Neutral Test (D5)				
	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)		
Field Obser										
Surface Wat			Depth (in							
Water Table Present? Yes No Depth (inches):							.,			
Saturation Present? Yes No _ Depth (inches): Wetland Hydrology Present? Yes No _ (includes capillary fringe)						y Present? Yes No				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:										
Remarks:										
No woth	and hydrolog	W procor	<b>\</b> +							
INO WELK	No wetland hydrology present.									

Project/Site: Forsyth NW Middle		City/County	,: Rosebu	d County	Sampling Date: 2023-07-11
Applicant/Owner: MDT					Sampling Point: DP01W
Investigator(s): R Jones		Section, To	ownship, Ra	nge: S33 T7N R39E	
Landform (hillslope, terrace, etc.): Valley Floor				-	e <sub>Slope (%):</sub> 1
· · · · · · ·			•		Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe					
Are climatic / hydrologic conditions on the site typical for thi					
Are Vegetation, Soil, or Hydrology	-				
Are Vegetation, Soil, or Hydrology				eeded, explain any answer	
SUMMARY OF FINDINGS – Attach site map					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes   V  N  Yes  N  N	No		ne Sampled nin a Wetlar		No
Remarks:					
Normal conditions exist.					
VEGETATION – Use scientific names of plan					
Tree Stratum (Plot size: 30 ft r	Absolute % Cover	Dominant Species?		Dominance Test work	
1				Number of Dominant Sp That Are OBL, FACW, of	or FAC
2				(excluding FAC-):	<u>3</u> (A)
3			<u> </u>	Total Number of Domin	
4				Species Across All Stra	ta: <u>4</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r	0	= Total Co	ver	Percent of Dominant Sp	
1. Salix exigua	5	~	FACW	That Are OBL, FACW, o	or FAC: <u>75.00</u> (A/B)
2. Salix amygdaloides	5	V	FACW	Prevalence Index work	
3. Populus angustifolia	2		FACW		Multiply by:
4				OBL species 10 47	x 1 = 10
5			<del></del>	FAC species 1	
Herb Stratum (Plot size: 5 ft r )	12	= Total Co	ver	FACU species 40	
1. Poa palustris	30	~	FACW	UPL species 4	
2. Pascopyrum smithii	30	~	FACU	Column Totals: 102	
3. Cirsium arvense	10		FACU		2 01
4. Eleocharis palustris	10		OBL	Prevalence Index	
5. Hordeum jubatum	5		FACW	Hydrophytic Vegetation 1 - Rapid Test for H	
6. Convolvulus arvensis	- <del>3</del>		UPL	✓ 2 - Dominance Tes	
7. Tragopogon dubius			UPL	✓ 3 - Prevalence Inde	
8. Lactuca serriola	_ 1		FAC	4 - Morphological A	Adaptations <sup>1</sup> (Provide supporting
9			<del></del>		s or on a separate sheet)
10		= Total Co		Problematic Hydror	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )				<sup>1</sup> Indicators of hydric soil be present, unless distu	l and wetland hydrology must urbed or problematic.
2.				Hydrophytic	
		= Total Co	ver	Vegetation	- <b>V</b> N-
% Bare Ground in Herb Stratum 10  Remarks:				Present? Yes	s No
	v paca:	0 a + b -	domi:	noo toot ond - :	nrovolonoo indev
Hydrophytic vegetation is present b below three.	y passii	ng the	uomina	nce test, and a p	Jievalence maex

US Army Corps of Engineers

B-43

Great Plains – Version 2.0

SOIL Sampling Point: DP01W

Profile Desc	ription: (Describe	to the dep	th needed to docum	ent the	indicator	or confirm	n the absence of i	ndicators.)		
Depth	Matrix		Redox	Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0 - 5	2.5Y 4/2	100					Silty Clay			
5 - 9	2.5Y 4/3	50					Silty Clay	_		
5 - 9	2.5Y 5/2	50					Silty Clay			
9 - 16	2.5Y 5/2	75	7.5YR 4/3	25	C	PL / M				
3 10	2.51 5/2	75	7.511( 4/5			1 L / W	Only Olay			
	-									
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, CS	=Covere	d or Coate	d Sand Gr	rains. <sup>2</sup> Locatio	n: PL=Pore Lining, M=Matrix.		
Hydric Soil I	ndicators: (Applic	able to all	LRRs, unless other	wise not	ted.)		Indicators for	Problematic Hydric Soils <sup>3</sup> :		
Histosol	` '		Sandy G	leyed Ma	atrix (S4)		1 cm Muck	(A9) ( <b>LRR I, J</b> )		
Histic Ep	pipedon (A2)		Sandy R	edox (S	5)		Coast Prairie Redox (A16) (LRR F, G, H)			
Black His	stic (A3)		Stripped	•	,		Dark Surfa	ice (S7) (LRR G)		
	n Sulfide (A4)				neral (F1)		High Plains	High Plains Depressions (F16)		
	l Layers (A5) ( <b>LRR F</b>	•		-	atrix (F2)		•	outside of MLRA 72 & 73)		
	ck (A9) ( <b>LRR F, G, I</b>		Depleted		. ,			Reduced Vertic (F18)		
	Below Dark Surface	e (A11)	Redox D		` ,		Red Parent Material (TF2)			
	ark Surface (A12)				urface (F7)			ow Dark Surface (TF12)		
	lucky Mineral (S1)	CO) // DD /	Redox D	•	ons (F8) essions (F	10)		plain in Remarks) ydrophytic vegetation and		
	Mucky Peat or Peat ( cky Peat or Peat (S		· · · —		73 of LRR	•		drology must be present,		
3 CITI WILL	icky real of real (3)	) ( <b>L</b> KK F)	(WILP	(A / Z &	73 OI LKK	П)		curbed or problematic.		
Restrictive L	_ayer (if present):						1 11000 0100	iansea or presionnatio.		
_	,									
,. <u> </u>	ches):						Hydric Soil Pre	sent? Yes 🗸 No		
Remarks:			Tryuno con i re	3cm: 103 110						
Many dis	stinct redoxii	morphi	c concentrati	ons v	vithin t	he dep	oleted matri	x from 9-16 inches.		
HYDROLO										
Wetland Hyd	drology Indicators:									
Primary Indic	ators (minimum of o	ne required	l; check all that apply	)			Secondary In	ndicators (minimum of two required)		
Surface	Water (A1)		Salt Crust (	B11)			Surface	Soil Cracks (B6)		
High Wa	High Water Table (A2) Aquatic Invertebrates (B13)					Sparsely	y Vegetated Concave Surface (B8)			
Saturation	Saturation (A3) Hydrogen Sulfide Odor (C1)						Drainage	e Patterns (B10)		
Water Marks (B1) Dry-Season Water Table (C2)						Oxidized	d Rhizospheres on Living Roots (C3)			
Sedimer	nt Deposits (B2)		Oxidized R	hizosphe	eres on Liv	ing Roots	(C3) (where	e tilled)		
Drift Dep	oosits (B3)		(where n	ot tilled)	)		Crayfish	Burrows (C8)		
Algal Mat or Crust (B4) Presence of Reduced Iron (C4)						Saturation	on Visible on Aerial Imagery (C9)			
	osits (B5)		Thin Muck	Surface	(C7)		✓ Geomor	phic Position (D2)		
Inundation Vis ble on Aerial Imagery (B7)  Other (Explain in Remarks)						✓ FAC-Ne	eutral Test (D5)			
	tained Leaves (B9)						Frost-He	eave Hummocks (D7) (LRR F)		
Field Observations:										
Surface Water	er Present? Y	es	No Depth (inc	hes):						
Water Table										
						and Hydrology Pr	esent? Yes V No No			
(includes capillary fringe)										
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:										
Remarks:										
Soil is ver	y moist. Inunda	tion visi	ole on aerial ima	gery,	surface	soil cra	cks, a positive	FAC-neutral test, and the		
geomorphic position of the point indicates wetland hydrology.										

Project/Site: Forsyth NW Middle	(	City/Count	tv: Rosebud	d County	Sampling Date: 2023-06-09		
Applicant/Owner: MDT		-	-		Sampling Point: DP02U		
Investigator(s): R Jones Section, Township, Range: S33 T7N R39E							
Landform (hillslope, terrace, etc.): Valley Floor		Slope (%): 15					
Subregion (LRR): G 60B	Lat: 46.	323648		Long: -106.843923	Datum: NAD 83		
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe							
Are climatic / hydrologic conditions on the site typical for this	time of yea	ar? Yes_	<b>✓</b> No_	(If no, explain in Re	emarks.)		
Are Vegetation, Soil, or Hydrologysi	ignificantly of	disturbed?	Are "	Normal Circumstances" p	resent? Yes No		
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematic?	(If ne	eded, explain any answei	rs in Remarks.)		
SUMMARY OF FINDINGS – Attach site map	showing	samplii	ng point le	ocations, transects	, important features, etc.		
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks:	o 🗸		the Sampled thin a Wetlan		No		
Upland sample point adjacent to DP02W.							
VEGETATION – Use scientific names of plant	ts.						
Tree Stratum (Plot size: 30 ft r			nt Indicator  Status	Dominance Test works			
1				Number of Dominant Sp That Are OBL, FACW, of	or FAC		
2				(excluding FAC-):	<u>1</u> (A)		
3				Total Number of Domina Species Across All Stra	_		
4	0						
Sapling/Shrub Stratum (Plot size: 15 ft r )  1. Sarcobatus vermiculatus			FAC	Percent of Dominant Sp That Are OBL, FACW, of			
2				Prevalence Index worl	ksheet:		
3.					Multiply by:		
4.					x 1 = 0		
5					x 2 = 0		
F 44 "	7	= Total Co	over	FAC species 17 FACU species 56	$x 3 = \frac{51}{224}$		
Herb Stratum (Plot size: 5 ft r  Pascopyrum smithii	55	/	FACU	UPL species 0			
2. Lepidium perfoliatum	10		FAC	Column Totals: 73			
3. Chenopodium album	1		FACU				
4				Prevalence Index			
5				Hydrophytic Vegetation			
6				1 - Rapid Test for H			
7				2 - Dominance Tes 3 - Prevalence Inde			
8					Adaptations <sup>1</sup> (Provide supporting		
9		-			s or on a separate sheet)		
10	~~	T-1-1-0		Problematic Hydrop	ohytic Vegetation <sup>1</sup> (Explain)		
Woody Vine Stratum (Plot size: 30 ft r )  1		= Total Co		<sup>1</sup> Indicators of hydric soil be present, unless distu	and wetland hydrology must urbed or problematic.		
2 % Bare Ground in Herb Stratum 34	_	= Total Co		Hydrophytic Vegetation Present? Yes	s No		
Remarks:				<u> </u>			
No hydrophytic vegetation present a	t samp	le site					

SOIL Sampling Point: DP02U

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

Depth	Matrix	<u> </u>	Redox Features	
(inches)	Color (moist)	<u>%</u>	Color (moist) % Type <sup>1</sup>	Loc <sup>2</sup> Texture Remarks
0 - 2	2.5Y 4/3	100		Silty Clay Loam
2 - 16	2.5Y 4/2	100		Clay
-				
_				
				<del></del>
	-			
			duced Matrix, CS=Covered or Coated	
-		licable to all LRI	Rs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Gleyed Matrix (S4)	1 cm Muck (A9) ( <b>LRR I, J</b> )
	pipedon (A2)		Sandy Redox (S5)	Coast Prairie Redox (A16) (LRR F, G, H)
	istic (A3)		Stripped Matrix (S6)	Dark Surface (S7) (LRR G)
	en Sulfide (A4) d Layers (A5) ( <b>LRf</b>	D E\	Loamy Mucky Mineral (F1)	High Plains Depressions (F16)
	uck (A9) (LRR F, G	•	<ul><li>Loamy Gleyed Matrix (F2)</li><li>Depleted Matrix (F3)</li></ul>	(LRR H outside of MLRA 72 & 73) Reduced Vertic (F18)
	d Below Dark Surf		Redox Dark Surface (F6)	Red Parent Material (TF2)
	ark Surface (A12)	,	Depleted Dark Surface (F7)	Very Shallow Dark Surface (TF12)
	Mucky Mineral (S1)	)	Redox Depressions (F8)	Other (Explain in Remarks)
2.5 cm l	Mucky Peat or Pea	at (S2) ( <b>LRR G, H</b>	) High Plains Depressions (F1	6) <sup>3</sup> Indicators of hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat	(S3) ( <b>LRR F</b> )	(MLRA 72 & 73 of LRR I	, , , , , , , , , , , , , , , , , , , ,
				unless disturbed or problematic.
	Layer (if present)	:		
Type:			_	
Depth (in	ches):		_	Hydric Soil Present? Yes No
Remarks:				
No hvdr	ic soil indic	ators obse	rved.	
HYDROLO	GY			
	drology Indicator	's:		
			neck all that apply)	Secondary Indicators (minimum of two required)
	Water (A1)	r ono roquirou, or	Salt Crust (B11)	Surface Soil Cracks (B6)
· · · · · · · · · · · · · · · · · · ·	ater Table (A2)		Aquatic Invertebrates (B13)	Sparsely Vegetated Concave Surface (B8)
Saturati			Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
	farks (B1)		Dry-Season Water Table (C2)	Oxidized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized Rhizospheres on Livin	
	posits (B3)		(where not tilled)	Crayfish Burrows (C8)
	at or Crust (B4)		Presence of Reduced Iron (C4)	<del></del>
_	posits (B5)		Thin Muck Surface (C7)	Geomorphic Position (D2)
	on Vis ble on Aeria	al Imagery (B7)	Other (Explain in Remarks)	FAC-Neutral Test (D5)
· · · · · · · · · · · · · · · · · · ·	Stained Leaves (B9			Frost-Heave Hummocks (D7) (LRR F)
Field Obser		•		
Surface Wat		Yes No	Depth (inches):	
Water Table	Present?		Depth (inches):	
Saturation P			Depth (inches):	
(includes cap	pillary fringe)			-
Describe Re	corded Data (strea	am gauge, monito	oring well, aerial photos, previous insp	pections), if available:
Remarks:				
No wetl	and hydrolc	nav nrasan	<del>t</del>	
IAO MEN	ana nyarok	Ay bieseli		

Project/Site: Forsyth NW Middle	(	Citv/Coun	tv: Rosebu	d County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		-	-		Sampling Point: DP02W
				nge: S33 T7N R39E	
Landform (hillslope, terrace, etc.): Valley Floor					e Slone (%)· 1
					Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe					
•					<u></u>
Are climatic / hydrologic conditions on the site typical for thi	-				
Are Vegetation, Soil, or Hydrology s					
Are Vegetation, Soil, or Hydrology r	naturally pro	blematic?	e (If ne	eeded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ng point l	ocations, transects	, important features, etc.
	lo lo		the Sampled		No
Sample point located within wetland VEGETATION – Use scientific names of plan					
VEGETATION – use scientific flames of plan	Absolute	Domina	nt Indicator	Dominance Test work	shoot:
Tree Stratum (Plot size: 30 ft r ) 1	% Cover	Species	? Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):	pecies
2				, , ,	
3				Total Number of Domin Species Across All Stra	_
4					( ,
Sapling/Shrub Stratum (Plot size: 15 ft r )	0	= rotal C	over	Percent of Dominant Sp That Are OBL, FACW, of	
2.				Prevalence Index wor	
3					Multiply by:
4					x 1 = 25
5				FACW species 5 FAC species 5	
Herb Stratum (Plot size: 5 ft r	0	= Total C	over	FAC species 5 FACU species 29	
Herb Stratum (Plot size: 31(1)   1   Eleocharis palustris	25	~	OBL	UPL species 1	
2. Elymus trachycaulus	20		FACU	Column Totals: 65	
3. Hordeum jubatum	5		FACW		
Pascopyrum smithii	5		FACU	Prevalence Index	= B/A = 2.63
5. Lactuca serriola	5		FAC	Hydrophytic Vegetation	
6. Helianthus annuus	2		FACU	1 - Rapid Test for H	
7. Chenopodium album	2		FACU	2 - Dominance Tes	
8. Bromus annus	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 C			l and wetland hydrology must
2		= Total C		Hydrophytic Vegetation Present? Yes	s No
Remarks:  A prevalence index below three indicates the second of the sec	cates th	ne pre	sence of	f hydrophytic ve	getation.

SOIL Sampling Point: DP02W

Profile Desc	cription: (Describe	to the de	oth needed to docur	nent the	indicator	or confir	m the absence of in	dicators.)
Depth	Matrix			x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 4	2.5Y 4/2	85	2.5Y 3/6	15	_ <u>C</u>	PL	Silty Clay	_
4 - 9	2.5Y 4/3	99	2.5Y 5/6	1	<u>C</u>	М	Clay	_
4 - 9			2.5Y 3/2	20	С	М	Clay	
9 - 16	2.5Y 4/2	98	2.5Y 5/6	2	<u>C</u>	М	Clay	_
					_		<u> </u>	
					_		<u> </u>	
					_	· <del></del>	<u></u>	
			=Reduced Matrix, CS			ed Sand G		n: PL=Pore Lining, M=Matrix.
_		cable to al	I LRRs, unless other					Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy (	-	. ,		1 cm Muck	
	pipedon (A2)		Sandy F	•	•			ie Redox (A16) ( <b>LRR F, G, H</b> )
	istic (A3)		Stripped					ce (S7) (LRR G)
	en Sulfide (A4)	<b>-</b> \			ineral (F1)		_	Depressions (F16)
	d Layers (A5) (LRR uck (A9) (LRR F, G,	,	Loamy (		Matrix (F2)		Reduced V	outside of MLRA 72 & 73)
	d Below Dark Surfac				face (F6)		_	Material (TF2)
	ark Surface (A12)	<i>(</i> A11)			urface (F7	)		w Dark Surface (TF12)
	Mucky Mineral (S1)		Beplete Redox [			,		ain in Remarks)
	Mucky Peat or Peat	(S2) (LRR	<del></del>		. ,	16)		drophytic vegetation and
	ucky Peat or Peat (S				73 of LRF		-	lrology must be present,
	aony i oat or i oat (o	(=:::::	(=			,		urbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soil Pres	sent? Yes V No No
Remarks:							-	
Promine	nt redoximo	rphic c	oncentration	s com	ımon v	vithin t	the depleted	matrix
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. p		0 00		• • • • • • • • • • • • • • • • • • • •	ano dopiotod	
HYDROLO	GY							
	drology Indicators	:						
_			ed; check all that appl	v)			Secondary In	dicators (minimum of two required)
	Water (A1)	-	Salt Crust					Soil Cracks (B6)
	ater Table (A2)		Aquatic In		es (R13)			Vegetated Concave Surface (B8)
Saturati			Hydrogen		, ,			Patterns (B10)
	, ,		Trydrogen					
	Marks (B1)		<del></del> •					Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized F	•		ing Roots	, ,	,
	posits (B3)		(where i			4	Crayfish	
_	at or Crust (B4)		Presence			4)		n Visible on Aerial Imagery (C9)
-	posits (B5)		Thin Muck					phic Position (D2)
	on Vis ble on Aerial	Imagery (E	37) Other (Exp	olain in R	emarks)			utral Test (D5)
	Stained Leaves (B9)						Frost-He	ave Hummocks (D7) (LRR F)
Field Obser			4 -					
Surface Wat			No Depth (in					
Water Table			No Depth (in					
Saturation P	resent? \ pillary fringe)	/es	No Depth (in	ches):		Wet	land Hydrology Pre	esent? Yes No
		n gauge, m	onitoring well, aerial p	ohotos, p	revious in	spections)	, if available:	
Remarks:								
Water sta	ined leaves, ox	dized r	hizospheres alo	ng livir	ng roots	, surfac	e soil cracks ar	nd the geomorphic position
of the poi	nt indicate wet	land hy	drology.					

Project/Site: Forsyth NW East	(	City/Count	ty: Rosebu	d County	Sampling Date: 2023-06-09
		-	-		Sampling Point: DP01U
				nge: S34 T7N R39E	. •
Landform (hillslope, terrace, etc.): Valley Floor		Local relie	ef (concave,	convex, none): Linear	Slope (%): 15
Subregion (LRR): G 58A	Lat: 46.	318332		Long: -106.834496	Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe				-	
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	ignificantly	disturbed?	? Are "	Normal Circumstances" p	resent? Yes No
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ng point le	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes N	o	Is t	the Sampled	Area	
Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N Remarks:	0	wit	thin a Wetlar	nd? Yes	No
Soils are wet from recent rains.					
Solis are wet from recent rains.					
VEGETATION – Use scientific names of plan	te				
VEGETATION – Use scientific frames of plan		Dominar	nt Indicator	Dominance Test work	sheet:
Tree Stratum (Plot size: 30 ft r	% Cover			Number of Dominant Sp	
1				That Are OBL, FACW, (excluding FAC-):	or FAC (A)
2					
3		-		Total Number of Domin Species Across All Stra	•
	0	= Total Co	over	Percent of Dominant Sp	
Sapling/Shrub Stratum (Plot size: 15 ft r )				That Are OBL, FACW,	
1				Prevalence Index wor	ksheet:
2				Total % Cover of:	Multiply by:
3				OBL species 0	x 1 = 0
5					x 2 = 0
	0	= Total Co	over		x 3 = 0
Herb Stratum (Plot size: 5 ft r			E 4 O L L	-	x 4 = 240
1. Pascopyrum smithii	45		FACU	UPL species 0	
2. Poa pratensis 3 Bromus arvensis	13 2		FACU	Column Totals: 60	(A) <u>240</u> (B)
0	- —		FACU	Prevalence Index	= B/A = 4.00
4.       5.				Hydrophytic Vegetation	n Indicators:
6.				1 - Rapid Test for H	
7				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		= Total Co		<sup>1</sup> Indicators of hydric soi be present, unless distu	l and wetland hydrology must
1					
2	0	= Total Co	over	Hydrophytic Vegetation Present? Yes	s No
% Bare Ground in Herb Stratum 40  Remarks:					
No hydrophytic vegetation present a	at camn	la cita			
no nyuropnytic vegetation present a	ιι σαπιμ	ic sile	•		

SOIL Sampling Point: DP01U

Profile Desc	cription: (Describe	to the depth n	eeded to docu	ment the i	ndicator	or confirn	n the absence	of indicators.)
Depth	Matrix			x Feature		. ,		
(inches)	Color (moist)		Color (moist)	%	Type'	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 3	2.5Y 4/2	100					Clay Loam	<del>.</del>
3 - 13	2.5Y 4/2	100					Clay	dry
13 - 16	2.5Y 4/2	100					Clay	moist
-								
-								
1- 0.0							. 21	
	oncentration, D=Dep Indicators: (Applic	•	•			d Sand Gi		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
Histosol		able to all LKF	Sandy		•			Muck (A9) (LRR I, J)
_	pipedon (A2)		Sandy	-				Prairie Redox (A16) ( <b>LRR F, G, H</b> )
l —	istic (A3)		-	d Matrix (S				Surface (S7) (LRR G)
	en Sulfide (A4)		Loamy	Mucky Mir	neral (F1)			Plains Depressions (F16)
	d Layers (A5) (LRR	•		Gleyed Ma			•	RR H outside of MLRA 72 & 73)
	uck (A9) ( <b>LRR F, G,</b>	•		ed Matrix (I Dark Surfa	,			ed Vertic (F18)
	d Below Dark Surfac ark Surface (A12)	e (ATT)		ed Dark Suna	` ,			arent Material (TF2) Shallow Dark Surface (TF12)
	Aucky Mineral (S1)			Depressio				(Explain in Remarks)
l —	Mucky Peat or Peat		) High Pl	ains Depre	essions (F	16)	<sup>3</sup> Indicators	of hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat (S	3) ( <b>LRR F</b> )	(ML	RA 72 & 7	73 of LRR	H)		d hydrology must be present,
Destrictive	Lavor (if propert).						unless	disturbed or problematic.
	Layer (if present):							
, , <u> </u>	ches):		_				Hydric Soil	Present? Yes No
Remarks:	Ciles).		_				Hyuric 30ii	rieseiii: ies No
			_					
Top 1 in	ch is saturat	ed from re	ecent rain.	•				
HYDROLO	GY							
Wetland Hy	drology Indicators:							
	cators (minimum of o	one required; ch		•				ary Indicators (minimum of two required)
	Water (A1)		Salt Crust					face Soil Cracks (B6)
	ater Table (A2)		Aquatic In					arsely Vegetated Concave Surface (B8)
Saturation			Hydrogen					inage Patterns (B10)
Water M			Dry-Seaso			ina Donto		dized Rhizospheres on Living Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized I	not tilled)		ing Roots		vhere tilled) yfish Burrows (C8)
	at or Crust (B4)		Presence			1)	·	uration Visible on Aerial Imagery (C9)
1 —	posits (B5)		Thin Mucl		•	7)	·	pmorphic Position (D2)
	on Vis ble on Aerial	Imagery (B7)	Other (Ex		,			C-Neutral Test (D5)
	stained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Wat			Depth (in					
Water Table	Present?	'es No _	<b>∠</b> Depth (in	iches):		_		
Saturation P		es V No	Depth (in	iches): 1		Wetl	and Hydrolog	y Present? Yes No
(includes co	pillary fringe)	n dauge monito	ring well aerial	nhotos nr	evious ins	nections)	if available:	
	COLUGU I JAIA I GILGAN	i gaage, monite	g won, acriai	ρ.10103, μι	5 + 10 d 5 11 l 5	poolioi io),	available.	
Describe Re	corded Data (stream							
Describe Re	corded Data (stream							
Describe Re				147			<u> </u>	
Describe Re	soil saturation		ecent rain.	Wetla	nd hyd	drolog	y is not p	resent.

Project/Site: Forsyth NW East	(	City/Co	unty:	Rosebuc	d County	Samplin	g Date:	2023-	06-09
Applicant/Owner: MDT		•	•		State: Montana	•	-		
Investigator(s): R Jones					nge: S34 T7N R39E	·			
Landform (hillslope, terrace, etc.): Valley Floor					=	е	Slo	ope (%):	0
Subregion (LRR): G 58A									
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe									
Are climatic / hydrologic conditions on the site typical for th	is time of yea	ar? Ye	:S	No	(If no, explain in R	emarks.)			
Are Vegetation, Soil, or Hydrology								N	o 🗸
Are Vegetation, Soil, or Hydrology					eded, explain any answe				
SUMMARY OF FINDINGS – Attach site map								eature	s, etc.
	No No		with	e Sampled in a Wetlar	nd? Yes	No		_	
Heavy rains the night before satural		area	•						
VEGETATION – Use scientific names of plan	Absolute	Domi	nant	Indicator	Dominance Test work	shoot:			
Tree Stratum (Plot size: 30 ft r )  1 2	% Cover	Speci	ies?	Status	Number of Dominant S That Are OBL, FACW, (excluding FAC-):	pecies	2		(A)
3					Total Number of Domin Species Across All Stra				(B)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1. Salix amygdaloides	<u>0</u> 15			er FACW	Percent of Dominant Sport That Are OBL, FACW,		100.0	00	(A/B)
2.					Prevalence Index wor	ksheet:			
3.					Total % Cover of:				
4					OBL species 0 FACW species 100	X			
5					FAC species 0				
Herb Stratum (Plot size: 5 ft r	15	= Tota	I Cov	er	FACU species 5				_
1. Alopecurus arundinaceus	70	~	,	FACW	UPL species 0		5 = 0		_ _
2. Salix amygdaloides	10			FACW	Column Totals: 105		<u>22</u>	.0	_ (B)
3. Poa palustris	_ 5			FACW	Prevalence Index	= R/A =	2.10		
4. Poa pratensis	_ 3			FACU FACU	Hydrophytic Vegetation				
5. Pascopyrum smithii 6 7					1 - Rapid Test for F  2 - Dominance Tes  3 - Prevalence Inde	Hydrophyt st is >50%	tic Vege	etation	
8					4 - Morphological A	Adaptatio	ns¹ (Pro	vide sup	porting
9					data in Remark				
Woody Vine Stratum (Plot size: 30 ft r	90	= Tota			Problematic Hydro  1Indicators of hydric soi be present, unless distu	l and wet	land hyd	drology r	
12					Hydrophytic Vegetation Present? Ye	s	No_		
Hydrophytic vegetation present.									

SOIL Sampling Point: DP01W

Profile Desc	ription: (Describe	to the dep	th needed to docur	ment the	indicator	or confir	m the absence o	f indicators.)
Depth	Matrix			x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		Remarks
0 - 4	2.5Y 5/2	100					Silty Clay	
4 - 14	2.5Y 4/2	93	2.5YR 5/8	1	С	М	Clay	
4 - 14			2.5YR 2.5/1	5	С	М		
4 - 14			2.5Y 5/4	1	С	М		
14 - 16	2.5Y 4/2	100					Clay	
-								
-								
-								
¹Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, CS	S=Covere	ed or Coate	ed Sand G	Grains. <sup>2</sup> Loca	tion: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all	LRRs, unless other	rwise no	ted.)		Indicators for	or Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy (	Gleyed M	atrix (S4)		1 cm Mu	ıck (A9) ( <b>LRR I, J</b> )
Histic Ep	oipedon (A2)		Sandy F	Redox (S	5)		Coast P	rairie Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi			Stripped	d Matrix (	S6)		Dark Su	rface (S7) (LRR G)
<u></u> ✓ Hydroge	en Sulfide (A4)		Loamy	Mucky M	ineral (F1)		High Pla	ins Depressions (F16)
Stratified	d Layers (A5) ( <b>LRR F</b>	=)		-	latrix (F2)		(LRR	H outside of MLRA 72 & 73)
	ıck (A9) ( <b>LRR F, G, I</b>			d Matrix	` '			d Vertic (F18)
-	d Below Dark Surface	e (A11)		Dark Surf				ent Material (TF2)
	ark Surface (A12)				urface (F7)	)		allow Dark Surface (TF12)
	flucky Mineral (S1)			Depression				xplain in Remarks)
	Mucky Peat or Peat (				ressions (F			f hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F)	(ML	.RA 72 &	73 of LRR	( <b>H</b> )		hydrology must be present,
Restrictive I	Layer (if present):						uniess d	listurbed or problematic.
Type:	Layer (ii present).							
Depth (inc	ches).						Hydric Soil P	Present? Yes V No No
Remarks:							1,7,	
	<b>/:</b> : .		مناطفنيين المصييين	-			:	_
Hydroge	en sulfide odd	or obse	ervea within a	and b	elow se	econa	soii norizo	on.
HYDROLO	GV.							
_	drology Indicators: cators (minimum of o	no roquiro	d: abook all that anni				Sacandan	y Indicators (minimum of two required)
		rie require	• • • • • • • • • • • • • • • • • • • •	•				·
	Water (A1)		Salt Crust		(0.40)			ce Soil Cracks (B6)
_	iter Table (A2)		Aquatic In					sely Vegetated Concave Surface (B8)
<u>✓</u> Saturation			<u> Hydrogen</u>					age Patterns (B10)
· ——	larks (B1)		-		Table (C2)		· · · · · · · · · · · · · · · · · · ·	zed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)				eres on Liv	ing Roots		ere tilled)
-	posits (B3)		·	not tilled	•			ish Burrows (C8)
Algal Ma	at or Crust (B4)				ed Iron (C4	1)		ation Visible on Aerial Imagery (C9)
Iron Dep	oosits (B5)		Thin Muck	Surface	(C7)			norphic Position (D2)
Inundation	on Vis ble on Aerial I	magery (B	7) Other (Exp	olain in R	emarks)		FAC-I	Neutral Test (D5)
Water-S	tained Leaves (B9)						Frost-	Heave Hummocks (D7) (LRR F)
Field Obser	vations:							
Surface Water	er Present? Y	es	No <u> </u>	ches):				
Water Table	Present? Y	es	No Depth (in	ches):				
Saturation P	resent? Y		No Depth (in				land Hydrology	Present? Yes No
(includes car Describe Re	oillary fringe) corded Data (stream	gauge, mo	onitoring well, aerial	photos. n	revious ins	pections)	. if available:	
	(23.23	5 52,	5 : ,	, <del>.</del> , P				
Remarks:								
Soile ora	caturated to	ourfo	oo Onon wat	tor wi	thin 6 f	- - - -	f cample on	oot
Jours are	e saturated to	Suila	ce. Open wa	rei Mi	u III 1 0 1	eet OI	sample Sp	ou.

Project/Site: Forsyth NW East	(	City/County	. Rosebud	d County	Sampling Date: 2023-07-11
-		-			Sampling Point: DP02U
Investigator(s): R Jones					
Landform (hillslope, terrace, etc.): Swale				=	Slope (%): 15
					Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 pe					
Are climatic / hydrologic conditions on the site typical for this					<u></u>
Are Vegetation, Soil, or Hydrology si					
Are Vegetation, Soil, or Hydrologyn					
SUMMARY OF FINDINGS – Attach site map					
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks:	_ <u> </u>		ne Sampled nin a Wetlar		No
Sample point not located within a we	etland.				
VEGETATION – Use scientific names of plant	ts.				
Tree Stratum (Plot size: 30 ft r		Dominant		Dominance Test work	sheet:
1	% Cover			Number of Dominant Sp That Are OBL, FACW, of	•
2.				(excluding FAC-):	<u>0</u> (A)
3				Total Number of Domin	
4				Species Across All Stra	ta: <u>1</u> (B)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1		= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW, o	
2.				Prevalence Index work	ksheet:
3.					Multiply by:
4					x 1 = 0
5					x 2 = 0 x 3 = 0
Herb Stratum (Plot size: 5 ft r )	0	= Total Co	ver	FACU species 64	
1. Pascopyrum smithii	53	~	FACU	UPL species 2	
2. Bromus arvensis	5	-	FACU	Column Totals: 66	
3. Chenopodium album	5		FACU		nu 103
4. Agropyron cristatum	2		UPL	Prevalence Index	
5. Helianthus annuus	1		FACU	Hydrophytic Vegetation 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 Hydror	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	0	= Total Co	ver	Hydrophytic Vegetation Present? Yes	s No
Remarks:				1	
No hydrophytic vegetation present a	t samp	le site.			

SOIL Sampling Point: DP02U

Profile Desc	cription: (Describe	e to the depth n	eeded to docui	ment the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix			x Feature			_	
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0 - 2	2.5Y 4/3	_ 100					Silty Clay Loam	dry
2 - 11	2.5Y 4/2	100					Silty Clay	dry
11 - 13	2.5Y 4/3	100					Clay	Hardpan
-								
-								
-		<del>-</del>						
	-							
	-							
17			december 100			-1.01.0	21 -	- Di Dan Linia M Matri
	oncentration, D=De Indicators: (Appli	•				d Sand G		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
Histosol		cable to all ERI	Sandy (					fuck (A9) (LRR I, J)
l —	pipedon (A2)			Redox (S5				Prairie Redox (A16) ( <b>LRR F, G, H</b> )
-	istic (A3)		-	d Matrix (S				Surface (S7) (LRR G)
l —	en Sulfide (A4)			Mucky Mir	,			lains Depressions (F16)
	d Layers (A5) ( <b>LRR</b>	F)		Gleyed Ma			_	R H outside of MLRA 72 & 73)
1 cm Mu	uck (A9) ( <b>LRR F, G</b>	, <b>H</b> )	Deplete	d Matrix (I	F3)		Reduc	ed Vertic (F18)
Depleted	d Below Dark Surfa	ce (A11)	Redox I	Dark Surfa	ace (F6)			arent Material (TF2)
	ark Surface (A12)				ırface (F7)			hallow Dark Surface (TF12)
	Mucky Mineral (S1)	(00) (100 0 11		Depression		4.00		(Explain in Remarks)
	Mucky Peat or Peat				essions (F	•		of hydrophytic vegetation and
5 cm IVIL	ucky Peat or Peat (	53) ( <b>LRR F</b> )	(IVIL	.RA /2 & /	73 of LRR	H)		d hydrology must be present, disturbed or problematic.
Restrictive I	Layer (if present):						unicoo	distarbed of problematic.
Type: Ha			_					
Depth (in	ches): 13						Hydric Soil	Present? Yes No
Remarks:								
No hydr	ic soil indica	tors obse	rved					
i vo i i y a i	ic son maice		vca.					
HYDROLO	GY							
	drology Indicators	<u>.</u>						
	cators (minimum of		eck all that anni	v)			Seconda	ary Indicators (minimum of two required)
	Water (A1)	one required, cr	Salt Crust			-		face Soil Cracks (B6)
	ater Table (A2)		Aquatic In		e (R13)			rsely Vegetated Concave Surface (B8)
Saturation			Hydrogen					nage Patterns (B10)
	farks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized F			na Roots		where tilled)
	posits (B3)			not tilled)		ng rtoots		yfish Burrows (C8)
	at or Crust (B4)		Presence			.)		uration Visible on Aerial Imagery (C9)
	posits (B5)		Thin Muck		•	,		emorphic Position (D2)
-	on Vis ble on Aeria	Imagery (R7)	Other (Ex					C-Neutral Test (D5)
	Stained Leaves (B9)		Outer (EX	Jiaiii iii iko	iliaiks)			st-Heave Hummocks (D7) (LRR F)
Field Obser								or reasonations (27) (21111)
Surface Wat		Yes No _	✓ Depth (in	ches):				
Water Table		Yes No _						
Saturation P		Yes No _					land Hydrolog	y Present? Yes No
(includes car	pillary fringe)							,
Describe Re	corded Data (stream	m gauge, monito	ring well, aerial	photos, pr	evious ins	pections),	if available:	
Domonico								
Remarks:								
No wetla	and hydrolo	gy present	t <b>.</b>					

Project/Site: Forsyth NW East	(	City/Cou	<sub>ıntv:</sub> Rosebı	ud County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		-	-		Sampling Point: DP02W
Investigator(s): R Jones				ange: S34 T7N R39E	
Landform (hillslope, terrace, etc.): Valley Floor					'e Slope (%): 0
			•		Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 p					
Are climatic / hydrologic conditions on the site typical for the	nis time of yea	ar? Yes	s No	(If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology	-				
Are Vegetation, Soil, or Hydrology	naturally pro	blematio	c? (If r	needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling point	locations, transects	s, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes  V  Yes	No		s the Sample vithin a Wetla		, No
Sampled area is a wetland.					
VEGETATION – Use scientific names of pla		Domin	ant Indicator	Dominance Test work	rahaati
Tree Stratum (Plot size: 30 ft r			ant Indicator es? Status		
1.				That Are OBL, FACW,	or FAC
2				(excluding FAC-):	<u> </u>
3				Total Number of Domir Species Across All Stra	_
4	0	- Total	Cover	·   '	
Sapling/Shrub Stratum (Plot size: 15 ft r )				Percent of Dominant S That Are OBL, FACW,	
1				Prevalence Index wor	rksheet:
2				Total % Cover of:	Multiply by:
3				OBL species 1	x 1 = 1
5.					x 2 = 140
	0	= Total	Cover	-	x 3 = 0
Herb Stratum (Plot size: 5 ft r			E 4 0)4/	FACU species 4	
1. Alopecurus arundinaceus	_ 70		FACW	UPL species 0	
2. Poa pratensis 3. Pascopyrum smithii	$-\frac{2}{2}$		FACU	Column Totals: 75	(A) <u>157</u> (B)
4 Eleocharis palustris	$-\frac{2}{1}$		FACU OBL	Prevalence Index	c = B/A = 2.09
T		-		Hydrophytic Vegetati	on Indicators:
5 6				1 - Rapid Test for	Hydrophytic Vegetation
7				2 - Dominance Tes	
8				✓ 3 - Prevalence Ind	
9.					Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
10					ophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )		= Total		<u> </u>	il and wetland hydrology must
1				-	
2	_	= Total		Hydrophytic Vegetation Present? Ye	es No
Remarks:					
Hydrophytic vegetation is present.					

SOIL Sampling Point: DP02W

Profile Desc	ription: (Describe	to the depth	needed to docu	ment the i	ndicator	or confirn	n the absence of in	dicators.)
Depth	Matrix			x Feature	s			
(inches)	Color (moist)	<u> %</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 4	2.5Y 5/2	100					Silty Clay Loam	
4 - 16	2.5Y 4/2	100					Clay	
-								
-								
-								
_								
1Typo: C=C	oncentration, D=De	nlotion DM-Da	oduced Matrix C	S=Covered	d or Coato	d Sand G	rains <sup>2</sup> Location	o: PI -Poro Lining M-Matrix
	Indicators: (Appli					u Sanu Gi		n: PL=Pore Lining, M=Matrix.  Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy				1 cm Muck	•
	oipedon (A2)		-	Redox (S5				ie Redox (A16) ( <b>LRR F, G, H</b> )
Black Hi			-	d Matrix (S				ce (S7) ( <b>LRR G</b> )
<u></u> ✓ Hydroge	n Sulfide (A4)		Loamy	Mucky Mir	neral (F1)		High Plains	Depressions (F16)
	d Layers (A5) ( <b>LRR</b>	,	-	Gleyed Ma			•	outside of MLRA 72 & 73)
	ıck (A9) ( <b>LRR F, G</b> ,			d Matrix (I	•		Reduced V	• •
	d Below Dark Surfa	ce (A11)		Dark Surfa	, ,			Material (TF2)
·	ark Surface (A12)			d Dark Su Depressio				w Dark Surface (TF12) ain in Remarks)
-	Mucky Mineral (S1) Mucky Peat or Peat	(S2) (I RR G H		ains Depre	` ,	16)		drophytic vegetation and
	icky Peat or Peat (		. —	.RA 72 & 7	•	•		Irology must be present,
_	, , , , , , , , , , , , , , , , , , , ,	,	`			,		urbed or problematic.
Restrictive I	Layer (if present):							
Type:			_					
Depth (inc	ches):		<u> </u>				Hydric Soil Pres	sent? Yes 🗸 No
Remarks:								
Hydroge	en sulfide oc	lor observ	ed in seco	nd soi	l horiz	on		
ligalogo	on damae de		700 III 0000	,,,a 501		011.		
HYDROLO	GY							
	drology Indicators							
_	cators (minimum of		heck all that ann	v)			Secondary In	dicators (minimum of two required)
-	Water (A1)	one required, e	Salt Crust				· · · · · · · · · · · · · · · · · · ·	Soil Cracks (B6)
	iter Table (A2)		Aquatic In		s (B13)			Vegetated Concave Surface (B8)
✓ Saturation			✓ Hydrogen					e Patterns (B10)
	larks (B1)		Dry-Seaso				=	Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized I			ina Roots		
	posits (B3)			not tilled)				Burrows (C8)
-	at or Crust (B4)		Presence	,		<b>!</b> )		n Visible on Aerial Imagery (C9)
Iron Dep			Thin Muck			,		phic Position (D2)
	on Vis ble on Aerial	Imagery (B7)	Other (Ex					utral Test (D5)
	tained Leaves (B9)		`		,			ave Hummocks (D7) (LRR F)
Field Observ	vations:							
Surface Wate	er Present?	Yes No	Depth (in	ches):				
Water Table			Depth (in					
Saturation Pr			Depth (in				and Hydrology Pre	esent? Yes No
(includes cap	oillary fringe)							
Describe Red	corded Data (strear	n gauge, monit	oring well, aerial	photos, pr	evious ins	pections),	ıt avaılable:	
Damesilia								
Remarks:								
Hydroge	en sulfidic o	dor and sa	aturated to	8 incl	nes.			

Project/Site: Forsyth NW East  Applicant/Owner: MDT  Investigator(s): R Jones  Section, Township, Range: S34 T7N R39E  Landform (hillslope, terrace, etc.): Swale  Local relief (concave, convex, none): None  Slope (%  Subregion (LRR): G 60B  Lat: 46.319596  Long: -106.836468  Datum: Not mapped  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	3U 3: <u>10</u> AD 83
Investigator(s): R Jones  Section, Township, Range: S34 T7N R39E  Landform (hillslope, terrace, etc.): Swale  Local relief (concave, convex, none): None  Slope (%  Subregion (LRR): G 60B  Lat: 46.319596  Long: -106.836468  Datum: Not mapped  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	): <u>10</u> AD 83
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (% Subregion (LRR): G 60B Lat: 46.319596 Long: -106.836468 Datum: Not mapped Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)  Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 1.  Are Vegetation Present? Yes No Wetland Hydrology Present? Ye	AD 83
Subregion (LRR): G 60B	AD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 percent slopes, occasionally flooded  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	No <u> </u>
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No No No If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important feature. Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Ves No Is the Sampled Area within a Wetland? Yes No Ves	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No No No If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important feature. Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Ves No Is the Sampled Area within a Wetland? Yes No Ves	
Are Vegetation Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important feature   Hydrophytic Vegetation Present?	
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Wetland Hydrology Present? Yes No Within a Wetland?  Remarks:  Upland sample point adjacent to DP03w.  VEGETATION – Use scientific names of plants.  Tree Stratum (Plot size: 30 ft r )	es, etc.
Hydric Soil Present?   Yes	
VEGETATION - Use scientific names of plants.	
VEGETATION – Use scientific names of plants.       Tree Stratum (Plot size: 30 ft r ) 1.	
Absolute	
Absolute	
Tree Stratum (Plot size: 30 ft r )	
1	
2	
3	(A)
Sapling/Shrub Stratum (Plot size: 15 ft r )  1	
Sapling/Shrub Stratum (Plot size: 15 ft r )  1 That Are OBL, FACW, or FAC: 0.00	_ (B)
I	(A/B)
2. Prevalence Index worksheet:	
3. Total % Cover of: Multiply by:	
OBL species	
5. FACW species $\frac{0}{3}$ $x = \frac{0}{9}$	
Herb Stratum (Plot size: 5 ft r )	_
1. Bromus arvensis 75 ► FACU UPL species 2 x 5 = 10	_
2. Pascopyrum smithii 5 FACU Column Totals: 85 (A) 339	(B)
3 Lactuca serriola 3 FAC Transporant dubius 2 Prevalence Index = B/A = 3.99	
4. Hydrophytic Vegetation Indicators:	
5 1 - Rapid Test for Hydrophytic Vegetation	
6 2 - Dominance Test is >50%	
7	
9 4 - Morphological Adaptations¹ (Provide su data in Remarks or on a separate sheet	
10 Problematic Hydrophytic Vegetation (Expl.	•
Woody Vine Stratum (Plot size: 30 ft r )  85 = Total Cover	,
2	
Remarks:	
No hydrophytic vegetation present at sample site.	

SOIL Sampling Point: DP03U

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

Depth	Matrix		Redox Features	2
(inches)	Color (moist)		olor (moist)	oc <sup>2</sup> Texture Remarks
0 - 3	2.5Y 4/2	100		Clay
3 - 12	2.5Y 5/2	100		Silty Clay
12 - 16	2.5Y 4/3	100		Silty Clay
_				
		<del>_</del>		<del></del> <del></del>
				<del></del>
	_			
-				
<sup>1</sup> Type: C=Co	oncentration. D=De	epletion. RM=Redu	uced Matrix, CS=Covered or Coated Sa	and Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
			, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy Gleyed Matrix (S4)	1 cm Muck (A9) ( <b>LRR I, J</b> )
	pipedon (A2)		Sandy Redox (S5)	Coast Prairie Redox (A16) (LRR F, G, H)
Black Hi	istic (A3)		Stripped Matrix (S6)	Dark Surface (S7) (LRR G)
Hydroge	en Sulfide (A4)		Loamy Mucky Mineral (F1)	High Plains Depressions (F16)
	d Layers (A5) ( <b>LRR</b>		Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
	uck (A9) ( <b>LRR F, G</b>		Depleted Matrix (F3)	Reduced Vertic (F18)
-	d Below Dark Surfa	ace (A11)	Redox Dark Surface (F6)	Red Parent Material (TF2)
	ark Surface (A12)		Depleted Dark Surface (F7)	Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
-	Mucky Mineral (S1) Mucky Peat or Peat		<ul><li>Redox Depressions (F8)</li><li>High Plains Depressions (F16)</li></ul>	Indicators of hydrophytic vegetation and
	ucky Peat or Peat (		(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
0 0111110	iony i out of i out (	(20)	(	unless disturbed or problematic.
Restrictive I	Layer (if present):			·
Type:				
Depth (inc	ches):	_		Hydric Soil Present? Yes No
Remarks:	,	<u> </u>		
			_	
No hydri	ic soil indica	ators observ	ved.	
	CV			
HYDROLO	Gi			
	drology Indicators	s:		
_			ck all that apply)	Secondary Indicators (minimum of two required)
Wetland Hyd	drology Indicators			
Wetland Hyd Primary Indic Surface	drology Indicators cators (minimum of Water (A1)		Salt Crust (B11)	Surface Soil Cracks (B6)
Wetland Hyd Primary Indic Surface High Wa	drology Indicators cators (minimum of Water (A1) ater Table (A2)		Salt Crust (B11) Aquatic Invertebrates (B13)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8)
Wetland Hyd Primary Indic Surface High Wa Saturatio	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3)		Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	<ul><li>Surface Soil Cracks (B6)</li><li>Sparsely Vegetated Concave Surface (B8)</li><li>Drainage Patterns (B10)</li></ul>
Wetland Hyd Primary Indic Surface High Wa Saturatic Water M	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1)		Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	<ul> <li>Surface Soil Cracks (B6)</li> <li>Sparsely Vegetated Concave Surface (B8)</li> <li>Drainage Patterns (B10)</li> <li>Oxidized Rhizospheres on Living Roots (C3)</li> </ul>
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)		Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) Roots (C3) (where tilled)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hyd Primary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	f one required; che	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	f one required; che	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9)	f one required; che	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations:	f one required; che	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hyderimary Indices Surface High Was Saturation Water MSedimer Drift Dep Algal Mas Iron Dep Inundation Water-S Field Observing	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present?	f one required; che	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Observ Surface Water	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present?	f one required; che  Il Imagery (B7) )  Yes No Yes No	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) Roots (C3) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyderimary Indices Surface High Was Saturation Sedimer Drift Dep Algal Mas Iron Dep Inundation Water Sedimer Water-Serield Observation Projection	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent?	Il Imagery (B7) )  Yes No Yes No Yes No	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyderimary Indices Surface High Was Saturation Sedimer Drift Dep Algal Mas Iron Dep Inundation Water Sedimer Water-Serield Observation Projection	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent?	Il Imagery (B7) )  Yes No Yes No Yes No	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyderimary Indices Surface High Was Saturation Sedimer Drift Dep Algal Mas Iron Dep Inundation Water Sedimer Water-Serield Observation Projection	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent?	Il Imagery (B7) )  Yes No Yes No Yes No	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyderimary Indices Surface High Water Mater Sedimer Mater Sedimer Mater Sedimer Mater Sedimer Mater Sedimer Mater Table Saturation Projection Mater Capacity Mater Capaci	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent? poillary fringe)	Il Imagery (B7) )  Yes No Yes No Yes No	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent? pillary fringe) corded Data (strea	one required; che  Il Imagery (B7)  Yes No  Yes No  Yes No  Im gauge, monitorio	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent? poillary fringe)	one required; che  Il Imagery (B7)  Yes No  Yes No  Yes No  Im gauge, monitorio	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)
Wetland Hyd Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Vis ble on Aeria stained Leaves (B9) vations: er Present? Present? resent? pillary fringe) corded Data (strea	one required; che  Il Imagery (B7)  Yes No  Yes No  Yes No  Im gauge, monitorio	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living I (where not tilled) Presence of Reduced Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) FAC-Neutral Test (D5) Frost-Heave Hummocks (D7) (LRR F)

Project/Site: Forsyth NW East	(	City/Count	<sub>v:</sub> Rosebu	d County	Sampling Date: 2023-06-09
Applicant/Owner: MDT		•	-		Sampling Point: DP03W
Investigator(s): R Jones				nge: S34 T7N R39E	
Landform (hillslope, terrace, etc.): Valley Floor				=	e Slope (%): 1
					Datum: NAD 83
Soil Map Unit Name: 98 - Harlem silty clay, 0 to 2 per					
Are climatic / hydrologic conditions on the site typical for this					<u>-                                    </u>
Are Vegetation, Soil, or Hydrologysi					
Are Vegetation, Soil, or Hydrologyn				eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map				ocations, transects	, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes   V  No  No  No  No  No  No  No  No  No			he Sampled hin a Wetlar		No
Wetland sample point located in the	middle	wetla	nd cell v	vithin the site.	
VEGETATION – Use scientific names of plant	ts.				
	Absolute		t Indicator	Dominance Test work	sheet:
	% Cover			Number of Dominant S	
1				That Are OBL, FACW, (excluding FAC-):	1 (A)
3				Total Number of Domin	nant
4.				Species Across All Stra	_
Sapling/Shrub Stratum (Plot size: 15 ft r	0		over	Percent of Dominant Sp That Are OBL, FACW,	
1				Prevalence Index wor	ksheet:
3.				Total % Cover of:	Multiply by:
4					x 1 = <u>0</u>
5.					x 2 = 130
-6	0	= Total Co	over		x 3 = 0
Herb Stratum (Plot size: 5 ft r	65	.,	FACW	FACU species 25	
1. Alopecurus arundinaceus 2 Poa pratensis	15		FACU	UPL species 0 Column Totals: 90	
Pascopyrum smithii	10		FACU		
4				Prevalence Index	
5.				Hydrophytic Vegetation	
6				✓ 1 - Rapid Test for I	
7				<ul><li>✓ 2 - Dominance Tes</li><li>✓ 3 - Prevalence Inde</li></ul>	
8				I —	Adaptations <sup>1</sup> (Provide supporting
9				data in Remark	s or on a separate sheet)
10	~~			Problematic Hydro	phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft r )  1		= Total Co		<sup>1</sup> Indicators of hydric soi be present, unless distu	il and wetland hydrology must urbed or problematic.
2		= Total Co		Hydrophytic Vegetation Present? Ye	s No
Remarks:				<u> </u>	
Hydrophytic vegetation present at sa	ample s	site.			

SOIL Sampling Point: DP03W

Profile Desc	cription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Feature		. 2		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 4	2.5Y 4/2	100					Silty Clay Loam	very wet
4 - 9	2.5Y 5/2	100					Clay	
9 - 14	2.5Y 5/2	92	2.5Y 3/1	2	С	M	Clay	
9 - 14			10YR 5/8	5	<u>C</u>	M		
-								
	-		-		·			
¹Type: C=C	oncentration D=De	nletion RM	=Reduced Matrix, C	S=Covere	ed or Coate	ed Sand Gr	rains <sup>2</sup> l oc	cation: PL=Pore Lining, M=Matrix.
•			LRRs, unless othe			a cana ci		for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy				1 cm N	Muck (A9) ( <b>LRR I, J</b> )
Histic E	pipedon (A2)		<del></del> ·	Redox (S	. ,			Prairie Redox (A16) (LRR F, G, H)
Black Hi	istic (A3)		Strippe	d Matrix (	S6)		Dark S	Surface (S7) (LRR G)
	en Sulfide (A4)			-	neral (F1)		_	lains Depressions (F16)
	d Layers (A5) (LRR			•	atrix (F2)		•	R H outside of MLRA 72 & 73)
	uck (A9) ( <b>LRR F, G</b> , d Below Dark Surfa			d Matrix ( Dark Surf				ed Vertic (F18) arent Material (TF2)
	ark Surface (A12)	00 (7111)			urface (F7)	)		hallow Dark Surface (TF12)
	Mucky Mineral (S1)		<del></del> ·	Depression	• •			(Explain in Remarks)
	Mucky Peat or Peat	. , .	· · · — ·	ains Depr	essions (F	16)	<sup>3</sup> Indicators	of hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat (	33) ( <b>LRR F</b> )	) (ML	.RA 72 &	73 of LRR	<b>H</b> )		d hydrology must be present,
Dantuintina	I ('f						unless	disturbed or problematic.
	Layer (if present):							
	ahaa);						Livelyie Ceil	Present? Yes No
	ches):						Hydric Soil	riesent: res No
Remarks:								
	•		•	_		-	_	de walls of the hole. Although
no hydric	soil indicator v	vas obse	erved, the soil m	neets th	ne NRCS	definiti	on of a hyd	Iric soil.
HYDROLO	GY							
Wetland Hy	drology Indicators	:						
Primary India	cators (minimum of	one require	ed; check all that appl	y)			Seconda	ary Indicators (minimum of two required)
	Water (A1)		Salt Crust	(B11)			Surf	ace Soil Cracks (B6)
-	ater Table (A2)		Aquatic In	vertebrate	es (B13)			rsely Vegetated Concave Surface (B8)
✓ Saturation	` '		Hydrogen				· · · · · · · · · · · · · · · · · · ·	nage Patterns (B10)
	larks (B1)		Dry-Seaso		, ,			dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)					ing Roots		where tilled)
	posits (B3)		,	not tilled	•	• \	<del></del>	yfish Burrows (C8)
	at or Crust (B4)		Presence			+)		uration Visible on Aerial Imagery (C9)
	posits (B5) ion Vis ble on Aerial	Imagany (E	Thin Muck 37) Other (Ex					morphic Position (D2) C-Neutral Test (D5)
· ·	Stained Leaves (B9)	iiiageiy (E	or) Officer (EX	Jiaili III K	elliaiks)		·	st-Heave Hummocks (D7) ( <b>LRR F</b> )
Field Obser	, ,						1103	(EIII)
Surface Wat		Yes	No Pepth (in	ches):				
Water Table			No Depth (in			_		
Saturation P			No Depth (in			Wetl	and Hydrolog	y Present? Yes V No No
(includes cap	pillary fringe)							,
Describe Re	as and and Data Jahrasan							
Docoribo 110	corded Data (strear	n gauge, m	onitoring well, aerial	photos, p	revious ins	pections),	if available:	
	corded Data (strear	n gauge, m	onitoring well, aerial	photos, p	revious ins	pections),	if available:	

Pit filled in from groundwater. Additionally, a positive FAC-neutral test indicates wetland hydrology.

# MDT Montana Wetland Assessment Form (revised March 2008)

**1. Project Name:** Forsyth NW - East **2. MDT Project #**: STPP 14(9)259 **Control #**: 9680000

3. Evaluation Date: 06/09/2023 4. Evaluator(s): R Jones 5. Wetlands/Site #(s): Forsyth NW - East

**6. Wetland Location(s): i. Legal:** T7N,R39E,34 **Latitude/Longitude:** 46.319774, -106.836602 : Center of AA

ii. Approx. Stationing or Mileposts: ~262.3 on US 12

iii. Watershed: 13

Watershed Name, County: Middle Yellowstone, Rosebud

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. Wetlands potentially affected by MDT project

2. Mitigation wetlands are construction

8. Wetland size:

. \_\_\_ Mitigation wetlands; pre-construction 8. Wetland size: 0.840 acres (measured)

3. X Mitigation wetlands; post-construction 9. Assessment area (AA): 0.840 acres (measured)

**4.** Other:

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	Е	SI	100.00

Abbreviations: (see manual for definitions)

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

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

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

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)
ABUNDANT

#### 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.): Wetlands expanded again in 2023 and more willow growth was observed.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Convolvulus arvensis

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is a roadside depression excavated parallel to US 12. Surrounding land includes agriculture (grazing) and a secondary highway.

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	М	< NO	YES>	L
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA

**Comments:** Emergent vegetation is dominant but cottonwood saplings and willows are becoming well established. Some portions of the site may eventually transition to PSS.

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

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

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

Primary or critical habitat (list species)

Secondary habitat (list species)

Incidental habitat (list species)

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 IPaC

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

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

Primary or critical habitat (list species)

Secondary habitat (list species)

Incidental hab

Scarlet Ammannia - Ammannia robusta,

Incidental habitat (list species)
Great Blue Heron(S) - 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	.9Н	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013.

## 14C. General Wildlife Habitat Rating:

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

Substantial (based on any of the following [check]): observations of abundant wildlife #s or high species diversity (during any period) abundant wildlife sign such as scat, tracks, nest structures, game trails, etc. presence of extremely limiting habitat features not available in the surrounding area interviews with local biologists with knowledge of the AA	Minimal (based on any of the following [check]):  X few or no wildlife observations during peak use periods X little to no wildlife sign sparse adjacent upland food sources interviews with local biologists with knowledge of the AA
<b>Moderate</b> (based on any of the following [check]): observations of scattered wildlife groups or individuals or relatively few species during	peak periods
common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, adequate adjacent upland food sources interviews with local biologists with knowledge of the AA	• •

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

Structural diversity (see #13)		High							Moderate								Low			
Class cover distribution (all vegetated classes)		Ev	en			Uneven			Even			Uneven				Even				
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	Е	Е	Н	Е	Ш	Н	Н	Е	Н	Н	М	Е	Ι	М	М	Е	Н	М	М
Moderate disturbance at AA (see #12i)	Н	Н	Н	Н	Н	Η	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)

Training (and the deficience from the first and the matrix below to arrive at [choic] the fariotical points and fathing)												
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:** Dead deer (likely roadkill) observed during site visit. This area is close to the roadway and will likely never achieve a high wildlife habitat rating.

**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		Permanent / Perennial							Seasonal / Intermittent						Temporary / Ephemeral					
in AA		remanent/refemilial					Jea	30HaH	IIICIIIII	шети			16111	Jorary	Ерпсі	liciai				
Aquatic hiding / resting / escape cover	Opt	imal	Adeo	quate	Po	oor	Opt	imal	Adeo	quate	Po	or	Opt	imal	Adeo	luate	Po	oor		
Thermal cover optimal / suboptimal	0	S	0	S	0	S	0	S	0	S	0	Ø	0	S	0	Ø	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 exists on site.

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

 64 /
 42 =
 1.52

 Flood-prone width
 Bankfull width (ER)



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 subject to overbank flows from Big Porcupine Creek.

- **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: AA subject to ponding following large precipitation or runoff events. Entire depression was heavily ponded on 06/07/2023. Surface water depth was approximately 6-24" and had receded to 6-12" within the wetland cells by 06/09/2023. Entire area was flooded in July during time of aerial imagery capture.

**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.			developmen nutrients, or t use with po nutrients, o substantially	t for "probable of oxicants or AA otential to delive or compounds su or impaired. Majo	waterbodies in reauses" related receives or surer high levels of such that other for sedimentations of eutrophical	to sediment, rounding land sediments, unctions are n, sources of	
% cover of wetland vegetation in AA	>= 7	70%	< 7	0%	>= 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	.9H .7M .6M .4M			.4M	.3L	.2L	.1L

Comments: Entire depression was heavily ponded on 06/07/2023. Surface water depth was approximately 6-24" and had receded to 6-12" within the wetland cells by 06/09/2023.

**14H Sediment/Shoreline Stabilization:** (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, **X NA** and proceed to 14I.)

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

		1 0/					
% 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: NA - no open water exists on site.

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

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

General Fish Habitat	General Wildlife Habitat Rating (14C.iii.)					
Rating (14D.iii.)	E/H	M	L			
E/H	Н	Н	M			
M	Н	M	M			
L	M	M	L			
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 (14!.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		Vegetat	ed com	onent >	5 acres		Vegetated component 1-5 acres				Vegetated component < 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

iv. Final Score and Rating: 0.40M

**Comments:** Food chain support and production and export is limited due to the size and location of the site.

#### 14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators The AA is a slope wetland Permeable substrate present without underlying impeding layer Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during dormant season/drought Stream is a known 'losing' stream; discharge volume decreases Wetland occurs at the toe of a natural slope Other: AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Shallow water table and the site is saturated to the surface Other: AA hydrologically connected to a historic oxbow. iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating) Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE **GROUNDWATER SYSTEM** P/P S/I None Criteria 1H .7M .4M .1L **Groundwater Discharge or Recharge** N/A **Insufficient Data/Information** Comments: Inundation was observed on site in 2023. 14K. Uniqueness: i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating) AA does not contain previously cited AA contains fen, bog, warm springs AA does not contain previously cited rare types and structural diversity or mature (>80 yr-old) forested rare types or associations and Replacement potential (#13) is high **or** contains plant wetland or plant association listed structural diversity (#13) is lowassociation listed as "S2" by the as "S1" by the MTNHP moderate **MTNHP** Estimated relative abundance (#11) rare rare common abundant rare common abundant common abundant 1H .9H .8H .8H .6M .5M .5M 3L Low disturbance at AA (#12i) 4M .2L Moderate disturbance at AA (#12i) .9H .8H .7M .7M .5M .4M .4M 3L .8H High disturbance at AA (#12i) .7M .6M .6M 4M 3L 3L 2L .1L Comments: AA is part of a roadside ditch. 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (circle) (if 'Yes' continue with the evaluation; if 'No' then mark X NA and proceed to the overall summary and rating page) ii. Check categories that apply to the AA: Educational/scientific study; Consumptive rec.; Non-consumptive rec.; Other: iii. Rating:

		_
Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

**Comments:** AA small, adjacent to highway, and with no recreation or education potential.

### **General Site Notes**

Wetland area increased by 0.1 acres since 2022, and 0.24 since 2021. Additional acreage expansion is anticipated in future years provided the current climatic conditions persist

## FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW - East

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	0.08	
B. MT Natural Heritage Program Species Habitat	Н	0.90	1	0.76	*
C. General Wildlife Habitat	М	0.40	1	0.34	
D. General Fish Habitat	NA				
E. Flood Attenuation	М	0.50	1	0.42	
F. Short and Long Term Surface Water Storage	М	0.60	1	0.50	*
G. Sediment/Nutrient/Toxicant Removal	Н	1.00	1	0.84	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	М	0.40	1	0.34	
J. Groundwater Discharge/Recharge	М	0.70	1	0.59	*
K. Uniqueness	L	0.20	1	0.17	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		4.80	9.00	4.04	
Percent of Possible Score	-	-	53%		

Score of 1 functional poil	tisfy one of the following criteria; otherwise go to Category II) nt for Listed/Proposed Threatened or Endangered Species; <b>or</b> nt for Uniqueness; <b>or</b> nt for Flood Attenuation and answer to Question 14E.ii is "yes"; <b>or</b>
Percent of possible score	e > 80% (round to nearest whole #).
Score of 1 functional poil Score of .9 or 1 functional Score of .9 or 1 functional "High" to "Exceptional" ra Score of .9 functional poil	for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV) int for MT Natural Heritage Program Species Habitat; or all point for General Wildlife Habitat; or all point for General Fish Habitat; or atings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or int for Uniqueness; or e > 65% (round to nearest whole #).
Category III Wetland: (Criteria	a for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteric Category III)	a for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to
·	ess; <b>and</b> conent 1 acre (do not include upland vegetated buffer); <b>and</b> e 35% (round to nearest whole #).

# OVERALL ANALYSIS AREA RATING: III

**Summary Comments:** Site is recovering from several years of drought. The wetlands have expanded over the last two years and will likely continue to do so. Willow growth and expansion has been overserved over the last year.

# MDT Montana Wetland Assessment Form (revised March 2008)

8. Wetland size:

9. Assessment area (AA):

**1. Project Name:** Forsyth NW **2. MDT Project #:** STPP 14(9)259 **Control #:** 9680000

3. Evaluation Date: 06/01/2022 4. Evaluator(s): R Jones 5. Wetlands/Site #(s): Forsyth NW- Middle

6. Wetland Location(s): i. Legal: T7N,R39E,33 ;T7N,R39E,34 Latitude/Longitude:

ii. Approx. Stationing or Mileposts: ~262.3 on US 12

iii. Watershed: 4

Watershed Name, County: Middle Yellowstone, Rosebud

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	EM	E	SI	100.00

Abbreviations: (see manual for definitions)

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

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

0.580 acres (measured)

0.580 acres (measured)

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

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)
ABUNDANT

#### 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.): Site is adjacent to a highway. The adjacent right-of-way is mowed, sprayed for weeds and plowed.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Canada thistle and field bindweed cover have increased since 20222 and 2021

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA very similar to Forsyth NW - East, only smaller. AA includes a linear, excavated roadside depression parallel to US 12. Surrounding land includes agriculture (grazing) and highway.

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 additional		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: PEM wetland, willow growth increased between 2021 and 2022.

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

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

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

Primary or critical habitat (list species)

Secondary habitat (list species)

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 IPaC

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

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

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

Scarlet Ammannia - Ammannia robusta

Incidental habitat (list species)

Great Blue Heron(S) - 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
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013, which was also observed by MDT consultant in subsequent years.

## 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	X few or no wildlife observations during peak use periods     X little to no wildlife sign     sparse adjacent upland food sources     interviews with local biologists with knowledge of the Av
Moderate (based on any of the following [check]):	
observations of scattered wildlife groups or individuals or relatively few species during	peak periods
common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, e	etc.
adequate adjacent upland food sources	
interviews with local biologists with knowledge of the AA	

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

Structural diversity (see #13)		High								Mod	erate					Lo	w			
Class cover distribution (all vegetated classes)		Ev	en/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)	E	Е	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М
Moderate 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:** No wildlife sign observed during field survey. This area is close to the roadway and will likely never achieve a high wildlife habitat rating.

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

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

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

Duration of surface water in AA		Permanent / Perennial						Sea	sonal / 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: Not applicable.

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

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

 64 /
 42 =
 1.52

 Flood-prone width
 Bankfull width (ER)



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 is subject to overbank flows from Big Porcupine Creek.

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

Comments: AA subject to ponding from snowmelt, precipitation and overland flow from adjacent roads and uplands.

**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])

<b>3</b> \					•	0.		
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.				developmen nutrients, or t use with po nutrients, o substantially	t for "probable of toxicants or AA otential to delive r compounds so impaired. Majo	waterbodies in recauses" related receives or sure high levels of uch that other for sedimentation as of eutrophical	to sediment, rounding land sediments, unctions are n, sources of
% cover of wetland vegetation in AA	>= 7	70%	< 7	0%	>=	70%	< 7	70%
Evidence of flooding / ponding in AA	Yes No Yes No			Yes	No	Yes	No	
AA contains no or restricted outlet	1H <b>.8H</b> .7M .5M			.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H .7M .6M .4M			.4M	.3L	.2L	.1L	

Comments: Enclosed basin will filter sediment, nutrients, and toxicants well.

**14H Sediment/Shoreline Stabilization:** (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, **X NA** and proceed to 14l.)

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 / Ep									
>= 65%	1H	.9H	.7M							
35-64%	.7M	.6M	.5M							
35%	.3L	.2L	.1L							

Comments: Not applicable.

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

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

General Fish Habitat	General Wildlife Habitat Rating (14C.iii.)							
Rating (14D.iii.)	E/H	E/H M						
E/H	Н	Н	M					
M	Н	M	M					
L	M	M	L					
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 (14!.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						Vegetated component < 1 acre						
В	Hi	gh	Mod	erate	Lo	W	Hi	High		erate	Low		High		Moderate		Low		
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?

\_\_\_\_lf yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.30L Comments: Site has limited food chain value.

The AA is a slope wetland Springs or seeps are known or Vegetation growing during dorr Wetland occurs at the toe of a AA permanently flooded during Wetland contains an outlet, but Shallow water table and the sit Other:  i. Rating (use the information from i an	mant seaso natural slop g drought pe it no inlet te is saturat	pee eriods  eed to the sur  and the table  Duration	below to arr of saturation	ve at [circle]	Vetland conta Stream is a kr Other: the functiona	bstrate prese ains inlet but nown 'losing'	no outlet stream; disc	nderlying imp	
Vegetation growing during dorr Wetland occurs at the toe of a AA permanently flooded during Wetland contains an outlet, but Shallow water table and the sit Other:  i. Rating (use the information from i an	mant seaso natural slop g drought pe it no inlet te is saturat	pee eriods  eed to the sur  and the table  Duration	below to arr of saturation	ve at [circle]	Stream is a kr Other: the functiona	nown 'losing'	stream; disc	harge volume	decreases
Wetland occurs at the toe of a AA permanently flooded during Wetland contains an outlet, but Shallow water table and the sit Other:  i. Rating (use the information from i an	natural slop g drought po it no inlet te is saturat	pee eriods  eed to the sur  and the table  Duration	below to arr of saturation	ve at [circle]	Other: the functions	al points and		harge volume	e decreases
AA permanently flooded during Wetland contains an outlet, but Shallow water table and the sit Other:  i. Rating (use the information from i an	g drought pe it no inlet te is saturat	eriods  eed to the sur  and the table  Duration	below to arr of saturation	ve at [circle]	the functions		rating)		
Wetland contains an outlet, but Shallow water table and the sit Other:  i. Rating (use the information from i an Criteria	it no inlet te is saturat	ed to the sur and the table Duration	below to arr of saturation	n at AA We			rating)		
Shallow water table and the sit Other:  i. Rating (use the information from i an	te is saturat	and the table  Duration	below to arr of saturation	n at AA We			rating)		
Other:  i. <b>Rating</b> (use the information from i an Criteria		and the table  Duration	below to arr of saturation	n at AA We			rating)		
i. <b>Rating</b> (use the information from i an	nd ii above a	Duration	of saturation	n at AA We			rating)		
Criteria	nd ii above a	Duration	of saturation	n at AA We			rating)		
Criteria	nd II above a	Duration	of saturation	n at AA We			rating)		
	_		ARGE OR W				VATED	7	
				'IIH WAIEF					
			<u>GI</u>		ER SYSTEM				
		P/P		S/I	T		None	†	
	ie l	1H		.7M	.4M		.1L	†	
Insufficient Data/Information			•	N/	A				
omments: AA w/out permeable subs	strate, holds	s surface wat	er eventually	lost to evap	oration.			_	
ALC II minus manage									
4K. Uniqueness:	414	مه رياده ما ين	unica at Fainale	146 - 64:-		ala.ti			
Rating (working from top to bottom, us	se the mati	ix below to a	rrive at [Circle		-				
	AA contains	s fen, bog, wa	arm springs		ot contain pre and structur			ot contain pre	
Replacement potential		e (>80 yr-old)			high or conta			es or associat	
, topiacoment potentia.		plant associ 1" by the MT			on listed as "S		structura	al diversity (#1 moderate	3) is low-
	as 5	or by the lvi i	INI IF		MTNHP	_		illouerate	
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L
omments: Habitat within AA typical o	of roadside	wetland ditch	1.						
4L. Recreation/Education Potential:	(affords "bo	onus" points i	f AA provide:	s recreation	or education	opportunity)			
Is the AA a known or potential rec./e							k <b>X NA</b> a	nd proceed to	the
overall summary and rating pag									
Check categories that apply to the		ducational/sc	ientific study	; Con	sumptive rec.	: Non-co	nsumptive re	ec.:	
		Other :	·	_		·—		,	
i. Rating:		0 11101 .							
Known or Potential Recreation or Educ	ration Area					T	Known	Potential	٦
Public ownership or public easemen			access (no i	permission	required)	+	.2H	.15H	┪
Private ownership with general publ					roquirou,		.15H	.1M	7
Private or public ownership without					on for public	access	.1M	.05L	7
omments: AA small, adjacent to high						400000			_
, <b>,</b> 3	•			•					
General Site Notes									
Noxious weed cover increased in 2023	3.								

# FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW- Middle

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	0.06	
B. MT Natural Heritage Program Species Habitat	Н	0.90	1	0.52	*
C. General Wildlife Habitat	М	0.40	1	0.23	*
D. General Fish Habitat	NA				
E. Flood Attenuation	М	0.50	1	0.29	
F. Short and Long Term Surface Water Storage	L	0.30	1	0.17	*
G. Sediment/Nutrient/Toxicant Removal	Н	0.80	1	0.46	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	L	0.30	1	0.17	
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.20	1	0.12	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		3.50	8.00	2.02	
Percent of Possible Score			44%		

Score Score	Wetland: (must satisfy one of the following criteria; otherwise go to Category II) e of 1 functional point for Listed/Proposed Threatened or Endangered Species; or e of 1 functional point for Uniqueness; or e of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or ent of possible score > 80% (round to nearest whole #).
Score Score Score Score	I Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV) e of 1 functional point for MT Natural Heritage Program Species Habitat; or e of .9 or 1 functional point for General Wildlife Habitat; or e of .9 or 1 functional point for General Fish Habitat; or "to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or e of .9 functional point for Uniqueness; or ent of possible score > 65% (round to nearest whole #).
Category I	III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category I Category II	V Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to
<b>X</b> Vege	"rating for Uniqueness; and etated wetland component 1 acre (do not include upland vegetated buffer); and eent of possible score 35% (round to nearest whole #).

# OVERALL ANALYSIS AREA RATING: III

Summary Comments: Marginal wetland site that provides limited ecological value.

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Forsyth NW- East 2. MDT Project #: STPP 14(9)259 Control #: 9680000

3. Evaluation Date: 06/01/2022 4. Evaluator(s): R Jones 5. Wetlands/Site #(s): Forsyth NW- West

6. Wetland Location(s): i. Legal: T7N,R39E,20 ;T7N,R39E,29 Latitude/Longitude: 46.338472, -106.874619 : Center of AA

ii. Approx. Stationing or Mileposts: RP 280 on US 12

iii. Watershed: 14

> Watershed Name, County: Middle Yellowstone, Rosebud

CCI for MDT 7. a. Evaluating Agency:

b. Purpose of Evaluation:

Wetlands potentially affected by MDT project

8. Wetland size: 4.250 acres (measured) Mitigation wetlands; pre-construction 9. Assessment area (AA): 10.670 acres (measured)

3. X Mitigation wetlands; post-construction

Other:

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

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	E	PP	13.40
R	UB	E	PP	5.00
R	UB	I	PP	81.60

Abbreviations: (see manual for definitions)

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

Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)

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

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

### 12. General condition of AA:

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

	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.): Construction activities in 2017 to repair the dike structure temporarily increased disturbance rating at the site to high in 2017, was reduced to moderate in 2018, and reduced to low in 2020.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Euphorbia esula, Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA includes existing and constructed wetlands within floodplain of Big Spring Coulee and Big Porcupine Creek. Surrounding land includes US 12 and rangeland that supports livestock grazing

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating		Is current management preventing (passive) existence of additional vegetated classes?			
>= 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	М	< NO	YES>	L		
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA		

Comments: This site consists of a mosaic of emergent wetlands and open water.

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

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

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

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

Incidental habitat (list species) 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 IPaC

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

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

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

Scarlet Ammannia - Ammannia robusta

Great Blue Heron(S) - 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
S2 and S3 Species: Functional Points and Rating	.9Н	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): Ammannia observed within AA in 2019.

## 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]):  X observations of abundant wildlife #s or high species diversity (during any period) abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.  X presence of extremely limiting habitat features not available in the surrounding area interviews with local biologists with knowledge of the AA	Minimal (based on any of the following [check]):  few or no wildlife observations during peak use periods little to no wildlife sign sparse adjacent upland food sources interviews with local biologists with knowledge of the Av
Moderate (based on any of the following [check]):  observations of scattered wildlife groups or individuals or relatively few species during common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, adequate adjacent upland food sources interviews with local biologists with knowledge of the AA	peak periods

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)				Hi	gh							Mod	erate					Lo	)W	
Class cover distribution (all vegetated classes)		E۱	en/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	Е	Е	Н	Е	Е	Н	Н	E	Н	Н	М	Е	Н	М	М	Е	Н	М	М
Moderate 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)

Fuidance 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: The site was full of waterfowl during the 2023 site visit. Turtles and frogs were also observed.

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 **NA** and proceed to 14E.)

Warm Water (WW) X Type of Fishery: Cold Water (CW) 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		Perr	manent	/ Perei	nnial			Seasonal / Intermittent						Temporary / Ephemeral				
Aquatic hiding / resting / escape cover	Opt	imal	Adeo	quate	Po	oor	Opt	imal	Adeo	quate	Po	or	Opt	imal	Adeo	luate	Po	or
Thermal cover optimal / suboptimal	0	S	0	S	0	S	0	S	0	S	0	Ø	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: Direct observation

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: 0.2L

Comments: Increased inundation and bull rush establishment improved fish habitat in 2023. While the site was not designed to provide fish habitat, fish have been using the

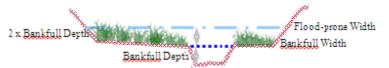
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from 

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

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

64 /	42 =	1.52
Flood-prone	Bankfull	Entrenchment ratio
width	width	(ER)



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
		1				

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:** The site provides flood attenuation functions for the adjacent Big Porcupine Creek.

- **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: Site has been moved into the perennial category due to consistent inundation over the last three years.

**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	potential to or compour are n sedimentat	deliver levels nds at levels ot substantia ion, sources	ounding land s of sediment such that oth illy impaired. of nutrients of phication pres	er functions Minor or toxicants,	developmen nutrients, or t use with po nutrients, o substantially	t for "probable of toxicants or AA otential to delive r compounds so impaired. Majo	waterbodies in r causes" related receives or sur- er high levels of uch that other fu or sedimentation ns of eutrophica	to sediment, rounding land sediments, unctions are n, sources of
% cover of wetland vegetation in AA	>= 7	70%	< 7	0%	>= 7	70%	< 7	70%
Evidence of flooding / ponding in AA	Yes No		Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Open/standing water was present across 47 percent of the site in 2023. Although vegetation cover increased since 2022 total vegetation cover is still less than 70 percent.

**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%	.7М	.6M	.5M							
35%	.3L	.2L	.1L							

Comments: Shoreline has a significant amount of stabilizing vegetation when the water is high - at lower water levels, the shoreline is primarily bare mudflat.

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

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

			•							
	General Fish Habitat	General Wildlife Habitat Rating (14C.iii.)								
	Rating (14D.iii.)	E/H	M	L						
	E/H	Н	Н	M						
ĺ	M	Н	M	M						
ĺ	L	M	M	L						
ĺ	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 (14!.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							Vegetated component < 1 acre					
В	Hi	gh	Mode	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: 0.80H Comments: Upland buffer between northern boundary of AA and highway greater than 50ft.

i. Discharge Indicators				ii	. Recharge	Indicators			
The AA is a slope wetland					_		ent without ui	nderlying imp	eding layer
Springs or seeps are known	or observed				Vetland conta				
X Vegetation growing during do		on/drought		s	Stream is a kr	nown 'losing'	stream; disc	harge volume	e decreases
Wetland occurs at the toe of	a natural slo	pe		c	Other:				
X AA permanently flooded duri	ng drought p	eriods							
Wetland contains an outlet, t	out no inlet								
X Shallow water table and the	site is satura	ted to the sur	face						
Other:									
: Detice (ver the information from :			h ala ta	i at Cainalal	41 f4:				
ii. Rating (use the information from i	and II above			on at AA Wet		-		1	
				ITH WATER					
				ROUNDWAT					
Criteria	-	P/P		S/I	T		None	-	
Groundwater Discharge or Recha	rge	1H		.7M	.4M		.1L	†	
Insufficient Data/Information	igo			N/A	Α			1	
comments: Site hydrology is combined	nation of sea	sonally high o	groundwater	table and run	noff. Water is	held on the	site via an im	poundment (	dike).
4K. Uniqueness:	41			. 1 41 6 41		-l			
Rating (working from top to bottom,	use the mati	rix below to a	rrive at [circie	<del></del>			1		
AA cor		s fen, bog, w	arm springs		t contain pre		AA does no	t contain pre	viously cited
Replacement potential		e (>80 yr-old)		, , ,	and structur high or conta	,	rare type	es or associa	tions <b>and</b>
replacement potential		r plant associ			on listed as "		structura	I diversity (#1	13) is low-
	as s	S1" by the MT	NHP		MTNHP	•	moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L
Comments: AA is becoming less str		erse as veget	ation intolera	nt to inundati	ion dies off. H	lowever, son	ne natural re	cruitment of o	cottonwoods
is occurring in mesic are	eas.								
4L. Recreation/Education Potentia	I: (affords "b	onus" points i	if AA provide	s recreation of	or education	opportunity)			
Is the AA a known or potential red	<b>:./ed. site:</b> (c	ircle) X (i	f 'Yes' contin	ue with the e	valuation; if '	No' then mar	'k <b>NA</b> a	nd proceed to	the the
overall summary and rating p	age)								
<ol> <li>Check categories that apply to the</li> </ol>	ne AA:	Educational/s	scientific stud	ly; X Cons	sumptive rec	.; <u>X</u> Non-c	onsumptive	rec.;	
		Other:							
ii. Rating:		•							
Known or Potential Recreation or Ed	ducation Area	7					Known	Potential	
Public ownership or public easem	ent with gei	neral public	access (no <sub>l</sub>	permission r	required)		.2H	.15H	
Private ownership with general pu	ıblic access	(no permiss	ion required	d)			.15H	.1M	
Drivete or public ownership witho							.1M	.05L	
	DT and is ea	asily accessib	ole. Known bi	rd and wildlif	e viewing an	d hunting use	e		
Private or public ownership witho comments: Property is owned by M	D 1, and 10 00								
<b>comments:</b> Property is owned by M									
		o and water	owl in 2022	olong with fire	odwater eter	200			

# FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW- West

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	1.07	
B. MT Natural Heritage Program Species Habitat	Н	0.90	1	9.60	
C. General Wildlife Habitat	Е	1.00	1	10.67	*
D. General Fish Habitat	L	0.20	1	2.13	
E. Flood Attenuation	М	0.50	1	5.34	
F. Short and Long Term Surface Water Storage	Н	1.00	1	10.67	*
G. Sediment/Nutrient/Toxicant Removal	М	0.70	1	7.47	
H. Sediment/Shoreline Stabilization	М	0.70	1	7.47	
I. Production Export/Food Chain Support	Н	0.80	1	8.54	*
J. Groundwater Discharge/Recharge	Н	1.00	1	10.67	*
K. Uniqueness	М	0.40	1	4.27	
L. Recreation/Education Potential (bonus points)	Н	0.20	1	2.13	
Totals: Percent of Possible Score		7.50	11.00 68%	80.03	

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or  Score of .9 or 1 functional point for General Wildlife Habitat; or  Score of .9 or 1 functional point for General Fish Habitat; or  "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or  Score of .9 functional point for Uniqueness; or  X Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
"Low" rating for Uniqueness; and Vegetated wetland component 1 acre (do not include upland vegetated buffer); and Percent of possible score 35% (round to nearest whole #).

# OVERALL ANALYSIS AREA RATING: II

Summary Comments: This site continues to evolve and develop more complex wetland habitat following several years of inundation.

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	OBL
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Artemisia frigida	Fringed Sage	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Chenopodium album	Lamb's-Quarters	FACU
Chorispora tenella	Crossflower	UPL
Convolvulus arvensis	Field Bindweed	UPL
Descurainia pinnata	Western tanseymustard	UPL
Descurainia sophia	Herb Sophia	UPL
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus sp.	Wild Rye	UPL
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Glyceria elata	Tall Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hesperostipa comata	Needle-and-Thread	UPL
Hordeum jubatum	Fox-Tail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	UPL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FACW
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa compressa	Flat-stem Blue Grass	FACU
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Schedonorous pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum rostratum	Buffalo Bur	UPL
Spartina pectinata	Freshwater Cord Grass	FACW
Tamarix chinensis	Salt-cedar	UPL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Veronica sp.	Speedwell	UPL

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

New species identified in 2023 are **bolded**.

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Avena fatua	Wild Oats	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Chenopodium album	Lamb's-Quarters	FACU
Cirsium arvense	Canadian Thistle	FACU
Convolvulus arvensis	Field Bindweed	UPL
Deschampsia caespitosa	Tufted Hair Grass	FACW
Deschampsia elongata	Slender Hair Grass	FAC
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus elymoides	Western-Bottlebrush grass	FACU
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Glyceria grandis	American Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum jubatum	Fox-Tail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FAC
Nassella viridula	Barkworth Green Needlegrass	UPL
Panicum capillare	Common Panic Grass	FAC
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FACW
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Avena fatua	Wild Oats	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rosa arkansana	Prairie Rose	FACU
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Salix amygdaloides	Peach-Leaf Willow	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Salix lutea	Yellow Willow	FACW
Sarcobatus vermiculatus	Greasewood	FAC
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Setaria pumila	Yellow Bristle Grass	FACU
Solanum rostratum	Buffalo Bur	UPL
Symphoricarpos albus	Common Snowberry	UPL
Tamarix chinensis	Salt-cedar	UPL
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Xanthium strumarium	Rough Cockleburr	FAC

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

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	UPL
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Artemisia frigida	Fringed Sage	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Chenopodium album	Lamb's-Quarters	FACU
Convolvulus arvensis	Field Bindweed	UPL
Descurainia sophia	Herb Sophia	UPL
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus sp.	Wild Rye	UPL
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Glyceria elata	Tall Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hesperostipa comata	Needle-and-Thread	UPL
Hordeum jubatum	Fox-Tail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	UPL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FACW
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa compressa	Flat-stem Blue Grass	FACU
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL

Ratibida columnifera	Prairie Coneflower	UPL
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Schedonorous pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum rostratum	Buffalo Bur	UPL
Spartina pectinata	Freshwater Cord Grass	FACW
Tamarix chinensis	Salt-cedar	UPL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Veronica sp.	Speedwell	UPL

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

# APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Forsyth Northwest – West, Middle, and East Sites Rosebud County, Montana

#### Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 1: Located near NE Corner of SE End; Bearing 270 degrees; Year 2013



Photo Point 1: Located near NE Corner of SE End; Bearing 270 degrees; Year 2023



Photo Point 2: Located near SW Corner of SE End; Bearing 350 degrees; Year 2013



Photo Point 2: Located near SW Corner of SE End; Bearing 350 degrees; Year 2023

### Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 3: Located near NE side near middle of site; Bearing 230 degrees; Year 2013



Photo Point 3: Located near NE side near middle of site; Bearing 230 degrees; Year 2023



Photo Point 4: Located near NE corner of NW end; Bearing 210 degrees; Year 2013



Photo Point 4: Located near NE corner of NW end; Bearing 210 degrees; Year 2023

#### Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 5: Located near SW side near middle of site; Bearing 45 degrees; Year 2013



Photo Point 5: Located near SW side near middle of site; Bearing 45 degrees; Year 2023



Photo Point 6
Bearing: 300 degrees

**Location:** Center of new dike **Year:** 2017



Photo Point 6
Bearing: 300 degrees

**Location:** Center of new dike **Year:** 2023



Photo Point 6 Bearing: 120 degrees

**Location:** Center of new dike **Year:** 2017



Photo Point 6 Bearing: 120 degrees

**Location:** Center of new dike **Year:** 2023

#### Forsyth Northwest - West Site: Transect Photographs



Transect 1: Start Bearing: 25 degrees

Location: SE end of site Year: 2013



Transect 1: Start Bearing: 25 degrees

Location: SE end of site

Year: 2023



Transect 1: End Bearing: 205 degrees

Location: SE end **Year:** 2013



Transect 1: End Location: SE end Bearing: 205 degrees Year: 2023



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2013



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2023

#### Forsyth Northwest – West Site: Transect and Data Point Photographs



Transect 2: End Bearing: 205 degrees

**Location:** Northwest End **Year:** 2013



**Transect 2:** End **Bearing:** 205 degrees

Location: Northwest End

**g:** 205 degrees **Year:** 2023



Data Point: DP01w Year: 2023

Location: N side of site



Data Point: DP01u Year: 2023

Location: N side of site



Data point: DP02w Year: 2023

Location: SW Side



Data point: DP02u

#### Forsyth Northwest – West Site: Data Point Photographs



Data Point: DP03w **Year:** 2023



Data Point: DP03u Year: 2023

Location: NE side of site



site looking W Year: 2023



Location: NE side of site



**Additional Photo 2:** site looking NW Year: 2023

Location: SW side of

#### Forsyth Northwest - Middle: Photo Point and Transect Photographs



**Photo Point: 1** Bearing: 120 degrees

Location: Northwest End

Year: 2013



**Photo Point: 1** Bearing: 120 degrees

Location: Northwest End

Year: 2023



**Photo Point: 2** Bearing: 300 degrees

Location: Southeast end Year: 2013

**Photo Point: 2** Bearing: 300 degrees

Location: Southeast end

Year: 2023



**Transect 1: Start** Bearing: 205 degrees

Location: Middle of Site Year: 2013



**Transect 1: Start** Bearing: 205 degrees

Location: Middle of Site

#### Forsyth Northwest - Middle: Transect and Data Point Photographs



**Transect 1: End** Bearing: 25 degrees

Location: Middle of Site **Year:** 2013



Transect 1: End Location: Middle of Site Bearing: 25 degrees Year: 2023



Data Point: DP01w Year: 2023

Location: Southeast end



Data Point: DP01u Location: Southeast end Year: 2023



Data Point: DP02w Year: 2023



Data Point: DP02u

Location: Southeast end

#### Forsyth Northwest – East Site: Photo Point Photographs



**Photo Point: 1** Bearing: 125 degrees

Location: NW end of site Year 2013



Bearing: 125 degrees

Location: NW end of site

Year: 2023



Photo Point 2: Located near Center of Site along the northwest boundary; Bearing 210 degrees; Year 2013



Photo Point 2: Located near Center of Site along the northwest boundary; Bearing 210 degrees; Year 2023



**Photo Point: 3** 

Location: SE end of site

Bearing: 305 degrees Year: 2013



**Photo Point: 3** 

Location: SE end of site

Bearing: 305 degrees Year: 2023

## Forsyth Northwest – East Site: Transect Photographs



**Transect 1: Start** Bearing: 145 degrees



Location: Northwest End Year: 2013



Bearing: 145 degrees



Year: 2023



Transect 1: End Bearing: 325 degrees



Location: Northwest End Year: 2013



Transect 1: End Bearing: 325 degrees Year: 2023



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year: 2013



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year: 2023

## Forsyth Northwest – East Site: Transect and Data Point Photographs



Transect 2: End Bearing:100 degrees

Location: Southeast End **Year:** 2013



Transect 2: End Location: Northwest End **Year:** 2023 Bearing: 100 degrees



Data point: DP01w Year: 2023

Location: Southwest End



Data point: DP01u Location: Southwest End Year: 2023



Data point: DP02w Year: 2023

Location: Northwest Side

Data point: DP02u Year: 2023

Location: Northwest Side

## Forsyth Northwest – East Site: Data Point Photographs



Location: Southeast Side

Data point: DP03w

Year: 2023



Data point: DP03u