MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT

FORSYTH – NORTHWEST: WEST SITE (SITE 1); MIDDLE SITE (SITE 2); EAST SITE (SITE 3); TREASURE COUNTY LINE SITE (SITE 4)
ROSEBUD COUNTY, MONTANA

PROJECT COMPLETED: 1999 (TREASURE COUNTY) & 2012 (EAST, WEST, AND MIDDLE)
MONITORING REPORT #6: DECEMBER 2017



Prepared for:



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Montana Department of Transportation Wetland Mitigation Monitoring Report: Year 2017

FORSYTH – NORTHWEST MITIGATION SITE WEST SITE (SITE 1); MIDDLE SITE (SITE 2); EAST SITE (SITE 3); TREASURE COUNTY LINE SITE (SITE 4) ROSEBUD COUNTY, MONTANA

Treasure County Line Constructed: 1999
Forsyth East, Middle, and West Constructed: 2012
MDT Project Number STPP 14-6 (9) 259 CN 4059 (Forsyth – Northwest)
Control Number 1396

USACE Number: NOW-2002-90-599 Control Number 1514 (Forsyth – Northwest) NOW-2006-906-76 MTB (Forsyth – Northwest)

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December 2017

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Cover: View looking south from the eastern end of wetland; *Populus deltoides* seedlings are visible on the upland bank.

1.0 INTRODUCTION

The 2017 Forsyth – Northwest (FNW) wetland monitoring report documents the fifth year of monitoring at the four FNW sites: (1) West, (2) Middle, (3) East, and (4) Treasure County Line. The 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. This report includes monitoring results for each of the four sites and a discussion of the mitigation credits developed for the FNW project. Because the Treasure County Line site has met its maximum wetland development potential, 2017 will be the final year of monitoring at this site. Monitoring of the other three sites will continue into 2018.

The four wetland mitigation sites are located in Rosebud County in the Sagebrush Steppe ecoregion of the Northwest Great Plains. The sites are within Watershed #14 – Middle Yellowstone. Three sites are located northwest of Forsyth along Montana Highway 12 at mile markers 262.3 (Site 3: East), 261.9 (Site 2: Middle), and 260 (Site 1: West) within the Big Porcupine Creek subbasin, as shown in Figure 1-1. Treasure County Line (Site 4) is located approximately 12 miles west of Forsyth at Interstate 94 mile marker 81.75. As shown in Figure 1-2, this site is situated southwest of the intersection of Interstate 94 and Reservation Road in the Lower Yellowstone River-Sunday Creek subbasin. Figures A-3 through A-10 (Appendix A) show the monitoring activity locations and mapped site features for each site, respectively. Appendix B contains the MDT Wetland Mitigation Site Monitoring forms, the US Army Corps of Engineers (USACE) Great Plains (GP) Regional Supplement Wetland Determination Data forms [USACE, 2010], and the 2008 MDT Montana Wetland Assessment Method (MWAM) forms [Berglund and McEldowney, 2008] for each site. Appendix C contains photographs of the project areas, and Appendix D includes the project plan sheets.

1.1 IMPACTS AND MITIGATION

Wetland impacts for the FNW project were identified in USACE permit #NWO-2006-90676-MTB and a wetland mitigation monitoring plan prepared by MDT and dated February 15, 2012. The wetland mitigation sites are intended to provide credits for impacts caused by the Volborg – North and South project (constructed in 2004) and the FNW project (completed in 2012). The Treasure County Line site was constructed in 1999 before the 2.18 acres of impact that resulted from the FNW project. The 2012 mitigation plan outlined that this site had produced 1.78 acres of wetland credit, which was awarded at a 1:1 credit ratio. Applying standard wetland compensatory mitigation ratios [USACE, 2005], 11 acres was the total area of required mitigation presented in the approved wetland mitigation plan. Table 1-1 provides a summary of the impacts, appropriate ratios, and anticipated mitigation requirements. The anticipated wetland mitigation acreages produced by the FNW project are listed by site and mitigation type in Table 1-2. Mitigation requirements and estimated credit development are discussed in more detail in Section 3.5 of this report.

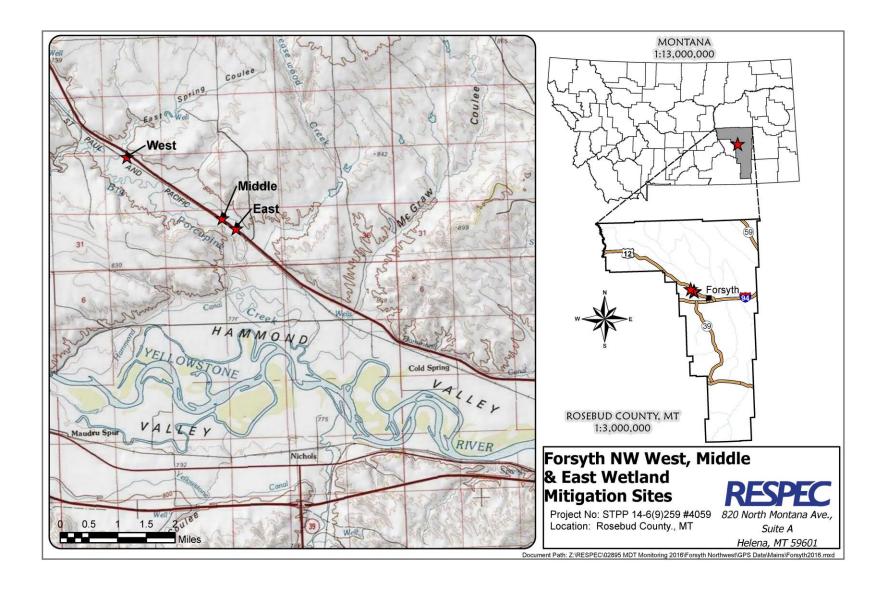


Figure 1-1. Locations of the Forsyth – Northwest Mitigation Sites: West (Site 1), Middle (Site 2), and East (Site 3).

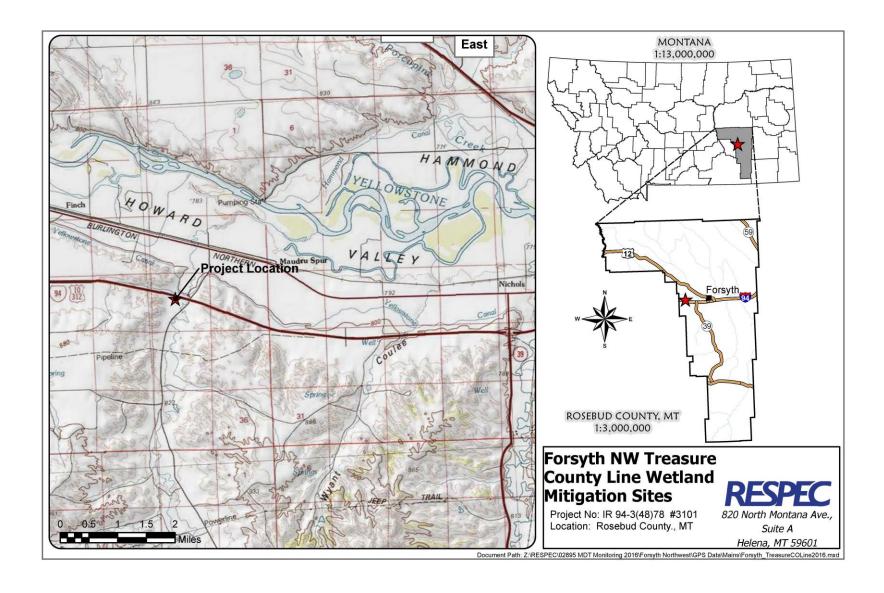


Figure 1-2. Location of the Forsyth – Northwest Mitigation Site: Treasure County Line (Site 4).

Table 1-1. Wetland Impacts to be Mitigated at the Forsyth - Northwest Sites

MDT Project	Impacts (acres)	Credits (acres)	Balance Remaining (acres)	Ratio	Mitigation (acres)
Volborg – North and South	6.80	0.00	6.80	1.5:1	10.20
Forsyth – Northwest	2.18	1.78	0.40	2:1	0.80
Total	8.98	1.78	-	_	11.00

Table 1-2. Anticipated Wetland Mitigation Acreages for the Forsyth – Northwest Sites

Wetland	Expected Credits			
Mitigation Site	Mitigation Type	Acre		
	Creation	9.09		
Site 1: West	Preservation	1.29		
	Total for Site 1	10.38		
Site 2: Middle	Creation	0.34		
Site 3: East	Creation	1.07		
Total for Sites	I, 2, and 3	11.79		
Site 4: Treasure County Line	Previous Creation (Credit)	1.78		
Total for All FNV	V Sites (1–4)	13.57		

1.2 GENERAL MITIGATION OBJECTIVES

The MDT-developed performance standards and monitoring requirements (as presented in the approved mitigation plan) for the FNW sites are listed below. Aside from monitoring requirements, no quantitative metrics or criteria are associated with the success of these mitigation sites.

1. Vegetation Community:

- a. Establish permanent photo points
- b. Establish vegetation transects to monitor the development of each vegetative community and its diversity
- c. Develop a plant species list during each monitoring visit
- d. Plot vegetative communities on as-built plants
- e. Determine areal coverage of vegetative community from as-built plans, aerial photographs, or by conventional or global positioning system (GPS) survey every other year, starting in 2013
- f. Monitor for and control invasive weed species.

2. **Soils:**

- a. Establish monitoring points for hydric soil development
- b. Monitor and document the development of hydric soils by using a Munsell Soil Chart
- c. Document the progression of reducing soil conditions as the soil transitions from an aerobic state to an anaerobic (hydric) state.

3. Hydrology:

- Delineate inundated areas no earlier than the second weekend of June every other year, starting in 2013
- b. Survey and document the hydrology within the new wetland area no earlier than the second weekend of June every other year, starting in 2013
- c. Measure the horizontal and vertical extent of the soil saturation zone at the margins of the wetlands.

4. Wildlife Community:

- a. Birds: Create and maintain a cumulative list of bird species observed
- b. **Mammals:** Create and maintain a list of mammalian species observed either directly or indirectly (e.g., tracks and scat) during the biennial monitoring visits
- c. **Herptiles:** Create and maintain a list of the amphibian and reptile species observed either directly or indirectly (e.g., tracks and nests) during the biennial monitoring visits.

5. MDT Functional Assessment:

A formal MDT Functional Assessment will be completed during each monitoring period.

6. Routine Wetland Determination:

a. A Routine Wetland Determination form will be completed during each monitoring period according to the 1987 Corps of Engineers Wetland Delineation Manual (1987 Wetland Manual) [Environmental Laboratory, 1987] and to the terms in the most applicable USACE 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (2010 GP Regional Supplement) [USACE, 2010].

1.3 MITIGATION SITES

The following sections provide a general discussion of the four wetland mitigation sites. The discussion includes location, site topography, mitigation objectives, and targeted wetland community goals.

1.3.1 West Site - Site 1

The West site is a 13.71-acre site owned by MDT and located at the mouth of East Spring Coulee in the floodplain of Big Porcupine Creek. The site is intended to provide 10.38 acres of compensatory wetland mitigation. Approximately 1.29 acres of preexisting wetlands will be preserved at this site. The monitoring area boundary is shown on Figures A-3 and A-4 (Appendix A). Mitigation plan sheets are presented in Appendix D. Proposed mitigation actions included the following:

- Excavating new wetland areas with undulating bottoms
- Creating emergent wetlands by placing salvaged wetland sod and hydrophytic vegetation within the excavated wetlands and seeding with wetland grass mix
- Constructing a water retention dike on the eastern end of the project site.

The targeted wetland community types included emergent, scrub/shrub, and forested classes dominated by herbaceous hydrophytes, willows, and cottonwoods. Site construction was completed in summer 2012, and the revegetation was completed from August through October 2012.

1.3.2 Middle Site - Site 2

The Middle site is a 1.80-acre site owned by MDT. The site is adjacent to US Highway 12 and situated among old meander scars across the Big Porcupine Creek floodplain. This area is intended to provide 0.34 acre of compensatory wetland mitigation. The monitoring area boundary is shown on Figures A-5 and A-6 (Appendix A). Mitigation plan sheets are presented in Appendix D. Proposed mitigation actions included the following:

- Excavating new wetland areas with undulating bottoms
- Creating emergent wetlands by placing salvaged wetland sod and hydrophytic vegetation within the excavated wetlands and seeding with wetland grass mix.

The proposed wetland community for this site is a palustrine emergent system dominated by herbaceous hydrophytes. Site construction was completed in the summer of 2012, and the revegetation was completed from August through October in 2012.

1.3.3 East Site – Site 3

The East site is a 2.74-acre site owned by MDT. The site is located approximately 1,000 feet from the Middle site and is directly adjacent to US Highway 12. The East site is intended to provide 1.07 acres of compensatory wetland mitigation. The monitoring area boundary is shown on Figures A-7 and A-8 (Appendix A). Mitigation plan sheets are presented in Appendix D. Proposed mitigation actions included the following:

- Excavating new wetland areas with undulating bottoms
- Creating emergent wetlands by placing salvaged wetland sod and hydrophytic vegetation within the excavated wetlands and seeding with wetland grass mix.

The proposed wetland community for this site is a palustrine emergent system dominated by herbaceous hydrophytes. Site construction was completed in the summer of 2012, and the revegetation was completed from August through October in 2012.

1.3.4 Treasure County Line Site - Site 4

The Treasure County Line site is a 5.89-acre site owned by MDT. The site is located adjacent to US Interstate 94 and an existing wetland complex along Reservation Creek. This site is intended to provide 1.78 acres of compensatory wetland mitigation. The monitoring area boundary is shown on Figures A-9 and A-10 (Appendix A). Mitigation plan sheets are presented in Appendix D. Proposed mitigation actions included the following:

- Excavating new wetland areas with undulating bottoms
- Creating emergent wetlands by placing salvaged wetland sod and hydrophytic vegetation within the excavated areas and seeding with wetland grass mix.

The proposed wetland community for this site is a palustrine emergent system dominated by herbaceous hydrophytes. Site construction was completed in 1999.

2.0 METHODS

All four sites were monitored on July 24, 2017. Information contained in the Wetland Mitigation Site Monitoring forms and Wetland Determination Data forms was recorded in the field during the site investigation (Appendix B). Monitoring activity locations for the West, Middle, East, and Treasure County Line sites were mapped with a GPS as illustrated on Figures A-3, A-5, A-7, and A-9, respectively (Appendix A). The collected information included wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data, bird- and wildlife-use documentation, photographic documentation, functional assessments, and a nonengineering examination of the infrastructure established within the mitigation project area.

2.1 HYDROLOGY

The presence of hydrological indicators as outlined on the Wetland Determination Data forms was documented at two data points within the West site, two data points within the Middle site, three data points within the East site, and two data points within the Treasure County Line site. Hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded onto Wetland Determination Data forms (Appendix B). Hydrologic assessments allow evaluation of mitigation goals that address inundation and saturation requirements.

Technical criteria for wetland hydrology guidelines have been established as "permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (12.5 percent of the growing season) during the growing season" [USACE, 2010]. Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are classified as jurisdictional wetlands. The growing season is defined for purposes of this report as the number of days when a 50 percent probability exists that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit [Environmental Laboratory, 1987]. Temperature data recorded for the meteorological station at Forsyth, Montana (243098), have a median (5 years in 10) growing season length of 156 days. Areas defined as wetlands would require 19.5 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria. Soil pits excavated during the wetland delineation were used to evaluate groundwater levels within 18 inches of the ground surface. The data were recorded on the Wetland Determination Data forms (Appendix B). Precipitation data from the Forsyth, Montana (243098), meteorological station were also reviewed and compared to long-term averages for this site.

2.2 VEGETATION

The boundaries of general dominant-species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2016 aerial photographs. The percent cover of dominant species within a community type was estimated and recorded using the following values: 0 (< 1 percent), 1 (1–5 percent), 2 (6–10 percent), 3 (11–20 percent), 4 (21–50 percent), and 5 (> 50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figures A-4, A-6, A-8, and A-10, Appendix A).

Temporal changes in vegetation were evaluated by annually assessing static belt transects (Figures A-3, A-5, A-7, and A-9, Appendix A). Vegetation composition was assessed and recorded along vegetation belt transects that were established at all of the sites during the 2013 reconnaissance site visits. Transects are 10 feet wide and vary in length at each site. The transect endpoints were recorded with a resource-grade GPS unit.

Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same values and cover ranges used for the vegetation community polygon data (Appendix B). Photographs were taken at the transect endpoints during the monitoring event (Appendix C).

The *Montana Noxious Weed List* (February 2017), which was prepared by the Montana Department of Agriculture [2017], was used to categorize weeds identified within the site. The location of noxious weeds was noted in the field and mapped on the aerial photograph with noxious weed species color-coded (Figure A-3, Appendix A). Cover classes are represented by a T, L, M, or H, which represent less than 1 percent, 1–5 percent, 6–25 percent, and 26–100 percent, respectively. The total cover by noxious weeds overall across the site was estimated based on the noxious weed cover classes and project acreage.

2.3 SOIL

Soil information was obtained from the *Web Soil Survey for Rosebud County* [US Department of Agriculture, 2011] and in soil core descriptions. Soil cores were excavated by using a sharpshooter shovel and evaluated according to procedures outlined in the 1987 Wetland Manual and 2010 GP Regional Supplement. A description of the soil profile, including hydric indicators when present, was recorded on the Wetland Determination Data form for each profile (Appendix B).

2.4 WETLAND DELINEATION

Waters of the US, including special aquatic sites and jurisdictional wetlands, were delineated throughout the project area in accordance with criteria established in the 1987 Wetland Manual and 2010 GP Regional Supplement. The technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology described in the 2010 GP Regional Supplement must be satisfied to delineate a representative area as jurisdictional. The name and indicator status of plant species was derived from the 2016 national wetland plant list (NWPL) [Lichvar et al., 2016]. A routine level-2 on-site determination method [Environmental Laboratory, 1987] was used to delineate jurisdictional areas within the project boundaries. The information was recorded onto Wetland Determination Data forms (Appendix B).

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross-referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the

parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area, or special aquatic site (i.e., mudflat). The wetland boundary was surveyed and identified on the 2017 aerial photographs. Wetland areas were estimated using GIS methods.

2.5 WILDLIFE

Observations and other positive indicators of use by mammal, reptile, amphibian, and bird species were recorded on the Wetland Mitigation Site Monitoring forms during each of the site visits. Indirect-use indicators, including tracks, scat, burrows, eggshells, skins, and bones, were also recorded. These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of wildlife species observed on the sites each year is compiled and updated annually in each report.

2.6 FUNCTIONAL ASSESSMENT

The MDT MWAM [Berglund and McEldowney, 2008] was used to evaluate functions and values on the sites. This method provides an objective means of assigning an overall rating to wetlands and provides regulators with a means of assessing mitigation success based on wetland functions. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and relate to ecological significance without regard to subjective human values [Berglund and McEldowney, 2008]. Field data for this assessment were collected during the site visit. One MWAM form was completed at each mitigation site (i.e., assessment area [AA]) (Appendix B).

2.7 PHOTOGRAPHIC DOCUMENTATION

Monitoring at photo points provided supplemental information that document wetland and upland conditions, site trends, current land uses that surround the site, and the status of the vegetation transects. Photographs were taken at established photo points and at transect endpoints throughout each of the sites during the field survey (Appendix C). Photo-point locations were recorded with a resource-grade GPS unit (Figures A-3, A-5, A-7, and A-9, Appendix A).

2.8 GLOBAL POSITIONING SYSTEM DATA

Site features and survey points were collected using a resource-grade (± 1 meter) Trimble R1 GNSS GPS receiver and companion Android tablet during the 2016 monitoring season. The collected data were then transferred to a personal computer, imported into GIS, and projected in Montana State Plane Single Zone NAD 83 meters. Site features and survey points that were located with GPS included fence boundaries, photo points, transect endpoints, and wetland data points.

2.9 MAINTENANCE NEEDS

Channels, engineered structures, fencing, and other features were examined during the site visit for obvious signs of breaching, damage, or other problems. This examination was cursory and not an engineering-level structural inspection.

3.0 RESULTS

3.1 WEST SITE - SITE 1

3.1.1 Hydrology

The average total annual precipitation recorded at the Forsyth, Montana, weather station (243098) from 1975 through 2016 was 14.6 inches [Western Regional Climate Center, 2017]. The precipitation between January and August of 2016 totaled 16.77 inches, which is well above the long-term average of 12.03 inches. In 2017, precipitation between January and August totaled only 7.59 inches, which is the fifth driest year since 1975. In coordination with the Montana Governor's Drought and Water Supply Advisory Committee, the Montana State Library publishes monthly maps of moisture by county. The July 2017 map shows Rosebud County to be severely dry. Additionally, the governor of Montana issued Executive Order 5-2017 on June 23, 2017, declaring a drought emergency to exist in eastern Montana. Later, under Executive Order No. 6-2017, the governor declared a drought disaster in Rosebud County and 13 other counties in Eastern Montana [DNRC, 2017].

The main source of hydrology at the West site is a seasonal high-water table and occasional overbank flooding from East Spring Coulee and Big Porcupine Creek. Surface runoff from East Spring Coulee flows directly into the site. Additional hydrology is provided by surface water from precipitation events.

Mitigation activities included excavating to lower the ground surface of uplands to match adjacent existing wetlands and the construction of a dike across two wetland/ephemeral swales along the lower end of the site (east side) to impound periodic surface water. High surface-water flows at the site in 2013 breached a portion of the dike. MDT completed repairs on the structure in July 2013. This failure was repeated in 2014. During the spring of 2017, the dike was repaired (Appendix C).

Because of the spring dike construction, monitoring was not conducted until late July. No surface water was observed at the West site. Other evidence of hydrology observed within the West site included water marks, salt crust, and geomorphic position.

Two data points (DP-1W and DP-1U) were assessed to determine the upland and wetland boundaries (Wetland Determination Data forms, Appendix B). DP-1W is located south of Transect 1 (T-1) end. Positive indicators of wetland hydrology at DP-1W included soil cracks, sparsely vegetated concave surface, saturation visible on aerial imagery, and geomorphic position. No primary or secondary indicators of wetland hydrology were observed at DP-1U, which is located in upland community Type 6 – *Pascopyrum smithii/Bromus tectorum*.

3.1.2 Vegetation

A total of 79 plant species were identified during the 2013 through 2017 field surveys, as listed in Table 3-1. Of the 79 species, 12 were new in 2017 and included 6 wetland species and 6 upland species. The indicator status for all of the plants was derived from the 2016 NWPL [Lichvar et al.,

Table 3-1. Vegetation Species Observed at the West Site From 2013 Through 2017 (Page 1 of 2)

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

Table 3-1. Vegetation Species Observed at the West Site From 2013 Through 2017 (Page 2 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	NL
Melilotus officinalis	Yellow Sweet Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FACW
Nassella viridula	Green Needle Grass	NL
Pascopyrum smithii	Western Wheatgrass	FACU
Phalaris arundinacea	Reed Canary Grass	FACW
Poa compressa	Flat-Stem Bluegrass	FACU
Poa palustris	Fowl Bluegrass	FACW
Poa pratensis	Kentucky Bluegrass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Mexican Coneflower	NL
Ribes aureum	Golden Currant	FACU
Ribes cereum	Wax Currant	NL
Rosa arkansana	Prairie Rose	FACU
Rumex crispus	Curly Dock	FAC
Sagittaria cuneate	Arum-Leaf Arrowhead	OBL
Salicornia rubra	Red Saltwort	OBL
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 Cordgrass	FACW
Sporobolis airoides	Alkali-Sacaron	FAC
Symphoricarpos albus	Common Snowberry	UPL
Tamarix chinensis	Salt-cedar	NL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	NL
Typha angustifolia	Narrow-Leaf Cattail	OBL
Typha latifolia	Broad-Leaf Cattail	OBL
Xanthium strumarium	Rough Cockleburr	FAC

⁽a) 2016 NWPL [Lichvar et al., 2016].New species that were identified in 2017 are **bolded**.

2016]. The mitigation area contains several mature eastern cottonwoods (*Populus deltoides*) near the center of the site and a few large fragile willows (*Salix fragilis*) along the undisturbed existing

wetland swales. Twelve vegetation communities have been mapped across the site from 2013 through 2017. In general, the communities can be classified as undisturbed wetland, transitional wetland, undisturbed upland, and disturbed upland. The 12 community types on this site include the following:

- Upland Type 1 Bromus tectorum/Sarcobatus vermiculatus
- Upland Type 5 Symphoricarpos albus/Pascopyrum smithii
- Upland Type 6 Pascopyrum smithii/Bromus tectorum
- Upland Type 7 Puccinellia nuttalliana/Hordeum jubatum
- Wetland Type 8 Typha latifolia/Eleocharis palustris
- Wetland Type 9 Eleocharis palustris/Open Water
- Wetland Type 10 Hordeum jubatum/Puccinellia nuttalliana
- Upland Type 11 Pascopyrum smithii/Elymus repens
- Wetland Type 12 Hordeum jubatum/Elymus trachycaulus
- Upland Type 13 Elymus trachycaulus/Bromus tectorum
- Upland Type 14 Pascopyrum smithii/Elymus trachycaulus
- Wetland Type 15 Puccinellia nuttalliana/Schoenoplectus.

The species composition for each community is included on the West site's Wetland Mitigation Site Monitoring form (Appendix B) and discussed below. Vegetation community boundaries are shown in Figure A-4 (Appendix A).

Upland community Type 1 – *Bromus tectorum/Sarcobatus vermiculatus* (cheatgrass/greasewood) is located in undisturbed upland on the side slope of the railroad grade along the southwestern boundary. This community decreased in 2015 because of differences in species composition and their associated cover classes, which created new upland community Types 5 – *Symphoricarpos albus/Pascopyrum smithii* and 6 – *Pascopyrum smithii/Bromus tectorum*. Dominant species included cheatgrass (*Bromus tectorum*), greasewood (*Sarcobatus vermiculatus*), western wheatgrass (*Pascopyrum smithii*), and false meadow rye grass (*Schedonorus pratensis*).

Upland community Type 5 – *Symphoricarpos albus/Pascopyrum smithii* (snowberry/western wheatgrass) was located in undisturbed upland along the southern boundary of the project area. This community replaced a portion of upland community Type 1 because of a shift in species composition and their associated cover classes. Dominant species included common snowberry (*Symphoricarpos albus*), western wheatgrass, greasewood, and Japanese brome (*Bromus arvensis*).

Upland community Type 6 – *Pascopyrum smithii/Bromus tectorum* (western wheatgrass/cheatgrass) is located in undisturbed upland adjacent to Montana Highway 12 along the northeastern boundary. This community replaced a portion of upland community Type 1 because of changes in species composition and their associated cover classes. The community was dominated by cheatgrass, yellow sweet clover (*Melilotus officinalis*), and western wheatgrass.

Upland community Type 7 – *Puccinellia nuttalliana/Hordeum jubatum* (Nutall's alkali grass/foxtail barley) was identified in an upland located within the excavated footprint. This community replaced community Type 2 – *Helianthus annuus/Bassia scoparia* in 2015 as the primary colonizing species decreased in dominance and more persistent, perennial plants increased in cover. The most abundant species in the community are Nuttall's alkali grass (*Puccinellia nuttalliana*), foxtail barley (*Hordeum jubatum*), and yellow sweet clover.

Wetland community Type 8 – *Typha latifolia*/*Eleocharis palustris* (broad-leaf cattail/common spikerush) was originally designated as undisturbed, preexisting wetland community Type 3 – *Spartina pectinata*/*Eleocharis palustris* in previous surveys. The community was dominated by common spike-rush (*Eleocharis palustris*) and broad-leaf cattail (*Typha latifolia*). Type 8 includes approximately 20 percent cover of shallow (fewer than 1.5 feet) inundation during spring conditions; however, the site was dry at the surface during the late July monitoring event.

Wetland community Type 9 – *Eleocharis palustris*/Open Water (common spike rush/open water) replaced disturbed wetland community Type 4 – *Eleocharis palustris*/*Chenopodium album* from previous surveys. The most abundant species in the community were common spike-rush, aquatic macrophytes, red goosefoot (*Chenopodium rubrum*), and saltmarsh club-rush (*Schoenoplectus maritimus*). Open water that is normally present during the spring was absent during the monitoring event because of drought and mid-summer conditions.

Wetland community Type 10 – *Hordeum jubatum/Puccinellia nuttalliana* (foxtail barley/Nutall's alkali grass) was observed in 2015 as a new wetland community type located in an area that was previously upland community Type 2 – *Helianthus annuus/Bassia scoparia*. The most abundant species in the community were foxtail barley and freshwater cordgrass (*Spartina pectinate*).

Wetland community Type 11 – *Pascopyrum smithii/Elymus repens* (western wheatgrass/creeping wild rye) was observed in 2017 in areas that were formerly upland community Type 7 – *Puccinellia nuttalliana/Hordeum jubatum*. The most abundant species in the community were western wheatgrass, lamb's quarters (*Chenopodium album*), and creeping wild rye.

Wetland community Type 12 – *Hordeum jubatum/Elymus trachycaulus* (foxtail barley/slender wild rye) is developing on the southeastern end of community Type 9. The most abundant species in the community were foxtail barley, American licorice (*Glycyrrhiza lepidota*), and slender wild rye (*Elymus trachycaulus*).

Wetland community Type 13 – *Elymus trachycaulus/Bromus tectorum* (slender wild rye/cheatgrass) has developed within the southeastern center of the site. The most abundant species in the community were cheatgrass, slender wild rye, and streamside wild rye (*Elymus lanceolatus*).

Wetland community Type 14 – *Pascopyrum smithii/Elymus trachycaulus* (western wheatgrass/slender wild rye) has developed within the southeastern center of the site. The most abundant species in the community were slender wild rye and western wheatgrass.

Wetland community Type 15 – *Puccinellia nuttalliana/Schoenoplectus maritimus* (Nutall's alkali grass/saltmarsh club-rush) has developed along the northeastern edge of community Type 9. The most abundant species in the community were saltmarsh club-rush and Nutall's alkali grass.

Vegetation cover was measured along two transects at the West site in 2017 (Figure A-3, Appendix A). Data recorded on T-1 are summarized in Table 3-2 and Charts 3-1 and 3-2. Photographs of the West transect start and end points are provided in Appendix C. T-1 is located in the eastern half of the site and extends 282 feet from southwest to northeast, with intervals that alternate between upland community Types 5 – Symphoricarpos albus/Pascopyrum smithii, 6 – Pascopyrum smithii/Bromus tectorum, and 11 – Pascopyrum smithii/Elymus repens; bare ground (dike post-construction disturbance); and wetland community Types 8 – Typha latifolia/Eleocharis palustris and 12 – Hordeum jubatum/Elymus trachycaulus. This transect spans the 2017 construction zone created as part of the dike repair on this end of the site. Hydrophytic vegetation communities composed 34 percent of T-1 in 2017, which is a decrease of 3 percent since 2016 and an increase of 15 percent since 2014. Bare ground in the area of construction disturbance comprised 41 percent of the transect; the area was seeded by MDT. Wetland habitat is expected to increase along this transect in the future following the 2017 dike repair, which will serve to impound water and saturate this area.

Table 3-2. T-1 Data Summary for the West Site From 2013 Through 2017

Monitoring Year	2013	2014	2015	2016	2017
Transect Length (feet)	282	282	282	282	282
Vegetation Community Transitions Along Transect	6	6	7	7	5
Vegetation Communities Along Transect	3	3	5	5	5
Hydrophytic Vegetation Communities Along Transect	1	1	2	4	2
Total Vegetative Species	27	35	37	26	18
Total Hydrophytic Species	10	10	10	5	4
Total Upland Species	17	25	27	21	14
Estimated % Total Vegetative Cover	75	80	80	90	46
Estimated % Unvegetated	25	20	20	10	54
% Transect Length Comprising Hydrophytic Vegetation Communities	15.6	18.8	37	37	34
% Transect Length Comprising Upland Vegetation Communities	84.4	81.2	63	63	66
% Transect Length Comprising Unvegetated Open Water		0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

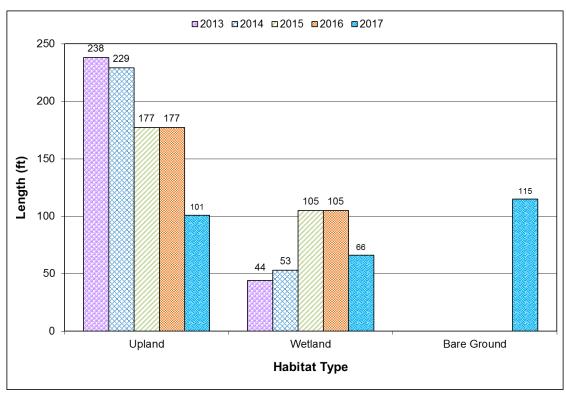


Chart 3-1. T-1 Map for the West Site Showing Vegetation Types From Transect Start (0 Foot) to End (282 Feet) From 2013 Through 2017.

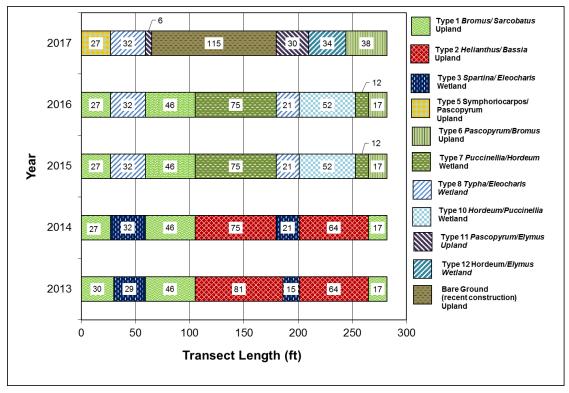


Chart 3-2. Length of Vegetation Communities Within T-1 at the West Site From 2013 Through 2017.

Transect 2 (T-2) data are summarized in Table 3-3 and Charts 3-3 and 3-4.T-2 is located in the western half of the site and extends 261 feet from southwest to northeast, with intervals that alternate between upland community Types 5 and 6 and wetland community Types 9 – *Eleocharis plaustris*/Open Water and 15 – *Puccinellia nuttalliana/Schoenoplectus*. Hydrophytic vegetation communities composed 87 percent of T-2 in 2017. A transition from pioneer to climax wetland community is also occurring along T-2, where weedy species and excavated bare soils in 2014 have been replaced by over 80 percent cover of an obligate wetland species (*Eleocharis*). Wetland area may increase 2–4 feet along the transect in future years because of dike repair.

Table 3-3. T-2 Data Summary for the West Site From 2013 Through 2017

Monitoring Year	2013	2014	2015	2016	2017
Transect Length (feet)	261	261	261	261	261
Vegetation Community Transitions Along Transect	2	2	2	2	3
Vegetation Communities Along Transect	2	2	3	3	4
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	2
Total Vegetative Species	21	26	29	28	19
Total Hydrophytic Species	8	11	9	8	9
Total Upland Species	13	15	20	20	10
Estimated % Total Vegetative Cover	10	20	20	82	92
Estimated % Unvegetated	90	80	80	13	8
% Transect Length Comprising Hydrophytic Vegetation Communities	87	87	87	87	87
% Transect Length Comprising Upland Vegetation Communities	13	13	13	13	13
% Transect Length Comprising Unvegetated Open Water ^(a)	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

⁽a) Water within Type 8 was less than 1.5 feet deep and is considered a "shallow inundation."

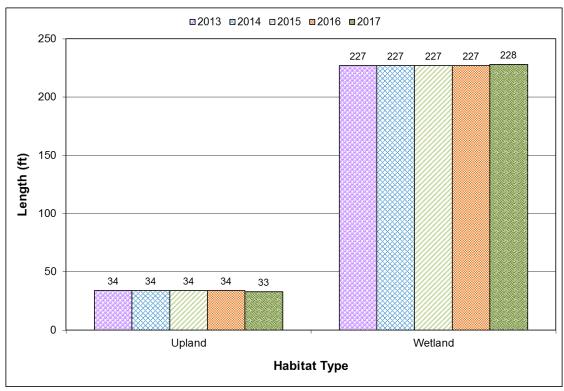


Chart 3-3. T-2 Map for the West Site Showing Vegetation Types From Transect Start (0 Foot) to End (261 Feet) From 2013 Through 2017.

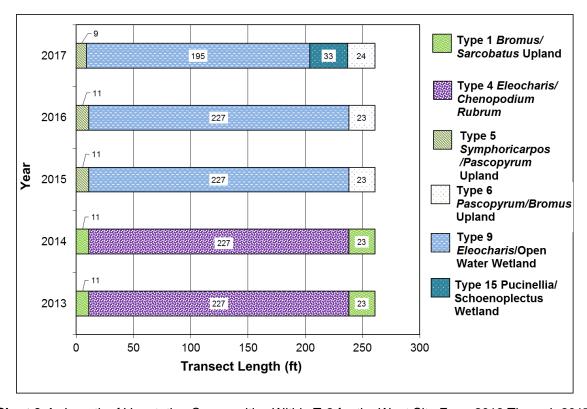


Chart 3-4. Length of Vegetation Communities Within T-2 for the West Site From 2013 Through 2017.

Infestations of two Priority 2B noxious weeds (Canada thistle [*Cirsium arvense*] and leafy spurge [*Euphorbia esula*]) were mapped in several locations within the project site (Figure A-4, Appendix A). Within the project boundary, leafy spurge is the most prevalent noxious weed.

No containerized shrubs or trees were installed at this site. Revegetation efforts included a combination of salvaged wetland materials from impacted wetlands along the road re-construction project, and seeding after construction. The seeding mixture included wand panic grass (*Panicum virgatum*), American mannagrass (*Glyceria grandis*), Baltic rush (*Juncus balticus*), Nebraska sedge (*Carex nebrascensis*), and Nuttall's alkali grass. Woody species are regenerating naturally within the site, including eastern cottonwood (*Populus deltoides*) and fragile willow (*Salix fragilis*). The areas that were recently disturbed by dike repair in 2017 were re-seeded with an upland seed mix.

3.1.3 Soil

The Web Soil Survey for Rosebud County [US Department of Agriculture, 2011] indicates two soil complexes occurring within the project site. These soil complexes are identified as the Borollic Camborthids-Ustic Torrifluvents complex and Marvan soils. The Borollic Camborthids-Ustic Torrifluvents complex is 1 percent hydric and Marvan silty clay is 0 percent hydric [US Department of Agriculture, 2016]. The Marvan Series consist of very deep, well-drained, light (2.5Y 6/2) to dark (2.5Y 4/2) brownish gray clay mapped on alluvial fans, stream terraces, and drainage ways [US Department of Agriculture, 1999].

Soil test pits were excavated at two locations, both within what was originally mapped as the Marvan silty clay soil series (DP-1W and DP-1U; Figure A-3, Appendix A). DP-1W is located on the edge of the wetland depression. The soil profile revealed an olive-brown (2.5Y 4/3) loamy clay from 0 to 8 inches and from a depth of 8–16 inches a mix of very dark grayish brown (2.5Y 3/3) and very dark reddish brown (2.5Y 3/2). Soils in this area along the northeastern edge and adjacent to the road embankment were likely mixed during original wetland construction activities. Because of the dominant wetland vegetation and positive secondary hydrologic indicators, the soil was determined to be hydric. DP-1U is located on a hillside in upland community Type 6 – Pascopyrum smithiil Bromus tectorum. The soil profile revealed a dark grayish brown and olive-brown (2.5Y 4/2 and 4/3) loamy clay and did not meet the criteria for any hydric soil indicators.

3.1.4 Wetland Delineation

Two data points were used to determine the wetland and upland boundaries in 2017 (Figures A-3 and A-4, Appendix A). Vegetation, soil, and hydrology characteristics were documented on the Wetland Determination Data form (Appendix B). The total acreage of aquatic habitat at the West site in 2017 was 5.89 acres, which was a decrease of 0.12 acre since 2016. The decrease in wetland acreage is likely a result of both drought conditions in the region in 2017 and construction activities that occurred on the site in the spring of 2017. This acreage included approximately 1.29 acres of preexisting wetland and 4.60 acres of created wetland within the excavated areas that have developed wetland characteristics in response to the decreased ground surface elevation. Water levels in the created wetlands support an establishing, emergent plant community; although, open water accounts for a majority of the disturbed area. Hydrophytic plants include common spike-rush,

saltmarsh club-rush, Nuttall's alkali grass, freshwater cordgrass, and foxtail barley. The existing wetlands included the low-lying swales dominated by common spike-rush, broad-leaf cattail, and narrow-leaf cattail. A summary of wetland habitat acreage at the West site is provided in Table 3-4.

Table 3-4. Wetland Habitat Acreages Delineated at the West Site

Wetland and Upland Habitats	2013 (acres)	2014 (acres)	2015 (acres)	2016 (acres)	2017 (acres)
Existing Wetland	1.29	1.29	1.29	1.29	1.29
Created Wetland	4.15	4.56	4.72	4.72	4.6
Total	5.44	5.85	6.01	6.01	5.89

3.1.5 Wildlife

A list of wildlife species that were observed directly or indirectly during the field surveys from 2013 through 2017 is presented in Table 3-5 and the Wetland Mitigation Site Monitoring form (Appendix B). Wildlife observations were minimal in 2017 because of the extreme heat and low wildlife activity at the time of the monitoring event. No nesting structures have been installed at the site.

Table 3-5. Wildlife Species Observed at the West Site From 2013 Through 2017 (Page 1 of 2)

Common Name	Scientific Name		
	Bird		
American Avocet	Recurvirostra americana		
American Goldfinch	Spinus tristus		
Bald Eagle	Haliaeetus leucocephalus		
Bank Swallow	Riparia riparia		
Barn Swallow	Hirundo rustica		
Belted Kingfisher	Megaceryle alcyon		
Blue-winged Teal	Anas discors		
Brown Thrasher	Toxostoma rufum		
Cedar Waxwing	Bombycilla cedrorum		
Cliff Swallow	Petrochelidon pyrrhonota		
Common Nighthawk	Chordeiles minor		
Eastern Kingbird	Tyrannus tyrannus		
Golden Eagle	Aquila chrysaetos		
Grasshopper Sparrow	Ammodramus savannarum		
Great Blue Heron	Ardea herodias		
House Wren	Troglodytes aedon		
Killdeer	Charadrius vociferus		
Lark Bunting	Calamospiza melanocorys		
Mallard	Anas platyrhynchos		
Mourning Dove	Zenaida macroura		
Northern Harrier	Circus cyaneus		
Orchard Oriole	Icterus spurius		
Red-Winged Blackbird	Agelaius phoeniceus		
Rock Wren	Salpinctes obsoletus		

Table 3-5. Wildlife Species Observed at the West Site From 2013 Through 2017 (Page 2 of 2)

Common Name	Scientific Name				
	Bird				
Song Sparrow	Melospiza melodia				
Swainson's Hawk	Buteo swainsoni				
Turkey Vulture	Cathartes aura				
Western Kingbird	Tyrannus verticalis				
Western Meadowlark	Sturnella neglecta				
Western Sandpiper	Calidris mauri				
Wilson's Phalarope	Phalaropus tricolor				
Yellow Warbler	Dendroica petechia				
Fish					
Fish sp.					
	Mammal				
Coyote	Canis latrans				
Deer sp.	Odocoileus sp.				
Meadow Vole	Microtus pennsylvanicus				
Porcupine	Erethizon dorsatum				
Raccoon	Procyon lotor				
White-tailed Deer Odocoileus virginianus					
	Reptile				
Plains Garter Snake	Thamnophis radix				

Species that were identified in 2017 are bolded.

3.1.6 Functional Assessment

The results of the functional assessments from 2013 through 2017 are summarized in Table 3-6. The completed MWAM form for the West site is included in Appendix B. This site was evaluated as one AA (AA-1) that encompassed 5.89 acres in 2017. The AA was rated as a Category III wetland in 2017 with 64 percent of the total possible points. Ratings for general wildlife habitatand uniqueness decreased slightly from 2016 because of higher disturbance that resulted from dike repair at the site in 2017. The site received a high rating for Montana Natural Heritage Program (MTNHP) species habitat based on the presence of grand redstem (*Ammannia robusta*) within the site, which was observed in 2013 and 2014. The site also received high ratings for short- and long-term surface-water storage, production export/food chain support, and recreation/education potential. The site achieved 41.5 functional units in 2017, which is a slight decrease of 4.5 units since 2016. The new dike constructed before the 2017 survey will have a positive effect on wetland development in future years.

Table 3-6. Montana Wetland Assessment Method Summary for the West Site From 2013
Through 2017

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2013	2014	2015	2016	2017
Listed/Proposed Threatened and Endangered (T&E) Species Habitat	Low (0.0)				
MTNHP Species Habitat	High (0.9)				
General Wildlife Habitat	Mod (0.5)	Mod (0.7)	E (1)	E (1)	Mod (0.7)
General Fish/Aquatic Habitat	N/A	N/A	Mod (0.4)	Mod (0.4)	Low (0.3)
Flood Attenuation	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.6)
Short- and Long-Term Surface-Water Storage	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (0.9)
Sediment/Nutrient/Toxicant Removal	Mod (0.4)	Mod (0.4)	Mod (0.6)	Mod (0.6)	High (1.0)
Sediment/Shoreline Stabilization	Low (0.3)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.6)
Production Export/Food Chain Support	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.8)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	Mod (0.7)
Uniqueness	Mod (0.4)	Mod (0.5)	Mod (0.6)	Mod (0.6)	Mod (0.4)
Recreation/Education Potential (bonus points)	High (0.15)				
Actual Points/Possible Points	5.45/10	6.75/10	7.65/11	7.65/11	7.05/11
% of Possible Score Achieved	54.5%	67.5%	69.6%	69.6%	64.0%
Overall Category	III	III	II	II	III
Total Acreage of Assessed Wetlands Within Site Boundaries	5.44	5.85	6.01	6.01	5.89
Functional Units (acreage × actual points)	29.6	39.5	46.0	46.0	41.5

3.1.7 Photographic Documentation

Photographs from Photo-Points 1 through 5 (PP1–PP5) (Figure A-3, Appendix A), the transect start and end points, and wetland determination data points are shown Appendix C.

3.1.8 Maintenance Needs

Infestations of two Priority 2B noxious weeds (Canada thistle and leafy spurge) were mapped in several locations throughout the mitigation site (Figure A-4, Appendix A). Leafy spurge is the most prevalent noxious weed species within the mitigation site and occurs in low to moderate cover classes. MDT has an ongoing weed-control program that assesses and employs weed-control measures within their wetland mitigation sites on a yearly basis. In general, noxious weed cover has decreased because of yearly weed control by MDT.

The dike failure that occurred at the site during high flows in 2013 was repaired by MDT before the 2013 field survey and was intact when inspected in 2013. However, the structure appeared to be inadequately stabilized and susceptible to future failure. An examination of this structure in June 2014 indicated that the structure failed again during high spring flows, which eroded a channel down to the elevation of the original ephemeral thalweg. The dike was not repaired in 2015. MDT worked with the USACE to facilitate a permanent engineered repair for the dike. Because of this coordination, MDT received an NWP #3 permit from the USACE to conduct repairs in the fall/winter of 2016/2017. The dike was reconstructed in the late spring of 2017; photographs of the new

structure are included in Appendix C. Fencing around the perimeter of the monitoring areas was in good condition in 2017.

3.1.9 Current Credit Summary

Approximately 5.89 aquatic habitat acres that consisted of approximately 1.29 acres of preexisting wetland habitat and 4.60 acres of created wetlands were delineated in 2017. Approximately 7.82 acres of upland habitat was mapped on the site in 2017. Table 3-7 presents the calculated credit acres for individual mitigation types with appropriate credit ratios applied using the USACE crediting system. The West site's types and ratios included preservation (4:1), creation (1:1), and upland buffer (5:1). The accrued credit acres at the West site in 2017 totaled 6.48, which is slightly less than accrued acres in 2015 (6.58 acres).

Wetland	Ratio	2014 Delineated Acres	2014 Estimated Credit Acres	2015 Delineated Acres	2015 Estimated Credit Acres	2016 Delineated Acres	2016 Estimated Credit Acres	2017 Delineated Acres	2017 Estimated Credit Acres
Preserved Wetland	4:1	1.29	0.32	1.29	0.32	1.29	0.32	1.29	0.32
Created Wetland	1:1	4.56	4.56	4.72	4.72	4.72	4.72	4.60	4.60
Upland Buffer	5:1	7.86	1.57	7.70	1.54	7.70	1.54	7.82	1.56
Total		13.71	6.45	13.71	6.58	13.71	6.58	13.71	6.48

Table 3-7. Credit Summary for the West Site

No quantitative performance measures or success criteria have been established for this wetland mitigation area. Monitoring requirements that are listed within the approved wetland mitigation plan are being satisfied. In general, the areas that were delineated as wetlands met the criteria for hydrophytic vegetation, hydric soil, and wetland hydrology. Noxious weed cover in 2017 was less than 1 percent site wide.

3.2 MIDDLE SITE - SITE 2

3.2.1 Hydrology

The average total annual precipitation recorded at the Forsyth, Montana, weather station (243098) from 1975 to through 2016 was 14.6 inches [Western Regional Climate Center, 2017]. The precipitation between January and August of 2016 totaled 16.77 inches, which is well above the long-term average of 12.03 inches. In 2017, precipitation between January and August totaled only 7.59 inches which is the fifth driest year since 1975 and nearly 4.5 inches below the long-term average. In coordination with the Montana Governor's Drought and Water Supply Advisory Committee, the Montana State Library publishes monthly maps of moisture by county. The July 2017 map shows Rosebud County to be severely dry. Additionally, the governor of Montana issued Executive Order 5-2017 on June 23, 2017, declaring a drought emergency to exist in eastern Montana. Later, under Executive Order No. 6-2017, the governor declared a drought disaster in Rosebud County and 13 other counties in Eastern Montana [DNRC, 2017].

This site is situated near abandoned meander bends associated with Big Porcupine Creek that exhibit wetland characteristics. 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 exhibited signs of inundation that persisted for an extended period before the field survey. Positive hydrologic indicators that were observed at this site included surface soil cracks, and geomorphic position. The site was not inundated at the time of the 2017 field survey.

Two data points (DP-1W and DP-1U) were assessed to determine the upland and wetland boundaries (Wetland Determination Data forms, Appendix B). DP-1W is located in an area of the excavated depression that met the wetland criteria. Hydrologic indicators at the data point included surface soil cracks, and geomorphic position. DP-1U did not meet the wetland hydrology criteria.

3.2.2 Vegetation

A comprehensive list of the 57 species identified on site from 2013 through 2017 is presented in Table 3-8. Only one new species, fragile willow (Salix fragilis), was identified at this site in 2017. The indicator status for all of the plants was derived from the 2016 NWPL [Lichvar et al., 2016]. Upland community Type 1 – *Pascopyrum smithii/Helianthus annuus* and wetland community Type 2 – *Rumex crispus/Eleocharis palustris* were identified in 2013 and 2014 and transitioned into upland community Type 3 – *Pascopyrum smithii/Elymus canadensis* and wetland community Type 4 – *Puccinellia nuttalliana/Hordeum jubatum*, respectively, in 2015 and persisted in 2017. The vegetation community boundaries are shown on Figure A-6 (Appendix A). The species composition for each community is discussed below and included on the Middle site's Wetland Mitigation Site Monitoring form (Appendix B).

Upland Type 3 – *Pascopyrum smithii/Elymus canadensis* (western wheatgrass/nodding wild rye) is located in upland that surrounds the excavated depression, adjacent to Montana Highway 12, and within the monitoring boundary. This community replaced upland community Type 1 – *Pascopyrum smithii/Helianthus annuus* because of a shift in species composition and their associated cover classes. The community was dominated by western wheatgrass and eastern cottonwood (*Populus deltoids*) saplings, yellow sweet clover (*Melilotus officinalis*), Japanese brome (*Bromus arvensis*), and eastern cottonwood.

Wetland Type 4 – *Puccinellia nuttaliana/Hordeum jubatum* (Nutall's alkali grass/foxtail barley) was identified within the excavated depression. This community replaced wetland community Type 2 – *Rumex crispus/Eleocharis palustris* because of a shift in species composition and their associated cover classes. Common species included Nuttall's alkali grass, foxtail barley, common spike-rush (*Eleocharis palustris*), western wheatgrass, meadow false rye grass (*Schedonorus pratensis*), and curly dock (*Rumex crispus*). Several of these species are classified as upland and appear to be increasing in coverage likely because of drought conditions in the region.

Table 3-8. Vegetation Species Observed at the Middle Site From 2013 Through 2017 (Page 1 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
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	NL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus carinatus	California Brome	NL
Bromus arvensis	Japanese Brome	NL
Bromus tectorum	Cheatgrass	NL
Chenopodium album	Lamb's Quarters	FACU
Cirsium arvense	Canada Thistle	FACU
Convolvulus arvensis	Field Bindweed	NL
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 lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	NL
Glyceria grandis	American Mannagrass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum jubatum	Foxtail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	NL
Logfia arvensis	Field Cottonrose	NL
Melilotus officinalis	Yellow Sweet Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FAC
Panicum capillare	Common Panic Grass	FAC
Pascopyrum smithii	Western Wheatgrass	FACU
Poa compressa	Flat-Stem Bluegrass	FACU
Poa palustris	Fowl Bluegrass	FACW
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	NL
Rosa arkansana	Prairie Rose	FACU
Rumex acetosella	Common Sheep Sorrel	FAC

Table 3-8. Vegetation Species Observed at the Middle Site From 2013 Through 2017 (Page 2 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Rumex crispus	Curly Dock	FAC
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
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	NL
Symphoricarpos albus	Common Snowberry	UPL
Tamarix chinensis	Salt-cedar	NL
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	NL
Typha latifolia	Broad-Leaf Cattail	OBL
Xanthium strumarium	Rough Cockleburr	FAC

⁽a) 2016 NWPL [Lichvar et al., 2016]New species identified in 2017 are **bolded**.

One vegetation transect, T-1, was established at the site that runs perpendicular to the linear excavated wetland (Figure A-6, Appendix A). Thirty-eight percent of the transect was located in wetland habitat. Approximately 17 percent of the transect is unvegetated bare ground. In 4 years, the site has increased in total vegetation cover. However, Table 3-9 indicates that the length of hydrophytic communities has decreased, which is likely a function of a decrease in shallow inundation width since 2014. Vegetation transect results are detailed on the Middle site's Wetland Mitigation Site Monitoring form in Appendix B and are summarized in Table 3-9 and Charts 3-5 and 3-6. Photographs of the transect start and end points are provided in Appendix C.

Table 3-9. T-1 Data Summary for the Middle Site From 2013 Through 2017

Monitoring Year	2013	2014	2015	2016	2017
Transect Length (feet)	50	50	50	50	50
Vegetation Community Transitions Along Transect	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1
Total Vegetative Species	16	20	21	11	17
Total Hydrophytic Species	6	8	7	3	4
Total Upland Species	10	12	14	8	13
Estimated % Total Vegetative Cover	40	50	90	85	83
Estimated % Unvegetated	60	50	10	15	17
% Transect Length Comprising Hydrophytic Vegetation Communities	52	52	30	30	38
% Transect Length Comprising Upland Vegetation Communities	48	48	70	70	62
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

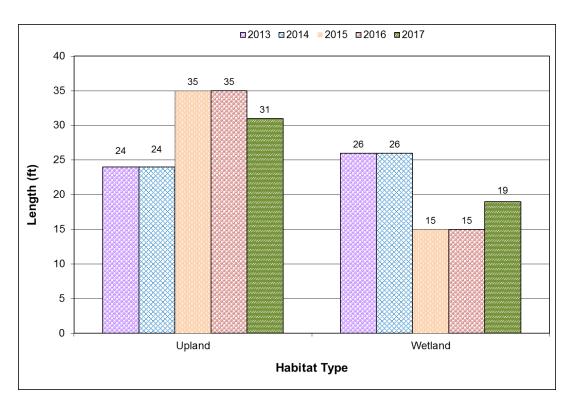


Chart 3-5. T-1 Map for the Middle Site Showing Vegetation Types From Transect Start (0 Foot) to Finish (50 Feet) From 2013 Through 2017.

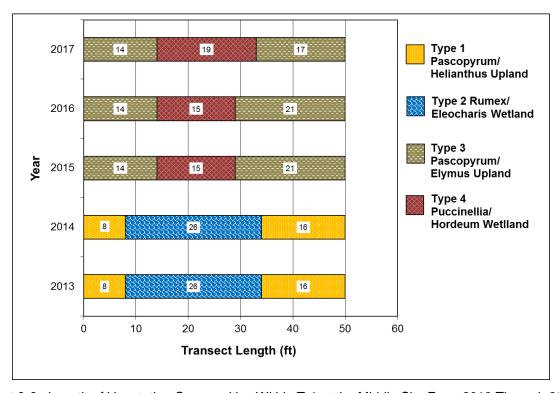


Chart 3-6. Length of Vegetation Communities Within T-1 at the Middle Site From 2013 Through 2017.

Infestations of four Priority 2B noxious weeds were identified at the site: field bindweed, salt-cedar, leafy spurge, and Canada thistle (Figure A-6, Appendix A). No woody vegetation was installed within the site. Revegetation efforts at the site included seeding a mixture of wand panic grass, American mannagrass, Baltic rush, Nebraska sedge, and Nuttall's alkali grass after construction disturbance. Cottonwood seedlings have been observed along the margin of the wetland at the apparent edge of early-season inundation every year since 2013.

3.2.3 Soil

The Web Soil Survey for Rosebud County [US Department of Agriculture, 2011] indicates only one mapped soil for the project area, Harlem silty clay (0–2 percent slopes). These very deep, well-drained soils are seen on floodplains and are occasionally flooded.

Soil test pits were examined at two locations, both within what was originally mapped as the Harlem silty clay soil series (DP-1W and DP-1U; Figure A-5, Appendix A). DP-1W is located in an excavated depression near the center of the site, in an area that met the hydric soil criteria. The soil profile revealed a dark olive-brown (2.5Y 3/3) loamy clay. Given the dominant hydrophytic community and positive hydrology at the data point, the soils were determined to be hydric. DP-1U is located in upland community Type 3 – *Pascopyrum smithii/Elymus canadensis*, approximately 10 feet northeast of DP-1W. The soil profile revealed a dark olive-brown (2.5Y 4/3) loamy clay and did not meet the criteria for any hydric soil indicators.

3.2.4 Wetland Delineation

Two data points were used to determine the upland and wetland boundaries in 2017 (Figures A-5 and A-6, Appendix A). Vegetation, soil, and hydrology characteristics were documented on the Wetland Determination Data forms (Appendix B). The total acreage of aquatic habitat at the Middle site in 2017 was 0.58 acre within the 1.8-acre project area, as shown in Table 3-10. The floor of the excavated depression was identified as wetland based on the presence of positive wetland hydrology indicators, hydric soil, and the predominance of hydrophytic species. The wetland boundary may extend slightly up the side slopes of the excavated basin in subsequent growing seasons if hydrology increases over time based on the hydrological indicators (seasonal inundation) that were observed during the field surveys in previous years.

Table 3-10. Wetland and Upland Habitat Acreages Delineated at the Middle Site From 2013 Through 2017

Wetland and Upland Habitats	2013 (acres)	2014 (acres)	2015 (acres)	2016 (acres)	2017 (acres)
Project Area	1.80	1.80	1.80	1.80	1.80
Created Wetland	0.49	0.49	0.49	0.49	0.58
Upland Buffer	1.31	1.31	1.31	1.31	1.22

3.2.5 Wildlife

A list of wildlife species observed directly and indirectly during the field surveys from 2013 through 2017 is shown in Table 3-11 and in the Wetland Mitigation Site Monitoring form

(Appendix B). Because of high temperatures and mid-afternoon conditions, no wildlife were observed within the mitigation site in 2017.

Table 3-11. Wildlife Species Observed at the Middle Site From 2013 Through 2017

Common Name	Scientific Name				
Amph	ibians				
Frog sp.					
Birds					
American Goldfinch	Spinus tristus				
Common Nighthawk	Chordeiles minor				
Eastern Bluebird	Sialia sialis				
Eastern Kingbird	Tyrannus tyrannus				
Killdeer	Charadrius vociferus				
Mourning Dove	Zenaida macroura				
Turkey Vulture	Cathartes aura				
Western Kingbird	Tyrannus verticalis				
Western Meadowlark	Sturnella neglecta				
Man	nmals				
Coyote	Canis latrans				
Deer sp.	Odocoileus sp.				
Raccoon	Procyon lotor				
Rep	otiles				
Plains Garter Snake Thamnophis radix					

3.2.6 Functional Assessment

The results of the functional assessments from 2013 through 2017 are summarized in Table 3-12. The Middle site's MWAM form is provided in Appendix B. The Middle site was evaluated as one AA and encompassed 0.58 acre. The prominent factor that adversely impacted the overall score and functional units at the site in 2013 was the general condition of the AA: a high percentage of bare ground, low vegetation cover, and low quality of wildlife habitat. The disturbance rating went from high in 2013 to moderate in 2014 based on the increased vegetation cover in disturbed areas. The Montana-listed S2 species of concern, grand redstem (Ammannia robusta), was documented growing within the constructed wetland in 2013 and provided a high MTNHP rating. The flood attenuation rating was modified based on the lack of connection to Big Porcupine Creek. The sediment/shoreline stabilization increased in 2015 to reflect the increase in percent cover of wetland species with stability ratings greater than or equal to 6. Ratings for general wildlife habitat, sediment/ nutrient/toxicant removal, and uniqueness increased from 2013 to 2016 because of less disturbance and higher wetland vegetation cover; no change was observed from 2016 to 2017. This site achieved 42.2 percent of the possible score and a total of 2.0 functional units in 2017, which is an increase of 0.1 unit since 2016 because of the increase in wetland acreage. Continual development of the vegetation cover will result in increased functional units, although the small size of the AA will limit the total score.

Table 3-12. Montana Wetland Assessment Method Summary for the Middle Site From 2013
Through 2017

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2013	2014	2015	2016	2017
Listed/Proposed T&E Species Habitat	Low (0.0)				
MTNHP Species Habitat	High (0.9)				
General Wildlife Habitat	Low (0.2)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	N/A
Flood Attenuation	High (1.0)	N/A	N/A	N/A	N/A
Short- and Long-Term Surface-Water Storage	Mod (0.6)				
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.7)	High (0.8)	High (0.8)	High (0.8)
Sediment/Shoreline Stabilization	Low (0.2)	Low (0.2)	Mod (0.6)	Mod (0.6)	Mod (0.6)
Production Export/Food Chain Support	Low (0.2)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
Groundwater Discharge/Recharge	N/A	/N/A	N/A	N/A	N/A
Uniqueness	Low (0.1)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)
Recreation/Education Potential (bonus points)	N/A	N/A	N/A	N/A	N/A
Actual Points/Possible Points	3.9/9	3.3/9	3.8/9	3.8/9	3.8/9
% of Possible Score Achieved	43.3%	36.7%	42.2%	42.2%	42.2%
Overall Category	III	III	III	III	III
Total Acreage of Assessed Wetlands Within Site Boundaries	0.49	0.49	0.49	0.49	0.58
Functional Units (acreage × actual points)	1.9	1.6	1.9	1.9	2.0

3.2.7 Photographic Documentation

Photographs from Photo-Points 1 and 2 (PP1 and PP2) (Figure A-5, Appendix A), the transect start and end points, and wetland determination data points are provided in Appendix C.

3.2.8 Maintenance Needs

Four minor infestations of Canada thistle, which is a Priority 2B noxious weed, were identified at this site in 2017 (Figure A-6, Appendix A) and should be controlled to prevent further spread and colonization. All infestations have a low cover class (1–5 percent). Fencing along the mitigation area was in good condition. No man-made water-control structures or bird boxes have been installed at this site.

3.2.9 Current Credit Summary

Table 3-13 shows the total delineated acres and credit acres estimated for the Middle site from 2014 through 2017. The 2017 wetland delineation was 0.58 acre, an increase of 0.09 acre since 2016. Upland buffer decreased to 1.22 acre. The site accrued 0.82 estimated credit acre in 2017. No performance standards were identified for this site. One noxious weed was identified within the mitigation site boundaries but exhibited very low percent areal cover (1–5 percent). The percent cover of native hydrophytes was low. The cover of wetland vegetation will increase if favorable hydrologic conditions persist.

2014 2015 2016 2017 2014 2015 2017 2016 Habitat Mitigation **Estimated Estimated Estimated Estimated Delineated Delineated Delineated Delineated** Ratio Credit Credit Type Credit Credit Acres **Acres** Acres Acres Acres Acres Acres Acres Created 0.49 0.49 0.49 0.49 0.49 0.58 0.58 1:1 0.49 Wetland Upland 5:1 1.31 0.26 1.31 0.26 1.31 0.26 1.22 0.24 Buffer Total 1.80 0.75 1.80 0.75 1.80 0.75 1.8 0.82

Table 3-13. Credit Summary for the Middle Site

3.3 EAST SITE - SITE 3

3.3.1 Hydrology

The average total annual precipitation recorded at the Forsyth, Montana, weather station (243098) from 1975 to through 2016 was 14.6 inches [Western Regional Climate Center, 2017]. The precipitation between January and August of 2016 totaled 16.77 inches, which is well above the long-term average of 12.03 inches. In 2017, precipitation between January and August totaled only 7.59 inches which is the fifth driest year since 1975 and nearly 4.5 inches below the long-term average. In coordination with the Montana Governor's Drought and Water Supply Advisory Committee, the Montana State Library publishes monthly maps of moisture by county. The July 2017 map shows Rosebud County to be Severely Dry. Additionally, the governor of Montana issued Executive Order 5-2017 on June 23, 2017, declaring a drought emergency to exist in eastern Montana. Later, under Executive Order No. 6-2017, the governor declared a drought disaster in Rosebud County and 13 other counties in Eastern Montana [DNRC, 2017].

The East site is very similar to the Middle site. The main sources of hydrology at the East site are shallow groundwater, direct precipitation, and surface runoff from adjacent uplands. Old meander scars of Big Porcupine Creek with relic and contemporary wetland characteristics are located directly adjacent to the site. Positive hydrologic indicators that were observed at this site included surface soil cracks and geomorphic position

Three data points (DP-1W, DP-1U, and DP-2U) were assessed to determine the upland and wetland boundaries (Wetland Determination Data forms, Appendix B). DP-1W is located in the northwest end of the site in an area that met the wetland criteria. Positive indicators of wetland hydrology at this data point included a FAC test, soil cracks, and geomorphic position. No signs of wetland hydrology were observed at DP-1U, which is located upslope of the wetland boundary. Only the secondary indicator geomorphic position was observed at DP-2U, which is located in the central area of excavated wetland depression. In general, the central area appears to be higher than the northwestern and southeastern ends of the excavated depression. Therefore, the central reach of the depression may have insufficient primary hydrologic indicators to support the development of a dominant hydrophytic vegetation community.

3.3.2 Vegetation

A comprehensive list of 58 species compiled during the field surveys from 2013 through 2017 is presented in Table 3-14. Three new plant species were observed in 2017, including two wetland species (fragile willow [Salix fragilis] and alkali muhly [Muhlenbergia asperifolia]), and one upland

species (flatstem bluegrass [*Poa compressa*]). The indicator status for all of the plants was derived from the 2016 NWPL [Lichvar et al., 2016]. Two community types were identified and mapped at this site in 2017 (Figure A-8, Appendix A) and included upland Type 3 – *Pascopyrum smithii/Elymus* spp. and wetland Type 4 – *Hordeum jubatum/Eleocharis palustris*. The species composition for each community is included on the East site's Wetland Mitigation Site Monitoring form (Appendix B) and discussed in this section.

Table 3-14. Vegetation Species Observed at the East Site From 2013 Through 2017 (Page 1 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Agropyron cristatum	Crested Wheatgrass	NL
Algae, green	Algae, green	NL
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	NL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus carinatus	California Brome	NL
Bromus inermis	Smooth Brome	UPL
Bromus arvensis	Japanese Brome	NL
Bromus tectorum	Cheatgrass	NL
Chenopodium album	Lamb's Quarters	FACU
Convolvulus arvensis	Field Bindweed	NL
Descurainia sophia	Herb Sophia	NL
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Elymus sp.	Wild Rye	NL
Filago arvensis	Field Fluffweed	NL
Glyceria elata	Tall Mannagrass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hesperostipa comata	Needle-and-Thread	NL
Hordeum jubatum	Foxtail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	NL
Medicago sativa	Alfalfa	UPL

Table 3-14. Vegetation Species Observed at the East Site From 2013 Through 2017 (Page 2 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Melilotus officinalis	Yellow Sweet Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FACW
Pascopyrum smithii	Western Wheatgrass	FACU
Poa compressa	Flat-stem Bluegrass	FACU
Poa pratensis	Kentucky Bluegrass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	NL
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum rostratum	Buffalo Bur	NL
Tamarix chinensis	Salt-Cedar	NL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-Beard	NL
Typha angustifolia	Narrow-Leaf Cattail	OBL
Typha latifolia	Broad-Leaf Cattail	OBL
Veronica sp.	Speedwell	NL

⁽a) 2016 NWPL [Lichvar et al., 2016].New species that were identified in 2017 are **bolded.**

Upland community Type 3 represented the upland areas that surround the excavated wetland, as well as a newly observed upland area in the center of the excavated depression. Dominant species included western wheatgrass, nodding wild rye (*Elymus canadensis*), and slender wild rye.

Wetland Type 4 – *Hordeum jubatum/Eleocharis palustris* is located within the excavated depression in the eastern and western portions of the site. The community was dominated by foxtail barley, common spike-rush, and western wheatgrass. Other species observed included saltmarsh club-rush, field meadow-foxtail, and Kentucky bluegrass (*Poa pratensis*). Seedlings of various willows (*Salix exigua* and *S. fragilis*) and cottonwood persisted in this community in 2017.

Vegetation cover was measured along two transects: one on each end of the East site (Figure A-7, Appendix A). Data recorded for T-1 are summarized in Table 3-15 and Charts 3-7 and 3-8. The East site's Wetland Mitigation Site Monitoring form (Appendix B) also displays this site's data.

Photographs of the transect start and end points are provided in Appendix C. T-1 is located at the northwestern end of the site and extends 125 feet. This transect begins at the fenced boundary in upland community Type 3 – *Pascopyrum smithii/Elymus* spp., crosses wetland community Type 2 – *Horeum jubatum/Eleocharis palustris*, and terminates in upland community Type 3. Upland habitat along the edge of the constructed wetland has transitioned to a climax community. Wetland habitat along this transect is not expected to increase considerably because of the distinct topographic break that defines the wetland boundary.

Table 3-15. T-1 Data Summary for the East Site From 2013 Through 2017

Monitoring Year	2013	2014	2015	2016	2017
Transect Length (feet)	125	125	125	125	125
Vegetation Community Transitions Along Transect	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1
Total Vegetative Species	16	24	26	22	17
Total Hydrophytic Species	5	7	8	9	7
Total Upland Species	11	17	18	11	10
Estimated % Total Vegetative Cover	40	40	90	90	95
Estimated % Unvegetated	60	60	10	10	5
% Transect Length Comprising Hydrophytic Vegetation Communities	51.2	52	50	50	50
% Transect Length Comprising Upland Vegetation Communities	48.8	48	50	50	50
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

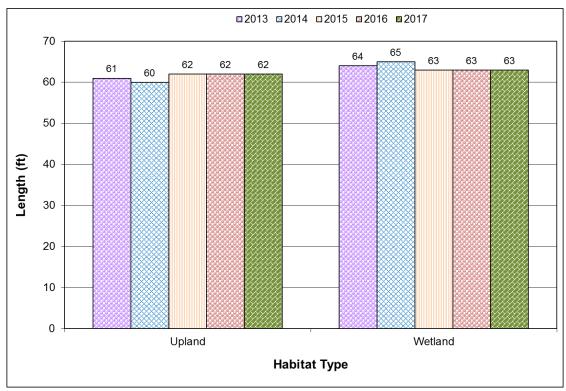


Chart 3-7. T-1 Map for the East Site Showing Vegetation Types From Transect Start (0 Foot) to Finish (125 Feet) From 2013 Through 2017.

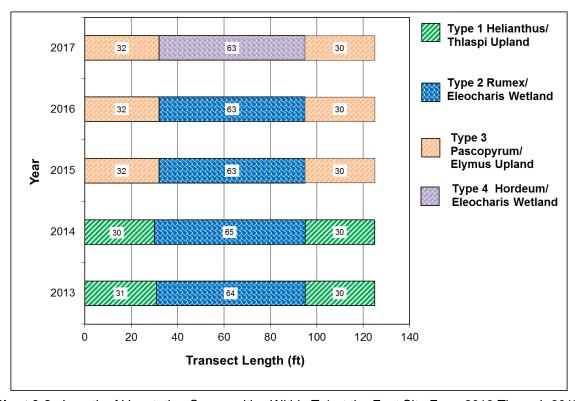


Chart 3-8. Length of Vegetation Communities Within T-1 at the East Site From 2013 Through 2017.

T-2 is very similar to T-1 and is located at the southeastern end of the site. This transect begins at the fenced boundary in upland community Type 3 – *Pascopyrum smithii/Elymus* spp., crosses wetland community Type 4 – *Horeum jubatum/Eleocharis palustris*, and terminates in upland community Type 3. T-2 data are summarized in Table 3-16 and Charts 3-9 and 3-10.

Table 3-16. T-2 Data Summary for the East Site From 2013 Through 2017

Monitoring Year	2013	2014	2015	2016	2017
Transect Length (feet)	181	181	181	181	181
Vegetation Community Transitions Along Transect	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1
Total Vegetative Species	12	24	26	26	11
Total Hydrophytic Species	5	9	8	6	4
Total Upland Species	7	15	18	20	7
Estimated % Total Vegetative Cover	40	55	90	94	98
Estimated % Unvegetated	60	45	10	6	2
% Transect Length Comprising Hydrophytic Vegetation Communities	63	63	44	44	55
% Transect Length Comprising Upland Vegetation Communities	37	37	56	56	45
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

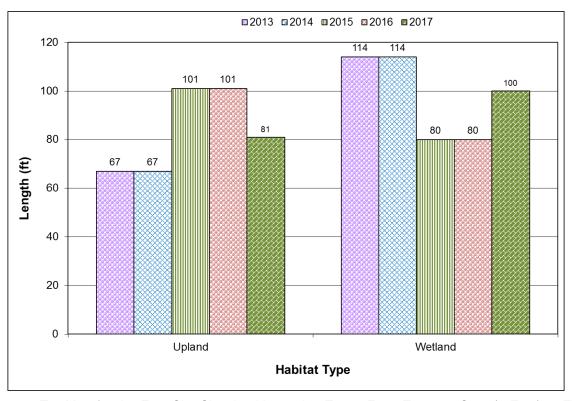


Chart 3-9. T-2 Map for the East Site Showing Vegetation Types From Transect Start (0 Foot) to Finish (181 Feet) From 2013 Through 2017.

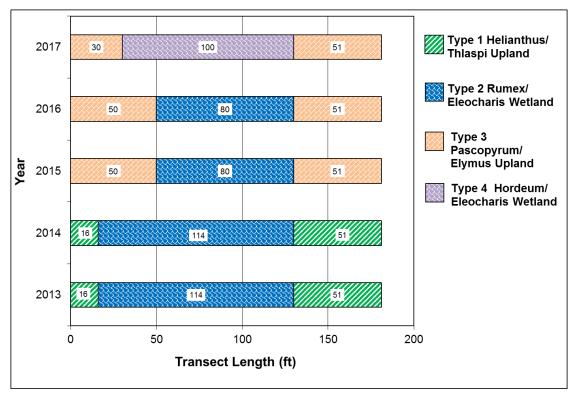


Chart 3-10. Length of Vegetation Communities Within T-2 at the East Site From 2013 Through 2017.

Infestations of one Priority 2B noxious weed (salt-cedar) were mapped in two locations, as shown on Figure A-8 (Appendix A). No woody plants were installed at the East site. Mature cottonwoods and willows in the area appear to be providing natural regeneration of cottonwoods and willows; seedlings of both genera were documented within the wetland community.

3.3.3 Soil

The Web Soil Survey for Rosebud County [US Department of Agriculture, 2011] indicates only one mapped soil for the project area: Harlem silty clay (0– 2 percent slopes). These very deep, well-drained soils are seen on floodplains and are occasionally flooded. This map unit series is identified on the *Montana Hydric Soil List* [NRCS, 2014].

Soil test pits were examined at three locations, all within what was originally mapped as the Harlem silty clay soil series (DP-1W, DP-1U, and DP-2U; Figure A-7, Appendix A). DP-1W is located in the western edge of the wetland depression within an area that met the wetland criteria. The soil profile revealed a dark grayish brown (2.5 Y 3/2), silty clay with very dark grayish brown (2.5 Y 4/4), redoximorphic concentrations along pore linings. The soil met the criteria for redox dark surface (F6) and classification as a hydric soil. DP-1U is located approximately 10 feet northwest of DP-1W on the side slope of the excavated basin in the adjacent uplands. The soil profile revealed a dark olivebrown (2.5Y 3/3), silty clay and did not meet the criteria for any hydric soil indicators. DP-2U is located in the central reach of the excavated depression. The soil profile revealed a very dark grayish brown (2.5Y 3/2) silty clay and did not meet the criteria for any hydric soil indicators.

3.3.4 Wetland Delineation

Three data points were evaluated in 2016 to determine the wetland and upland boundaries at the site (Figures A-7 and A-8, Appendix A). Vegetation, soil, and hydrology characteristics were documented on the Wetland Determination Data forms (Appendix B). The total acreage of aquatic habitat at the East site in 2017 was 0.43 acre, which indicates that this area has remained stable since 2016, as shown in Table 3-17. Ground surface elevation may be contributing to the development of an upland community within the central area of the excavation, which appears to be slightly higher than the surrounding ground.

Table 3-17. Wetland/Upland Habitat Acreages Delineated at the East Site From 2013 Through 2017

Wetland and Upland Habitats	2013 (acres)	2014 (acres)	2015 (acres)	2016 (acres)	2017 (acres)
Project Area	2.74	2.74	2.74	2.74	2.74
Created Wetland	1.19	1.19	0.46	0.43	0.43
Upland Buffer	1.55	1.55	2.28	2.31	2.31

3.3.5 Wildlife

A list of wildlife species observed directly and indirectly at the site during the field survey from 2013 through 2017 is presented in Table 3-18 and the Wetland Mitigation Site Monitoring form (Appendix B). No new species were observed at the site because of the mid-afternoon survey time and high mid-summer temperatures.

Table 3-18. Wildlife Species Observed at the East Site From 2013 Through 2017 (Page 1 of 2)

Common Name	Scientific Name				
Amphibian					
Northern Leopard Frog	Rana pipiens				
В	ird				
American Goldfinch	Spinus tristus				
American Robin	Turdus migratorius				
Bald Eagle	Haliaeetus leucocephalus				
Bank Swallow	Riparia				
Barn Swallow	Hirundo rustica				
Cliff Swallow	Petrochelidon pyrrhonota				
Common Grackle	Quiscalus quiscula				
Common Nighthawk	Chordeiles minor				
Eastern Kingbird	Tyrannus tyrannus				
Field Sparrow	Spizella pusilla				
Killdeer	Charadrius vociferus				
Lark Sparrow	Chondestes grammacus				
Mourning Dove	Zenaida macroura				

Table 3-18. Wildlife Species Observed at the East Site From 2013 Through 2017 (Page 2 of 2)

Common Name	Scientific Name					
Bird						
Red-Winged Blackbird	Agelaius phoeniceus					
Turkey Vulture	Cathartes aura					
Vesper Sparrow	Pooecetes gramineus					
Western Kingbird	Tyrannus verticalis					
Western Meadowlark	Sturnella neglecta					
Western Sandpiper	Calidris mauri					
Ма	nmmal					
Coyote	Canis latrans					
Deer sp.	Odocoileus sp.					
Raccoon	Procyon lotor					
Re	eptile					
Western Hog-nosed Snake	Heterodon nasicus					

Species that were identified in 2017 are bolded.

3.3.6 Functional Assessment

The results of the functional assessments from 2013 through 2017 are summarized in Table 3-19. The completed East site's MWAM form is included in Appendix B. The total aquatic habitat developed to date within the 2.74-acre project area is 0.43 acre. The site was evaluated as one AA and rated as a Category III wetland with 48.9 percent of the total possible points. The Montana-listed S2 species of concern (grand redstem and western hog-nosed snake) were documented in 2013 and 2015, respectively, and provided a high MTNHP species habitat rating. The disturbance rating improved from high in 2013 to moderate from 2014 through 2017. Sediment/shoreline stabilization improved from a low to moderate rating from 2015 to 2016 because of an increase in percent cover of wetland species with stability ratings greater than or equal to 6. Short- and long-term surface-water storage was given a low rating in 2015 because of the decrease in water contained in the AA's wetlands that are subject to periodic flooding/ponding. The site achieved 1.89 functional units, which was a decrease of 3.2 units since 2014. The decrease in functional units was primarily related to the wetland acreage contraction, which is influenced by the well-below-average precipitation received at the site during 2015 and low precipitation in 2017 through the summer growing season, as well as higher elevation within the central zone of the excavated area.

Table 3-19. Montana Wetland Assessment Method Summary for the East Site From 2013
Through 2017

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2013	2014	2015	2016	2017
Listed/Proposed T&E Species Habitat	Low (0.0)				
MTNHP Species Habitat	High (0.9)				
General Wildlife Habitat	Low (0.2)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	N/A
Flood Attenuation	N/A	N/A	N/A	N/A	N/A
Short- and Long-Term Surface-Water Storage	Mod (0.6)	Mod (0.6)	Low (0.3)	Low (0.3)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	Low (0.2)	Low (0.2)	Mod (0.6)	Mod (0.6)	Mod (0.6)
Production Export/Food Chain Support	Low (0.2)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
Groundwater Discharge/Recharge	Mod (0.7)				
Uniqueness	Low (0.1)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)
Recreation/Education Potential (bonus points)	N/A	N/A	N/A	N/A	N/A
Actual Points/Possible Points	3.6/9	4.3/9	4.4/9	4.4/9	4.4/9
% of Possible Score Achieved	40.0%	47.8%	48.9%	48.9%	48.9%
Overall Category	III	III	III	III	III
Total Acreage of Assessed Wetlands Within Site Boundaries	1.19	1.19	0.46	0.43	0.43
Functional Units (acreage × actual points)	4.3	5.1	2.0	1.9	1.9

3.3.7 Photographic Documentation

Photographs of Photo-Points 1 through 3 (PP1–PP3), the transect start and end points, and the wetland determination data points (Figure A-7, Appendix A) are provided in Appendix C.

3.3.8 Maintenance Needs

Infestations of noxious weeds have decreased dramatically since 2016. Only two small areas of salt-cedar with low cover classes occur within the site (Figure A-8, Appendix A). Yearly control measures will continue to eliminate noxious weed infestations. The fence along the eastern side of the site was in good working order. No man-made water-control structures have been installed at the East site. A survey may be required to determine if the central area of the excavated area is higher than the northwestern and southeastern ends.

3.3.9 Current Credit Summary

The wetland acreage delineated in 2017 totaled 0.43 acre, which was a decrease of 0.76 acre since 2014. This decrease was likely driven by the below-average precipitation received at the site in 2015 and 2017 and, perhaps, slightly higher elevation in the central area of the excavation. Upland buffer accounted for 2.31 acres within the East site monitoring boundary. Applying standard wetland compensatory mitigation ratios [USACE, 2005], the site attained an estimated 0.89 credit acre, which is a decrease of 0.61 credit acre since 2014, as shown in Table 3-20. No performance standards have been established for this site.

2014 2016 2017 2014 2015 2015 2016 2017 Habitat Mitigation **Estimated Estimated Estimated** Delineated Delineated Delineated **Delineated** Credit Ratio Credit Credit Credit Type Acres Acres Acres Acres **Acres Acres** Acres Acres Created 0.46 0.43 0.43 0.43 0.43 1:1 1.19 1.19 0.46 Wetland Upland 2.28 0.46 5:1 1.55 0.31 0.46 2.31 2.31 0.46 Buffer **Total** 2.74 1.50 2.74 0.92 2.74 0.89 2.74 0.89

Table 3-20. Credit Summary for the East Site

3.4 TREASURE COUNTY LINE SITE - SITE 4

3.4.1 Hydrology

The average total annual precipitation recorded at the Forsyth, Montana, weather station (243098) from 1975 to through 2016 was 14.6 inches [Western Regional Climate Center, 2017]. The precipitation between January and August of 2016 totaled 16.77 inches, which is well above the long-term average of 12.03 inches. In 2017, precipitation between January and August totaled only 7.59 inches which is the fifth driest year since 1975 and nearly 4.5 inches below the long-term average. In coordination with the Montana Governor's Drought and Water Supply Advisory Committee, the Montana State Library publishes monthly maps of moisture by county. The July 2017 map shows Rosebud County to be Severely Dry. Additionally, the governor of Montana issued Executive Order 5-2017 on June 23, 2017, declaring a drought emergency to exist in eastern Montana. Later, under Executive Order No. 6-2017, the governor declared a drought disaster in Rosebud County and 13 other counties in Eastern Montana [DNRC, 2017].

The Treasure County Line site was constructed in 1999 adjacent to an existing wetland along Reservation Creek. The main source of wetland hydrology is a perennial, high groundwater table. Occasional overbank flooding, direct precipitation, and surface-water runoff provide additional hydrologic contributions. Obligate wetland vegetation communities were well developed within the wetland in 2017, which indicates more-than-adequate hydrology during the growing season. Hydrologic indicators recorded at this site include surface water, saturation, hydrogen sulfide odor, salt crust, saturation visible on aerial imagery, and geomorphic position.

Two data points (DP-1W and DP-1U) were assessed to determine the upland and wetland boundaries (Wetland Determination Data forms, Appendix B). DP-1W is located in a wetland expansion area along the western boundary. Positive wetland hydrology indicators recorded at this data point included saturation to the soil surface, hydrogen sulfide odor, salt crust, geomorphic position, and saturation visible on aerial imagery. No primary or secondary indicators of wetland hydrology were observed at DP-1U, which is located on the slope above the wetland edge.

3.4.2 Vegetation

A comprehensive list of 55 species that were identified during the 2013 through 2017 surveys is presented in Table 3-21. Five new species were identified at the site in 2017. The indicator status for

Table 3-21. Vegetation Species Observed at the Treasure County Line Site From 2013 Through 2017 (Page 1 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Agropyron cristatum	Crested Wheatgrass	NL
Algae, green	Algae, green	NL
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Artemisia cana	Coaltown Sagebrush	FACU
Artemesia frigida	Fringed Sage	NL
Artemisia tridentata	Big Sagebrush	NL
Asclepias speciosa	Showy Milkweed	FAC
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	FACU
Bromus ciliatus	Fringed Brome	FAC
Bromus tectorum	Cheatgrass	NL
Carduus nutans	Nodding Plumeless-Thistle	FACU
Carex sp.	Sedge	NL
Chenopodium album	Lamb's Quarters	FACU
Cirsium arvense	Canada Thistle	FACU
Cirsium vulgare	Bull Thistle	UPL
Distichlis spicata	Coastal Saltgrass	FACW
Elaeagnus angustifolia	Russian Olive	FACU
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus junceus	Russian Wild Rye	NL
Elymus repens	Creeping Wild Rye	FACU
Filago arvensis	Field Fluffweed	NL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum jubatum	Foxtail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Lycopus asper	Rough Water-Horehound	OBL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet Clover	FACU
Mentha arvensis	American Field Mint	FACW
Muhlenbergia asperifolia	Alkali Muhly	FACW
Opuntia polyacantha	Plains Pricklypear	NL
Panicum capillare	Common Panic Grass	FAC
Pascopyrum smithii	Western Wheatgrass	FACU
Plantago patagonica	Woolly Plantain	NL
Poa bulbosa	Bulbous Bluegrass	FACU
Poa pratensis	Kentucky Bluegrass	FACU
Polygonum majus	Wiry Knotweed	NL
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL

Table 3-21. Vegetation Species Observed at the Treasure County Line Site From 2013 Through 2017 (Page 2 of 2)

Scientific Names	Common Names	GP Indicator Status ^(a)
Rumex crispus	Curly Dock	FAC
Salicornia rubra	Red Saltwort	OBL
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Schoenoplectus pungens	Three-Square	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sisyrinchium (septentrionale ^b)	Blue-Eyed-Grass sp.	FAC
Sonchus arvensis	Field Sow-Thistle	FAC
Sporobolus airoides	Alkali-Sacaton	FAC
Symphoricarpos albus	Common Snowberry	UPL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	NL
Typha latifolia	Broad-Leaf Cattail	OBL

a) 2016 NWPL [Lichvar et al., 2016].
 New species that were identified in 2017 are bolded.

all of the plants was derived from the 2016 NWPL [Lichvar et al., 2016]. Two upland communities and two wetland vegetation communities were identified and mapped at the Treasure County Line site (Figure A-10, Appendix A). These communities included upland Type 5 – *Pascopyrum smithii/Bromus arvensis*, Type 6 – *Artemisia cana/Pascopyrum smithii*, wetland Type 3 – *Schoenoplectus* spp., and wetland Type 7 – *Distichlis spicata/Puccinellia nuttalliana*. The species composition for each community is included on the Treasure County Line site's Wetland Mitigation Site Monitoring form (Appendix B) and discussed in this section.

Upland community Type 5 – *Pascopyrum smithii/Bromus arvensis* (western wheatgrass/Japanese brome) was identified in upland areas that were not dominated by Coaltown sagebrush and on the two upland islands that remained intact during construction. This community replaced upland community Type 2 – *Elymus canadensis/Bromus tectorum* because of changes in species composition and their associated cover classes. Dominant species included Japanese brome, western wheatgrass, Russian wild rye (*Elymus junceus*), and lamb's quarters (*Chenopodium album*).

Upland community Type 6 – *Artemisia cana/Pascopyrum smithii* (Coaltown sagebrush/western wheatgrass) was mapped within the upland perimeter of the monitoring area and replaced Type 4 – *Artemesia cana/Bromus arvensis* in 2017. Coaltown sagebrush (*Artemisia cana*), Japanese brome, clasping pepperwort (*Lepidium perfoliatum*), and western wheatgrass are the dominant species.

Wetland community Type 3 – *Schoenoplectus* spp. (rush) was mapped within the excavated wetland cell as well as a newly observed wetland area near the northeastern project boundary. The

⁽b) Only one of these potential species of concern was observed in the wetland area; our team will search for it in 2018 and identify if possible.

community was dominated by three-square club-rush (*Schoenoplectus pungens*), with lesser amounts of saltmarsh club-rush, foxtail barley (*hordeum jubatum*), broad-leaf cattail (*Typha latifolia*), coastal saltgrass (*Distichlis spicata*), and Nuttall's alkali grass. Approximately 90 percent of this community was saturated or inundated from 1 to 4 inches.

Wetland community Type 7 – *Distichlis spicata/Puccinellia nuttalliana* (coastal saltgrass/Nutall's alkali grass) is a new community in 2017 located along the north boundary. Dominant species includes coastal saltgrass, foxtail barley, and Nuttall's alkali grass. One blue-eyed-grass (*Sisyrinchium* sp.) plant was observed in community Type 7. In 2018, this species will be inventoried, photographed, and collected if several are available for collection. If the plant is determined to be Northern blue-eyed-grass (Sisyrinchium septentrionale), which is a Montana species of concern (S1S2), a rare plant form will be filed with the MTNHP and functional assessment ratings will be accordingly adjusted.

Vegetation cover was assessed along one transect at the Treasure County Line site in 2017 (Figure A-9, Appendix A). The data recorded on T-1 (Wetland Mitigation Site Monitoring forms, Appendix B) are summarized in tabular and graphical formats in Table 3-22 and Charts 3-11 and 3-12. Photographs of the transect start and end points are shown in Appendix C. T-1 is located near the center of the site, starts at the fence line along the northern mitigation boundary, extends approximately 534 feet across the excavated wetland and one of the upland islands, and terminates along the southern boundary of the monitoring area. The transect intervals alternated between wetland community Types 3 and 7 and upland community Type 5 – *Pascopyrum smithii/Bromus arvensis*. Approximately 43 percent of the transect was dominated by hydrophytic vegetation in 2017, which is an increase of 13.8 percent since 2014.

Table 3-22. T-1 Data Summary for the Treasure County Line Site From 2013 Through 2017

Monitoring Year Transect Length (feet)	2013 534	2014 534	2015 534	2016 534	2017 534
Vegetation Community Transitions Along Transect	4	4	5	5	6
Vegetation Communities Along Transect	2	2	2	2	3
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	2
Total Vegetative Species	19	22	30	19	21
Total Hydrophytic Species	6	7	10	7	8
Total Upland Species	13	15	20	12	13
Estimated % Total Vegetative Cover	95	95	90	86	86
Estimated % Unvegetated	5	5	10	14	14
% Transect Length Comprising Hydrophytic Vegetation Communities	29.2	29.2	43	43	43
% Transect Length Comprising Upland Vegetation Communities	70.8	70.8	57	57	57
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

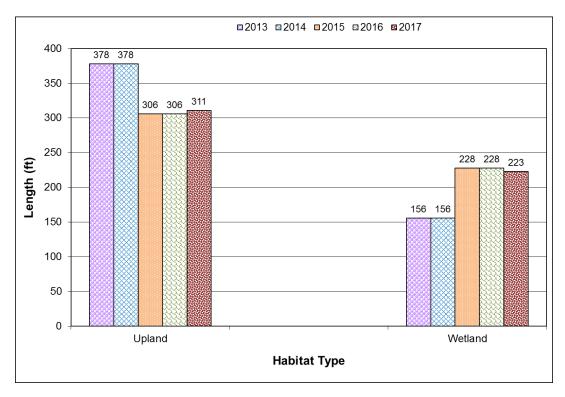


Chart 3-11. T-1 Map for the Treasure County Line Site Showing Vegetation Types From Transect Start (0 Foot) to Finish (534 Feet) From 2013 Through 2017.

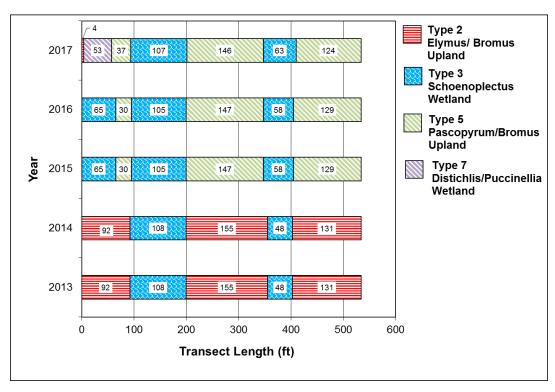


Chart 3-12. Length of Vegetation Communities Within T-1 at the Treasure County Line Site From 2013 Through 2017.

Four infestations of Canada thistle, which is a Priority 2B noxious weed, were identified within this site in 2017 and mapped on Figure A-10 (Appendix A). Noxious weed infestations have decreased considerably since 2016. No woody vegetation was installed at this site.

3.4.3 Soil

The Web Soil Survey for Rosebud County [US Department of Agriculture, 2011] indicates three soils occurring within the project site. These soils are identified as the Borollic Camborthids-Ustic Torrifluvents complex, Marvan silty clay (2–8 percent slope), and Gerdrum-Marvan silty clays (2–8 percent slope). The Borollic Camborthids-Ustic Torrifluvents complex and Marvan silty clay map units are located on the *Montana Hydric Soil List* [NRCS, 2014]. The Gerdrum and Marvan Series consist of very deep, well-drained, fine-textured soils that developed in alluvium or glacial fluvial deposits.

Soil test pits were excavated at two locations, both within what was originally mapped as the Borollic Camborthids-Ustic Torrifluvents complex (DP-1W andDP-1U; Figure A-9, Appendix A). DP-1W is located in a potential wetland expansion area along the western boundary. The soil profile revealed a dark grayish brown (10YR 4/2) clay with 15 percent dark yellowish brown (10YR 3/6), redoximorphic concentrations in the matrix. The soil met the criteria for depleted matrix (F3). DP-1U is located in community Type 5 – *Pascopyrum smithii/Bromus arvensis* upslope of the excavated wetland area. The soil profile revealed a very dark, grayish brown (10YR 3/2) clay and no hydric soil indicators.

3.4.4 Wetland Delineation

Two data points were evaluated in 2016 to determine the wetland and upland boundaries at the site (Figures A-9 and A-10, Appendix A). Vegetation, soil, and hydrology characteristics were documented on the Wetland Determination Data forms (Appendix B). The delineation identified 1.74 acres of wetland and 4.15 acres of upland buffer, which can be seen in Table 3-23. The excavated wetland basin supports a variety of hydrophytic species; according to observations of inundation during site visits from 2013 through 2017, this area is likely perennially inundated. This area is also adjacent to a preexisting natural wetland and has effectively increased the size of the overall wetland complex. The wetland boundary increased slightly (0.06 acre) since 2016.

Table 3-23. Wetland/Upland Habitat Acreages Delineated at the Treasure County Line Site From 2013 Through 2017

Wetland and Upland Habitats	2013 (acres)	2014 (acres)	2015 (acres)	2016 (acres)	2017 (acres)
Project Area	5.89	5.89	5.89	5.89	5.89
Created Wetland	1.50	1.50	1.67	1.68	1.74
Upland Buffer	4.39	4.39	4.22	4.21	4.15

3.4.5 Wildlife

A list of wildlife species observed directly and indirectly at the site from 2013 through 2017 is presented in Table 3-24. Observed wildlife sign and bird activity codes were recorded on the

Wetland Mitigation Site Monitoring form (Appendix B). No species were observed in 2017 because of high temperatures and late afternoon conditions during the survey.

Table 3-24. Wildlife Species Observed at the Treasure County Line Site From 2013 Through 2017

Common Name	Scientific Name
An	nphibians
Frog sp.	Rana sp.
Northern Leopard Frog	Rana pipiens
Plains Garter Snake	Thamnophis radix
	Birds
American Goldfinch	Spinus tristus
Cliff Swallow	Petrochelidon pyrrhonota
Common Yellowthroat	Geothlypis trichas
Eastern Kingbird	Tyrannus tyrannus
Great Blue Heron	Ardea herodias
Killdeer	Charadrius vociferus
Mourning Dove	Zenaida macroura
Northern Harrier	Circus cyaneus
Red-tailed Hawk	Buteo jamaicensis
Red-winged Blackbird	Agelaius phoeniceus
Sandhill Crane	Grus canadensis
Song Sparrow	Melospiza melodia
Western Meadowlark	Sturnella neglecta
Wilson's Snipe	Gallinago delicata
M	lammals
Coyote	Canis latrans
Muskrat	Ondatra zibethicus

Species that were identified in 2017 are **bolded**.

3.4.6 Functional Assessment

The results of the functional assessments from 2013 through 2017 are summarized in Table 3-25, and the completed Treasure County Line site's MWAM form is included in Appendix B. The total aquatic habitat developed to date within the 5.89-acre project area is 1.74 acres. The Treasure County Line site was evaluated as one AA that encompasses the entire constructed wetland and rated as a Category III wetland with 59.4 percent of the total possible points and 9.3 functional units, which is an increase of 0.4 unit since 2015.

Table 3-25. Montana Wetland Assessment Method Summary for the Treasure County Line Site From 2013 Through 2017

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2013	2014	2015	2016	2017
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
MTNHP Species Habitat	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)
General Wildlife Habitat	Mod (0.7)	High (0.9)	Mod (0.7)	Mod (0.7)	Mod (0.7)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	N/A
Flood Attenuation	N/A	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Short- and Long-Term Surface-Water Storage	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Sediment/Shoreline Stabilization	N/A	N/A	N/A	N/A	N/A
Production Export/Food Chain Support	Mod (0.4)	Mod (0.7)	Mod (0.5)	Mod (0.5)	Mod (0.5)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.3)	Mod (0.4)	Low (0.3)	Low (0.3)	Low (0.3)
Recreation/Education Potential (bonus points)	High (0.15)	High (0.15)	High (0.15)	High (0.15)	Mod (0.1)
Actual Points/Possible Points	4.95/8	5.85/8	5.35/9	5.35/9	5.3/9
% of Possible Score Achieved	61.9%	73.1%	59.4%	59.4%	59%
Overall Category	III	II	III	III	III
Total Acreage of Assessed Wetlands Within Site Boundaries	1.50	1.50	1.67	1.68	1.74
Functional Units (acreage × actual points)	7.4	8.8	8.9	9.0	9.3

3.4.7 Photographic Documentation

Photographs of Photo-Points 1 through 4 (PP1–PP4), the transect start and end points, and the wetland determination data points (Figure A-7, Appendix A) are provided in Appendix C.

3.4.8 Maintenance Needs

Four infestations of Canada thistle, which is a Priority 2B noxious weed, were identified within this site in 2017 (Figure A-10, Appendix A). These infestations are all located near the center of the site and have a low cover class (1-5% cover). No woody vegetation or man-made water-control structures were installed at this site. The fence that surrounds the mitigation area was in good working order when inspected in 2017. Cattle tracks were noted within community Type 7 along the northern side of the wetland, which resulted in bare ground cover of 20–50 percent.

3.4.9 Current Credit Summary

The 5.89-acre Treasure County Line site includes 1.74 acres of created wetland and 4.15 acres of upland buffer. Applying standard wetland compensatory mitigation ratios [USACE, 2005], the site has attained an estimated 2.57 credit acres, as described in Table 3-26.

Table 3-26. Credit Summary for the Treasure County Line Site

Habitat Type	Mitigation Ratio	2014 Delineated Acres	2014 Estimated Credit Acres	2015 Delineated Acres	2015 Estimated Credit Acres	2016 Delineated Acres	2016 Estimated Credit Acres	2017 Delineated Acres	2017 Estimated Credit Acres
Created Wetland	1:1	1.50	1.50	1.67	1.67	1.68	1.68	1.74	1.74
Upland Buffer	5:1	4.39	0.88	4.22	0.84	4.21	0.84	4.15	0.83
Т	otal	5.89	2.38	5.89	2.51	5.89	2.52	5.89	2.57

3.5 COMPREHENSIVE CREDIT SUMMARY FOR FORSYTH – NORTHWEST

The wetland areas that were impacted during construction of the Volborg – North and South project in 2004 totaled 6.80 acres. Per the USACE requirement, the impacts were to be mitigated at a 1.5:1 ratio. During the construction of the FNW project, an additional 2.18 acres of unavoidable wetland impacts occurred. Credits that were generated by the 1999 construction of the Treasure County Line site have been applied to the FNW debits at a 1:1 ratio based on the development of this mitigation wetland site before the impacts actually occurred.

The total credits estimated for all four FNW sites in 2017 was 10.77 acres (Table 3-27). This value was 2.01 credit acres short of the required 12.78 credit acres. Continued wetland development at the West site is possible by installing a functioning dike, which will contribute over time to total credits generated by the FNW mitigation project. Minimal potential exists for wetland expansion at the Middle and Treasure County Line sites because development has already extended to near the margins of the excavated footprint. No quantitative metrics or performance criteria are associated with the success of these mitigation sites. The monitoring requirements that were identified within the approved mitigation plan are being satisfied.

Table 3-27. Credit/Debit Summary for the Forsyth - Northwest Project

Project Site	Actual Acres	Туре	Debit Ratio	Debit Acres
Volborg - North and South	6.80	Debit	1.5:1	10.20
FNW Previously Mitigated	1.78	Debit	1:1 ^(a)	1.78
FNW Remaining	0.40	Debit	2:1	0.80
Total	8.98	Total Debits		12.78
Mitigation Site	Actual Acres	Mitigation Type	Credit Ratio	Credit Acres
	4.60	Creation Credit	1:1	4.60
Site 1: West	1.29	Preservation Credit	4:1	0.32
VVCGI	7.82	Upland Buffer Credit	5:1	1.56
Site 2:	0.58	Creation Credit	1:1	0.58
Middle	1.22	Upland Buffer Credit	5:1	0.24
Site 3:	0.43	Creation Credit	1:1	0.43
East	2.31	Upland Buffer Credit	5:1	0.46
Site 4:	1.74	Previous Creation Credit	1:1	1. 74
Treasure County Line	4.15	Upland Buffer Credit	5:1	0.83
Total 24.14 Total Credits				
Net Credits				

⁽a) The wetland mitigation monitoring plan for FNW [2012] indicates that credits created at the Treasure County Line site will be applied to FNW impacts at a 1:1 ratio because the mitigation site was constructed before the impacts.

4.0 REFERENCES

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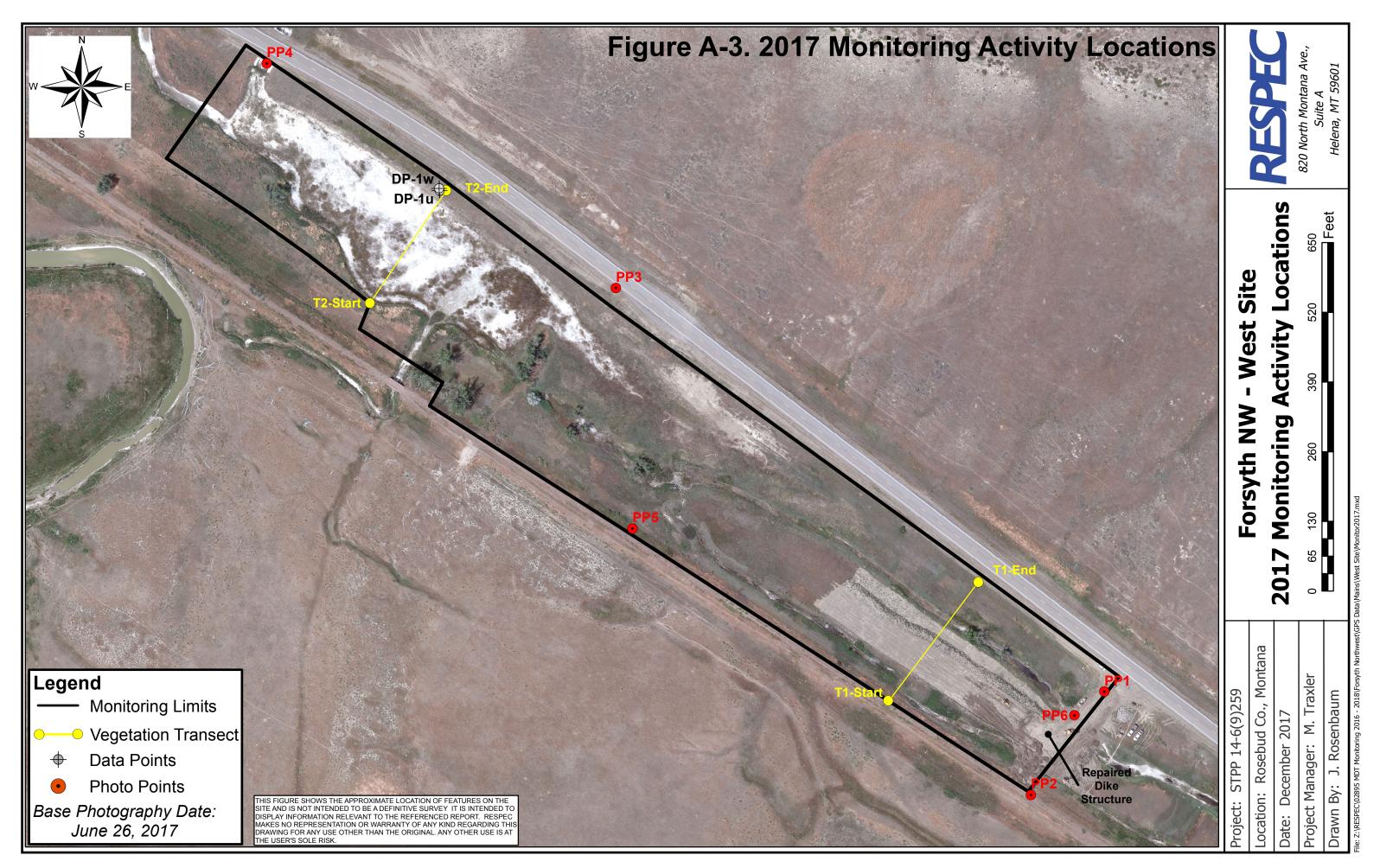
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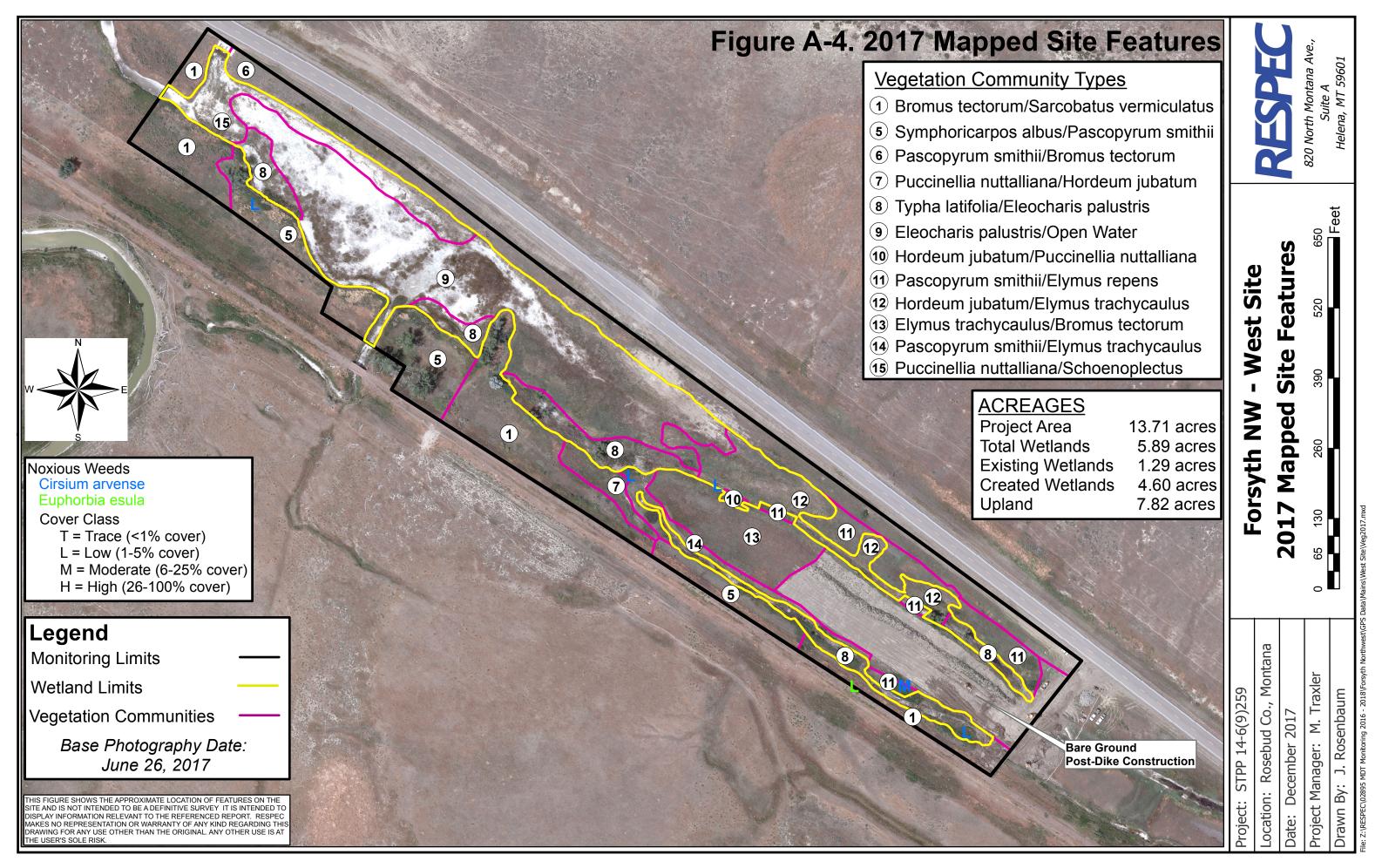
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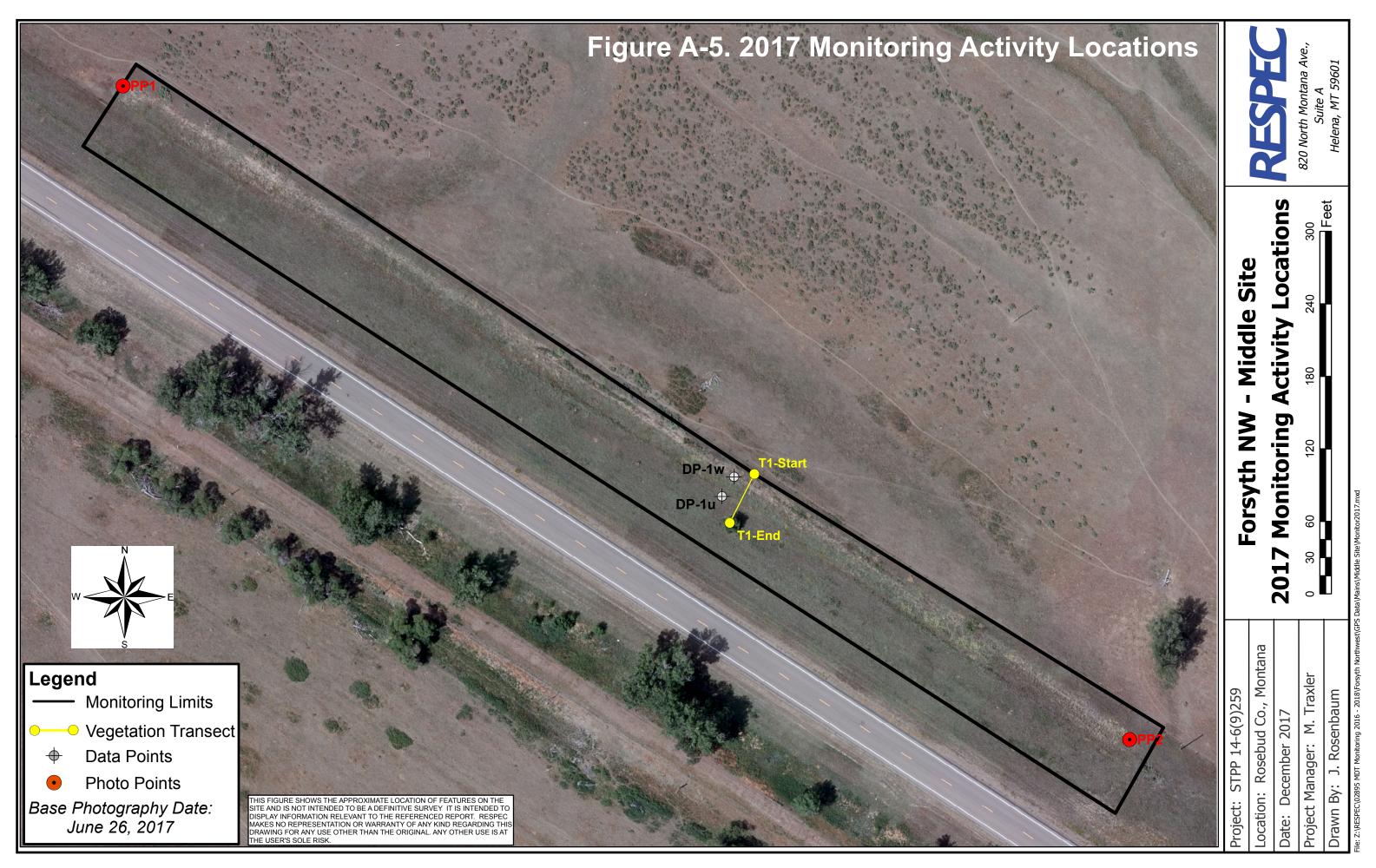
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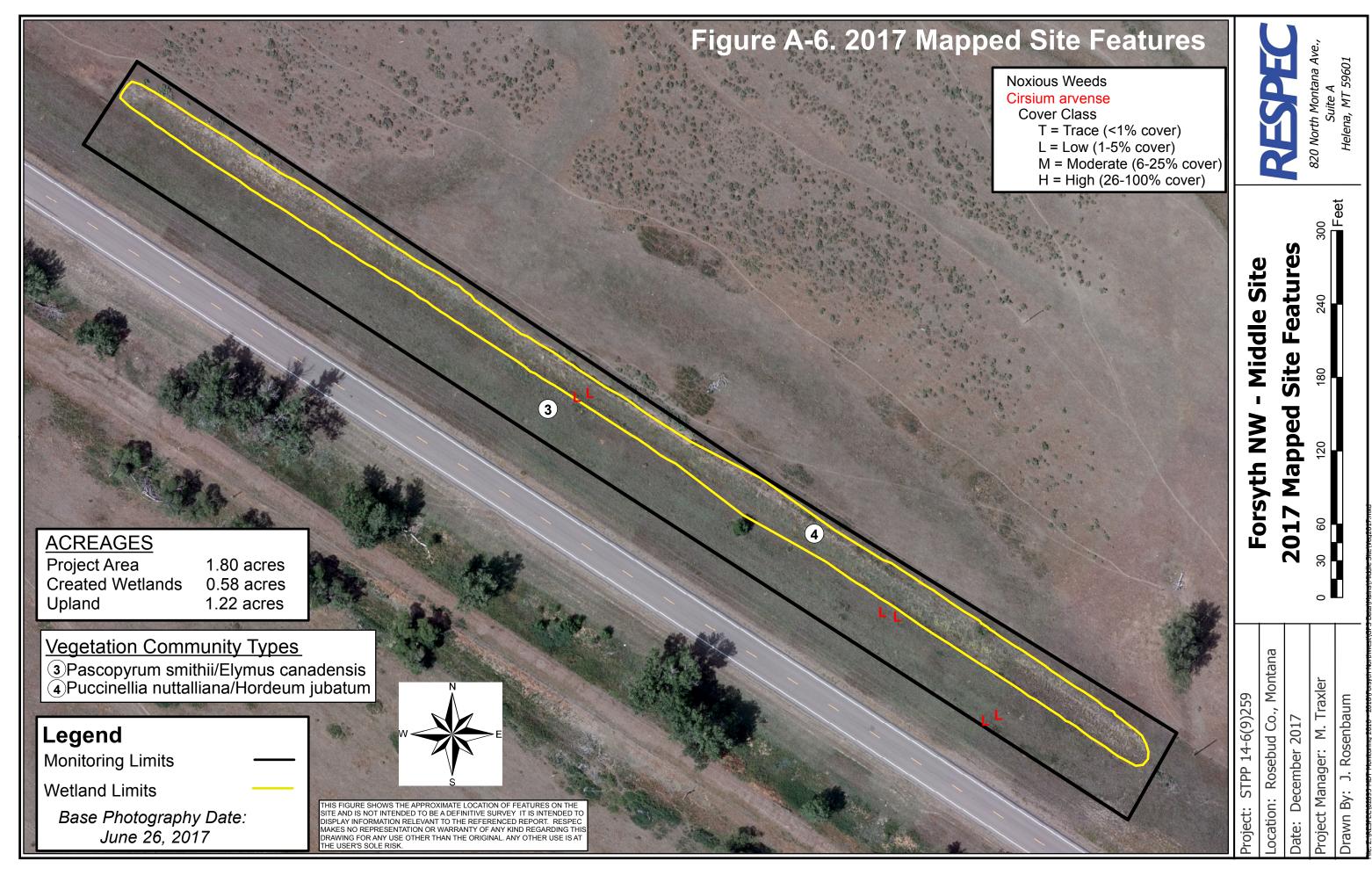
APPENDIX A PROJECT AREA MAPS

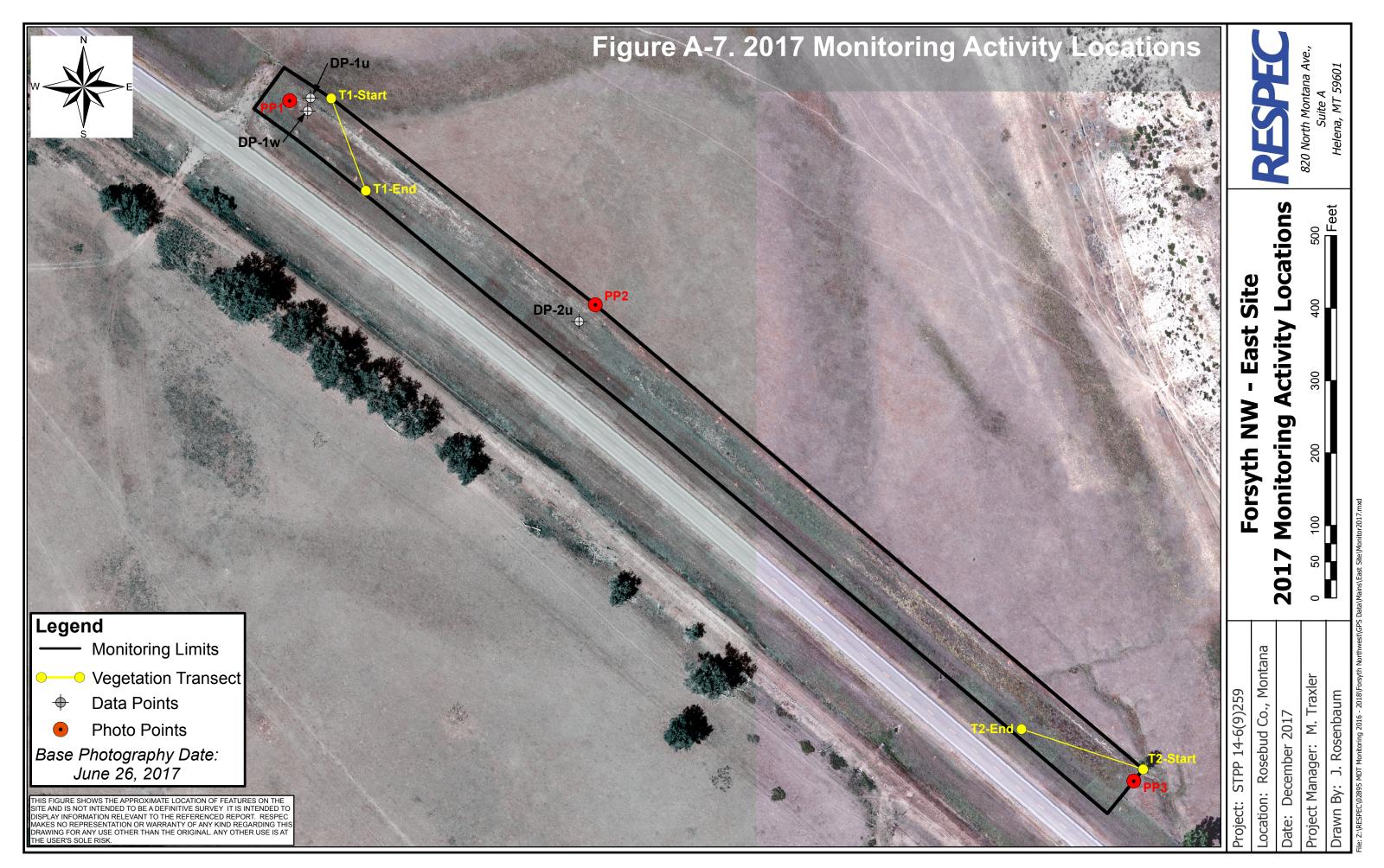
MDT Wetland Mitigation Monitoring Forsyth – Northwest Rosebud County, Montana

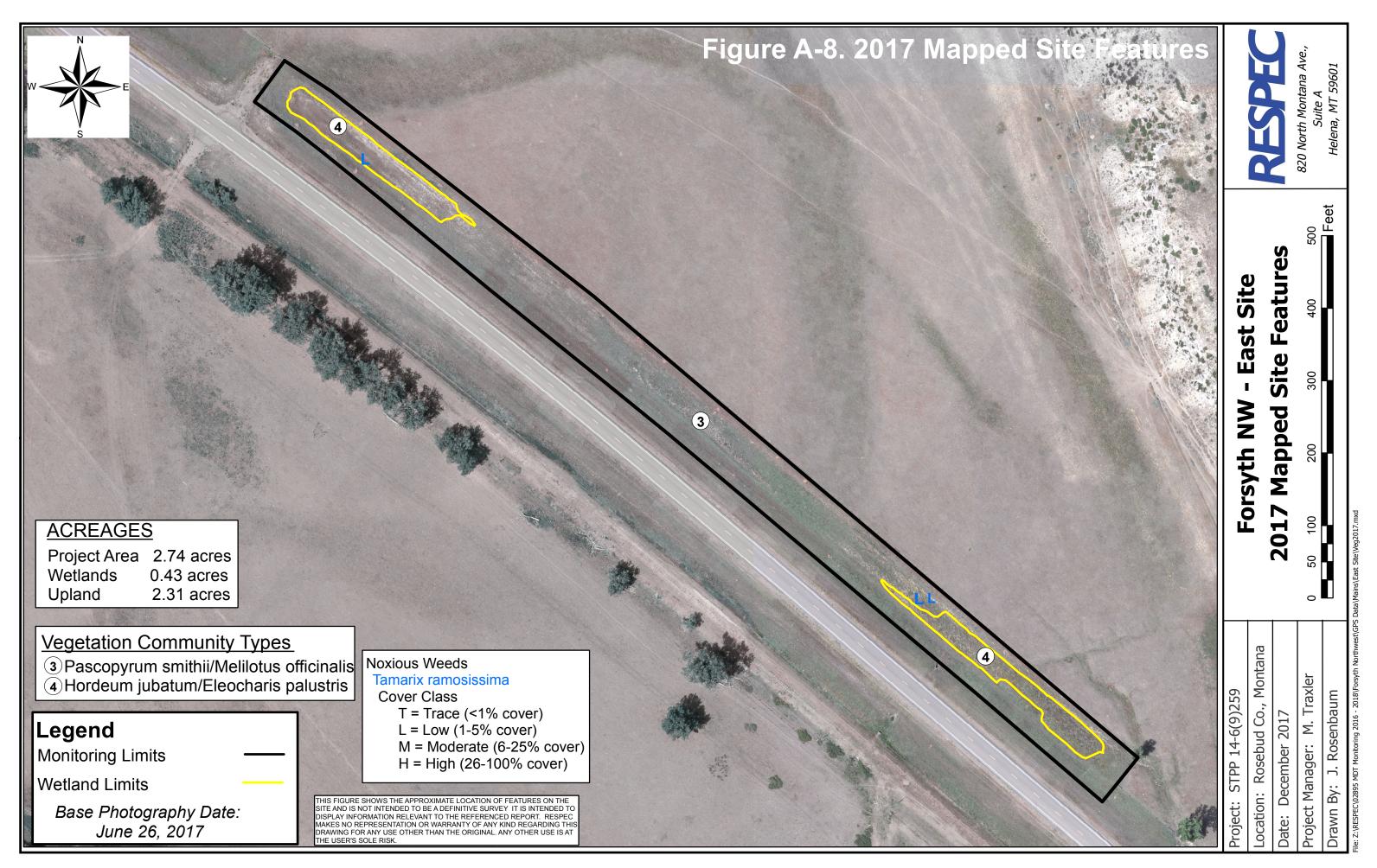


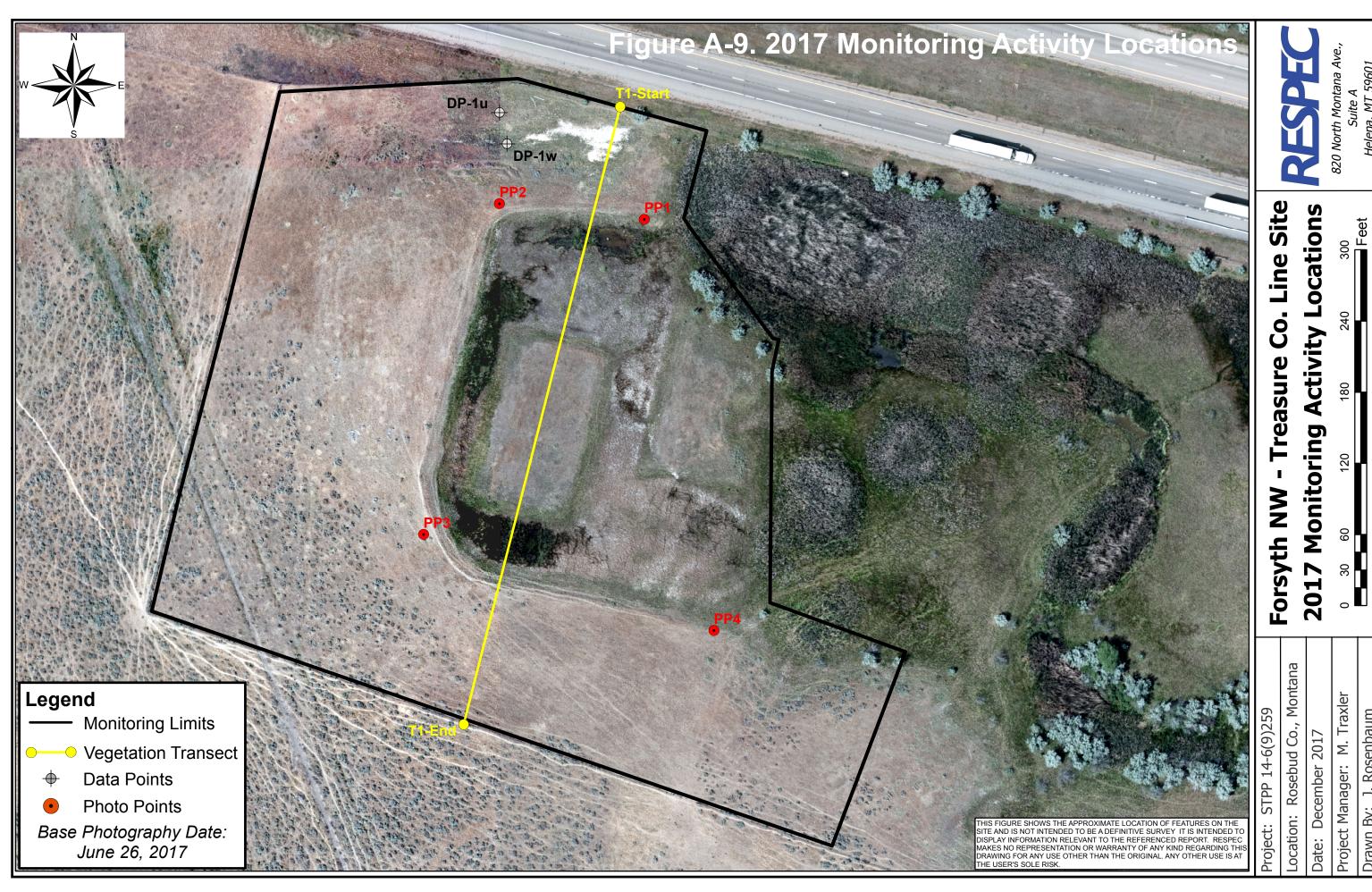


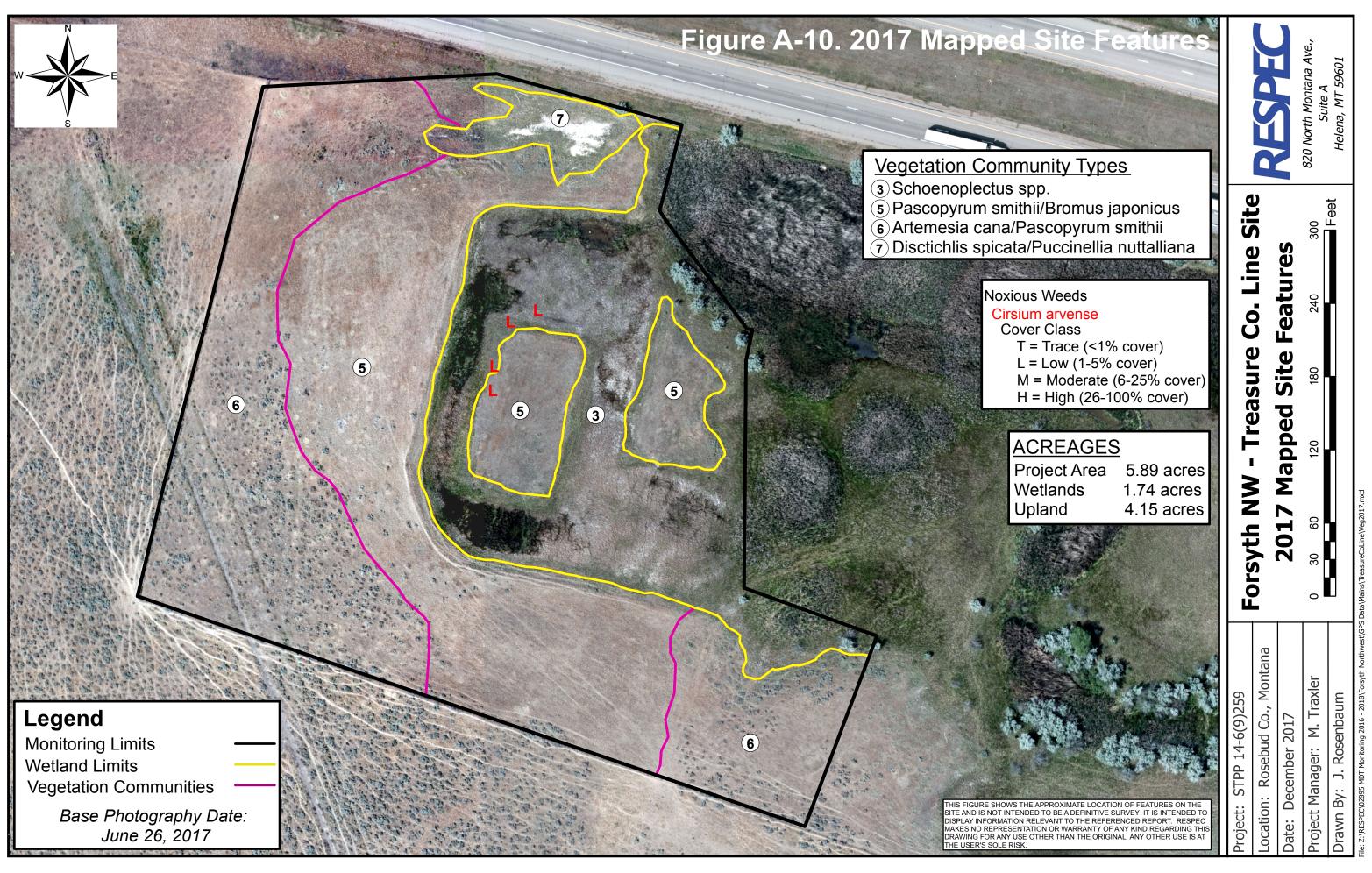












APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring Forsyth – Northwest Rosebud County, Montana

RESPEC/MDT WETLAND MITIGATION SITE MONITORING FORM									
Project Name: Forsyt	th NW -	West		Project Number:					
Assessment Date: Jul			erson(s) con	ducting the assessr		n/Hoschouer			
Location: ~15 miles !			215011(5) COII	MDT District: G		n/ Hosenouer			
Milepost: RP				<u> </u>	.101101 0				
Legal Description: T			Section 20 & 29						
Weather Conditions:			Time of Day: <u>0700-1230</u>						
Initial Evaluation Dat				oring Year: <u>5</u> #		ear: 1			
Size of evaluation are				ounding wetland: A		_			
		Н	YDROLOG	GY					
Surface Water Source	e: Period	lic flooding from	Big Porcu	pine Creek, surfa	ce runoff f	rom East Spring			
Coulee, and seasona	l high g	<u>roundwater</u>							
Inundation: Present				of Depths: 0.5-3.5	<u>5 ft</u>				
Percent of assessment	t area un	der inundation: 0	<u>%</u>						
Depth at emergent ve				<u>feet</u>					
If assessment area is a									
Other evidence of hyd									
Surface soil cracks,	<u>sedimen</u>	<u>t deposits, drain</u>	patterns, v	<u>vater stained leav</u>	es, salt cru	st, geomorphic			
position, drift depos	its, algal	<u>l mat/crust, hydr</u>	rogen sulfid	<u>e odor.</u>					
Groundwater Monitor Record depth of wate	r below	ground surface (ii	n feet):			a.			
Well Number	Depth	Well Number	Depth	Well Number	Depth				
						•			
Additional Activities	Checklis	st:							
☐ Map emergent veg	getation-	open water bound	dary on aeria	al photograph.					

COMN	MENTS	/ PRARI	EMS.

elevations (drift lines, erosion, vegetation staining, etc.)

Use GPS to survey groundwater monitoring well locations, if present.

<u>Mitigation area receives surface water when East Spring Creek Coulee produces surface flow and from periodic flooding of Big Porcupine Creek with potential for high water velocities through constructed wetland.</u>

Observe extent of surface water during each site visit and look for evidence of past surface water

VEGETATION COMMUNITIES

Community Number: 1 Community Title (main spp): Bromus tectorum / Sacobatus vermiculatus

Dominant Species	% Cover	Dominant Species	% Cover
Bromus tectorum	2 = 6-10%	Elymus repens	1 = 1-5%
Pascopyrum smithii	3 = 11-20%	Euphorbia esula	1 = 1-5%
Sarcobatus vermiculatus	2 = 6-10%	Thalspi arvense	1 = 1-5%
Schedonorus pratensis	2 = 6-10%	Bassia scoparia	1 = 1-5%
Bare Ground	1 = 1-5%	Chenopodium album	1 = 1-5%
Bromus inermis	1 = 1-5%	Hordeum jubatum	1 = 1-5%

Comments / Problems: _____

Community Number: 5 Community Title (main spp): Symphocarpos albus / Pascopyrum smithii

Dominant Species	% Cover	Dominant Species	% Cover
Pascopyrum smithii	5 = > 50%	Hordeum jubatum	1 = 1-5%
Symphoricarpos albus	2 = 6-10%	Chenopodium album	1 = 1-5%
Bassia scoparia	1 = 1-5%	Poa pratensis	3 = 11-20%
Bromus japonicus	1 = 1-5%	Sarcobatus vermiculatus	3 = 11-20%
Cirsium arvense	+=<1%	Thlaspi arvense	2 = 6-10%
Poa compressa	2 = 6-10%	Bromus inermis	1 = 1-5%

Comments / Problems:

Community Number: 6 Community Title (main spp): Pascopyrum smithii / Bromus tectorum

Dominant Species	% Cover	Dominant Species	% Cover
Bromus tectorum	3 = 11-20%	Elymus trachycaulus	1 = 1-5%
Pascopyrum smithii	5 = > 50%	Lepidium perfoliatum	2 = 6-10%
Bromus japonicus	1 = 1-5%	Hordeum jubatum	1 = 1-5%
Melilotus officinalis	3 = 11-20%	Linum lewisii	1 = 1-5%
Bassia scoparia	2 = 6-10%	Thlaspi arvense	+=<1%
Elymus canadensis	1 = 1-5%	Hordeum marinum	+=<1%

Comments / Problems: **Elymus lanceolatus-1**; **Chenopodium album-1**

Community Number: 7 Community Title (main spp): Puccinellia nuttalliana / Hordeum jubatum

Dominant Species	% Cover	Dominant Species	% Cover
Hordeum jubatum	4 = 21-50%	Schedonorus pratensis	1 = 1-5%
Puccinellia nuttalliana	4 = 21-50%	Bare Ground	1 = 1-5%
Melilotus officinalis	2 = 6-10%	Elymus repens	1 = 1-5%
Bassia scoparia	1 = 1-5%	Glycyrrhiza lepidota	1 = 1-5%
Grindelia squarrosa	1 = 1-5%	Helianthus annuus	1 = 1-5%
Lactuca serriola	1 = 1-5%	Pascopyrum smithii	1 = 1-5%

Comments / Problems: _____

VEGETATION COMMUNITIES (continued)

Community Number: **8** Community Title (main spp): **Typha latifolia / Elocharis palustris**

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	5 = > 50%	Phalaris arundinacea	1 = 1-5%
Typha latifolia	3 = 11-20%	Salix amygdaloides	1 = 1-5%
Schoenoplectus acutus	+=<1%	Spartina pectinata	1 = 1-5%
Typha angustifolia	2 = 6-10%	Elymus repens	2 = 6-10%
Carex sp.	1 = 1-5%	Poa compressa	1 = 1-5%
Hordeum jubatum	2 = 6-10%	Rumex crispus	1 = 1-5%

Comments / Problems: <u>Populus deltoides (2ft tall)-<1%; Schoenoplectus maritimus-1; Sonchus arvensis-<1</u>

Community Number: 9 Community Title (main spp): Eleocharis palustris / Open Water

Dominant Species	% Cover	Dominant Species	% Cover
Dried mud (was open H20)	1 = 1-5%	Spartina pectinata	1 = 1-5%
Eleocharis palustris	3 = 11-20%	Salicornia rubra	2 = 6-10%
Typha latifolia	1 = 1-5%	Polygonum aviculare	+=<1%
Schoenoplectus maritimus	3 = 11-20%	Distichlis spicata	1 = 1-5%
Hordeum jubatum	1 = 1-5%	Populus deltoides	+=<1%
Puccinellia nuttalliana	2 = 6-10%	Chenopodium rubrum	1 = 1-5%

Comments / Problems:

Community Number: 10 Community Title (main spp): Hordeum jubatum / Puccinellia nuttalliana

Dominant Species	% Cover	Dominant Species % Co	
Bare Ground	1 = 1-5%	Glycyrrhiza lepidota	1 = 1-5%
Hordeum jubatum	4 = 21-50%	Spartina pectinata	2 = 6-10%
Puccinellia nuttalliana	1 = 1-5%	Populus deltoides	+=<1%
Rumex crispus	1 = 1-5%	Cirsium arvense	+=<1%
Xanthium strumarium	1 = 1-5%	Salix lutea	+=<1%
Elymus trachycaulus	1 = 1-5%		

Comments / Problems: **Populus & Salix = <2' tall**

Community Number: 11 Community Title (main spp): Pascopyrum smithii/Elymus repens

Dominant Species	% Cover	Dominant Species % Cov	
Pascopyrum smithii	4 = 21-50%	Lactuca serriola	+ = < 1%
Schedonorus pratensis	2 = 6-10%	Populus deltoides	+=<1%
Chenopodium album	3 = 11-20%	Tragopogon dubius $+ = <$	
Elymus repens	3 = 11-20%	Bromus tectorum	+=<1%
Cirsium arvense	+=<1%	Spartina pectinata $+ = <$	
Grindelia squarrosa	+=<1%	Glycyrrhiza lepidota	+=<1%

Comments / Problems: **Populus 2 feet tall**

VEGETATION COMMUNITIES (continued)

Community Number: 12 Community Title (main spp): Hordeum jubatum/Elymus trachycaulus

Dominant Species	% Cover	Dominant Species	% Cover
Elymus repens	1 = 1-5%	Muhlenbergia asperifolia	+=<1%
Glycyrrhiza lepidota	2 = 6-10%		
Bare Ground	3 = 11-20%		
Hordeum jubatum	4 = 21-50%		
Elymus trachycaulus	3 = 11-20%		
Grindelia squarrosa	1 = 1-5%		

Comments / Problems: _____

Community Number: 13 Community Title (main spp): Elymus trachycaulus/Bromus tectorum

Dominant Species	% Cover	Dominant Species % Co	
Poa pratensis	1 = 1-5%	Eymus lanceolatus	2 = 6-10%
Populus deltoides	1 = 1-5%	Bare ground	1 = 1-5%
Bromus tectorum	3 = 11-20%	Elymus repens	1 = 1-5%
Elymus trachycaulus	3 = 11-20%	Puccinellia nuttalliana	1 = 1-5%
Tragopogon dubius	1 = 1-5%		
Euphorbia esula	+=<1%		

Comments / Problems: CT 7 has converted to CT 13 in 2017

Community Number: 14 Community Title (main spp): Pascopyrum smithii/Elymus lanceolatus

Dominant Species	% Cover	Dominant Species	% Cover
Bromus tectorum	2 = 6-10%	Pascopyrum smithii	3 = 11-20%
Elymus lanceolatus	1 = 1-5%		
Symphoriocarpos albus	1 = 1-5%		
Elymus trachycaulus	1 = 1-5%		
Linum lewisii	1 = 1-5%		
Ribes cereum	1 = 1-5%		

Comments / Problems:

Community Number: 15 Community Title (main spp): Puccinellia nuttalliana/Schoenoplectus maritimus

Dominant Species	% Cover	Dominant Species	% Cover
Puccinellia nuttalliana	5 = > 50%	Hordeum jubatum	+ = < 1%
Schoenoplectus maritimus	1 = 1-5%		
Bare dry soil (was open water)	4 = 21-50%		
Distichlis spicata	1 = 1-5%		
Polygonum aviculare	1 = 1-5%		
Salicornia rubra	+ = < 1%		

Comments / Problems: _____

A 1 1040 1	A 4 • • 4 •	~1 1 1 · ·
A ddifional	Activities	l 'harkligt•
Auuiuviiai	ACHVILLO	CHECKIISI.

Record and map vegetative communities on aerial photograph.

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes

Comments / Problems: No woody vegetation planted at site. Natural recruitment of cottonwood and willows is occurring.

Site: Forsyth NW - West Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 282 feet Compass Direction from Start: 25 Note:

Transect Interval Length: 27 feet (station 0-27) Vegetation Community Type: 5: Symphoriocarpos albus/Pasco	pyum smithii
Plant Species	Cover
Bromus tectorum	5 = > 50%
Poa pratensis	2 = 6-10%
Euphorbia esula (sprayed, some remain partially alive)	1 = 1-5%
Pascopyrum smithii	2 = 6-10%
Chenopodium album	2 = 6-10%
Descurainia sophia	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
Bare	5 = > 50%
Total Vegetative Cover:	95%

Transect Interval Length: 32 feet (station 27-59)	
Vegetation Community Type: 8:Typha latifolia / Eleocharis palustris	
Plant Species	Cover
Eleocharis palustris	4 = 21-50%
Spartina pectinata	3 = 11-20%
Hordeum jubatum	5 = > 50%
Elymus repens	1 = 1-5%
Chenopdium album	1 = 1-5%
Bare	1 = 1-5%
Total Vegetative Cover:	95%

Transect Interval Length: 6 feet (station 59-65)	
Vegetation Community Type: 11:Pascopyrum smithii/Elymus repens	
Plant Species	Cover
Pascopyrum smithii	5 = > 50%
Bromus tectorum	4 = 21-50%
Thlaspi arvense	+=<1%
Bare (litter)	1 = 1-5%
Total Vegetative Cover:	95%

Transect Interval Length: 115 feet (station 65-180)	
Vegetation Community Type: Bare Ground	
Plant Species	Cover
Bare	5 = > 50%
(recent construction)	
Total Vegetative Cover:	0%

Site: Forsyth NW - West Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 282 feet Compass Direction from Start: 25 Note:

Transect Interval Length: 30 feet (station 180-210)	
Vegetation Community Type: 11: Pascopyrum smithii/Elymus repens	
Plant Species	Cover
Hordeum jubatum	1 = 1-5%
Glychirrhiza lepidota	1 = 1-5%
Elymus repens	5 = > 50%
(transect crossed a high spot in ditch that did not	
qualify as wetland)	
Total Vegetative Cover:	100%

Transect Interval Length: 34 feet (station 210-244)	
Vegetation Community Type: 12:Hordeum jubatum/Elymus	
trachycaulus	
Plant Species	Cover
Hordeum jubatum	5 = > 50%
Elymus trachycaulus	3 = 11-20%
Bare Ground	3 = 11-20%
Elymus repens	1 = 1-5%
Glycyrrhiza lepidota	2 = 6-10%
Grindelia squarrosa	1 = 1-5%
Muhlenbergia asperifolia	1 = 1-5%
Total Vegetative Cover:	80%

Transect Interval Length: 38 feet (station 244-282	
Vegetation Community Type: 6:Pascopyrum smithii / Bromus tectorum	
Plant Species	Cover
Elymus lanceolatus	2 = 6-10%
Pascopyrum smithii	4 = 21-50%
Bare Ground	1 = 1-5%
Bromus tectorum	4 = 21-50%
Chenopodium album	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
Linum lewisii	1 = 1-5%
Total Vegetative Cover:	95%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Vegetative Cover:	

Site: Forsyth NW - West Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 2 Approximate Transect Length: 261 feet Compass Direction from Start: 25° Note:

Transect Interval Length: 9 feet (station 0-9)		
Vegetation Community Type: 5: Symphoricarpos albus / Pasco	Vegetation Community Type: 5: Symphoricarpos albus / Pascopyrum smithii	
Plant Species	Cover	
Symphoricarpos albus (sprayed at transect location?)	+=<1%	
Elymus repens	4 = 21-50%	
Lepidium perfoliatum	3 = 11-20%	
Poa compressa	4 = 21-50%	
Thlapsi arvensis	1 = 1-5%	
Pascopyrum smithii	1 = 1-5%	
Bare	1 = 1-5%	
Total Vegetative Cover:	95%	

Transect Interval Length: 195 feet (station 9-204	
Vegetation Community Type: 9: Eleocharis palustris / Op	en Water
Plant Species	Cover
Eleocharis palustris	5 = > 50%
Schoenoplectus maritimus	5 = > 50%
Bare Ground (dried mud-was open water)	1 = 1-5%
Chenopodium rubrum	1 = 1-5%
Hordeum jubatum	1 = 1-5%
Puccinellia nuttalliana	2 = 6-10%
Alopecurus arundinaceus	+ = < 1%
Spartina pectinata	+ = < 1%
	_
Total Vegetative Cover:	95%

Transect Interval Length: 33 feet (station 204-237)	
Vegetation Community Type: 15: Puccinellia nuttalliana /Schoenoplectus	
maritimus	
Plant Species	Cover
Puccinellia nuttalliana	5 = > 50%
Schoenoplectus maritimus	1 = 1-5%
Mud Flat (dried mud-was open water)	4 = 21-50%
Distichlis spicata	1 = 1-5%
Salicornia rubra	+ = < 1%
Hordeum jubatum	+ = < 1%
Polygonum aviculare	1 = 1-5%
Total Vegetative Cover:	75%

Transect Interval Length: 24 feet (station 237-261)	
Vegetation Community Type: 6: Pascopyrum smithii / Bromus	
tectorum	
Plant Species	Cover
Elymus lanceoatus	1 = 1-5%
Bromus tectorum	1 = 1-5%
Bare Ground	1 = 1-5%
Melilotus officinale	4 = 21-50%
Lepidium perfoliatum	1 = 1-5%
Pascopyrum smithii	5 = > 50%
Basia scoparia	1 = 1-5%
Total Vegetative Cover:	95%

3-10

MDT WETLAND MONITORING - VEGETATION TRANSECT

Cover EstimateIndicator ClassSource+ = < 1%3 = 11-10%+ = ObligateP = Planted1 = 1-5%4 = 21-50%- = Facultative/WetV = Volunteer2 = 6-10%5 = > 50%0 = Facultative

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): 43%

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: Southwest dike was repaired in spring 2017, photos taken (see report). Area midway along dike and north was disturbed (115 feet of "Bare Ground" along Transect 1) during restoration efforts.

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.

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

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1		Photo Point 1 (Pano): 46.336914 / -106.871132	270
PP-2		Photo Point 2 (Pano): 46.336468 / -106.871811	350
PP-3		Photo Point 3 (Pano): 46.339088 / -106.874611	230
PP-4		Photo Point 4 (Pano): 46.340237 / -106.877312	210
PP-5		Photo Point 5 (Pano): 46.337817 / -106.874587	45
T-1 start		Transect 1 start: 46.33691 / -106.872772	25
T-1 end		Transect 1 end: 46.337456 / -106.872063	205
T-2 start		Transect 2 start: 46.339001 / -106.87645	25
T-2 end		Transect 2 end: 46.339561 / -106.875854	205
DP-1W		Wetland soil pit: 46.338328 / -106.873779	
DP-1U		Upland soil pit: 46.338398 / -106.87372	
PP-6		Completed Dike	315
PP-6a		Completed Dike	135

Comments / P	roblems:	_		

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist:
Upland/wetland boundary.
4-6 landmarks that are recognizable on the aerial photograph.
Start and End points of vegetation transect(s).
Photograph reference points.
Groundwater monitoring well locations.
Bird nest boxes.
Comments / Problems:
WETLAND DELINEATION
(attach COE delineation forms)
At each site conduct these checklist items:
 ✓ Delineate wetlands according to the 1987 Army COE manual and regional supplement. ✓ Delineate wetland – upland boundary onto aerial photograph.
Defineate wettand – uprand boundary onto aeriai photograph.
Comments / Problems:
FUNCTIONAL ASSESSMENT
FUNCTIONAL ASSESSMENT Complete and attach full MDT Montana Wetland Assessment Method field forms.
Complete and attach full MDT Montana Wetland Assessment Method field forms.
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE
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Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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
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Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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? NA If yes, are the structures working properly and in good working order? NA

WILDLIFE

Mommel and Harntile Cresics	Number		Indir	ect Indication	n of Use
Mammal and Herptile Species	Observed	Tracks	Scat	Burrows	Other
eer sp.					
A Macroinvertebrate Sampling of omments / Problems:	(if required)				

BIRD SURVEY - FIELD DATA SHEET

Site: Forsyth NW - West Date: 7/24/17

Survey Time: <u>0700</u> to <u>1230</u>

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Western Kingbird	6	F FO	UP				
Western Meadowlark	1	FO	UP				
Cliff Swallow	6	FO F	MA				
House Wren	2	F	FO				

BEHAVIOR CODES BP = One of a breeding pair **BD** = Breeding display

F = Foraging FO = Flyover

L = Loafing N = Nesting HABITAT CODES

AB = Aquatic bed
FO = Forested
I = Island
WM = Wet meadow
MA = Marsh
US = Unconsolidated shore

MF = Mud Flat OW = Open Water

Weather: <u>95 degrees, sunny = few avian species heard or observed</u>

•	-			
	α	tes:		
1 7		LUO.		

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - West		City/Cour	nty: Rosebud			Sampli	ng Date:	7/24/	17
Applicant/Owner: MDT				State:	MT	Samplii	ng Point:	DI	P-1u
Investigator(s): L. Bacon, C. Hoschouer		Section, To	ownship, Ranç	 ge: S20 T	7N R39E	-			
Landform (hillside, terrace, etc.): slope	L	— ocal relief (co	oncave, conve	x, none):	convex		Slop	e (%):	2
Subregion (LRR): LRR G Lat: 46.33	•		Long: <u>-10</u>				Datum:		
Soil Map Unit Name: Marvan silty clay, 0-2% slopes					NWI classi	fication: F	PEM	-	
Are climatic / hydrologic conditions on the site typical	for this time of	vear?	Yes X		(If no, ex	_			
Are Vegetation, Soil, or Hydrology			re "Normal Cir		=')	
Are Vegetation, Soil, or Hydrology			f needed, expl					·	-
SUMMARY OF FINDINGS – Attach site m				-			ant feat	ures.	etc.
						•			
	lo <u>X</u> lo <u>X</u>		Sampled Are	ed .	Yes	No	X		
Wetland Hydrology Present? Yes N	lo X	"""	. a Woulding!						
Remarks:									
Road embankment is an upland community; wetland	vegetation has	colonized up	o to the bottom	of emban	kment.				
VEGETATION – Use scientific names of	-								
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominan	ce Test wo	rksheet:			
1.	70 00101	Ороскоо.			of Dominant		hat		
2.					FACW, or F	•		0	(A)
3.				Total Num	nber of Dom	inant Spe	cies		_
4				Across Al	l Strata:			2	_(B)
		Total Cover			f Dominant				(4 (5)
Sapling/Shrub Stratum (Plot size:	.)			Are OBL,	FACW, or F	-AC:	0	.0%	- (A/B)
1	· ·		 -	Drevalen	ce Index w	orkshoot:			
2. 3.				Total % C			fultiply by	•	
4.	· · ·			OBL spec			1 =	0	
5.				FACW sp	ecies	1 x	2 =	2	_
	=	Total Cover		FAC spec		1 x	3 =	3	_
Herb Stratum (Plot size:)	5 0		E4011	FACU spe				380	_
Pascopyrum smithii Melilotus albus	50 45	Yes Yes	FACU FACU	UPL spec		1 x 98 (A)	5 =	5 390	(B)
Lepidium perfoliatum	1	No	FAC		ce Index = E		3.98		- ^(D)
4. Bromus tectorum	1	No	UPL	Trovalone	o maox — E	_	0.00		-
5. Hordeum jubatum	1	No	FACW	Hydrophy	ytic Vegetat	tion Indica	ators:		
6.				1 - Ra	apid Test for	Hydrophy	tic Vegeta	ation	
7	. <u> </u>			2 - Do	ominance Te	est is >50%	6		
8	,				evalence In				
9					orphological a in Remarl				porting
10		Total Cavar					•	,	.in\
Woody Vine Stratum (Plot size:	98 =	Total Cover			ematic Hydr s of hydric s		-		
1	.′				s of flyand s it, unless dis				nust
2.				Hydrophy					
_	=	Total Cover		Vegetatio	•				
% Bare Ground in Herb Stratum5				Present?	Yes		No X		
Remarks:									
Slopes dry, some bare ground occurs in patches.									
l									

SOIL Sampling Point: DP-1u

Profile Descr Depth	iption: (Describe Matrix	to the depth		cument tl		ator or o	confirm the absenc	e of indicators	5.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
`			,		туре	LUC				. Carteria
0-16	2.5Y 4/3	50	2.5Y 4/2	50			Loamy/Clayey	No	redox, mixed ma	atrix
								_		
		. — —					-			
								_		
1 0 0							10 : 2			
	ncentration, D=Dep					oated S			ore Lining, M=Marcoblematic Hydi	
Histosol (ible to all Li	ins, unless ou		Sleyed M	atriv (S4			\9) (LRR I, J)	iic Jolis .
				-	-			_	Redox (A16) (L	
	pedon (A2)			-	Redox (St					кк г, G, п)
Black His				_	Matrix ((S7) (LRR G)	2)
	Sulfide (A4)	-\		-	Mucky Mi				Depressions (F16	
I —	Layers (A5) (LRR F	•		-	Gleyed M	•	2)	-	utside of MLRA	12 & 13)
	ck (A9) (LRR F, G, I	-	-	•	d Matrix (_Reduced Ver	,	
	Below Dark Surface	e (A11)		-	ark Surf			_Red Parent N	` ,	- 00)
I —	k Surface (A12)			_	d Dark S			_	Dark Surface (F	-22)
	ucky Mineral (S1)	CO) // DD C		-	epressio		(E4C) 3 ₁	_ ` `	n in Remarks)	:
	ucky Peat or Peat (п) —	_	ins Depr			-	rophytic vegetat	
s cm wide	ky Peat or Peat (S	o) (LKK F)		(IVIL	RA 72 & 1	/3 01 LR	KK N)	-	ology must be proped or problema	
Restrictive L	ayer (if observed):									
Type:			_							
Depth (inc	ches):		_				Hydric Soil Prese	ent?	Yes	No X
Remarks:						=======================================				
No saturation	on road embankme	ent.								
HYDROLO	CV.									
_	rology Indicators: ators (minimum of c		d: check all that	annly)			Secon	dary Indicators	(minimum of tw	o required)
-	Vater (A1)	nic is require	Salt Crus					urface Soil Crac		o required)
	er Table (A2)		Aquatic II		tas (R13)	١			ed Concave Sur	face (B8)
Saturation			Hydroger					ainage Patterns		idoc (Bo)
Water Ma	` '		Dry-Seas					•	heres on Living	Roots (C3)
	Deposits (B2)		Oxidized					(where tilled)	norco on Erving	110013 (00)
Drift Depo				not tilled		Living it		ayfish Burrows	(C8)	
	or Crust (B4)		Presence		,	(C4)		-	on Aerial Image	ery (C9)
Iron Depo	, ,		Thin Muc			(0.)		eomorphic Posi	_	o.y (00)
I — '	n Visible on Aerial I	magery (B7)						AC-Neutral Test		
	ained Leaves (B9)	magory (Dr)		piani in i	(ciriarito)				nmocks (D7) (LF	2R F)
Field Observ	. ,						 '''	OST TICAVE TIGHT	iniocks (D1) (EI	
			No. V	Donth /	nohoo\.					
Surface Wate Water Table F		es es	No X No X		nches): _ nches): _					
Saturation Pre		es	No X		nches):		Wetland Hydro	logy Present?	Yes	No_X
		, <u> </u>	110 <u>X</u>	Deptii (i	_		Wedana riyaro	logy i rescrit:		<u> </u>
(includes capi Describe Rec	orded Data (stream	gauge, mon	itoring well, aeri	al photos	. previous	s inspec	tions), if available			
2000.100 1100		J		po.oo	, , , , , , , , , , , , , , , , , , , ,		,,			
Remarks:										
No evidence of	of primary or second	dary indicator	rs.							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - West		City/Cour	nty: Rosebud		S	ampling Date:	7/24/17
Applicant/Owner: MDT				State:	MT S	ampling Point:	DP-1w
Investigator(s): L. Bacon, C. Hoschouer		Section, T	ownship, Ranç	ge: S20 T7N	N R39E		
Landform (hillside, terrace, etc.): floodplain	L	ocal relief (co	oncave, conve	x, none): co	ncave	Slo	ope (%): 0
Subregion (LRR): LRR G Lat: 46.3383	328		Long: <u>-10</u>	6.873779		Datum:	WGS84
Soil Map Unit Name: Marvan silty clay, 0-2% slopes				N\	VI classificat	ion: Not maap	ped
Are climatic / hydrologic conditions on the site typical fo	or this time of	year?	Yes X	No	(If no, explain	in Remarks.)	
Are Vegetation, Soil, or Hydrologys	ignificantly di	sturbed? A	re "Normal Cir	cumstances"	present?	Yes X N	10
Are Vegetation, Soil, or Hydrologyn	aturally prob	lematic? (I	If needed, expl	ain any answ	ers in Remarl	(S.)	
SUMMARY OF FINDINGS – Attach site ma				-			tures, etc.
Hydrophytic Vegetation Present? Yes X No		Is the	Sampled Are	····			
Hydric Soil Present? Yes X No			n a Wetland?		es X	No	
Remarks: DP located on very edge of WL/UP transition zone, ev		veral seconda	ry hydrology ir	ndicators and	dominant hyd	Irophytic comn	nunity.
VEGETATION – Use scientific names of p							
<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance	Test worksh	eet.	
1.	70 00001	орсоюз:			ominant Spe		
2.					CW, or FAC:		1 (A)
3. 4.				Total Number	er of Dominar trata:	t Species	1 (B)
Sapling/Shrub Stratum (Plot size:) 1	=	Total Cover			ominant Spe CW, or FAC:		00.0% (A/B)
2.				Prevalence	Index works	heet:	
3				Total % Cov	er of:	Multiply b	y:
4				OBL species		x 1 =	40
5				FACW speci		x 2 =	2
Herb Stratum (Plot size:)	=	Total Cover		FAC species FACU species		x 3 = x 4 =	40
1. Puccinellia nuttalliana	40	Yes	OBL	UPL species			0
Bassia scoparia	10	No	FACU	Column Tota		(A)	82 (B)
3. Hordeum jubatum	1	No	FACW		ndex = B/A =		
4.						'-	
5					Vegetation		
6					•	drophytic Vege	tation
7.					inance Test is		
8.					alence Index		vide supporting
9 10						on a separate	
	51 =	Total Cover		Problem	atic Hydrophy	ytic Vegetation	¹ (Explain)
Woody Vine Stratum (Plot size:)						nd wetland hyd	
1.				be present, u	unless disturb	ed or problem	atic.
2		Total Cavar		Hydrophytic	:		
% Bare Ground in Herb Stratum50	= =	Total Cover		Vegetation Present?	Yes X	No	
Remarks:							
Bare ground was open water in the spring (cracked so	il). DP on ve	ry edge of we	et/up zone tran	sition.			

SOIL Sampling Point: DP-1w

Profile Desc Depth	ription: (Describe t Matrix	o the dept		ument th		tor or c	confirm the absence	of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-8	2.5Y 4/3	100	,				Loamy/Clayey		
8-16	2.5Y 3/3	80	2.5Y 3/2	20	_		Loamy/Clayey	not redox, soil matrix i	s mixed
						<u> </u>			
					_				
¹ Type: C=Co	ncentration, D=Depl	etion, RM=	Reduced Matrix, (CS=Cove	ered or Co	pated S	and Grains. ² Loc	ation: PL=Pore Lining, M=N	Matrix.
	ndicators: (Applical							cators for Problematic Hyd	
Histosol	(A1)			Sandy G	aleyed Ma	atrix (S4)	1 cm Muck (A9) (LRR I, J)	
Histic Ep	ipedon (A2)			Sandy R	edox (S5	5)	<u> </u>	Coast Prairie Redox (A16) (LRR F, G, H)
Black His	stic (A3)			Stripped	Matrix (S	36)		Dark Surface (S7) (LRR G)	
Hydroger	n Sulfide (A4)			Loamy N	/lucky Mi	neral (F	1)	High Plains Depressions (F	16)
Stratified	Layers (A5) (LRR F))		Loamy C	Sleyed M	atrix (F2	2)	(LRR H outside of MLR	A 72 & 73)
1 cm Mu	ck (A9) (LRR F, G, H)		Depleted	d Matrix (F3)	?	Reduced Vertic (F18)	
Depleted	Below Dark Surface	(A11)		Redox D	ark Surfa	ace (F6)		Red Parent Material (F21)	
Thick Da	rk Surface (A12)			Depleted	d Dark Su	urface (F	 '	Very Shallow Dark Surface	(F22)
Sandy M	ucky Mineral (S1)			•	epressio			Other (Explain in Remarks)	
2.5 cm N	lucky Peat or Peat (S	(2) (LRR G	i, H)	High Pla	ins Depr	essions		cators of hydrophytic vegeta	
5 cm Mu	cky Peat or Peat (S3	(LRR F)		(MLR	RA 72 & 7	3 of LR		wetland hydrology must be puntered with the problem with the mind and the wetter with the mind the wetter with the mind and the wetter with th	-
	ayer (if observed):								
Type:									
Depth (in	ches):						Hydric Soil Presen	t? Yes X	No
Remarks: Soil likely mix indicators.	ed as DP is located	on the edg	e of road embank	ment and	d excavat	ed wetla	and area. OTHER: D	P located in area of positive	esecondary
HYDROLO	GY							_	
Wetland Hyd	Irology Indicators:								
Primary Indic	ators (minimum of or	ne is requir	ed; check all that	apply)			Seconda	ary Indicators (minimum of to	wo required)
Surface \	Water (A1)		Salt Crust	(B11)			X Surfa	ace Soil Cracks (B6)	
High Wa	ter Table (A2)		Aquatic In	vertebrat	tes (B13)		X Spai	rsely Vegetated Concave Su	urface (B8)
Saturatio	n (A3)		Hydrogen	Sulfide C	Odor (C1))	X Draii	nage Patterns (B10)	
Water Ma	` ,		Dry-Seaso					lized Rhizospheres on Living	g Roots (C3)
	t Deposits (B2)		Oxidized I			iving R		here tilled)	
	osits (B3)		•	not tilled	•			fish Burrows (C8)	
	t or Crust (B4)		Presence			C4)		ration Visible on Aerial Imag	gery (C9)
Iron Depo		(5.7	Thin Muck					morphic Position (D2)	
	n Visible on Aerial In	nagery (B <i>1</i>	Other (Ex	plain in R	lemarks)			S-Neutral Test (D5)	
Water-St	ained Leaves (B9)						Fros	t-Heave Hummocks (D7) (L	.RR F)
Field Observ									
Surface Water		<u> </u>	No <u>X</u>		nches): _				
Water Table		·	No X		nches): _			D 40 Y Y	
Saturation Pr		<u> </u>	No X	Depth (ii	ncnes): _		Wetland Hydrolo	gy Present? Yes X	No
(includes cap			and the section of th	-11			Caral Stan 9.11		
Describe Rec	orded Data (stream	gauge, mo	nitoring well, aeria	ai pnotos,	, previous	s inspec	tions), if available:		
Remarks:									
Survey condu	ucted in mid-summer	of a very h	not and drought-de	eclared a	rea. Seve	eral pos	itive secondary indicat	ors evident, however.	

MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	Project Name: Forsyth NW - West 2. MDT Project #: STPP 14-6(9)259 3. Control #: 4059
3.	Evaluation Date: 7/24/17 4. Evaluator(s): Lynn Bacon 5. Wetland/Site #(s): Forsyth NW - West
6.	Wetland Location(s): Township 7 N, Range 39 E, Section 20; Township 7 N, Range 39 E, Section 29
	Approximate Stationing or Roadposts: RP 280 on US 12
	Watershed: 14 - Middle Yellowstone County: _ Rosebud
7.	Evaluating Agency: RESPEC for MDT Purpose of Evaluation: Wetland potentially affected by MDT project Mitigation wetlands; pre-construction 8. Wetland Size (acre): 5.89 (measured, e.g. GPS)
	Mitigation wetlands; post-construction 9. Assessment Area (AA) Size (acre): (visually estimated) Other (see manual for determining AA) 6.01 (measured, e.g. GPS)

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA (See manual for definitions.)

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA
Riverine	Emergent Wetland		Permanent / Perennial	17
Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	45
Depressional	Forested Wetland		Seasonal / Intermittent	5
Depressional	Aquatic Bed	Excavated	Seasonal / Intermittent	30
Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	3

6.01 (measured, e.g. GPS)

Comments: Emergent, Aquatic Bed, and Forested classes all represented

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) common

12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): Construction activities in 2017 to repair the dike structure increased disturbance rating at the site to high.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Euphorbia esula, Convolvulus arvensis, Cirsium arvense, Tamarix ramosissima
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA includes existing and constructed wetlands within floodplain of an Unnamed Tributary of Big Porcupine. Surrounding land includes US 12 and livestock grazing.

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional v		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes		NA	NA	NA
1 class, but not a monoculture	mod	←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Emergent wetland with occasional trees and shrubs, as well as open water with aquatic macrophytes.

Wetland/Site #(s): Forsyth NW - West

14A. HABITAT FOR FEDERA	LLY LI	STED	OR F	ROP	OSED	THRE	EATEN	ED (OR EN	IDANG	ERED	PLA	NTS C	R AN	IMALS	3				
 i. AA is Documented (D) or S Primary or critical habitat (list Secondary habitat (list specific Incidental habitat (list specific No usable habitat 	t speci ies)	ted (S es)) to c		s s s	_	x base	ed on	defini	tions ir	i manu	al.								
ii. Rating: Based on the strong						_														_
Highest Habitat Level	Doc/F	Prima	ry S	Sus/P	rimary	/ Do	c/Sec	onda	ary S	Sus/Se	conda	ry	Doc/I	ncider	ntal	Sus	Incide	ntal	None	е
Functional Point/Rating								-											0L	
Sources for documented use	(e.g. o	bserva	ations	, reco	rds): _															
14B. HABITAT FOR PLANTS Do not include species lis				TED	S1, S2	, OR S	83 BY	THE	MON	TANA	NATUI	RAL	HERIT	AGE F	PROG	RAM				
i. AA is Documented (D) or S Primary or critical habitat (lis Secondary habitat (list spec Incidental habitat (list specie No usable habitat	t speci ies)				S Am S Gre	manni	a robu	sta (<u>S2)</u>	ions in	manua	al.								
ii. Rating: Based on the stron	gest ha	bitat o								onding	g functi	onal	point a	and rat	ing.					=
Highest Habitat Level	Doc/F	Prima	ry S	Sus/P	rimary	/ Do	c/Sec	onda	ary S	Sus/Se	conda	ry	Doc/I	ncider	ntal	Sus/	Incide	ntal	None	
S1 Species Functional Point/Rating				-				-		-									.0L	
S2 and S3 Species Functional Point/Rating		9H		-				•		-										
Sources for documented use	(e.g. o	bserva	ations	, reco	rds): A	mmar	nnia ob	serve	ed with	hin AA	in prev	ious	year.					<u> </u>		
14C. GENERAL WILDLIFE HA	ABITAT	RAT	ING											idence	ı.					
□ Substantial: Based on any □ observations of abundan □ abundant wildlife sign su □ presence of extremely lir □ interview with local biology ■ Moderate: Based on any of ■ observations of scattered	t wildlif ch as s niting h gist with the foll	e #s o cat, tr abitat n knov owing	or high acks, featur vledge	specinest: res no e of the	structu ot avail e AA	res, ga able ir	ame tra	áils, é urrou	etc. nding	area	f li _ s _ i	ew or ttle to parse ntervi	no wi no wi adjad ew wit	Idlife o Idlife s ent up	bserva sign bland f	ations ood s	ources	g peak	k]. use pe	
 □ common occurrence of w □ adequate adjacent uplan □ interview with local biolog 	ildlife s d food :	sign su source	ich as es	scat,	tracks							P0110								
ii. Wildlife Habitat Features: For class cover to be considere percent composition of the AA S/I = seasonal/intermittent; T/E	d even (see #1	ly dist 0). Al	ribute bbrevi	d, the ations	most a	and le	ast pre water (valer durat	nt veg ions a	etated ire as f	classe ollows:	s mu P/P	st be v = perm	within 2 nanent	20% of /peren	f each				
Structural Diversity					ligh								derate						ow	
(see #13) Class Cover Distribution (all vegetated classes)		□ E	ven		-	Un	even			□ E	ven			⊠ Un	even			□ E	ven	
Duration of Surface Water in ≥ 10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
□ Low Disturbance at AA																				
(see #12i) ☐ Moderate Disturbance at AA (see #12i)																				
☐ High Disturbance at AA (see #12i)														L						
iii. Rating: Use the conclusion	ne from	iand	ii aho	VA 2n	d the n	natriv	helow	to so	lact th	e funci	ional n	oint 1	and rot	ina						
Evidence of Wildlife Use	13 110111	ı anu	ii abu	ve all						s Rati		OIIIL C	ariu idi	iiiy.		7				
(i)] Exc	eptio	nal			High			_	oderat	Э		⊠ Lo	w					
⊠ Substantial	Ī													.7M		7				
☐ Moderate																7				
☐ Minimal																				
Comments: Extreme heat during	ng surv	ey res	sulted	in fev	ver wild	llife ol	oservat	tions	than i	n previ	ous ye	ars b	ut wild	life sig	n was	comr	non.			

								W	etland	d/Site	#(s): <u>F</u>	orsyth	NW - \	<i>N</i> est						
14	AD. GENERAL FISH HABITA If the AA is not used by fis entrapped in a canal], the	sh, fish	use is		storab	le due	to hal		onstra	ints, c	or is not	desire	ed fron	n a ma	anagen	nent pe	erspec	tive [s	uch as	fish
	Assess this function if the precluded by perched cul-					existin	g situa	ation is	corr "corr	ectab	le" such	that t	he AA	could	l be us	ed by f	ish [i.e	., fish	use is	
	Type of Fishery: Col	d Wate	r (CW) 🛮 V	Varm	Water	(WW) Use	the C	CW or	WW gu	iideline	es in th	e mar	nual to	comple	te the	matrix	ζ.	
i.	Habitat Quality and Known	/ Susp	ected	Fish S	pecie	s in A	A: Us	se mat	rix to	select	the fur	ctiona	l point	and r	ating.					
	Duration of Surface Water in AA	☐ Pe	erman	ent / P	erenn	ial		⊠s	easoı	nal / Ir	ntermit	tent		ד □	empo	rary / E	Ephen	eral		
	Aquatic Hiding / Resting / Escape Cover	Opti] mal	Adeq] uate	Poor		Opti	Optimal Ad		dequate Poor			Optimal		Adequate		Po	oor	
	Thermal Cover:	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	
	optimal / suboptimal FWP Tier I fish species																			
	FWP Tier II or Native																			
	Game fish species FWP Tier III or Introduced																			
	Game fish FWP Non-Game Tier IV or																			
	No fish species										.3L									
a) M su b) na	Modified Rating: NOTE: NOT	ntly red ed of TN plant of nented ish?	luced I IDL de or anin spawr] YES	by a culevelopred all specifications of the contractions of the co	lvert, onent voices (see or constant)	dike, o vith list see Ap other ci e in i c	r othe ted "P pend ritical or iia (r man- robabl ix E) c habita).1 = _	made le Imp occur i t featu or	e struc aired in fish ure (i.e \(\text{NC}\)	Uses" i habitat e., sanc)	ncludir ? 🔲 \ tuary p	ng cold 'ES, re nool, u	d or wa educe pwellia	arm wa score ng area	nter fist in i by a; spec	nery or 0.1 = cify in o	r aqua or comme	tic life ⊠ N0)
	Applies only to wetlands to the standard of th	looded	subje from	in-chan	oding nel or	via in overb	chani ank fl	ow, ch	eck th	ne NA	box an	•								
	ntrenchment Ratio (ER) Estir ood-prone width = estimated h																		of the s	stream.
flo	/ ood prone width / bankfull width	= _ n = enti	renchr	nent ra	tio		2 x F	3ankful	ll Dept	h	Bar	ıkfull D	epth	o o o o o o		Husty	Flo Bankft		ne Wid	lth
	Slightly Entr ER ≥ 2 C stream type D stream t	.2		ream ty	pe		ER =	y Enti 1.41 – eam ty	2.2	ed	A stre	eam typ	oe	ER =	renche : 1.0 – ream ty	1.4	G str	ream t	ype	

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Estimated or Calculated Entrenchment ☐ Moderately Entrenched ☐ Entrenched (Rosgen 1994, 1996) C, D, E stream types A, F, G stream types B stream type Percent of Flooded Wetland Classified as \boxtimes Forested and/or Scrub/Shrub 75% 25-75% <25% 75% 25-75% <25% 75% 25-75% <25% AA contains no outlet or restricted outlet .6M AA contains unrestricted outlet ---

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☒ NO Comments: Surface water enters AA via box culvert and from overbank flow from Big Porcupine Creek; dike upgraded on SE end of wetland in 2017.

Wetland/Site #(s): Forsyth NW - West

14F.	F. SHORT AND LONG TERM SURFACE WATER STORAGE $\ \square$	NA (proceed to 14G)
	Applies to wetlands that flood or pond from overbank or in-channel fl	ow, precipitation, upland surface flow, or groundwater flow.
	If no wetlands in the AA are subject to flooding or ponding, then chec	k the NA box and proceed to 14G.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see manual for further definitions of these terms].

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	□ 1.1	to 5 ac	re feet		≤1 acre	foot
Duration of Surface Water at Wetlands within the AA	□ P/P	⊠ S/I	□ T/E	□ P/P	□ S/I	□ T/E	□ P/P	□ S/I	□ T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years		.9H							
Wetlands in AA flood or pond < 5 out of 10 years									

Comments: A large area of the AA is seasonally flooded by East Spring Coulee.

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that of substantial sedimental toxicants, present.	tial to delive or compount other funct ally impaire tion, source	er sedime inds at lev ions are n d. Minor es of nutr	nts, els ot ients or	Waterbody is need of TMDI causes" relat toxicants or A has potential nutrients, or c functions are sedimentation or signs of eu	developmer ed to sedime AA receives of to deliver hig compounds s substantially n, sources of	nt for "probal nt, nutrients, or surroundin gh levels of s such that oth or impaired. M nutrients or	ole or g land use ediments, er ajor
% Cover of Wetland Vegetation in AA	⊠≥`	70%	☐ < 70%		□≥7	70%	□<	70%
Evidence of Flooding / Ponding in AA	⊠ Yes	□No	☐ Yes	□No	☐ Yes	☐ No	☐ Yes	☐ No
AA contains no or restricted outlet	1H							
AA contains unrestricted outlet								

Comments: Open/standing water was present in depressional aquatic bed during field survey.

14H. SEDIMENT / SHORELINE STABILIZATION \(\square\) NA (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of S	urface Water Adjacent to Roo	ted Vegetation
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	Seasonal / Intermittent	☐ Temporary / Ephemeral
□ ≥ 65%			
⊠ 35-64%		.6M	
☐ < 35%			

Comments: AA is subject to surface water flows during runoff in UT-Big Porcupine Creek.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	Genera	l Wildlife Habitat Rati	ng (14Ciii)
(14Diii)	☐ E/H	oxtimes M	Ĺ
☐ E/H			
■ M			
⊠L		M	
□NA			

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

Α	\boxtimes	Vegeta	ted Co	mponent	t >5 ac	res		☐ Vegetated Component 1-5 acres					☐ Vegetated Component <1 acre						
В		ligh	\boxtimes M	oderate		Low	<u> </u>	ligh		derate		Low	<u> </u>	ligh	☐ Mo	derate	L	.ow	
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
P/P																			
S/I			.7M																
T/E/A																			

			Wetland	l/Site #(s): Forsyth NW	- West			
14I. PRODUCTION EXPORT / FOOD CH	IAIN SU	PPORT (contir	nued)						
iii. Modified Rating: Note: Modified scor	e canno	t exceed 1.0 o	r be less than	0.1.					
Vegetated Upland Buffer: Area with mowing or clearing (unless for weed of the state of the stat	ontrol).						-		
iv. Final Score and Rating: <u>.8H</u> Comn	nents: <u>∪</u>	pland buffer be	etween northe	rn bound	ary of AA and	highway great	er than 5	Oft.	
14J. GROUNDWATER DISCHARGE / R Check the appropriate indicators in									
i. Discharge Indicators The AA is a slope wetland. Springs or seeps are known of the vetland occurs at the toe of the seeps are present at the wet AA permanently flooded during Wetland contains an outlet, bounded the seeps are present at the wet AA permanently flooded during Wetland contains an outlet, bounded the seeps are present at the wet AA permanently flooded during Wetland contains an outlet, bounded the seeps are present at the seeps are present at the wetland contains an outlet, bounded the seeps are present at the seeps are present at the seeps are known of the seeps are present at the seeps	ormant se a natural land edg ng droug ut no inle	eason/drought. slope. e. ht periods. et.		☐ Per ☐ Wer ☐ Stre	rge Indicators meable substr tland contains eam is a knowr er:	ate present wi inlet but no ou	tlet.		
iii. Rating: Use the information from i an	d ii abov								ส
			Saturation at <i>I</i> ATER THAT I						
Criteria			<u>ATEN THAT I</u> ⊠ S		<u>ARGING THE</u> □ T	GROUNDWA	□ No		
☐ Groundwater Discharge or Recharge	arge		.7M						
☐ Insufficient Data/Information									
Comments: Site hydrology is combination	of seas	onally high gro	oundwater table	e and rur	noff.				
14K. UNIQUENESS									
i. Rating: Working from top to bottom, us	se the ma	ataba bada sa ta							
	select the funct	ional poi	nt and rating.						
Replacement Potential	AA cor spring foreste	ntains fen, bo s or mature (x ed wetland Of ation listed a	g, warm >80 yr-old) ⋜ plant	AA do cited r divers contai	nt and rating. es not contail are types ANI ity (#13) is hig ns plant asso as "S2" by the	O structural gh OR ciation	previou associa	es not containusly cited rar ations AND s ty (#13) is lov	e types OR tructural
Replacement Potential Estimated Relative Abundance (#11)	AA cor spring foreste associ the MT	ntains fen, bo s or mature (x ed wetland Of ation listed a	g, warm >80 yr-old) ⋜ plant s "S1" by	AA do cited r divers contai listed	es not contain are types ANI ity (#13) is hig ns plant asso	Structural gh OR ciation e MTNHP	previou associa diversi	usly cited rar ations AND s	e types OR tructural w-moderate
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i)	AA cor spring foreste associ the MT	ntains fen, bo s or mature (: ed wetland OF ation listed a: NHP	g, warm >80 yr-old) ⋜ plant s "S1" by	AA do cited r divers contai listed	es not contail are types ANI ity (#13) is hig ns plant asso as "S2" by the	Structural gh OR ciation e MTNHP	previou associa diversi	usly cited rar ations AND s ty (#13) is lov	e types OR tructural w-moderate
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i)	AA col spring foreste associ the MT	ntains fen, bo s or mature (: ed wetland OF ation listed a: NHP	g, warm >80 yr-old) R plant s "S1" by Abundant	AA docited r divers contai listed	es not contain are types ANI ity (#13) is hig ns plant asso as "S2" by the Common	D structural gh OR ciation e MTNHP	previou associa diversi	usly cited rar ations AND s ty (#13) is low Common	e types OR tructural w-moderate Abundant
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i)	AA cor spring foreste associ the MT	ntains fen, bo s or mature (: ed wetland OF ation listed as NHP	g, warm >80 yr-old) R plant s "S1" by Abundant	AA docited r divers contai listed	es not contain are types ANI ity (#13) is hig ns plant asso as "S2" by the Common	D structural gh OR ciation e MTNHP	previou associa diversi	usly cited rar ations AND s ty (#13) is low	e types OR tructural w-moderate
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recrea	AA corspring foreste associ the MT Rare and is m	ntains fen, bos or mature (:ed wetland OF ation listed as NHP	g, warm >80 yr-old) R plant s "S1" by Abundant atural state. NA (proceed to ational opportu- site? YES	AA docited r divers contai listed : Rare	es not contain are types ANI ity (#13) is high its plant asso as "S2" by the Common	Structural gh OR ciation e MTNHP Abundant I Rating page)	previou associa diversi	usly cited rar ations AND s ty (#13) is lov Common	e types OR tructural w-moderate Abundant
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the A	AA colspring forested associate MT Rare	ntains fen, bo s or mature (: ed wetland OF ation listed as NHP Common nanaged in a n titional or educational ducational/Sci	g, warm >80 yr-old) R plant s "S1" by Abundant eatural state. NA (proceed to ational opportu- site? YES entific Study	AA docited r divers contai listed : Rare	es not contain are types ANI ity (#13) is high its plant asso as "S2" by the Common	Structural gh OR ciation e MTNHP Abundant I Rating page)	previou associa diversi	usly cited rar ations AND s ty (#13) is lov Common	e types OR tructural w-moderate Abundant
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the Aiii. Rating: Use the matrix below to select	AA col spring foreste associ the MT Rare and is m ENTIAL a recreational o A: C	ntains fen, bo s or mature (: ed wetland OF ation listed as NHP Common nanaged in a n titional or educational ducational/Sci other: etional point ar	g, warm >80 yr-old) R plant s "S1" by Abundant eatural state. NA (proceed to ational opportu- site? YES entific Study	AA docited r divers contai listed a listed a contai listed a c	es not contain are types ANI ity (#13) is high its plant asso as "S2" by the Common	Structural gh OR ciation e MTNHP Abundant I Rating page)	previous associativersi Rare	usly cited rar ations AND s ty (#13) is lov Common	e types OR tructural w-moderate ational
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the Aiii. Rating: Use the matrix below to select Known or F	AA colspring forested associate MT Rare	ntains fen, bo s or mature (: ed wetland OF ation listed as NHP Common nanaged in a n titional or educational ducational/Sci bther: ctional point ar Recreational	g, warm >80 yr-old) R plant s "S1" by Abundant natural state. NA (proceed to ational opportu- site? YES entific Study od rating. or Education	AA docited r divers contai listed a listed a contai listed a c	es not contain are types ANI ity (#13) is high as plant asso as "S2" by the Common4M Summary and NO, che sumptive Recre	Structural gh OR ciation e MTNHP Abundant I Rating page)	previou associa diversi	usly cited rar ations AND s ty (#13) is lov Common umptive recrea	e types OR tructural w-moderate ational
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the Aiii. Rating: Use the matrix below to select Known or Public ownership or public easemer	AA corspring foreste associ the MT Rare and is mentional of the functional of th	ntains fen, bo s or mature (: ed wetland OF ation listed an THP Common nanaged in a n tional or educt r educational ducational/Sci other: ctional point ar Recreational eneral public	g, warm >80 yr-old) R plant s "S1" by Abundant	AA docited r divers contai listed : Rare O Overall unity. G, go to ii Cons	es not contain are types ANI ity (#13) is high as plant asso as "S2" by the Common4M Summary and NO, che sumptive Recre	Structural gh OR ciation e MTNHP Abundant I Rating page)	previous associativersi Pare	usly cited rar ations AND s ty (#13) is lov Common	e types OR tructural w-moderate ational
Estimated Relative Abundance (#11) Low Disturbance at AA (#12i) Moderate Disturbance at AA (#12i) High Disturbance at AA (#12i) Comments: AA with several mature trees 14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the Aiii. Rating: Use the matrix below to select Known or F	AA corspring foreste associ the MT Rare and is mentional of A: Cotential at with g ic access	ntains fen, bo s or mature (: ed wetland OF ation listed an NHP Common nanaged in a n tional or educational ducational/Sci other: ctional point ar Recreational eneral public s (no permiss	g, warm >80 yr-old) R plant s "S1" by Abundant	AA docited r divers contai listed : Rare D Overall unity. G, go to ii Cons	es not contain are types ANI ity (#13) is high i	Structural gh OR ciation e MTNHP Abundant I Rating page) ck the NA box eational	previous associativersi diversi Rare	usly cited rar ations AND s ty (#13) is lov Common umptive recrea	e types OR tructural w-moderate ational

15. GENERAL SITE NOTES:

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	low 0.00	1.00	0	
B. MT Natural Heritage Program Species Habitat	high 0.90	1.00	5.3	*
C. General Wildlife Habitat	mod 0.70	1.00	4.1	*
D. General Fish Habitat	low 0.30	1.00	1.8	
E. Flood Attenuation	mod 0.60	1.00	3.5	
F. Short and Long Term Surface Water Storage	high 0.90	1.00	5.3	*
G. Sediment / Nutrient / Toxicant Removal	high 1.00	1.00	5.9	*
H. Sediment / Shoreline Stabilization	mod 0.60	1.00	3.5	
I. Production Export / Food Chain Support	high 0.80	1.00	4.7	
J. Groundwater Discharge / Recharge	mod 0.70	1.00	4.1	*
K. Uniqueness	mod 0.40	1.00	2.4	
L. Recreation / Education Potential (bonus point)	high 0.15		0.9	
Total Points	7.05	11	41.5 Total	Functional Units
Percent of Possible Score 64% (round to nearest whole number)				

	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; if not go to Category III) "Low" rating for Uniqueness; and
	☐ Vegetated <u>wetland</u> component < 1 acre (do <u>not</u> include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
0	OVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.

RESPEC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Forsyth NW - Middle Assessment Date: July 24, 2017 Bacon/Hoschouer Location: ~8 miles NW of Forsyth Milepost: ~262 on US 12 Legal Description: T 7N R 39E Weather Conditions: Warm and sunny Initial Evaluation Date: August 15, 2013 Size of evaluation area: 1.8 acres	Section <u>33</u> Moni	Project Non(s) conducting the MDT District: Confidence of Day: 12 toring Year: 5 #	Glendive 45-1400 Visits in Ye	t: ear: <u>1</u>	
	HYDROLO	GY			
Surface Water Source: Precipitation , runoff, shallow groundwater Inundation: Absent Average Depth: Q feet Range of Depths: Q Percent of assessment area under inundation: Q feet 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.): Geomorphic position , surface soil cracks Groundwater Monitoring Wells: Absent					
Record depth of water below ground surf Well Number Depth Well Num		Well Number	Depth]	
THE TAIL SEE THE TAIL THE THE TAIL THE TAIL THE TAIL THE THE TAIL THE THE THE TAIL THE THE TH	Depth	VV CIT 1 (GIII) CI	Zepui		
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. COMMENTS / PROBLEMS: Soil not saturated during late-July survey but soil cracking noticed in areas saturated earlier in growing season.					

VEGETATION COMMUNITIES

Community Number: 3 Community Title (main spp): Pascopyrum smithii / Elymus canadensis

Dominant Species	% Cover	Dominant Species	% Cover
Bare Ground	+=<1%	Symphoricarpos albus	1 = 1-5%
Bromus arvensis	+=<1%	Lactuca serriola	1 = 1-5%
Cirsium arvense	1 = 1-5%	Linum lewisii	1 = 1-5%
Elymus canadensis	1 = 1-5%	Pascopyrum smithii	4 = 21-50%
Populus deltoides	2 = 6-10%	Rumex crispus	1 = 1-5%
Sarcobatus vermiculatus	1 = 1-5%	Thlaspi arvense	1 = 1-5%

Comments / Problems: Elymus trachycaulus-2; Bromus inermis-1; Grindelia squarrosa-1

Community Number: 4 Community Title (main spp): Puccinellia nuttalliana / Hordeum jubatum

Dominant Species	% Cover	Dominant Species	% Cover
Bare ground	2 = 6-10%	Populus deltoides	+ = < 1%
Bromus arvensis	1 = 1-5%	Hordeum jubatum	2 = 6-10%
ELymus repens	1 = 1-5%	Puccinellia nuttalliana	3 = 11-20%
Pascopyrum smithii	2 = 6-10%	Schedonorus pratensis	2 = 6-10%
Rumex crispus	2 = 6-10%	Schoenoplectus maritimus	1 = 1-5%
Eleocharis palustris	2 = 6-10%	Salix lutea	1 = 1-5%

Comments / Problems: Alopecurus arundinaceus-1; Poa pratensis-1; Muhlenbergia asperifolia <1

Community Number: Community Title (main spp):

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Community Number: ___ Community Title (main spp): ____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: ____

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes

Comments / Problems: No planted woody vegetation.

Site: Forsyth NW - Middle Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 50 feet Compass Direction from Start: 205 Note:

Transect Interval Length: 14 feet (station 0-14)				
Vegetation Community Type: 3 - Pascopyrum smithii / Elymus canadensis				
Plant Species	Cover			
Bassia scoparia	1 = 1-5%			
Pascopyrum smithii	2 = 6-10%			
Schedonorus pratensis	1 = 1-5%			
Lepidium perfoliatum	1 = 1-5%			
Bare Ground	4 = 21-50%			
Muhlenbergia asperifolia	1 = 1-5%			
Bromus tectorum	4 = 21-50%			
Chenopodium album	3 = 11-20%			
Total Vegetative Cover:	60%			

Transect Interval Length: 19 feet (station 14-33)			
Vegetation Community Type: 4 - Puccinellia nuttalliana / Hordeum			
jubatum			
Plant Species	Cover		
Bare Ground	4 = 21-50%		
Hordeum jubatum	1 = 1-5%		
Puccinellia nuttalliana	2 = 6-10%		
Elymus repens	4 = 21-50%		
Schedonorus pratensis	4 = 21-50%		
Eleocharis palustris	2 = 6-10%		
Total Vegetative Cover:	90%		

Transect Interval Length: 17 feet (station 33-50)			
Vegetation Community Type: 3 - Pascopyrum smithii / Elymus canadensis			
Plant Species	Cover		
Bare Ground	1 = 1-5%		
Elymus canadensis	+ = < 1%		
Ratibida columnifera	1 = 1-5%		
Linum lewisii	1 = 1-5%		
Schedonorus pratensis	2 = 6-10%		
Elymus trachycaulus	4 = 21-50%		
Pascopyrum smithii	1 = 1-5%		
Symphoricarpos albus	1 = 1-5%		
Populus deltoides	4 = 21-50%		
Poa pratensis	+ = < 1%		
Total Vegetative Cover:	95%		

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Vegetative Cover:	%

3-29

MDT WETLAND MONITORING - VEGETATION TRANSECT

Cover EstimateIndicator ClassSource+ = < 1%3 = 11-10%+ = ObligateP = Planted1 = 1-5%4 = 21-50%- = Facultative/WetV = Volunteer2 = 6-10%5 = > 50%0 = Facultative

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): 100%

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: <u>PUCNUT/HORJUB CT along transect exhibits a micro-'belt' of dominant upland cover; in general wetland area has a dominant hydrophytic community.</u>

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	nd.
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 transec	t.
Di - 4 l	C

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1		Photo Point 1: 46.322174 / -106.840996	300
PP-2		Photo Point 2: 46.323803 / -106.844337	120
T-1 start		Transect 1 start: 46.322948 / -106.842323	205
T-1 end		Transect 1 end: 46.322754 / -106.842438	25
DP-1W		Wetland soil pit: 46.322942 / -106.842481	
DP-1U		Upland soil pit: 46.322911 / -106.842492	
		W & E along road buffer	
		•	

Comments / Problems:	
Comments / Froblems:	

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist:
Upland/wetland boundary.
4-6 landmarks that are recognizable on the aerial photograph.
Start and End points of vegetation transect(s).
Photograph reference points.
Groundwater monitoring well locations.
Bird nest boxes.
Comments / Problems:
WETLAND DELINEATION
(attach COE delineation forms)
At each site conduct these checklist items:
 ✓ Delineate wetlands according to the 1987 Army COE manual and regional supplement. ✓ Delineate wetland – upland boundary onto aerial photograph.
Defineate wettand – uprand boundary onto aeriai photograph.
Comments / Problems:
FUNCTIONAL ASSESSMENT
FUNCTIONAL ASSESSMENT Complete and attach full MDT Montana Wetland Assessment Method field forms.
Complete and attach full MDT Montana Wetland Assessment Method field forms.
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems:
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA If yes, describe the problems below and indicate if any actions were taken to remedy the problems.
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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? NA
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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
Complete and attach full MDT Montana Wetland Assessment Method field forms. Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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? NA If yes, are the structures working properly and in good working order? NA If no, describe the problems below.
Comments / Problems: MAINTENANCE Were man-made nesting structure installed at this site? NA If yes, do they need to be repaired? NA 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? NA If yes, are the structures working properly and in good working order? NA

W	TT	D	LI	714
* *		117		

Birds

Were man-made nesting structures installed? No If yes, type of structure: How many? O Are the nesting structures being used? NA Do the nesting structures need repairs? No Mammals and Hamtiles										
Mammals and Herptiles										
Mammal and Herptile Species Number Indirect Indication of Use										
Wammar and Herpthe Species	Observed	Tracks	Scat	Burrows	Other					
Additional Activities Checklist: NA Macroinvertebrate Sampling (if required) Comments / Problems:										

BIRD SURVEY – FIELD DATA SHEET

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
•				•			
		+					
EILAMOR COREC				HADITAT CODEC			
EHAVIOR CODES P = One of a breeding	nair			HABITAT CODES AB = Aquatic bed		SS = Scrub	/Shrub
\mathbf{D} = Breeding display	, puii			FO = Forested		$\mathbf{UP} = \mathbf{Uplan}$	
= Foraging				I = Island		$\mathbf{WM} = \mathbf{We}$	t meadow
$\mathbf{O} = \text{Flyover}$				$\mathbf{MA} = \mathbf{Marsh}$		$\mathbf{US} = \mathbf{Unco}$	nsolidated shor
= Loafing				$\mathbf{MF} = \mathbf{Mud} \ \mathbf{Flat}$			
= Nesting				$\mathbf{OW} = \mathbf{Open} \ \mathbf{Water}$			
7 4 100 1				1.1.1.1.1.4			
Veather: 100 degr	<u>ees, su</u>	nny, mia-aite	ernoon = no	bira signtings			
τ							
lotes:							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - Middle	City/County: Rosebu	d	Sampling Date: 7/24/17
Applicant/Owner: MDT		State: MT S	Sampling Point: DP-1u
Investigator(s): L. Bacon C. Hoschouer	Section, Township, Rar	nge: S33 T7N R39E	
Landform (hillside, terrace, etc.): slope	Local relief (concave, conv	·	Slope (%):5
Subregion (LRR): LRR G Lat: 46.322911	 Long: -1	•	Datum: WGS84
Soil Map Unit Name: Harlem silty clay, 00-2% slopes, occ. Fl		NWI classification	
Are climatic / hydrologic conditions on the site typical for this			
Are Vegetation, Soil, or Hydrologysignific		Sircumstances" present?	
Are Vegetation, Soil, or Hydrologynatural SUMMARY OF FINDINGS – Attach site map sh		plain any answers in Remar cations, transects, im	
Hydrophytic Vegetation Present? Yes No X	Is the Sampled A		
Hydric Soil Present? Yes No X	within a Wetland		No X
Wetland Hydrology Present? Yes No X			
Remarks:	·		
DP on slope above depression where no positive hydrology is	ndicators are evident to date.		
VEGETATION – Use scientific names of plants			
Absort Tree Stratum (Plot size:) % C		Dominance Test worksl	heet:
1.	Openies: Otatus	Number of Dominant Spe	
2.		Are OBL, FACW, or FAC	
3.		Total Number of Domina	nt Species
4.		Across All Strata:	(B)
	=Total Cover	Percent of Dominant Spe	
Sapling/Shrub Stratum (Plot size:)		Are OBL, FACW, or FAC	0.0% (A/B)
1. Populus deltoides	No FAC		
2		Prevalence Index works	
3		Total % Cover of: OBL species 0	$\frac{\text{Multiply by:}}{\text{x 1} = 0}$
5.		FACW species 0	$x^{2} = 0$
	1 =Total Cover	FAC species 1	x 3 = 3
Herb Stratum (Plot size:)		FACU species 95	x 4 = 380
Elymus trachycaulus	Yes FACU	UPL species 1	x 5 = 5
2. Schedonorus pratensis 2		Column Totals: 97	(A) <u>388</u> (B)
3. Elymus lanceolatus		Prevalence Index = B/A	= 4.00
4. Ratibida columnifera	No UPL	I budua u budia Manadadian	. In diagtons
5		Hydrophytic Vegetation	
		2 - Dominance Test i	drophytic Vegetation
8.		3 - Prevalence Index	
9.			aptations ¹ (Provide supporting
10		data in Remarks o	or on a separate sheet)
9	6 =Total Cover	Problematic Hydroph	nytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:)			and wetland hydrology must
1		be present, unless disturb	ped or problematic.
2	Total Cover	Hydrophytic	
% Bare Ground in Herb Stratum 5	=Total Cover	Vegetation Present? Yes	NoX
Remarks:			
Well vegetated upland buffer.			

B-34

SOIL Sampling Point: DP-1u

	cription: (Describe	to the depti				ator or c	onfirm the ab	sence of indicate	ors.)	
Depth	Matrix			ox Featur		Loc ²	T		Damanda	
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc	Texture		Remarks	
0-2	2.5Y 3/2	100					Loamy/Cla	yey		
2-16	2.5Y 3/3	100					Loamy/Cla	yey		
				· ——						
							-			
ļ							-			
1- 0.0								21 51		
	oncentration, D=Dep					oated Sa	and Grains.		Problematic Hy	_
	Indicators: (Applica	bie to all Li	RRS, uniess oth			otriv (CA	`		Problematic Hy	aric Solis :
— Histosol				Sandy C	-)		(A9) (LRR I, J)	. DD E & U\
	oipedon (A2)			•	ledox (St				rie Redox (A16) (ace (S7) (LRR G)	LRR F, G, H)
Black Hi					Matrix (1)		. , . ,	16\
	n Sulfide (A4) d Layers (A5) (LRR F	3			Mucky Mi				s Depressions (Find I outside of MLR	
l ——	i Layers (A5) (LRR F ick (A9) (LRR F, G, F	-			Gleyed M d Matrix (-)	•	ertic (F18)	m 12 a 13)
	d Below Dark Surface	•			ark Surf				t Material (F21)	
	ark Surface (A12)	(/(1)		•	d Dark Si				ow Dark Surface	(F22)
l ——	fucky Mineral (S1)				epressic	•	• ,		plain in Remarks)	(1 22)
	Mucky Peat or Peat (S2) (LRR G.	н) —	•	ins Depr	. ,	(F16)		ydrophytic vegeta	ation and
	icky Peat or Peat (S3				RA 72 & 7				drology must be	
	(3.	, (=::::,		(,	-	turbed or problem	
Restrictive	Layer (if observed):									
Type:										
Depth (ir	nches):		<u> </u>				Hydric Soil F	Present?	Yes	No X
Remarks:						_				
No primary of	or secondary hydric s	oil indicators	S.							
HYDROLC	OGY									
	drology Indicators:									
-	cators (minimum of o	ne is reauire	ed: check all that	apply)			S	econdary Indicato	ors (minimum of t	wo required)
	Water (A1)	-	Salt Crus					Surface Soil C		
	ater Table (A2)		Aquatic Ir		tes (B13))	_		tated Concave Si	urface (B8)
Saturation			Hydrogen				_	Drainage Patte		` ,
Water M	larks (B1)		Dry-Seas				_		spheres on Living	g Roots (C3)
Sedimer	nt Deposits (B2)		Oxidized	Rhizosph	eres on I	Living Ro	oots (C3)	(where tilled	1)	
Drift Dep	oosits (B3)		(where	not tilled	d)			Crayfish Burro	ws (C8)	
Algal Ma	at or Crust (B4)		Presence	of Reduc	ced Iron ((C4)	<u> </u>	Saturation Visi	ble on Aerial Ima	gery (C9)
Iron Dep	osits (B5)		Thin Muc	k Surface	(C7)		_	Geomorphic P	osition (D2)	
Inundation	on Visible on Aerial II	magery (B7)	Other (Ex	plain in R	temarks)			FAC-Neutral T	est (D5)	
Water-S	tained Leaves (B9)							Frost-Heave H	ummocks (D7) (L	.RR F)
Field Obser										
Surface Wat		es	No X		nches): _					
Water Table		s	No X	Depth (i	nches): _		l			
Saturation P		es	No X	Depth (i	nches):		Wetland H	ydrology Presen	it? Yes	No X
(includes cap			den alma a constitución de la co	-111		_ !	tions) 'f - '' '	-la.		
Describe Re	corded Data (stream	gauge, mor	iitoring well, aeria	ai pnotos	, previous	s inspec	tions), it availab	oie:		
Remarks:										
	of primary or second	dary indicato	rs.							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - Middle		City/Cou	nty: Rosebud			Sar	npling Date	e: <u>7/24</u>	/17
Applicant/Owner: MDT				State:	MT	San	npling Poin	t: D	P-1w
Investigator(s): L. Bacon, C. Hoschouer		Section, T	ownship, Ran	ge: <u>S33 T</u>	7N R39E				
Landform (hillside, terrace, etc.): slope		 Local relief (co	oncave, conve	x, none):	convex		s	lope (%)	: 5
Subregion (LRR): LRR G Lat: 46.3229	42		Long: <u>-10</u>	6.842481			Datum	n: WG	S84
Soil Map Unit Name: Harlem silty clay, 00-2% slopes, or					NWI clas	sification	— n: Not Map	ped	
Are climatic / hydrologic conditions on the site typical for			Yes_X_					•	
Are Vegetation, Soil, or Hydrologysig			Are "Normal Ci					, No	
Are Vegetation, Soil, or Hydrology na			If needed, expl						_
SUMMARY OF FINDINGS – Attach site map			•	•			,	atures	, etc.
Hydric Soil Present? Yes X No			Sampled Arenaments	ea	Yes_X	N	o		
Remarks: Middle Forsyth wetland developing well, entire depressi qualifies as 'other' given strong secondary hydrology inc rapidly in some areas than others.									
VEGETATION – Use scientific names of pla	ants.								
T 0	Absolute	Dominant	Indicator				,		
·	% Cover	Species?	Status	Dominand					
1				Number of Are OBL, I			es That	2	(A)
3.				Total Num			— Snecies		_ (' ')
4.				Across All		minant C	эрсоюз	3	(B)
Sapling/Shrub Stratum (Plot size:)	:	=Total Cover		Percent of Are OBL, I		•	s That	66.7%	_ _ (A/B)
1	1	No							
2				Prevalenc		workshe			
3				Total % Co			Multiply		
4				OBL speci		30	x 1 = x 2 =	30	_
o	1.	=Total Cover		FACW speci		30 0	x 3 =	60 0	_
Herb Stratum (Plot size:)		- Total Gover		FACU spe		35	x 4 =	140	_
1. Puccinellia nuttalliana	30	Yes	OBL	UPL speci		0	x 5 =	0	_
2. Elymus repens	30	Yes	FACU	Column To			(A)	230	(B)
3. Hordeum jubatum	30	Yes	FACW	Prevalence	e Index =	= B/A =	2	.42	
4. Schedonorus pratensis	5	No	FACU						
5				Hydrophy	tic Vege	tation In	dicators:		
6						-	phytic Veg	etation	
7				<u>X</u> 2 - Do					
8				X 3 - Pre					
9							ations¹ (Pro n a separa		
10	95 :	=Total Cover					c Vegetatio	,	
Woody Vine Stratum (Plot size:)	90	- Total Cover		¹ Indicators	•		Ū	` .	,
1				be present					iiiusi
2.				Hydrophy			•		
		=Total Cover		Vegetatio					
% Bare Ground in Herb Stratum5				Present?		es X	No_		
Remarks:									
Hydrophytic vegetation dominant in depression.									

SOIL Sampling Point: DP-1w

Profile Des	cription: (Describe	to the depti				tor or c	onfirm the a	absence of indicators	s.)
Depth	Matrix			ox Featur	4				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type'	Loc ²	Textu		Remarks
0-2	2.5Y 3/2	100					Loamy/C	Clayey	
2-14	2.5Y 3/3	100					Loamy/C	Clayey	
¹ Type: C=C	Concentration, D=Depl	etion RM-F	Reduced Matrix (ared or Co	nated Sa	nd Grains	² l ocation: PI –P	ore Lining, M=Matrix.
	Indicators: (Applica					batca Ga	ina Grains.		roblematic Hydric Soils ³ :
Histoso		DIC TO UII E	itito, umoss our		Sleyed Ma	atrix (S4)	ı		A9) (LRR I, J)
	pipedon (A2)				Redox (S5	, ,			Redox (A16) (LRR F, G, H
	listic (A3)				Matrix (S				e (S7) (LRR G)
	en Sulfide (A4)				Mucky Mii)		Depressions (F16)
Stratifie	d Layers (A5) (LRR F)		Loamy (Gleyed M	atrix (F2))	(LRR H o	utside of MLRA 72 & 73)
1 cm M	uck (A9) (LRR F, G, F	l)		Deplete	d Matrix (F3)		? Reduced Ve	rtic (F18)
Deplete	d Below Dark Surface	e (A11)		Redox D	Oark Surfa	ace (F6)		Red Parent I	Material (F21)
	ark Surface (A12)			Deplete	d Dark Sເ	ırface (F	7)		Dark Surface (F22)
	Mucky Mineral (S1)				Depressio			X Other (Expla	
	Mucky Peat or Peat (\$, H)	•	ains Depr			•	drophytic vegetation and
5 cm M	ucky Peat or Peat (S3	(LRR F)		(MLF	RA 72 & 7	3 of LR	к н)		ology must be present, bed or problematic.
Restrictive	Layer (if observed):							unicss distai	bed of problematic.
Type:									
Depth (i	inches):						Hydric Soi	il Present?	Yes X No
Remarks:									
	pit currently lacks red	lox features	because the wet	land is in	the early	stages	of developm	ent. Given soil cracks	it is evident that the
depression	saturates for extended	d periods du	iring the growing	season a	and hydric	soil indi	icators will d	levelop over time.	
HYDROLO									
-	drology Indicators:								
	icators (minimum of o	ne is require							(minimum of two required)
	Water (A1)		Salt Crust		(5.40)			X Surface Soil Crae	
	ater Table (A2)		Aquatic In				•		ted Concave Surface (B8)
Saturati	Marks (B1)		Hydrogen Dry-Seaso				,	Drainage Pattern	bheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized I		,	,	nots (C3)	(where tilled)	oneres on Living Roots (CS)
	posits (B3)			not tille		iving ite	(00)	Crayfish Burrows	; (C8)
	at or Crust (B4)		Presence			C4)	•		e on Aerial Imagery (C9)
	posits (B5)		Thin Mucl			,	•	X Geomorphic Pos	
	ion Visible on Aerial Ir	magery (B7)	Other (Ex	plain in F	Remarks)			X FAC-Neutral Tes	
Water-S	Stained Leaves (B9)		<u> </u>				,	Frost-Heave Hun	nmocks (D7) (LRR F)
Field Obse	rvations:								
Surface Wa	ter Present? Ye	s	No X	Depth (i	nches):				
Water Table		s	No X		nches):				
Saturation F		s	No X	Depth (i	nches):		Wetland	Hydrology Present?	Yes X No
	ipillary fringe)						<u> </u>		
Describe Re	ecorded Data (stream	gauge, mor	nitoring well, aeria	ai photos	, previous	sinspect	ions), if avail	lable:	
Remarks:									
	condary indicators.								
	,								

MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	. Project Name: Forsyth NW - Middle 2. MDT Project #: STPP 14-6(9)259 3. Control #: 4059											
3.	3. Evaluation Date: 7/24/17 4. Evaluator(s): Lynn Bacon 5. Wetland/Site #(s): Forsyth NW - Middle											
6.	. Wetland Location(s): Township 7 N, Range 39 E, Section 33; Township 7 N, Range 39 E, Section 34											
	Approximate Stationing or Roadposts: ~262 on US 12											
	Watershed: 14 - Middle Yell	owstone County: Rosebud										
7.	Evaluating Agency: RESPEC for MDT Purpose of Evaluation: ☐ Wetland potentially affected by MDT project ☐ Mitigation wetlands; pre-construction ☐ Other 8. Wetland Size (acre): (visually estimated) ☐ 0.58 (measured, e.g. GPS) ☐ Assessment Area (AA) Size (acre): (visually estimated) ☐ (see manual for determining AA) ☐ 0.58 (measured, e.g. GPS)											
10	. CLASSIFICATION OF WET	LAND AND AQUATIC HABITA	ATS IN AA (See manual for def	initions.)								
	HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA							
	Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	100							
ļ												
ŀ												

Comments:

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) abundant

12. GENERAL CONDITION OF AA

 i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): AA vegetation recovering from construction disturbance.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: All noxious weeds have decreased: Convolvulus arvensis, Cirsium arvense, Tamarix ramosissima
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA very similar to Forsyth NW East, only smaller. AA includes a linear, excavated roadside depression parallel to US 12. Surrounding land includes agriculture (grazing) and highway.

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional v		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes		NA	NA	NA
1 class, but not a monoculture	mod	←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Emergent veg class present. Several cottonwood seedlings present in herbaceous layer.

Wetland/Site #(s): Forsyth NW - Middle

14	A. HABITAT FOR FEDERA	LLY LI	STED	OR F	PROP	OSED	THRE	EATEN	ED C	OR EN	DANG	ERED	PLA	NTS C	OR AN	IMALS	3				
	AA is Documented (D) or S Primary or critical habitat (list Secondary habitat (list speci Incidental habitat (list specie No usable habitat	t speci ies)				s s	eck bo	x base	ed on	defini	tions in	ı manu	al.								
ii.	Rating: Based on the strong	gest hat	oitat c	hosen	in 14	4A(i) ab	ove, s	select t	he co	orresp	onding	function	onal p	oint a	nd rati	ng.					
	Highest Habitat Level	Doc/P	Prima	ry S	Sus/P	rimary	Do	c/Sec	onda	ry S	Sus/Se	conda	ry	Doc/I	ncide	ntal	Sus	/Incide	ental	Non	е
	Functional Point/Rating	-			-						-									0L	
	ources for documented use (e.g. observations, records): <u>USF&WS T&E list for Rosebud County</u> 4B. HABITAT FOR PLANTS OR ANIMALS RATED S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM Do not include species listed in 14A above.																				
	AA is Documented (D) or S Primary or critical habitat (list Secondary habitat (list special Incidental habitat (list special No usable habitat	t speci ies)				S Sca S S Gre	rlet A	mmanı	nia - <i>I</i>	Amma											
ii.	i. Rating: Based on the strongest habitat chosen in 14A(i) above, select the corresponding functional point and rating.																				
	Highest Habitat Level	Doc/F	Prima	ry S	Sus/P	rimary	Do	c/Sec	onda	ry S	Sus/Se	conda	ry	Doc/I	ncide	ntal	Sus/	Incide	ntal	None	
	S1 Species Functional Point/Rating	-			-						-										
	S2 and S3 Species		9H		_						_										
9	Functional Point/Rating purces for documented use			otiono	rooc	rdo): N	ITNILI	2 800	rono	rt for 7	TZNI DO	OE di	root o	hoon "	otion o	f Amm	onni	n in 20	12		╛
30	ources for documented use	(e.g. o	DSCIV	alions	, recc	ius). <u>iv</u>	I I INI II	300	теро	11 101	/ IN INC	oe∟, un	eci c	DSEIV	alion c	AIIII	iaiiiii	<u> </u>	13.		
14	C. GENERAL WILDLIFE HA	ABITAT	RAT	ING																	
i.	i. Evidence of Overall Wildlife Use in the AA: Check substantial, moderate, or low based on supporting evidence.																				
	Substantial: Based on any observations of abundan observations of abundan observations of extremely lin onterview with local biology Moderate: Based on any of observations of scattered common occurrence of word adequate adjacent uplantices.	t wildlife ch as someting house with the followildlife sildlife sometime.	e #s o cat, tr abitat n knov owing e grou ign su	or high racks, featural vledge (check lps or uch as	specinests res note of the ck].	structur ot availa ne AA duals c	res, ga able in	ame tra	ails, e urrou	etc. nding pecies	d) area during	⊠ f ⊠ li □ s □ ii	ew or ttle to parse ntervi	no wi no w e adjad ew wit	idlife o ildlife s cent up	bserva sign bland f	ations ood s	llowing during ources ith kno	g peak	use pe	
	☐ interview with local biolog				of th	ne AA															
Fo	Wildlife Habitat Features: \or class cover to be considere recent composition of the AA (d eveni	ly dist	ribute	d, the	most a	and le	ast pre	valer	nt veg	etated	classe	s mu	st be v	within :	20% of	f eacl				
S/	I = seasonal/intermittent; T/E	= temp	orary/	epher/	meral	; and A	= abs	sent [se	ee ma	anual	for furt	her def	initio	ns of t	hese t	erms].		1			
	Structural Diversity (see #13)					High						\boxtimes	Mo	derate	•					ow	
	Class Cover Distribution (all vegetated classes)		□ E	ven		[] Un	even			⊠ E	ven			☐ Un	even			□ E	ven	
	Duration of Surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
	Water in ≥ 10% of AA □ Low Disturbance at AA	- ,,	O /1.			. ,,	<u> </u>	'/-	^	- /-	0/1	-/-		• /-	0,1	.,_		- /-	٥,.	-/-	
	(see #12i)																				
	Moderate Disturbance at AA (see #12i)										Н										
	☐ High Disturbance at AA (see #12i)																				
;;;	Rating: Use the conclusion	ns from	i and	ii aho	ve an	nd the n	natriv	helow	to se	lect th	e funct	ional n	oint 4	and re	ting						
Ī	Evidence of Wildlife Use	13 110111	, unu	., 400	TO all			Habit					Jii It C	A 1 1 1 1 1 1	ıg.		1				
	(i)		Exc	eptio	nal			High			<u> </u>	derate	<u> </u>		☐ Lo	w					
	Substantial													1			1				
	Moderate												-1								

Comments: Very few signs of wildlife observed during field survey. This area is close to the roadway and will likely never achieve a high wildlife habitat rating.

AA contains **no outlet or restricted outlet**AA contains **unrestricted outlet**

								W	etland	d/Site	#(s): <u>Fo</u>	orsyth I	NW - 1	⁄liddle	<u> </u>					
14D	GENERAL FISH HABITA If the AA is not used by fis entrapped in a canal], the	sh, fish	use is		storab	le due	to ha		onstra	iints, o	r is not	desire	d from	n a ma	anagen	nent pe	erspec	tive [s	uch as	fish
	Assess this function if the precluded by perched cul-					existin	g situa	ation is	corr "corr	ectabl	e" such	that tl	ne AA	could	be use	ed by f	ish [i.e	., fish	use is	
	Type of Fishery: Col	d Wate	er (CW)) 🗆 '	Warm	Water	(WW) Use	the C	CW or	WW gu	ideline	es in th	e man	ual to	comple	te the	matrix	ζ.	
i. <u>H</u>	abitat Quality and Known	/ Susp	ected	Fish S	pecie	s in A	A: Us	se mati	rix to	select	the fun	ctiona	l point	and r	ating.					
	uration of Surface	□Р	erman	ent / P	erenn	ial	☐ Seasonal /				termit	tent		☐ Temporary / Epheme				neral		
A	Vater in AA quatic Hiding / Resting /																			
_	scape Cover hermal Cover:	Opti		Adeq		Po		Opti			quate	Po			imal		uate	Po		
	optimal / suboptimal	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	
F	WP Tier I fish species																			
Ш	WP Tier II or Native																			
Ш	WP Tier III or Introduced																			
	iame fish WP Non-Game Tier IV or																			
N	lo fish species rces used for identifying f																			
supp b) D nativ iii. I 14E Entr	EQ list of waterbodies in need bort, or do aquatic nuisance ones the AA contain a docume fish or introduced game fistinal Score and Rating: _ FLOOD ATTENUATION Applies only to wetlands to If wetlands in AA are not for the enchment Ratio (ER) Esting deprone width = estimated by	plant of the plant	or anim spawm Spawm YES nents: Spamm Spawm Spamm	nal spening are in a dispersion of the floring are in a dispersion of the dispersion of the floring are in a dispersion of the floring are in a dispersion of the dispersion	cies (sea or coordon scored) ceed tooding anel or of whe	to 14F) via in- voverb	pend ritical or iia () -chani ank fli al guid (maxi	ix E) of habitation of the hab	ccur if feature or or overbeck the control of the c	in fish ure (i.e No ank flo ne NA renchr ull dep	w. box and the elever	? \[\] \tuary p d proce tio = (f	eed to	14F. rone v	score ng area width) /e floodp	in i by a; spec (bank blain or	0.1 = cify in c	or comme	No N	or stream
(ER ≥ 2 D stream type D stream	. 2 type		ream ty	/pe			1.41 – eam ty			A stre	am typ	oe		e 1.0 – ream ty		G str	ream ty	уре	
i. R	ating: Working from top to b	ottom.	use th	ne matr	ix belo	ow to s	elect	the fur	nction	al poir	nt and r	atina.								
	Estimated or Calculated				☐ SI	ightly I	Entrer	nched] Mode	erately	Entren	ched			Entrend		is.		
F	(Rosgen 1994, 1996) Percent of Flooded Wetland	d Clas	sified	as		, E stre		ypes			stream	гуре		Ĺ	A, F, G]	strear	ii type:	<u>s</u>		
1	Forested and/or Scrub/Sh				75%	25-7		<25%		5%	25-75	% <	25%	75	_	25-75°	% <	25%		

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☐ NO Comments: AA not subject to flooding from Big Porcupine Creek.

Wetland/Site #(s): Forsyth NW - Middle

14F.	14F. SHORT AND LONG TERM SURFACE WATER STORAGE 🔲 NA (proceed to 14G)
	Applies to wetlands that flood or pond from overbank or in-channel flow, p	recipitation, upland surface flow, or groundwater flow.
	If no wetlands in the AA are subject to flooding or ponding, then check the	NA box and proceed to 14G.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see manual for further definitions of these terms].

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	⊠ 1.1	to 5 ac	re feet		☐ ≤1 acre foo			
Duration of Surface Water at Wetlands within the AA	□ P/P	□ S/I	□ T/E	□ P/P	⊠ S/I	□ T/E	□ P/P	□ S/I	□ T/E		
Wetlands in AA flood or pond ≥ 5 out of 10 years					.6M						
Wetlands in AA flood or pond < 5 out of 10 years											

Comments: AA subject to pond from precipitation and upland surface flow, capacity to pond at depth >2.2ft.

14G.	SEDIMENT / NUTRIENT / TOXICANT / RETENTION AND REMOVAL	□NA	(proceed to 14H
------	--	-----	-----------------

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that of substantial sedimental toxicants, present.	ial to delive compount of the function in the	er sedime nds at lev ions are n d. Minor es of nutr	nts, els ot ients or	Waterbody is need of TMDI causes" relat toxicants or A has potential nutrients, or c functions are sedimentation or signs of eu	developmer ed to sedime AA receives of to deliver hig compounds s substantially n, sources of	nt for "probal nt, nutrients, or surroundin gh levels of s such that oth or impaired. M nutrients or	ole or g land use ediments, er ajor
% Cover of Wetland Vegetation in AA	⊠ ≥ 70%				□≥7	70%	□<	70%
Evidence of Flooding / Ponding in AA	☐ Yes	⊠ No	☐ Yes	□No	☐ Yes	☐ No	☐ Yes	☐ No
AA contains no or restricted outlet		.8H						
AA contains unrestricted outlet								

Comments: AA more than 70% vegetated after two years of mitigation site construction.

14H. SEDIMENT / SHORELINE STABILIZATION \(\square\) NA (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of Surface Water Adjacent to Rooted Vegetation							
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	Seasonal / Intermittent	☐ Temporary / Ephemeral					
□ ≥ 65%								
⊠ 35-64%		.6M						
☐ < 35%								

Comments: In 2015, observed increased percent cover by wetland species with stability ratings greater than or equal to six.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	General Wildlife Habitat Rating (14Ciii)								
(14Diii)	□ E/H	\boxtimes M	L						
☐ E/H									
■ M									
⊠ NA		M							

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

Α		Vegeta	ted Co	mponent	t >5 ac	res	\boxtimes	Vegeta	ated Co	mponent	1-5 ac	res		ponent <1 acre				
В	H	ligh	■ M	oderate		Low	☐ High		⊠ Mc			Low	w ☐ High ☐ Moderate		Moderate			.ow
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P																		
S/I										.3L								
T/E/A																		

15. GENERAL SITE NOTES: _____

			Wetland	I/Site #(s): <u>Forsyth NW</u>	<u>- Middle</u>			
14I. PRODUCTION EXPORT / FOOD CH	IAIN SU	PPORT (conti	nued)						
iii. Modified Rating: Note: Modified score	re canno	t exceed 1.0 o	r be less than	0.1.					
Vegetated Upland Buffer: Area with mowing or clearing (unless for weed of its there an average ≥ 50-foot wide veg	ontrol).						•	•	
iv. Final Score and Rating: <u>.3L</u> Comm	nents:								
14J. GROUNDWATER DISCHARGE / R Check the appropriate indicators in	_								
i. Discharge Indicators The AA is a slope wetland. Springs or seeps are known or weeps with the vetland occurs at the toe of seeps are present at the wetland contains an outlet, but shallow water table and the seeps of the contains and the seeps with the contains and the seeps water table water table and the seeps water table wat	ormant se a natural land edg ng droug out no inle	eason/drought slope. le. ht periods. et.		☐ Peri ☐ Wet ☐ Stre	rge Indicators meable substriland contains am is a knowr	ate present wi inlet but no ou	ıtlet.		
iii. Rating: Use the information from i an	d ii abov								a
			Saturation at <i>I</i> ATER THAT I						
Criteria			□ S		<u> </u>	ONCONDITA	□ No		
☐ Groundwater Discharge or Rech	arge								
					NA				
14K. UNIQUENESS i. Rating: Working from top to bottom, us	AA co	atrix below to s ntains fen, bo s or mature (g, warm	AA do	nt and rating. es not contain are types ANI			es not contai	
Replacement Potential		ed wetland Oliation listed a		contai	ty (#13) is highs plant asso as "S2" by the	ciation	associa	ations AND s ty (#13) is lo	tructural
Estimated Relative Abundance (#11)	□ Rare	□ Common	□ Abundant	7	☐ Common		□ Rare	□ Common	
Low Disturbance at AA (#12i)									
Moderate Disturbance at AA (#12i)									.2L
☐ High Disturbance at AA (#12i) Comments: Habitat within AA typical of ro									
14L. RECREATION / EDUCATION POTI Affords 'bonus' points if AA provides	ENTIAL	<u> </u>	NA (proceed to ational opportu		Summary and	Rating page)			
i. Is the AA a known or potential recrea	ational o	r educational	site? TYES	3 , go to ii.	NO, che	ck the NA box	ζ.		
ii. Check categories that apply to the A		ducational/Sc other:	ientific Study	☐ Cons	sumptive Recre	eational 🔲 N	lon-consu	umptive recrea	ational
iii. Rating: Use the matrix below to select						IF		Γ _	_
			or Education				Known		\sqcup
Public ownership or public easemer Private ownership with general publ					n required)				-
Private ownership with general public ownership without					sion for nubli	c access			-
Comments: AA small, adjacent to highwa						0 400033			_
	.,, ٧٧								

Wetland/Site #(s): 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	low 0.00	1.00	0	
B. MT Natural Heritage Program Species Habitat	high 0.90	1.00	0.5	*
C. General Wildlife Habitat	mod 0.40	1.00	0.2	
D. General Fish Habitat	NA	NA	0	
E. Flood Attenuation	NA	1.00	0	
F. Short and Long Term Surface Water Storage	mod 0.60	1.00	0.3	*
G. Sediment / Nutrient / Toxicant Removal	high 0.80	1.00	0.5	*
H. Sediment / Shoreline Stabilization	mod 0.60	1.00	0.3	*
I. Production Export / Food Chain Support	low 0.30	1.00	0.1	
J. Groundwater Discharge / Recharge	NA	NA	0	
K. Uniqueness	low 0.20	1.00	0.1	
L. Recreation / Education Potential (bonus point)	NA		0	
Total Points	3.8	9	2.0 Total	Functional Units
Percent of Possibl	e Score 42% (round	I to nearest whol	e number)	

	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; if not go to Category III)
	│ □ "Low" rating for Uniqueness; and
	☐ Vegetated <u>wetland</u> component < 1 acre (do <u>not</u> include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
Ō	DVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.
	- 1 = 1 = 1 = 1 = 1 = 1 = 1 (1 = 1) 1 = 1 = 1 (1 = 1) 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1

RESPEC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: For Assessment Date: Bacon/Hoschouer Location: ~8 miles Milepost: ~ Legal Description: Weather Condition Initial Evaluation I Size of evaluation	NW of Fo 262.3 on U T 7N as: Hot and Date: Augu	17 rsyth US 12 R 39E Selsunny, very lightst 15, 2013	ection <u>34</u> nt breeze Monit		Glendive Cime of Day:	1400-1500 ear: 1
HYDROLOGY Surface Water Source: Precipitation, runoff, shallow groundwater Inundation: Absent Average Depth: 0 feet Range of Depths: 0 Percent of assessment area under inundation: 0% Depth at emergent vegetation-open water boundary: 0 feet 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.): geomorphic position, surface soil cracks						
Groundwater Mon Record depth of wa	ater below	ground surface (in		*** 11 X7 1		1
Well Number	Depth	Well Number	Depth	Well Number	Depth	
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. COMMENTS / PROBLEMS: Site dry on day of investigation.						

VEGETATION COMMUNITIES

Community Number: 2 Community Title (main spp): Rumex crispus/Eleopcharis palustris

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	4 = 21-50%	Taraxacum officinalis	1 = 1-5%
Bare Ground	2 = 6-10%	Broumus arvensis	1 = 1-5%
Alopecurus pratensis	1 = 1-5%	Pascopyrum smithii	2 = 6-10%
Hordeum jubatum	1 = 1-5%	Rumex crispus	1 = 1-5%
Poa pratensis	1 = 1-5%	Tragopogon dubius	1 = 1-5%
Schoenoplectus maritimus	1 = 1-5%	Elymus repens	1 = 1-5%

Comments / Problems: Tamarix ramosissima (<1); Convolvulus arvensis (<1)

Community Number: 3 Community Title (main spp): Pascopyrum smithii / Elymus spp.

2 minum y 1 (minum y 1 minum y 1 min			
Dominant Species	% Cover	Dominant Species	% Cover
Pascopyrum smithii	5 = > 50%	Ambrosia psilostachya	1 = 1-5%
Elymus canadensis	1 = 1-5%	Bare Ground	1 = 1-5%
Elymus trachycaulus	3 = 11-20%	Chenopodium album	1 = 1-5%
Bromus arvensis	1 = 1-5%	Elymus repens	1 = 1-5%
Alopecurus arundinaceus	1 = 1-5%	Lactuca serriola	1 = 1-5%
Agropyron cristatum	1 = 1-5%	Linum lewisii	1 = 1-5%

Comments / Problems:

Community Number: 4 Community Title (main spp): Hordeum jubatum/Eleocharis palustris

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	4 = 21-50%	Populus deltoides	+=<1%
Bare Ground	1 = 1-5%	Salix fragilis	+ = < 1%
Alopecurus pratensis	2 = 6-10%	Pascopyrum smithii	2 = 6-10%
Hordeum jubatum	2 = 6-10%	Rumex crispus	+=<1%
Poa pratensis		Tragopogon dubius	+=<1%
Schoenoplectus maritimus	2 = 6-10%	Elymus repens	1 = 1-5%

Comments / Problems: <u>Tamarix ramosissima (<1); Convolvulus arvensis (<1)</u>

Community Number: ___ Community Title (main spp): ____

Dominant Species	% Cover	Dominant Species	% Cover
			-

Comments / Problems: ____

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes

Comments / Problems: No planted woody vegetation.

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Forsyth NW - East Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 125 feet Compass Direction from Start: 145 Note:

Transect Interval Length: 32 feet (station 0-32)				
Vegetation Community Type: Pascopyrum smithii/Elymus spp.				
Plant Species Cover				
Mud Flats	2 = 6-10%			
Lactuca serriola	+ = < 1%			
Pascopyrum smithii	5 = > 50%			
Bromus tectorum	4 = 21-50%			
Melilotus officinale	1 = 1-5%			
Helianthus annus	+ = < 1%			
Populus deltoides	+ = < 1%			
Mulhlenbergia asperifolia	+ = < 1%			
	_			
Total Vegetative Cover:	90%			

Transect Interval Length: 63 feet (station 32-95)				
Vegetation Community Type: Hordeum jubatum/Eleocharis palustris				
Plant Species	Cover			
Eleocharis palustris	5 = > 50%			
Alopecurus arundinaceus	3 = 11-20%			
Elymus repens	1 = 1-5%			
Hordeum jubatum	1 = 1-5%			
Schoenoplectus maritimus	1 = 1-5%			
Tamarix ramosissima	1 = 1-5%			
bare ground	1 = 1-5%			
Total Vegetative Cover:	95%			

Transect Interval Length: 30 feet (station 95-125)		
Vegetation Community Type: Pascopyrum smithii/Elymus spp		
Plant Species	Cover	
Elymus trachycaulus	1 = 1-5%	
Pascopyrum smithii	5 = > 50%	
Linum lewisii	1 = 1-5%	
Chenopodium album	1 = 1-5%	
Alopecurus arundinaceus	1 = 1-5%	
Bromus tectorum	4 = 21-50%	
Poa compressa	1 = 1-5%	
Total Vegetative Cover:	100%	

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Vegetative Cover:	%

MDT WETLAND MONITORING - VEGETATION TRANSECT

Site: Forsyth NW - East Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 2 Approximate Transect Length: 181 feet Compass Direction from Start: 280 Note:

Transect Interval Length: 30 feet (station 0-30)					
Vegetation Community Type: Pascopyrum smithii / Elymus sp	Vegetation Community Type: Pascopyrum smithii / Elymus spp.				
Plant Species	Cover				
Elymus tracycaulus	4 = 21-50%				
Melilotus officinales	3 = 11-20%				
Bare Ground	1 = 1-5%				
Hordeum jubatum	2 = 6-10%				
Pascopyrum smithii	4 = 21-50%				
Total Vegetative Cover:	95%				

Transect Interval Length: 100 feet (station 30-130)				
Vegetation Community Type: Rumex crispus / Eleopcharis palustris				
feet				
Plant Species	Cover			
Eleocharis palustris	4 = 21-50%			
Schedonorus pratensis	4 = 21-50%			
Helianthus annus	1 = 1-5%			
Poa compressa	1 = 1-5%			
Bare ground	1 = 1-5%			
Hordeum jubatum	4 = 21-50%			
Pascopyrum smithii	1 = 1-5%			
Salix fragilis	1 = 1-5%			
Total Vegetative Cover:	98%			

Transect Interval Length: 51 feet (station 130-181)	
Vegetation Community Type: Pascopyrum smithii / Elymus sp	p.
Plant Species	Cover
Pascopyrum smithii	5 = > 50%
Rumex crispus	1 = 1-5%
Linum lewisii	1 = 1-5%
Bare Ground	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
•	
Total Vegetative Cover:	98%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Vegetative Cover:	%

B-49

MDT WETLAND MONITORING - VEGETATION TRANSECT

Cover EstimateIndicator ClassSource+ = < 1%3 = 11-10%+ = ObligateP = Planted1 = 1-5%4 = 21-50%- = Facultative/WetV = Volunteer2 = 6-10%5 = > 50%0 = Facultative

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): 16%

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: Of 2.74 acre perimeter, approximately 0.4 acre is wetland or ~ 16%: middle section (84%) has not converted to wetland.

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.

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1		Photo Point 1: 46.321003 / -106.838814	125
PP-2		Photo Point 2: 46.320068 / -106.837128	210
PP-3		Photo Point 3: 46.318233 / -106.834335	305
T-1 start		Transect 1 start: 46.321045 / -106.838486	145
T-1 end		Transect 1 end: 46.320297 / -106.838493	325
T-2 start		Transect 2 start: 46.318336 / -106.834175	280
T-2 end		Transect 2 end: 46.318417 / -106.834923	100
DP-1W		Wetland soil pit: 46.320943 / -106.838674	
DP-1U		Upland soil pit #1: 46.320920 / -106.838707	
DP-2U		Upland soil pit #2: 46.319610 / -106.835927	

blems:
)

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

 GPS Checklist: □ Upland/wetland boundary. □ 4-6 landmarks that are recognizable on the aerial photograph. □ Start and End points of vegetation transect(s). □ Photograph reference points. □ Groundwater monitoring well locations. □ Bird nest boxes.
Comments / Problems:
WETLAND DELINEATION (attach COE delineation forms)
At each site conduct these checklist items: Delineate wetlands according to the 1987 Army COE manual and regional supplement. Delineate wetland – upland boundary onto aerial photograph.
Comments / Problems:
FUNCTIONAL ASSESSMENT Complete and attach full MDT Montana Wetland Assessment Method field forms.
Comments / Problems:
MAINTENANCE
Were man-made nesting structure installed at this site? <u>No</u> If yes, do they need to be repaired? <u>NA</u> 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 working properly and in good working order? NA If no, describe the problems below.
Comments / Problems: Middle section of project area remains upland.

W	TT	I DI	JFF

Birds

Were man-made nesting structures installed? <u>No</u> If yes, type of structure: How many? <u>0</u> Are the nesting structures being used? <u>NA</u> Do the nesting structures need repairs? <u>No</u>					
Mammals and Herptiles	,	<u>, </u>			
Mammal and Herptile Species	Number			ect Indicatio	on of Use
wammar and Herptite Species	Observed	Tracks	Scat	Burrows	Other
none observed					
Additional Activities Checklist: NA Macroinvertebrate Sampling (if required) Comments / Problems:					

BIRD SURVEY - FIELD DATA SHEET

Site: Forsyth NW - East Date: <u>7/24/17</u>

Survey Time: <u>1330</u> to <u>1500</u>

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
American Robin	1	F	UP	_			

BEHAVIOR CODES

BP = One of a breeding pair $\mathbf{BD} = \mathbf{Breeding\ display}$ $\mathbf{F} = \text{Foraging}$

FO = FlyoverL = Loafing

N = Nesting

HABITAT CODES

 $\mathbf{MF} = \mathbf{Mud} \; \mathbf{Flat}$

OW = Open Water

 $\mathbf{AB} = \text{Aquatic bed}$ SS = Scrub/ShrubFO = Forested $\mathbf{UP} = \mathbf{Upland}$ buffer $\mathbf{WM} = \mathbf{W}$ et meadow I = IslandMA = Marsh

US = Unconsolidated shore

Weather: sunny, 95-100 degrees, mid-afternoon = minimal bird sightings

Notes:	
INUICS.	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - East	City/County: Rosebud		Sampling Date:	7/24/17
Applicant/Owner: MDT		State: MT	Sampling Point:	DP-1u
Investigator(s): L. Bacon, C. Hoschouer	Section, Township, Rang	ge: S34 T7N R39E		
Landform (hillside, terrace, etc.): slope	Local relief (concave, conve	x, none): convex	Slope	÷ (%): 5
Subregion (LRR): LRR G Lat: 46.320920	Long:10		Datum:	
Soil Map Unit Name: Harlem silty clay, 00-2% slopes, occ. FI		NWI classific		
Are climatic / hydrologic conditions on the site typical for this		No (If no, expl	•	
Are Vegetation , Soil , or Hydrology signific		rcumstances" present?		
Are Vegetation, Soil, or Hydrology natural		ain any answers in Rem		
SUMMARY OF FINDINGS – Attach site map sh		-		ıres, etc.
Hydrophytic Vegetation Present? Yes No _X	Is the Sampled Are			
Hydric Soil Present? Yes No X		Yes	NoX	
Wetland Hydrology Present? Yes No X	_			
Remarks:	•			
Upland data point. To date, wetland vegetation is not coloniz	ing lower area of bank slope.			
VECTATION Has a significant and a finished				
VEGETATION – Use scientific names of plants	s. solute Dominant Indicator I			
	Cover Species? Status	Dominance Test work	ksheet:	
1		Number of Dominant S	Species That	
2		Are OBL, FACW, or FA	AC: ((A)
3.		Total Number of Domir		- (5)
4	Total Cover	Across All Strata:		2(B)
Sapling/Shrub Stratum (Plot size:)	=Total Cover	Percent of Dominant S Are OBL, FACW, or FA	•	0% (A/B)
1.		7(10 002, 17(0)), 01 17		770 (703)
2.		Prevalence Index wo	rksheet:	
3.		Total % Cover of:	Multiply by:	
4		OBL species 0		<u> </u>
5		FACW species 1		2
Horb Stratum (Plot size:	=Total Cover	FAC species 0 FACU species 90		<u>0</u> 60
Herb Stratum (Plot size:) 1. Pascopyrum smithii 6	65 Yes FACU			0
,	25 Yes FACU	Column Totals: 91		62 (B)
Muhlenbergia asperifolia	1 No FACW	Prevalence Index = B/		<u> </u>
4.				
5		Hydrophytic Vegetation		
6			Hydrophytic Vegetat	ion
7		2 - Dominance Tes		
8		3 - Prevalence Inde	ex is ≤3.0 Adaptations¹ (Provid	le supporting
9. 10.			s or on a separate sl	
	91 =Total Cover	Problematic Hydro	phytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so		
1		be present, unless dist	urbed or problemation	c.
2		Hydrophytic		
W Baro Ground in Harb Stratum 10	=Total Cover	Vegetation	No. V	
% Bare Ground in Herb Stratum 10		Present? Yes_	No_X	
Remarks: Slopes dry, some bare ground occurs in patches.				
grand doubt in paroline.				

SOIL Sampling Point: DP-1u

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

Depth	Matrix		Red	ox Featu	res					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Text	ure	Remarks	
0-16	2.5Y 3/3	100					Loamy/	Clayev		
				-						
				-						
·										
¹ Type: C=Co	oncentration, D=Deple	etion, RM=F	Reduced Matrix,	CS=Cov	ered or C	oated S	and Grains.	² Locat	tion: PL=Pore Lining, M=	:Matrix.
Hydric Soil I	ndicators: (Applicat	le to all Li	RRs, unless oth	erwise r	noted.)				ators for Problematic Hy	•
Histosol			,		Gleyed Ma	atrix (S4	4)		cm Muck (A9) (LRR I, J)	
	ipedon (A2)		-	•	Redox (S		,		oast Prairie Redox (A16)	
Black His				- ′	d Matrix (S	,			ark Surface (S7) (LRR G	-
	n Sulfide (A4)				Mucky Mi		1)		igh Plains Depressions (F	
				•	-			 '"	(LRR H outside of MLI	
	Layers (A5) (LRR F)				Gleyed M		')	р.	•	XA 12 & 13)
	ck (A9) (LRR F, G, H				ed Matrix (,			educed Vertic (F18)	
	Below Dark Surface	(A11)	-	_	Dark Surfa				ed Parent Material (F21)	(=00)
	rk Surface (A12)			•	d Dark Su		-7)		ery Shallow Dark Surface	
	ucky Mineral (S1)			-	Depressio	` '			ther (Explain in Remarks)	'
	lucky Peat or Peat (S		H)		ains Depr				ators of hydrophytic vege	
5 cm Mu	cky Peat or Peat (S3)	(LRR F)		(ML	RA 72 & 7	73 of LR	RR H)		etland hydrology must be	-
								ur	nless disturbed or probler	natic.
Restrictive L	ayer (if observed):									
Type:										
Depth (in	iches):						Hydric So	il Present?	Yes	No X
Remarks:										
	I indicators present.									
,										
HYDROLO	GY									
	drology Indicators:									
Primary Indic	ators (minimum of or	<u>ie is require</u>	ed; check all that	apply)				Secondary	/ Indicators (minimum of	two required)
Surface \	Water (A1)		Salt Crus	t (B11)					ce Soil Cracks (B6)	
	ter Table (A2)		Aquatic Ir	nvertebra	ates (B13)	1		Sparse	ely Vegetated Concave S	Surface (B8)
Saturatio	n (A3)		Hydrogen	Sulfide	Odor (C1))		Draina	age Patterns (B10)	
Water Ma	arks (B1)		Dry-Seas	on Wate	r Table (C	2)		Oxidiz	ed Rhizospheres on Livir	ng Roots (C3)
Sedimen	t Deposits (B2)		Oxidized	Rhizospl	heres on l	Living R	oots (C3)	(whe	ere tilled)	
Drift Dep	osits (B3)		(where	not tille	d)			Crayfis	sh Burrows (C8)	
Algal Ma	t or Crust (B4)		Presence	of Redu	iced Iron ((C4)		Satura	ation Visible on Aerial Ima	agery (C9)
	osits (B5)		Thin Muc			,			orphic Position (D2)	o , , ,
	on Visible on Aerial Im	nagery (B7)							Neutral Test (D5)	
	ained Leaves (B9)				,				Heave Hummocks (D7) (LRR F)
Field Observ									(= 1)	
			NI- V	Daniel /						
Surface Wate			No X		(inches): _					
Water Table			No X		(inches): _		W-41		D	NI- V
Saturation Pr		·	No <u>X</u>	peptn ((inches):		wetiand	d Hydrology	y Present? Yes	No X
(includes cap							1			
Describe Red	corded Data (stream o	gauge, mor	nitoring well, aeria	al photos	s, previous	s inspec	tions), if ava	iilable:		
Remarks:										
No evidence	of primary or seconda	ary indicato	rs.							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - East	City/County: Rosebu	d	Sampling Date:	7/24/17
Applicant/Owner: MDT		State: MT	Sampling Point:	DP-1w
Investigator(s): L. Bacon, C. Hoschouer	Section, Township, Ra	nge: S34 T7N R39E		
Landform (hillside, terrace, etc.): swale	Local relief (concave, conv	ex, none): concave	Slop	oe (%): <u>0</u>
Subregion (LRR): <u>LRR G</u> Lat: <u>46.320943</u>	Long: <u>-1</u>	06.838674	Datum:	WGS84
Soil Map Unit Name: Harlem silty clay, 0-2% slopes, occ. Floo	oded	NWI classifi	cation: PEM	
Are climatic / hydrologic conditions on the site typical for this ti	me of year? Yes X	No (If no, exp	lain in Remarks.)	
Are Vegetation, Soil, or Hydrologysignification	antly disturbed? Are "Normal C	Circumstances" present?	Yes X No	0
Are Vegetation, Soil, or Hydrologynaturally		plain any answers in Ren	narks.)	
SUMMARY OF FINDINGS – Attach site map sho		cations, transects,	important feat	ures, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled A	rea		
Hydric Soil Present? Yes X No	¥		No	
Wetland Hydrology Present? Yes X No				
Remarks: Wetland data point. North and south end of project area conti	inue to qualify as wetland; no bo	undary change since 201	6.	
VEGETATION – Use scientific names of plants.				
Abso Tree Stratum (Plot size:) % Co		Dominance Test wor	kahaati	
Tree Stratum (Plot size:) % Co 1.	over Species? Status	Number of Dominant S		
2.		Are OBL, FACW, or F	•	1 (A)
3		Total Number of Domi Across All Strata:	nant Species	1 (B)
Sapling/Shrub Stratum (Plot size:) 1.	=Total Cover	Percent of Dominant S Are OBL, FACW, or F	•	0.0% (A/B)
2.		Prevalence Index wo	rksheet:	
3.		Total % Cover of:	Multiply by	:
4		OBL species 90) x 1 =	90
5		FACW species 0		0
Harb Stratium (Diet sine)	=Total Cover	FACILITIES 0		0
Herb Stratum (Plot size:) 1. Eleocharis palustris 90) Yes OBL	FACU species 0		0
2) 163 ODL	Column Totals: 90		90 (B)
3.		Prevalence Index = B		
4.				
5.		Hydrophytic Vegetati	on Indicators:	
6		1 - Rapid Test for	Hydrophytic Vegeta	ation
7		X 2 - Dominance Te		
8		X 3 - Prevalence Ind		
9 10.		4 - Morphological data in Remark	Adaptations' (Provi s or on a separate	
90	=Total Cover	Problematic Hydro	phytic Vegetation ¹	(Explain)
Woody Vine Stratum (Plot size:)		¹ Indicators of hydric so		
1		be present, unless dist	urbed or problema	tic.
2	Tatal Occurs	Hydrophytic		
% Bare Ground in Herb Stratum 10	=Total Cover	Vegetation Present? Yes	X No	_
Remarks:		· · · · · · · · · · · · · · · · · · ·		
Same percentages as 2016 at this different DP location.				

US Army Corps of Engineers B-56 Great Plains – Version 2.0

SOIL Sampling Point: DP-1w

Profile Desc Depth	cription: (Describe t Matrix	o the depti		ıment th x Featur		ator or c	confirm the absence	of indicators.)		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Re	marks	
0-16	2.5YR 3/2	90	2.5Y 4/4	10	С	PL	Loamy/Clayey	Prominent red	ox concentra	ations
				<u> </u>						
				_		_				
				_		_				
				<u> </u>						
	oncentration, D=Depl					oated Sa		cation: PL=Pore Lir		
-	Indicators: (Applica	ble to all Li						icators for Problem	-	: Soils ³ :
Histosol	` '				Sleyed Ma			1 cm Muck (A9) (L l	-	
	pipedon (A2)				ledox (St			Coast Prairie Redo		R F, G, H)
Black Hi	n Sulfide (A4)				⊢Matrix (\$ ⁄Jucky Mi			Dark Surface (S7) High Plains Depres		
	d Layers (A5) (LRR F)	١		•	Sleyed M	,		LRR H outside		2 & 73)
	ick (A9) (LRR F, G, H			•	d Matrix (•	•	Reduced Vertic (F1		2 (173)
	d Below Dark Surface	-			ark Surf	,		Red Parent Materia		
	ark Surface (A12)	,			d Dark Si			Very Shallow Dark		2)
Sandy N	lucky Mineral (S1)		?	Redox D	epressio	ns (F8)	_	Other (Explain in R	emarks)	
2.5 cm N	Mucky Peat or Peat (S	32) (LRR G ,	, H)	High Pla	ins Depr	essions	(F16) ³ Ind	licators of hydrophy	tic vegetatio	n and
5 cm Mu	icky Peat or Peat (S3) (LRR F)		(MLR	RA 72 & 7	73 of LR	RR H)	wetland hydrology unless disturbed or		
_	Layer (if observed):									
Type:	a chaol:						Undria Cail Dracen	.42 Va	. v	Na.
Depth (in	icries).		_				Hydric Soil Preser	it? re	s_X_ I	No
Remarks:	day aanaantrationa n	otod								
FIOIIIIIEIILIE	edox concentrations n	otea.								
HYDROLO										
-	drology Indicators:									
	cators (minimum of or	ne is require						ary Indicators (minir		required)
	Water (A1)		Salt Crust	. ,	(D40)			face Soil Cracks (Bo	,	(DO)
Saturation	iter Table (A2)		Aquatic Inv		, ,			rsely Vegetated Co inage Patterns (B10		ce (bo)
	larks (B1)		Dry-Seaso					dized Rhizospheres		nots (C3)
	nt Deposits (B2)		Oxidized R					vhere tilled)	on Living it.	0010 (00)
	posits (B3)		(where r			Ü		yfish Burrows (C8)		
	at or Crust (B4)		Presence		-	(C4)		uration Visible on A	erial Imagery	/ (C9)
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		X Geo	omorphic Position ([02)	
x Inundati	on Visible on Aerial Ir	nagery (B7)	Other (Exp	lain in R	temarks)		<u>X</u> FAC	C-Neutral Test (D5)		
Water-S	tained Leaves (B9)						Fros	st-Heave Hummock	s (D7) (LRR	F)
Field Obser										
Surface Wat					nches): _					
Water Table		<u> </u>			nches): _		Wotland Hudge	ay Propent? V-		No
Saturation P		<u> </u>	NO <u>X</u>	Depth (i	nches).		Wetland Hydrolo	ogy Present? Te	s_X_	No
(includes ca	corded Data (stream	dalide mor	nitoring well serial	Inhotos	nrevious	s inspec	tions) if available:			
Describe Re	oorded Data (Stiedill	gaug e , mol	morning well, aeild	, priotos,	, previous	o mopet	aono, ii avaliable.			
Remarks:										
Late in a ver	y hot and drought-de	clared area.	Positive seconda	ry indica	ators evic	dent, hov	wever.			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - East	City/County: Rosebuc	b	Sar	mpling Date:	7/24/17
Applicant/Owner: MDT		State:	MT San	npling Point:	DP-2u
Investigator(s): L. Bacon, C. Hoschouer	Section, Township, Rar	nge: S34 T7N	R39E		
Landform (hillside, terrace, etc.): slope	Local relief (concave, conve	ex, none): con	vex	Slo	pe (%):5
Subregion (LRR): LRR G Lat: 46.319610	Long: <u>-1</u>	06.835927		Datum:	WGS84
Soil Map Unit Name: Harlem silty clay, 00-2% slopes, occ. Flood	ded	NW	/I classification	n: PEM	
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes X	No(I	f no, explain ir	n Remarks.)	
Are Vegetation, Soil, or Hydrologysignificant	·	ircumstances" p	resent? Ye	es X N	lo
Are Vegetation, Soil, or Hydrologynaturally p	oroblematic? (If needed, exp	olain any answei	rs in Remarks.	.)	
SUMMARY OF FINDINGS – Attach site map show		cations, tran	sects, imp	ortant fea	tures, etc.
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Ar	ea			
Hydric Soil Present? Yes No X	within a Wetland?		s N	lo X	
Wetland Hydrology Present? Yes No X					
Remarks: Upland data point. Approximately 25% of the bottom of the swa	le has converted to wetland; th	ne central 50% r	emains upland	i.	
VEGETATION – Use scientific names of plants.					
Absolut					
Tree Stratum (Plot size:) % Cover 1.	er Species? Status		est workshee		
2.		Are OBL, FAC	ominant Specie CW, or FAC:	es That	0 (A)
3.		Total Number		Species	
4.		Across All Str		·	1 (B)
Sapling/Shrub Stratum (Plot size:) 1	=Total Cover	Percent of Do Are OBL, FAC	minant Specie CW, or FAC:		0.0% (A/B)
2.		Prevalence In	ndex workshe	et:	
3.		Total % Cove	r of:	Multiply by	y:
4.		OBL species	0	x 1 =	0
5		FACW specie	es 0	x 2 =	0
	=Total Cover	FAC species	0	x 3 =	0
Herb Stratum (Plot size:) 1. Pascopyrum smithii 95	Yes FACU	FACU species UPL species		x 4 =	380
2.	Yes FACU	Column Totals			380 (B)
		Prevalence In		4.0	
4.					
5.		Hydrophytic	Vegetation In	dicators:	
6.		1 - Rapid	Test for Hydro	phytic Veget	tation
7		2 - Domin	ance Test is >	·50%	
8			ence Index is:		
9			ological Adapt Remarks or o		vide supporting
10 95	=Total Cover		tic Hydrophytic		
Woody Vine Stratum (Plot size:)	=Total Cover		hydric soil and	Ū	` ' '
1		be present, ur			
2.		Hydrophytic		-	
% Bare Ground in Herb Stratum 5	=Total Cover	Vegetation Present?	Yes	No X	
		i iesciil!	169		_
Remarks: Pit located in bottom of excavated area, dominant upland veget	ation.				

SOIL Sampling Point: DP-2u

Profile Des	cription: (Describe Matrix	e to the depth		cument the		itor or c	onfirm the absend	ce of indicators	s.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
			Color (moist)		Туре	LOC			Remarks	
0-16	2.5Y 3/2	100					Loamy/Clayey			
	'									
								_		
-										
-							-			
1	·							-		
	oncentration, D=De	•				oated Sa		ocation: PL=P		
	Indicators: (Applic	cable to all LF	RRs, unless oth					dicators for P	-	dric Soils":
Histosol				Sandy G	-		_		A9) (LRR I, J)	
	pipedon (A2)			_	ledox (St		_		Redox (A16) (LRR F, G, H
	istic (A3)		_		Matrix (,	_		(S7) (LRR G)	4.0\
	en Sulfide (A4)	E \		_	Aucky Mi		_		Depressions (F	
	d Layers (A5) (LRR	-		Loamy C	•	, ,)		utside of MLR	A 12 & 13)
	uck (A9) (LRR F, G,	•		-	d Matrix (_	Reduced Ver	` '	
	d Below Dark Surfa	ce (ATT)		_	ark Surfa				Material (F21)	(E33)
	ark Surface (A12) Mucky Mineral (S1)			_	d Dark Si Depressio				Dark Surface in in Remarks)	(F22)
	Mucky Peat or Peat	(S2) (I RR G	н/	High Pla		. ,	(F16) 3li	Other (Explain		ation and
	ucky Peat or Peat (··/	_	RA 72 & 7			-	ology must be i	
	acky i cat of i cat (c	55) (EIRICI)		(14121	W 12 W 1	J OI LIK	K 11)		bed or problem	
Restrictive	Layer (if observed):								
Type:										
Depth (i	nches):		_				Hydric Soil Pres	ent?	Yes	No X
Remarks: No hydric so	oil in this central are	a.								
HYDROLO	OGY									
Wetland Hy	drology Indicators	s:								
Primary Indi	cators (minimum of	one is require	d; check all that	apply)			Secor	ndary Indicators	(minimum of ty	wo required)
Surface	Water (A1)		Salt Crus	t (B11)			S	urface Soil Crad	cks (B6)	
High Wa	ater Table (A2)		Aquatic Ir	nvertebrat	tes (B13)		S	parsely Vegetat	ed Concave Su	urface (B8)
Saturati	, ,		Hydroger		•			rainage Pattern		
	larks (B1)		Dry-Seas					xidized Rhizosp	heres on Living	g Roots (C3)
	nt Deposits (B2)		Oxidized			_iving Ro		(where tilled)		
	posits (B3)			not tilled	-			rayfish Burrows	. ,	
	at or Crust (B4)		Presence			(C4)		aturation Visible		gery (C9)
· ·	posits (B5)		Thin Muc		` '			eomorphic Pos	, ,	
	on Visible on Aerial	0 , , ,	Other (Ex	cplain in R	(emarks			AC-Neutral Tes		
	Stained Leaves (B9)						F	rost-Heave Hun	nmocks (D7) (L	.RR F)
Field Obser		,	N. V	D 41 (*)						
Surface Wa		/es	No X		nches): _					
Water Table Saturation F		/es /es	No X		nches): _ nches):		Wetland Hydro	ology Present?	Yes	No X
	pillary fringe)		NO X	Deptii (ii			Wetland Hydro	nogy i resent:		<u> </u>
	piliary iringe) corded Data (strear	m dalide mon	itoring well acri	al nhotos	nrevious	s inenact	ions) if available:			
Describe Re	Journal Data (Stied)	yauy e , mon	noming well, aell	מו פווטנטט	, previous	, mopect	ionoj, ii avallabl e .			
Remarks:	e of primary or seco	ndary indicator	re							
110 011001100	. 5. p.m.iary 01 30001	aary maloatol	· · ·							

MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	Project Name: Forsyth NW -	East 2. MDT Project #: STP	P 14-6(9)259 3. Control #: 4	<u>059</u>							
3.	Evaluation Date: 7/24/17 4. Evaluator(s): LBacon 5. Wetland/Site #(s): Forsyth NW - East										
6.	Wetland Location(s): Towns	ship <u>7 N</u> , Range <u>39 E</u> , Section <u>3</u>	<u>34;</u> Township <u>N</u> , Range <u>I</u>	<u></u>							
	Approximate Stationing or I	Roadposts: ~262.3 on US 12									
	Watershed: 14 - Middle Yell	owstone County: Rosebud									
7.	Evaluating Agency: Conflue Purpose of Evaluation: Wetland potentially affe Mitigation wetlands; pro Mitigation wetlands; po Other	ected by MDT project e-construction	9. Assessment Area ((visually estimated) 0.43 (measured, e.g. GPS) AA) Size (acre): (visuall rmining AA) 0.43 (measure							
10	. CLASSIFICATION OF WET	LAND AND AQUATIC HABITA	ATS IN AA (See manual for def	initions.)							
	HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA						
	Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	100						
L											
L											
Ĺ	omments:										

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) abundant

12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): A vegetation cover has increased since 2013, following construction of wetland basin, bare ground <5%. Center of basin, area intended to convert to wetland, continues to qualify as upland.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Convolvulus arvensis, Tamarix ramosissima (both have decreased since 2016)
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA includes a linear, excavated roadside depression parallel to US 12. Surrounding land includes agriculture (grazing) and highway.

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes		NA	NA	NA
1 class, but not a monoculture	mod	←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Emergent vegetation class present, with several cottonwood maturing saplings though does not qualify as PSS yet.

Wetland/Site #(s): Forsyth NW - East

i. AA is Documented (D) or 3																			
Primary or critical habitat (lis Secondary habitat (list speci Incidental habitat (list speci No usable habitat	st speci cies) es)	es)	□ D □ D □ D	□s _ □s _ □s _ ⊠s															
ii. Rating: Based on the stron	f e																		_
Highest Habitat Level	Doc/F	Primar	y Su	ıs/Prima	ry D	oc/Sec	onda	ry S	sus/Se	conda	ry	Doc/li	nciden	tal	Sus/	Incide	ntal	None	е
Functional Point/Rating									-									0L	
Sources for documented use	e (e.g. o	bserva	itions, r	ecords):	USF&\	NS T&E	E list f	for Ro	<u>sebud</u>	Count	<u>Y</u>								
14B. HABITAT FOR PLANTS Do not include species I				ED S1, S	2, OR	S3 BY	THE	MONT	ΓΑΝΑ Ι	NATUF	RALI	HERIT	AGE F	ROGR	RAM				
	habitat (list species)																		
ii. Rating: Based on the stroi	ngest ha	bitat c	hosen i	in 14A(i)	above,	select	the co	orresp	onding	g functi	onal	point a	and rati	ng.					_
Highest Habitat Level	Doc/F	rimar	y Su	ıs/Prima	ry D	oc/Sec	onda	ry S	us/Se	conda	ry	Doc/li	nciden	tal S	Sus/l	ncide	ntal	None	
S1 Species Functional Point/Rating									-										
S2 and S3 Species		9H							-										
Functional Point/Rating	1 (e.g. o	hsarva	tions r	ecords).	MTNH	P SOC	renor	rt for T	7N R3	ROF di	rect o	hsarvs	ation of	Δmms	annis	in 20°	13		_
Sources for documented use (e.g. observations, records): MTNHP SOC report for T7N R39E, direct observation of Ammannia in 2013. 14C. GENERAL WILDLIFE HABITAT RATING i. Evidence of Overall Wildlife Use in the AA: Check substantial, moderate, or low based on supporting evidence. Substantial: Based on any of the following [check]. Substantial: Based on any of the fo																			
□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplat □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider	f the foll d wildlife wildlife s and food gist with Working ed even (see #1	abitat in known when known groupsign surce in known groom ly district.	acks, nefeatures features ledge of [check] os or in- ch as s is ledge of top to b ibuted, breviat	est struct s not ava of the AA]. dividuals cat, track of the AA bottom, of the mos- tions for s	or relaces, nes	n the suntively for the structure ppropriate ast pre-	ails, ear urrour ew sp ures, q ate A valen durati	itc. nding a pecies game A attri at vege ons ar	during trails, butes i etated re as for	⊠ li □ s □ in peak etc. in matr classe bllows:	ttle to parse ntervi period ix to a s mu P/P =	no will no wil	Idlife o Idlife s cent up h local at ratin within 2 nanent/	bservarign land for biolog g. Stru 20% of 'perenr	tions ood s iist w uctura each	during ources ith kno	y peak wledg	use po	¥13.
□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplar □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity	f the foll d wildlife wildlife s and food gist with Working ed even (see #1	abitat in known when known groupsign surce in known groom ly district.	acks, nefeatures features ledge of [check] os or inch as s s ledge of top to b ibuted, breviat epheme	est struct s not ave of the AA]. dividuals ccat, track of the AA bottom, c the mos cions for s eral; and	or relaces, nes	n the suntively for the structure ppropriate ast pre-	ails, ear urrour ew sp ures, q ate A valen durati	itc. nding a pecies game A attri at vege ons ar	during trails, butes i etated re as for	⊠ li □ s □ i □ peak etc. in matr classe bllows: her def	ix to a similar multiple.	no will no wil	Idlife o Idlife s cent up h local at ratin within 2 nanent/ hese te	bservarign land for biolog g. Stru 20% of 'perenr	tions ood s iist w uctura each	during ources ith kno	y peak ; ; wledg rsity is in terr	use per e of AA from # ms of th	¥13.
□ interview with local biolo □ Moderate: Based on any o □ observations of scattere □ common occurrence of of the scattere of	f the foll d wildlife wildlife s and food gist with Working ed even (see #1	abitat in known when known groupsign surce in known groom ly district.	acks, nefeatures ledge of [check] os or inch as s s ledge of top to b ibuted, obreviat epheme	est struct s not ava of the AA]. dividuals cat, track of the AA bottom, of the mos- tions for s	or relaces, nes	ame trans the substitute of th	ails, ear urrour ew sp ures, q ate A valen durati	itc. nding a pecies game A attri at vege ons ar	during trails, butes i etated re as for	⊠ li □ s □ il □ peak etc. In matr classe ollows: her def	ix to a similar multiple.	no will on own with a discontinuous months with the will be well as the well a	Idlife o Idlife s cent up h local at ratin within 2 nanent/ hese te	g. Strue 20% of perms].	tions ood s iist w uctura each	during ources ith kno	y peak wledg	e of AA from # ms of th	¥13.
□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplau □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be considered percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface	f the foll d wildlife wildlife s and food gist with Working ed even (see #1	abitat in know owing e group ign su source in know g from ly distr 0). Aboorary/e	acks, nefeatures feat	est struct s not ave of the AA]. dividuals ccat, track of the AA bottom, c the mos cions for s eral; and	or relace, nes	ame trans the substitute of th	ails, ear urrour ew sp ures, q ate A valen durati	itc. nding a pecies game A attri at vege ons ar	during trails, butes i etated re as fo	⊠ li □ s □ il □ peak etc. In matr classe ollows: her def	ix to a similar multiple.	no will on own with a discontinuous months with the will be well as the well a	Idlife o Idlife s cent up h local at ratin within 2 nanent/ hese te	g. Strue 20% of perms].	tions ood s iist w uctura each	during ources ith kno	y peak ; ; wledg rsity is in terr	e of AA from # ms of th	¥13.
□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplau □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA	gist with f the foll d wildlife wildlife hd food gist with Workin ed even (see #1	abitat in know owing e group ign suisign suissource in know g from ly distr 0). Aborrary/e	acks, nefeatures feat	est struct s not ava s not ava of the AA l. dividuals cat, track of the AA bottom, c the mos cions for s eral; and	or relaces, of the control of the co	ame trans the substitute of th	ew spures, quality atte A. valenduratione ma	tc. nding a pecies game A attri at vege ons ar anual f	during trails, butes i etated re as for furt	⊠ li s s li s li s li s li s li s li s l	ix to a s mu P/P = inition	no will on owing a disparent with the control of th	Idlife o Idlife s cent up h local at ratin within 2 nanent hese te	g. Struender Str	uctura each	during ources ith kno	rsity is in terr	e of AA from # ms of th ow ven	#13. heir
interview with local biology Moderate: Based on any or or of scattere common occurrence of adequate adjacent uplated interview with local biology Wildlife Habitat Features: For class cover to be considered percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA Low Disturbance at AA (see #12i)	gist with f the foll d wildlife wildlife ind food gist with Workin ed even (see #1 = temp	abitat in know owing e group ign susource in know g from ly distr 0). Aboorary/s	acks, nefeatures eledge of control of contro	est struct s not ava s not ava of the AA l. dividuals cat, track of the AA bottom, c the mos cions for s eral; and High A P/P	or relates, nessent less than the control of the co	ppropria east pre water of sent [se	hils, e urrour ew sp	eccies game A attribit vegeons aranual f	during trails, butes i etated re as for furt	⊠ li s s li s s li s li s li s li s li s	ttle to parse the tribute to a serior of the serior of the tribute to a serior of the serior of the tribute to a serior of the se	arrive a st be v = perm ns of tl	at ratin within 2 hanentring S/I	g. Struender Str	ucturre each	during ources ith known all diven other	rsity is in terr	e of AA from # ms of th wen T/E	#13. heir
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□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplat □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA (see #12i) ■ Moderate Disturbance at AA (see #12i) □ High Disturbance at	gist with f the foll d wildlife wildlife ind food gist with Workin ed even (see #1 = temp	abitat in know owing e group ign susource in know g from ly distr 0). Aboorary/s	acks, nefeatures eledge of control of contro	est struct s not ava s not ava of the AA l. dividuals cat, track of the AA bottom, c the mos cions for s eral; and High A P/P	or relates, nessent less than the control of the co	ppropria east pre water of sent [se	hils, e urrour ew sp	eccies game A attribit vegeons aranual f	during trails, butes i etated re as for furt	⊠ li s s li s s li s li s li s li s li s	ttle to parse the tribute to a serior of the serior of the tribute to a serior of the serior of the tribute to a serior of the se	arrive a st be v = perm ns of tl	at ratin within 2 hanentring S/I	g. Struender Str	ucturre each	during ources ith known all diven other	rsity is in terr	e of AA from # from # ms of th ow ven T/E	#13. heir
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□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplat □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA (see #12i) ■ Moderate Disturbance at AA (see #12i) □ High Disturbance at	pgist with f the foll d wildlife wildlife wildlife hd food gist with Workin ed even (see #1 = temp	abitat in know owing e group ign susource in know g from ly distr 0). Aborary/6	acks, nefeatures eledge of control of contro	est structs not avapit the AA I. dividuals cat, track of the AA bottom, of the mostions for seral; and High A P/P e and the	ures, gilable i or relates, nes heck at and lesurface A = ab	ppropria east pre water of sent [se	ate A. A to sel	eccies game A attribit vege ons aranual f	during trails, butes i etated re as for furti	peak letc. In matriclasse billows: her def ven T/E ional p	ttle to parse it to a serior of the total	e adjace ew with ds arrive a st be very permission of the derate	at ratin within 2 hanentrinese to S/I	g. Struender Str	ucturne each	during ources ith known all diven other	rsity is in terr	e of AA from # from # ms of th ven T/E	#13. heir
□ interview with local biolo □ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplat □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA (see #12i) □ Moderate Disturbance at AA (see #12i) □ High Disturbance at AA (see #12i) iii. Rating: Use the conclusion Evidence of Wildlife Use	pgist with f the foll d wildlife wildlife sind food gist with Workin ed even (see #1 = temp	abitat in know owing e group ign susource in know g from ly distr 0). Aborary/s	i above	est structs not avapit the AA I. dividuals cat, track of the AA bottom, of the mostions for seral; and High A P/P e and the	or relations, on relations, nesses the deck at and less the surface A = ab	ppropria east pre water of sent [se	ate A. A to sel	eccies game A attribit vege ons aranual f	during trails, butes i etated re as fror furti	peak letc. In matriclasse bllows: her def ven T/E ional p	ttle to parse it to a series mu P/P: A	e adjace ew with ds arrive a st be very permission of the derate	at rating at rating at rating at rating at rating	g. Structory of the control of the c	ucturne each	during ources ith known all diven other	rsity is in terr	e of AA from # from # ms of th ven T/E	#13. heir
□ interview with local biolo ■ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplau □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA (see #12i) □ Moderate Disturbance at AA (see #12i) □ High Disturbance at AA (see #12i) □ High Disturbance at AA (see #12i) iii. Rating: Use the conclusion Evidence of Wildlife Use (i)	pgist with f the foll d wildlife wildlife sind food gist with Workin ed even (see #1 = temp	abitat in know owing e group sign sursource in know g from ly distr 0). Absorary/s	i above	est structs not avapit the AA I. dividuals cat, track of the AA bottom, of the mostions for seral; and High A P/P e and the	or relations, on relations, nesses the deck at and less the surface A = ab	ppropriates tructure ppropriates the substitution of the substitut	ate A. A to sel	eccies game A attribit vege ons aranual f	during trails, butes i etated re as for furti	peak letc. In matriclasse bllows: her def T/E ional p ng (ii) bderate	ttle to parse it to a series mu P/P: A	e adjace ew with ds arrive a st be very permission of the derate	at ratin phase to some street to som	g. Structory of the control of the c	ucturne each	during ources ith known all diven other	rsity is in terr	e of AA from # from # ms of th ven T/E	#13. heir
□ interview with local biolo □ Moderate: Based on any o □ observations of scattere □ common occurrence of □ adequate adjacent uplat □ interview with local biolo ii. Wildlife Habitat Features: For class cover to be consider percent composition of the AA S/I = seasonal/intermittent; T/E Structural Diversity (see #13) Class Cover Distribution (all vegetated classes) Duration of Surface Water in ≥ 10% of AA □ Low Disturbance at AA (see #12i) □ Moderate Disturbance at AA (see #12i) □ High Disturbance at AA (see #12i) iii. Rating: Use the conclusion Evidence of Wildlife Use	pgist with f the foll d wildlife wildlife sind food gist with Workin ed even (see #1 = temp	abitat in know owing e groupsign sussource in know g from ly distr 0). Aboorary/s	i above	est structs not avapit the AA I. dividuals cat, track of the AA bottom, of the mostions for seral; and High A P/P e and the	or relations, on relations, nesses the deck at and less the surface A = ab	ppropria east pre water of sent [se	ate A. A to sel	eccies game A attribit vege ons aranual f	during trails, butes i etated re as for furti	peak letc. In matriclasse bllows: her def ven T/E ional p	ttle to parse it to a series mu P/P: A	e adjace ew with ds arrive a st be very permission of the derate	at rating at rating at rating at rating at rating	g. Structory of the control of the c	ucturne each	during ources ith known all diven other	rsity is in terr	e of AA from # from # ms of th ven T/E	#13. heir

Comments: Mid-summer, mid-afternoon survey likely reduced wildlife sightings at this site. Will survey in June 2018 (construction of West site prevented earlier site assessment).

Percent of Flooded Wetland Classified as

AA contains **no outlet or restricted outlet**AA contains **unrestricted outlet**

Forested and/or Scrub/Shrub

							W	etland	d/Site	#(s): <u>Fo</u>	orsyth	NW - I	<u>East</u>					
4D. GENERAL FISH HABITA If the AA is not used by fis entrapped in a canal], the	h, fish		ot res	storabl	le due	to ha		onstra	aints, c	r is not	desire	ed fron	n a ma	anagen	nent pe	erspec	tive [s	uch as
Assess this function if the precluded by perched culv					existin	g situa	ation is	corr "corr	ectab	e" such	that t	he AA	could	be use	ed by f	ish [i.e	e., fish	use is
Type of Fishery: Colo	d Wate	r (CW)	□ V	Narm '	Water	(WW) Use	the (CW or	WW gu	ıideline	es in th	ne mar	ual to	comple	te the	matrix	κ.
Habitat Quality and Known /	Susp	ected Fi	sh S	pecie	s in A	A : Us	se mat	rix to	select	the fur	nctiona	l point	and r	ating.				
Duration of Surface Water in AA	☐ Pe	ermanen	t / Po	erenn	ial		□s	☐ Seasonal / Intermitte			tent		ים	empoi	rary / Ephemeral			
Aquatic Hiding / Resting / Escape Cover	Opti		deq	uate	Po		Opti	Optimal Ade		_ quate	Po		Optimal		Adequate		∐ Poor	
Thermal Cover: optimal / suboptimal							0	S	0	S	0	s	0	S	0	s	0	S
FWP Tier I fish species																		
FWP Tier II or Native Game fish species																		
FWP Tier III or Introduced Game fish																		
FWP Non-Game Tier IV or No fish species																		
upport, or do aquatic nuisance Does the AA contain a documative fish or introduced game fit. Final Score and Rating: 4E. FLOOD ATTENUATION Applies only to wetlands the fit wetlands in AA are not fit ontrenchment Ratio (ER) Estimated here. Doed prone width / bankfull width	nented sh? [Commonat are looded mation orizont =	Spawnin YES, a ents: NA subject from in- (see ma al project	(prooto floor	ea or o o score ceed to oding anel or for ac of whe	o 14F) via in- overb	ritical or iia () -chan ank fl al guid (max	habita 0.1 = _ nel or o low, ch	overb eck the	ank flone NA	e., sanc ow. box an	tuary p d proce	eed to	pwelli 14F.	ng area width) / e floodp	a; spec	full widn each	dth).	ents) fo
Slightly Entr	enche	nd d		1	Mod	erate	ly Entr	ench	ed I	Ban	ıkfull D	epth	Fnt	renche	ed.			
ER ≥ 2. C stream type D stream t	.2	E strea	ım ty	ре		ER =	1.41 – eam ty	2.2		A stre	eam typ	ре	ER =	: 1.0 – ream ty	1.4	G st	ream t	уре
	7		TJ			7							£				<u> </u>	
Rating: Working from top to b	ottom	use the	matr	ix belo	ow to s	select	the fur	nction	al poir	nt and r	ating.							
Estimated or Calculated (Rosgen 1994, 1996)			_	Sli	ightly I	Entrer	nched		Mod	erately stream	Entren	ched		E	Entrend		_	

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☐ NO Comments: AA not subject to flooding from Big Porcupine Creek.

<25%

75%

25-75%

<25%

75%

25-75%

<25%

25-75%

75%

Wetland/Site #(s): Forsyth NW - East

14	4F. SHORT AND LONG TERM SURFACE WATER STORAGE
	Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, then check the NA box and proceed to 14G.
i.	Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Abbreviations for surface water durations are as
	follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see manual for further definitions of these terms].

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	□ 1.1	to 5 ac	re feet	⊠ ≤1 acre foot		
Duration of Surface Water at Wetlands within the AA	□ P/P	□ S/I	□ T/E	□ P/P	□ S/I	□ T/E	□ P/P	⊠ S/I	□ T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years								.3L	
Wetlands in AA flood or pond < 5 out of 10 years									

Comments: AA subject to pond from precipitation and upland surface flow. 2017 drought in effect; very little precipitation during summer 2017.

14G. SEDIMENT / NUTRIENT / TOXICANT / RETENTION AND REMOVAL NA (proceed to 14H) Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receives or surrounding land use has potential to deliver sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody is on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.					
% Cover of Wetland Vegetation in AA	⊠≥ ^¹	70%	□ <	70%	□ ≥ 70 %		□ < 70%			
Evidence of Flooding / Ponding in AA	⊠ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No		
AA contains no or restricted outlet	1H	1H								
AA contains unrestricted outlet										

Comments: AA achieved greater than 70% vegetation cover, with early succession annuals, native perennial, rhizomotous and bunch grasses, and natural Populus deltoides recruitment.

14H. SEDIMENT / SHORELINE STABILIZATION NA (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of Surface Water Adjacent to Rooted Vegetation					
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	⊠ Seasonal / Intermittent	☐ Temporary / Ephemeral			
□ ≥ 65%						
⊠ 35-64%		.6M				
☐ < 35%						

Comments: AA with seasonal/ephemeral water. Vegetation transitioning from annuals to perennial rhizomatous grasses and bunchgrasses, along with natural Populus deltoides recruitment.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	General Wildlife Habitat Rating (14Ciii)						
(14Diii)	□ E/H	\boxtimes M	L				
☐ E/H							
■ M							
⊠ NA		M					

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

Α		Vegeta	ted Co	mponent	t >5 ac	res	☐ Vegetated Component 1-5 acres											
В	_ 	ligh	\S	oderate		Low	_ 	ligh		derate		Low	<u> </u>	ligh	⊠ Mo	derate	L	_ow
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P																		
S/I																.3L		
T/E/A																		

15. GENERAL SITE NOTES: ____

Wetland/Site #(s): Forsyth NW - East

			vvelianic	/ Oile #(3)	. I Olayul INVV	<u>- Lasi</u>			
14I. PRODUCTION EXPORT / FOOD CH	IAIN SUI	PPORT (conti	nued)						
iii. Modified Rating: Note: Modified score	e cannot	exceed 1.0 o	r be less than	0.1.					
Vegetated Upland Buffer: Area with mowing or clearing (unless for weed of a sthere an average ≥ 50-foot wide vegetable).	ontrol).						-		
iv. Final Score and Rating: $\underline{.3L}$ Comm	ents:								
14J. GROUNDWATER DISCHARGE / R Check the appropriate indicators in									
i. Discharge Indicators The AA is a slope wetland. Springs or seeps are known or weeps with the vetland occurs at the toe of seeps are present at the wetland contains an outlet, but shallow water table and the seeps of the vetland contains and the seeps with the vetland contains and the vetland contains with the vetland contains with the vetland contains and the vetland contains with the	ormant se a natural land edg ng drougl ut no inle site is sat	eason/drought slope. e. ht periods. et. urated to the	surface.	☐ Perr ☐ Wet ☐ Stre	land contains	s ate present wit inlet but no ou n 'losing' streat	tlet.	, , ,	
iii. Rating: Use the information from i an	d ii abov								_
Criteria			Saturation at <i>i</i> <u>/ATER THAT I</u> ⊠ S	S RECHA				STEM	
☐ Groundwater Discharge or Rech	arge		.7M						
☐ Insufficient Data/Information									
Comments: Ponding was observed on sit	e in 2014	4, but not obse	erved in 2015,	2016 or 2	2017 (mid-sum	mer survey wa	as during	proclaimed d	rought
period).									
14K. UNIQUENESS									
i. Rating: Working from top to bottom, us	se the ma	atrix below to	select the funct	tional poir	nt and rating.				
Replacement Potential	spring foreste	ntains fen, bo s or mature (ed wetland Ol ation listed a	>80 yr-old) R plant	cited ra diversi contair	es not contain are types ANI ty (#13) is hig ns plant asso as "S2" by the	O structural Jh OR ciation	previou associa	es not contai usly cited rar ations AND s ty (#13) is lo	e types OR tructural
Estimated Relative Abundance (#11)		Common	□ Abundant			□ Abundant	□ Rare	□ Common	Abundar
Low Disturbance at AA (#12i)									
Moderate Disturbance at AA (#12i)									.2L
☐ High Disturbance at AA (#12i)									
Comments: AA resembles a roadside dite	<u>:h.</u>								
14L. RECREATION / EDUCATION POTI Affords 'bonus' points if AA provides			NA (proceed to ational opportu		Summary and	Rating page)			
i. Is the AA a known or potential recrea	tional o	r educational	site? TYES	, go to ii.	NO, che	ck the NA box	ί.		
ii. Check categories that apply to the A		ducational/Sc ther:	ientific Study	☐ Cons	umptive Recr	eational N	lon-consu	ımptive recrea	ational
iii. Rating: Use the matrix below to selec	t the fund	ctional point ar	nd rating.						_
			l or Education				Known	Potential	
Public ownership or public easemer					n required)				
Private ownership with general publ									_
Private or public ownership without						c access			
Comments: AA small, adjacent to highwa	<u>y, and w</u>	<u>ith little to no r</u>	ecreation or ed	ducation p	<u>potential.</u>				

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	low 0.00	1.00	0					
B. MT Natural Heritage Program Species Habitat	high 0.90	1.00	.387	*				
C. General Wildlife Habitat	mod 0.40	1.00	.172					
D. General Fish Habitat	NA	NA	0					
E. Flood Attenuation	NA	NA	0					
F. Short and Long Term Surface Water Storage	low 0.30	1.00	.129					
G. Sediment / Nutrient / Toxicant Removal	high 1.00	1.00	.43	*				
H. Sediment / Shoreline Stabilization	mod 0.60	1.00	.258	*				
I. Production Export / Food Chain Support	low 0.30	1.00	.129					
J. Groundwater Discharge / Recharge	mod 0.70	1.00	.301	*				
K. Uniqueness	low 0.20	1.00	.086					
L. Recreation / Education Potential (bonus point)	NA		0					
Total Points	4.4	9	1.89 Total	Functional Units				
Percent of Possible Score 49% (round to nearest whole number)								

	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)
	Zi carego, in tronama. (cinona io. caregorios i, ii, ci ci necesariones)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)
	□ "Low" rating for Uniqueness; and
	☐ Vegetated <u>wetland</u> component < 1 acre (do <u>not</u> include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
	\Box 1 ercent of possible score < 35% (round to fledrest whole π).
Į	
_	OVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.
_	VERALE ANALI 313 AREA (AA) RATING. Check the appropriate category based on the chiefla outlined above.

RESPEC/MDT WETLAND MITIGATION SITE MONITORING FORM

	1 20,1,12	. ,, 2, 2, 2, 1, 2		1 (0112 1/101 (11						
Project Name: For Assessment Date: Location: ~17 mil Milepost: Legal Description Weather Condition Initial Evaluation Size of evaluation	July 24, 20 es west of 1 ~RP 81.7 o : T 6N ns: Warm a Date: Augu	D17 Porsyth n I-94 R 38E So and sunny ust 14, 2013	erson(s) con ection <u>23</u> Monit	Producting the assess MDT District: (1) Time of Day: 15 Toring Year: 5 # Tounding wetland:	Glendive 30 Visits in Ye	con/CHoschouer ear: <u>1</u>				
		Н	IYDROLO(GY						
Surface Water Source: Groundwater, precipitation Inundation: Present Average Depth: 0.1 feet Range of Depths: 0-0.1ft Percent of assessment area under inundation: 20*% Depth at emergent vegetation-open water boundary: 1 feet If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc.): Surface water, H2S odor, geomorphic position, salt crust Groundwater Monitoring Wells: Absent										
Record depth of w Well Number	Depth	Well Number	Depth	Well Number	Depth	1				
Wen Number	Depth	vven rumber	Берш	vven rumber	Deptii					
		 	_			-				
 ✓ Map emergent ✓ Observe extensions (drief of the levations (drief) ✓ Use GPS to su COMMENTS / P *Late mid-summ 	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. COMMENTS / PROBLEMS: *Late mid-summer, drought in progress, 1-2" of water in center of wetland areas, all excavated areas saturated however.									

VEGETATION COMMUNITIES

Community Number: 3 Community Title (main spp): Schoenoplectus spp. /

Dominant Species	% Cover	Dominant Species	% Cover
Schoenoplectus pungens	5 = > 50%	Hordeum jubatum	1 = 1-5%
Bare Ground	1 = 1-5%	Lycopus asper	1 = 1-5%
Distichlis spicata	2 = 6-10%	Typha latifolia	1 = 1-5%
Eleocharis palustris	1 = 1-5%	Carex sp.	1 = 1-5%
Schoenoplectus maritimus	1 = 1-5%	Puccinellia nuttalliana	+=<1%
Sonchus arvensis	1 = 1-5%	Rumex crispus	+ = < 1%

Comments / Problems: Mentha arvensis-<1; Sisyrinchium sp. (in wetland, potentially septentrionale)

Community Number: 4 Community Title (main spp): Artemisia cana / Bromus arvensis

Dominant Species	% Cover	Dominant Species	% Cover
Pascopyrum smithii	4 = 21-50%	Bare Ground	1 = 1-5%
Bromus arvensis	3 = 11-20%	Puccinellia nuttalliana	1 = 1-5%
Artemisia cana	3 = 11-20%	Sisymbrium altissimum	1 = 1-5%
Lepidium perfoliatum	3 = 11-20%	Sonchus arvensis	1 = 1-5%
Bassia scoparia	2 = 6-10%	Tragopogon dubius	1 = 1-5%
Agropyron cristatum	1 = 1-5%	Artemisia frigida	1 = 1-5%

Comments / Problems: _____

Community Number: 5 Community Title (main spp): Pascopyrum smithii / Bromus arvensis

Dominant Species	% Cover	Dominant Species	% Cover
Pascopyrum smithii	4 = 21-50%	Artemisia cana	1 = 1-5%
Bromus arvensis	3 = 11-20%	Bare Ground	1 = 1-5%
Elymus junceus	2 = 6-10%	Hordeum jubatum	2 = 6-10%
Chenopodium album	2 = 6-10%	Puccinellia nuttalliana	1 = 1-5%
Grindelia squarrosa	1 = 1-5%	Schedonorus pratensis	1 = 1-5%
Lactuca serriola	1 = 1-5%	Sonchus arvensis	1 = 1-5%

Comments / Problems: <u>Distichlis spicata-2; Cirsium arvense-1; Poa bulbosa-<1; Lepidium perfoliatum-1;</u>

Community Number: 6 Community Title (main spp): Artemesia cana/Pascopyrum smithii

Dominant Species	% Cover	Dominant Species	% Cover
Pascopyrum smithii	5 = > 50%	Bare Ground	1 = 1-5%
Bromus arvensis	2 = 6-10%	Puccinellia nuttalliana	1 = 1-5%
Artemisia cana	3 = 11-20%	Distichlis spicata	1 = 1-5%
Lepidium perfoliatum	3 = 11-20%	Sonchus arvensis	+=<1%
Bassia scoparia	1 = 1-5%	Tragopogon dubius	1 = 1-5%
Agropyron cristatum	1 = 1-5%	Artemisia frigida	1 = 1-5%

Comments / Problems: <u>CT 4 has converted to CT 6 (2017)</u>; <u>Muhlenbergia sp.-<1</u>; <u>Elymus repens-1</u>

VEGETATION COMMUNITIES (continued)

Community Number: 7 Community Dominant Species	% Cover	Dominant Species	% Cover
Distichlis spicata		Muhlenbergia asperifolia	1 = 1-5%
Puccinellia nuttalliana			+
		Salicornia rubra	1 = 1-5%
Hordeum jubatum		Bassia scoparia	1 = 1-5%
Spergularia rubra	1 = 1-5%		
Bare Greound (dried mud)	4 = 21-50%		
Schedonorus pratensis	1 = 1-5%		
Community Number: Commu	nity Title (main spp)	:	
Dominant Species	% Cover	Dominant Species	% Cover
Comments / Problems:Community Number: Commu Dominant Species	nity Title (main spp) % Cover	: Dominant Species	% Cover
Community Number: Commu			% Cover
Community Number: Commu Dominant Species Comments / Problems: Commu	nity Title (main spp)	Dominant Species	% Cover
Dominant Species Community Number: Commu Dominant Species Comments / Problems:	% Cover	Dominant Species	
Community Number: Commu Dominant Species Comments / Problems: Commu	nity Title (main spp)	Dominant Species	
Community Number: Commu Dominant Species Comments / Problems: Commu	nity Title (main spp)	Dominant Species	% Cover

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes

Comments / Problems: No woody vegetation planted at site.

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Forsyth NW - Treasure Co. Line Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 534 feet Compass Direction from Start: 190 Note:

Transect Interval Length: 4 feet (station 0-4)		
Vegetation Community Type: 5-Pascopyrum smithii / Bromus arvensis		
Plant Species	Cover	
Bare Ground	1 = 1-5%	
Elymus repens	5 = > 50%	
Agropyrum cristatum	1 = 1-5%	
Hordeum jubatum	3 = 11-20%	
Sonchus arvensis	1 = 1-5%	
Bassia scoparia	+ = < 1%	
Total Vegetative Cover:	95%	

Transect Interval Length: 53 feet (station 4-57)		
Vegetation Community Type: 7-Distichlis spicata/Puccinellia		
nuttalliana		
Plant Species	Cover	
Bare Ground (dried mud)	4 = 21-50%	
Salicornia rubra	1 = 1-5%	
Puccinellia nuttalliana	2 = 6-10%	
Basia scoparia	1 = 1-5%	
Hordeum jubatum	2 = 6-10%	
Muhlenbergia asperifolia	1 = 1-5%	
Distichlis spicata	4 = 21-50%	
Schedonorus pratensis	1 = 1-5%	
Spergularia rubra	1 = 1-5%	
Total Vegetative Cover:	75%	

Transect Interval Length: 37 feet (station 57-94)			
Vegetation Community Type: 5-Pascopyrum smithii / Bromus arvensis			
Plant Species	Cover		
Bromus arvensis	4 = 21-50%		
Bare Ground	3 = 11-20%		
Hordeum jubatum	1 = 1-5%		
Schedonorus pratensis	3 = 11-20%		
Chenopodium album	2 = 6-10%		
Muhlenbergia asperifolia	3 = 11-20%		
Sonchus arvensis	+ = < 1%		
Carduus nuutans	+ = < 1%		
Total Vegetative Cover:	85%		

Transect Interval Length: 107 feet (station 94-201)	
Vegetation Community Type: 3-Schoenoplectus spp.	
Plant Species	Cover
Schoenoplectus pungens	5 = > 50%
Typha latifolia	3 = 11-20%
Sonchus arvensis	2 = 6-10%
Elaeagnus angustifolia	+=<1%
Total Vegetative Cover:	100%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Forsyth NW - Treasure Co. Line Date: July 24, 2017 Examiner: Lynn Bacon

Transect Number: 1 Approximate Transect Length: 534 feet Compass Direction from Start: 190 Note:

Transect Interval Length: 146 feet (station 201-347)			
Vegetation Community Type: 5-Pascopyrum smithii / Bromus arvensis			
Plant Species	Cover		
Pascopyrum smithii	4 = 21-50%		
Bromus arvensis	3 = 11-20%		
Poa bulbosa	+=<1%		
Bromus ciliatus	1 = 1-5%		
Lipidium perfoliatum	4 = 21-50%		
Bare Ground	1 = 1-5%		
Chenopodium album	1 = 1-5%		
Cirsium arvense	1 = 1-5%		
Schoenoplectus pungens	1 = 1-5%		
Total Vegetative Cover:	95%		

Transect Interval Length: 63 feet (station 347-410)	
Vegetation Community Type: 3-Schoenoplectus spp. /	
Plant Species	Cover
Schoenoplectus pungens	5 = > 50%
Sonchus arvensis	1 = 1-5%
	·
Total Vegetative Cover:	100%

Transect Interval Length: 124 feet (station 410-534)		
Vegetation Community Type: 5-Pascopyrum smithii / Bromus arvensis		
Plant Species	Cover	
Pascopyrum smithii	5 = > 50%	
Bromus japonicus	2 = 6-10%	
Distichlis spicata	+=<1%	
Bare Ground	1 = 1-5%	
Lipidium perfoliatum	2 = 6-10%	
Artemesia cana	1 = 1-5%	
Chenopodium album	2 = 6-10%	
Sonchus arvensis	+ = < 1%	
Hordeum jubatum	+ = < 1%	
Total Vegetative Cover:	95%	

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Vegetative Cover:	%

B-7

B-72

MDT WETLAND MONITORING - VEGETATION TRANSECT

Cover EstimateIndicator ClassSource+ = < 1%3 = 11-10%+ = ObligateP = Planted1 = 1-5%4 = 21-50%- = Facultative/WetV = Volunteer2 = 6-10%5 = > 50%0 = Facultative

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): 100%

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: Wetland in very good condition, slight acreage growth.

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 upl	and
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.	

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1		Photo Point 1: 46.261292 / -106.937012	180
PP-2		Photo Point 2: 46.261398 / -106.937569	140
PP-3		Photo Point 3: 46.260593 / -106.937988	45
PP-4		Photo Point 4: 46.260349 / -106.936935	315
T-1 start		Transect 1 start: 46.260059 / -106.937912	10
T-1 end		Transect 1 end: 46.261635 / -106.937218	190
DP-1W		Wetland soil pit: 46.261483 / -106.937079	
DP-1U		Upland soil pit: 46.26144 / -106.937075	

Comments	/ Problems:	

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist: ☐ Upland/wetland boundary. ☐ 4-6 landmarks that are recognizable on the aerial photograph. ☐ Start and End points of vegetation transect(s). ☐ Photograph reference points. ☐ Groundwater monitoring well locations. ☐ Bird nest boxes.
Comments / Problems:
WETLAND DELINEATION (attach COE delineation forms)
At each site conduct these checklist items: Delineate wetlands according to the 1987 Army COE manual and regional supplement. Delineate wetland – upland boundary onto aerial photograph.
Comments / Problems:
FUNCTIONAL ASSESSMENT Complete and attach full MDT Montana Wetland Assessment Method field forms.
Comments / Problems:
MAINTENANCE
Were man-made nesting structure installed at this site? <u>NA</u> If yes, do they need to be repaired? <u>NA</u> 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? <u>NA</u> If yes, are the structures working properly and in good working order? <u>NA</u> If no, describe the problems below.
Comments / Problems: <u>Cattle tracks observed in wetland areas.</u>

WII	DI	JFE

Birds	
Were man-made nesting structures installed? No If yes, type of structure: How many? 0 Are the nesting structures being used? NA Do the nesting structures need repairs? NA	

Mammals and Herptiles

Mammal and Herptile Species	Number	Indirect Indication of Use					
Manimai and Herpthe Species	Observed	Tracks	Scat	Burrows	Other		

Additional Activities Checklist:

<u>NA</u> Macroinvertebrate Sampling (if required)

Comments / Problems: <u>Late afternoon, 100 degrees</u>

BIRD SURVEY - FIELD DATA SHEET

Site: Forsyth NW - Treasure Co. Line
Survey Time: 1530 to 1730 Date: <u>7/24/17</u>

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
•				Î			

BEHAVIOR CODES

BP = One of a breeding pair $\mathbf{BD} = \mathbf{Breeding\ display}$

 $\mathbf{F} = \text{Foraging}$ FO = Flyover

L = LoafingN = Nesting HABITAT CODES

 $\mathbf{AB} = \text{Aquatic bed}$ SS = Scrub/ShrubFO = Forested $\mathbf{UP} = \mathbf{Upland}$ buffer $\mathbf{WM} = \mathbf{W}$ et meadow I = IslandMA = Marsh**US** = Unconsolidated shore

 $\mathbf{MF} = \mathbf{Mud} \; \mathbf{Flat}$ OW = Open Water

Weather: 100 degress, sunny; no avian identified.

TAT (
Notes:	
INCHES.	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - Treasure		City/C	ounty: Rosebu	d	Sa	mpling Date	e: <u>7/24</u>	l/17	
Applicant/Owner: MDT				State:	MT Sa	mpling Poin	ıt: <u>D</u>)P-1u	
Investigator(s): L. Bacon, C. Hoschouer		Section, Township, Range: S23 T6N R38E							
Landform (hillside, terrace, etc.): terrace	Local relief (concave, convex, none): convex Slope (%):						: 0		
Subregion (LRR): LRR G Lat: 46.2	26144	Long: -106.937075 Datum: WGS84							
Soil Map Unit Name: Borollic Camborthids-Ustic Tor	rifluvents com	plex, 0-8% s	lopes	NW	/I classification	n: Not map	ped		
Are climatic / hydrologic conditions on the site typica	al for this time of	of year?	Yes X	No (I	f no, explain	in Remarks.	.)		
Are Vegetation, Soil, or Hydrology	significantly	disturbed?	Are "Normal C	Circumstances" p	resent? Y	es X	No		
Are Vegetation, Soil, or Hydrology				plain any answe					
SUMMARY OF FINDINGS – Attach site				•			atures	, etc.	
Hydrophytic Vegetation Present? Yes	No X	Is	the Sampled A	rea					
	No X	wit	thin a Wetland	? Ye	s	No X			
Wetland Hydrology Present? Yes	No X								
Remarks: DP located on elevated terrace above excavated w VEGETATION – Use scientific names of									
	Absolute	Dominan							
Tree Stratum (Plot size:)	% Cover	Species?	Status	Dominance T					
1. 2.				Number of Do Are OBL, FAC		ies That 	0	(A)	
3. 4.				Total Number Across All Str		Species	1	_(B)	
Sapling/Shrub Stratum (Plot size:1.)	=Total Cove	er	Percent of Do Are OBL, FAC	•	es That	0.0%	_(A/B)	
2.				Prevalence li	ndex worksh	eet:			
3.				Total % Cove	r of:	Multiply	by:		
4	_			OBL species	0	x 1 =		_	
5	_	T-1-1 0		FACW specie		_ x2=_	0	_	
Herb Stratum (Plot size:)		=Total Cove	er	FAC species FACU species		_ x 3 = x 4 =	15 0	_	
1. Agropyron cristatum	75	Yes	UPL	UPL species	-	_ x5=	450	_	
Bromus tectorum	10	No	UPL	Column Total		(A)	465	(B)	
3. Grindelia squarrosa	5	No	UPL	Prevalence In	dex = B/A =	4	.89		
4. Lactuca serriola	5	No	FAC						
5				Hydrophytic	_				
6.					Test for Hydi		etation		
7. 8.					nance Test is lence Index is				
8					ological Adar		ovide su	pporting	
10.					Remarks or				
	95	=Total Cove	er	Problema	tic Hydrophy	tic Vegetatio	on¹ (Expl	ain)	
Woody Vine Stratum (Plot size: 1.	_)			¹ Indicators of be present, ur				must	
2.				Hydrophytic					
% Bare Ground in Herb Stratum 5		=Total Cove	er	Vegetation Present?	Yes	No	X		
Remarks:									
DP on raised flat area above excavated wetland are	ea.								

SOIL Sampling Point: DP-1u

Profile Desc Depth	ription: (Describe t Matrix	o tne depth		ument th x Featur		ator or c	confirm the absence	of indicators.)	
(inches)	Color (moist)	%	Color (moist)	% realui	Type ¹	Loc ²	Texture	Remarks	
0-16	10YR 3/2	100	20.0. (.,,,,		Loamy/Clayey	Tomano	
	10111 0/2						Louiny/ Olayby		
								-	
¹ Type: C=Co	oncentration, D=Depl	etion, RM=F	Reduced Matrix, C	CS=Cove	red or C	oated Sa	and Grains. ² Loc	cation: PL=Pore Lining, M=Matrix.	
	ndicators: (Applica							cators for Problematic Hydric Soil	s³:
Histosol	(A1)			Sandy G	leyed Ma	atrix (S4	·	1 cm Muck (A9) (LRR I, J)	
Histic Ep	ipedon (A2)			Sandy R	edox (S	5)	_	Coast Prairie Redox (A16) (LRR F, 6	3, H)
Black His	` '			Stripped	,	,		Dark Surface (S7) (LRR G)	
	n Sulfide (A4)			Loamy N	•	•	· —	High Plains Depressions (F16)	
	Layers (A5) (LRR F)			Loamy C	•	,	•	(LRR H outside of MLRA 72 & 7	'3)
	ck (A9) (LRR F, G, H	•		Depleted	,	,		Reduced Vertic (F18)	
	Below Dark Surface	(A11)		Redox D		` '		Red Parent Material (F21)	
	rk Surface (A12) ucky Mineral (S1)			Depleted Redox D		,		Very Shallow Dark Surface (F22) Other (Explain in Remarks)	
	ucky Mineral (ST) lucky Peat or Peat (S	(2) (I RR C		High Pla	•	` '		icators of hydrophytic vegetation and	l
	cky Peat or Peat (S3			_	A 72 & 7			wetland hydrology must be present,	•
	. ,	, <u>,</u> ,		, <u>-</u> 1,				unless disturbed or problematic.	
Restrictive L	ayer (if observed):							·	
Type:			<u> </u>						
Depth (ir	nches):						Hydric Soil Preser	nt? Yes No	Χ
Remarks:									
Nonhydric so	il in this elevated are	a.							
HYDROLO	GV .								
-	drology Indicators:		المال على المال مال مال	onnl:·\			Onno d	on Indiantoro (minimum of tura mari	. o. al\
	ators (minimum of or Water (A1)	ie is require	ed; check all that Salt Crust					ary Indicators (minimum of two requinate Soil Cracks (B6)	ed)
	ter Table (A2)		Aquatic In	` '	es (R12)	1		rsely Vegetated Concave Surface (B	8)
Saturation	, ,		Hydrogen		, ,			inage Patterns (B10)	J)
	arks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots	(C3)
	t Deposits (B2)		Oxidized F					/here tilled)	- /
	osits (B3)			not tilled		0	` '	yfish Burrows (C8)	
	t or Crust (B4)		Presence			(C4)	Satu	uration Visible on Aerial Imagery (C9)
	osits (B5)		Thin Muck	Surface	(C7)		Geo	omorphic Position (D2)	
Inundation	on Visible on Aerial In	nagery (B7)	Other (Exp	olain in R	emarks)		FAC	C-Neutral Test (D5)	
Water-St	ained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)	
Field Observ	vations:	_							
Surface Water	er Present? Yes	s	No X	Depth (ii	· -				
Water Table		s	No X	Depth (ii	_			.	.,
Saturation P		<u> </u>	No X	Depth (ii	nches):		Wetland Hydrolo	ogy Present? Yes No	X
(includes cap		aa.ue.a	sitoring	ا ماما	nuc.de	- in	tions) if available		
Describe Red	corded Data (stream	gauge, mor	inoring well, aeria	ıı pnotos,	previous	s inspec	uons), ir avallable:		
Remarks:									
	r secondary indicator	s on this ele	evated terrace.						
	-								

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW - Treasure	(City/County: Rosebud		Samp	oling Date:	7/24/	17
Applicant/Owner: MDT	·		State: MT	Samp	oling Point:	DF	P-1w
Investigator(s): L. Bacon, C. Hoschouer	S	ection, Township, Range	e: S23 T6N R38	<u>—</u> Е			
Landform (hillside, terrace, etc.): terrace	Local	relief (concave, convex	, none): convex		Slo	pe (%):	0
Subregion (LRR): LRR G Lat: 46.261		Long: -106			Datum:		
Soil Map Unit Name: Borollic Camborthids-Ustic Torrifl			NWI cla	assification:	Not mappe	ed	
Are climatic / hydrologic conditions on the site typical for	•	•	No (If no,				
Are Vegetation, Soil, or Hydrologys			cumstances" prese			o	
Are Vegetation, Soil, or Hydrologyr			in any answers in			<u> </u>	-
SUMMARY OF FINDINGS – Attach site ma			•		rtant feat	tures,	etc.
Hydrophytic Vegetation Present? Yes X No)	Is the Sampled Area	<u> </u>				
Hydric Soil Present? Yes X No	<u> </u>	within a Wetland?	Yes	X No			
Wetland Hydrology Present? Yes X No							
Remarks: DP located in low area. Cattle tracks noted.							
VEGETATION – Use scientific names of p	lants						
VEGETATION - 030 30101111110 11ames of p		ninant Indicator					
Tree Stratum (Plot size:)	% Cover Spe	ecies? Status	Dominance Test	worksheet:	;		
1			Number of Domina Are OBL, FACW,	•	That	2	(A)
3. 4.			Total Number of D	ominant Sp	ecies	2	(B)
Sapling/Shrub Stratum (Plot size:) 1.	=Tota		Percent of Domina Are OBL, FACW,			00.0%	
2.			Prevalence Index	workshee	t:		
3.			Total % Cover of:		Multiply by	/ :	
4.			OBL species	10	x 1 =	10	
5.			FACW species	80	x 2 =	160	_
	=Tota		FAC species	2	x 3 =	6	_
Herb Stratum (Plot size:)			FACU species	2	x 4 =	8	_
1. Hordeum jubatum			UPL species Column Totals:		x 5 =	0	- (D)
Distichlis spicata Puccinellia nuttalliana			Prevalence Index		A) 1.90	184 6	_ (B)
Sonchus arvensis		No FAC	i revalence muex	- D/A -	1.30	<u> </u>	-
5. Spergularia rubra			Hydrophytic Veg	etation Indi	cators:		
6.			1 - Rapid Test			ation	
7.			X 2 - Dominance	e Test is >5	0%		
8.			X 3 - Prevalence	e Index is ≤3	3.0 ¹		
9		I .	4 - Morpholog		,		porting
10				narks or on			
	94 =Tota	l Cover .	Problematic H		•		,
Woody Vine Stratum (Plot size:) 1			¹ Indicators of hydr be present, unless				must
2.			Hydrophytic				
% Bare Ground in Herb Stratum 5	=Tota		Vegetation Present?	es X	No		
Remarks:		<u>l</u>					
DP in low area.							

SOIL Sampling Point: DP-1w

	ription: (Describe	to the dept				itor or c	onfirm the ab	sence o	f indicators	.)	
Depth (inches)	Matrix			x Featu		Loc ²	Touture			Domorko	
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	LOC	Texture			Remarks	
0-2	10YR 3/2	100					Loamy/Cla				
2-16	10YR 4/2	85	2.5YR 3/6	15	<u> </u>	M	Loamy/Cla	iyey		nt redox cond	
									(actually 5	YR 3/6, auto	form malfx)
¹Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, (CS=Cove	ered or C	oated Sa	and Grains.	² Loca	tion: PL=Po	re Lining, M=	Matrix.
	ndicators: (Applica									oblematic Hy	
Histosol	(A1)			Sandy 0	Sleyed Ma	atrix (S4))	1	cm Muck (A	9) (LRR I, J)	
Histic Ep	pipedon (A2)			Sandy F	Redox (S	5)		? C	Coast Prairie	Redox (A16)	(LRR F, G, H)
Black His	stic (A3)			Stripped	d Matrix (S6)			ark Surface	(S7) (LRR G)
	n Sulfide (A4)			Loamy I	Mucky Mi	neral (F1	1)	⊦	ligh Plains D	epressions (F	⁻ 16)
I —	Layers (A5) (LRR F	•		-	Gleyed M		2)		-	itside of MLF	RA 72 & 73)
	ck (A9) (LRR F, G, F	-	<u>X</u>		d Matrix (Reduced Vert	,	
	Below Dark Surface	e (A11)			Dark Surfa				Red Parent M		(500)
	irk Surface (A12)			•	d Dark Si	•	-7)		-	Dark Surface	
	lucky Mineral (S1) lucky Peat or Peat (S2) (I PP G			Depressio ains Depr	. ,	(E16)			n in Remarks) ophytic vege	
	cky Peat or Peat (S	, •	, n) <u> </u>	-	RA 72 & 7				-	logy must be	
	cky real or real (oc), (L IXIX I)		(141121	(A 12 G	O OI LIK				ed or probler	
Restrictive L	ayer (if observed):									•	
Type:											
Depth (in	nches):						Hydric Soil	Present	?	Yes X	No
Remarks:						-					
Hydric soil in	this low area.										
HYDROLO	ic.v										
-	drology Indicators: cators (minimum of o	no ie roquir	od: chock all that	annly)			9	ocondar	v Indicators	(minimum of	two required)
	Water (A1)	ne is requir	Salt Crust						ce Soil Cracl		two required)
	ter Table (A2)		Aquatic In		tes (B13)					ed Concave S	Surface (B8)
Saturation			Hydrogen						age Patterns		(= 0)
	arks (B1)		Dry-Seaso				_	_	-		ng Roots (C3)
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	eres on I	_iving Ro	oots (C3)	(wh	ere tilled)		
Drift Dep	osits (B3)		(where	not tille	d)			Crayf	ish Burrows	(C8)	
Algal Ma	t or Crust (B4)		Presence	of Redu	ced Iron ((C4)		X_Satur	ation Visible	on Aerial Ima	agery (C9)
	osits (B5)		Thin Muck						norphic Posit		
	on Visible on Aerial I	magery (B7)	Other (Exp	olain in F	Remarks)				Neutral Test		
	tained Leaves (B9)						_	Frost	-Heave Hum	mocks (D7) (LRR F)
Field Observ											
Surface Water		s	No X		inches):						
Water Table		s	No X		nches):		Wetlend H	dualaa	u. Dracant?	Vaa V	Na
Saturation Pr		es	NO A	Depth (inches):		wettand n	yarolog	y Present?	Yes X	. No
(includes cap	corded Data (stream	dalide moi	nitoring well aeria	l nhotos	previous	sinsned	tions) if availal	ole.			
Describe ive	coraca Data (stream	gaago, mo	moning won, acre	p. 10103	, provious	, iiiopooi	acrio, il avalla	J.O.			
-											
Remarks:											
Remarks: Dry mid-sum	mer.										

MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

١.	Project Name: Forsyth NW -	Treasure Co. Line 2. MDT Pr	oject #: <u>STPP 14-6(9)259</u> 3.	Control #: 4059									
3.	Evaluation Date: 7/24/17 4.	Evaluator(s): Lynn Bacon 5.	. Wetland/Site #(s): Forsyth N	W - Treasure Co. Line									
ò.	Wetland Location(s): Towns	ship <u>6 N</u> , Range <u>38 E</u> , Section <u>2</u>	23; Township <u>N</u> , Range <u>E</u>	, Section									
	Approximate Stationing or Roadposts: ~RP 81.7 on I-94												
	Watershed: 15 - Lower Yello	owstone County: Rosebud	<u> </u>										
	Evaluating Agency: RESPEC Purpose of Evaluation: Wetland potentially affect Mitigation wetlands; promotion of Mitigation wetlands; pool other CLASSIFICATION OF WET	ected by MDT project e-construction st-construction	9. Assessment Area (/	(visually estimated) 1.74 (measured, e.g. GPS) AA) Size (acre): mining AA) 1.74 (measured) initions.)									
	HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA								
F													
- 11	Depressional	Emergent Wetland	Excavated	Permanent / Perennial	90								
ŀ	Depressional Depressional	Emergent Wetland Emergent Wetland	Excavated	Permanent / Perennial Seasonal / Intermittent	90 10								
		3	Excavated										
		3	Excavated										
		3	Excavated										
		3	Excavated										

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) common

12. GENERAL CONDITION OF AA

i Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed povious weed and aquatic puisance vegetatic

 i. Disturbance: species lists. 	Use matrix below to select the	ie appropriate response; see ma	nual for Montana listed noxious	weed and aquatic nuisance vegetat
		Predominar	t Conditions Adjacent to (wi	hin 500 feet of) AA
			The state of the s	

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

Comments (types of disturbance, intensity, season, etc.): Constructed AA with sufficient time for vegetation to establish. Changed from low to moderate disturbance because there was evidence of moderate grazing that occurred earlier in the year within the AA.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Cirsium arvense
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA includes excavated wetland constructed adjacent to a larger wetland area. AA also includes depressional PEM wetland outside of excavated constructed wetland, along the northern edge of the project boundary, Surrounding land use includes I-94, agriculture, and grazing.

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes	mod	NA	NA	NA
1 class, but not a monoculture		←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Emergent wetland with scattered shrubs.

☐ Minimal

Wetland/Site #(s): Forsyth NW - Treasure Co. Line

14A. HABITAT FOR FEDERAL	LY LIS	STED	OR F	PROP	OSED	THRE	EATEN	IED C	OR EN	NDANG	ERED	PLA	NTS C	or an	IMALS	3				
Primary or critical habitat (list Secondary habitat (list species)	AA is Documented (D) or Suspected (S) to contain: Check box based on definitions in manual. Primary or critical habitat (list species)																			
ii. Rating: Based on the strong	est hab	itat cl	noser	n in 14	IA(i) ab	ove, s	select t	he co	orresp	onding	function	onal p	oint a	nd rati	ng.					
Highest Habitat Level	Doc/P	rimar	y S	Sus/P	rimary	Do	c/Sec	onda	ary	Sus/Se	conda	ry	Doc/li	ncider	ntal	Sus	/Incide	ntal	Non	е
Functional Point/Rating				-				-											0L	
Sources for documented use	(e.g. ob	serva	ations	, reco	rds): <u>U</u>	SF&V	VS T&I	E list	for R	osebud	Count	<u>y</u>								
14B. HABITAT FOR PLANTS (Do not include species lis				TED	S1, S2	OR S	53 BY	THE	MON	TANA	NATUI	RALI	HERIT	AGE F	PROGI	RAM				
i. AA is Documented (D) or Su Primary or critical habitat (list Secondary habitat (list specie Incidental habitat (list specie No usable habitat	specie es)	ed (S) es)) to c		S S <u>Gre</u>					tions in	manua	al.								
ii. Rating: Based on the strong	gest hal	bitat c	hose	n in 1	4A(i) a	oove,	select	the c	orres	pondin	g functi	onal	point a	and rat	ing.					
Highest Habitat Level	Doc/P	rimar	y S	Sus/P	rimary	Do	c/Sec	onda	ary	Sus/Se	conda	ry	Doc/li	ncider	ntal	Sus/	Incide	ntal	None	
S1 Species Functional Point/Rating	-			-				-												
S2 and S3 Species						+	CI.	.,												-
Functional Point/Rating							.61													
Sources for documented use search for more specimens in 20											us yea	r; 20′	17 Blu	e-Eyec	d-Grass	s: sus	specte	d Nort	hern, v	<u>vill</u>
a. Evidence of Overall Wildlife □ Substantial: Based on any or observations of abundant observations of abundant observations of abundant observations of extremely limorate	of the formula wildlife that so so the following happens of the following the following the following that with the following the food so the following that with the following the food so the food s	of the collowing abitat know by group know know from y distribute the collowing from the	ng [ch r high acks, featu vledge [chec ps or ich as es vledge top to ribute bbrevi	neck]. I spect res note of the scat, I individual scat, I o botted, the lations meral	ies diversities di	ersity res, gable in or rela or rela or nest eck apand le rface	(during ame trans the solution the solution to the solution to the solution the sol	g any ails, e urrou ew sp ures, ate A evaler durat	perionetc. Inding Decies game A attract Int vec	d) area s during trails, ributes getated are as f	Mir I I I I I I I I I	nimal ew or ttle to sparse ntervi	: Base no with a no with a adjace with ds arrive : st be very service and the structure is a service in the structure is a service in the structure in the structure in the structure is a service in the structure in the structure in the structure is a service in the structure in the structure in the structure is a service in the structure in the structure in the structure is a service in the structure in the structure in the structure is a service in the structure is a service in the structure	d on a ldlife o ildlife scent up the local at ratir within 2 nanent hese to	ny of the bservatign of the biologonal street	ations ood s gist w uctur	during ources ith kno	g peak s wledg rsity is in terr	e of A	A #13.
(see #13)				□ H	ligh						\triangleright	Mo	derate	•					.ow	
Class Cover Distribution (all vegetated classes)		□ E\	/en		[] Un	even			⊠E	ven	I		☐ Un	even			□ E	ven	
Duration of Surface Water in ≥ 10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
□ Low Disturbance at AA																				
(see #12i)																				
									Н											
☐ High Disturbance at																				
AA (See #1ZI)	AA (see #12i)																			
iii. Rating: Use the conclusions from i and ii above and the matrix below to select the functional point and rating.																				
Evidence of Wildlife Use						ildlife	Habit			es Rati	ng (ii)									
(i)		Exc		nal		\boxtimes	High				oderat	е		☐ Lo	w	4				
☐ Substantial ☐ Moderate							 .7M		-				1			-				
					i		. / IVI						<u> </u>							

B-82

Comments: Rating decreased from 2014 due to evidence of recent cattle grazing in AA. 2017: cattle tracks noted.

AA contains unrestricted outlet

Wetland/Site #(s): Forsyth NW - Treasure Co. Line

4D. GENERAL FISH HABITA If the AA is not used by fis entrapped in a canal], the	h, fish	use is		storab	le due	to hal		onstra	ints, c	or is not	desire	d fron	n a ma	anagen	nent pe	erspec	tive [s	uch as
Assess this function if the precluded by perched cul-					existin	g situa	ation is	corr "corr	ectab	e" such	that t	ne AA	could	be use	ed by f	ish [i.e	., fish	use is
Type of Fishery: Cole	d Wate	r (CW)) 🗆 '	Warm	Water	(WW) Use	the C	CW or	WW gu	ideline	es in th	e mar	nual to	comple	te the	matrix	ζ.
Habitat Quality and Known	Susp	ected	Fish S	pecie	s in A	A: Us	se mat	rix to	select	the fun	ctiona	l point	and r	ating.				
Duration of Surface Water in AA	□Р€	erman	ent / P	erenn	ial		□s	easoı	nal / Ir	ntermit	tent		□т	empo	rary / E	Ephem	neral	
Aquatic Hiding / Resting / Escape Cover	Opti		Adeq] uate	Po		Opti] mal	Ade	_ quate	Po	_	Opt	timal	Aded] uate	Pc	oor
Thermal Cover: optimal / suboptimal	0	s	0	S	0	S	0	s	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species																		
FWP Tier II or Native Game fish species																		
FWP Tier III or Introduced Game fish																		
FWP Non-Game Tier IV or No fish species																		
Sources used for identifying f	sh spi	o, pote	entially	/ foun	d in A	A:	<u> </u>											
ative fish or introduced game fi ii. Final Score and Rating: _ 4E. FLOOD ATTENUATION Applies only to wetlands t If wetlands in AA are not f intrenchment Ratio (ER) Estir flood-prone width = estimated h	sh? [Comminat are looded mation or izont =	YES ents: N subje from i (see r al proj	IA (pro ct to flo n-char manual ection	o scor - ceed to coding nnel or I for ac of whe	e in i o	or iia () -chani ank flo al guid (maxi	0.1 = _ nel or c ow, ch dance)	overback the cankfo	ank flo ne NA renchi ull dep	ow. box and ment ra th eleve	d procetio = (f	eed to	14F.	width) /	′ (bank	full widen each	dth). n side (s ood-pro	of the s
Slightly Entr ER ≥ 2		d					ly Entr 1.41 –		ed					renche : 1.0 –				
C stream type D stream t		E str	eam ty	/ре			eam ty			A stre	am typ	oe 📶		ream ty		G str	ream t	уре
			- 13	 J		7-							Ę					
Rating: Working from top to b	ottom.	use th	ne matr	rix belo	ow to s	elect	the fur	nction	al poir	nt and r	atina.							
Estimated or Calculated (Rosgen 1994, 1996)				SI	ightly E	Entrer	nched		Mod	erately stream	Entrer	ched		☐ E A, F, G	Entrend		s	
Percent of Flooded Wetland Forested and/or Scrub/Sh		sified			25-7		 		□ 5%	25-75		25%	75]	25-75%		25%	
AA contains no outlet or re		d outle																

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☐ NO Comments: overbank flow potential from nearby drainage feature

.4M

Wetland/Site #(s): Forsyth NW - Treasure Co. Line

14F.	SHORT AND LONG TERM SURFACE WATER STORAGE NA (proceed to 14G)
	Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow.
	If no wetlands in the AA are subject to flooding or ponding, then check the NA box and proceed to 14G.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see manual for further definitions of these terms].

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	⊠ 1.1	to 5 ac	re feet	☐ ≤1 acre foot			
Duration of Surface Water at Wetlands within the AA	□ P/P	□ S/I	□ T/E	⊠ P/P	□ S/I	□ T/E	□ P/P	□ S/I	□ T/E	
Wetlands in AA flood or pond ≥ 5 out of 10 years				.8H						
Wetlands in AA flood or pond < 5 out of 10 years										

Comments: Has potential to receive overbank flow.

14G.	SEDIMENT	/ NUTRIENT /	TOXICANT	/ RETENTION	I AND REMOVAL	□NA	(proceed to 1	14H
------	----------	--------------	----------	-------------	---------------	-----	---------------	-----

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that substantia sedimenta toxicants, present.	tial to deliv or compou other funct Illy impaire tion, sourc	er sedime inds at lev ions are n ed. Minor ees of nutr	nts, els ot ients or	Waterbody is on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.					
% Cover of Wetland Vegetation in AA	⊠≥°	70%	□<	70%	□≥7	70%	□<	70%		
Evidence of Flooding / Ponding in AA	⊠ Yes	☐ No	☐ Yes	□No	☐ Yes	☐ No	☐ Yes	□No		
AA contains no or restricted outlet										
AA contains unrestricted outlet	.9H									

Comments: grazing and interstate highway nearby but no high levels of sediment, nutrients or toxicants.

14H. SEDIMENT / SHORELINE STABILIZATION NA (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of Surface Water Adjacent to Rooted Vegetation							
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral					
□ ≥ 65%								
□ 35-64%								
☐ < 35%								

Comments:

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	Genera	l Wildlife Habitat Rati	ng (14Ciii)
(14Diii)	□ E/H	\boxtimes M	L
☐ E/H			
_ L			
⊠ NA		M	

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

Α	☐ Vegetated Component >5 acres							☑ Vegetated Component 1-5 acres						☐ Vegetated Component <1 acre				
В	B High		M	oderate		Low	☐ High		⊠ Mo	derate	e Low		☐ High				Low	
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P										.4M								
S/I																		
T/E/A																		

Wetland/Site #(s): Forsyth NW - Treasure Co. Line

			vvetiand	/Site #(s): <u>Forsyth invv</u>	- Treasure Co	<u>. Line</u>			
14I. PRODUCTION EXPORT / FOOD CH	IAIN SU	JPPORT (contin	nued)							
iii. Modified Rating: Note: Modified scor	e canno	ot exceed 1.0 o	r be less than (0.1.						
Vegetated Upland Buffer: Area with mowing or clearing (unless for weed color there an average ≥ 50-foot wide veg	ontrol).						-			
iv. Final Score and Rating: <u>.5M</u> Comm	nents: <u>/</u>	AA bordered by	I-94 to north.							
14J. GROUNDWATER DISCHARGE / R Check the appropriate indicators in	-	-								
i. Discharge Indicators The AA is a slope wetland. Springs or seeps are known of the vetland occurs at the toe of the seeps are present at the wet AA permanently flooded during Wetland contains an outlet, bound the seeps of the vetland contains and the	ormant so a natural and edo ng droug ut no inl site is sa	season/drought al slope. ge. ght periods. let. aturated to the s	surface.	☐ Peri ☐ Wet ☐ Stre	rge Indicators meable substra land contains sam is a knowr er:	ate present wi inlet but no ou n 'losing' strea	tlet.	, , ,	0 ,	
iii. Rating: Use the information from i an	d ii abov								1	
Criteria			Saturation at <i>I</i> <u>ATER THAT I</u> S □	S RECH				STEM		
□ Groundwater Discharge or Recharge	arge	1H						-		
☐ Insufficient Data/Information										
Comments: <u>Hydrology for site provided b</u>	y seaso	nal high ground	dwater table ar	nd surfac	e runoff					
14K. UNIQUENESS i. Rating: Working from top to bottom, us	e the m	natriy helow to s	select the funct	ional noi	nt and rating					
Replacement Potential	AA co spring forest	ontains fen, bo gs or mature (: ted wetland Of ciation listed a	g, warm >80 yr-old) ⋜ plant	AA doc cited ra diversi contain	es not contair are types ANE ty (#13) is hig as plant asso as "S2" by the	Structural h OR ciation				
Estimated Relative Abundance (#11)	□ Rare	e Common	□ Abundant	□ Rare	□ Common	☐ Abundant	□ Rare	□ Common	☐ Abundant	
Low Disturbance at AA (#12i)										
Moderate Disturbance at AA (#12i) ☐ High Disturbance at AA (#12i)								.3L 		
Comments: type is common in area										
14L. RECREATION / EDUCATION POTE Affords 'bonus' points if AA provides i. Is the AA a known or potential recreatii. Check categories that apply to the A	a recreational of A: \(\bigcip \) [ational or educ or educational Educational/Sci Other:	site? XES	inity. 5 , go to ii.	☐ NO , che	ck the NA box		umptive recrea	ational	
iii. Rating: Use the matrix below to select				al Area			Known	Potential		
Known or Potential Recreational or Educational Area Public ownership or public easement with general public access (no permission required)									 	
Private ownership with general public access (no permission required)										
Private or public ownership without	genera	I public acces	s, or requiring	permis	sion for publi	c access	.1M			

Comments: Site owned by MDT but without general public access due to the proximity of I-94.

15. GENERAL SITE NOTES: _____

Wetland/Site #(s): Forsyth NW - Treasure Co. Line

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	low 0.00	1.00	0			
B. MT Natural Heritage Program Species Habitat	mod 0.60	1.00	1.0			
C. General Wildlife Habitat	mod 0.70	1.00	1.2	*		
D. General Fish Habitat	NA	NA	0			
E. Flood Attenuation	mod 0.40	1.00	0.7			
F. Short and Long Term Surface Water Storage	high 0.80	1.00	1.4	*		
G. Sediment / Nutrient / Toxicant Removal	high 0.90	1.00	1.6	*		
H. Sediment / Shoreline Stabilization	NA	NA	0			
I. Production Export / Food Chain Support	mod 0.50	1.00	0.9			
J. Groundwater Discharge / Recharge	high 1.00	1.00	1.74	*		
K. Uniqueness	low 0.30	1.00	0.5			
L. Recreation / Education Potential (bonus point)	mod 0.10		0.1			
Total Points	5.30	9	9.3 Total	Functional Units		
Percent of Possible Score 59% (round to nearest whole number)						

	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 #).
	- Free in a possible seems a control in the mode of initial of installed initial of installed in the initial of installed in initial or ini
	☐ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
	2 Carogory in Frontaina (Cintoria for Carogorios I, II, St. 13 increasiones)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)
	□ "Low" rating for Uniqueness; and
	☐ Vegetated <u>wetland</u> component < 1 acre (do <u>not</u> include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
	Treftent of possible score < 35% (round to flearest whole #).
ı	
_	WEDALL ANALYSIS AREA (AA) RATING: Cheek the appropriate actors we have due the criteria sufficient above
u	OVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.

APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Forsyth – Northwest Rosebud County, Montana



Photo Point 1; Location: NE Corner of SE End; Bearing 270 degrees; Year 2014



Photo Point 1; Location: NE Corner of SE End; Bearing 270 degrees; Year 2015



Photo Point 1; Location: NE Corner of SE End; Bearing 270 degrees; Year 2016



Photo Point 1; Location: NE Corner of SE End; Bearing 270 degrees; Year 2017



Photo Point 2; Location: SW Corner of SE End - Shows dike breach; Bearing 350 degrees; Year 2014



Photo Point 2; Location: SW Corner of SE End – Shows dike breach; Bearing 350 degrees; Year 2015



Photo Point 2; Location: SW Corner of SE End – Shows dike breach; Bearing 350 degrees; Year 2016



Photo Point 2; Location: SW Corner of SE End – Shows dike repair; Bearing 350 degrees; Year 2017



Photo Point 3; Location: NE side near middle of site; Bearing 230 degrees; Year 2014



Photo Point 3; Location: NE side near middle of site; Bearing 230 degrees; Year 2015



Photo Point 3; Location: NE side near middle of site; Bearing 230 degrees; Year 2016



Photo Point 3; Location: NE side near middle of site; Bearing 230 degrees; Year 2017



Photo Point 4; Location: NE corner of NW end; Bearing 210 degrees; Year 2014



Photo Point 4; Location: NE corner of NW end; Bearing 210 degrees; Year 2015



Photo Point 4; Location: NE corner of NW end; Bearing 210 degrees; Year 2016



Photo Point 4; Location: NE corner of NW end; Bearing 210 degrees; Year 2017



Photo Point 5; Location: SW side near middle of site; Bearing 45 degrees; Year 2014



Photo Point 5; Location: SW side near middle of site; Bearing 45 degrees; Year 2015

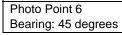


Photo Point 5; Location: SW side near middle of site; Bearing 45 degrees; Year 2016



Photo Point 5; Location: SW side near middle of site; Bearing 45 degrees; Year 2017





Location: Center of new dike Year: 2017



Photo Point 6 Bearing: 225 degrees

Location: Center of new dike Year: 2017



Transect 1: Start Bearing: 25 degrees



Location: SE end Year: 2013

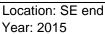


Transect 1: Start Bearing: 25 degrees

Location: SE end Year: 2014



Transect 1: Start Bearing: 25 degrees





Transect 1: Start Bearing: 25 degrees

Location: SE end Year: 2016



Transect 1: Start Bearing: 25 degrees

Location: SE end Year: 2017



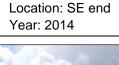
Transect 1: End Bearing: 205 degrees



Location: SE end Year: 2013

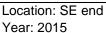


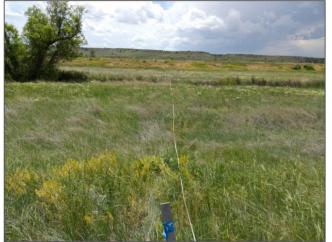
Transect 1: End Bearing: 205 degrees





Transect 1: End Bearing: 205 degrees





Transect 1: End Bearing: 205 degrees

Location: SE end Year: 2016



Transect 1: End Bearing: 205 degrees

Location: SE end Year: 2017



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2013



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2014



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2015



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2016



Transect 2: Start Bearing: 25 degrees

Location: NW End Year: 2017



Transect 2: End Bearing: 205 degrees

Location: Northwest End Year: 2013



Transect 2: End Bearing: 205 degrees

Location: Northwest End Year: 2014



Transect 2: End Bearing: 205 degrees

Location: Northwest End Year: 2015



Transect 2: End Bearing: 205 degrees

Location: Northwest End Year: 2016



Transect 2: End Bearing: 205 degrees

Location: Northwest End



Data Point: DP-1W Year: 2017 Location: NE part of site

Data Point: DP-1U Year: 2017 Location: NE part of site

C-12

Forsyth Northwest - Middle: Photo Point Photographs



Photo Point: 1 Bearing: 300 degrees

Location: Northwest End

Year: 2013



Photo Point: 1 Bearing: 300 degrees

Location: Northwest End Year: 2014



Photo Point: 1 Bearing: 300 degrees

Location: Northwest End

Year: 2015



Photo Point: 1 Bearing: 300 degrees

Location: Northwest End

Year: 2016



Photo Point: 1 Bearing: 300 degrees

Location: Northwest End

Forsyth Northwest - Middle: Photo Point Photographs



Photo Point: 2 Bearing: 120 degrees

Location: Southeast end Year: 2013



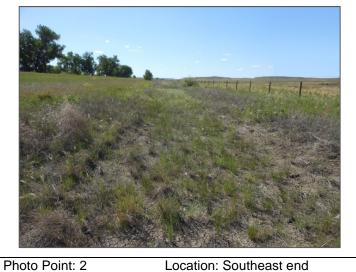
Photo Point: 2 Bearing: 120 degrees

Location: Southeast end Year: 2014



Photo Point: 2 Bearing: 120 degrees

Location: Southeast end Year: 2015



Bearing: 120 degrees Year: 2016



Bearing: 120 degrees

Location: Southeast end

Forsyth Northwest - Middle: Transect Photographs



Transect 1: Start Bearing: 205 degrees



Location: Middle of Site Year: 2013



Transect 1: Start Bearing: 205 degrees

Location: Middle of Site Year: 2014



Transect 1: Start Bearing: 205 degrees



Location: Middle of Site Year: 2015



Transect 1: Start Bearing: 205 degrees

Location: Middle of Site Year: 2016



Transect 1: Start Bearing: 205 degrees

Location: Middle of Site

Forsyth Northwest - Middle: Transect Photographs



Transect 1: End Bearing: 25 degrees

Location: Middle of Site Year: 2013



Transect 1: End Bearing: 25 degrees

Location: Middle of Site Year: 2014



Transect 1: End Bearing: 25 degrees

Location: Middle of Site Year: 2015



Transect 1: End Bearing: 25 degrees

Location: Middle of Site Year: 2016



Transect 1: End Bearing: 25 degrees

Location: Middle of Site

Forsyth Northwest – Middle: Data Point Photographs



Data Point: DP-1W Year: 2017 Location: Middle of site

Data Point: DP-1U Year: 2017 Location: Middle of site



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 2014



Photo Point: 1 Bearing: 125 degrees

Location: NW end of site Year 2015



Photo Point: 1 Bearing: 125 degrees

Location: NW end of site Year 2016



Photo Point: 1 Bearing: 125 degrees

Location: NW end of site

Year 2017



Photo Point 2; Location: Near Center of Site; Bearing 210 degrees; Year 2014



Photo Point 2; Location: Near Center of Site; Bearing 210 degrees; Year 2015



Photo Point 2; Location: Near Center of Site; Bearing 210 degrees; Year 2016



Photo Point 2; Location: Near Center of Site; Bearing 210 degrees; Year 2017



Photo Point: 3 Bearing: 305 degrees

Location: Southeast end of site Year 2013



Photo Point: 3 Bearing: 305 degrees

Location: Southeast end of site Year 2014



Photo Point: 3 Bearing: 305 degrees

Location: Southeast end of site Year 2015



Photo Point: 3 Bearing: 305 degrees

Location: Southeast end of site Year 2016



Photo Point: 3 Bearing: 305 degrees

Location: Southeast end of site Year 2017



Transect 1: Start Bearing: 145 degrees

Location: Northwest End Year 2013



Transect 1: Start Bearing: 145 degrees

Location: Northwest End Year 2014



Transect 1: Start Bearing: 145 degrees

Location: Northwest End Year 2015



Transect 1: Start Bearing: 145 degrees

Location: Northwest End Year 2016



Transect 1: Start Bearing: 145 degrees

Location: Northwest End

Year 2017



Transect 1: End Bearing: 325 degrees

Location: Northwest End Year 2013



Transect 1: End Bearing: 325 degrees

Location: Northwest End Year 2014



Transect 1: End Bearing: 325 degrees

Location: Northwest End Year 2015



Transect 1: End Bearing: 325 degrees

Location: Northwest End Year 2016



Transect 1: End Bearing: 325 degrees

Location: Northwest End Year 2017



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year 2013



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year 2014



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year 2015



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year 2016



Transect 2: Start Bearing: 280 degrees

Location: Southeast End Year 2017



Transect 2: End Bearing:100 degrees

Location: Southeast End Year 2013



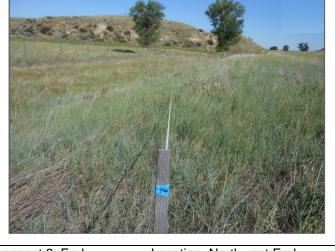
Transect 2: End Bearing: 100 degrees

Location: Northwest End Year 2014



Transect 2: End Bearing: 100 degrees

Location: Northwest End Year 2015



Transect 2: End Bearing: 100 degrees

Location: Northwest End Year 2016



Transect 2: End Bearing: 100 degrees

Location: Northwest End

Year 2017

Forsyth Northwest - East Site: Data Point Photographs



Data Point: DP-1W



Data Point: DP-1U Year: 2017

Location: Northwest end of site

Year: 2017



Location: Northwest end of site

Data Point: DP-2U Location: Central (upland) part of site Year: 2017

Forsyth Northwest - Treasure Co. Line: Photo Point Photographs



Photo Point 1; Location: NE Corner of wetland; Bearing 180 degrees; Year 2014



Photo Point 1; Location: NE Corner of wetland; Bearing 180 degrees; Year 2015



Photo Point 1; Location: NE Corner of wetland; Bearing 180 degrees; Year 2016



Photo Point 1; Location: NE Corner of wetland; Bearing 180 degrees; Year 2017

Forsyth Northwest – Treasure Co. Line: Photo Point Photographs



Photo Point 2; Location: NW Corner of Wetland; Bearing 180 degrees; Year 2014



Photo Point 2; Location: NW Corner of Wetland; Bearing 180 degrees; Year 2015



Photo Point 2; Location: NW Corner of Wetland; Bearing 180 degrees; Year 2016



Photo Point 2; Location: NW Corner of Wetland; Bearing 180 degrees; Year 2017

Forsyth Northwest – Treasure Co. Line: Photo Point Photographs



Photo Point 3; Location: SW corner of wetland; Bearing 180 degrees; Year 2014



Photo Point 3; Location: SW corner of wetland; Bearing 180 degrees; Year 2015



Photo Point 3; Location: SW corner of wetland; Bearing 180 degrees; Year 2016



Photo Point 3; Location: SW corner of wetland; Bearing 180 degrees; Year 2017

Forsyth Northwest - Treasure Co. Line: Photo Point Photographs



Photo Point 4; Location: SE Corner of Wetland; Bearing 180 degrees; Year 2014



Photo Point 4; Location: SE Corner of Wetland; Bearing 180 degrees; Year 2015



Photo Point 4; Location: SE Corner of Wetland; Bearing 180 degrees; Year 2016



Photo Point 4; Location: SE Corner of Wetland; Bearing 180 degrees; Year 2017

Forsyth Northwest – Treasure Co. Line: Transect Photographs



Transect 1: Start Bearing: 190 degrees

Location: South half of wetland Year: 2013



Transect 1: Start Bearing: 190 degrees

Location: South half of wetland Year: 2014



Transect 1: Start Bearing: 190 degrees

Location: South half of wetland Year: 2015



Transect 1: Start Bearing: 190 degrees

Location: South half of wetland Year: 2016



Transect 1: Start Bearing: 190 degrees

Location: South half of wetland

Year: 2017

Forsyth Northwest – Treasure Co. Line: Transect Photographs



Transect 1: End Bearing: 10 degrees

Location: South half of wetland Year: 2013



Transect 1: End Bearing: 10 degrees

Location: South half of wetland Year: 2014



Transect 1: End Bearing: 10 degrees

Location: South half of wetland Year: 2015



Transect 1: End
Bearing: 10 degrees

Location: South half of wetland Year: 2016



Transect 1: End Bearing: 10 degrees

Location: South half of wetland

Year: 2017

Forsyth Northwest – Treasure Co. Line: Data Point Photographs



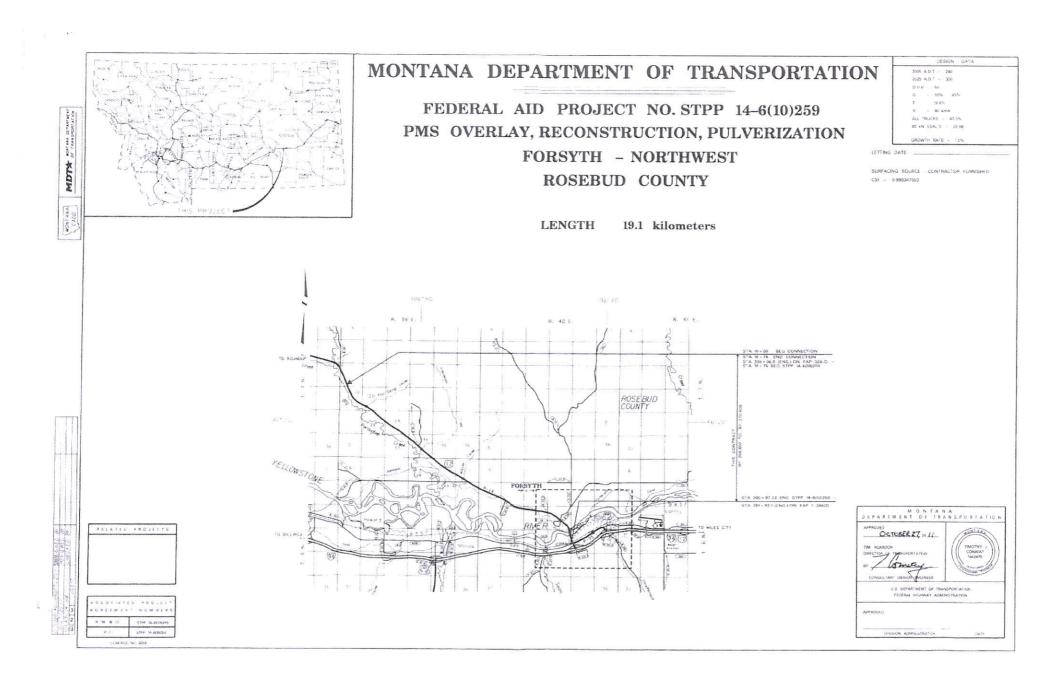
Data Point: DP-1W Year: 2017 Location: NE part of site

Data Point: DP-1U Year: 2017

Location: NE part of site

APPENDIX D PROJECT PLAN SHEETS

MDT Wetland Mitigation Monitoring Forsyth – Northwest Rosebud County, Montana



STATE	PROJECT NUMBER	SHEET NO
MUNTANA	STPP 14-5(10)259	2

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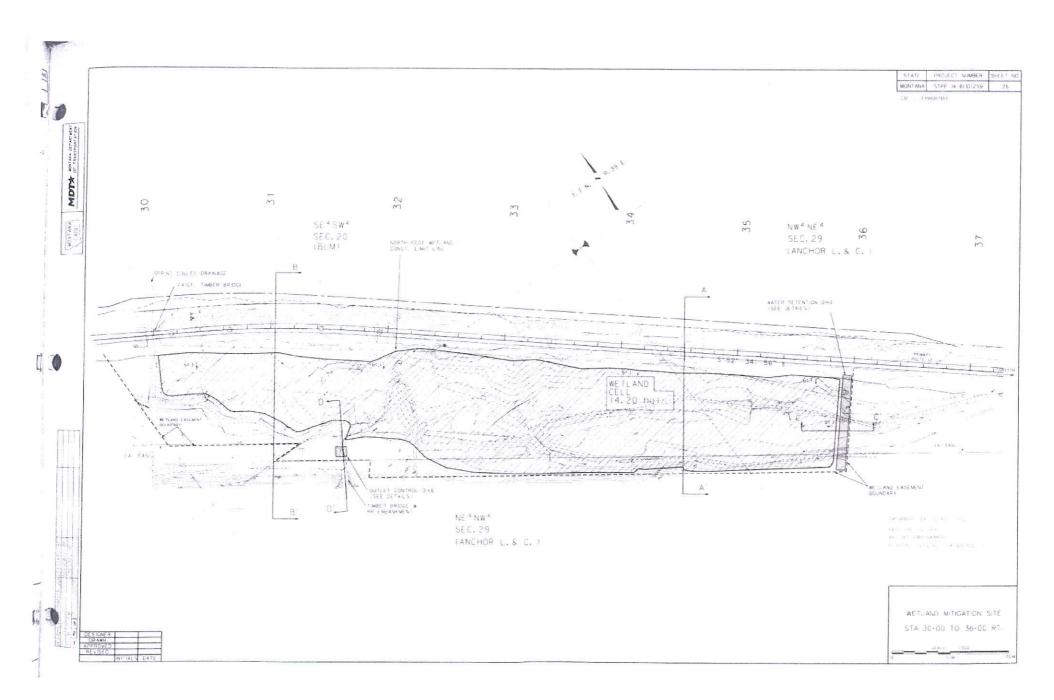
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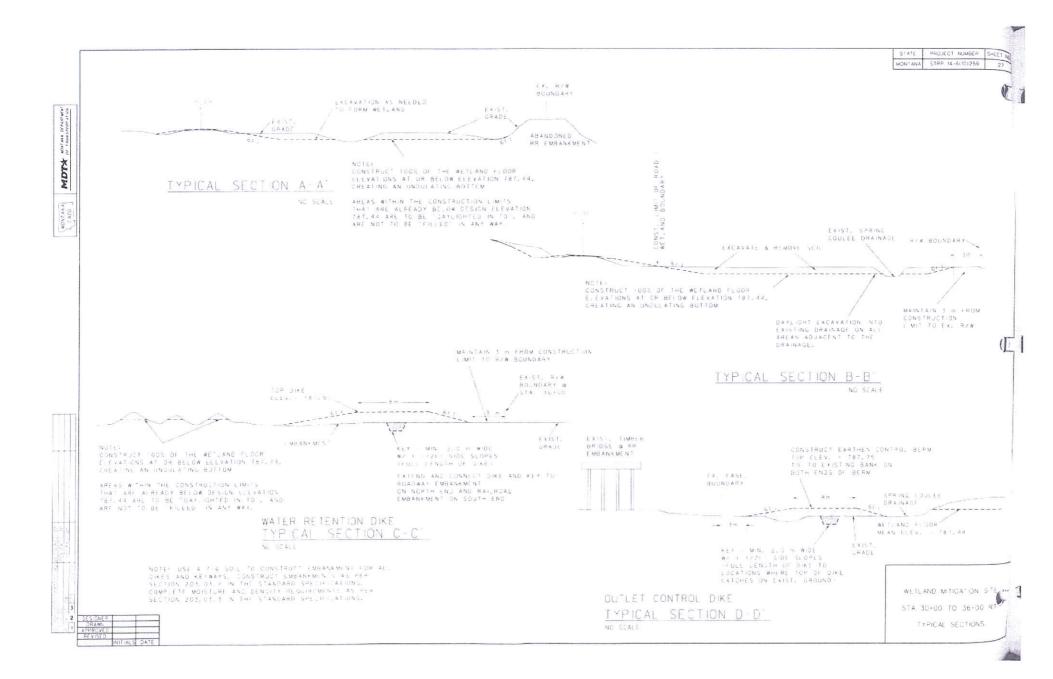
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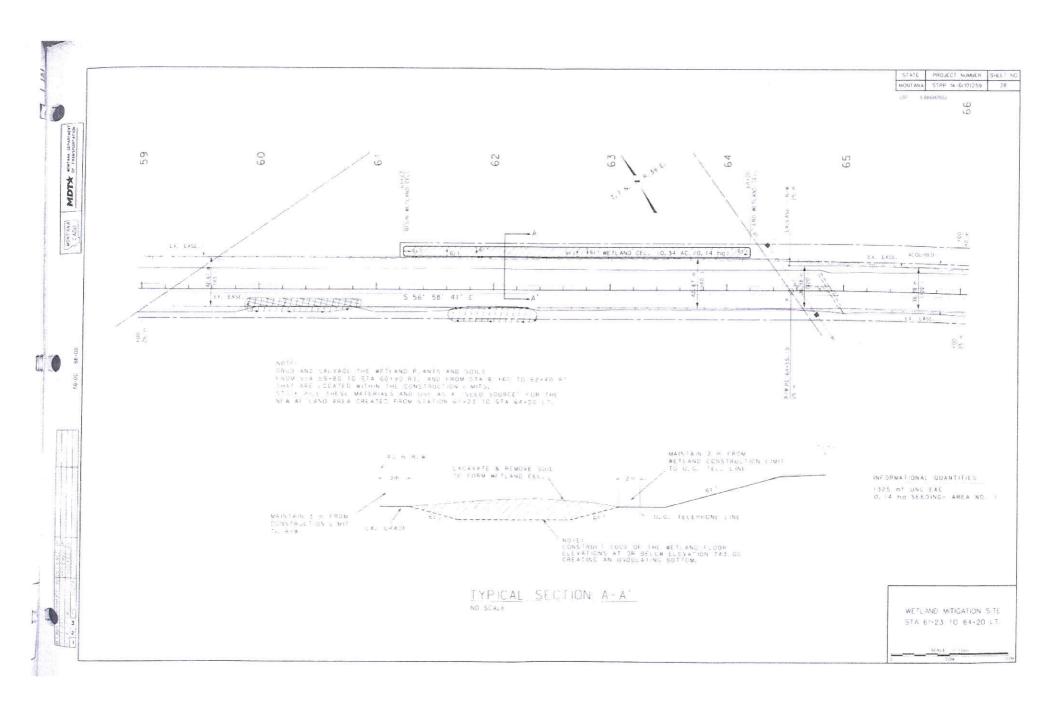
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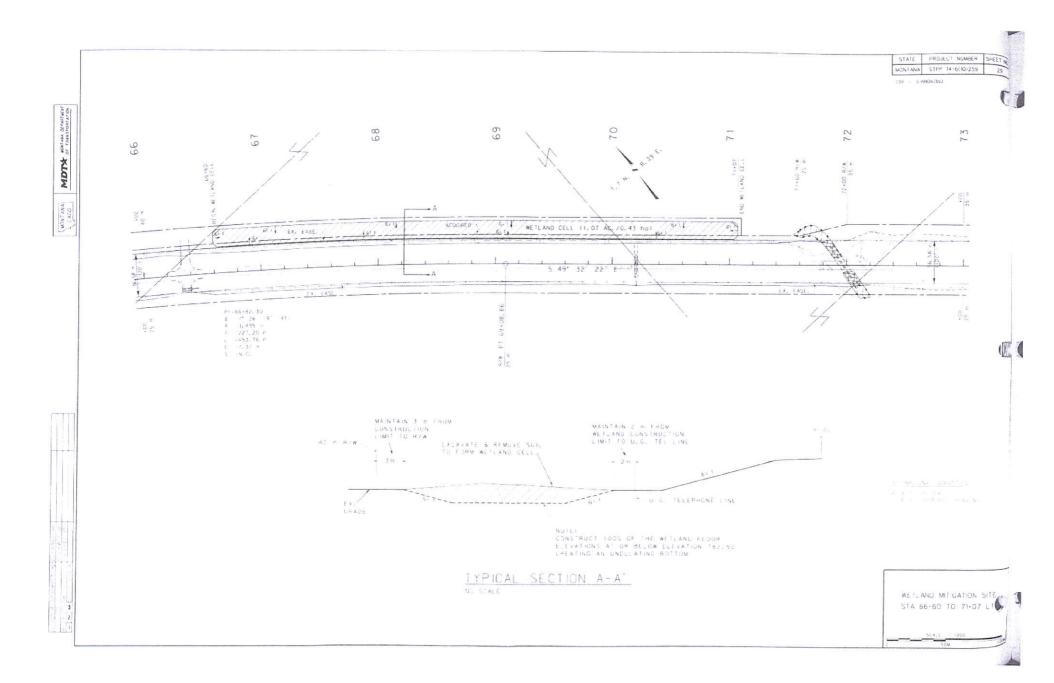
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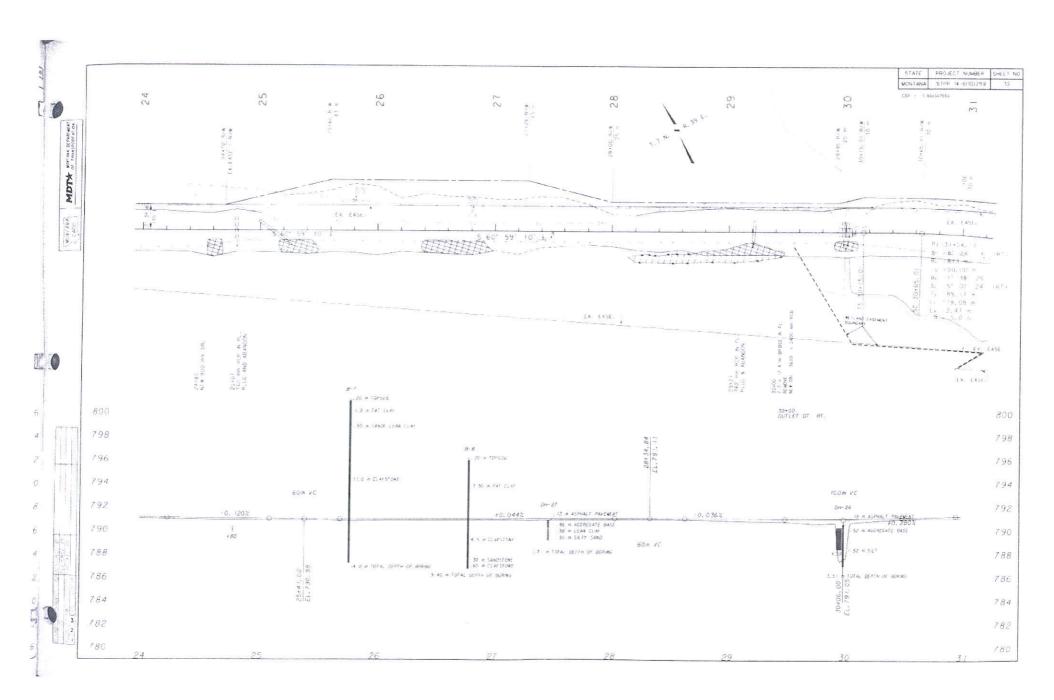
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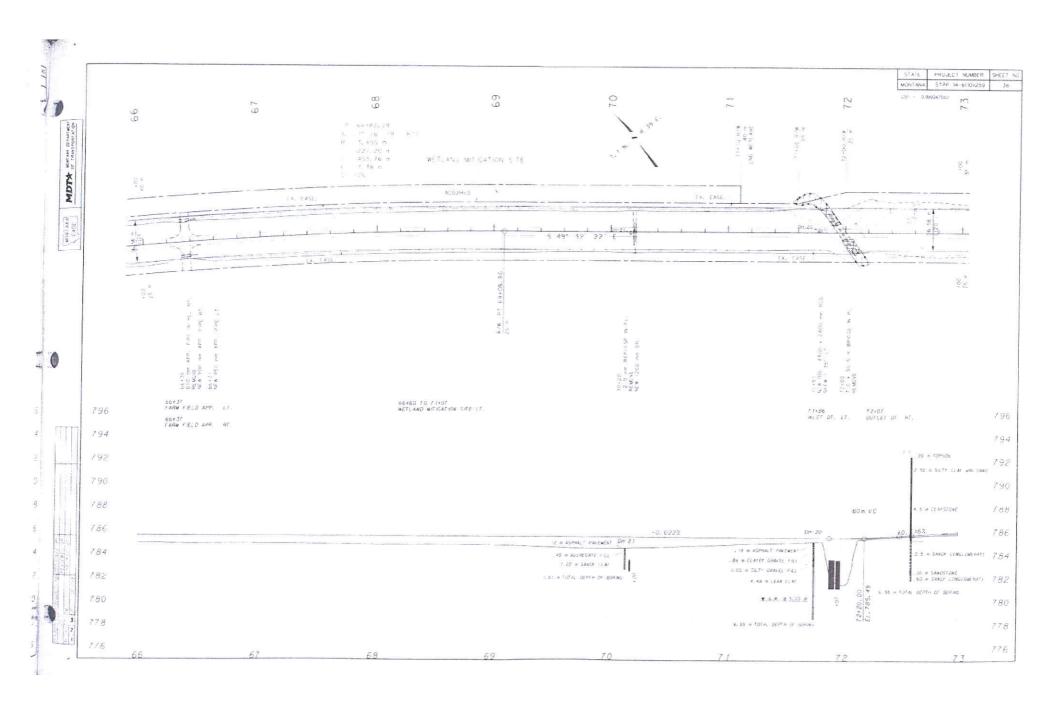


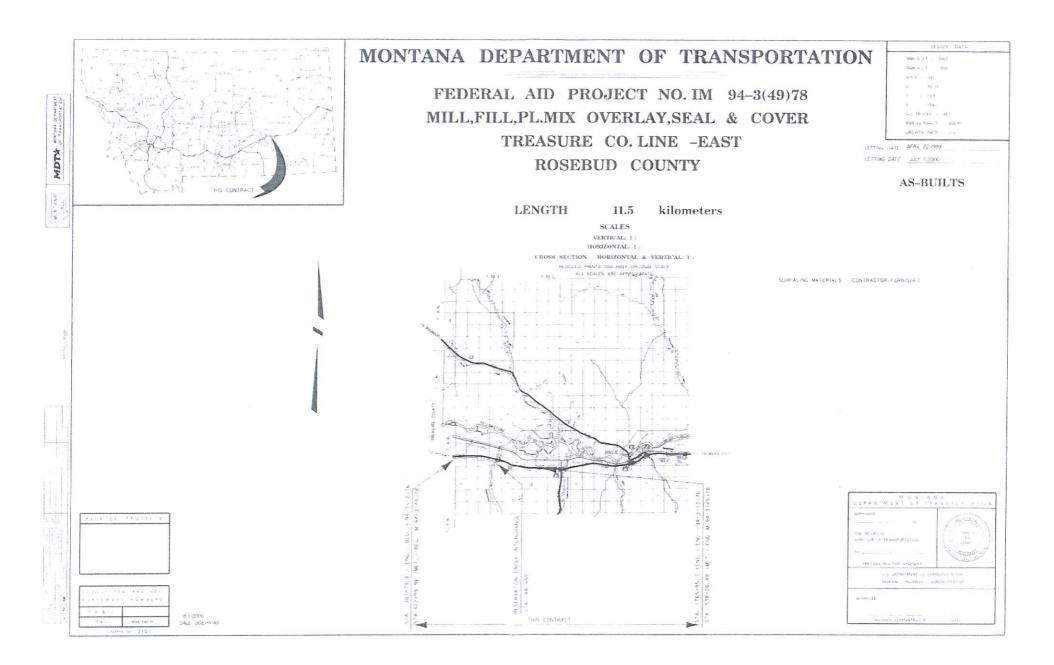












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423+00.08	514+73, 10	104 341	11,58 m FULL WETH O. C.F. C. ON F						
423100.08	514+73.10	14 130	3.81 m #QTH - 60 mm						
514+73.10	538+26.40	27 212	FULL WIDTH - 3. C. F. C. CNLY						
451+21.90	48:-71.90	579	FULL NETH - TAPER 90 - 150 mm						
462+26.61 BE	482476.61	578	FULL METH TAPER SO 150 mm						
481+35.38	489+96, 70	5 538	TH3 - FELL MIRTH - O.C. F.C. ONC?						
482+19.46	485+67, 36	7 131	"R4" FULL WIRTH - C. D. F. C. CNL !						
		329	"AS" - 1 CAT. GRO - FULL WOTH-TAPER O- 45mm						
518+26.40	538+66.40	46.5	FLUL WIDTH - TAPEN C 45 mm						
EASTBOUND	SUE-TOTAL	175995							
422+59.84	422.99, 84	463	FOLL WIDTH TAPER 5 - 45 mm						
422-99.84	\$14.12.10	104 376	7, TT K WIDTH D. G. F. C. DNL T						
427-99.84	514+12, 10	34 341	3.81 m #01H - 65 nm						
514+73, 10	538+26.95	27 210	FULL MIDTH - D. C. F. E. BINCY						
481-25.90	481+71.90 86	575	FIRS WOTH TAPER 90 150 mm						
482+76, 61 96	487+76.61	579	FULL WIDTH - TAPER 90 - 150 mm						
480+82, 29	485 • 71, 89	2 754 4 258	"83" FOLL WE'FM - 0.0.F.E. DNLT						
487+10.34	487+98,58		"M7" - FILL MOTH - D. G.F. C. CALY						
518-26 95EOF	5.58 + 66, 95	*61	FORE MOTH - TAPER S 45 mm						
12042220000		329	"82" - 1 CAT, GAD. FLO. #0) to 12059 C 45my						
WC5180UM0	14101-802	174866							
FG:		284219	1. e. s. w. s						

				CULV	ERTS																	
STATION	meters				outric meters			meters														
	(SP-68 syn # - 5mm)	258 75 + 25 mm	33PF-102 x 51 80	B ENG SECTIONS	CEMENT	(15	KLASS "00"	CULVER!	CLEAN	REMOVE		IN PLACE										
	STATION "	1.65 mm	2. 11 ass	2. 82 mm		CEMENT CADU?	GRAVEL CONCRETE		GRAVEL GRADE ZA	GRAVEL GRADE ZA	AVEL LOE ZA CONCRETE	CONCRETE RAPRAR	CONCRETE RIPERP	CONCRETE RIPRAP	A CONCRETE RIPHA	GRAVEL SA CONCRETE RY		PRAP LUCKER?		Cria ting	IN PLACE July 1 to	REMARKS
	600 min	2700 min	1. 9±0 m	LEFT AGAI				CLASS I														
#27+99 #28+61 #69-39 #76+00 501+38	6.0	6) (##251 ##CE 21:516P #-1516	1 b5 C	73.0	6.4	13.6	149.7	6.0	9 151	600 mm x 16,2 mm 1.56 m x 149, 1 m	MEDIAN CROSSONER 8.0.P LISE AS IS ADD OUTLET DITCH INSERTS ADD NEW OND SECTIONS									
478+00 501+38	EF		14_0	84061 8406 21 15789 21 1576		211.0	9.0	19.0	74.6	9.2	ME YES	600 mm + 16,9 mm 1.67 a × 74 6 a	MEDIAN CHOSSOVER INSERTS MITH NEW END SECTIONS									
TOTAL	20	96	GØ .		5374	302	62	QQ .	2843	15.2												

SES STANCARD SPEC. YOU BE FIGER COMP

BULLEON DOLLARING

