#### 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: 2021** 

Years Monitored: 9th year of monitoring

Corps Permit Number: NWO-2002-90-599 and NWO-2006-906-76 MTB

Monitoring Conducted By: Confluence Consulting Inc. for MDT

Dates Monitoring Was Conducted: June 24, 2021

#### **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. Applying standard wetland compensatory mitigation ratios (US Army Corps of Engineers 2005), the total area of required mitigation presented in the approved wetland mitigation plan was 11 acres. 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, and monitoring at the three remaining sites continued in 2021.

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

Activity: None Date: NA

**Specific recommendations for corrective actions:** MDT may want to investigate whether or not changes are needed to address increases in open water and mudflat habitat at the West site.

**Anticipated Wetland Credit Acres: 11.79** 

Wetland Credit Acres Generated to Date: 4.18

Wetland Acreage within the Project Area: 2.83
Mudflat Acreage within the Project Area: 1.36
Open Water within the Project Area: 7.60 acres

#### **Previous Monitoring Reports:**

https://www.mdt.mt.gov/publications/brochures/wetland\_mitigation.shtml

**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, have less than 5 percent total noxious weed cover. The East and Middle sites are functioning as designed, but the West site has recently lost wetland acreage due to a change in how the USACE is awarding credit for the palustrine aquatic bed wetland type.

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

Wetland Delineation — The total wetland acreage delineated in 2021 at the three sites was 2.76 acres of palustrine emergent wetland. Additionally, in 2021, 7.60-acres of open water were mapped at the FNW-West site, as well as 1.36-acres of mud flat. No open water or mud flats were identified at the Middle or East sites (Table 1; Figures A-2 and A-4, Appendix A). 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). The adaptive management strategies implemented in 2017 (repair of a breached berm/dike) at the FNW-West site 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 from 2020-2021. Likely due to persistent drought conditions since June 2020 (NOAA 2022), the open water had receded in 2021, leaving broad areas of mudflat habitat in places that had previously been inundated with shallow water. Options to assign credit acres for open water and mud flat habitats are pending, and therefore wetland acreage credited to this site in 2021 is significantly less than what was reported in 2019 and earlier.

Table 1. Wetland Habitat Acreages Delineated at the FNW Sites (2015–2021)

	2015	2016	2017	2018	2018 2019				2021 (acres	)
Site	(acres)	(acres)	(acres)	(acres)	(acres)	Wetland	Open Water	Wetland	Open Water	Mud flat
FNW-West	6.01	6.01	5.89	10.55	10.55	1.61	8.9	1.66	7.60	1.36
FNW- Middle	0.49	0.49	0.58	0.58	0.58	0.58	-	0.58	-	-
FNW-East	0.46	0.43	0.43	0.56	0.56	0.60	-	0.59	-	-
Total	6.96	6.93	6.90	11.69	11.69	2.79	8.9	2.83	7.6	1.36

**Functional Assessment** – All three FNW sites are considered Category III wetlands and generated a total of 82.5 combined Functional Units in 2021 (Table 2). This is an increase of 16.56 functional units since 2020. This functional lift is largely due to the creation of mudflats at FNW-West, which has increased the complexity of general wildlife habitat available at the site by increasing the number of available habitat types within the site. However, this change does not equate to an increased score in the structural diversity category of the MWAM, as this category only considers vegetated habitat types. Completed Montana Wetland Assessment Method (MWAM) forms for the FNW sites are provided in Appendix B.

**Photographs** – Photographs were taken at all three FNW sites in 2021 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.shtml).

**Wildlife** — Wildlife species that were observed directly or indirectly at the three monitoring sites during the 2021 field surveys are listed in the Wetland Mitigation Site Monitoring forms for each site (Appendix B). Wildlife observations at the FNW-Middle and FNW-East sites were minimal in 2021 as the sites are relatively small and not very diverse, and because the surveys were completed in the middle of the day. More wildlife observations were made at the FNW-West site, and included thirteen bird species, several white-tailed deer, two turtles, and a muskrat, along with coyote scat, and racoon tracks and scat.

Table 2. 2021 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 (0.0)	Low (0.0)	Low (0.0)
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 (0.3)	N/A	N/A
Flood Attenuation	Mod (0.6)	N/A	N/A
Short- and Long-Term, Surface-Water Storage	High (1)	Low (0.3)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (0.8)	High (0.8)
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	Low (0.3)	Low (0.2)	Low (0.2)
Recreation/Education Potential (bonus points)	High (0.2)	Low (0.05)	Low (0.05)
Actual Points/Possible Points	7.5/11	2.95/7	3.75/8
% of Possible Score Achieved	68.18%	42.14%	46.88%
Overall Category	II	III	Ш
Total Acreage of Assessed Wetlands Within Site Boundaries	10.62 <sup>(a)</sup>	0.58 <sup>(a)</sup>	0.59 <sup>(a)</sup>

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

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

FNW-West Site Vegetation — Eight vegetation communities, identified based on plant composition and dominance, were mapped on the FNW—West site in 2021. This site underwent extensive change following repair of the dike and subsequent flooding of the site in 2018 and 2019 and is now largely inundated with open water. There have been significant changes in the vegetation communities as a result of the flooding as much of the vegetation has died off in the inundated areas, including woody species such as cottonwood and willow. These changes have led to shifts in plant community composition and include changes in dominance within some of the previously mapped community types, the elimination of a few previously observed community types, and the addition of Community Type 18 — Hordeum jubatum/Typha spp. in 2020, and Community Type 19 — Mudflats in 2021. Wetland community types are found in the mudflats and fringes around the open water or in areas that are shallow enough to support emergent vegetation. Inundated areas with greater than 5% cover of emergent vegetation are represented by Community Type 17 — Open Water/Aquatic Macrophytes. The Mudflat Community was created to classify previously inundated areas that were exposed in 2021 but have less than 5% vegetative cover. The presence of mudflats in 2021 corresponded with decreased open water during a drought year.

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 2021:

- Upland Type 1 Bromus tectorum/Sarcobatus vermiculatus
- Upland Type 5 Symphoricarpos albus/Pascopyrum smithii
- Upland Type 6 Pascopyrum smithii/Bromus tectorum
- Wetland Type 8 Typha latifolia/Eleocharis palustris
- Wetland Type 16 Alopecurus arundinaceus/Hordeum jubatum
- Wetland Type 17 Open Water/Aquatic Macrophytes.
- Wetland Type 18 Hordeum jubatum/Typha spp.
- Wetland Type 19 Mudflat

Vegetation cover was measured along two transects in 2021 (Tables 3 & 4; Figure A-2, Appendix A). Table 3 summarizes the data for T-1 which is 282 feet long and intersects upland Community Type 1, wetland Community Type 18, and aquatic communities 19 (mudflat), and 17 (open water). The amount of open water along T-1 transect decreased from 92% to 89% between 2020 and 2021 with a corresponding increase in mudflat from 0% to 3%. The total amount of vegetation and bare ground across the transect remained consistent from 2020, though 2 fewer hydrophytic species were observed in 2021. Data collected on T-2 are summarized in Table 4. T-2 is 261 feet long and intersects wetland Community Type 16, aquatic communities 19 (mudflat), and 17 (open water). Eighty-seven percent of the transect crossed open water habitat in 2021, and 5% crossed mudflat. Total vegetative cover remains at 3%, which is consistent with 2020 observations and one additional hydrophytic species was observed in 2021.

Table 3. Data Summary for T-1 From 2016 Through 2021 at the FNW-West Site

Monitoring Year		2017	2018	2019	2020	2021
Transect Length (feet)	282	282	282	282	282	282
Vegetation Community Transitions Along Transect	7	5	1	1	2	3
Vegetation Communities Along Transect	5	5	1	1	2	3
Hydrophytic Vegetation Communities Along Transect	4	2	0	1	1	1
Total Vegetative Species	26	18	5	4	9	7
Total Hydrophytic Species	5	4	0	1	3	1
Total Upland Species	21	14	5	4	6	6
Estimated % Total Vegetative Cover	90	46	5	10	3	3
Estimated % Unvegetated	10	54	95	65	97	97
% Transect Length Comprising Hydrophytic Vegetation Communities	37	34	0	30	3	4
% Transect Length Comprising Upland Vegetation Communities	63	66	5	5	5	5
% Transect Length Comprising Unvegetated Open Water	0	0	95	65	92	89
% Transect Length Comprising of Mudflat	0	0	0	0	0	2

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.

Table 4. Data Summary for T-2 From 2016 Through 2021 at the FNW-West Site

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

Eight noxious weed patches were mapped at FNW-West in 2021, which is an increase of 6 patches since 2020. All noxious weed patches were comprised of Priority 2B species. Canada thistle (*Cirsium arvense*) was observed in trace and low cover classes at five locations, and trace occurrences of leafy spurge (*Euphorbia esula*) and salt cedar (*Tamarix chinensis*) occurred along the edges of the site in 2021 (Figure A-3; Appendix A). Across all plant communities, a total of 82 plant species have been identified on the site from 2013 through 2021 (Table B-1; Appendix B).

**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 received heavy runoff from Big Porcupine Creek and East Spring Coulee in 2018 and 2019 which filled the all of the low-lying areas within the site. It is likely that some of this water was retained on site over the 2020-2021 winter as the snowpack, and therefore spring runoff, was less significant in 2021 than in the previous three years.

**FNW-West Site Soils** – Soil test pits were excavated at two locations (DP01w and DP01u; Appendix A). Both test pits were located in areas originally mapped as the Marvan silty clay soil series (NRCS 2021). DP01w was located in a wetland area directly adjacent to the mudflats that occur along the eastern edge of the FNW-West open water area. The profile at DP01w revealed three inches of silty clay that was 85% olive brown (2.5Y 4/2), with 15% dark brown concentrations. The next horizon occurred between 3 and 12 inches and was comprised of clay that was 60% dark grayish brown (2.5Y 4/2) and 20% grayish brown (2.5Y 5/2), with 15% dark brown (7.5YR) and 5% black (10Y 2.5/1) redoximorphic concentrations. This soil met the requirements of the depleted matrix (F3) hydric soil indicator.

DP01u was located in an upland area between Highway 12 and the wetland area and had a soil profile that revealed three inches of a dark greyish brown (2.5Y 4/2) silty clay over nine inches of greyish brown (2.5Y 5/2) silty clay.

#### **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 2021:

• Upland Type 3 – Pascopyrum smithii/Elymus canadensis

Wetland Type 5 – Hordeum jubatum/Eleocharis palustris

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). Thirteen occurrences of Priority 2B noxious weeds, Canada thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*), were observed at the site in 2021. Cover classes of the weed infestations ranged from trace to moderate (Figure A-6, Appendix A). A total of 62 plant species were identified on the site from 2013 through 2021 (for a comprehensive plant list, see Table B-1; Appendix B).

Vegetation cover was measured along one transect (T-1) at FNW-Middle in 2021 (Figure A-5, Appendix A). 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 summarizes the data for T-1 which is 50 feet long and intersects upland Community Type 3 and wetland Community Type 5. Twenty-four percent of the transect crossed wetland habitat in 2021, which was consistent with observations in 2020. However, the number of hydrophytic species and the amount of cover provided by hydrophytic species decreased in 2021 as a result of the site being more mesic than in years past. The vegetation along the slopes of the swale was dominated by upland species, and the total number of species observed along T-1 increased from 13 to 16 since 2021. The total amount of vegetative cover has remained constant at this site from 2016 to 2021.

Table 5. Data Summary for T-1 From 2016 Through 2021 at the FNW-Middle Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	50	50	50	50	50	50
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	11	17	17	16	24	22
Total Hydrophytic Species	3	4	5	4	11	6
Total Upland Species	8	13	12	12	13	16
Estimated % Total Vegetative Cover	85	83	85	85	85	85
Estimated % Unvegetated	15	17	15	15	15	15
% Transect Length Comprising Hydrophytic Vegetation Communities	30	38	38	38	24	24
% Transect Length Comprising Upland Vegetation Communities	70	62	62	62	76	76
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	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 24<sup>th</sup>, 2021 when the field survey was completed. Hydrologic indicators that were observed at this site included surface soil cracks, water-stained leaves, positive FAC-neutral test results, and geomorphic position.

**FNW-Middle Site Soils** – Soil test pits were examined at two locations (DP01w and DP01u; Figure A-5, Appendix A), and both locations were within what was originally mapped as the Harlem silty clay soil series by the NRCS. DP01w is located in an excavated depression near the center of the site. The soil profile revealed three inches of a dark greyish-brown (2.5Y 4/2) silty clay that had 15% prominent

redoximorphic concentrations. This horizon sat over nine inches of clay with 60% dark greyish brown (2.5Y 4/2) and 20% grayish brown (2.5Y 5/2) with 5% black (2.5Y 2.5/1) depletions and 15% dark brown (7.5YR 3/4) concentrations in the matrix. This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3). DP01u is located in upland Community Type 3 – *Pascopyrum smithii/Elymus canadensis*. The soil profile revealed two inches of dark grey (2.5Y 4/1) silty clay loam on top of 10 inches of a dark greyish brown (2.5Y 4/2) silty clay loam. No hydric soil indicators were observed within the 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 2021:

- Upland Type 3 Pascopyrum smithii/Elymus spp.
- Wetland Type 4 Hordeum jubatum/Eleocharis palustris.

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 2021 (for a comprehensive plant list, see Table B-1; Appendix B). Infestations of two Priority 2B noxious weeds, saltcedar (*Tamarix chinensis*) and field bindweed (*Convolvulus arvensis*) were mapped in several locations (Figure A-9, Appendix A). No woody plants were installed at the FNW-East site. 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 the FNW-East in 2021 (Figure A-8, Appendix A). 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. Table 6 summarizes the data for T-1 which is 125 feet long and intersects upland Community Type 3, and wetland Community Type 4. Fifty-two percent of the transect crossed wetland habitat and total vegetative cover remained at 95%, which is consistent with previous years. The number of vegetative species and hydrophytic species observed along the transect decreased by 2 since 2020.

Table 6. Data Summary for T-1 From 2016 Through 2021 at the FNW-East Site

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

Data collected on T-2 are summarized in Table 7, which is 181 feet long and intersects upland Community Type 3 and wetland Community Type 4. Sixty percent of the transect crossed wetland habitat in 2021, an increase of 5% from the previous year. The number of hydrophytic species observed along the transect increased by one, and the total number of vegetative species observed increased by 2. Total vegetative cover has remained constant at 98 percent from 2017 to 2021.

Table 7. Data Summary for T-2 From 2016 Through 2021 at the FNW-East Site

Monitoring Year		2017	2018	2019	2020	2021
Transect Length (feet)	181	181	181	181	181	181
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	26	11	14	15	10	12
Total Hydrophytic Species	6	4	6	6	2	3
Total Upland Species	20	7	8	9	8	9
Estimated % Total Vegetative Cover	94	98	98	98	98	98
Estimated % Unvegetated	6	2	2	2	2	2
% Transect Length Comprising Hydrophytic Vegetation Communities	44	55	55	55	55	60
% Transect Length Comprising Upland Vegetation Communities	56	45	45	45	45	40
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0

**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, and surface runoff from adjacent uplands. 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 drainage patterns, surface soil cracks, geomorphic position, and vegetation communities that pass the FAC-neutral test.

**FNW-East Site Soils** – Soil test pits were examined at four locations (DP01w, DP01u, DP02w, and DP02u; Appendix A), and all locations were within what was originally mapped as the Harlem silty clay soil series (NRCS 2021).

DP01w was located in the central portion of the southeastern wetland. The soil profile at DP01w revealed three inches of olive grey (5Y 4/2) clay with 7% prominent dark brown (7.5YR 3/4) concentrations over 10 inches of 60% olive grey (5Y 5/2) and 39% very dark greenish-grey (10YR 3/1) with 1% prominent dark brown (10YR 3/3) redoximorphic concentrations in the matrix. This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3).

DP01u was located in an upland area between Highway 12 and the wetland area and had a soil profile that revealed two inches of a dark greyish brown (2.5Y 4/2) silty clay over eight inches of greyish brown (2.5Y 5/2) silty clay. A third horizon was identified from 10 to 13 inches that was a dark grey (2.5Y 4/1) silty clay that contained 7% dark brown (7.5YR 3/3) redoximorphic concentrations within the matrix. While this last horizon met some of the requirements for the depleted matrix indicator, it failed to meet the minimum thickness requirement. Therefore, the soil in this location was not considered hydric.

DP02w was located in the central portion of the northwest wetland and contained 4 inches of dark grayish brown (2.5Y 4/2) silty clay with 3% weak red (2.5YR 4/2) redoximorphic concentrations in the

matrix, over nine inches of clay that was 60% dark grayish brown (2.5Y 4/2), and 40% very dark grayish olive (10Y 3/2). This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3).

DP02u was located in an upland area upgradient from DP02w. The DP02w soil profile revealed two inches of olive (5Y 4/3) sandy clay loam over 11 inches of olive gray (5Y 4/2) clay with 1% dark brown (7.5YR 3/4) relict mottles. No evidence of hydric soils was observed within the upland sample pit.

Table 8. Credit/Debit Summary for the Forsyth – Northwest Project

	I	liliary for the Forsyth – Northwest		
Project Site	Actual Acres	Туре	Debit Ratio	Debit Acres
Volborg-N&S	6.80	Debit	1.5:1	10.20
Forsyth-NW Previously Mitigated	1.78	Debit	1:1	1.78
Forsyth-NW Remaining	0.4	Debit	2:1	0.80
BNRR – 2KM W Pompey's Pillar	0.17	Debit	1:1	0.17
Total	9.15	-	Total Debits	12.95
Mitigation Site	Actual Acres	Mitigation Type	Credit Ratio	Credit Acres
	1.66	Creation Credit	1:1	1.66
Maria Cita	1.29	Preservation Credit	4:1	0.32
West Site (Site 1)	1.80	Upland Buffer Credit	5:1	0.36
(Site 1)	7.60	Open Water Credit <sup>a</sup>	TBD	TBD
	1.36	Mud Flat Credit <sup>a</sup>	TBD	TBD
Middle Site	0.58	Creation Credit	1:1	0.58
(Site 2)	1.22	Upland Buffer Credit	5:1	0.24
East Site	0.59	Creation Credit	1:1	0.59
(Site 3)	2.15	Upland Buffer Credit	5:1	0.43
Total	18.25	Т	otal Credits	4.18
	•		Net Credits	-8.77

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

Mitigation Credit Summary: All Sites — Table 8 summarizes the estimated wetland credits at all three remaining FNW sites based on the USACE-approved credit ratios and the wetland delineations completed in July 2021. Table 8 also includes credits already approved from the Treasure County Line and a wetland debit summary from the Volborg — North and South project. The three FNW sites and Treasure County site have produced 6.76 credit acres combined. However, the number of credit acres earned to date 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.

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 less than 5 percent total noxious weed cover. The East site is functioning as designed in the areas that have developed wetland characteristics, but the middle portion of the site, which was originally intended to be wetland, remains as upland.

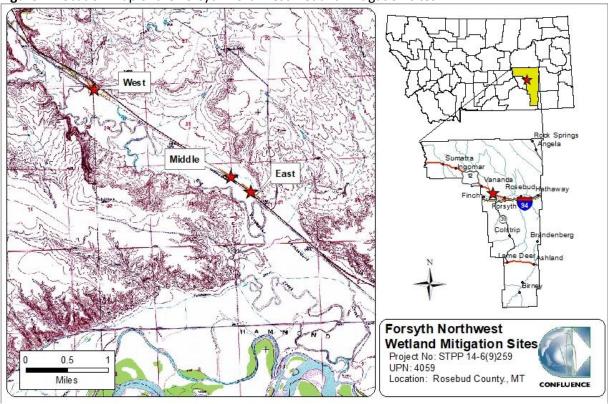
The Middle site appeared to be drier in 2020 and 2021 than in previous years, as was evident by shifts in the vegetation community composition from more to less hydrophytic species cover, and in less obvious hydric soil indicators. These changes are likely the result drought conditions which have persisted since June of 2020.

The West site has developed a large expanse of open water since corrective actions were undertaken to repair the original dike structure that had failed in 2017. Due to this large expanse of open water, in

2020, this area was removed from the wetland acreage and was not used to calculate mitigation credits. In 2021, some of this open water area had become an exposed mudflat, which was considered part of the Assessment Area (AA) in the MWAM, but not counted toward mitigation credit acreage. 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 only earned 4.18 mitigation credit acres in 2021 and are falling short 8.77 of the credits required to satisfy the 12.95 acres of wetland debits created by the Volborg – North and South and Forsyth Northwest construction projects (Table 8).

#### 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 Monitoring Report.

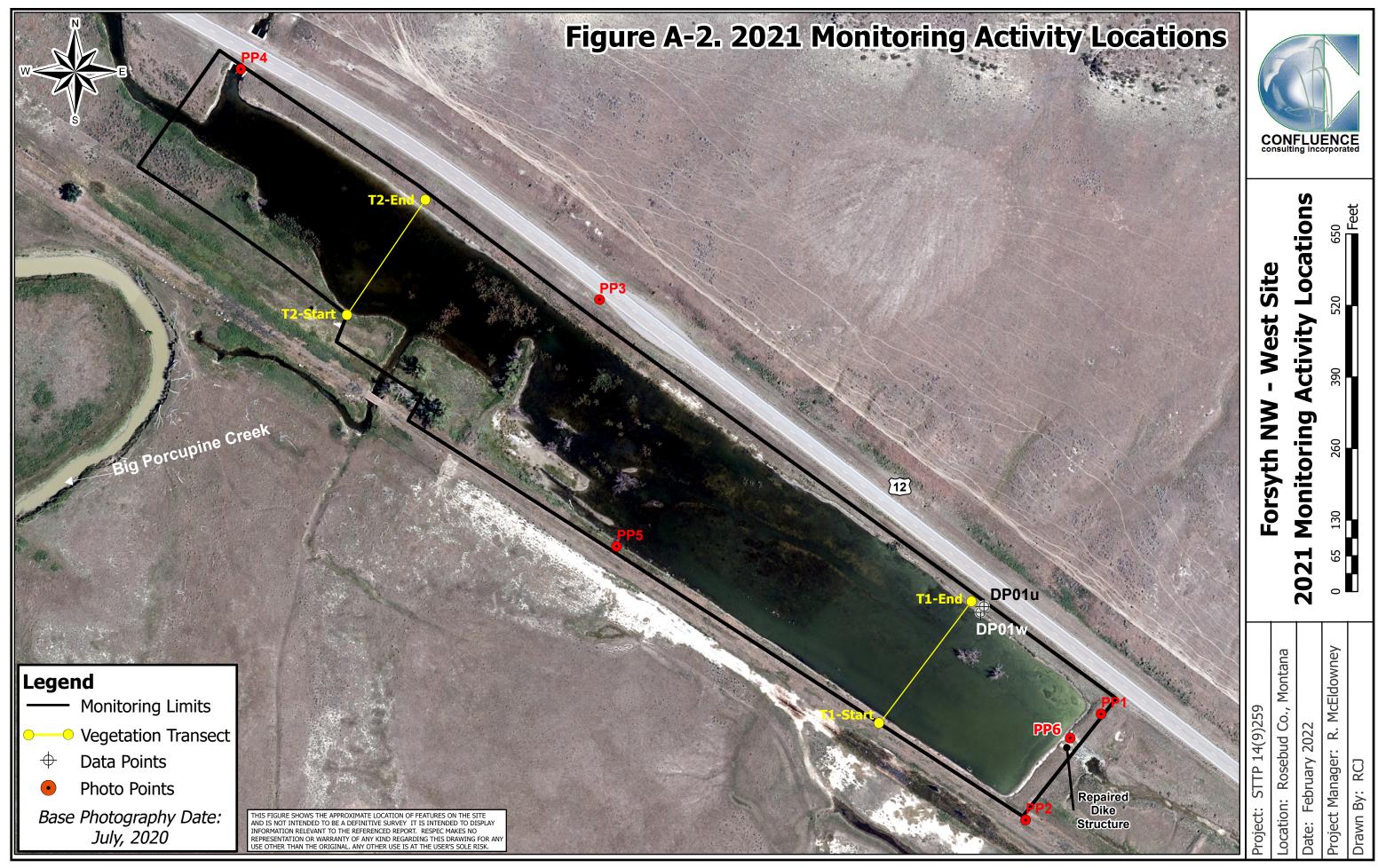
https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2013\_REPORTS/FORSYTH\_NORTHWEST\_2013\_FINAL.PDF

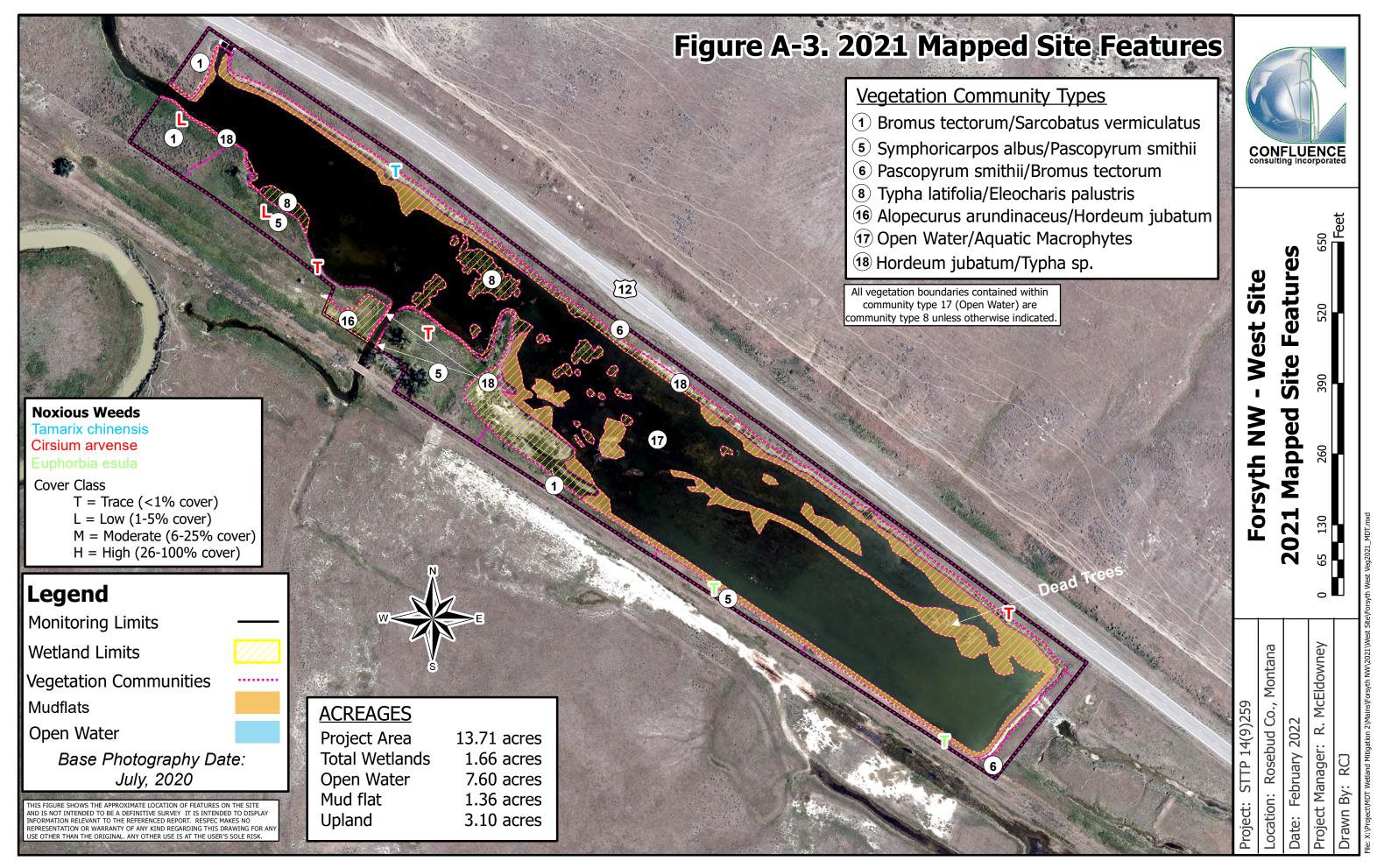
### **References**

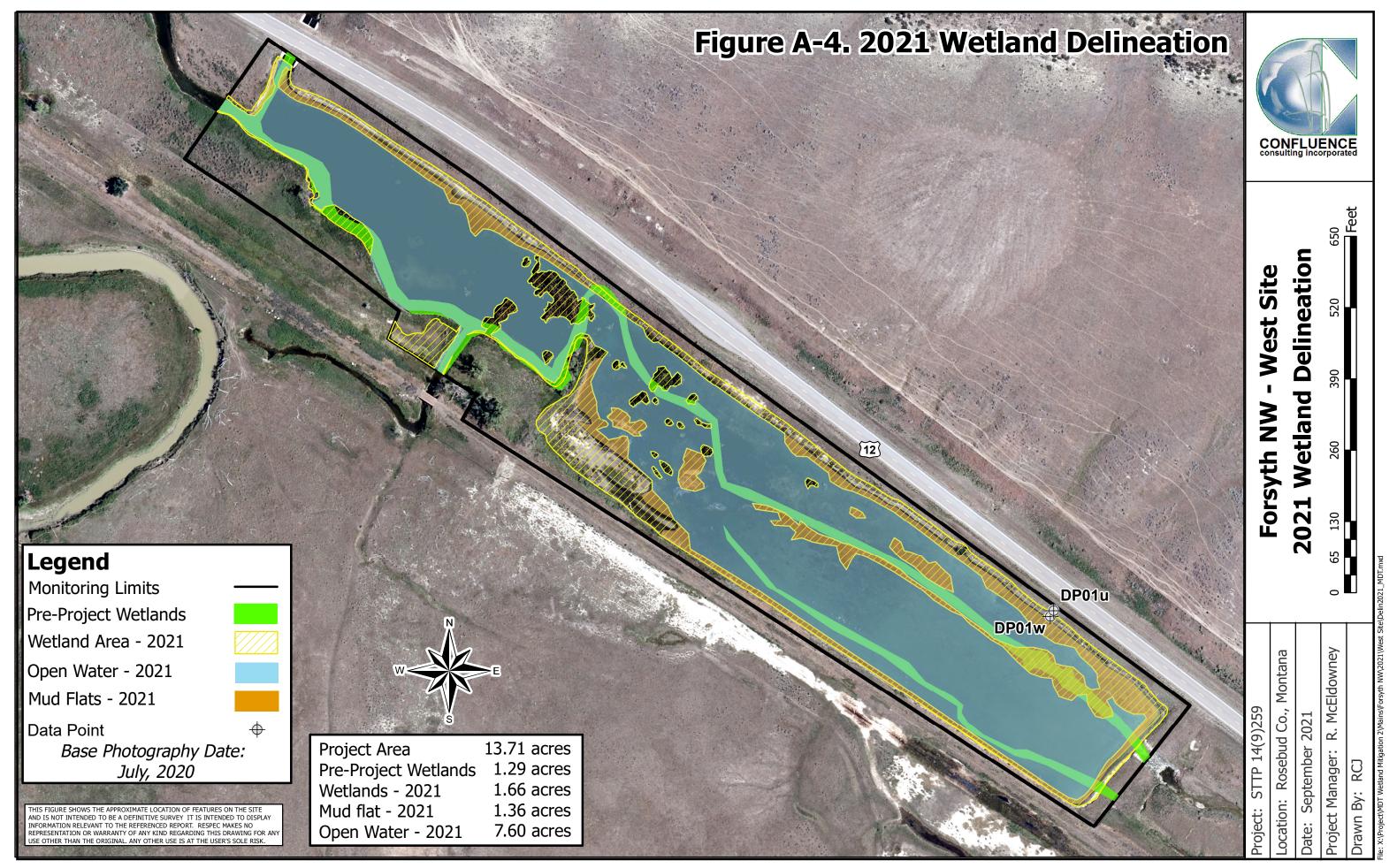
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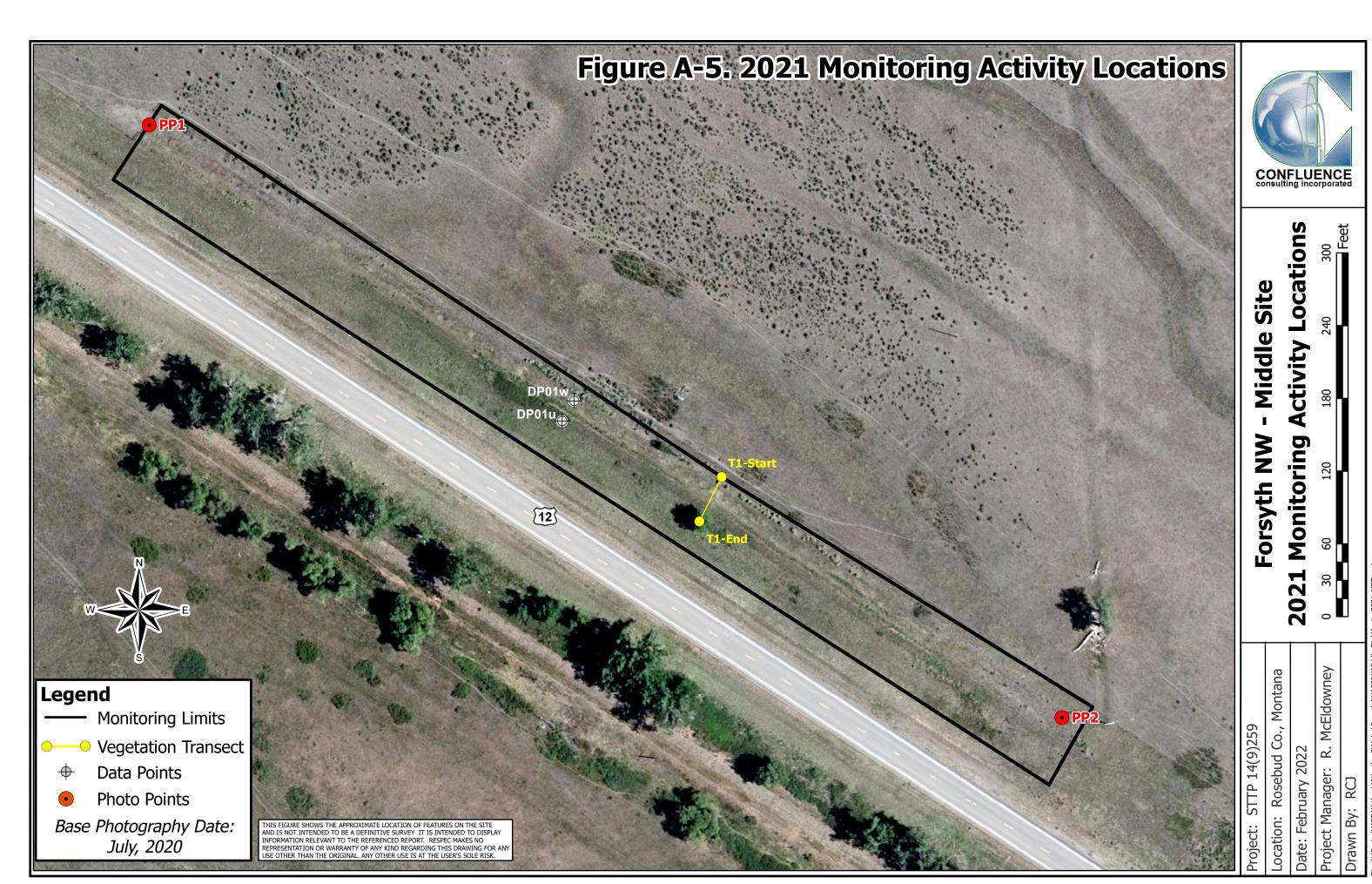
# APPENDIX A PROJECT AREA MAPS

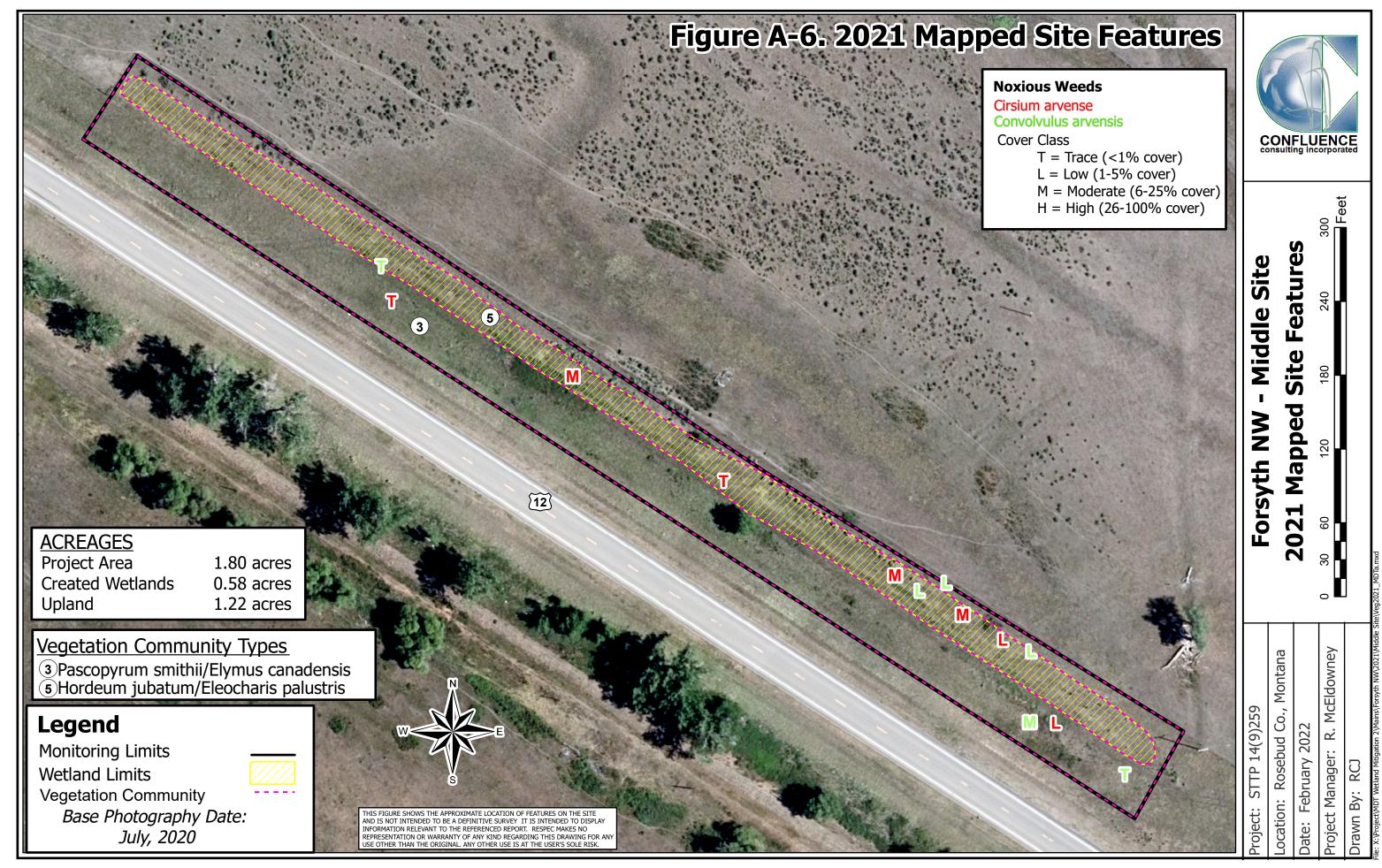
MDT Wetland Mitigation Monitoring Forsyth Northwest – West, Middle, and East Sites Rosebud County, Montana

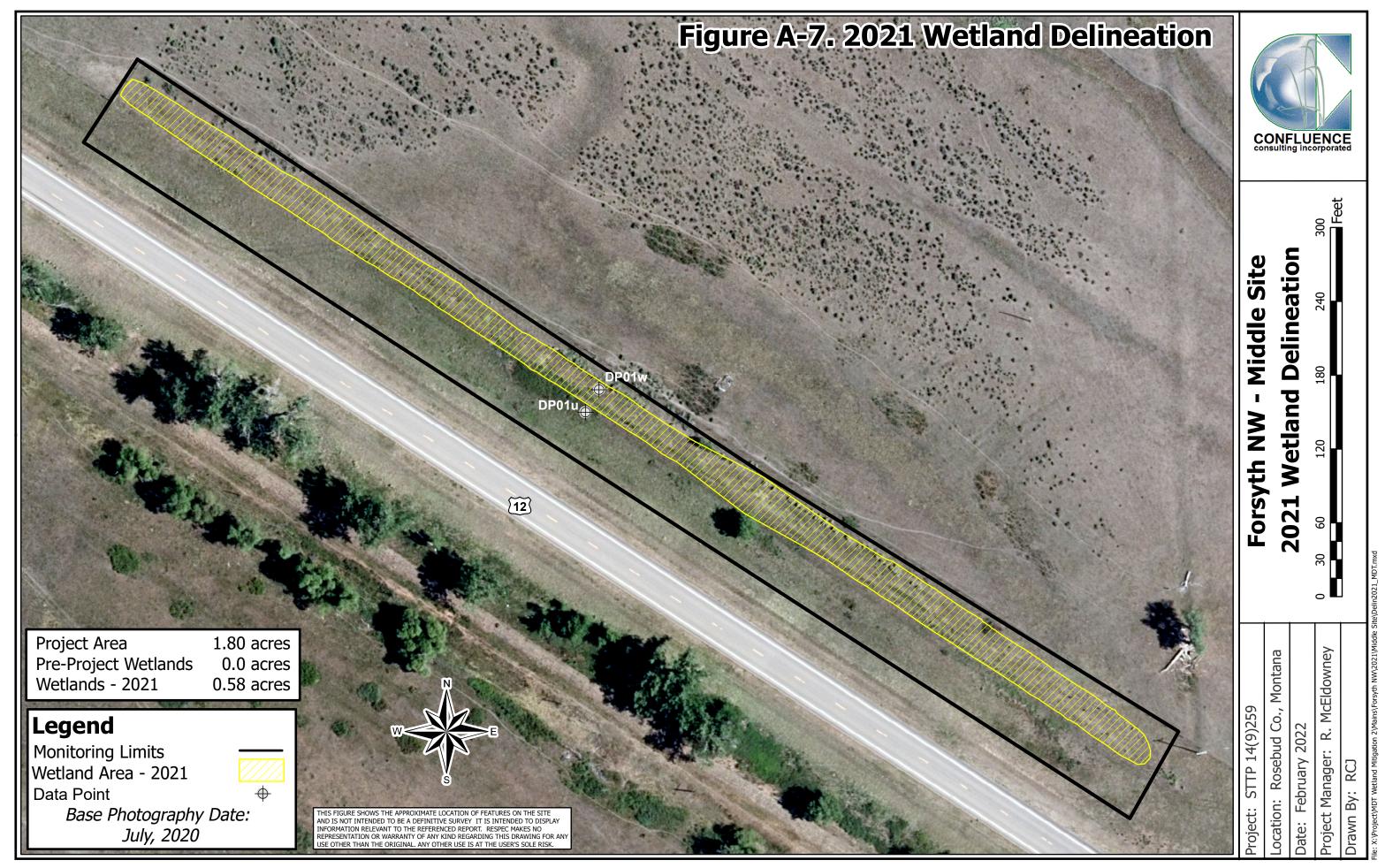


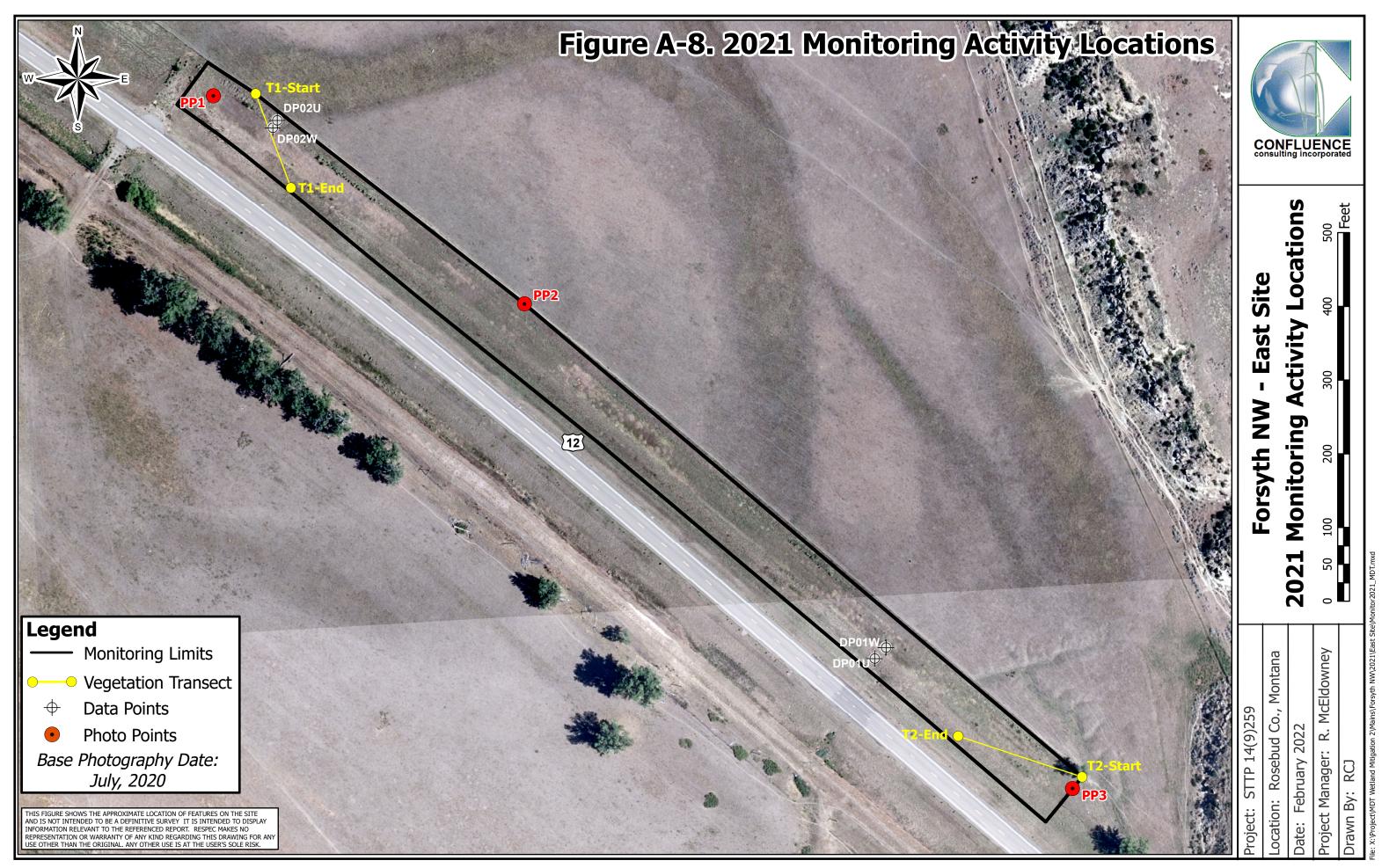


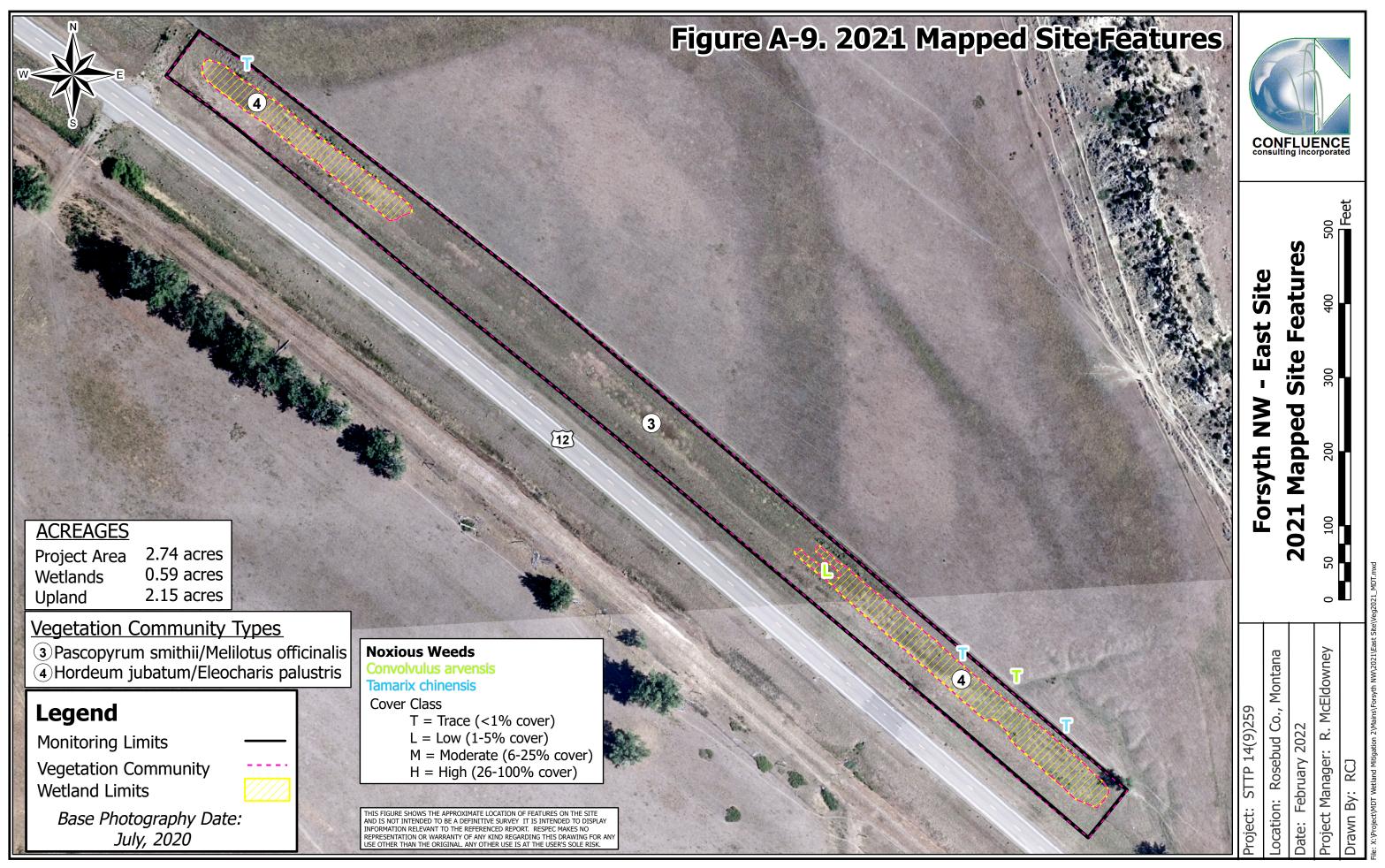


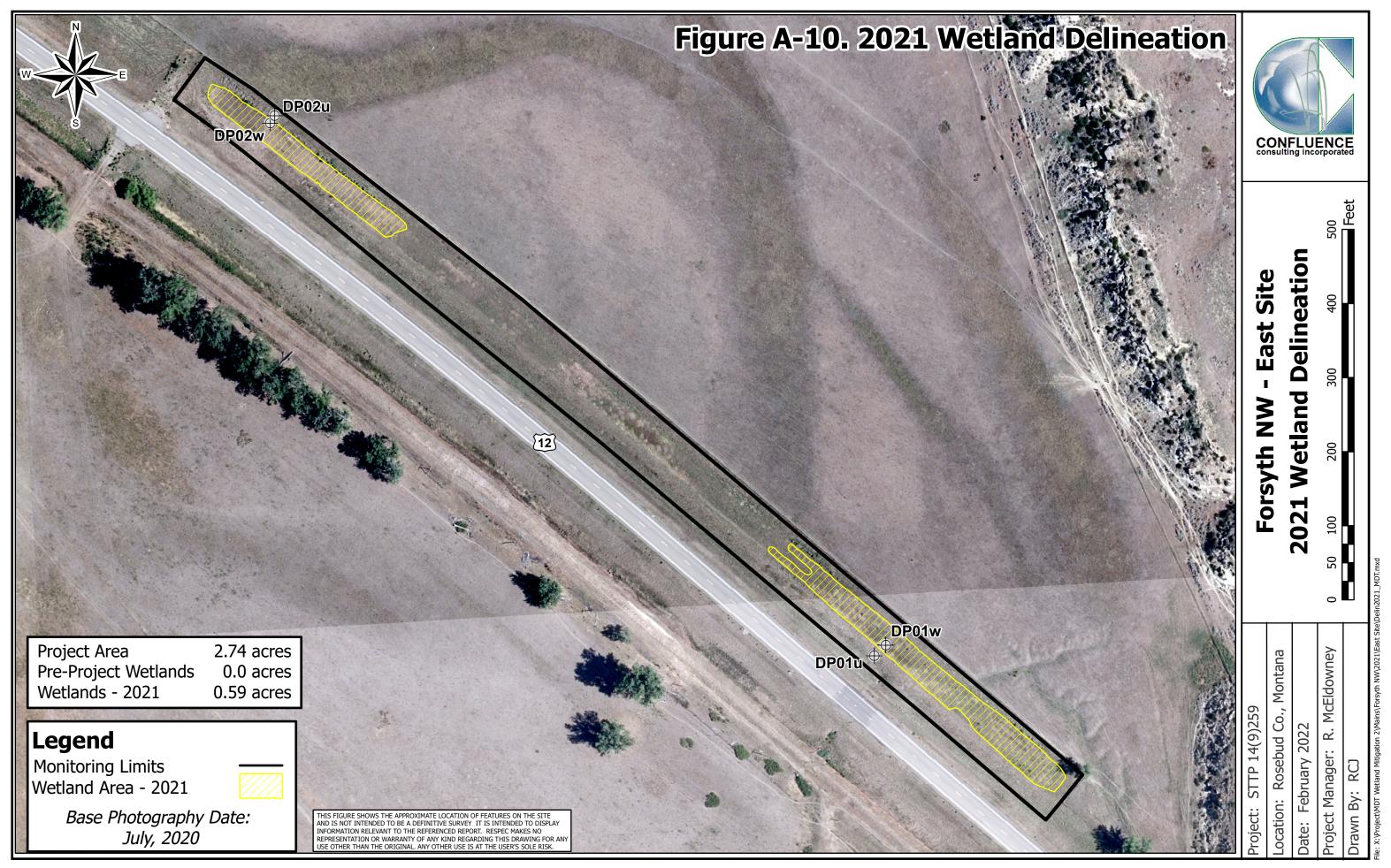












# APPENDIX B MONITORING FORMS

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

# MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - WestAssessment Date/Time	<u>6/23/</u> 2021
Person(s) conducting the assessment: R. Jones	
Weather: Partly sunny, 95 degrees F Location: ~15 miles NW of Forsyth	
MDT District: Glendive Milepost: RP 280 on US 12	
Legal Description: T <u>7N</u> R 39E Section(s) 20 & 29	
Initial Evaluation Date: 8/15/2013 Monitoring Year: 9 #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 wa	ter
Inundation: Average Depth: 1 (ft) Range of Depths: (ft)	
Percent of assessment area under inundation: 80 %	
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:	<u>lo</u>
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:	
Majority of the wetland area inundated in 2021, athough less inundated than in 2020. Several	
mudflat areas have developed due to a drop in water levels.	
Groundwater Monitoring Wells	
Record depth of water surface below ground surface, in feet.	
Necold 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 from periodic floodi of Big Porcupine Creek. The majority of the site was inudated during the 2021 site visit. The sit supports extended periods of inundatation as is evidenced by drowned woody vegetation and absence of herbaceous vegetation around the edges of the open water.	te

#### **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 # <u>1</u> Community Type: <u>Bromus tectorum / Sarcobatus vermiculatus</u> 0.65 Acres: **Species Cover class Species Cover class** Bare Ground 3 Bassia scoparia 1 Bromus inermis 1 Bromus tectorum 3 Chenopodium album Elymus repens 1 1 Euphorbia esula 1 Hordeum jubatum 1 2 Opuntia polyacantha 0 Pascopyrum smithii 2 Poa pratensis 1 Sarcobatus vermiculatus Schedonorus pratensis 2 Thlaspi arvense 1 0 Yucca glauca

#### **Comments:**

Some areas previously classified as CT 1 have transitioned to CT 6 and thus the acreage covered by CT 1 decreased by 0.11 acres in 2021.

Community # 5 C	ommunity Type:	Symphoricarpos albus / Pascopyru	ım smithii Acres:	<u>1.32</u>
Species	Cover class	Species	Cover class	
Bare Ground	1	Bassia scoparia	1	
Bromus inermis	1	Bromus japonicus	1	
Chenopodium album	1	Cirsium arvense	1	
Eleocharis lanceolata	1	Elymus repens	1	
Glycyrrhiza lepidota	1	Hordeum jubatum	1	
Pascopyrum smithii	5	Poa compressa	2	
Poa pratensis	2	Sarcobatus vermiculatus	1	
Symphoricarpos albus	2	Thlaspi arvense	1	
Comments:				
Upland community type.				

Community #	<u>6</u>	<b>Community Type:</b>	Pascopyrum smithii / Bromus tectorum	Acres:	<u>1.13</u>
-------------	----------	------------------------	--------------------------------------	--------	-------------

Species	Cover class	Species	Cover class
Achnatherum hymenoides	0	Bare Ground	3
Bassia scoparia	0	Bromus arvensis	1
Bromus japonicus	0	Bromus tectorum	2
Chenopodium album	1	Elymus canadensis	1
Elymus lanceolatus	1	Elymus trachycaulus	1
Helianthus annuus	0	Hordeum jubatum	2
Lepidium perfoliatum	1	Linum lewisii	0
Melilotus officinalis	0	Pascopyrum smithii	5
Poa pratensis	0	Sisymbrium altissimum	2
Thlaspi arvense	0		

#### Comments:

Some areas previously classified as CT 1 have transitioned to CT 6 and thus the acreage covered by CT 6 increased by 0.11 acres in 2021.

Community # 8 Community Type: Typha latifolia / Eleocharis palustris Acres: 0.36

Species	Cover class	Species	Cover class
Eleocharis palustris	2	Open Water	2
Populus deltoides	1	Salix amygdaloides	1
Schoenoplectus acutus	0	Schoenoplectus maritimus	0
Sonchus arvensis	1	Spartina pectinata	1
Typha angustifolia	3	Typha latifolia	4

#### **Comments:**

Wetland community type.

Community # 16 Community Type: Alopecurus arundinaceus / Hordeum jubatum Acres: 0.11

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	4	Pascopyrum smithii	0
Poa compressa	0	Rumex crispus	3
Sagittaria cuneata	1	Symphoricarpos albus	0
Comments			

#### **Comments:**

The area occupied by this CT increased by 0.05 acres in 2021.

Community # 17 Community Type: Open Water / Aquatic macrophytes Acres: 7.6

Species	Cover class	Species	Cover class
Aquatic macrophytes	0	Eleocharis palustris	0
Open Water	5	Schoenoplectus maritimus	1
Typha angustifolia	1	Typha latifolia	1

#### Comments:

Community type was signicantly revised from previous years to account for differential mapping of open water.

Community # 18 Community Type: Hordeum jubatum / Typha spp. Acres: 1.18

Species	Cover class	Species	Cover class
Bare Ground	4	Chenopodium album	1
Eleocharis palustris	2	Elymus trachycaulus	0
Grindelia squarrosa	1	Hordeum jubatum	2
Open Water	1	Polygonum aviculare	0
Populus deltoides	0	Puccinellia nuttalliana	1
Rumex crispus	0	Salicornia rubra	1
Schoenoplectus maritimus	2	Typha angustifolia	2
Typha 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.

In 2021, wetland vegetation was very robust and bare ground decreased.

Community # 19 Community Type: Mudflat / Acres: 1.36

Species	Cover class	Species	Cover class
Bare Ground	5	Chenopodium album	0
Chenopodium rubrum	0	Distichlis spicata	0
Eleocharis palustris	1	Rumex crispus	0
Salicornia rubra	0	Schoenoplectus maritimus	1

#### **Comments:**

This community type was created in 2021 to classify wetland area around pond edges that are no longer inundated and have <5% vegetative cover.

# Total Vegetation Community Acreage

13.71

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

# **VEGETATION TRANSECTS**

Forsyth NW - West	D	ate:	6/23/2021	
Transect Number: <u>1</u>	Compass [	Compass Direction from Start:		
Interval Data:				
Ending Station	<sup>14</sup> Community Type	: Pascopyrum smithii / Bromu	s tectorum	
Species	Cover class	Species	Cover class	
Bare Ground	3	Bromus tectorum	4	
Pascopyrum smithii	3	Poa pratensis	1	
<b>Ending Station</b>	265 Community Type	Open Water / Aquatic macro	ophytes	
Species	Cover class	Species	Cover class	
Open Water	5			
<b>Ending Station</b>	270 Community Type	: Mud Flat /		
Species	Cover class	Species	Cover class	
Bare Ground	5	Schoenoplectus maritimus	1	
<b>Ending Station</b>	282 Community Type	: Hordeum jubatum / Typha s	p.	
Species	Cover class	Species	Cover class	
Bare Ground	3	Chenopodium album	2	
Elymus trachycaulus	2	Hordeum jubatum	3	
Schoenoplectus maritimu	s 4			
Transect Notes:				
Majority of transect is	s now inundated			

vrum smithii Cover class 0 4 1 4
Cover class 0 4 1
0 4 1 4
4 1 4
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1

# PLANTED WOODY VEGETATION SURVIVAL

Forsy	/th	NW	- W	lest
1 013	V LI I	1 4 7 7	- v	

# Comments

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

# Forsyth NW - West

#### **WILDLIFE**

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:	

#Observed	Behavior	Habitat
6	BP, F	FO, I, MA, MF, OW
7		
20		
2		
6	F, L	MA, OW, UP
3		
7		
4		I, MA, OW, UP
2		
5		
5	F	I, MA, MF
3		
2		
	6 7 20 2 6 3 7 4 2 5 5	6 BP, F 7 20 2 6 F, L 3 7 4 2 5 5 5 F

#### **Bird Comments**

Many broods of ducklings on site. Full brood of wigeon observed. Unidentified brood of ducklings still in the nest observed on southern portion of site. Numerous dabbling ducks observed, not all could be identified.

#### **BEHAVIOR CODES**

 $\mathbf{BP} = \mathbf{One} \ \mathbf{of} \ \mathbf{a} \ \underline{\mathbf{breeding}} \ \mathbf{BD} = \mathbf{Breeding} \ \mathbf{display} \ \mathbf{F} = \mathbf{Foraging} \ \mathbf{FO} = \mathbf{Flyover} \ \mathbf{L} = \mathbf{Loafing} \ \mathbf{N} = \mathbf{Nesting}$ 

#### **HABITAT CODES**

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

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

# **Mammals and Herptiles**

Species	# Observed Tracks Scat	<b>Burrows Comments</b>
Opocioo	" Obcorrod Hacke Coat	Barrowo Gorillionto

Coyote		No	Yes	No	
Muskrat	1	No	No	No	
Raccoon		Yes	Yes	No	
Turtle sp.	1	No	No	Yes	Female actively laying eggs
White-tailed Deer		Yes	Yes	No	

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	46.337455	-106.87196			
DP01w	46.337427	-106.871985			
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
<b>Y Y Y Y</b>	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	ap vegetation community boundaries
✓ Co	omplete Vegetation Transects
	Soils
<b>✓</b> As	ssess soils
	Wetland Delineations
<b>✓</b>	Delineate wetlands according to applicable USACE protocol (1987 form or
Supp	lement) Delineate wetland – upland boundary onto aerial photograph.
Wetla	and Delineation Comments
We	etland boundaries changed drastically since 2020 due to decreased inundation and subsequent development of mudflat habitat.
<u>.                                    </u>	Functional Assessments
<b>✓</b> forms	Complete and attach full MDT Montana Wetland Assessment Method field s.
Func	tional Assessment Comments:
Ca	tegory III 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.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW West	City/Co	ounty: Roseb	ud		Sampling Da	te:6/	24/2021
Applicant/Owner: MDT							
Investigator(s): R Jones						 39E	
Landform (hillslope, terrace, etc.): Hillside						Slope (%	, <sub>):</sub> 10
Subregion (LRR): LRR G Lat:		46.3374	455 Long:	-	106.87196 <sub>[</sub>	Datum: N	AD 83
Subregion (LRR): LRR G Lat: _ Soil Map Unit Name: 138: Marvan silty clay, 0-2% slopes			N	IWI classifi	cation: Not Ma	apped.	
Are climatic / hydrologic conditions on the site typical for this time of							
Are Vegetation, Soil, or Hydrology significar	ntly disturk	ped? Are	e "Normal Circu	mstances"	present? Yes		No 🔲
Are Vegetation, Soil, or Hydrology naturally	problema	tic? (If	needed, explain				
SUMMARY OF FINDINGS – Attach site map showi	ing sam	pling point	t locations, t	ransects	s, importan	t featur	es, etc.
Hydrophytic Vegetation Present? Yes No ✔  Hydric Soil Present? Yes No ✔  Wetland Hydrology Present? Yes No ✔			land?				
Remarks: Upland sample point. Hydrologic conditions on the Rosebud County experienced Moderate Drought drought since June of 2020.	e site are (D1) in J	e atypical. Ac une 2021. No	ccording to the OAA indicates	National ( that the a	Climatic Data re has been	i Center, in moder	rate
VEGETATION - Use scientific names of plants  Absolute Domi	iant Ind	dicator	T				
Tree Stratum Plot size ( Foot Radius) % Cover: Spec		atus		e Test wo			
				Dominant BL, FACW		0 (A	.)
				ber of Dom cross All S		1 (B	<b>(</b> )
Sapling/Shrub Stratum Plot size (15 Foot Radius)				Dominant BL, FACW		0.0 %	(A/B)
<u>oupmigromab dratam</u>				e Index w			
				l % Cover o		Multiply	by:
			OBL speci		0 X1 0 X2	0	
			FAC speci		0 X2	0	
			FACU spe		70 X4	280	
Herbaceous Stratum Plot size ( 5 Foot Radius)  Bromus iaponicus 1	NL		UPL speci	es	2 X5	10	
Bromus japonicus 1	NL		Column To	otals	72 (A)	290	(B)
Elymus trachycaulus 5	FAC	:U		lence Inde			1.03
Pascopyrum smithii 65	FAC						
				-	t <b>ion Indicator</b> t for Hydrophyt		ition
				·	e Test is >50%	•	
					e Test is >30 /6 e Index is <= 3		
				Prevalence	e index is <= 3	.0	
			su		ical Adaptation ta in remarks o		
					on-Vascular P	lanta	
Woody Vine Stratum Plot size ( 30 Foot Radius)				blematic H	lydrophytic Ve	getation (E	=xplain)
Tistoza ( 00 Fost radias)					and wetland hy ed or problema		
Percent Bare Ground 28			Hydrophy Present?	tic Vegeta	tion Yes	□ NO	<b>✓</b>
Remarks:							
BG/litter=72%. Data point is dominated by upland vegetation	on.						

SOIL Sampling Point: DP01u Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features % Loc<sup>2</sup> Color (moist) Texture Color (moist) Remarks (inches) 0-03 2.5Y 4/2 100 **Excavation difficult at 6"** Clay 03-12 Silty Clay 2.5Y 100 4/2 Gravelly, hard. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes \_\_\_\_ No \_\_\_ Depth (inches): \_ Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_ Depth (inches): \_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW West	City/County: Rosebud	Sampling Date: 6/24/202
		State: Montana Sampling Point: DP01w
Subregion (LRR): LRR G	46.337427	-106.871985 Datum: NAD 83
Soil Man Unit Name: 138: Marvan silty clay, 0-2% slopes	.0.00	NIM classification: Not Mapped.
And alignostic / hydrologic conditions on the site to rice for this time of w	No. 1	/ (If an explain in Demands)
Are Vegetation, Soil, or Hydrology significantly	/ disturbed? Are "N	
	is the sampled F	
Wetland Hydrology Present? Yes V No No	within a Wetland	? Yes <u>V</u> No
Remarks: PEM DEPRESSIONAL wetland. Hydrologic condition Center, Rosebud County experienced Moderate Dromoderate drought since June of 2020.	ons on the site are atyp ought (D1) in June 202	ical. According to the National Climatic Data  1. NOAA indicates that the are has been in
VEGETATION - Use scientific names of plants  Absolute Domian	nt Indicator	Dominon on Took workshoot
<u>Tree Stratum</u> Plot size (30 Foot Radius) % Cover: Species	s? Status	Number of Dominant Species
		Total Number of Dominant Species Across All Strata:
Sanling/Shruh Stratum Plot size (15 Foot Padius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)
pelicant/Owner: MDT  vestigator(s): R. Jones  Section, Township, Range: State: Montana Samping Point: DP01w vestigator(s): R. Jones  33 7N 39E  Sippe (sk): Shoreline  Local relief (concave, convex, none): OCIGNE Sippe (sk):		
	FACIL	UPL species 0 X 5 0
		Column Totals 75 (A) 105 (E
		4.40
· ·		1 revalence maex – b/A –
		_ , , , , , ,
		supporting data in remarks or on separate
		5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be
Percent Bare Ground 25		Hydrophytic Vegetation
Remarks:		
BG/litter=25%. Evidence of hydrophytic vegetation includes a less than or equal to 3.0.	a positive rapid test, a p	positive dominance test, and a prevalence index

US Army Corps of Engineers

SOIL Sampling Point: DP01w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Color (moist) Loc<sup>2</sup> Texture Type<sup>1</sup> (inches) 0-06 5YR 10 С 2.5Y 4/1 90 3/6 M Silty Clay 06-12 10Y С 4/0 2.5YR 3/6 30 ы Silty Clay 30 5/2 C M 06-12 2.5YR 30 5YR 3/4 10 Silty Clay <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) ✓ Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) Stratified Layers (A5) (LRR F) ✓ Depleted Matrix (F3) 1 cm Muck (A9) (**LRR F, G, H**) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) wetland hydrology must be present. (MLRA 72 & 73 of LRR H) unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Yes ✓ No Depth (inches): Remarks: Sulfidic odor observed. Prominent redoximorphic concentrations many along pore linings and within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) ✓ Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Hydrogen Sulfide Odor (C1) Saturation (A3) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes \_\_\_\_ No \_\_\_ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology include sulfidic odor, salt crust, oxidizied rhizospheres on living roots, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Forsy	th NW - West		2. MDT <sub>I</sub>	project#	ŧ	ST	PP 14(9)2	59		Coi	ntrol#	9680000
3. Evaluation Date 7/7/2	2021 <b>4. Evaluators</b>	R Jone	s		5.	Wetl	and/Site#	(s)	Forsyth N	NW - We	est	
6. Wetland Location(s): T	7 N R (	39 E	Sec1	20		т	7 N	R	39 E	Sec2	29	
Approx Stationing or Milepo	osts RP 280 on US 1	2							00 -			
Watershed 14 - Middle `			d/Count	y Ros	sebı	bı						
7. Evaluating Agency	CCI for MDT						8 Watls	nd	size acres			10.62
Purpose of Evaluation							How ass				red e a	by GPS
☐ Wetlands potentially af	fected by MDT project								nent area	Wicasa	ou o.g.	10.62
☐ Mitigation Wetlands: pr	, ,						(AA) size					10.02
✓ Mitigation Wetlands: po							How ass	ess	ed:	Measur	ed e.g.	by GPS
Other												
10. Classification of Wetlar	nd and Aquatic Habitat	s in AA										
HGM Class (Brinson)	Class (Cowardin)			r (Cowa	ardi	n)			egime		% of	
Riverine	Emergent Wetland		Excavat	ed			Perman	ent/l	Perennial			15.6
Riverine	Unconsolidated Botton	n	Excavat	ed			Perman	ent/l	Perennial			12.8
Riverine	Unconsolidated Botton	n	Impound	ded			Perman	ent/l	Perennial			71.6
<ul><li>11. Estimated Relative Abur</li><li>12. General Condition of A. <ul><li>i. Disturbance: (use matrix aquatic nuisance vegetation</li></ul></li></ul>	A below to determine [circle]	appropria	ate respon	se – see	inst	ructio	ns for Monta	ana-l	isted noxiou	ıs weed a	ınd	
					redo				t to (within 50			
Conditions wi	ithin AA	natural hayed, conver roads	ed in predor state; is no logged, or or ted; does no or buildings; or ANVS cov	ot grazed, otherwise ot contain ; and noxio		mod sele subj	I not cultivate erately grazed ctively logged ect to minor cl roads or build d or ANVS co	d or h ; or h earings;	ayed or as been g; contains noxious	or logg placem hydrolo building	ed; subjed ent, gradi ogical alter	r heavily grazed to substantial fill ng, clearing, or ation; high road or or noxious weed : >=30%.
AA occurs and is managed in predomi grazed, hayed, logged, or otherwise or roads or occupied buildings; and noxid <=15%.	onverted; does not contain	lo	w disturl	bance			low dist	urba	ance	mod	derate	disturbance
AA not cultivated, but may be moderat selectively logged; or has been subject placement, or hydrological alteration; noxious weed or ANVS cover is <=30%	et to relatively minor clearing, fill contains few roads or buildings;		modera disturba			m	oderate d	listu	ırbance	h	igh dis	turbance
AA cultivated or heavily grazed or logg substantial fill placement, grading, clerhigh road or building density; or noxic >=30%.	aring, or hydrological alteration;	hig	h distur	bance			high dist	urba	ance	h	igh dis	turbance
Comments: (types of disturb Construction activities in 2017 moderate in 2018 and 2019, a	to repair the dike structu	ıre temp		creased	l dis	turba	nce rating	at ti	he site to h	igh in 20	)17, wa	s reduced to
ii. Prominent noxious, aquat		ic spec	ies:									
Euphorbia esula, Cirsium arve		1 PP 0 1	ina lend	uoc/b-	hita							
<ul><li>iii. Provide brief descriptive</li><li>AA includes existing and cons</li></ul>	-						d Big Pord	upir	ne Creek. S	Surround	ling lan	d includes US
12 and rangeland tha supports		,	5	. 5			<b>U</b>	•			<b>5</b>	-

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

Existing # of "Cowardin" Vegetated Clæsses in AA	Initial Rating		rrent management tence 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 dass, but not a monoculture	М	<no< td=""><td></td><td></td><td>YES&gt;</td><td>L</td></no<>			YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA		·	NA	NA

	,				
omments: Emergent wetland surrounding	g and within an open	water area, a	nd recently developed m	udflats.	
SECTION	PERTAINING to	FUNCTIO	NS VALUES ASSE	ESSMENT	
4A. Habitat for Federally Listed or Propo	sed Threatened or	Endangered I	Plants or Animals:		
i. AA is Documented (D) or Suspected	(S) to contain (chec	ck one based	on definitions contained	ed in instructions):	
rimary or critical habitat (list species)	□ D    □ S				
econdary habitat (list Species)	□ D    □ S				
ncidental habitat (list species)	□ D    □ S				
lo usable habitat	<b>√</b> S				
ii. Rating (use the condusions from i abo	ve and the matrix be	low to arrive a	nt [check] the functional p	ooints and rating)	

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

Sources for documented use

USFWS T&E list for Rosebud County

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

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

Primary or critical habitat (list species)		Ammannia robusta (S2)
Secondary habitat (list Species)	D S	
Incidental habitat (list species)	$\bigcirc$ D $\bigcirc$ S	Great Blue Heron (S3)
No usable habitat	S     S	

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	_OL_
S2 and S3 Species: Functional Points and Rating	.9Н	.7M	6M	.5M	.2L	.1L	OL

Sources for documented use

Ammannia observed within AA in 2019.

4C. General W i. Evider	lidlife l nce of c				se in tl	ne AA	(chec	k sub	stantia	al, mod	lerate,	or lo	w ba	sed on	supp	orting	g evi	idence)		stantic	<b>a</b> l		7
<b>Substantial</b> (based	d on any	of the f	followir	na lche	ckl):						Minim	<b>al</b> (ba	ased o	n any of	the follo	wing	ſchec	:k1):	Sups	stantia	aı		
observations				٠.		es dive	rsity (du	ring ar	ny period	t)				-		_		k use pe	riods				
							• •	•	•	,				fe sign				-					
presence of e	•									area	spa	arse a	djacen	it upland	food s	ources	\$						
interviews with	h local bi	ologist	s with I	knowle	dge of t	he AA					inte	erview	s with	local bid	ologists	with k	nowle	edge of tl	ne AA				
foderate (based o	-			•				_			,												
observations								•	•	•		iods											
common occu			-		s scat, i	.racks,	nest su	ucture	s, game	trails, et	ic.												
adequate adja interviews with					dge of t	he AA																	
ii. Wildlife hab from #13. For other in terms of permanent/pere terms])	class co	over to bercer	be control	onside positi	ered ev on of tl	enly o	listribu (see #	ted, th ‡10).	he mos Abbrev	t and le viations	ast pre for sur	evale face	nt <b>veç</b> water	<b>getated</b> duration	l class ons are	es mu e as f	ust b	e withir /s: P/P	1 20% o =	f each	e		
Structural diversity (see #13)				Hig	gh							Mode	rate					L	.ow				
Class cover distribution (all vegetated classes)		Eve	n			Une	ven			Ever	n			Une	/en			E	ven				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	А	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	А			
Low disturbance at AA (see #12i)	Е	Е	E	Н	E	Е	Н	Н	Е	н	Н	М	Е	Н	М	М	E	Н	М	М			
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			
High disturbance at AA (see #12i)	М	М	M	L	М	М	L	L	M	М	L	L	М	L	L	L	_ L		L	L			
iii. Rating (u							above	and t	the ma	W				[checl	rating	j (ii)		al point	s and ı	rating)			$\exists$
Substantial			+	E	xcept	ional		┡		High	_				Mod	lerat	e				Low	-1	$\dashv$
					1E					.9H	1					8H					.7M		$\perp$
Moderate					.9⊦	1				.7N	1					5M					.3L		_
Minimal					.6N	l l				.4N	1					2L					.1L		
Comments	amph	ibian	s was	s also	obse	rved.													ox, racc				
4D. General I ould be used l estorable due NA here	by fish to habi and pro	[i.e., itat co oceed	fish u onstra I to 14	ise is aints, 4E.)	preclu or is r War	uded not de m W	by pe sired ater	rche of from	d culve a mar	ert or of nagemo	ther ba	arriei rspe	r, etc. ective	]. If th	ne AA as fis	is no h ent	ot us trapp	ed by bed in	fish, fis	h use	is not		
Habitat Qu  Duration of surfac in AA		d Kno	wn / S		cted F			in AA	(usem	natrix to				he fund		oints	and	rating)	Tom	un arary /	Epheme	.rol	
Aquatic hiding / re escape cover	sting /		Optim			dequate		Po	or	Opt	timal	Seaso	Adeq			Poor		Opti			quate		oor
Thermal cover opti suboptimal	timal/	(	)	S	0		s	0	S	0	s		0	S	0	,	s	0	S	0	S	0	S
FWP Tier I fish s	•	11	-#	.9H	.8H		.7M	.6M	.5M	.9H	.8Н	+-	7M	.6M	.5N	-	IM	.7M	.6M	.5M	.4M	.3L	.3L
Game fish spe	ecies	.9	Н	.8H	.7M		.6M	.5M	.5M	.8H	.7M		6M	.5M	.41	.4	ŀМ	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III Introduced Gar		.8	н	.7M	.6M	1	.5M	.5M	.4M	.7M	.6М		5М	.4M	.4N	.3	3L	.5M	.4M	.3L	.2L	.2L	.1L

.5M .	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
.5M .	.4M	.7М	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

.5M

FWP Non-Game Tier IV or No fish species

.5M

.5M

.4M

Sources used for identifying fish sp. potentially													
ii. Modified Rating (NOTE: Modified score of a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuityes, reduce score in i above by 0.1: Modified	a culvert, of TMDL of sance pla	dike level nt or	e, or other i lopment wi	man-ri th liste	nade s ed "Pr	structure or obable Imp	aired (	Úses" ii	ncludin	g cold or v	varm wate		
b) Does the AA contain a documented spawning comments) for native fish or introduced game fish		_	r critical ha			e (i.e., sand add 0.1 to t <b>Modifed</b>	he adji	usted s				in	
iii. Final Score and Rating: 3 L	Comm	nent	s: reduce	ed in	udatio	on has re	educe	ed fish	n habit	tat on si	te in 202	1.	
14E. Flood Attenuation: (Applies only to wet channel or overbank flow, click NA he			to flooding d to 14F.)	via in	-chan	nel or over	bank fl	low. If	wetland	ds in AA a	re not flood	led from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosge			to arrive a			functiona Moderat				Entrend	hed-A, F,	G stream	
1994, 1996)	9	,	stream type		-, -		stream				types		
% of flooded wetland classified as forested and/or scrub/shrub	75	%	25-75%	<2	25%	75%	25-7	75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	11	1	.9H	$\  \Gamma$	6M	.8H	.7	М	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9	н	.8H	. !	БМ	.7M	.6	М	.4M	.3L	.2L	.1L	
Slightly Entrenched			Moderately	/ Entre	nched				E	Intrenched			7
ER = >2.2  C stream type D stream type E stream	m type	-	ER = 1		2.2		stream	type		R = 1.0 - 1.4 F stream ty		G stream type	
	<del></del> √								ļ				
Floodprone width  Bankfull Depth    Bankfull Width   Bank													
ii. Are ≥10 acres of wetland in the AA subject t within 0.5 mile downstream of the AA (check)?	o flooding Y	ANI	D are man-	-made	featu	res which	may be	e signifi	icantly	damaged	by floods lo	ocated	
Comments: The site provides flood atte		ı fu		or th	e adj	acent Bi	g Pro	cupin	e Cre	ek.			
14F. Short and Long Term Surface Waupland surface flow, or groundwater flow. 14G.)  i. Rating (Working from top to bottom, water durations are as follows: P/P = per further definitions of test eterms).)	If nowe	etlar natri	nds in the	AA a	re su ve at	bject to fl [check] th	ooding ne fund	g or po	onding points	, dick │ s and rati	<b>NA</b> he	re and proce	eed to surface
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding			>5 acre feet				1.1 to 5 acre feet				≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P		S/I		T/E	P/I	>	s	i/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ <b>5 out of 10 years</b>	1H		.9H		.8H	.8	н	.61	м	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H		.8H		.7M	.7	М	.51	М	.4M	.3L	.2L	.1L

**Comments:** Site has been moved into the perennial category due to consistant inundation over the last two years.

<b>14G.</b> Sediment/Nutrient/Toxicant through influx of surface or ground v to 14H.)						
<ul><li>i. Rating (working from top to botto = low])</li></ul>	om, use the matrix below	to arrive at [check] the fu	ınctional points and rating [H	= high, M = moderate, or L		
Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding to deliver levels of sedi compounds at levels such not substantially impaired sources of nutrients or eutrophicatio	thents, nutrients, or that other functions are I. Minor sedimentation, toxicants, or signs of	Waterbody on MDEQ list of wat development for "probable cau nutrients, or toxicants <b>or</b> AA recei with potential to deliver high level compounds such that other function Major sedimentation, sources of ni of eutrophicatio	ses" related to sediment, ves or surrounding land us e s of sediments, nutrients, or ns are substantially impaired, utrients or toxicants, or signs		
% cover of wetland vegetation in AA  Evidence of flooding / ponding in AA	≥ 70%	< 70%	≥ 70%	< 70%		
AA contains no or restricted outlet		Yes No	Yes No .4M	Yes No		
AA contains unrestricted outlet		6M .4M	.4M .3L	.2L .1L		
	was present across entire		getation cover is less than 70			
delineated wetlands.	Cover has increased in the	ne wetland fringe, but was	s low in the mudflat areas.			
14H Sediment/Shoreline Stabilization: drainage, or on the shoreline of a standir proceed to 14l.)  i. Rating (working from top to bottom, top to bottom).	ng water body which is subje	ct to wave action. If 14H do	es not apply, click NA her			
% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings		ion of surface water adjacent to i				
of ≥6 (see Appendix F). ≥ 65%	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemer	ai 		
35-64%	.7M	.6M	.5M			
< 35%	.3L	.2L	.1L			
Comments: primarily bare mudflat.  14I. Production Export/Food Chain Support:  i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])  General Fish Habitat General Wildlife Habitat Rating (14C.iii.)						
Rating (14D.iii.) E/H	M	L				
E/H H	Н	М				
M H	M	M				
L M M L L N/A						
ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)  A Vegetated component <5 acres  Vegetated component <1 acre						
A Vegetated component >5 ac  B High Moderate  C Yes No Yes No	Low High Yes No Yes No	Moderate Lo				
P/P 1E 7.7H 8.8H .5M	.6M .4M .9H .6M		.3L 8H .6M .6M	.4M .3L .2L		
S/I .9H .6M .7H .4M	.5M .3L .8H .5M	.6M .3L .4M	.2L .7H .5M .5M	.3L .3L .2L		
T/E/A 8H 5M 6M 3L 4M 2L 7H 4M 5M 2L 3L 1L 6M 4M 4M 2L 2L 1L						
ii. 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? You Note the score in ii above and adjust rating accordingly: Modified Rating [.8H]  Comments: Upland buffer between northern boundary of AA and highway greater than 50ft.						

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: Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Shallow water table and the site is saturated to the surface Other: iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge .7M .4M .1L 1H Insufficient Data/Information Comments: Site hydrology is combination of seasonally high groundwater table and runoff. Water is held on the site via an impoundment 14K. Uniqueness: i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant common abundant commo rare common rare rare abundance (#11) Low disturbance at AA 1H .9H H8. .8H .6M .5M .5M .3L .4M (#12i) Moderate disturbance at .9H H8. .7M .7M .5M .4M .4M .3L .2L AA (#12i) High disturbance at AA .8H .7H .6M .6M .3L .2L .4M .3L .1L (#12i) Comments: AA is becoming less diverse as vegetation intolerant of inundation dies off. 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) (if 'Yes' continue with the evaluation; if 'No' then click NA i. Is the AA a known or potential rec./ed. site: (check) Y  $N\bigcirc$ here and proceed to the overall summary and rating page) Check categories that apply to the AA: 🗸 Educational/scientific study; 🗌 Consumptive rec.; 📝 Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) 15H .2H 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: Property is owned by MDT, and is easily accessible. Potential exists for bird and wildife viewing opportunites. **General Site Notes** Site was providing highly valuable habitat to shorebirds and waterfowl during 2021, which was an extremely dry year.

# 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 Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	Н	.9	1	9.56	
C. General Wildlife Habitat	Е	1	1	10.62	<b>✓</b>
D. General Fish Habitat	L	.3	1	3.19	
E. Flood Attenuation	М	.6	1	6.37	
F. Short and Long Term Surface Water Storage	Н	1	1	10.62	<b>✓</b>
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	7.43	
H. Sediment/Shoreline Stabilization	М	.7	1	7.43	
Production Export/Food Chain Support	Н	.8	1	8.50	<b>✓</b>
J. Groundwater Discharge/Recharge	Н	1	1	10.62	<b>✓</b>
K. Uniqueness	L	.3	1	3.19	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	2.12	
Totals:		7.5	11	79.65	
Percent of Possible Score			68.18 %		

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

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined above)

|--|

**Table B-1.** Forsyth Northwest – West Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Agropyron cristatum	Crested Wheatgrass	UPL
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Amaranthus retroflexus	Red-Root	FACU
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Aquatic macrophytes	Aquatic macrophytes	UPL
Artemesia biennis	Biennial Wormwood	FACU
Asclepias speciosa	Showy Milkweed	FAC
Atriplex argentea	Silverscale	FAC
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Carex sp.	Sedge	N/A
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium rubrum	Red Goosefoot	OBL
Cichorium intybus	Chicory	FACU
Cirsium arvense	Canadian Thistle	FACU
Comandra umbellata	Bastard-Toadflax	UPL
Convolvulus arvensis	Field Bindweed	UPL
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Herb Sophia	UPL
Distichlis spicata	Coastal Salt Grass	FACW
Echinochloa crus-galli	Large Barnyard Grass	FAC
Elaeagnus angustifolia	Russian-Olive	FACU
Eleocharis lanceolata	Dagger-Leaf Spike-Rush	FACW
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus hispidus	Intermediate Wheatgrass	UPL
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Glyceria elata	Tall Manna Grass	OBL
Glycyrrhiza lepidota	American Licorice	FACU
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum brachyantherum	Meadow Barley	FAC
Hordeum jubatum	Fox-Tail Barley	FACW
Hordeum marinum	Seaside Barley	FACU
Iva axillaris	Deer-root	FAC
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC

**Table B-1.** Forsyth Northwest – West Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Linum lewisii	Prairie Flax	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FDCW
Nassella viridula	Green Needle Grass	UPL
Pascopyrum smithii	Western-Wheat Grass	FACU
Phalaris arundinacea	Reed Canary Grass	FACW
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
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Mexican Coneflower	UPL
Ribes aureum	Golden Currant	FACU
Ribes cereum	Wax Currant	UPL
Rosa arkansana	Prairie Rose	FACU
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
Salicornia rubra	Red Saltwort	OBL
Salix amygdaloides	Peach-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Sarcobatus vermiculatus	Greasewood	FAC
Schedonorus pratensis	False Meadow Rye Grass	FACU
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Setaria pumila	Yellow Bristle Grass	FACU
Sonchus arvensis	Field Sow-Thistle	FAC
Spartina pectinata	Freshwater Cord Grass	FACW
Sporobolis airoides	Alkali-Sacaron	FAC
Symphoricarpos albus	Common Snowberry	UPL
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
Xanthium strumarium	Rough Cockleburr	FAC
Yucca glauca	Small Soapweed Yucca	UPL

<sup>&</sup>lt;sup>(a)</sup> 2018 NWPL (USACE 2018)

### MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - MiddleAssessment Date/Time	6/23/202
Person(s) conducting the assessment: R. Jones	
Weather: Partly sunny, 85 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> Section(s) <u>33</u>	
Initial Evaluation Date: 8/15/2013 Monitoring Year: 9_#Visits in Year: 1	
Size of Evaluation Area: 1.8 (acres)	
Land use surrounding wetland:	
Rangeland with evidence of grazing and Highway 12.	
HYDROLOGY	
HIDROLOGI	
Surface Water Source: Precipitation, runoff, and overflow from ditch	
Inundation: Average Depth: 0 (ft) Range of Depths: (ft)	
Percent of assessment area under inundation:0 %	
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>	
Geomorphic position, surface soil cracks, water stained leaves.	
Groundwater Monitoring Wells	
Record depth of water surface below ground surface, in feet.	
The contract of the contract o	
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:	
Site exhibited more marginal wetland habitat in 2021 due to drought.	

#### **VEGETATION COMMUNITIES**

Site Forsyth NW - Middle

(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 canadensis Acres: 1.22

Species	Cover class	Species	Cover class
Bare Ground	2	Bromus arvensis	0
Bromus inermis	2	Bromus tectorum	1
Chenopodium album	1	Cirsium arvense	2
Convolvulus arvensis	1	Elymus canadensis	1
lymus elymoides	1	Elymus trachycaulus	1
ordeum jubatum	1	Lactuca serriola	1
num lewisii	1	Melilotus officinalis	0
ascopyrum smithii	4	Poa palustris	1
oa pratensis	1	Populus deltoides	1
atibida columnifera	1	Rumex crispus	0
arcobatus vermiculatus	1	Schedonorus pratensis	1
mphoricarpos albus	2	Thlaspi arvense	1
ragopogon dubius	1		

#### **Comments:**

Community # 5 Community Type: Hordeum jubatum / Eleocharis palustris Acres: 0.58

Species	Cover class	Species	Cover class
Bare Ground	4	Bromus arvensis	1
Deschampsia elongata	1	Eleocharis palustris	2
Elymus lanceolatus	1	Elymus repens	1
Elymus trachycaulus	2	Hordeum jubatum	3
luncus balticus	0	Lactuca serriola	2
assella viridula	1	Pascopyrum smithii	2
oa palustris	1	Populus deltoides	0
uccinellia nuttalliana	1	Rumex crispus	0
Salix lutea	1	Schedonorus pratensis	2
choenoplectus maritimus	0	Tragopogon dubius	1

#### **Comments:**

This community has been described as CT4 in previous years, but was changed due to Puccinellia nuttalliana being nearly absent, a reduction Eleocharis palustris, and an increase in FAC and FACU species.

#### Total Vegetation Community Acreage

1.8

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

## **VEGETATION TRANSECTS**

Transect Number: 1	Compass D	irection from Start: 2	<u>205                                    </u>
Interval Data:			
Ending Station	14 Community Type:	Pascopyrum smithii / Elymi	us canadensis
Species	Cover class	Species	Cover class
Bare Ground	3	Chenopodium album	0
Elymus canadensis	1	Elymus elymoides	1
Pascopyrum smithii	3	Schedonorus pratensis	1
Tragopogon dubius	0		
Ending Station	26 Community Type:	Hordeum jubatum / Eleoch	aris palustris
Species	Cover class	Species	Cover class
Bare Ground	2	Deschampsia elongata	1
Eleocharis palustris	0	Elymus lanceolatus	0
Elymus repens	1	Elymus trachycaulus	0
Hordeum jubatum	3	Juncus balticus	0
Lactuca serriola	0	Poa palustris	0
Puccinellia nuttalliana	0	Schedonorus pratensis	4
Tragopogon dubius	1		
<b>Ending Station</b>	50 Community Type:	Pascopyrum smithii / Elymu	us canadensis
Species	Cover class	Species	Cover class
Bare Ground	3	Bromus inermis	0
Chenopodium album	0	Elymus canadensis	0
Elymus trachycaulus	2	Hordeum jubatum	0
Pascopyrum smithii	2	Poa pratensis	1
Populus deltoides	4	Ratibida columnifera	0
Schedonorus pratensis	1	Symphoricarpos albus	1

### **PLANTED WOODY VEGETATION SURVIVAL**

Forsyth	NW -	Middle
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### Comments

No planted woody vegetation. Young volunteer cottonwoods doing well around edge of wetland, especially on southeast end.

#### **WILDLIFE**

Birds					
Were man-made nest	ing structures	installed? _	No		
If yes, type of structur	e:			_	
How many?					
Are the nesting struct	ures being use	ed?	No		
Do the nesting structu	res need repa	airs?	No		
Nesting Structur	e Comments	:			
Species	#Observed	Behavior		Habitat	
Bird Comments					
No birds observed in 2021.					
BEHAVIOR CODES					
<b>BP</b> = One of a <u>breeding pair</u>	BD = Breeding dis	splay <b>F</b> = Foragii	ng <b>FO</b> = Flyover <b>L</b> = L	oafing <b>N</b> = Nesting	
<u>HABITAT</u> 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**

# Wildlife Comments:

Very little wildlife or sign of wildlife noted during the 2021 field survey.

#### **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	46.323056	-106.842911			
DP01w	46.323105	-106.842865			
PP-1	46.322174	-106.840996	300	Photo Point 1:	
PP-2	46.323803	-106.844337	120	Photo Point 2:	
T-1 end	46.322754	-106.842438	25	Transect 1 end:	
T-1 start	46.322948	-106.842323	205	Transect 1 start:	

#### **Comments:**

## **ADDITIONAL ITEMS CHECKLIST**

Hydrology
<ul> <li>✓ Map emergent vegetation/open water boundary on aerial photos.</li> <li>✓ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).</li> </ul>
Photos
<ul> <li>✓ One photo from the wetland toward each of the four cardinal directions</li> <li>✓ One photo showing upland use surrounding the wetland.</li> <li>✓ One photo showing the buffer around the wetland</li> <li>✓ One photo from each end of each vegetation transect, toward the transect</li> </ul>
Vegetation
✓ Map vegetation community boundaries
✓ Complete Vegetation Transects
Soils
✓ Assess soils
Wells and Bullion of the co
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 2021.
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?

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.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW Middle		_ City/C	county: Rosebu	ıd	Sampling [	Date:6/2	24/2021
Applicant/Owner: MDT				State: Mon			
Investigator(s): R Jones							
Landform (hillslope terrace etc.). Valley be	ottom	Loca	l relief (concave	convex none) flat		Slope (%)	): 3
Subregion (LRR): LRR G	Lat:	_	46.3230	56 Lana:	-106.842911	Datum: NA	AD 83
Soil Map Unit Name: 98: Harlem silty clay	, 0-2% slopes, occas	ionally f	flooded	NWI c	lassification: PEM	1C	
Are climatic / hydrologic conditions on the si							
Are Vegetation, Soil, or Hydi	ology significan	tly distur	bed? Are	e "Normal Circumstar	nces" present? Ye	es 🔽 🕦	No
Are Vegetation, Soil, or Hydi	rology naturally	problema	atic? (If i	needed, explain any			
SUMMARY OF FINDINGS - Attac				locations, trans	sects, importa	nt feature	es, etc.
Hydric Soil Present?  Wetland Hydrology Present?	Yes			and? Yes			
Remarks: Upland sample point located According to the National Cli indicates that the are has be	matic Data Center, R	osebud	County exper	ienced Moderate [	tions on the site Drought (D1) in .	are atypica lune 2021.	il. NOAA
VEGETATION - Use scientific na	•						
Tree Stratum Plot size (30 Foot Radi	us) Absolute Domia  Cover: Speci		ndicator tatus	Dominance Te	st worksheet		
	,			Number of Dom that are OBL, F		0 (A)	)
				Total Number o Species Across		4 (B)	)
Sapling/Shrub Stratum Plot size (15	Foot Radius)			Percent of Dom That Are OBL, I		0.0 %	(A/B)
Sapinig/Siliub Stratum Piot Size (13	root Radius)			Prevalence Ind	lex worksheet		
				Total % C		Multiply I	by:
				OBL species		0	
				FACW species FAC species		0	_
				FACU species	-	15 168	_
	Foot Radius)			UPL species		115	_
Bromus inermis	7	UPI	<del></del>	Column Totals	-		(D)
Cirsium arvense	10	FAC	<i>3</i> 0	Columnit rotals	70 (A)		(B)
Convolvulus arvensis	10 <b>v</b>	NL	211	Prevalence	Index = B/A =	4	.26
Elymus canadensis Linum lewisii	1 $\square$	FAC NL	<u> </u>		egetation Indicate		
Pascopyrum smithii	20	FAC	<u> </u>	☐ ☐ 1 - Rapi	d Test for Hydroph	ıytic Vegetat	tion
Poa pratensis	10	FAC		☐ 2 - Dom	inance Test is >50	)%	
Sarcobatus vermiculatus	5	FAC	<del></del>	3 - Prev	alence Index is <=	3.0	
Stipa viridula	5 🗆	NL		4 - Morp	hological Adaptat	ions (Provide	Э
- Supar Maurice	<u> </u>			supporti sheet.	ng data in remark	s or on sepa	rate
						Disente	
					and Non-Vascular		
Was de Wiss Ottock on Blat size ( Of	V. Frank Daulium)			□ □ Problem	atic Hydrophytic V	egetation (E	Explain)
Woody Vine Stratum Plot size ( 30	) Foot Radius)				ic sil and wetland isturbed or probler		
Percent Bare Ground 30				Hydrophytic Vo	egetation Yes	s 🗌 NO	<b>✓</b>
Remarks:				<u> </u>			
BG/litter=30%. Data point is dominate	d by upland vegetatio	n.					

SOIL Sampling Point: DP01u Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features % Loc<sup>2</sup> Color (moist) Type<sup>1</sup> Texture Color (moist) (inches) 0-02 2.5Y 4/1 100 Silty Clay Loam 02-12 2.5Y 100 4/2 Silty Clay Loam <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_ Depth (inches): \_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW Middle		_ City/C	county: Rosebud		Sampling Date:	6/24/2021
Applicant/Owner: MDT				State: Montana		
		Section	on, Township, Rand	ne: 34 7N	396	
_andform (hillslope, terrace, etc.): Valley bo	ttom	Local	I relief (concave co	nvex none). CONCAVE		
Subregion (LRR): LRR G	l at·		46.323105	Long:	 )6.842865 <sub>Dat</sub>	um: NAD 83
Soil Map Unit Name: 98: Harlem silty clay	. 0-2% slopes, occas	ionally f	flooded	NVA/I alaasifis	Not Mapr	oed
are climatic / hydrologic conditions on the site	- til f thi- ti f		/	INVVI Classific	auon.	
						<b>7</b> $\square$
re Vegetation, Soil, or Hydro	ology <u> </u>	tly distur	bed? Are "N			<u> </u>
re Vegetation $\overline{\square}$ , Soil $\overline{\square}$ , or Hydro	ology naturally	problema	atic? (If nee	ded, explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS – Attac	h site map showi	ng san	npling point lo	cations, transects	, important f	eatures, etc
Hydrophytic Vegetation Present? Y	es <u> </u>		Is the Sampled A	Aron		
Hydric Soil Present?	es 🔽 No 🔲	_		? Yes <u></u>	No 🗆	
Wetland Hydrology Present? Y	es 🔽 No 🗌	_	within a vvenanc	i les	<u>- NO</u>	_
Remarks: PEM RIVERINE wetland in ro Data Center, Rosebud County moderate drought since June VEGETATION - Use scientific nar	y experienced Moder of 2020.	rate Dro	ought (D1) in June	e 2021. NOAA indica	tes that the are	has been in
	. Absolute Domi		ndicator	Dominance Test wo		
<u>Tree Stratum</u> Plot size (30 Foot Radiu	<sup>is)</sup> % Cover: Speci	es? S	tatus	Number of Dominant that are OBL, FACW	Species	3 (A)
				Total Number of Dom Species Across All St		3 <sub>(B)</sub>
Sapling/Shrub Stratum Plot size (15	Foot Radius)			Percent of Dominant S That Are OBL, FACW		0.0 % (A/B)
Sapinis/Siliub Stratum 1 lot size (15	1 oot (tadius)			Prevalence Index wo		
				Total % Cover o		Multiply by:
				OBL species FACW species	25 X1	25
				FACW species FAC species		<u>26</u> 6
	5 (D " )				10 X4	40
Herbaceous Stratum Plot size ( 5 Carex nebrascensis		OBI		UPL species	0 X5	0
Cirsium arvense	10 <b></b>	FAC		Column Totals	50 (A)	97 (B)
Eleocharis palustris	15	OBI				1.94
Hordeum jubatum	10	FAC		Prevalence Inde		1.54
Juncus balticus	3	FAC		Hydrophytic Vegetat  1 - Rapid Test		Vogotation
Lactuca serriola	2	FAC				vegetation
Poa pratensis	5 🗍	FAC		✓ 2 - Dominance		
·				✓ 3 - Prevalence	Index is <= 3.0	
					cal Adaptations ( a in remarks or o	
				5 - Wetland No	on-Vascular Plan	ıts
					ydrophytic Veget	
Woody Vine Stratum Plot size ( 30	Foot Radius)			Indicators of hydric sil a present, unless disturbe	nd wetland hydro	ology must be
Percent Bare Ground 50				Hydrophytic Vegetat Present?		
Remarks:						
BG/litter=50%. Evidence of hydrophytic less than or equal to 3.0.	c vegetation includes	a posit	ive rapid test, a բ	oositive dominance to	st, and a preva	alence index

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

SOIL Sampling Point: DP01w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Loc<sup>2</sup> Color (moist) Color (moist) Type<sup>1</sup> Texture (inches) Remarks 0-03 4/2 15 С 2.5Y 85 7.5YR 3/4 M Silty Clay 03-12 2.5Y 5/2 20 5Y 2.5/1 5 С Very hard. Mixed matrix M Clay 60 7.5YR C M 03-12 2.5Y 4/2 3/4 15 Clay Very hard. Mixed matrix <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) Stratified Layers (A5) (LRR F) ✓ Depleted Matrix (F3)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Prominent redoximorphic concentrations many within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) ✓ Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Aguatic Invertebrates (B13) ✓ Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_ Depth (inches): \_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes drain pattern, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Forsyth NW	- Middle		2. MDT p	oroject#	ST	PP 14(9)259		Cor	ntrol#	9680000	
3. Evaluation Date	7/8/2021	4. Evaluators	R Jone	S	5.	Wet	land/Site# (s)	Forsyth I	NW - Mic	ddle		
6. Wetland Location(s  Approx Stationing or	•	7 N <b>R</b> 3	39 E	Sec1	33	Т	7 N R	39 E	Sec2	34		
Watershed 4 - Mid	ddle Yellowst	one W	atershe	d/Count	y Roseb	ud						
7. Evaluating Agency	CCI f	or MDT					8. Wetland	size acres	3		0.58	
Purpose of Evaluation	n						How asses	sed:	Measur	red e.g.	by GPS	
☐ Wetlands potentia	ally affected	by MDT project					9. Assesss				0.58	
☐ Mitigation Wetlan	ds: pre-cons	struction					(AA) size (a	•	Measur	ed e a	by GPS	
✓ Mitigation Wetlan	ds: post cor	nstruction									, c. c	
Other												
10. Classification of	Wetland and	Aquatic Habitats	s in AA									
HGM Class (Brinson)	Cla	ss (Cowardin)		Modifie	r (Coward	in)	Water R	Regime		% of A	<b>AA</b>	
Depressional	Eme	rgent Wetland		Excavate	ed		Seasonal/II	ntermittent			100	
<ol> <li>Estimated Relative</li> <li>General Condition         <ol> <li>Disturbance: (use aquatic nuisance veg</li> </ol> </li> </ol>	n of AA matrix below to	o determine [circle] a		te respons	se – see ins	tructio	ns for Montana	-listed noxiou	us weed a	ınd		
			Manag	ed in predor			t conditions adjace d not cultivated, bu				r heavily grazed	
Conditions within AA			natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.			sele subj	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%.			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 grazed, hayed, logged, or other oads or occupied buildings; a <=15%.	erwise converted	; does not contain	lov	low disturbance			low disturbance			moderate disturbance		
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.				moderate disturbance			moderate disturbance		high disturbance		turbance	
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%.			hig	high disturbance			high disturbance		high disturbance		turbance	
Comments: (types of o				ed, spra	yed for we	eds a	nd plowed.					
ii. Prominent noxious,								,				
No Tamarix was observ							nd Euphorbia	esula obse	rved in 2	2020.		
iii. Provide brief descr AA very similar to Forsy includes agriculture (gra	th NW - East	, only smaller. AA					dside depressi	ion parallel	to US 12	2. Surro	unding land	

**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	ls current management existence of additiona	Modified Rating		
>=3 (or 2 if 1 is forested) dasses	Н	NA	NA	NA	
2 (or 1 if forested) classes	М	NA	NA	NA	
1 class, but not a monoculture	M	<no< td=""><td>YES&gt;</td><td>L</td></no<>	YES>	L	
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA	

Comments:	PEM wetland

#### SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. I	Habitat for	· Federally	Listed or I	Proposed	Threatened o	r End	angered l	Plants o	r Ani	mal	s:
--------	-------------	-------------	-------------	----------	--------------	-------	-----------	----------	-------	-----	----

·			•			•	
Primary or critical habitat (	(list species)	( D (	S				
Secondary habitat (list Spe	ecies)	(a) D (b)	S				
Incidental habitat (list spec	cies)	( D (	s				
No usable habitat		<b>√</b> S					
ii. Rating (use the condu	isions from i a	oove and the m	atrix below to arrive	e at [check] the fun	ctional points and	rating)	
Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	9H	8H	.7M	.3L	.1L	OL
Sources for documented use	FWS T&E list f	or Rosebud Co	unty				

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

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

Primary or critical habitat (list species)	● D ○ S	Scarlet Ammannia - Ammannia robusta (S2)
Secondary habitat (list Species)	□ D    □ S	
Incidental habitat (list species)	○ D • S	Great Blue Heron (S3)
No usable habitat		

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	2L	.1L	_OL_
S2 and S3 Species: Functional Points and Rating	.9Н	.7M	.6M	.5M	.2L	.1L	OL

Sources for documented use

MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013.

i. Evider	nce of o	verall	wildl	ng: ife us	se in tl	he AA	(chec	k sub	stantia	al, mod	erate, e	or low b	ased o	n sup	portin	g evi	dence					_
<b>Substantial</b> (based	d on any	of the fo	ollowin	g [che	ck]):						Minima	<b>I</b> (based	on any	of the fo	llowing	[chec	k]):	Low	′			
observations	•			• •		es dive	rsity (du	ıring ar	ny period	d)		or no wile				-		eriods				
abundant wild	llife sign s	uch as	scat,	tracks,	nest st	ructure	es, gam	e trails	, etc.		=	to no wil	dlife sig	1			·					
presence of e	xtremely	imiting	habita	ıt featu	ires not	availa	ble in th	e surro	ounding	area	 Spa	rse adjac	ent upla	nd food	source	s						
interviews with	h local bio	ologists	with k	nowle	dge of t	he AA					inte	rviews wi	th local	oiologis	ts with I	nowle	edge of	the AA				
observations common occu adequate adja interviews with	of scatter urrence of acent upla	ed wild wildlife and foo	life gro e sign s d sour	ups or such a ces	individ s scat, t	tracks,		-				ods										
ii. Wildlife hab from #13. For other in terms of permanent/pere terms]) Structural	class co of their p	ver to ercent	be co t com	nside positi	red ev	enly o	distribu (see	ted, th #10).	ne mos Abbrev	t and le ⁄iations	ast pre for surf	valent <b>v</b> ace wat	<b>egetat</b> er dura	ed clastions	ses m ire as	ust b	e withi /s: P/P	n 20% =	of each			
diversity (see #13)				Hig	gh							Moderate						Low				
Class cover distribution (all vegetated classes)		Even	1			Une	even			Even	I		Uı	even			ı	Even				
Duration of surface water in ≥ 10% of AA Low disturbance	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	A P/F	S/I	T/E	А	P/P	S/I	T/E	А			
at AA (see #12i)	Е	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	М	М	L	Н	М	L	L			
High disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L M	L	L	L	L	L	L	L			
iii. Rating (u Evidence of v			_		om i a			and	the ma			arrive a	_	s rati			al poin	ts and	rating	) Low		
Substantial					лоорі 1Е	- 1		Т		.9H				171	.8H					.7M	1	$\dashv$
Moderate			t		.9F	- 1				.7M	_				.5M	H				.3L	$\vdash$	$\dashv$
Minimal					.6N	1				.4N	1				.2L	t				.1L		$\dashv$
Comments	Very f						red du	ring f	ield su		_	ea is cl	ose to	the ro		y and	l lliw b	ikely n	ever a	chieve	a high	
4D. General I could be used lestorable due NA here	by fish   to habit and pro	i.e., f at co ceed	ish u nstra to 14	se is ints, IE.)	preclu or is r	uded not de	by pe esired	rche of from	d culve a mar	ert or ot nageme	herba entper	rrier, et spectiv	c.]. If e [suc	the A h as f	A is n ish er	ot us trapp	ed by bed in	fish, fi a cana	sh use	is not		
Duration of surfac															'		<u> </u>			/ F = b = ==		
in AA Aquatic hiding / re escape cover	sting /		Optima		emaner A	dequat		Po	or	Opti		easonal Ad	equate	lent	Poor		Op	timal		/ Epheme		oor
Thermal cover opt	timal/	0		S	0		s	0	s	0	s	0	s	1		s	0	s	0	s	0	,
suboptimal					_						_	_	_	_	_	_			_	_		_
FWP Tier I fish		1E		.9H	.8H	1	.7M	.6M	.5M	.9H	.8H	.7M	.6M		5M .	4M	.7M	.6M	.5M	.4M	.3L	.3
·	Native	1E .9⊦	-#-	.9H .8H	.8H	-#-	.7M .6M	.6M .5M	.5M	.9H .8H	.8H .7M	.7M .6M	.6N .5N		-	4M 4M	.7M .6M	.6M	.5M	.4M	.3L .2L	.3

П	42
D.	-4.5

.4M

.4M

.4M

.3L

.2L

.3L

.2L

.2L

.1L

.1L

.1L

.2L

.5M

.5M

FWP Non-Game Tier IV or No fish species

.5M

.4M

.4M

.3L

Sources used for identifying fish sp. potentially										
ii. Modified Rating (NOTE: Modified score of a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nur yes, reduce score in i above by 0.1: Modifie	a culvert, di of TMDL dev isance plant	ike, or other n velopment wit	nan-made s h listed "Pr	structure or obable Imp	aired Uses	" including	g cold or w		e If	
b) Does the AA contain a documented spawnin comments) for native fish or introduced game fi	• ~	her critical hai Y			he adjusted					
iii. Final Score and Rating: 0 NA	Comme	nts: Not app	olicable.							
14E. Flood Attenuation: (Applies only to we channel or overbank flow, click NA he	tlands subjeere and proce		via in-chan	nel or over	bank flow.	If wetland	s in AA are	e not flooded	d from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosqu		w to arrive at v entrenched			points and ely entrench		Entrench	ned-A, F, G	stream	
1994, 1996)	9	stream type			stream type			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	.9Н	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9Н	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched		Moderately	Entrenched			F	ntrenched			7
ER = >2.2	um tuno	ER = 1.	41 – 2.2		stroom tuno	ER	= <b>1.0 - 1.4</b> F stream typ		troom typo	1
	m type	D Stream	am type 		stream type			1	stream type	
2 x Bankfull I	Depth Depth	Bankfull D	epth	44	N. NYL	'lood-proi cfull Widt				
Floodprone width	/ Banl	-			=	Entreno ratio	chment			
ii. Are ≥10 acres of wetland in the AA subject within 0.5 mile downstream of the AA (check)?  Comments: AA not subject to flooding	~~	ND are man-i N	made featu	ıres which ı	may be sigr	nificantly c	damaged b	y floods loca	ated	
<b>14F. Short and Long Term Surface W</b> upland surface flow, or groundwater flow 14G.)	ater Stora If no wet	<b>ge:</b> (Applies ands in the	to wetlan AA are su	ds that flo	od or pond coding or p	d from o ponding,	verbank o dick	or in-channo NA here	el flow, pre and proce	cipitation, ed to
<ul> <li>i. Rating (Working from top to bottom, water durations are as follows: P/P = per further definitions of these terms].)</li> <li>Estimated maximum acre feet of water contained in</li> </ul>										
wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet			1.1 to 5	acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/F	,	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9Н	.8H	.8	н .	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.71	М	.5M	.4M	.3L	.2L	.1L

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

ediment, nutrient, and toxicant input vels within AA		no matrix t	DEIOW TO AITH	ve at [crieck]	the functiona	•		<u> </u>			d of TMDL
veis wuin aa	to de compou not sub	eliver levels ands at levels ostantially im des of nutrie	of sediments, s such that oth paired. Minor nts or toxicant	ner functions are sedimentation ts, or signs of	al deve nutrient re with po , compour	elopment s, or toxi tential to nds such	for "proba cants <b>or</b> A deliver hig that other tion, source	ble cau A recei gh level function es of n	ses" rela ves or so s of sedi ns are so utrients o	ated to surround ments, ubstanti or toxica	
cover of wetland vegetation in AA	≥ 7	eutropl 70%	nication prese	ent. < 70%		≥ 70°	of eutrop	hicatio	n presen	nt. < 70	)%
vidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	,	No		Yes		No
A contains <b>no or restricted outlet</b>	1H	.8H	.7M	.5M	.51	1	.4M		.3L		.2L
A contains <b>unrestricted outlet</b>	.9H	.7M	.6M	.4M	.41	1	.3L		.2L		.1L
omments: Enclosed basin will	filter sedim	nent, nutrie	nts, and tox	icants well.					_		
H Sediment/Shoreline Stabilization ainage, or on the shoreline of a stan oceed to 14I.)	ding water b	ody which is	subject to wa	ave action. If	14H does not a	apply, cli		ral or m <b>NA</b> her		e	
Rating (working from top to bottom Cover of <u>wetland</u> streambank or	n, use the ma	atrix below to			onal points and cent to rooted ve				1	İ	
oreline by species with stability ratings ≥6 (see Appendix F).	Permane	ent / Perennia		Seasonal / Inte		<u> </u>	mporary / E	phemer	al		
65%		1H		.9H			.7N	1			
-64%		.7M		.6M			.51	1			
35%		.3L		.2L			.11	. [			
mments:											
14I. Production Export/Food Cha i. Level of Biological Activity (syr	nthesis of wil	dlife and fish	n habitat ratin								
14I. Production Export/Food Cha i. Level of Biological Activity (syr	nthesis of wil	dlife and fish									
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  H	nthesis of wil	dlife and fish									
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  M  H	nthesis of wil	dlife and fish		M M							
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.) E/H  E/H  M  L	nthesis of wil	dlife and fish		M M							
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  M  H	nthesis of wil	dlife and fish		M M							
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  M  L  M	m, use the m B = level of b pertain to du of these terr	M H M M M watrix below biological actiration of sur	to arrive at [c	L M M L L L L L L L L L L L L L L L L L	.i.); Factor C = e P/P, S/I, and	whether	or not the as previou	AA co usly def	ntains a	surface d A = "a	e or
14I. Production Export/Food Cha  i. Level of Biological Activity (syr  General Fish Habitat Rating (14D.iii.)  E/H  M  L  N/A  Rating (Working from top to botton etland component in the AA; Factor lubsurface outlet; the final three rows ee instructions for further definitions	m, use the m B = level of the pertain to du of these terms acres	M H M M M M atrix below iological actration of suration.	to arrive at [c tivity rating froface water in	L L M L L L L L L L L L L L L L L L L L	.i.); Factor C = e P/P, S/I, and	whether	or not the as previou	AA co usly def	ntains a ined, an	surface d A = "a	e or
i. Level of Biological Activity (syr  General Fish Habitat Rating (14D.iii.)  E/H  M  L  N/A  Rating (Working from top to botton etland component in the AA; Factor I obsurface outlet; the final three rows ee instructions for further definitions  Vegetated component >5  High  High  Hotivity (syr  Activity (syr  Activ  Activity (syr  Activity (syr  Activity (syr  Activity (syr  Ac	m, use the m B = level of the pertain to du of these terror acres	M H M M M M natrix below piological actration of sur	to arrive at [c tivity rating frace water in Vegetated ligh No Y	M M L L L Com above (14I the AA, where domponent 1-5 ac Moderate	i.); Factor C = e P/P, S/I, and res	whether T/E are	or not the as previou Vegeta	AA could be a selected composited	ntains a ined, an onent <1 a	surface d A = "a acre	e or absent"
14I. Production Export/Food Cha  i. Level of Biological Activity (syr  General Fish Habitat Rating (14D.iii.)  E/H  M  L  M  N/A  Rating (Working from top to botton etland component in the AA; Factor lubsurface outlet; the final three rows ee instructions for further definitions  Vegetated component >5  High Moderate Yes No Yes No	m, use the m B = level of b pertain to du of these terros acres	H M M M M M M M M M M M M M M M M M M M	to arrive at [c tivity rating frace water in Vegetated ligh No Y.	heck] the function above (141 the AA, where domponent 1-5 ac Moderate es No	i.i.); Factor C = e P/P, S/I, and eres  Low Yes No	whether T/E are	or not the as previou	AA cously def	ntains a ined, an conent <1 a rate	surface d A = "a	e or absent"
14I. Production Export/Food Chai. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  M  L  M  N/A  Rating (Working from top to botton etland component in the AA; Factor lubsurface outlet; the final three rows ee instructions for further definitions  Vegetated component >5  High Moderate Yes No Yes No  P  1E  7H  8H  5M	m, use the m B = level of these term  of these terms of these terms of these terms of the t	M H M M M M H M N M M M M M M M M M M M	to arrive at [c tivity rating frace water in Vegetated ligh No Y. 6.6M 7.7	heck] the function above (141 the AA, where domponent 1-5 ac Moderate es No	i.i.); Factor C = e P/P, S/I, and res  Low  Yes No  .5M .3L	whether T/E are  Hi Yes  .8H	or not the as previous Vegeta hoo No .6M	e AA cously defined company Mode Yes .6M	ntains a rined, an rate No .4M	surface d A = "a acre L Yes .3L	e or absent"
14I. Production Export/Food Cha  i. Level of Biological Activity (syr General Fish Habitat Rating (14D.iii.)  E/H  M  L  M  L  N/A  Rating (Working from top to botton etland component in the AA; Factor ubsurface outlet; the final three rows ee instructions for further definitions  Vegetated component >5  High  Yes  No  Yes  No  P  1E  .7H  .8H  .5M	m, use the m B = level of these term  of these terms of these terms of these terms of the t	M H M M M M M M M M M M M M M M M M M M	to arrive at [c tivity rating frace water in Vegetated ligh No Y. 6.6M 7.7	heck] the function above (14I the AA, where some some ties of the some some some ties of the some some some some some some some som	i.); Factor C = e P/P, S/I, and res  Low  Yes No  .5M .3L  .4M .2L	whether T/E are  Hi Yes  .8H  .7H	vegeta No .5M	AA cously defated comp Mode Yes .6M	ntains a rined, an rate No .4M	surfaced d A = "a	e or absent"

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: Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Shallow water table and the site is saturated to the surface Other: iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM P/P Criteria S/I None Groundwater Discharge or Recharge 1H .7M .4M .1L Insufficient Data/Information NA Comments: AA w/out permeable substrate, holds surface water eventually lost to evaporation. 14K. Uniqueness: i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant common abundant rare commo rare common rare abundance (#11) Low disturbance at AA 1H .9H H8. .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .7M .5M .4M .4M .3L .21 AA (#12i) High disturbance at AA .8H .7H .6M .3L .3L .2L .6M .4M .1L (#12i) Comments: Habitat within AA typical of 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: (check) Y  $N \odot$ (if 'Yes' continue with the evaluation; if 'No' then click **V** NA here and proceed to the overall summary and rating page) Check categories that apply to the AA: 🗸 Educational/scientific study; 🗌 Consumptive rec.; 📝 Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) .2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .1M .05L Comments: AA small, adjacent to highway, and with little to no recreation or education potential. **General Site Notes** 

# FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): $\overline{\text{Forsyth NW - Middle}}$

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	Н	.9	1	0.52	✓
C. General Wildlife Habitat	М	.4	1	0.23	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	L	.3	1	0.17	<b>✓</b>
G. Sediment/Nutrient/Toxicant Removal	Н	.8	1	0.46	V
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	
Production Export/Food Chain Support	L	.3	1	0.17	
J. Groundwater Discharge/Recharge	NA	0	0	0.00	
K. Uniqueness	L	.2	1	0.12	
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.03	
Totals:		2.95	7	1.71	
Percent of Possible Score			42.14 %		

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

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined above)

|--|

**Table B-2.** Forsyth Northwest – Middle Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

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
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rosa arkansana	Prairie Rose	FACU

**Table B-2.** Forsyth Northwest – Middle Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
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) 2018 NWPL (USACE 2018)

#### MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - EastAssessment Date/Time	6/23/202
Person(s) conducting the assessment: R. Jones	
Weather: Partly sunny, 85 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) 34	
Initial Evaluation Date: 8/15/2013 Monitoring Year: 9 #Visits in Year: 1	
Size of Evaluation Area: 2.76 (acres)	
Land use surrounding wetland:	
Agriculture and US Highway 12.	
HYDROLOGY	
Surface Water Source: Precipitation, runoff	
Inundation: Average Depth: 0 (ft) Range of Depths: _0 (ft)	
Percent of assessment area under inundation: 0 %	
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:N	10_
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:	
Geomorphic position, surface soil cracks, oxidized rhizospheres on living roots, water stained leaves.	
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:	
Site was very dry on the day of investigation.	

#### **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: 2.17

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Alopecurus arundinaceus	1
Ambrosia psilostachya	1	Bare Ground	3
Bromus arvensis	1	Bromus japonicus	0
Bromus tectorum	1	Chenopodium album	1
Convolvulus arvensis	1	Elymus canadensis	1
Elymus repens	1	Elymus trachycaulus	2
Euphorbia esula	0	Grindelia squarrosa	1
Hordeum jubatum	1	Lactuca serriola	1
Linum lewisii	0	Melilotus officinalis	0
Pascopyrum smithii	5	Poa compressa	1
Populus tremuloides	0	Rumex crispus	1
Schedonorus pratensis	0	Sisymbrium altissimum	0
Tragopogon dubius	1		
_			

#### **Comments:**

Significant increase in bare ground and decrease in total cover.

Community # 4 Community Type: Hordeum jubatum / Eleocharis palustris Acres: 0.59

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Alopecurus pratensis	3
Bare Ground	3	Convolvulus arvensis	0
Eleocharis palustris	3	Elymus repens	1
Hordeum jubatum	2	Lactuca serriola	0
Pascopyrum smithii	1	Poa compressa	1
Poa pratensis	1	Populus deltoides	1
Rumex crispus	0	Salix fragilis	1
Schedonorus pratensis	1	Schoenoplectus maritimus	0
Spartina pectinata	0		

#### **Comments:**

Increased woody vegetation over previous years. Reduced cover of Eleocharis palustris.

#### Total Vegetation Community Acreage

2.76

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

#### **VEGETATION TRANSECTS**

Fransect Number: 1 Compass D		Direction from Start:1	145	
Interval Data:	<u> </u>			
Ending Station	32 Community Type	: Pascopyrum smithii / Elym	us sp.	
Species	Cover class	Species	Cover class	
Bare Ground	1	Pascopyrum smithii	5	
Schedonorus pratensis	0	Sisymbrium altissimum	0	
Ending Station	97 Community Type	Hordeum jubatum / Eleoch	aris palustris	
Species	Cover class	Species	Cover class	
Alopecurus arundinaceus	4	Bare Ground	4	
Convolvulus arvensis	0	Eleocharis palustris	1	
Elymus repens	1	Hordeum jubatum	1	
Lactuca serriola	0			
Ending Station	125 Community Type	Pascopyrum smithii / Elym	us sp.	
Species	Cover class	Species	Cover class	
Alopecurus arundinaceus	0	Bare Ground	2	
Bromus japonicus	0	Bromus tectorum	1	
Chenopodium album	1	Convolvulus arvensis	2	
Elymus trachycaulus	1	Lactuca serriola	0	
Pascopyrum smithii	2	Poa compressa	2	
Transect Notes:				

Compass Direction from Start: 280 Transect Number: 2 **Interval Data:** 21 Community Type: Pascopyrum smithii / Elymus spp. **Ending Station Species** Cover class **Cover class Species** Bare Ground 4 Grindelia squarrosa 1 Hordeum jubatum 1 Pascopyrum smithii 5 Poa compressa 130 Community Type: Hordeum jubatum / Eleocharis palustris **Ending Station Species Cover class Species** Cover class Alopecurus arundinaceus Bare Ground 3 Convolvulus arvensis 1 Eleocharis palustris 3 Hordeum jubatum 3 Lactuca serriola 1 Pascopyrum smithii 3 Poa compressa 2 Salix fragilis 2 Schedonorus pratensis 1 **Ending Station** 181 Community Type: Pascopyrum smithii / Elymus spp. **Cover class Cover class Species Species** Bare Ground 4 Chenopodium album 0 0 5 Lactuca serriola Pascopyrum smithii Poa compressa 1 Rumex crispus 1 **Transect Notes:** More bare ground observed in 2021.

## **PLANTED WOODY VEGETATION SURVIVAL**

Forsyth NW - East

#### Comments

No planted woody vegetation.

## Forsyth NW - East

#### **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:

#Observed	Behavior	Habitat	
1	FO		
2	FO	SS, UP	
1	L	FO, SS, UP	
	1	1 FO 2 FO	1 FO 2 FO SS, UP

#### **BEHAVIOR CODES**

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

#### **HABITAT** CODES

 ${f AB}$  = Aquatic bed  ${f SS}$  = Scrub/Shrub  ${f FO}$  = Forested  ${f UP}$  = Upland buffer  ${f I}$  = Island

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

# **Mammals and Herptiles**

# Wildlife Comments:

Very little wildlife or sign of wildlife noted during the 2021 field survey.

#### **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 wetland.
	At least one photograph showing upland use surrounding the wetland. If more than one upland
exists	then take additional photographs.
П	At least one photograph showing the buffer surrounding the wetland

At least one photograph showing the buffer surrounding the wetland.

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

Photo #	Latitude	Longitude	Bearing	Description
DP01u	46.318814	-106.835271		
DP01w	46.318853	-106.83521		
DP02u	46.32089	-106.838377		
DP02w	46.320863	-106.838401		
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	
<ul> <li>■ Map emergent vegetation/open water boundary on aerial photos.</li> <li>■ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).</li> </ul>	
Photos	
<ul> <li>✓ One photo from the wetland toward each of the four cardinal directions</li> <li>☐ One photo showing upland use surrounding the wetland.</li> <li>☐ One photo showing the buffer around the wetland</li> <li>✓ One photo from each end of each vegetation transect, toward the transect</li> </ul>	
Vegetation	
✓ Map vegetation community boundaries	
✓ Complete Vegetation Transects	
Soils	
✓ Assess soils	
Wetland Delineations	
✓ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)	
Delineate wetland – upland boundary onto aerial photograph.	
Wetland Delineation Comments	
In 2021, 0.59-acres or wetland were delineated, an increase of 0.03-acres from 2020.	1
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?

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

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East	City/County: Rosebud	Sampling Date:	6/24/2021
		State: Montana Sampling Point: DP	
Investigator(s): R Jones	Section, Township, Ranç	ge: 34 7N 34E	
Landform (hillslope, terrace, etc.): Valley bottom	Local relief (concave, co	onvex, none): <u>flat</u> Slope (	(%):35
Subregion (LRR): LRR G	-106.835271	Long: 46.318814 Datum:	NAD 83
Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasion	nally flooded	NWI classification: Not Mapped.	
Are climatic / hydrologic conditions on the site typical for this time of ye			
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "N	formal Circumstances" present? Yes 🔽	_ No
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (If nee	ded, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing	sampling point lo	cations, transects, important featu	ures, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes □ No ✔  No ✔  Wetland Hydrology Present?		d? Yes No V	
Remarks: Upland sample point outside wetland boundary at so to the National Climatic Data Center, Rosebud Coun that the are has been in moderate drought since Jun  VEGETATION - Use scientific names of plants	ity experienced Moder	logic conditions on the site are atypical. ate Drought (D1) in June 2021. NOAA ir	According ndicates
Absolute Domiant	Indicator	Dominono Total washed	
Tree Stratum Plot size (30 Foot Radius) % Cover: Species		Number of Dominant Species that are OBL, FACW or FAC:	(A)
		Total Number of Dominant	(B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC:  0.0	% (A/B)
<u>oupmigronius ottutum</u>		Prevalence Index worksheet	
		Total % Cover of: Multip OBL species 0 X 1	
		OBL species 0 X 1 0 FACW species 0 X 2 0	
		FAC species 0 X3	
Herbaceous Stratum Plot size ( 5 Foot Radius)		FACU species 30 X 4 12	
Pascopyrum smithii 30	FACU	UPL species 0 X 5	)
		Column Totals 30 (A) 12	20 (B)
		Prevalence Index = B/A =	4.00
		Hydrophytic Vegetation Indicators	
		☐ 1 - Rapid Test for Hydrophytic Vege	∍tation
		2 - Dominance Test is >50%	
		☐ 3 - Prevalence Index is <= 3.0	
		<ul> <li>4 - Morphological Adaptations (Prov supporting data in remarks or on se sheet.</li> </ul>	
		5 - Wetland Non-Vascular Plants	
		Problematic Hydrophytic Vegetation	າ (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology present, unless disturbed or problematic for #	
Percent Bare Ground 70		Hydrophytic Vegetation Yes No	10
Remarks:			
BG/litter=70%. Data point is dominated by upland vegetation.			

SOIL Sampling Point: DP01u Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features % Loc<sup>2</sup> Texture Color (moist) Color (moist) Remarks (inches) 0-02 4/2 100 2.5Y Silty Clay 02-10 2.5Y 5/2 100 Silty Clay 10-13 2.5Y 4/1 93 7.5YR 3/3 7 C M Silty Clay <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes \_\_\_\_ No \_\_\_ Depth (inches): \_ Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Speciant Covered (1)   State   Montana   Sampling Point   DP01W	Project/Site: Forsyth NW East City/Coun	ty: Rosebud Sampling Date: 6/24/2021
Landform (hilislope, terrace, etc.): Valley boltom		
Landform (hilislope, terrace, etc.): Valley boltom		
Subregion (LRR): LRR G		
Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded   NWI classification: Not Mapped.		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	Soil Man Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally floor	ded NWI classification: Not Mapped.
Are Vegetation	Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No ✓ (If no explain in Remarks )
Are Vegetation		
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes V No Ves Ves V No Ve	Are Vegetation, Soil, or Hydrology significantly disturbed	//f readed explain any angulars in Demarks
Wetland Hydrology Present?   Yes   Ves		
VEGETATION - Use scientific names of plants  Tree Stratum Plot size (30 Foot Radius)	Hydric Soil Present?  Wetland Hydrology Present?  Yes V No No Wi  No No Wi  Remarks: PEM DEPRESSIONAL wetland at south end of site. Hydrology	thin a Wetland?  Yes No  gic conditions on the site are atypical. According to the National
Plot size (30 Foot Radius)   Absolute % Cover:   Status	been in moderate drought since June of 2020.	e brought (bir) in suite 2021. NOW indicates that the are has
Number of Dominant Species that are OBL, FACW or FAC: 2 (A)  Sapling/Shrub Stratum  Plot size (15 Foot Radius)  Alopecurus arundinaceus 10 FACW pecies 0 X4 0 UPL species 0 X5 0 DEL pervalence index are species 0 X4 0 UPL species 0 X5 0 DEL pervalence index are species 0 X4 0 UPL species 0 X5 0 DEL pervalence index are species 0 X5 0 DEL pecies 0 X5 0 DEL	Absolute Domiant Indica	Pominance Test worksheet
Sapling/Shrub Stratum Plot size (15 Foot Radius)  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet Total % Cover of: Multiply by: OBL Species 10 × 1 10 FACW species 15 × 2 30 FAC species 5 × 3 15 FACU species 0 × 4 0 UPL species 0 × 5 0 Column Totals 30 (A) 55 (B) Prevalence Index = B/A = 1.83  Hydrophytic Vegetation Indicators    Hydrophytic Vegetation Indicators	Tree Stratum Plot Size (30 Poot Radius) % Cover: Species? Status	Number of Dominant Species
Plot size (15 Foot Radius)   Prevalence Index worksheet		
Prevalence Index worksheet   Total % Cover of   Multiply by:	Sanling/Shrub Stratum Plot size (15 Foot Radius)	
Herbaceous Stratum Plot size ( 5 Foot Radius)  Alopecurus arundinaceus 10	- Totalia (10 Foot tadias)	Prevalence Index worksheet
Herbaceous Stratum Plot size ( 5 Foot Radius)  Alopecurus arundinaceus 10 ✓ FACW Eleocharis palustris 10 ✓ OBL Hordeum jubatum 5 □ FACW Lactuca serriola 5 □ FAC  Hydrophytic Vegetation Indicators  Hydrophytic Vegetation Indicators  I - Rapid Test for Hydrophytic Vegetation  Problematic Hydrophytic Vegetation (Explain)  Moody Vine Stratum  Plot size ( 30 Foot Radius)		
Herbaceous Stratum Plot size ( 5 Foot Radius)  Alopecurus arundinaceus 10		
Herbaceous Stratum Plot size ( 5 Foot Radius)  Alopecurus arundinaceus 10		
Alopecurus arundinaceus 10	Harbasaus Stratum Plot size ( F. Foot Padius)	
Eleocharis palustris  Hordeum jubatum  5		UPL species 0 X 5 0
Hordeum jubatum  Lactuca serriola  5		Column Totals 30 (A) 55 (B)
Hydrophytic Vegetation Indicators  ✓ 1 - Rapid Test for Hydrophytic Vegetation  ✓ 2 - Dominance Test is >50%  ✓ 3 - Prevalence Index is <= 3.0  ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.  ☐ 5 - Wetland Non-Vascular Plants  ☐ Problematic Hydrophytic Vegetation (Explain)  Moody Vine Stratum  Plot size ( 30 Foot Radius)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		Prevalence Index = B/A = 1.83
<ul> <li>✓ 1 - Rapid Test for Hydrophytic Vegetation</li> <li>✓ 2 - Dominance Test is &gt;50%</li> <li>✓ 3 - Prevalence Index is &lt;= 3.0</li> <li>✓ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.</li> <li>☐ 5 - Wetland Non-Vascular Plants</li> <li>☐ Problematic Hydrophytic Vegetation (Explain)</li> <li>Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.</li> </ul>	Lactuca serriola 5 FAC	
Woody Vine Stratum  → 3 - Prevalence Index is <= 3.0  ↓ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.  ↓ 5 - Wetland Non-Vascular Plants  ├ Problematic Hydrophytic Vegetation (Explain)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		
## A - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.    5 - Wetland Non-Vascular Plants		✓ 2 - Dominance Test is >50%
supporting data in remarks or on separate sheet.  5 - Wetland Non-Vascular Plants  Problematic Hydrophytic Vegetation (Explain)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		✓ 3 - Prevalence Index is <= 3.0
Woody Vine Stratum  Plot size ( 30 Foot Radius)  □ 5 - Wetland Non-Vascular Plants □ Problematic Hydrophytic Vegetation (Explain)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		supporting data in remarks or on separate
Problematic Hydrophytic Vegetation (Explain)  Woody Vine Stratum  Plot size ( 30 Foot Radius)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		
Woody Vine Stratum Plot size ( 30 Foot Radius) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.		
· · · · · · · · · · · · · · · · · · ·	Woody Vine Stratum Plot size ( 30 Foot Radius)	Indicators of hydric sil and wetland hydrology must be
l proceeds Yes ♥ NO □	P	Hydrophytic Vegetation
reicent Baie Glound 10	Percent Bare Ground 70 Remarks:	11000111:
BG/litter=70%. Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index		rapid test, a positive dominance test, and a prevalence index

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SOIL Sampling Point: DP01w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Color (moist) Loc<sup>2</sup> Texture Type (inches) 0-03 5Y 4/2 C 93 7.5YR 3/4 M Clay 03-13 10YR 3/1 39 Clay 03-13 5Y 5/2 60 10YR 3/3 1 C M Clay <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) Stratified Layers (A5) (LRR F) ✓ Depleted Matrix (F3)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Prominent redoximorphic concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) ✓ Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Aguatic Invertebrates (B13) ✓ Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_ Depth (inches): \_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes drain pattern, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East	_ City/Co	ounty: Ros	ebud			Sampling D	ate: _	6/24	4/2021
Applicant/Owner: MDT				_ State: Mo					
Investigator(s): R Jones									
Landform (hillslone terrace etc.): Valley bottom	Local	Local relief (concave, convex, none): Undulating Slope (%):							10
Subregion (LRR): LRR G Lat:		46.3	32089 <sub>Lo</sub>	ng:	-10	6.838377	Datur	n: NAI	D 83
Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasi	ionally fl	ooded		NWI	classifica	ation: PEM	1C		
Are climatic / hydrologic conditions on the site typical for this time of									
Are Vegetation, Soil, or Hydrology significant							s 🔽	No	<u> </u>
Are Vegetation, Soil, or Hydrology naturally p	problema	tic?		d, explain an					
SUMMARY OF FINDINGS - Attach site map showing			int loca	tions, trai	nsects,	, importa	nt fea	atures	s, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No W	- -		Vetland?	Y					
Remarks: Upland sample point located outside wetland bour According to the National Climatic Data Center, Roindicates that the are has been in moderate droug	osebud (	County ex	perience	lydrologic o d Moderate	condition Drough	ns on the s nt (D1) in J	ite are une 2	e atypi 021. N	cal. IOAA
VEGETATION - Use scientific names of plants			1						
Tree Stratum Plot size (30 Foot Radius) Absolute Domia Specie		dicator atus	□	ominance T	est worl	ksheet			
·				lumber of Do nat are OBL,			(	(A)	
				otal Number pecies Acros			2	(B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)				ercent of Do hat Are OBL			0.0	0 % (/	A/B)
,			P	revalence li					
			-	lotal %  BL species	Cover of	0 X1	Mu	Itiply by 0	<u>/:</u>
				ACW specie		0 X 2		0	=
			F	AC species		1 X3		3	
Herbaceous Stratum Plot size ( 5 Foot Radius)				ACU species		17 X4		68	
Chenopodium album 2	FAC	U		IPL species		5 X 5		25	
Convolvulus arvensis 5	NL			olumn Total	s 2	(A)		96	(B)
Lactuca serriola 1	FAC			Prevalen	ce Index	x = B/A =		4.1	17
Pascopyrum smithii 15	FAC	: <u>U</u>	F	2 - Do 3 - Pre 4 - Mo suppo sheet.	pid Test minance evalence orphologic rting data	on Indicator for Hydroph Test is >50 Index is <= cal Adaptatic a in remarks	ytic Ve  % 3.0 ons (P	rovide	
				Proble	matic Hy	drophytic V	egetat	ion (Ex	plain)
Woody Vine Stratum Plot size ( 30 Foot Radius)				icators of hy sent, unless					
Percent Bare Ground 77				lydrophytic 'resent?	Vegetati	on Yes		NO	<b>V</b>
Remarks: BG/litter=77%. Data point is dominated by upland vegetatio	n.		1						

SOIL Sampling Point: DP02u Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features % Loc<sup>2</sup> Color (moist) Type<sup>1</sup> Texture Color (moist) (inches) 0-02 5Y 4/3 100 Sandy Clay Loam very dry soil 02-13 7.5YR 5Y 4/2 99 3/4 С Clay <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) Stratified Layers (A5) (LRR F)  $\perp$  1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East	City/C	ounty: Rosebud		Sampling Date	e: 6/24/2021
Applicant/Owner: MDT					
Investigator(s): R Jones	Sectio	n, Township, Rang	e: 34 7N	1 3	4E
Landform (hillslope, terrace, etc.); Valley bottom	Local	relief (concave, co	nvex. none); flat	;	Slope (%): 1
Subregion (LRR): LRR G Lat:		46.320863	Long:10	06.838401 <sub>D</sub>	atum: NAD 83
Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occa					
Are climatic / hydrologic conditions on the site typical for this time o			_		
Are Vegetation, Soil, or Hydrology significa	intly disturb	ped? Are "N	ormal Circumstances" <sub>I</sub>	present? Yes	<b>✓</b> No □
Are Vegetation, Soil, or Hydrology naturally	y problema		ded, explain any answe		
SUMMARY OF FINDINGS – Attach site map show	ing sam	pling point lo	cations, transects	s, important	features, etc
Hydrophytic Vegetation Present? Yes ✓ No ☐  Hydric Soil Present? Yes ✓ No ☐  Wetland Hydrology Present? Yes ✓ No ☐		Is the Sampled A	rea ? Yes_ <u>▼</u>	<u> </u>	_
Remarks: PEM DEPRESSIONAL wetland. Hydrologic cond Center, Rosebud County experienced Moderate moderate drought since June of 2020.	litions on Drought (	the site are atypi [D1) in June 202 <sup>.</sup>	cal. According to the I. NOAA indicates th	National Clin	natic Data s been in
VEGETATION - Use scientific names of plants  Absolute Dom	niant In	dicator	Dominance Test wo	rkahaat	
Tree Stratum Plot size (30 Foot Radius) % Cover: Spec	cies? St	atus	Number of Dominant that are OBL, FACW	Species	2 (A)
			Total Number of Dom Species Across All St		2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)			Percent of Dominant That Are OBL, FACW		00.0 % (A/B)
			Prevalence Index wo		
			Total % Cover of OBL species	of: 10 X1	Multiply by:
			FACW species	10 X 1	38
			FAC species	1 X3	3
Herbaceous Stratum Plot size ( 5 Foot Radius)			FACU species	0 X4	0
Alopecurus arundinaceus 19	FAC	CW_	UPL species	0 X5	0
Eleocharis palustris 10			Column Totals	30 (A)	51 (B)
Lactuca serriola 1	] FAC	;   [	Prevalence Inde	x = B/A =	1.70
			<ul><li>3 - Prevalence</li><li>4 - Morpholog</li></ul>		c Vegetation 0 s (Provide
			5 - Wetland N	on-Vascular Pla	ants
Woody Vine Stratum Plot size ( 30 Foot Radius)			□ Problematic H	ydrophytic Veg	etation (Explain)
Thorace ( 50 Toor radius)			ndicators of hydric sil a present, unless disturbe	ed or problemat	
Percent Bare Ground 70			Hydrophytic Vegetat Present?	tion Yes	✓ NO □
Remarks:  BG/litter=70%. Evidence of hydrophytic vegetation include less than or equal to 3.0.	es a positi	ve rapid test, a p	ositive dominance to	est, and a pre	valence index

US Army Corps of Engineers B-67 Great Plains - Version 2.0

SOIL Sampling Point: DP02w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Color (moist) Loc<sup>2</sup> Texture Type (inches) 0-04 4/2 2.5YR 3 D 2.5Y 4/2 M Silty Clay 04-13 2.5Y 4/2 60 10Y 3/2 40 С Mixed matrix M Clay 40 04-13 10YR 3/2 Clay Mixed matrix <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (**LRR I, J**) Coast Prairie Redox (A16) (LRR F, G, H) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) Stratified Layers (A5) (LRR F) Loamy Gleyed Matrix (F2)  $\perp$  1 cm Muck (A9) (**LRR F, G, H**) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) ✓ Other (Explain in Remarks) High Plains Depressions (F16) <sup>3</sup>Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) wetland hydrology must be present. (MLRA 72 & 73 of LRR H) unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Although no hydric soil indicators were observed, this soil is likely to be saturated, flooded, or ponded long enough during the growing season to develop anerobic conditions in the upper part, in years with normal climatic conditions. The absence of hydric soil indictors at a marginal wetland site is not unprecedented under moderate dought conditions. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) ✓ Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes \_\_\_\_ No \_\_\_ Depth (inches): \_ Water Table Present? Wetland Hydrology Present? Yes No Yes \_\_\_\_ No \_\_\_ Depth (inches): \_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Forsyth NW	- East	2	. MDT	project	#	ST	PP 14(9)259		Con	trol#	9680000
3. Evaluation Date	7/8/2021	4. Evaluators	R Jones	3		5.	Wetl	and/Site# (s)	Forsyth I	NW - East	t	
6. Wetland Location(s	): T	7 N R 3	89 E	Sec1	34		Т	R		Sec2		
Approx Stationing or	Mileposts	~262.3 on US 12	<u>)</u>									
Natershed 14 - N	liddle Yellows	stone <b>W</b>	atershe	d/Coun	ity Ro	sebi	ud					
7. Evaluating Agency	CCI f	or MDT						8. Wetland	size acres	<b>s</b>		0.59
Purpose of Evaluation	n							How assess	ed:	Measure	ed e.g.	by GPS
☐ Wetlands potentia	ally affected	by MDT project						9. Assesssi				0.59
☐ Mitigation Wetlan	ds: pre-cons	struction						(AA) size (ad How assess	•	Measure	d a a	hy CPS
✓ Mitigation Wetlan	ds: post cor	struction						110W a55055	eu.	Measure	u e.g.	by Gi G
☐ Other												
10. Classification of	Wetland and	Aquatic Habitats	in AA									
HGM Class (Brinson)	Cla	ss (Cowardin)		Modifi	er (Cow	ardi	n)	Water Re	egime		% of A	<b>A</b> A
Depressional	Eme	rgent Wetland		Excava	ated			Seasonal/In	termittent			100
<ol> <li>Estimated Relative</li> <li>General Condition</li> </ol>	n of AA											
<ul><li>i. Disturbance: (use aquatic nuisance veg</li></ul>			appropria	te respo	nse – see	e inst	ructior	ns for Montana-l	isted noxiou	us weed an	id	
			Manage	ed in pred	ominantly	Predo		conditions adjacen	•		tivated o	r heavily grazed
Conc	litions within AA				ot grazed, r otherwise			erately grazed or h ctively logged; or h	•			t to substantial fill ng, clearing, or
Conc	MUONS WILLIN AA		roads o	r building:	not contain s; and noxi	ous	few r	ect to minor clearin oads or buildings;	noxious	building	density;	ation; high road or or noxious weed
			weed o	r ANVS co	over is <=1	5%.	weed	d or ANVS cover is	<=30%.	or ANVS	cover is	>=30%.
AA occurs and is managed in grazed, hayed, logged, or other						7			1			
roads or occupied buildings; a <=15%.	and noxious weed	or ANVS cover is	lov	v distu	rbance			low disturba	ance	mode	erate d	disturbance
AA not cultivated, but may be selectively logged; or has bee				moder	ata	1						
placement, or hydrological altr noxious weed or ANVS cover	eration; contains			listurba			m	oderate distu	urbance	hiç 	gh dis	turbance
AA cultivated or heavily graze substantial fill placement, grad		•				1			1			1
high road or building density; >=30%.			hig	h distu	rbance		_	high disturba	ance	hiç 	gh dist	turbance
Comments: (types of o	dieturbanas	intensity cooses	. oto)									
AA experienced a decre	ase in vegeta	atative cover in 20	21, poss									
of basin continues to qu minmum mapping unit.	aniy as uplan	iu, inougn some w	euand c	naracte	enstics w	ere	opser	ved in an area	wnich is s	smaller th	an the	agreed upon
i. Prominent noxious,	aquatic nuis	sance, other exot	ic speci	es:								
Convolvulus arvensis	- 4		- 34001									
ii. Provide brief desci												
AA is a roadside depres	sion excavat	ed parallel to US 1	2. Surro	ounding	land inc	lude	s agr	iculture (grazir	ng) and a s	secondary	highw	ay.

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	ls 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 dass, but not a monoculture	М	<no< td=""><td>YES&gt;</td><td>L</td></no<>	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

	m		

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

#### SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

<b>.</b>							
Primary or critical habitat	(list species)	□ D	) <b>S</b>				
Secondary habitat (list Sp	oecies)	( D (	) <b>S</b>				
Incidental habitat (list sp	ecies)	□ D	s				
No usable habitat		<b>✓</b> S					
ii. Rating (use the cond	usions from i a	bove and the m	atrix below to arrive	e at [check] the fun	ctional points and	rating)	
Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L
Sources for documented use	SFWS T&E list t	for Rosebud Co	unty				

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

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

Primary or critical habitat (list species)	$lacktriangle$ D $\bigcirc$ S	Scarlet Ammannia - Ammannia robusta (S2), Western Hog-nosed Snake
Secondary habitat (list Species)	□ D    □ S	
Incidental habitat (list species)	○ D • S	Great Blue Heron (S3)
No usable habitat		

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	6M	.2L	1L	_OL_
S2 and S3 Species: Functional Points and Rating	.9Н	.7M	.6M	.5M	.2L	.1L	OL

Sources for documented use

MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013.

Substantial (based																		Low				
-	l on any	of the f	followin	ig [che	ck]):						Minima	(based	on any of	the follo	owing	[check])	:					
observations o	of abund	ant wild	dlife #s	or high	n specie	s divers	sity (duri	ng an	y period	I) [	<b>✓</b> few	or no wild	life obser	vations	during	peak u	se per	iods				
abundant wildl	life sign	such as	s scat,	tracks,	, nest st	ructures	s, game	trails,	etc.	[	<b>✓</b> little	to no wild	dlife sign									
presence of ex	xtremely	limitino	g habita	at featu	ıres not	availab	le in the	surro	unding	area	spa	rse adjace	ent upland	food s	ources							
interviews with	ı local b	ologists	s with k	nowle	dge of th	ne AA				Į	inte	rviews wit	h local bi	ologists	with k	nowledg	je of th	ne AA				
oderate (based o observations c common occul adequate adja interviews with	of scatte rrence of cent up	red wild of wildlif land foo	dlife gro	oups or such a	r individi	tracks, r			•	•		ods										
ii. Wildlife habi from #13. For cother in terms of permanent/pereterms])	class co	over to percer	be con	onside ipositi	ered ev ion of th	enly di he AA	istribute (see #	ed, th	ne mos Abbrev	t and lea riations f	ast pre for surf	valent <b>v</b> e ace wate	<b>egetate</b> er durati	l class ons are	es mi e as f	ust be vollows:	within P/P :	20% o =	f each			
Structural diversity (see #13)				Hiç	gh							Moderate					L	ow				
Class cover distribution (all vegetated classes)		Eve	n			Unev	/en			Even			Une	ven			Ev	/en				
Duration of surface water in ≥ 10% of AA Low disturbance	P/P	S/I	T/E	А	P/P	S/I	T/E	Α	P/P	S/I	T/E	A P/P	S/I	T/E	Α	P/P	S/I	T/E	А			
at AA (see #12i)	Е	Е	E	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	М	М	L	н	М	L	L			
High disturbance at AA (see #12i)	М	М	М	L	М	M	L	L	М	М	L	L M	L	L	L	L	_L	L	L			
iii. Rating (u Evidence of w					om i aı		bove a	and t	he ma			arrive a		rating			ooint	s and ı	rating)	Low		$\exists$
Culpatantial			1		<u>лосрг</u> 1Е	- 1				.9H					8H	1				.7M	1	$\neg$
Substantial														_	•							
Moderate					.9H					.7M					5M					.3L		
			-		.9H	<u> </u>									5M 2L	-				.3L .1L		
Moderate		few si			.6M	1	ed duri	ing f	ield su	.7M .4M		ea is clo	ose to ti		2L	and v	vill lik	kely ne	ever ac	.1L	a high	
Moderate Minimal	wildli Fish H by fish to hab and pr	abitat [i.e., itat co	t Rati fish u onstra	ing: (lise is ints,	.6M dlife ob (Asses preclu or is r	bserve	functi by pero sired f	on if ched rom	the A I culve a mar	.7M .4M rvey. T A is use	ed by her ba	fish or t rrier, et rspectiv	he exis c.]. If the	ting sine AA as fis	2L dway tuatio is no h ent	on is "o t used rappe	corre	ctable	" such	.1L chieve	ne AA	
Moderate  Minimal  Comments  4D. General Fould be used bestorable due to NA here a  Habitat Qua	wildli Fish H by fish to hab and pr	abitat [i.e., itat co	t Rati fish u onstra	ing: (lise is lints, 4E.)	.6M dlife of	bserve	functi by pero sired f	on if ched rom	the A I culve a mar	.7M .4M rvey. T A is use	ed by her ba ent per	fish or t rrier, et spectiv	he exis c.]. If the e [such	ting sine AA as fis	2L dway tuatio is no h ent	on is "o t used rappe	corre	ctable ish, fis a cana	" such sh use I], the	.1L chieve n that the is not n check	ne AA	
Moderate  Minimal  Comments  4D. General Fould be used bestorable due to NA here a	wildli Fish H by fish to hab and pro- ality and	abitat [i.e., itat co	t Rati fish u onstra	ing: (lise is lints, 4E.)	.6M dlife of	bserve	functi by pero sired f	on if ched rom	the A I culve a mar	.7M .4M rvey. T A is use	ed by her ba arrive a	fish or trier, et spective	he exis c.]. If the e [such	ne roa	2L dway tuatio is no h ent	on is "o t used rappe	corre	ctable ish, fis a cana	" such sh use I], the	.1L chieve	ne AA	oor
Moderate  Minimal  Comments  4D. General Fould be used bestorable due t  NA here a  Habitat Qua  Duration of surface in AA  Aquatic hiding / resescape cover	wildli	abitat [i.e., itat co	t Rati fish u onstra I to 14	ing: (lise is lints, 4E.)	.6M dlife of	bserved to be the best of the	s function per sired fi	on if	the A I culve a mar	.7M .4M rvey. T A is usert or oth	ed by her ba arrive a	fish or trier, et spective	he exisc.]. If the such	ne roa	2L dway	on is "o t used rappe	corred by find in a	ctable ish, fis a cana	" such sh use I], the	.1L chieve	ne AA	oor
Moderate Minimal Comments  4D. General Fould be used bestorable due t  NA here a  Habitat Qua  Duration of surface in AA  Aquatic hiding / resescape cover Thermal cover optisuboptimal  FWP Tier I fish s	wildli	abitat [i.e., itat co	t Rati fish u onstra d to 14	ing: (lase is nints, 4E.)	.6M dlife ob	bserve	s function percential services in the services	on iffched	the Al culve a mar	.7M .4M arvey. T	ed by her ba arrive a	fish or t rrier, et espective at [check	he exisc.]. If the such	ting sine AA as fis	dway	on is "ot used rappe	corre	ctable ish, fis a cana Tem	" such sh use I], then porary/	.1L chieve	ne AA	ooor
Moderate  Minimal  Comments  4D. General Fould be used be used be used be used be used be used to b	wildli  Fish H  by fish  to hab  and pri  water  sting /  imal/	abitat [i.e., 'itat co	t Rati fish u onstra I to 14	ing: (lise is sints, 4E.)	.6M ddlife oh . (Asses preclu or is r	bserve ss this ss this ish Sp	s function per sired financial sections in the section of the sect	on iff	the All culve a mar	.7M .4M rvey. T A is usert or other or	ed by her ba arrive a	fish or trrier, et spective at [checkeasonal /	he exisc.]. If the Esuch	ne roa	dway	on is "ot used rappe	corrections on the correction of the correction	ctable ish, fis a cana Tem mal	" such sh use I], then porary/ Ade	.1L chieve	ne AA	

.4M

.4M

.4M

.3L

.3L

.2L

.2L

.2L

.2L .1L .1L

.1L

.5M

FWP Non-Game Tier IV or No fish species

.5M

.5M

.4M

.4M

.3L

Sources used for identifying fish sp. potentially fii. Modified Rating (NOTE: Modified score ca) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuis yes, reduce score in i above by 0.1: Modified	annot exce a culvert, c f TMDL de ance plans	eed 1 or be less dike, or other n evelopment with	nan-made <sup>′</sup> s h listed "Pr	structure or obable Imp	aired Ü	Jses" includ	ng cold or v	varm water	ne If	
b) Does the AA contain a documented spawning comments) for native fish or introduced game fis		ther critical hal Y • N			ne adju	isted score			1	
iii. Final Score and Rating: 0 NA	Comme	ents: No fish	habitat e	exists on	site.					
	e and prod	ceed to 14F.)					nds in AA ar	e not floode	ed from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosge 1994, 1996)		ow to arrive at tly entrenched stream type	- C, D, E	Moderate		renched – B	Entrenc	hed-A, F, G types	stream	
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-7	75% <25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.71	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.61	M .4M	.3L	.2L	1L	
Slightly Entrenched ER = >2.2		Moderately ER = 1.	Entrenched 41 – 2.2				Entrenched R = 1.0 - 1.4			
C stream type D stream type E stream	n type	B strea	am type	As	stream	type	F stream ty	pe G	stream type	
2 x Bankfull D	1	Bankfull D	epth	3314	W I	Bankfull Wi	one Width dth			
ii. Are ≥10 acres of wetland in the AA subject to within 0.5 mile downstream of the AA (check)?  Comments: AA not subject to flooding.	wid	th	made featu	res which n	nay be	ratio	damaged l	oy floods loo	cated	
<b>14F. Short and Long Term Surface Wa</b> upland surface flow, or groundwater flow. 14G.)	ter Stora If no wet	age: (Applies tlands in the	to wetlan AA are su	ds that floo bject to flo	od or oding	pond from or pondin	overbank og, dick	or in-chanr NA here	nel flow, pre e and proce	cipitation, ed to
<ul> <li>i. Rating (Working from top to bottom, u water durations are as follows: P/P = perr further definitions of these terms].)</li> </ul>										
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet			1.1	I to 5 acre fee			≤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 ≥ <b>5 out of 10 years</b>	1H	.9H	.8H	.81		.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.71	1	.5M	.4M	.3L	.2L	.1L

Comments: AA subject to ponding following large precipitation or runoff events.

	)  )	orking	from top	to bot	tom, us	se the	matrix t	elow to	arrive at	t [check	] the fu	unctiona	ıl points	and rat	ing [H	= high,	M = m	oderate,
	,		l toxicant	input	com	to deliva npounds t substa	er levels at levels ntially im of nutrie	of sedime s such that paired. M	nd use wi ents, nutrie at other ful linor sedir icants, or s present.	ents, or nctions a mentation	ıre	deve nutrient with po compour	lopment s, or toxi tential to ids such	for "prob cants <b>or</b> deliver h that othe tion, sour	able ca AA rece igh leve r function ces of r	uses" relatives or so this of sed ons are s	ated to surround iments, ubstant or toxicant.	d of TMDL sediment, ling land us nutrients, ially impair ants, or sig
			etation in onding in			≥ 70%	)		< 70%	%			≥ 70'	%			< 70	)%
			ricted ou		Yes		No	Yes	3	No		Yes	_	No	_	Yes	-	No
					11	<u> </u>	.8H	.71	1	.5M		.5N	1	.41	1	.3L		.2L
AA co	ntains <b>un</b>	restrict	ed outle	t	.91	Н	.7M	.6N	1	.4M		.4N	1	.3L	-	.2L		.1L
om	nents:	Vege	tation co	over inc	reased	d in the	AA in 2	2021.										
draina	ediment ge, or oned to 141.	the sho	ine Stab oreline of	<b>ilizatior</b> a stand	i: (App	lies onl er body	y if AA o which is	ccurs on subject	or within to wave a	the bank action. If	s or a r 14H do	river, stre bes not a	eam, or o	other nat ck 🔽	ural or r <b>NA</b> he		de	
		,	nn 4 4	hott	110 - 41.	. no -4!	ا الماما	a militar	t fab = : 1-7 :	tha former	dar-I.	aint- ···	۱ ۱ ۱					
6 Cove	r of <b>wetla</b>	nd strea	mbank or		use the	matrix	below to		t [check] t of surface								1	
	e by spec ee <b>Appe</b> n		stability ra	tings	Peri	manent /	Perennia	ı	Seas	sonal / Inte	ermittent	t	Te	emporary /	Epheme	ral		
65%						11	1			.9H				.7	м			
5-64%						.7	и			.6M				.5	М			
35%						.3	L			.2L				.1	IL			
omm	ents:	NA -	no oper	ı water	exists (	on site												
14l. i. L	Production of I	ction Ex	cport/Foc	od Chai ity (synt	n Supp	ort:	e and fisl		ratings [cl	heck])								
14l. i. L	Produc	ction Ex Biologic	cport/Foc	od Chai ity (synt	n Supp	ort:	e and fisl	n habitat t Rating	(14C.iii.) L	•/								
14l. i. L Gei	Production of Internal Fish	Siologie h Habit 4D.iii.)	cport/Foc	od Chai ity (synt G E/H	n Supp	ort: f wildlife Wildlife	e and fisl		(14C.iii.) L	heck])								
14l. i. L	Production of Internal Fish Rating (1	etion Ex Biologic h Habit 4D.iii.)	cport/Foc	od Chai ity (synt G E/H	n Supp	ort: f wildlife Wildlife	e and fisl e <b>Habita</b> M		(14C.iii.) L	1								
14l. i. L	Production	etion Ex Biologic h Habit 4D.iii.)	cport/Foc	od Chai ity (synt G E/H H	n Supp	ort: f wildlife Wildlife	e and fisi e Habita M		(14C.iii.) L	1								
14l. i. L	Producevel of I heral Fisating (1	ction Ex Biologic h Habit 4D.iii.)	cport/Foc	od Chai ity (synt G E/H H	n Supp	ort: f wildlife Wildlife	e and fisi e Habita M H		(14C.iii.) L M	1								
14I. i. L Get i. Ra vetlan	Producevel of I neral Fisher I	Biologic th Habit 4D.iii.) d  prking fr nent in let; the	cal Active cat Active	e rows p	n Supp hesis or eneral ' in, use the elevel tertain to fi these	f wildlife Wildlife	H M M M x below pgical acon of su	t Rating  to arrive tivity ratir	(14C.iii.) L M	the function of the function o	I.i.); Fa re P/P,	ctor C =	whether	or not th	e AA co ously de	ontains a	surfac nd A = "	e or
i. L Ger F	Producevel of I neral Fisher I	Biologic H Habit 4D.iii.) H  A  Dorking from the tree is for full Veg	cal Activer at the AA; If the defi	od Chai ity (synt G E/H H H M H co bottom- actor B e rows p nitions coonent >5 coonent >5 coonent >5 coonent > 5 c	n Supp hesis or eneral	f wildlife Wildlife	H M M x below gical acon of su )	t Rating  to arrive tivity ratir	(14C.iii.) L M M L L at [check] ng from at er in the A	the function of the function o	I.i.); Fa re P/P, cres	ctor C =	whether	or not thas previo	usly de	ontains a fined, ar	surfac nd A = "	e or
i. L Ger F	Production	A Spring from the control of the con	cal Active the AA; If final three the tested comp	od Chai ity (synt G E/H H H M H co bottom-actor B e rows p nitions coonent >5 a erate	n Supp hesis of eneral to the series of the	ort:  f wildlife Wildlife  ne matr of biolo o durati terms]	e and fiss Habita M H M M M x below ogical ac on of su	to arrive tivity ratir face wat	(14C.iii.)  L  M  M  L  L  at [check, ng from ale er in the Aetated composite of Model Mod	the function of the function o	I.i.); Fa re P/P, cres	ctor C = S/I, and	whether T/E are Hi	or not the as previous Vege	usly de	ontains a fined, ar ponent <1 erate	a surfac nd A = " acre	e or absent"
14I. i. L Gei i. Ra wetlan uubsui see iri	Producevel of I	Biologic th Habit 4D.iii.)  d  Dorking from the the the series for full the less for	oom top to the AA; Ifinal three ther define teated come Model Yes	od Chai  ity (synt  G E/H  H  H  M  H  co bottom  Factor B  e rows p  nitions coonent >5 a  erate  No	n Supp hesis or eneral '	me matr of biolo o durati terms]	H M M M M M M M M M M M M M M M M M M M	to arrive tivity ratir face wat	at [check] g from at er in the A  etated compoler  yes at the A	the function of the function o	I.i.); Fare P/P,	ctor C = S/I, and	whether T/E are	or not the as previous Vege	tated com  Mod  Yes	ontains a fined, ar ponent <1 erate No	a surface and A = " acre L Yes	e or absent"
i. Ran ii. Ran	Producevel of I beral Fish Rating (1 E/H M L N// Hting (Word dompoface out struction Hill Yes 1 E M M M M M M M M M M M M M M M M M M	Biologic h Habit 4D.iii.)  d  orking fr net; the let; the s for fur Veg h No 7H	oom top to the AA; Ifinal three ther definetated come Model Yes 8H	end Chai  ity (synt  G  E/H  H  H  M  H  co bottom  Factor B  er rows p  nitions coonent >5 a  prate  No	n Supp hesis or eneral ' in, use the leave teneral to the second teneral ten	me matr of biolo o durati terms]	H M M M M M M M M M M M M M M M M M M M	to arrive tivity ratir face wat veg-	M  At [check]  g from at er in the A Mode Yes  7H	the function of the function o	I.i.); Fare P/P,	ctor C = S/I, and	whether T/E are  Hi  Yes  8H	vegegh No .6M	tated com  Mod  Yes  .6M	ontains a fined, ar ponent <1 erate No	a surface acre L Yes .3L	e or absent"

i. Discharge Ind The AA is a slope we Springs or seeps are Vegetation growing of Wetland occurs at the Seeps are present at AA permanently flood Wetland contains an Shallow water table a Other: AA hydrolog	etland known or obstauring dorman e toe of a natu the wetland of ded during dro outlet, but no	nt season/dro ural slope edge ought periods inlet saturated to	Other:  ods  to the surface a historic oxbow.							
iii. Rating (use the inform	nation from i							d rating) HARGE OR WITH	I WATER	
0.11.11			2/2	THAT IS	RECHARGING	THE GROUI				
Criteria  Groundwater Discharge or R	echarge		P/P 1H		S/I .7M		.4M	None		
Insufficient Data/Information					., ., .,	NA				
Omments: Ponding was a larger w			2014, but no			nal points a	nd ratina)			
Replacement potential	AA contain or matur wetland <b>o</b>		warm springs d) forested ciation listed	AA does cited ra diversity	s not contain pre types and (#13) is high occiation listed the MTNHP	previously structural or contains I as "S2" by	AA doe	s not contain progret types or assouctural diversity low-moderate	ciations	
Estimated relative abundance (#11)	rare	commo n	abundant	rare	common	abundant	rare	common	abundant	
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L	
<b>Moderate</b> disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L	
<b>High</b> disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L	
14L. Recreation/Education i. Is the AA a known or purple and proceed to the Categori Other iii. Check categori Other iii. Rating (use the matrix	otential rec./ to the overall es that apply	/ed. site: (check summary are summary are summary are summary are summary to the AA:	neck) Y Ond rating page	N ●  nal/scientific	(if 'Yes' conf study; \( \subseteq \) C	tinue with the	e evaluation	; if 'No' then clic		
Known or Potential Recreation  Public ownership or public e			c access (no ne	rmission red	uired)	-	ı	Known Poter	1	
Private ownership with gene		<u> </u>							5H	
Private or public ownership	without genera	al public acce	ss, or requiring	permission	for public acce	ess			IM P5L	
Comments: AA small, adjacent to hi	ghway, and	with little to	o no recreatic	on or educa	ation potenti	al.				
General Site Notes										

# 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 Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	Н	.9	1	0.53	✓
C. General Wildlife Habitat	М	.4	1	0.24	
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	L	.3	1	0.18	
G. Sediment/Nutrient/Toxicant Removal	Н	.8	1	0.47	<b>✓</b>
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	
Production Export/Food Chain Support	М	.4	1	0.24	
J. Groundwater Discharge/Recharge	М	.7	1	0.41	<b>✓</b>
K. Uniqueness	L	.2	1	0.12	
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.03	
Totals:		3.75	8	2.21	
Percent of Possible Score			46.88 %		

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

# OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

**Table B-3.** Forsyth Northwest – East Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	N/A
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
<i>Elymus</i> sp.	Wild Rye	N/A
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

**Table B-3.** Forsyth Northwest – East Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status <sup>(a)</sup>
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	N/A

<sup>&</sup>lt;sup>(a)</sup> 2018 NWPL (USACE 2018)

# 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 2021



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 2021

## 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 2021



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 2021

## 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 2021



**Photo Point 6** Bearing: 300 degrees

Location: Center of new dike





**Photo Point 6** Bearing: 120 degrees

Location: Center of new dike Year: 2017

Photo not taken in 2021

**Photo Point 6** Location: Center of new dike Bearing: 300 degrees Year: 2021



**Photo Point 6** Bearing: 120 degrees

Location: Center of new dike

Year: 2021

## Forsyth Northwest - West Site: Transect Photographs



**Transect 1:** Start **Bearing:** 25 degrees

**Location:** SE end of site **Year:** 2013



**Transect 1:** Start **Location:** SE end of site **Bearing:** 25 degrees **Year:** 2021



Transect 1: End Bearing: 205 degrees

Location: SE end Year: 2013



**Transect 1:** End **Location:** SE end **Bearing:** 205 degrees **Year:** 2021



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2013



**Transect 2:** Start **Bearing:** 25 degrees

Location: NW End Year: 2021

## 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

Year: 2021



Data Point: DP01w Year: 2021

Location: SE part of site



Data Point: DP01u

Location: SE part of site

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



Photo Point: 1 Bearing: 120 degrees

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



Photo Point: 2 Bearing: 300 degrees

**Location:** Southeast end **Year:** 2013



Transect 1: Start Bearing: 205 degrees

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



Photo Point: 1 Bearing: 120 degrees

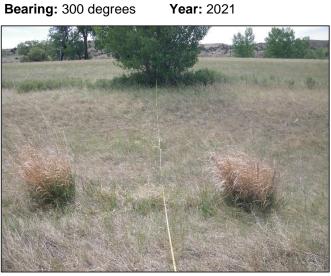


Location: Northwest End

Location: Southeast end

Year: 2021

Photo Point: 2 Bearing: 300 degrees



Transect 1: Start Bearing: 205 degrees

Location: Middle of Site Year: 2021

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



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



Year: 2013



Transect 1: End Bearing: 25 degrees

Location: Middle of Site

Year: 2021



Data Point: DP01w Year: 2021

Location: Middle of site

Data Point: DP01u

Location: Middle of site

Year: 2021

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



Photo Point: 1
Bearing: 125 degrees

**Location**: NW end of site **Year** 2013



Photo Point: 1
Bearing: 125 degrees

Location: NW end of site

Year: 2021



Photo Point 2: Location: Near Center of Site; Bearing 210 degrees; Year 2013



Photo Point 2: Location: Near Center of Site; Bearing 210 degrees; Year 2021



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: 2021

## Forsyth Northwest – East Site: Transect Photographs



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



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

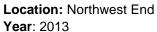


Location: Northwest End Year: 2021



Year: 2013

Transect 1: End Bearing: 325 degrees





Transect 1: End Location: Northwest End Bearing: 325 degrees Year: 2021



Transect 2: Start Bearing: 280 degrees



Location: Southeast End Year: 2013



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year: 2021

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



Transect 2: End Bearing:100 degrees



Transect 2: End Bearing: 100 degrees

Location: Northwest End Year: 2021



Data Point: DP01w Year: 2021



Location: SW portion of site

Location: Southeast End

Year: 2013



Location: SW portion of site

Year: 2021



Data Point: DP02w

Location: NE portion of site

Year: 2021



Data Point: DP02u

Location: NE portion of site

Year: 2021