# MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2013

Big Muddy Creek Roosevelt County, Montana



Prepared for:



December 2013

Prepared by:



## MONTANA DEPARTMENT OF TRANSPORTATION

## **WETLAND MITIGATION MONITORING REPORT:**

## **YEAR 2013**

Big Muddy Creek Roosevelt County, Montana

MDT Project Number NH-1-(46)633 Big Muddy Creek – West Control Number 4058-001

MDT Project Number NH-1-(46)626 Brockton - East Control Number 4058

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Cover: Photo is looking northeast at edge of constructed wetland cell and newly emerging *Schoenoplectus* spp.



#### 1. INTRODUCTION

The Big Muddy Creek Wetland Mitigation Site was completed in spring 2011. This report presents the results of the third year of post-construction monitoring at this mitigation area. This Montana Department of Transportation (MDT) wetland mitigation project is located four miles west of Culbertson, on US Highway 2, in Section 21, Township 28 North, Range 55 East, Roosevelt County, Montana (Figure 1). The overall size of the wetland mitigation site was modified in 2012 to provide compensatory mitigation for unavoidable impacts associated with the MDT Brockton – East project. The original mitigation area consisted of 10.62-acres located on the north side of Highway 2. An additional 7.25 acres to the south of Highway 2 were added in 2012. The total mitigation area monitored in 2012 and 2013 was approximately 17.9 acres. The monitoring criteria and protocols contained in the wetland mitigation and monitoring plan submitted on April 12, 2010, remain as originally submitted and are discussed below.

Figures 2 and 3 in Appendix A show the 2013 Monitoring Activity Locations and Mapped Site Features, respectively. The MDT Mitigation Site Monitoring Form, US Army Corps of Engineers (USACE) Wetland Determination Data Forms for the Great Plains Region (USACE 2010), and the 2008 MDT Montana Wetland Assessment Forms (MWAM) (Berglund and McEldowney 2008) are included in Appendix B. Project site photographs are included in Appendix C and the Preliminary Design – Plan and Profile is provided in Appendix D.

The wetland mitigation site is situated within Watershed 12, the Lower Missouri River Basin. The MDT completed an initial feasibility study in August 2009. A baseline delineation and Montana Wetland Assessment were completed by MDT staff in June 2010.

Approximately 0.73 acres of wetlands were delineated within the project boundary as part of the baseline assessment completed in June 2010. The wetlands encompassed an inundated, emergent marsh that extended from the banks of an unnamed tributary to Big Muddy Creek and a narrow emergent wet meadow that extended from the marsh into upland habitat.

The mitigation goals were to create and preserve wetland habitat functions associated with riverine and emergent wetland on the Big Muddy Creek tributary floodplain. The project objectives include:

- Maximize the development of emergent and aquatic bed wetlands, general wildlife habitat, short and long-term surface water storage, sediment/nutrient/toxicant removal, and production export/food chain support.
- Create up to approximately 9.32 acres of wetland.
- Preserve approximately 0.73 acres of wetland through permanent protection and weed management.



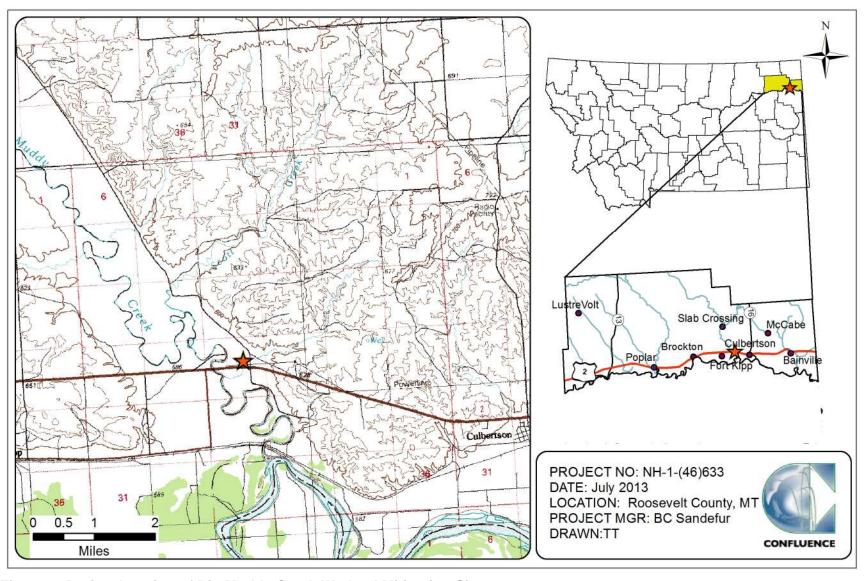


Figure 1. Project location of Big Muddy Creek Wetland Mitigation Site.



- Preserve a protected, managed 0.43-acre upland buffer adjacent to site wetlands.
- Minimize site operation and maintenance requirements.

The original mitigation plan proposed the creation of 6.53 acres of emergent/aquatic bed shallow marsh within three wetland cells. The cells were to be excavated to intersect groundwater and provide water depths ranging from 0.5 to 2 feet. Additional hydrology was to be provided by direct precipitation and snowmelt.

Up to an additional 1.76 acres of emergent wetland was expected to form in the areas excavated between the three cells. The excavation was expected to facilitate saturation of the root zone via capillary action during spring and early summer of most years. The potential passive development of approximately 1.03 acres of emergent wet meadow located at the north boundary and adjacent to the existing wet meadow was to be facilitated by increasing/augmenting hydrology to the south within the excavated cells.

The monitoring area was increased in 2012 to include an additional 7.25-acre parcel located to the south of US Hwy 2. This revised mitigation area was incorporated into the original mitigation plan to include the unavoidable wetland impacts associated with MDT Brockton – East project. This revision included the construction of a 5.47 acre wetland depression in 2011 along the floodplain of an unnamed tributary to Big Muddy Creek in an area delineated as upland in April 2010. Based on an MDT letter to Todd Tillinger dated June 14, 2010, this revision was a clerical and a mathematical revision based on the MDT decision to let the MDT – Brockton East and Big Muddy Creek – West projects at the same time and to construct them concurrently. A 1.83-acre pre-existing wetland was located in the additional monitoring area and was included in the preservation credit category in 2012.

The performance standards for each mitigation feature are included in Table 7 of Section 3.9. The project credit ratios approved by the USACE and presented in the 2011 Mitigation Plan are also shown on Table 7.

## 2. METHODS

A monitoring site visit was performed on August 7, 2013. Information for the Mitigation Monitoring Form and Wetland Determination Data Forms were entered electronically in the field on a personal digital assistant (PDA) palmtop computer during the field investigation (Appendix B). Monitoring activity sites were located with a global positioning system (GPS) and are shown on Figure 2 (Appendix A). Information included completion of a wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data collection, bird and wildlife use, photo documentation, and a non-engineering 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 Form was assessed at four data points established within the project area. The hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded on the electronic Wetland Determination Data Form (Appendix B). Onsite hydrologic assessments allow evaluation of mitigation goals addressing inundation/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 considered wetlands. The growing season is approximated for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (USACE 2010). The growing season recorded for the predominant soil map units, Havrelon loam and Lohler silty clay, averages 113 days (USDA 2011). Areas defined as wetlands would require 14 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 Form (Appendix B).

## 2.2. Vegetation

The boundaries of the dominant, species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2013 aerial photograph. Percent cover of the dominant species within a community type was estimated and recorded using the following values: 0 (less than 1 percent), 1 (1 to 5 percent), 2 (6 to 10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figure 3, Appendix A).

Temporal changes in vegetation were evaluated through annual assessments of a static belt transect established in August 2011 and an additional transect added in 2012 (Figure 2, Appendix A). Vegetation composition was assessed and recorded along two approximately 10 feet wide belt transects, 647 feet long (T-1) and 366 feet long (T-2) (Figure 2, Appendix A). The transect locations were recorded with a resource-grade GPS unit. Spatial changes in the dominant vegetation communities were recorded along the stationed transects. The percent aerial cover of each vegetation species within the belt transects were estimated using the same values and cover ranges used for the polygon data on the 2013 aerial photograph (Figure 3, Appendix B). Photographs were taken at the endpoints of the transects during the monitoring event (Appendix C).



The Montana State Noxious Weed List (September 2010), prepared by the Montana Department of Agriculture, was used to categorize weeds identified within the site. The location of noxious weeds was noted in the field and mapped on the aerial photo (Figure 3, Appendix A). The noxious weed species identified are color-coded. The locations are denoted with the symbol "x", " $\blacktriangle$ ", or " $\blacksquare$ " representing 0 to 0.1 acre, .1 to 1 acre, or greater than 1 acre in extent, respectively. Cover classes are represented by T, L, M, or H, for less than 1 percent, 1 to 5 percent, 6 to 25 percent, and 26 to 100 percent, respectively.

#### 2.3. Soil

Soil information was obtained from the *Soil Survey for Roosevelt County Area* (USDA 2011) and *in situ* soil descriptions. Soil cores were excavated using a hand auger and evaluated according to procedures outlined in the 1987 Manual and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (USACE 2010). A description of the soil profile, including hydric soil 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 Manual and the 2010 Regional Supplement. The technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology must be satisfied to delineate a representative area as jurisdictional. The name and indicator status of plant species was derived from the Draft 2012 National Wetland Plant List (NWPL) (Lichvar and Kartesz. 2009). Previous years' reports used the 1988 National List of Plant Species that Occur in Wetlands: Northwest Region 4 (Reed 1988). The 2012 NWPL scientific plant names were used in this report. Many common names used in the 2012 NWPL appear incomplete or erroneous. When used in this report, 2012 NWPL common names that appear to be incomplete or erroneous are provided with parenthetical clarification. For example, the common given name for the plant Agrostis exarata in the 2012 NWPL is "spiked bent". As this is likely an error, this species' common name would be reported here as "spiked bent (grass)". The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate jurisdictional areas as documented on the Wetland Determination Data Form (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 the 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 for vegetation, soil or hydrology, or special aquatic site, i.e., mudflat. The wetland boundary was surveyed with



GPS and in presented on the 2013 aerial imagery in Geographic Information System (GIS) format. Wetland acreages were estimated using GIS methods.

#### 2.5. Wildlife

Observations and other positive indicators of use of mammal, reptile, amphibian, and bird species were recorded on the Mitigation Monitoring Form during the site visit. Indirect use indicators, including tracks, scat, burrow, 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 wildlife species list of animals observed from 2011 through 2013 was compiled for this report.

## 2.6. Functional Assessment

The 2008 MDT MWAM was used to evaluate functions and values on the site from 2011 through 2013. This method provides an objective means of assigning wetlands an overall rating and provides regulators 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. A Wetland Assessment Form was completed for four assessment areas (AA), the created wetlands and the existing wetlands (Appendix B).

#### 2.7. Photo Documentation

Monitoring at photo points provides supplemental information documenting conditions of the site wetlands, uplands, and vegetation transects; site trends; and current land uses surrounding the project. Photographs were taken at photo points established in 2011 and 2012 during the site visit (Appendix C). Photo point locations were recorded with a resource grade GPS unit (Figure 2, Appendix A).

## 2.8. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit during the 2013 monitoring season. Points were collected using WAAS-enabled differential correction satellites, typically improving resolution to sub-meter accuracy. The collected data were then transferred to a personal computer, imported into GIS, and presented in Montana State Plane Single Zone NAD 83 meters. Site features and survey points that were located with GPS included fence boundaries, photograph points, transect endpoints, wetland/upland boundary and wetland data points.

#### 2.9. Maintenance Needs

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



## 3. RESULTS

## 3.1. Hydrology

Climate data from the meteorological station at Culbertson Coop, Montana (242122), recorded an average annual precipitation rate of 13.48 inches from December 1900 to December 2012 (WRCC 2013). The annual precipitation recorded in 2010, 2011, and 2012 was 20.53 inches, 17.43 inches and 12.44 inches, respectively. The total precipitation from January to August 31 was 10.64 inches (long-term average), 16.77 inches (2010), 15.39 inches (2011), 8.98 inches (2012), and 11.25 inches (2013). These data suggest the region received above-average precipitation in 2010 and 2011, and near-average precipitation in 2012 and 2013. Hydrology at the Big Muddy wetland mitigation site is driven by precipitation and infrequent flooding by the unnamed tributary of Big Muddy Creek. Site-wide inundation and saturation levels were generally lower in 2012 and 2013 than observed within the northern parcel in 2010 and both north and south mitigation areas in 2011.

Approximately 20 percent of the site was inundated to an average depth of 0.8 foot during the 2013 investigation. Surface water depths ranged from 0.0 to 1.5 feet. Areas defined as wetlands that were not inundated exhibited saturation within 12 inches (1.0 foot) of the ground surface water marks, water-stained leaves, aquatic invertebrates, inundation and saturation visible on aerial imagery, and/or surface soil cracks. The area receives periodic overbank flow from the unnamed tributary during spring flows. The stream and constructed wetlands are hydrologically connected via groundwater. At the time of the August field survey, hydrologic indicators were present that demonstrated the site supported a higher water table during the early part of the growing season.

Four data points, BM-1w, BM-2w, BM-3w, and BM-1u, were sampled to determine the wetland and upland boundaries. Data points BM-1w to BM-3w were located in areas that met the wetland criteria. BM-1w was located in the undisturbed Community 9 in the preservation area and BM-2w was located at the edge of a constructed wetland cell. Test pit BM-3w was located near the edge of the southern excavated depression in an area of wetland expansion in 2013. Positive wetland hydrology at BM-1w was achieved with two secondary indicators including geomorphic position and the FAC-neutral test. Secondary indicators also provided evidence of positive wetland hydrology at BM-2w and BM-3w and included soil cracks and the FAC-neutral test. The area around BM-3w also displayed saturation on an aerial photograph. No hydrological indicators were noted at data point BM-1u, located in vegetation community Type 8 (upland).

## 3.2. Vegetation

Monitoring year 2013 marked the third year of post-construction monitoring at the Big Muddy Creek wetland mitigation site. Fifty-nine plant species were observed site wide from 2011 through 2013 (Table 1). Vegetation plant communities were mapped and named based on the dominant species within a community and the



results of the wetland delineation data. The five communities identified in 2013 and complete lists of the associated species are on the Monitoring Form in Appendix B and the mapped communities shown on Figure 3 in Appendix A.

Table 1. Vegetation species observed in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

Scientific Names	Common Names	GP Indicator Status <sup>1</sup>
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, Green	NL
Artemisia cana	Coaltown Sagebrush	FACU
Artemisia frigida	Prairie Sagewort	UPL
Artemisia tridentata	Big Sagebrush	UPL
Aster sp.	Aster	NL
Atriplex suckleyi	Suckley's endolepis	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bouteloua dactyloides	Buffalo Grass	FACU
Bouteloua gracilis	Blue Grama	NL
Bromus inermis	Smooth Brome	FAC
Carex aquatilis	Leafy Tussock Sedge	OBL
Chenopodium album	Lamb's-Quarters	FACU
Cirsium arvense	Canadian Thistle	FACU
Distichlis spicata	Coastal Salt Grass	FACW
Eleocharis palustris	Common Spike-Rush	OBL
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Equisetum arvense	Field Horsetail	FAC
Fraxinus pennsylvanica	Green Ash	FAC
Glycyrrhiza lepidota	American Licorice	FACU
Grindelia squarrosa	Curly-Cup Gumweed	FACU
Helianthus annuus	Common Sunflower	FACU
Hordeum jubatum	Fox-Tail Barley	FACW
Iva axillaris	Deer-Root	FAC
Juncus arcticus	Arctic Rush	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lemna minor	Common Duckweed	OBL
Lepidium perfoliatum	Clasping Pepperwort	FAC

<sup>&</sup>lt;sup>1</sup>Draft NWPL 2012 (Lichvar and Kartesz, 2009).

New species identified in 2013 are bolded.



Table 1. (Continued). Vegetation species observed in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site

Scientific Names	Common Names	GP Indicator Status <sup>1</sup>
Lycopus americanus	Cut-Leaf Water-Horehound	OBL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Opuntia polyacantha	Plains Pricklypear	UPL
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa arida	Plains Bluegrass	FAC
Poa pratensis	Kentucky Blue Grass	FACU
Polypogon monspeliensis	Annual Rabbit's-Foot Grass	FACW
Populus deltoides	Eastern Cottonwood	FAC
Populus tremuloides	Quaking Aspen	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Rosa woodsii	Woods' Rose	FACU
Rumex crispus	Curly Dock	FAC
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Schoenoplectus americanus	Chairmaker's Club-Rush	OBL
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Schoenoplectus pungens	Three-Square	OBL
Scutellaria galericulata	Hooded Skullcap	OBL
Sonchus arvensis	Field Sow-Thistle	FAC
Spartina pectinata	Freshwater Cord Grass	FACW
Suaeda calceoliformis	Paiuteweed	FACW
Symphoricarpos albus	Common Snowberry	FACU
Symphyotrichum laeve	Smooth Blue American-Aster	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Penny-Cress	FACU
Tragopogon dubius	Yellow Salsify	UPL
Typha latifolia	Broad-Leaf Cat-Tail	OBL

<sup>1</sup>Draft NWPL 2012 (Lichvar and Kartesz, 2009).

New species identified in 2013 are bolded.

The five vegetation communities identified in 2013 included four wetland types and one upland type. The wetland communities were wetland Type 3 – *Schoenoplectus* spp.; wetland Type 4 – *Spartina pectinata/ Schoenoplectus* spp.; wetland Type 9 – *Puccinellia nuttalliana/Iva axillaris*; and wetland Type 10 – *Puccinellia nuttalliana/Typha latifolia*. Wetland Type 10 was defined in 2013 throughout the excavated area south of Highway 2 that was incorporated into the mitigation site in 2012. The open water limits in the constructed cells are presented as polygon 6 on Figure 3 (Appendix A). Upland community Type 1 – *Elymus* spp. and upland Type 2 – *Chenopodium album* were replaced in 2013 by upland Type 8 – *Bromus inermis/Agropyron cristatum*.



Wetland community Type 3 – *Schoenoplectus* spp. was identified on 1.06 acres of the north site and generally included the seeded emergent community found along the margins of the open water boundary in the constructed cells. Bare ground was approximately 6 to 10 percent. The cover of desirable hydrophytic species increased and the amount of bare ground decreased from 2012 to 2013. Dominant species included saltmarsh club-rush (*Schoenoplectus maritimus*, called *Scirpus maritimus* on 1988 list), hard-stem club-rush (*Schoenoplectus acutus*, called *Scirpus acutus* on 1988 list), Chairmaker's club-rush (*Schoenoplectus americanus*, called Olney's bulrush, *Scirpus americanus* on 1988 list), coastal saltgrass (*Distichlis spicata*), broad-leaf cattail (*Typha latifolia*), and lamb-quarters (*Chenopodium album*). This community is expected to continue to increase in size and may eventually dominate the open water areas.

Wetland community Type 4 – *Spartina pectinata./Schoenplectus* spp. characterized 1.15 acres of the pre-existing wetland community associated with the unnamed tributary to Big Muddy Creek that parallels the west and north boundaries of the north parcel and the west boundary of the south parcel. The dominant species in this community was freshwater cord grass (*Spartina pectinata*). Hard-stem club-rush, saltmarsh club-rush, prickly lettuce (*Lactuca serriola*), cut-leaf water-horehound (*Lycopus americanus*), broad-leaf cattail, curly dock (*Rumex crispus*), leafy tussock sedge (*Carex aquatilis*), and common duckweed (*Lemna minor*) were additional components of this vegetation community. The community contained inundated areas with water levels ranging from one to two feet deep.

Wetland community Type 9 – *Puccinellia nutalliana/Iva axillaris* was identified on 3.8 acres of wetland located within the excavated areas between the constructed cells on the north side of Highway 2 and north and east of the cell located south of the highway. The vegetation cover was dominated by Nuttall's alkaligrass, deer root (*Iva axillaris*), with less than 5 percent cover of twelve species including arctic rush (*Juncus arcticus*), coastal salt grass, fresh water cordgrass, and saltmarsh club-rush. Approximately 11 to 20 percent of the community was bare. Wetland Type 5, *Puccinellia nutalliana/Chenopodium album* was replaced by wetland type 9 in 2013 based on the increase in the cover of *P. nutalliana* and the decrease in the cover of *C. album*.

Wetland community Type 10 – *Puccinellia nutalliana/Typha latifolia* defined the 4.38 acre wetland depression constructed south of the highway. Dominant species included Nuttall's alkaligrass, broad-leaf cattail, and piuteweed (*Suaeda calceoliformis*). There were 10 other species identified at less than 5 percent cover including saltmarsh club-rush, hard-stem club-rush, freshwater cord grass, and quaking aspen (*Populus tremuloides*). It appears the majority of this area is inundated during seasonal high groundwater periods. A small area of inundation was present during the August 2013 field survey. Wetland Type 7 – *Chenopodium album/Typha latifolia* was replaced by wetland type 10 in 2013.



Upland Community Type 8 – *Bromus inermis/Agropyron cristatum* was found on 3.62 acres of both site perimeters upslope from the constructed wetland cells. The cover consisted of existing and seeded herbaceous species. Smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), curly-cup gumweed (*Grindelia squarrosa*), Kentucky bluegrass (*Poa pratensis*), creeping wild rye (*Elymus repens*, called *Agropyron repens* on 1988 list), and Nuttall's alkaligrass, dominated the upland community.

The majority of the constructed wetland cells in the north half of the mitigation site were inundated with 3.87 acres of open water. A decrease of 1.17 acres of open water from 2012 (Polygon 6) is likely the result of lower precipitation rates when compared to the 2010 and 2011 total precipitation rates. Emergent hydrophytic vegetation development was observed in the areas mapped as open water in 2012 although the majority of area formerly mapped as open water consisted of bare ground. Productivity levels in the three open water areas remained low in 2013. The rate of aquatic bed development in the open water areas of the excavated depressions will likely be limited by the intermittent water regime and high turbidity that results from wave-action along the unconsolidated clay shoreline. The accumulation of salts within the soil's rooting zone along the normally endo-saturated shoreline may also be a factor in vegetation development. It is unclear if this area will develop aquatic bed and/or emergent vegetation.

Vegetation community transitions were measured on a 647-foot transect (T-1) for the north half of the mitigation site and a 366-foot transect (T-2) for the south half of the site. Transect one (T-1) intersected three vegetation communities, wetland Types 3 and 9 and upland Type 8 (Table 2 and Chart 1). Approximately 32.1 percent of Transect 1 crossed the open water in the constructed cells. Hydrophytic vegetation was identified on 49.8 percent of the transect in 2013, up from 32.1 percent in 2012. The most notable change from 2012 to 2013 was the shift from upland Type 2 – *Chenopodium* to wetland Type 9 – *Puccinellia/Iva*. The transition is illustrated on Charts 1 and 2. The percent of upland plant communities on the transect decreased from 30.1 percent to 18.1 percent from 2012 to 2013 and reflected the transition from upland to wetland.

Transect 2 was added in 2012 to monitor the additional mitigation area to the south of Highway 2 and was established across the excavated basin constructed in 2011. Transect 2 intersected wetland community Types 4 and 10 and upland community Type 8. Approximately 91.8 percent of the transect was dominated by hydrophytic species (Table 3 and Charts 3 an 4). *Puccinellia* replaced *Chenopodium* as the dominant species within the wetland cell south of the highway in 2013. The percentage of upland/wetland communities remained consistent between 2012 and 2013, primarily a result of the abrupt topographic transition into wetland.



Table 2. Data summary for Transect 1 (North Parcel) in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

Monitoring Year	2011	2012	2013
Transect Length (feet)	647	647	647
Vegetation Community Transitions along Transect	11	11	11
Vegetation Communities along Transect	4	4	3
Hydrophytic Vegetation Communities along Transect	2	2	2
Total Vegetative Species	21	24	20
Total Hydrophytic Species	12	11	9
Total Upland Species	9	13	11
Estimated % Total Vegetative Cover	40	50	70
% Transect Length Comprising Hydrophytic Vegetation Communities	20.7	32.1	49.8
% Transect Length Comprising Upland Vegetation Communities	29.8	30.1	18.1
% Transect Length Comprising Unvegetated Open Water	49.5	37.7	32.1
% Transect Length Comprising Bare Substrate	0.0	0.0	0.0

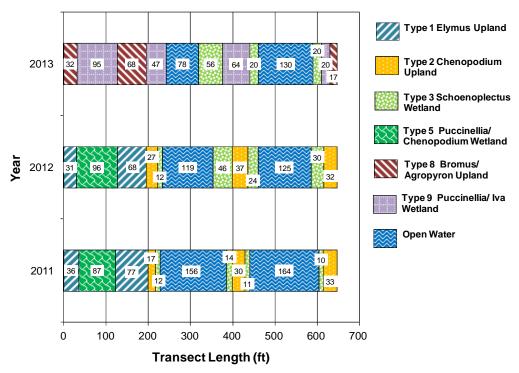


Chart 1. Transect map showing community types on Transect 1 (North Parcel) in 2011, 2012 and 2013 from start to finish at the Big Muddy Wetland Mitigation Site.



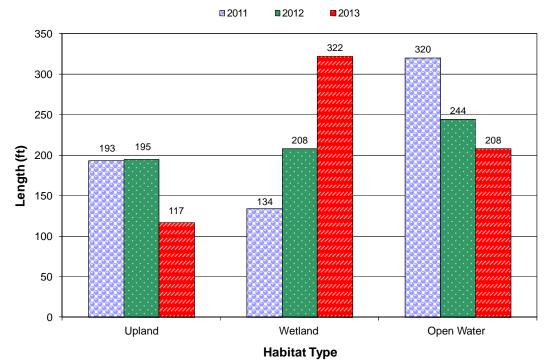


Chart 2. Length of habitat types within Transect 1 (North Parcel) in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

Table 3. Data summary for Transect 2 (South Parcel) in 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

Monitoring Year	2012	2013
Transect Length (feet)	366	366
Vegetation Community Transitions along Transect	2	2
Vegetation Communities along Transect	3	3
Hydrophytic Vegetation Communities along Transect	2	2
Total Vegetative Species	21	18
Total Hydrophytic Species	11	10
Total Upland Species	10	8
Estimated % Total Vegetative Cover	90	95
% Transect Length Comprising Hydrophytic Vegetation Communities	91.3	91.8
% Transect Length Comprising Upland Vegetation Communities	8.7	8.2
% Transect Length Comprising Unvegetated Open Water	0.0	0.0
% Transect Length Comprising Bare Substrate	0.0	0.0



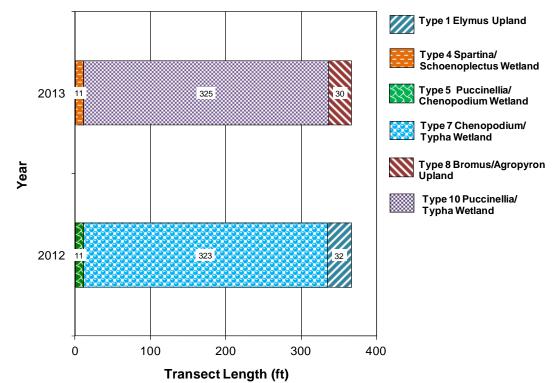


Chart 3. Transect map showing community types on Transect 2 (South Parcel) in 2012 and 2013 from start to finish at the Big Muddy Wetland Mitigation Site.

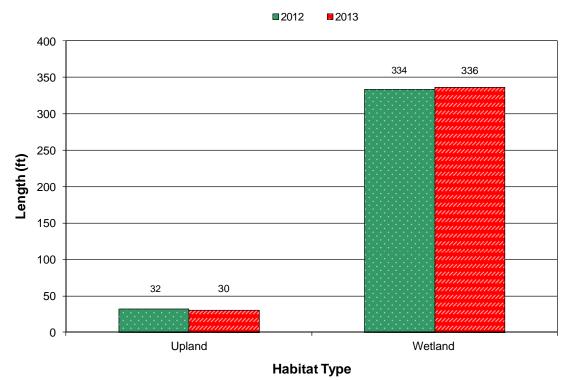


Chart 4. Length of habitat types within Transect 2 (South Parcel) in 2012 and 2013 at the Big Muddy Wetland Mitigation Site.



One infestation of Canadian thistle (*Cirsium arvense*), a Priority 2B weed, was observed at the northeast edge of the unnamed tributary. The infestation covered less than 0.1 acre with a moderate cover class of 5 to 25 percent. The MDT has an ongoing weed control program for their mitigation sites that includes an annual assessment of weeds at each site. No woody species were installed on this site. Native recruitment of eastern cottonwood and quaking aspen seedlings was identified in 2013.

#### 3.3. Soil

The project site was mapped in the Roosevelt County Soil Survey (USDA 2011). Three soil series were mapped within the monitoring area and include Havrelon loam, Lallie silty clay, and Lohler silty clay. The Havrelon loam was mapped primarily in the pre-existing wetland areas in the northern monitoring parcel. This series is a moderately well drained loam, taxonomically classified as a frigid Typic Ustifluvents. The Haverlon series is found on floodplains of major streams and tributaries. The Lohler silty clay is a slowly permeable soil, taxonomically classified as a frigid Vertic Ustifluvents, and mapped across the majority of both monitoring parcels. This soil is mainly found on floodplains. The Lallie series consist of very deep, poorly drained, slowly permeable soils formed in lake basins and old oxbows. It was mapped along the west boundary of the site surrounding the unnamed tributary of Big Muddy Creek. All three soil map units are included on the Montana Hydric Soils list.

Four soil pits were excavated to characterize onsite soil. Data points BM-1w, BM-2w, and BM-3w were located in areas that met the wetland criteria. The soil profile at BM-1w revealed a dark gray (10 YR 4/1) clay with 20 percent brown (7.5 YR 4/4) redoximorphic concentrations in the matrix. The profile at BM-2w was an olive gray (5Y 4/2) clay with 5 percent dark yellowish brown (10 YR 4/6) redox concentrations. The soil in test pit BM-3w was a gray (5Y 5/1) clay with brown (7.5YR 4/4) redox concentrations. The depleted matrices were positive indicators of hydric soil at these three wetland data points. Data point BM-1u was located in the upland area characterized as Community 8. The soil in this test pit BM-1u was a brown (10 YR 5/3) clay without redox features and with 5 percent sodium concentrations at the top of the seasonal groundwater elevation. The data point did not meet the wetland criteria for hydric soil but indicated seasonal high groundwater levels may reach just below one foot of the surface.

## 3.4. Wetland Delineation

Three data points were located within the north mitigation parcel and one data point was located in the south mitigation parcel in 2013 to help define the wetland boundaries (Figure 2, Appendix A, and Wetland Determination Data Forms, Appendix B). The 2013 wetland delineation identified a total of 14.25 acres of wetland/aquatic habitat, a 1.38 acre increase from 2012 (Table 4). The created wetland, encompassing portions of community Types 3, 9, and 10, totaled 7.82 acres. This represented a total increase of 2.56 acres in created wetland sitewide since 2012. The majority of this increase was the result of a 1.18 acre decrease in the open water habitat surveyed in 2013, allowing the development



of emergent species on the saturated soil. The areas between the excavated cells in the north parcel were characterized by a portion of community 9 and represented the expansion of wetland to the areas between the cells. The pre-existing wetlands, generally represented by Types 4 and 9, encompassed 2.56 acres. A total of 8.25 acres of wetland habitat was identified within the north parcel in 2013, an increase from 6.92 acres delineated in 2012. Within the south parcel, a total of 6.0 acres of wetland habitat were identified in 2013, a slight increase from 5.94 acres delineated in 2012.

Table 4. Total wetland acres delineated in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

Wetland and Aquatic Habitat	2011 (acres)	2012 (acres)	2013 (acres)
Created Wetland - North Parcel	1.14	1.14	3.65
Pre-Existing Wetland - North Parcel	0.73	0.73	0.73
Open Water - North Parcel	5.05	5.05	3.87
Sub-Total for North Parcel	6.92	6.92	8.25
Created Wetland - South Parcel		4.11	4.17
Pre-Existing Wetland - South Parcel		1.83	1.83
Open Water - South Parcel		0.00	0.00
Sub-Total for South Parcel		5.94	6.00
Total	6.92	12.87	14.25

#### 3.5. Wildlife

A comprehensive list of birds and other wildlife species observed directly or indirectly from 2011 through 2013 is presented in Table 5 (Monitoring Form, Appendix B). Fifteen bird species were observed by Confluence biologists during the 2013 monitoring event and are shown in bold type on Table 5. Observations on the number, behavior, and habitat of the birds are detailed on the Mitigation Monitoring Form (Appendix B). Ten northern leopard frogs (*Rana pipiens*) were seen and the Boreal chorus frog (*Pseudacris maculata*) was heard vocalizing. Deer tracks were also identified.

Table 5. Wildlife species observed within the Big Muddy Wetland Mitigation Site in 2011, 2012 and 2013.

COMMON NAME	SCIENTIFIC NAME					
AMPHIBIANS						
Boreal Chorus Frog	Pseudacris maculata					
Northern Leopard Frog	Rana pipiens					
Woodhouse's Toad	Bufo woodhousii					
MAMMALS						
Deer Sp.						
Muskrat	Ondatra zibethicus					
Raccoon	Procyon lotor					
Red Fox	Vulpes vulpes					
REP	TILE					
Plains Gartersnake*	Thamnophis radix					
Unidentified Snake						
Charles identified in 2012 are holded						

Species identified in 2013 are bolded.



<sup>\*</sup>Species identified by MDT personnel.

COMMON NAME	SCIENTIFIC NAME						
BIRDS							
American Avocet	Recurvirostra americana						
American Coot	Fulica americana						
American Goldfinch	Spinus tristus						
American Wigeon*	Anas americana						
Bank Swallow	Riparia riparia						
Blue-winged Teal	Anas discors						
Cinnamon Teal	Anas cyanoptera						
Common Yellowthroat	Geothlypis trichas						
Eastern Kingbird	Tyrannus tyrannus						
Franklin's Gull	Leucophaeus pipixcan						
Gadwall	Anas strepera						
Killdeer	Charadrius vociferus						
Loggerhead Shrike*	Lanius Iudovicianus						
Mallard	Anas platyrhynchos						
Mourning Dove	Zenaida macroura						
Northern Pintail*	Anas acuta						
Northern Shoveler*	Anas clypeata						
Red-winged Blackbird	Agelaius phoeniceus						
Spotted Sandpiper	Actitis macularius						
Swainson's Hawk*	Buteo swainsoni						
Western Sandpiper	Calidris mauri						
Wilson's Phalarope	Phalaropus tricolor						
Wilson's Snipe	Gallinago delicata						
Yellow-headed Blackbird	Xanthocephalus xanthocephalus						

Species identified in 2013 are bolded.

#### 3.6. Functional Assessment

The 2008 MWAM was used in the May 2011 Mitigation Plan to evaluate 8 acres of the existing riverine wetland associated with the tributary to Big Muddy Creek and 2 acres of the remnant wet meadow located north and south of the mitigation site. Both AAs extended outside the current project boundaries. The 2008 MWAM was used to evaluate the functional values of the mitigation wetlands from 2011 through 2013 (Table 6). Four AAs were assessed in 2013 and included the created wetlands within the north parcel, preserved wetlands within the north parcel, created wetlands within the south parcel, and preserved wetlands within the south parcel. The created and preserved wetland AAs within the Big Muddy mitigation site were not separated by parcel (north/south) in 2012. The MWAM forms for the Big Muddy mitigation area completed in 2013 are located in Appendix B.

The Creation North Parcel AA encompassed 7.52 acres and included the constructed wetland cells and the excavated areas between the cells characterized by wetland and open water community Types 3, 6, and 9. This AA was rated as a Category II wetland in 2013 with 71 percent of the total possible points. This AA has shown continued improvement since construction. The functional ratings continued to improve in 2013, increasing from 66.5 percent to 71 percent as a result of improvements in the level of disturbance, general



<sup>\*</sup>Species identified by MDT personnel.

wildlife habitat, production export/food chain support (tied to general wildlife habitat), and uniqueness (tied to disturbance level). High ratings were assessed for general wildlife habitat, short and long term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, groundwater discharge and recharge, and recreation/education potential. This AA achieved 53.39 total functional units.

The Preservation North Parcel AA included 0.73 acres located within the floodway fringe of the existing tributary to Big Muddy Creek (wetland community Type 4). This AA was rated as a Category II wetland with 66 percent of the total possible points in 2013. The AA received high ratings in 2013 for general wildlife habitat, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, groundwater recharge/discharge, and recreation/education potential and attained 4.82 total functional units. Combined, the northern parcel Creation and Preservation AAs scored a total of 58.21 functional units in 2013.

The Creation South Parcel AA included 4.17 acres within the footprint of the excavated wetland cell, dominated by vegetation community type 10. This AA was rated as a Category III wetland with 60 percent of the total possible points and 25.02 functional units.

The Preservation South Parcel AA included 1.83 acres of existing wetland and rated as a Category III wetland with 58 percent of the total possible points. The seasonal/intermittent nature of the wetland hydrology within this AA was the primary factor limiting overall functional ratings. The Creation and Preservation AAs within the parcel south of Highway 2 attained a total 35.63 functional units in 2013.

#### 3.7. Photo Documentation

Photographs taken at photo points 1 through 7 (PP-1 through PP-7; Figure 2, Appendix A) are shown on pages C-1 to C-10 of Appendix C. Photographs of the transect end points and wetland determination data points are shown on pages C-11 and C-12 and page C-13, respectively (Appendix C).

#### 3.8. Maintenance Needs

There are no diversion structures or nesting structures currently installed at the site. One infestation of Canadian thistle (*Cirsium arvense*), a Priority 2B weed, was observed at the edge of the unnamed tributary in the northeast quadrant of the north mitigation site. The infestation covered less than 0.1 acre with a moderate cover class of 6 to 25 percent. The MDT has an ongoing weed control program for their mitigation sites that includes an annual assessment of weeds identified at each location and treatment to contain and control identified populations. The weed has not spread to other areas in the three years of monitoring.



Table 6. Functions and Values of the Big Muddy Wetland Mitigation Site in 2011, 2012 and 2013.

Function and Value Parameters from the	2011	2011	2012*	2012*	2013	2013	2013	2013
2008 Montana Wetland Assessment Method	(Creation)	(Preservation)	(Creation)	(Preservation)	Creation	Preservation	Creation	Preservation
2000 Montana Wetland Assessment Method	AA-1	AA-2	AA-1	AA-2	North Parcel	North Parcel	South Parcel	South Parcel
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
MTNHP Species Habitat	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)
General Wildlife Habitat	Mod (0.5)	High (0.9)	Mod (0.7)	High (0.9)	High (0.9)	High (0.9)	Mod (0.7)	Mod (0.7)
General Fish/Aquatic Habitat	NA	NA	NA	NA	NA	NA	NA	NA
Flood Attenuation	Mod (0.5)	Mod (0.4)	Mod (0.5)	Mod (0.4)	Mod (0.5)	Mod (0.4)	Mod (0.5)	Mod (0.4)
Short and Long Term Surface Water Storage	High (1.0)	Mod (0.4)	High (1.0)	High (0.8)	High (1.0)	Mod (0.4)	High (0.9)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (0.9)	High (1.0)	High (0.9)	High (1.0)	High (0.9)	High (1.0)	High (0.9)
Sediment/Shoreline Stabilization	Low (0.3)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (0.9)	High (1.0)
Production Export/Food Chain Support	Mod (0.5)	High (0.9)	Mod (0.6)	High (1.0)	Mod (0.7)	High (0.9)	Mod (0.4)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	Mod (0.7)	Mod (0.7)
Uniqueness	Low (0.2)	Mod (0.4)	Low (0.2)	Mod (0.4)	Low (0.3)	Mod (0.4)	Low (0.2)	Mod (0.4)
Recreation/Education Potential (bonus points <sup>3</sup> )	High (0.15)	High (0.15)	High (0.15)	High (0.15)	High (0.2)	High (0.2)	High (0.2)	High (0.15)
Actual Points/Possible Points	5.35/10	6.55/10	6.65/10	7.05/10	7.1/10	6.6/10	6.0/10	5.8/10
% of Possible Score Achieved	53.5%	65.5%	66.5%	70.5%	71.0%	66.0%	60.0%	58.0%
Overall Category	III	=	II	=	II	II	III	III
Total Acreage of Assessed Wetlands within Site	6.19	0.73	10.31	2.56	7.52	0.73	4.17	1.83
Boundaries	0.13	0.73	10.51	2.50	1.32	0.75	4.17	1.03
Functional Units (acreage x actual points)	33.12	4.78	68.56	18.05	53.39	4.82	25.02	10.61

<sup>\*2012</sup> AAs included wetland areas on both sides (north/south) of Highwy 2



## 3.9. Current Credit Summary

Table 7 summarizes the originally proposed mitigation acreages, credit ratios, and scaled performance standards from the May 2011 Mitigation Plan. This table has been modified to include the additional acreages monitored in the south side in 2012. Table 8 summarizes the calculated credit acreages based on the 2013 wetland delineation and includes the created and pre-existing wetland acreages delineated on the north and south sides of Highway 2.

The original mitigation plan proposed the creation of 6.53 acres of emergent/aquatic bed shallow marsh within three wetland cells excavated north of Highway 2. An additional 1.76 acres of emergent wetland creation was expected to develop in the excavated areas between the cells. The passive creation of an additional 1.03 acres of emergent wet meadow located at the north boundary and adjacent to the existing wet meadow in the northern parcel was to be facilitated by the overall increase in groundwater elevation.

Table 8 provides a breakdown of the acres listed for each category scaled according to the credit criteria listed in Table 7. Each mitigation category has also been identified into the respective parcel, northern or southern. The total credit acres accrued at the Big Muddy wetland mitigation area in 2013 was 9.55 acres, an increase of 0.69 credit acres from 2012.

Within the northern parcel, the number of acres of created wetland within the excavated areas between cells and passive creation increased from 0.00 to 1.76 between 2012 and 2013. Based on meeting Performance Standards 1 and 3 and making demonstrable progress on Performance Standard 2, 70 percent of the total created acreage was credited and totaled 1.23. Wetland creation within the excavated cells in the northern parcel remained consistent between 2012 and 2013, totaling 5.76 acres. The estimated credit acreage was 70 percent of the total possible, or 4.03 credits acres based on the scaled criteria for meeting standards 1 and 3 and making demonstrable progress on standard 2. The absolute vegetation cover has not achieved 70 percent. The noxious weed absolute cover is less than 5 percent. Preservation of 0.73 acres in the northern parcel has been credited 100 percent at a 4:1 ratio providing 0.18 credits.

Wetland creation within the southern parcel totaled 4.17 acres in 2013. This value decreased in response to a reevaluation of total constructed and preserved wetland acreage within the northern and southern parcels and does not represent an actual decrease of wetland acreage south of Highway 2. Similar to the northern mitigation area, credits were scaled for meeting standards 1 and 3 and making demonstrable progress on standard 2. Wetland preservation within the southern parcel totaled 1.83 acres and 0.46 credits. The three performance standards for the preservation wetland have been met in 2012 and 2013. Maintenance of the upland buffer around the southern cell generated an additional 0.25 credits in 2013. Full credit at a 5:1 ratio was attained based on meeting the success criteria for the maximum cover of noxious weeds allowed within the upland buffer.



Table 7. Wetland Crediting and Performance Standard Summary for the original Big Muddy Creek Wetland Mitigation Site.

Compensatory Mitigation Type	COE Mitigation Credit Ratio <sup>1</sup>	Proposed Acres	Preliminary Credit Estimate (Acres)	Performance Standard 1	Performance Standard 2	Performance Standard 3	Scaled % Credit Criteria <sup>2</sup>
Creation: Establishment <sup>3</sup> (Area between cells [1.76 ac] and Passive creation in northern tip of site[1.03 ac])	1:1	1.03 to 2.79	1.03 to 2.79	Satisfy 1987 Manual and Regional Supplement Wetland Hydrology Wetland Soils Hydrophytic Vegetation Criteria	Achieve 70% Absolute Cover of FAC or Wetter Plants	Noxious Weed Absolute Cover <5%	Features constructed / implemented and: All standards met = 100% Standard 1 met and demonstrable progress on 2-3 = 70% Standard 1 not met but demonstrable progress on 1-3 = 50% Standard 1 met but lack of progress / corrective action on 2-3 = 30% Standard 1 not met and no demonstrable progress / corrective Action = 0%
Creation: Establishment (Emergent Marsh and Open Water in Northern Parcel)	1:1	6.53	6.53	Satisfy 1987 Manual and Regional Supplement Wetland Hydrology Wetland Soils Hydrophytic Vegetation Criteria (excluding open water areas)	Achieve 70% Absolute Cover of FAC or Wetter Plants (excluding open water areas)	Noxious Weed Absolute Cover <5%	Features constructed / implemented and: All standards met = 100% Standard 1 met and demonstrable progress on 2-3 = 70% Standard 1 not met but demonstrable progress on 1-3 = 50% Standard 1 met but lack of progress / corrective action on 2-3 = 30% Standard 1 not met and no demonstrable progress / corrective Action = 0%
*Creation: Establishment (Emergent Marsh and Open Water in Southern Parcel)	1:1	5.47	5.47	Satisfy 1987 Manual and Regional Supplement Wetland Hydrology Wetland Soils Hydrophytic Vegetation Criteria (excluding open water areas)	Achieve 70% Absolute Cover of FAC or Wetter Plants (excluding open water areas)	Noxious Weed Absolute Cover <5%	Features constructed / implemented and:     All standards met = 100%     Standard 1 met and demonstrable progress on 2-3 = 70%     Standard 1 not met but demonstrable progress on 1-3 = 50%     Standard 1 met but lack of progress / corrective action on 2-3 = 30%     Standard 1 not met and no demonstrable progress / corrective     Action = 0%
Preservation (Northern Parcel)	4:1	0.73	0.18	Satisfy 1987 Manual and Regional Supplement Wetland Hydrology Wetland Soils Hydrophytic Vegetation Criteria	NA	Noxious Weed Absolute Cover <5%	All standards met = 100%  Standard 1 met and demonstrable progress on 3 = 75%  Standard 1 not met but demonstrable progress on 1 and 3 = 50%  Standard 1 met but lack of progress on 3 = 30%  Standard 1 not met = 0%
*Preservation (Southern Parcel)	4:1	1.83	0.46	Satisfy 1987 Manual and Regional Supplement Wetland Hydrology Wetland Soils Hydrophytic Vegetation Criteria	NA	Noxious Weed Absolute Cover <5%	All standards met = 100%  Standard 1 met and demonstrable progress on 3 = 75%  Standard 1 not met but demonstrable progress on 1 and 3 = 50%  Standard 1 met but lack of progress on 3 = 30%  Standard 1 not met = 0%
Upland Buffer (Northern Parcel)	5:1	0.43	0.09	NA	NA	Noxious Weed Absolute Cover <5%	Standard 3 met = 100% Standard 3 not met but with demonstrable progress = 30% Standard 3 not met with no demonstrable progress = 0%
Upland Buffer (Southern Parcel)	5:1	NA	NA	NA	NA	Noxious Weed Absolute Cover <5%	Standard 3 met = 100% Standard 3 not met but with demonstrable progress = 30% Standard 3 not met with no demonstrable progress = 0%
Total			13.76 to 15.52 acres				

<sup>&</sup>lt;sup>1</sup>Corps of Engineers 2005 Wetland Compensatory Mitigation Ratios, Montana Regulatory Program.



<sup>&</sup>lt;sup>2</sup>Percentages to be applied to credit estimate acres in Column 5.

<sup>&</sup>lt;sup>3</sup>Incidentally created wetlands will be credited according to parameters listed under "Creation: Establishment".

<sup>\*</sup>Areas added in 2012 have been included in preliminary wetland crediting and performance standard summary approved by Corps for the Big Muddy Wetland Mitigation Project.

Table 8. Summary of wetland credits in 2011, 2012 and 2013 at the Big Muddy Wetland Mitigation Site.

	Compensatory Mitigation Type	USACE Mitigation Credit Ratio	2011 Delineated Acres	Scaled % Credit Standards	2011 Credit Acres	2012 Delineated Acres	Scaled % Credit Standards	2012 Credit Acres	2013 Delineated Acres	Scaled % Credit Standards	2013 Credit Acres
Parcel	Wetland Creation: Establishment (Area between constructed cells in Northern Parcel)	1:1	0.44	70%	0.31	0.00	0%	0.00	1.76	70%	1.23
Nothern Pa	Wetland Creation: Establishment (wetland cells in Northern Parcel)	1:1	5.75	70%	4.03	5.76	70%	4.03	5.76	70%	4.03
Ž	Wetland Preservation (Northern Parcel)	4:1	0.73	100%	0.18	0.73	100%	0.18	0.73	100%	0.18
	Upland Buffer (Northern Parcel)	5:1	3.70	100%	0.74	3.69	100%	0.74	2.37	100%	0.47
	Northern Subtotal		10.62		5.26	10.18		4.95	10.62		5.92
n Parcel	Wetland Creation: Establishment (wetland cell in Southern Parcel)	1:1	1	70%	4.03	4.55	70%	3.19	4.17	70%	2.92
Southern	Wetland Preservation (Southern Parcel)	4:1	-	100%	-	1.83	100%	0.46	1.83	100%	0.46
Sou	Upland Buffer (Southern Parcel)	5:1		100%		1.31	100%	0.26	1.25	100%	0.25
	Southern Subtotal					7.69		3.90	7.25		3.63
	Total		10.62		9.29	17.87		8.86	17.87		9.55



#### 4. REFERENCES

- Atkins/PBS&J 2011. *Big Muddy Creek Wetland Mitigation Plan*, May 2011. Prepared for the Montana Department of Transportation, Helena, Montana.
- Berglund, J. and R. McEldowney. 2008. *MDT Montana Wetland Assessment Method*. Prepared for Montana Department of Transportation, Helena, Montana. Post, Buckley, Schuh, & Jernigan, Helena, Montana. 42pp.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* U.S. Army Corps of Engineers. Washington, DC.
- Lichvar, Robert W. and Kartesz, John T. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland\_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. Downloaded from National Wetland Plant List website 5/9/12. Effective June 1, 2012.
- Reed, P.B. 1988. *National list of plant species that occur in wetlands: North Plains (Region 4)*. Biological Report 88(26.4), May 1988. U.S. Fish and Wildlife Service, Washington, DC.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-1.Vicksburg, MS: U.S. Army Engineer Research and Development Center.

#### Websites:

- United States Department of Agriculture-Natural Resource Conservation Service. Web Soil Survey for Roosevelt County, Montana. 2011. Accessed July 2011 at: http://websoilsurvey.nrcs.usda.gov/app/
- Western Regional Climate Center. United States Historical Climatology Network. Reno, Nevada. 2011. Accessed July 2011 at: http://www.wrcc.dri.edu/CLIMATEDATA.html



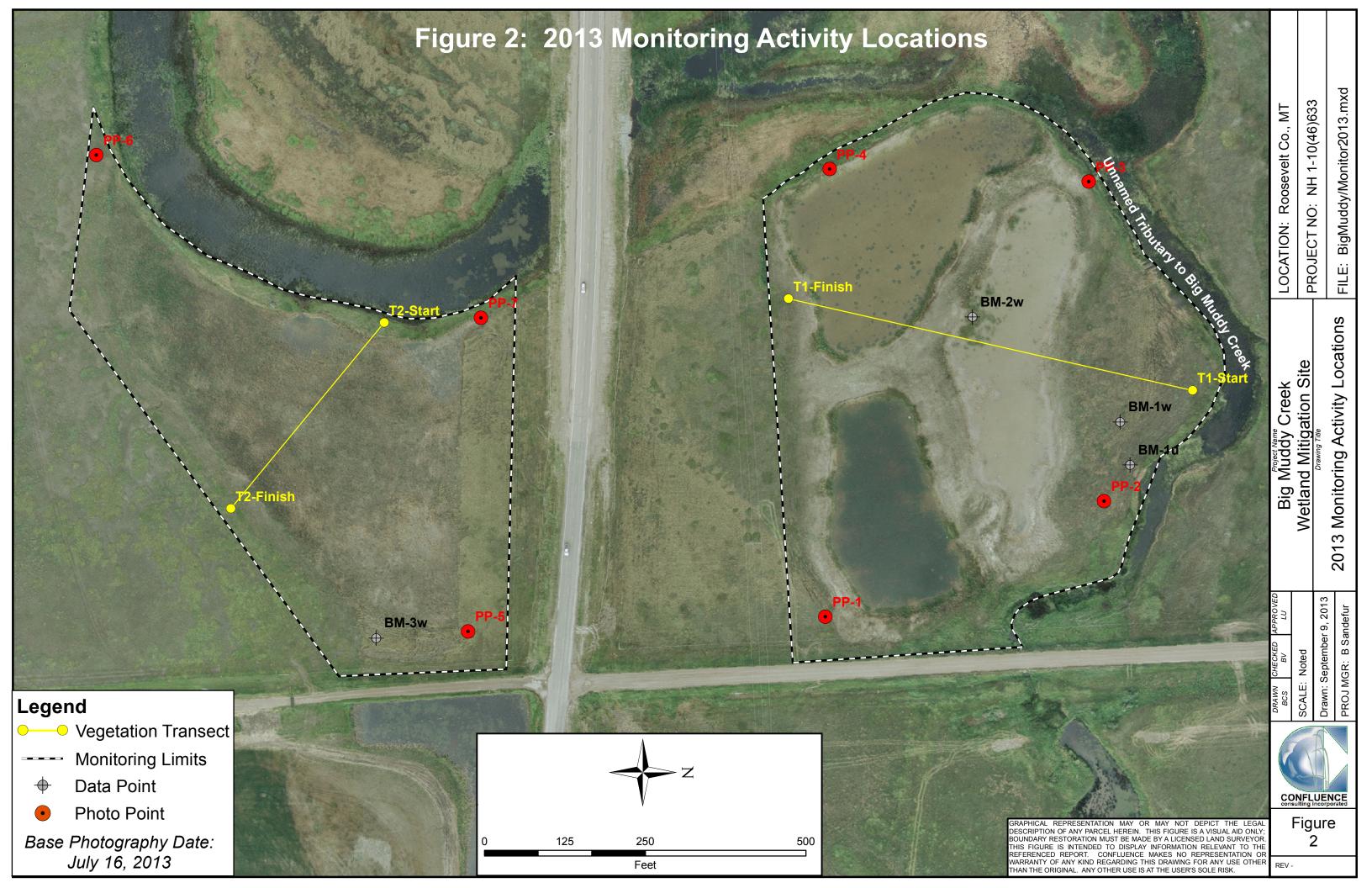
Big Muddy Creek 2013 Wetland Mitigation Monitoring Report

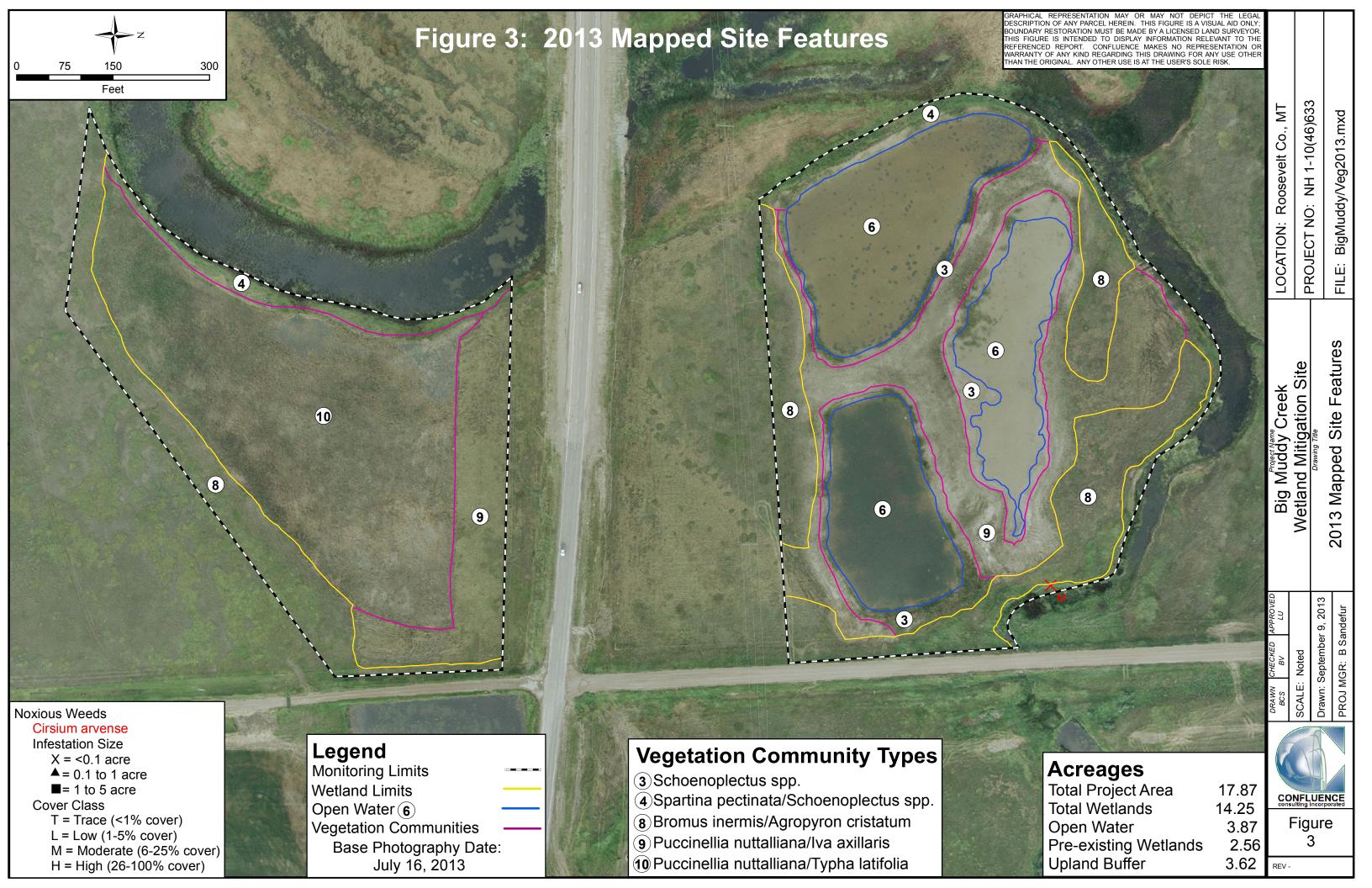
# Appendix A

## **PROJECT AREA MAPS**

Figure 2 – Monitoring Activity Locations Figure 3 – Mapped Site Features

MDT Wetland Mitigation Monitoring Big Muddy Creek Roosevelt County, Montana





Big Muddy Creek 2013 Wetland Mitigation Monitoring Report

## Appendix B

2013 MDT Wetland Mitigation Site Monitoring Form 2013 USACE Wetland Determination Data Forms 2013 MDT Montana Wetland Assessment Forms

MDT Wetland Mitigation Monitoring Big Muddy Creek Roosevelt County, Montana

## MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Big Muddy Assessment Date/Time 8/1/2013 10:41:20 A
Person(s) conducting the assessment: B Sandefur, E Sandefur
Weather: Warm, overcast AM, partly cloudy Location: 4 miles west of Culbertson
MDT District: Glendive Milepost: ~639.75 on Hwy 2
Legal Description: T 28N R 55E Section(s) 21
Initial Evaluation Date: 8/10/2011 Monitoring Year: 3 #Visits in Year: 1
Size of Evaluation Area: 17.87 (acres)
Land use surrounding wetland:
Agriculture, pasture, US Hwy 2
HYDROLOGY
Surface Water Source: Unnamed trib to Big Muddy Creek, precipitation, groundwater
Inundation: Average Depth: 0.8 (ft) Range of Depths: 0-1.5 (ft)
Percent of assessment area under inundation: 20 %
Depth at emergent vegetation-open water boundary:0.2 (ft)
If assessment area is not inundated then are the soils saturated within 12 inches of surface:Yes_
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:
Surface soil cracks, aquatic invertebrates, inundation and saturation visible on aerial, waterstained leaves, water marks.
Groundwater Monitoring Wells
Record depth of water surface below ground surface, in feet.
Well ID Water Surface Depth (ft)
No Wells
Additional Activities Checklist:
Map emergent vegetation-open water boundary on aerial photograph.
Observe extent of surface water during each site visit and look for evidence of past surface water
elevations (drift lines, erosion, vegetation staining, etc.)
Use GPS to survey groundwater monitoring well locations, if present.  Hydrology Notes:
nyurology Notes.
Area receives periodic overbank flow from the unnamed tributary during spring flows.  Groundwater connection between stream and constructed wetlands on both north and south side of Hwy 2. Constructed depressions with periodic to permanent inundation.

## **VEGETATION COMMUNITIES**

Site Big Muddy

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

Community # 3 C	community Type:	Schoenoplectus spp. /	Acres	<u>1.06</u>
Species	Cover class	Species	Cover class	
Agropyron cristatum	0	Algae, green	1	
Bare Ground	2	Chenopodium album	2	
Distichlis spicata	2	Eleocharis palustris	1	
Elymus trachycaulus	0	Hordeum jubatum	1	
Iva axillaris	0	Juncus arcticus	0	
Open Water	0	Polypogon monspeliensis	1	
Puccinellia nuttalliana	1	Rumex crispus	0	
Schoenoplectus acutus	1	Schoenoplectus americanu	1	
Schoenoplectus maritimus	3	Sonchus arvensis	0	
Spartina pectinata	1	Taraxacum officinale	0	
Typha latifolia	2			
Comments:				
Community # 4 C	Community Type:	Spartina pectinata / Schoenoplectus	s spp. Acres	<u>1.15</u>
Species	Cover class	Species	Cover class	
Aster sp.	0	Bassia scoparia	0	
Carex aquatilis	1	Chenopodium album	0	
Hordeum jubatum	0	Lactuca serriola	1	
Lemna minor	1	Lycopus americanus	1	
Rosa woodsii	0	Rumex crispus	1	
Schoenoplectus acutus	2	Schoenoplectus maritimus	2	
Scutellaria galericulata	0	Spartina pectinata	5	
Symphoricarpos albus	0	Typha latifolia	1	
Comments:				
Community # 6 C	Community Type:	Open Water /	Acres	<u>3.87</u>
Species	Cover class	Species	Cover class	
Algae, green	1	Bare Ground	2	
Juncus arcticus	0	Open Water	5	
Schoenoplectus acutus	1	Schoenoplectus maritimus	1	
Comments:				

Community # 8	Community Type:	Bromus inermis / Agropyron cristatu	ım Acres	<u>3.62</u>
Species	Cover class	Species	Cover class	
Achillea millefolium	1	Agropyron cristatum	4	
Artemisia cana	1	Artemisia frigida	0	
Artemisia tridentata	0	Bassia scoparia	0	
Bromus inermis	4	Chenopodium album	1	
Cirsium arvense	0	Distichlis spicata	1	
Elymus lanceolatus	1	Elymus repens	2	
Elymus trachycaulus	1	Fraxinus pennsylvanica	0	
Grindelia squarrosa	2	Helianthus annuus	0	
Hordeum jubatum	1	Iva axillaris	0	
Lactuca serriola	0	Lepidium perfoliatum	0	
Opuntia polyacantha	0	Pascopyrum smithii	1	
Poa pratensis	2	Puccinellia nuttalliana	2	
Rumex crispus	1	Sonchus arvensis	0	
Symphoricarpos albus	0	Thlaspi arvense	0	
Comments:				
Community # 9	Community Type:	Puccinellia nuttalliana / Iva axillaris	Acres	<u>3.79</u>
Species	Cover class	Species	Cover class	
Agropyron cristatum	1	Bare Ground	3	
Bassia scoparia	1	Bromus inermis	1	
Chenopodium album	1	Distichlis spicata	1	
Elymus trachycaulus	1	Glycyrrhiza lepidota	0	
Grindelia squarrosa	1	Hordeum jubatum	0	
Iva axillaris	4	Juncus arcticus	1	
Lactuca serriola	1	Lepidium perfoliatum	1	
Populus deltoides	0	Puccinellia nuttalliana	5	
Rumex crispus	0	Schoenoplectus maritimus	1	

## Comments:

Sonchus arvensis

Suaeda calceoliformis

Spartina pectinata

0

Typha latifolia

1

1

Community # 10 Community Type:		Puccinellia nuttalliana / Typha latif	olia Acres	<u>4.38</u>
Species	Cover class	Species	Cover class	
Atriplex suckleyi	1	Bare Ground	2	
Bassia scoparia	1	Chenopodium album	1	
Helianthus annuus	0	Hordeum jubatum	1	
Iva axillaris	1	Lactuca serriola	0	
Populus tremuloides	0	Puccinellia nuttalliana	4	
Rumex crispus	0	Schoenoplectus acutus	1	
Schoenoplectus maritimus	1	Spartina pectinata	1	
Suaeda calceoliformis	2	Typha latifolia	4	

Comments:

**Total Vegetation Community Acreage** 

17.87

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

## **VEGETATION TRANSECTS**

Big Muddy		Da	te: 8/7/2013 1	0:41:20 AM
Transect Number: 1		_ Compass D	irection from Start:1	180
Interval Data:				
<b>Ending Station</b>	32	Community Type:	Bromus inermis / Agropyro	on cristatum
Species		Cover class	Species	Cover class
Achillea millefolium		0	Agropyron cristatum	2
Artemisia tridentata		0	Bromus inermis	4
Chenopodium album		2	Grindelia squarrosa	1
Lactuca serriola		1	Rumex crispus	0
Ending Station	127	Community Type:	Puccinellia nuttalliana / Iva	axillaris
Species		Cover class	Species	Cover clas
Chenopodium album		2	Hordeum jubatum	1
Puccinellia nuttalliana		5	Rumex crispus	0
Suaeda calceoliformis		2		
Ending Station	195	Community Type:	Bromus inermis / Agropyro	on cristatum
Species		Cover class	Species	Cover clas
Agropyron cristatum		2	Bromus inermis	4
Chenopodium album		1	Grindelia squarrosa	1
Hordeum jubatum		1	Lactuca serriola	0
Puccinellia nuttalliana		1	Rumex crispus	0
Ending Station	242	Community Type:	Puccinellia nuttalliana / Iva	axillaris
Species		Cover class	Species	Cover clas
Bare Ground		2	Chenopodium album	1
Elymus trachycaulus		0	Puccinellia nuttalliana	4
Schoenoplectus maritimu	IS	0	Suaeda calceoliformis	4
Ending Station	320	Community Type:	Open Water /	
Species		Cover class	Species	Cover clas
Bare Ground		1	Open Water	5
Schoenoplectus maritimu	IS	1		
Ending Station	376	Community Type:	Schoenoplectus spp. /	
Species		Cover class	Species	Cover clas
Bare Ground		2	Open Water	2
Schoenoplectus maritimu	IS	5		

Ending Station	440	Community Type:	Puccinellia nuttalliana / Iva axillaris				
Species		Cover class	Species	Cover class			
Bare Ground		3	Elymus trachycaulus	0			
Hordeum jubatum		1	Puccinellia nuttalliana	3			
Rumex crispus		0	Suaeda calceoliformis	4			
Ending Station	460	Community Type:	Schoenoplectus spp. /				
Species		Cover class	Species	Cover class			
Algae, green		1	Bare Ground	3			
Hordeum jubatum		0	Open Water	2			
Rumex crispus		1	Schoenoplectus acutus	1			
Schoenoplectus maritim	nus	4	Spartina pectinata	2			
<b>Ending Station</b>	590	Community Type:	Open Water /				
Species		Cover class	Species	Cover class			
Open Water		5	Schoenoplectus maritimus	1			
Ending Station	610	Community Type:	Schoenoplectus spp. /				
Species		Cover class	Species	Cover class			
Algae, green		1	Bare Ground	3			
Open Water		2	Puccinellia nuttalliana	1			
Schoenoplectus maritim	nus	4	Spartina pectinata	3			
<b>Ending Station</b>	630	Community Type:	Puccinellia nuttalliana / Iva ax	xillaris			
Species		Cover class	Species	Cover class			
Bare Ground		4	Elymus trachycaulus	0			
Grindelia squarrosa		0	Puccinellia nuttalliana	3			
Sonchus arvensis		2	Suaeda calceoliformis	1			
<b>Ending Station</b>	647	Community Type:	Bromus inermis / Agropyron	cristatum			
Species		Cover class	Species	Cover class			
Agropyron cristatum		3	Artemisia cana	0			
Bromus inermis		5	Chenopodium album	0			
Grindelia squarrosa		1	Rumex crispus	0			
Sonchus arvensis		2					
Sonchus arvensis		2					

Transect Notes:

Transect Number: 2	sect Number: 2 Compass Direction from Start: 130						
Interval Data: Ending Station	<sup>11</sup> Community Type:	Spartina pectinata / Schoeno	plectus spp.				
Species	Cover class	Species	Cover class				
Bassia scoparia	0	Chenopodium album	0				
Lactuca serriola	0	Rumex crispus	0				
Spartina pectinata	5	Symphoricarpos albus	1				
Ending Station	336 Community Type:	Puccinellia nuttalliana / Typha	a latifolia				
Species	Cover class	Species	Cover class				
Bare Ground	1	Chenopodium album	1				
Helianthus annuus	0	Hordeum jubatum	1				
Iva axillaris	1	Lactuca serriola	0				
Puccinellia nuttalliana	4	Rumex crispus	1				
Schoenoplectus acutus	0	Schoenoplectus maritimus	2				
Suaeda calceoliformis	1	Typha latifolia	4				
Ending Station	366 Community Type:	Bromus inermis / Agropyron	cristatum				
Species	Cover class	Species	Cover class				

Artemisia cana

Bromus inermis

0 5

3

1

Transect Notes:

Bassia scoparia

Lactuca serriola

Agropyron cristatum

#### **PLANTED WOODY VEGETATION SURVIVAL**

Big Muddy

Planting Type #Planted #Alive Notes

No plantings

#### **Comments**

No woody species were installed on this site. The wetlands were revegetated with seed and salvaged material. Numerous volunteer cottonwood seedlings were observed within the site.

#### **WILDLIFE**

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

Species	#Observed	Behavior	Habitat
American Avocet	1	F	AB, OW
American Goldfinch	8	F	UP, WM
Bank Swallow	7	F, L	UP
Blue-winged Teal	40	F, L	OW
Common Yellowthroat	1	F, L	UP, WM
Eastern Kingbird	4	F, L	UP, WM
Franklin's Gull	10	F, FO, L	AB, MF, OW
Gadwall	20	L	OW
Killdeer	8	F	MF, OW
Mallard	20	F, L	OW
Mourning Dove	7	F, L	UP, WM
Red-winged Blackbird	2	L, N	MA, UP, WM
Spotted Sandpiper	2	F	MF, OW
Western Sandpiper	8	F	MF, OW
Wilson's Phalarope	5	F, L	MF, OW
Bird Comments			

#### **BEHAVIOR CODES**

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

#### **HABITAT CODES**

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

 $\mathbf{WM} = \mathbf{Wet} \ \mathbf{meadow} \ \mathbf{MA} = \mathbf{Marsh} \ \mathbf{US} = \mathbf{Unconsolidated} \ \mathbf{shore} \ \mathbf{MF} = \mathbf{Mud} \ \mathbf{Flat} \ \mathbf{OW} = \mathbf{Open} \ \mathbf{Water}$ 

## **Mammals and Herptiles**

Species	# Observed	<b>Tracks</b>	Scat	Burrows	Comments
Boreal Chorus Frog		No	No	No	Vocalization

Deer Sp. Yes No No No Northern Leopard Frog 10 No No No

## Wildlife Comments:

#### **PHOTOGRAPHS**

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

### **Photograph Checklist:**

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

Photo #	Latitude	Longitude	Bearing	Description
1001	48.167038	-104.617645	0	PP-2
1002	48.167038	-104.617645	90	PP-2
1003	48.167038	-104.617645	180	PP-2
1004	48.167038	-104.617645	270	PP-2
1005	48.167148333	-104.618135	180	BM-1w
1006	48.16717833	-104.61785666	10	BM-1u
1007	48.167465	-104.618301	180	T-1, start
1011	48.16647	-104.618881	100	BM-2w
1015	48.165768	-104.619057	0	T-1, end
1016	48.166012	-104.619835	0	PP-4
1017	48.167038	-104.617645	45	PP-2
1017	48.166012	-104.619835	45	PP-4
1018	48.166012	-104.619835	315	PP-4
1021	48.16716	-104.619606	90	PP-3
1023	48.16716	-104.619606	270	PP-3
1024	48.16716	-104.619606	0	PP-3
1025	48.16716	-104.619606	180	PP-3
1026	48.165836	-104.617004	0	PP-1
1027	48.165836	-104.617004	315	PP-1
1028	48.165836	-104.617004	260	PP-1
1032			130	T-2, start
1034	48.163334	-104.618011	310	T-2, end
1035-38	48.162872	-104.620232	0	PP-6
1040	48.163994	-104.61705	0	BM-3w
1041-47	48.164448	-104.618835	180 B-11	PP-7

1048-52 48.164421 -104.616943 220 PP-5

**Comments:** 

### **ADDITIONAL ITEMS CHECKLIST**

Hydrology
<ul> <li>✓ Map emergent vegetation/open water boundary on aerial photos.</li> <li>✓ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).</li> </ul>
Photos
<ul> <li>✓ One photo from the wetland toward each of the four cardinal directions</li> <li>✓ One photo showing upland use surrounding the wetland.</li> <li>✓ One photo showing the buffer around the wetland</li> <li>✓ One photo from each end of each vegetation transect, toward the transect</li> </ul>
Vegetation
✓ Map vegetation community boundaries
✓ Complete Vegetation Transects
Soils
✓ Assess soils
Wetland Delineations
Delineate wetlands according to applicable USACE protocol (1987 form or
Supplement)  Delineate wetland – upland boundary onto aerial photograph.
Wetland Delineation Comments
Functional Assessments
Complete and attach full MDT Montana Wetland Assessment Method field orms.
Functional Assessment Comments:

#### Maintenance

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

### WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Big Muddy		City/County	. Roosevel	t	Samı	oling Date:	8/7	7/2013
Applicant/Owner: MDT		, ,		State: MT		-		
Landform (hillslope, terrace, etc.): Lowland							one (%):	0
	Lat:		•					
	Lat:						um:	
Soil Map Unit Name: Havrelon loam				NWI cla				
Are climatic / hydrologic conditions on the site t							<b>-</b> 7	
Are Vegetation, Soil, or Hydrolo				Normal Circumstan	ces" present	i? Yes_L	<u>▼</u> No	
Are Vegetation $ igsqcup $ , Soil $ igsqcup $ , or Hydrolo	gy naturally pro	blematic?	(If nee	eded, explain any a	inswers in R	emarks.)		
SUMMARY OF FINDINGS – Attach	site map showing	samplin	g point lo	cations, trans	ects, imp	ortant f	eatures	s, etc.
Hydrophytic Vegetation Present? Yes	No 🗹	la 4h	o Comented	A				
	No		ne Sampled nin a Wetlan	d? Yes	ſ	No 🗹		
Wetland Hydrology Present? Yes	No <u> </u>	WILL	iii a vvetiaii	ur res		NO	_	
Remarks: DP in upland near Puc nut com								
VEGETATION – Use scientific nam	es of plants.  Absolute	Dominan	t Indicator	Dominance Tes	t workshee	<del>+-</del>		
Tree Stratum (Plot size:)		Species		Number of Domi				
1	0			That Are OBL, F.	ACW, or FA		0	
2				(excluding FAC-	):			(A)
3		- 📙		Total Number of			1	
4		-		Species Across /	All Strata:	-		(B)
Sapling/Shrub Stratum (Plot size:		_ = Total Co	over	Percent of Domin			0.00%	(A/B)
1		-		Prevalence Inde	x worksher	 et:		
2		- 📙		Total % Cov	er of:	Mult	iply by:	
3		-		OBL species	10	x 1 =	10	
4		-	-	FACW species	0	x 2 =	0	]
J		 _ = Total Co		FAC species	5	x 3 =	15	].
Herb Stratum (Plot size: 5ft )		_		FACU species	5	x 4 =	20	].
1. Rumex crispus	5		FAC	UPL species	80	x 5 =	400	
2. Bromus inermis	65		UPL	Column Totals	100	(A)	445	(B)
3. Puccinellia nuttalliana	10	- 📙	OBL	Brouglance	Index = B/	۸ –	4.45	
4. Grindelia squarrosa		- 📙	UPL	Hydrophytic Ve				_
5 Chenopodium album	5		FACU	1 - Rapid Te	_		etation	
6. Agropyron cristatum		- 📙	UPL	2 - Dominan	-		Cidion	
7	_			3 - Prevalen				
8	^			4 - Morpholo			ovide sup	portina
9	^				emarks or o			
10				Problematic	Hydrophytic	Vegetatio	n¹ (Expla	in)
Woody Vine Stratum (Plot size:	)	_ = Total Co	over	<sup>1</sup> Indicators of hyd be present, unles				must
1				Lludronb. 4:-				
		_ = Total Co	over	Vegetation Present?	Yes	No.	<u> </u>	
Bare Ground in Herb Stratum  Remarks:		_ <u> </u>	over	_	Yes	No _	<u> </u>	

B-15
US Army Corps of Engineers
Great Plains – Version 2.0

SOIL Sampling Point: BM-1u

Profile Des	cription: (De	escribe to	the depth	needed to docu	ment the i	ndicator	or confir	m the absence	e of indicators.)	
Depth		Matrix			x Feature		. 2			
(inches)	Color (m		<u>%</u> _	Color (moist)	%	Type	_Loc <sup>2</sup>	Texture	Remarks	
0-2		4/2						Clay		
2-8	10YR 4	4/3						Clay -	<u> </u>	
8-16	10YR 5	5/3	95					Clay —	5% sodium concentration	
	-									
				educed Matrix, C			d Sand (		cation: PL=Pore Lining, M=Matrix	<u> </u>
l —		(Applicat	ole to all LR	Rs, unless othe		-			s for Problematic Hydric Soils <sup>3</sup> :	
Histoso					Gleyed Ma				Muck (A9) (LRR I, J)	
	Epipedon (A2)	)			Redox (S5				t Prairie Redox (A16) (LRR F, G, F	1)
	Histic (A3)	41		= ''	d Matrix (S	,			Surface (S7) (LRR G) Plains Depressions (F16)	
	gen Sulfide (A ed Layers (A5				Mucky Mir Gleyed Ma	, ,			RR H outside of MLRA 72 & 73)	
	luck (A9) (LRI				ed Matrix (				ced Vertic (F18)	
	ed Below Dark				Dark Surfa	-		· —	Parent Material (TF2)	
	Dark Surface (		,	Deplete	d Dark Su	ırface (F7)			Shallow Dark Surface (TF12)	
Sandy	Mucky Minera	al (S1)		Redox	Depressio	ns (F8)		Other	(Explain in Remarks)	
	Mucky Peat of				ains Depre				s of hydrophytic vegetation and	
5 cm M	lucky Peat or	Peat (S3)	(LRR F)	(ML	RA 72 & 1	73 of LRR	H)		nd hydrology must be present,	
Dantaistica	1 /:	4						unles	s disturbed or problematic.	
	Layer (if pre									
Туре:				_					il Present? Yes No [	ন
	nches):							_	il Present? Yes No _	
Remarks: N	Not hydric, N	NA conc li	kely at top	of fluctuating s	easonal	groundwa	ater elev	vation.		
HYDROLO										
Wetland Hy	ydrology Indi	icators:								
-	•		<u>-</u>	heck all that app	y)			Second	<u>lary Indicators (minimum of two re</u>	<u>quired)</u>
Surface	e Water (A1)			Salt Crust	(B11)			Su	rface Soil Cracks (B6)	
High W	/ater Table (A	.2)		Aquatic In	vertebrate	s (B13)		Spi	arsely Vegetated Concave Surface	e (B8)
Saturat	tion (A3)			Hydrogen	Sulfide O	dor (C1)		Dra	ainage Patterns (B10)	
Water	Marks (B1)			Dry-Sease		` '			idized Rhizospheres on Living Roo	ots (C3)
_	ent Deposits (	B2)		Oxidized			ng Roots		where tilled)	
_	eposits (B3)			_	not tilled)			=	ayfish Burrows (C8)	
	lat or Crust (B	34)		Presence			.)		turation Visible on Aerial Imagery (	(C9)
	posits (B5)		(5.5)		Surface (				omorphic Position (D2)	
	tion Visible on		agery (B7)	U Other (Ex	plain in Re	emarks)		_	C-Neutral Test (D5)	<b>-</b> \
	Stained Leave	es (B9)					1	Fro	ost-Heave Hummocks (D7) (LRR I	<u>-)</u>
Field Obse		\Z	, NT	Depth (in	ah o a\:					
	iter Present?									
Water Table				Depth (in				0	D 40 W	N
Saturation F	Present? apillary fringe)		No	Depth (in	ches):		_   We	tiand Hydrolog	gy Present? Yes No _	<u> </u>
			auge, monit	oring well, aerial	photos, pr	evious ins	pections)	), if available:		
				_	•		,			
Remarks: N	lo signs of s	urface by	/drology							
I N	io aigi ia ui s	ourract fly	urology.							

### WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Big Muddy	Ci	ty/County:	Roosevel	t	Sampl	ing Date:	8/7/2013
Applicant/Owner: MDT				State: MT	Sampl	_	
	Se	action Tow	nshin Ran				
• , ,				90			o /9/ \· 0
Subregion (LRR): LRR F							
	Lat:	40.10714					1: 110001
Soil Map Unit Name: Lohler silty clay			_	NWI cla			
Are climatic / hydrologic conditions on the site typical f	_						
Are Vegetation, Soil, or Hydrology			Are "N	Normal Circumstan	ces" present?	Yes <u>V</u>	No
Are Vegetation, Soil, or Hydrology	naturally probl	ematic?	(If nee	eded, explain any a	answers in Re	marks.)	
SUMMARY OF FINDINGS – Attach site n	nap showing s	ampling	point lo	cations, trans	ects, impo	ortant fea	ıtures, etc.
Hydrophytic Vegetation Present? Yes	No	la tha	Sampled	Avon			
Hydric Soil Present? Yes <u>✓</u>	No		n a Wetlan		<u> </u>	0	
Wetland Hydrology Present? Yes 🔽	No	WILLIII	i a vvetiali	u: ies		·	
Remarks: DP along margin of wetland boundary	<b>'</b> .						
VEGETATION - Use scientific names of	plants.						
		Dominant		Dominance Tes	t worksheet:		
Tree Stratum (Plot size:)	<u>% Cover</u> 0	Species?	Status	Number of Domi			
1				That Are OBL, F. (excluding FAC-			1 <sub>(A)</sub>
2.				, -		-	(/ //
3.				Total Number of Species Across			1 <sub>(B)</sub>
4		 = Total Cov				•	(D)
Sapling/Shrub Stratum (Plot size:	)	= Total Cov	er	Percent of Domin		100.0	0% <sub>(A/B)</sub>
1	0			That Are OBE, 1	7011, 01 1 7C	·-	(,,,,,,,)
2.	•			Prevalence Inde	ex workshee	t:	
3.	^			Total % Cov	70	Multiply	/ by:
4	^			OBL species			70
5	0			FACW species			0
	0 =	= Total Cov	er	FAC species			30
Herb Stratum (Plot size: 5ft )	70	<b>✓</b>	OBL	FACU species			
Puccinellia nuttalliana     Chenopodium album	70 5		FACU	UPL species			75
		$\overline{}$		Column Totals	100	(A) 1	95 (B)
*.		$\overline{}$	FAC	Prevalence	Index = B/A	=	1.95
4. Bromus inermis 5. Agropyron cristatum			UPL UPL	Hydrophytic Ve			
			FAC	1 - Rapid Te	st for Hydrop	hytic Vegeta	ation
6. Rumex crispus			<u> </u>	2 - Dominan	ce Test is >5	0%	
7				3 - Prevalen	ce Index is ≤	3.0 <sup>1</sup>	
8				4 - Morpholo	gical Adapta	tions¹ (Provi	de supporting
9		<del></del>			emarks or on		
10		——— = Total Cov		Problematic	Hydrophytic '	√egetation <sup>1</sup>	(Explain)
Woody Vine Stratum (Plot size: )		= Total Cov	ег	<sup>1</sup> Indicators of hyd	dric soil and v	etland hydr	ology must
1.	_			be present, unles			
2.	^			Hydrophytic			
0		= Total Cov	er	Vegetation	,		
% Bare Ground in Herb Stratum0				Present?	Yes	No	
Remarks:							

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SOIL Sampling Point: BM-1w

Depth (inches)	N	1atrix			x Features			m the absence	,
	Color (m		Colo	r (moist)	<u> %</u>	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-3	10YR 3	/1 90	С	М	7.5YR	4/4	10	Clay	
3-13	10YR 4	/1 80	С	М	7.5YR	4/4	20	Clay	
		D=Depletion, RM					d Sand G		cation: PL=Pore Lining, M=Matrix.
_		Applicable to al	I LRRs, ι			-			for Problematic Hydric Soils <sup>3</sup> :
Histoso					Bleyed Mat				Muck (A9) (LRR I, J)
	pipedon (A2) listic (A3)				Redox (S5) I Matrix (S6				Prairie Redox (A16) (LRR F, G, H)
	แรแซ (Aอ) en Sulfide (A4	.)		= ''	Mucky Mine	•			Surface (S7) (LRR G) Plains Depressions (F16)
	ed Layers (A5)	•			Gleyed Mat	, ,			RR H outside of MLRA 72 & 73)
	uck (A9) (LRF			_	d Matrix (F				ced Vertic (F18)
		Surface (A11)		=	Dark Surfac	,			arent Material (TF2)
_	ark Surface (A				d Dark Sur				Shallow Dark Surface (TF12)
	Mucky Mineral	l (S1) r Peat (S2) ( <b>LRR</b>	<b>C</b> II)		Depression ains Depres	. ,	16)		(Explain in Remarks) of hydrophytic vegetation and
		Peat (S3) (LRR F			RA 72 & 7				d hydrology must be present,
5 6111 1411	dony i caroni	cat (OO) (EIRICI	,	(1411	10.12 0.11	O OI LIKIK	11,		s disturbed or problematic.
Restrictive	Layer (if pres	sent):							, , , , , , , , , , , , , , , , , , , ,
Туре:		,							
• • • • • • • • • • • • • • • • • • • •								Hydric Soil	Present? Yes 🗹 No
Remarks:									
Wetland Hy	OGY /drology Indic	cators:							
vveuand Hy									
_	icators (minim	um of one require	d; check	all that apply	v)			Seconda	ary Indicators (minimum of two required)
Primary Indi	•	um of one require						-	· · · · · · · · · · · · · · · · · · ·
Primary Indi	•	um of one require		all that apply Salt Crust Aquatic Inv	(B11)	(B13)		Sur	ary Indicators (minimum of two required) face Soil Cracks (B6) irsely Vegetated Concave Surface (B8)
Primary Indi	: Water (A1)	um of one require		Salt Crust	 (B11) /ertebrates	` '		Sur	face Soil Cracks (B6)
Primary Indi Surface High Wa	Water (A1) ater Table (A2	um of one require		Salt Crust Aquatic Inv	(B11) /ertebrates Sulfide Ode	or (C1)		Sur Spa	face Soil Cracks (B6) rrsely Vegetated Concave Surface (B8) inage Patterns (B10)
Primary Indi Surface High Wa Saturati Water M	Water (A1) ater Table (A2 ion (A3)	um of one require		Salt Crust Aquatic Inv Hydrogen	(B11) /ertebrates Sulfide Ode n Water Ta	or (C1) able (C2)	ng Roots	Sur Spa Dra	face Soil Cracks (B6) rrsely Vegetated Concave Surface (B8) inage Patterns (B10)
Primary Indi Surface High Wa Saturati Water M	Water (A1) ater Table (A2 ion (A3) Marks (B1)	um of one require		Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R	(B11) /ertebrates Sulfide Ode n Water Ta	or (C1) able (C2)	ng Roots	Sur Spa Dra Oxid	face Soil Cracks (B6) irsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma	water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B3) at or Crust (B4)	um of one require 2) 32)		Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r	(B11) vertebrates Sulfide Odd n Water Ta thizosphere not tilled) of Reduced	or (C1) able (C2) es on Livi		Sur Spa Dra Oxiv (C3) (w Cra Sat	face Soil Cracks (B6) irsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3 where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma	water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) posits (B3) at or Crust (B4) posits (B5)	um of one require 2) 32)		Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of	(B11) vertebrates Sulfide Ode n Water Ta Rhizosphere not tilled) of Reduced Surface (C	or (C1) able (C2) es on Livi d Iron (C4		Sur Spa Dra Oxio (C3) (w Cra Sati	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati	water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) posits (B3) at or Crust (B4) posits (B5) ion Visible on	um of one require  2)  32)  4)  Aerial Imagery (E		Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r	(B11) vertebrates Sulfide Ode n Water Ta Rhizosphere not tilled) of Reduced Surface (C	or (C1) able (C2) es on Livi d Iron (C4		Sur Spa Dra Oxid  (C3) (v Ca) Sati	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron Dep Inundati Water-S	e Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B3) at or Crust (B4) posits (B5) ion Visible on Stained Leave	um of one require  2)  32)  4)  Aerial Imagery (E		Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of	(B11) vertebrates Sulfide Ode n Water Ta Rhizosphere not tilled) of Reduced Surface (C	or (C1) able (C2) es on Livi d Iron (C4		Sur Spa Dra Oxid  (C3) (v Ca) Sati	irsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati Water-S Field Obser	wwater (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B3) at or Crust (B4) ion Visible on Stained Leave rvations:	um of one require 2) 32) 4) Aerial Imagery (Es (B9)	37)	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of Thin Muck Other (Exp	(B11) vertebrates Sulfide Ode n Water Ta Rhizosphere not tilled) of Reduced Surface (Collain in Ren	or (C1) able (C2) es on Livi d Iron (C4 C7) narks)	)	Sur Spa Dra Oxid  (C3) (v Ca) Sati	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati Water-S Field Obser Surface Wat	wwater (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) posits (B3) at or Crust (B4) posits (B5) ion Visible on Stained Leave rvations: ter Present?	um of one require  2)  32)  4)  Aerial Imagery (Es (B9)  Yes	37)	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of Thin Muck Other (Exp	(B11) vertebrates Sulfide Ode n Water Ta Rhizosphere not tilled) of Reduced Surface (Colain in Ren	or (C1) able (C2) es on Livi d Iron (C4 C7) narks)	_	Sur Spa Dra Oxid  (C3) (v Ca) Sati	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Primary India Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati Water-S Field Obser Surface Water Saturation P	wwater (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) at or Crust (B4) posits (B5) ion Visible on Stained Leave rvations: ter Present? Present?	um of one require 2) 32) 4) Aerial Imagery (Es (B9) Yes Yes	No <b>V</b>	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of Thin Muck Other (Exp	(B11) vertebrates Sulfide Odd n Water Ta thizosphere not tilled) of Reduced Surface (Colain in Ren ches):	or (C1) able (C2) es on Livi d Iron (C4 C7) narks)		Sur Spa Dra Oxio (C3) (w Cra Sati Geo Fros	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Primary Indi Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron De Inundati Water-S Field Obser Surface Wat Water Table Saturation P (includes ca	wwater (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) at or Crust (B4) posits (B5) ion Visible on Stained Leave rvations: ter Present? Present? Present?	um of one require 2) 32) 4) Aerial Imagery (Es (B9) Yes Yes Yes	No <b>V</b> No <b>V</b>	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of Thin Muck Other (Exp	(B11) vertebrates Sulfide Odd n Water Ta chizosphere not tilled) of Reduced Surface (Colain in Ren ches): ches): ches):	or (C1) able (C2) es on Livi d Iron (C4 C7) narks)	)  Wet	Sur Spa Dra Oxio (C3) (v Cra Sati Geo Fros	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Inundati Water-S Field Obser Surface Wat Water Table Saturation P (includes ca	wwater (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B) at or Crust (B4) posits (B5) ion Visible on Stained Leave rvations: ter Present? Present? Present?	um of one require 2) 32) 4) Aerial Imagery (Es (B9) Yes Yes	No <b>V</b> No <b>V</b>	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized R (where r Presence of Thin Muck Other (Exp	(B11) vertebrates Sulfide Odd n Water Ta chizosphere not tilled) of Reduced Surface (Colain in Ren ches): ches): ches):	or (C1) able (C2) es on Livi d Iron (C4 C7) narks)	)  Wet	Sur Spa Dra Oxio (C3) (v Cra Sati Geo Fros	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3 where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)

### WETLAND DETERMINATION DATA FORM – Great Plains Region

						_		
				State: MT	Sampl	ina Poin	t: BM-2w	•
	s	ection Tox	wnship Ran					
				.3			Slone (%):	0
			•					
	_ Lai						ituiii	
		- V 5						
							IJ(	
								·
Hydrology na	aturally prob	lematic?	(If nee	eded, explain any	answers in Re	marks.)		
ttach site map s	showing	sampling	g point lo	ocations, trans	sects, impo	ortant	features	s, etc.
Yes <u> </u>	·	ls th	Sampled	Δτρα				
					, 🗹 N	0		
	·	*******	ii a iiciiaii	<b>u</b> . 10.	'		_	
ells								
names of plan	ts.							
	Absolute	Dominant	Indicator	Dominance Te	st worksheet:			
)		Species?	Status	Number of Dom	inant Species			
						;	2	(4)
	- — <u> </u>			(excluding FAC	<del>-)</del> :			(A)
	- —						2	(D)
				Species Across	All Strata:			(B)
1	0	= Total Co	ver			10	0.00%	
· · · · · · · · · · · · · · · · · · ·	0			That Are OBL, I	-ACW, or FAC			(A/B)
				Prevalence Ind	ex workshee	t:		
	0		-	Total % Co		Mul	Itiply by:	
	0			OBL species		x 1 =	20	]
	0			FACW species	-	x 2 =	0	_
	0	= Total Co	ver			x 3 =	90	_
)							20	_
				1 .			0	_
	· ——			Column Totals	55	(A)	130	(B)
			FACU	Prevalenc	e Index = B/A	=	2.36	
	- — <u> </u>							
						-		
				3 - Prevale	nce Index is ≤	3.0 <sup>1</sup>		
	- —			4 - Morpho	ogical Adapta	tions¹ (P	rovide sup	porting
							,	
	- —			Problematic	: Hydrophytic	√egetati	on¹ (Expla	in)
)		= Total Co	ver	Indicators of hy	dric soil and v	vetland h	nydrology i	must
~	0							
	0			Hydrophytic				
	0	= Total Co	ver	Vegetation	v. 17	í		
<del>4</del> 5				Present?	Yes	No	<u>'</u>	
	rie site typical for this Hydrology si Hydrology no Hydrology no  ttach site map so Yes No Yes No Yes No ells	Lat:	Lat:48.16654  the site typical for this time of year? Yes	Lat:	Lat:	Lat: 48.166546666667 Long: -104.61886166666    NWi classification:	Lat: 48.166546666667   Long: -104.618861666667   Daw	Lat:

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SOIL Sampling Point: BM-2w

			til liceaca to accai	ment the me	icator or co	nfirm the absence	of indicators.)
Depth	Ma	trix	Redo	x Features			
(inches)	Color (moi		Color (moist)		Type <sup>1</sup> Lo		Remarks
0-8	5Y 4/2	100				Clay	
8-14	5Y 4/2	95	C M	10YR	4/6	5 Clay	
-							
	_						
<sup>1</sup> Tyne: C=C	Concentration D	=Depletion RM	=Reduced Matrix, C	S=Covered o	r Coated Sa	nd Grains <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix.
			LRRs, unless othe				for Problematic Hydric Soils <sup>3</sup> :
Histoso	· ·			Gleyed Matri	-		Muck (A9) (LRR I, J)
	Epipedon (A2)			Redox (S5)	. (5.)		Prairie Redox (A16) (LRR F, G, H)
Black H	Histic (A3)			d Matrix (S6)			Surface (S7) (LRR G)
U Hydrog	gen Sulfide (A4)		Loamy	Mucky Miner	al (F1)	🔲 High F	Plains Depressions (F16)
	ed Layers (A5) ( <b>I</b>			Gleyed Matri			RR H outside of MLRA 72 & 73)
_	luck (A9) (LRR F			ed Matrix (F3)			ced Vertic (F18)
	ed Below Dark S		_	Dark Surface	. ,		arent Material (TF2)
	Dark Surface (A1 Mucky Mineral (			d Dark Surfa Depressions		·	Shallow Dark Surface (TF12) (Explain in Remarks)
	Mucky Peat or F			ains Depress			of hydrophytic vegetation and
	lucky Peat or Pe			RA 72 & 73			d hydrology must be present,
	•	, , ,			,		disturbed or problematic.
Restrictive	Layer (if prese	nt):					
Туре:							_
Depth (ir	nches):					Hydric Soil	Present? Yes 🔽 No
Remarks: F	Redox faint, hy	dric developm	ent from periodic	saturation.		1	
		•	·				
HYDROLO	OGY						
		tors:					
Wetland Hy	ydrology Indica		d chack all that ann	LV)		Second	any Indicators (minimum of two required)
Wetland Hy	ydrology Indica licators (minimur	n of one require	d; check all that app				ary Indicators (minimum of two required)
Wetland Hy Primary Ind	ydrology Indica licators (minimur e Water (A1)	n of one require	Salt Crust	(B11)	B13)	✓_ Sur	face Soil Cracks (B6)
Wetland Hy Primary Ind Surface High W	ydrology Indica licators (minimur e Water (A1) /ater Table (A2)	n of one require	Salt Crust Aquatic In	(B11) vertebrates (	•	✓ Sur	face Soil Cracks (B6) irsely Vegetated Concave Surface (B8)
Wetland Hy Primary Ind Surface High W Saturat	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3)	n of one require	Salt Crust Aquatic In Hydrogen	(B11) vertebrates ( Sulfide Odor	· (C1)	✓ Sur Spa Dra	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10)
Wetland Hy Primary Ind Surface High W Saturat Water I	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1)	n of one require	Salt Crust Aquatic In Hydrogen Dry-Seaso	(B11) vertebrates ( Sulfide Odor on Water Tab	(C1) le (C2)	Sur Spa Dra Oxi	face Soil Cracks (B6) irsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2	n of one require	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized I	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres	(C1) le (C2)	Sur Spa Dra Oxi oots (C3)	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3)	m of one require	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized I	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled)	(C1) le (C2) on Living R	✓ Sur	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2	m of one require	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized I (where	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I	r (C1) ble (C2) on Living R ron (C4)	✓ Sur	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) flat or Crust (B4)	m of one require	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized I (where Presence Thin Muck	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled)	r (C1) sile (C2) son Living R ron (C4)	✓ Sur	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) Mat or Crust (B4) eposits (B5)	n of one require ) erial Imagery (B	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized I (where Presence Thin Muck	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I	r (C1) sile (C2) son Living R ron (C4)	✓ Sur	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves	n of one require ) erial Imagery (B (B9)	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized I (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema	r (C1) sle (C2) s on Living R ron (C4) ron (A)	✓ Sur	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De Inundat Water-S	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves	n of one require ) erial Imagery (B (B9)	Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized I (where Presence Thin Muck	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema	r (C1) sle (C2) s on Living R ron (C4) ron (A)	✓ Sur	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De Inundat Water-S	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) Mat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves ervations:	n of one require ) erial Imagery (B (B9) Yes	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized I (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I a Surface (C7 plain in Rema	r (C1) son Living R ron (C4) ) arks)	✓ Sur	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De Inundat Water-S Field Obse Surface Wa	ydrology Indica licators (minimure water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves ervations: ater Present?	n of one require ) erial Imagery (B (B9) Yes Yes	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema	r (C1) son Living R ron (C4) r) arks)	Sur Spa Dra Oxi oots (C3) Cra Sat Gec Fro	face Soil Cracks (B6) irrsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De Inundat Water-S Field Obse Surface Wa Water Table Saturation F (includes ca	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) fat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves ervations: ater Present? e Present? Present? apillary fringe)	n of one require  erial Imagery (B (B9)  Yes Yes Yes	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema ches): ches): ches):	r (C1) son Living R ron (C4) ron (C4) arks)	✓ Sur  Spa  Dra  Oxi  oots (C3) (v  Cra  Sat  Gec  ✓ FAC  Fro	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Wetland Hy Primary Ind Surface High W Saturat Water I Sedime Drift De Algal M Iron De Inundat Water-S Field Obse Surface Wa Water Table Saturation F (includes ca	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) fat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves ervations: ater Present? e Present? Present? apillary fringe)	n of one require  erial Imagery (B (B9)  Yes Yes Yes	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema ches): ches): ches):	r (C1) son Living R ron (C4) ron (C4) arks)	✓ Sur  Spa  Dra  Oxi  oots (C3) (v  Cra  Sat  Gec  ✓ FAC  Fro	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Primary Ind Surface High W Saturat Vater I Sedime Drift De Algal M Iron De Inundal Water-S Field Obse Surface Wa Water Table Saturation F (includes ca	ydrology Indica licators (minimur e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2 eposits (B3) fat or Crust (B4) eposits (B5) tion Visible on A Stained Leaves ervations: ater Present? e Present? Present? apillary fringe)	n of one require  erial Imagery (B (B9)  Yes Yes Yes	Salt Crust Aquatic In Hydrogen Dry-Seasc Oxidized F (where Presence Thin Muck 7) Other (Exp	(B11) vertebrates ( Sulfide Odor on Water Tab Rhizospheres not tilled) of Reduced I c Surface (C7 plain in Rema ches): ches): ches):	r (C1) son Living R ron (C4) ron (C4) arks)	✓ Sur  Spa  Dra  Oxi  oots (C3) (v  Cra  Sat  Gec  ✓ FAC  Fro	face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) inage Patterns (B10) dized Rhizospheres on Living Roots (C3) where tilled) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)

### WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Big Muddy		City/County	v: Roosevel	t	Sam	pling Date:	8/7	7/2013
Applicant/Owner: MDT				State: MT		-		,
• •		Section, To	ownship, Ran	ge: 21		55E		
				onvex, none): cor		Sk	ape (%):	0
Subregion (LRR): LRR F								
Soil Map Unit Name: Lohler silty clay				NWI c			4111.	
Are climatic / hydrologic conditions on the site typical for t								
Are Vegetation, Soil, or Hydrology							<b>⊿</b>	
							<u> </u>	)
Are Vegetation, Soil, or Hydrology								
SUMMARY OF FINDINGS – Attach site map	p showing	samplir	ng point lo	cations, trans	sects, imp	ortant fo	eatures	s, etc.
Hydrophytic Vegetation Present? Yes <u>✓</u>	No	lo ti	ne Sampled	Avon				
Hydric Soil Present? Yes <u>▼</u>			nin a Wetlan		<u>.                                    </u>	No		
Wetland Hydrology Present? Yes 🗹	No	WILL	iii a vvetiaii	ur le:	·	NO	_	
VEGETATION – Use scientific names of pla	ants.							
Troo Stratum (Blot gize:	Absolute		nt Indicator	Dominance Tes	st workshee	t:		
Tree Stratum (Plot size:)  1	0		? Status	Number of Dom That Are OBL, F				
2.				(excluding FAC-			1	(A)
3				Total Number of	Dominant			
4.	0			Species Across			1	(B)
Sapling/Shrub Stratum (Plot size:)	C	= Total C	over	Percent of Dom That Are OBL, F			.00%	(A/B)
1				Prevalence Ind		n4.		
2		=-		Total % Co			ply by:	
3		=-		OBL species		x 1 =		_
4	0	_		FACW species		x 2 =		†
5				FAC species		x 3 =	60	Ī
Herb Stratum (Plot size: 5ft)		_ = Total C	over	FACU species		x 4 =	60	Ť
1. Puccinellia nuttalliana	50	<b>✓</b>	OBL	UPL species	0	x 5 =	0	
2. Chenopodium album	15		FACU	Column Totals	85	(A)	170	(B)
3. Iva axillaris	20		FAC				2	
4	0				e Index = B/			<u> </u>
5	0			Hydrophytic Ve	e <b>getation in</b> est for Hydro		otation	
6	0				nce Test is >		station	
7					nce Index is:			
8	0				ogical Adapt		ovide sup	portina
9	0	- —			Remarks or o			
10	<u> </u>			Problemation	Hydrophytic	c Vegetatio	n¹ (Explai	in)
Woody Vine Stratum (Plot size:)	0	_ = Total C	over	Indicators of hy				must
1	$$ $-\frac{0}{0}$	-		Linux				
2		 _ = Total C	over	Hydrophytic Vegetation Present?	Yes	☑ No_		
Remarks:				I				

B-21
US Army Corps of Engineers
Great Plains – Version 2.0

SOIL Sampling Point: BM-3w

Profile Des	cription:	(Describe	to the dep	th need	ded to docur	nent the i	ndicator	or confirm	n the absence	of indicators.)
Depth		Matrix			Redo	x Features	1			
(inches)	Colo	r (moist)	%		or (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup> _	Texture	Remarks
0-5	5Y	4/2	95	D	М	10YR	2/1	5	Clay	
5-12	5Y	5/1	95	С	M	7.5YR	4/4	5	Clay	
	-									<del></del>
<sup>1</sup> Type: C=C	oncentrat	tion D=Depl	etion RM		ed Matrix, CS	S=Covered	or Coate	d Sand G	rains <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
					unless other			u oumu o		for Problematic Hydric Soils <sup>3</sup> :
Histoso						Gleyed Ma	-		☐ 1 cm N	Muck (A9) ( <b>LRR I, J</b> )
_	pipedon (	(A2)				Redox (S5)				Prairie Redox (A16) (LRR F, G, H)
Black H	listic (A3)				Stripped	d Matrix (S	6)		Dark S	Surface (S7) (LRR G)
	en Sulfide				_	Mucky Min				Plains Depressions (F16)
		(A5) (LRR F				Gleyed Ma			_	RR H outside of MLRA 72 & 73)
_	. , ,	LRR F, G, H	*			d Matrix (F Dark Surfa	•			ted Vertic (F18)
	ark Surfa	Dark Surface ce (A12)	e (ATT)		=	d Dark Suna	,			arent Material (TF2) Shallow Dark Surface (TF12)
=		neral (S1)				Depression				(Explain in Remarks)
		at or Peat (	S2) ( <b>LRR (</b>	3, H)		ains Depre	. ,	16)		of hydrophytic vegetation and
5 cm M	ucky Peat	t or Peat (S3	3) (LRR F)		(ML	RA 72 & 7	3 of LRR	H)	wetlan	d hydrology must be present,
									unless	disturbed or problematic.
Restrictive	Layer (if	present):								
Туре:										. <del>.</del> 7
	nches):								Hydric Soil	Present? Yes No
Remarks:										
HYDROLC	GY									
Wetland Hy	drology l	Indicators:								
Primary Indi	icators (m	inimum of o	ne required	d; check	all that appl	y)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A	.1)			] Salt Crust	(B11)			<b>✓</b> _ Surf	face Soil Cracks (B6)
High W	ater Table	e (A2)			Aquatic In	vertebrates	s (B13)		☐ Spa	rsely Vegetated Concave Surface (B8)
Saturat	ion (A3)				] Hydrogen	Sulfide Od	or (C1)		Drai	inage Patterns (B10)
Water N	Marks (B1)	)			Dry-Seaso	n Water T	able (C2)		Oxid	dized Rhizospheres on Living Roots (C3)
Sedime	nt Deposi	its (B2)			Oxidized F	Rhizospher	es on Liv	ing Roots	(C3) (w	/here tilled)
Drift De	posits (B3	3)			(where r	not tilled)			Cray	yfish Burrows (C8)
Algal M	at or Crus	st (B4)			Presence			·)		uration Visible on Aerial Imagery (C9)
_	posits (B5			L	⊥ Thin Muck					omorphic Position (D2)
_		e on Aerial II	magery (B	7)	Other (Exp	olain in Rei	marks)		=	C-Neutral Test (D5)
		eaves (B9)						1	<u> </u>	st-Heave Hummocks (D7) (LRR F)
Field Obser					7	-1>				
Surface Wa					Depth (in					
Water Table					Depth (in					- · · · · · · · · · · · · · · · · · · ·
Saturation F (includes ca			es	No <b>_</b>	Depth (in	ches):		_   Wet	land Hydrolog	y Present? Yes 🔽 No
			gauge, mo	nitoring	well, aerial į	ohotos, pre	evious ins	pections),	if available:	
			- '					,		
Remarks: M	/etland h	vdrology fr	om seaso	onal su	ıbsurface sa	aturation				

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Big Mudo	dy	2. MDT project#				1-10(626)		Con	4058-001	
3. Evaluation Date	8/7/201	3 4. Evaluators	B San	defur	5.	Wetl	and/Site# (s)	North Ce	II - Create	ed	
6. Wetland Location(s	s): T	28N <b>R</b>	55E	Sec1	21	Т	R		Sec2		
Approx Stationing or	Milepost	s ~639.75 on Hw	/ 2								
Watershed 10060	0006	v	atersh	ed/Coun	ty Lower	Misso	ouri River Wate	rshed/Roo	sevelt C	o., MT	
7. Evaluating Agency	C	onfluence for MDT					8. Wetland	size acres			7.52
Purpose of Evaluation	on						How assesse	ed:	Measure	ed e.g.	by GPS
☐ Wetlands potent	ially affec	ted by MDT project					9. Assesssn				7.52
☐ Mitigation Wetla	nds: pre-	construction					(AA) size (ac		Measure	dea l	hy GPS
✓ Mitigation Wetla	nds: post	construction					11011 433633	ou.	Measure	u o.g. i	<i>y</i> 01 0
Other											
10. Classification of	Wetland	and Aquatic Habita	ts in A	4							
HGM Class (Brinson	)	Class (Cowardin)		Modifie	er (Coward	lin)	Water Re	gime		% of A	<b>A</b>
Depressional	L	Inconsolidated Botton	n	Excava	ted		Seasonal/Int	ermittent			40
Depressional	E	Emergent Wetland		Excava	ted		Seasonal/Int	ermittent			50
Riverine	E	Emergent Wetland					Permanent/F	Perennial			10
11. Estimated Relativ	e Abunda	ance Abundar	+								
12. General Condition	on of AA matrix belo	ow to determine [circle]		ate respon	se – see ins	truction	ns for Montana-li	sted noxiou	s weed an	d	
			Mana	iged in predo			conditions adjacent			tivated or	heavily grazed
Con	ditions within	AA	natur hayed conve roads	al state; is no d, logged, or erted; does n s or buildings	ot grazed, otherwise	mode select subject few r	erately grazed or ha ctively logged; or ha ect to minor clearing oads or buildings; r d or ANVS cover is	yed or is been i; contains noxious	or logged placeme hydrolog building	d; subject nt, gradin ical altera	to substantial fill g, clearing, or ation; high road or or noxious weed
AA occurs and is managed in grazed, hayed, logged, or oth roads or occupied buildings; <=15%.	erwise conve	erted; does not contain	lo	ow distur	bance		low disturba	nce	mode	erate d	listurbance
AA not cultivated, but may be selectively logged; or has be placement, or hydrological all noxious weed or ANVS cover	en subject to teration; cont	relatively minor clearing, fill		modera disturba		mo	oderate distu	rbance	hiç	gh dist	urbance
AA cultivated or heavily graze substantial fill placement, grahigh road or building density >=30%.	ding, clearing	g, or hydrological alteration;	hi	gh distur	bance	_	high disturba	ince	hiç	gh dist	urbance
Comments: (types of Constructed wetland ce agriculture, i.e. grazing.  ii. Prominent noxious  Cirsium arvense	ells continu . Hwy 2 b , <b>aquatic</b>	ue to exhibit vegetation isects the mitigation nuisance, other exc	on deve site. Bi	elopment. ig Muddy ecies:	Creek bord	lers bo				acent la	and used for
iii. Provide brief described The AA includes the co	-	•					open water. lov	v productiv	ity in ope	en wate	er. Area
between constructed w									-, opt	····	~

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Modified Is current management preventing (passive) existence of additional vegetated classes? R ating Existing # of "Cowardin" Vegetated Classes in AA Rating >= 3 (or 2 if 1 is forested) classes NA NA Н 2 (or 1 if forested) classes NA NΑ NA М

1 dass, but not a monoculture Μ <NO YES> L NA 1 class, monoculture (1 species comprises>=90% of total cover) NΑ L

Comments:

documented use

Vegetation is predominantly emergent. No woody overstory associated with creek although abundant cottonwood seedlings were observed in 2013. Aquatic bed class has yet to develop, likely inhibited by murky conditions of open water.

#### SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

i.	AA is Documented (F	0) or Suspected (S) to conta	in (check one based or	n definitions contained in	instructions).

Primary or critical habita	t (list species)	( D (	) <b>S</b>				
Secondary habitat (list S	pecies)	( D (	) <b>S</b>				
Incidental habitat (list sp	ecies)	□ D	) <b>S</b>				
No usable habitat		<b>√</b> S					
ii. Rating (use the cond	usions from i a	bove and the m	atrix below to	arrive at [check] the fun	ctional points and	rating)	
Highest Habitat Level	doc/primary	sus/primary	doc/seconda	ary sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	9H	8H	7M	3L	.1L	0L
Sources for documented use	SFWS databas	e for Roosevelt	County				
Primary or critical habita	` ' '			ron (C2)			
Secondary habitat (list S	• •	$\bigcirc D \ ($		ron (S3)			
No usable habitat	,		S	Sage-Grouse (S2)	ation of maintain and		
ii. Rating (use the cond							I
Highest Habitat Level	doc/primary	sus/primary	doc/seconda	ry sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	6M	2L	1L	_OL_
<b>S2 and S3 Species:</b> Functional Points and Rating	9H	.7M	.6M	.5M	.2L	.1L	OL
Sources for Susp	pected species	identified by MT	NHP for Roos	evelty County			

				_															Mod	erate	)
<i>ıbstantial</i> (bas												,	ased or	•		٠.	-				
observations	of abun	dant wil	dlife #s	or higl	h specie	es diver	sity (dur	ing an	y period	)			o wildlife		vations	during	peak u	ise perio	ods		
abundant wi	•												o wildlif	•							
presence of	extremel	y limitin	g habita	at featu	ures not	availal	ole in the	surro	unding a	area	sp	oarse a	adjacent	upland	food so	ources					
interviews w	ith local b	oiologist	ts with k	inowle	dge of t	he AA					in	terviev	vs with I	ocal bio	ologists	with kr	nowledg	ge of the	e AA		
derate (based	on any o	of the fo	llowing	[check	(]):																
observations				-		uals or	relativel	y few s	species	during	peak pe	eriods									
common oc			•	•				•													
adequate ad			-		,	,			, 5	,											
interviews w					dge of t	he AA															
Wildlife ha om #13. For her in terms	class of their	cover to	o be co	onside positi	ered ev on of t	enly d	istribute (see #	ed, th	e most Abbrev	and I	east pr s for su	evale ırface	nt <b>veg</b> water	<b>etateo</b> duratio	d class ons are	es mu e as fo	ust be	within : P/P =	20% o	f each	
ermanent/pe erms])	rennial;	S/I = s	season	al/inte	ermitte	nt; T/E	= tem	porar	y/ephe	meral	and A	\ = ab	sent [s	ee ins	tructio	ns for	furthe	r defin	itions (	of thes	se
Structural																					l
diversity (see ‡13)				Hi	gh							Mode	erate					Lo	w		
Class cover distribution (all regetated		Eve	en			Une	ven			Eve	en			Une	/en			Eve	en		
classes)																			1		
Ouration of urface water in ≥ 0% of AA	P/P							Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	А	
AA (see #12i)	E	Е	E	н	Е	Е	Н	н	Е	Н	н	м	Е	Н	М	м	Е	Н	М	м	
loderate			Ĺ																		
isturbance at AA see #12i)	. н	Н	Н	Н	Н	Н	I	M	Н	Н	M	M	Н	M	M	L	Н	M	L	L	
gh disturbance AA (see #12i)	М	М	М		М	М	L	L	М	М	L	7	М	L	L	L	L	L	L	L	
i. Rating				ns fro	om i a	nd ii a	above a	and t	he ma				ve at				ional	points	and	rating	)
	vvii aiii e	, 400 (	."	F	Except	tional				High		riabi		atui oo		derat	е				Lo
	-				1E					.91						8H					.7
Substantial					.91					.71	И					5M					.3
Substantial Moderate																	_				
					.6N	1				.41	M					.2L					1
/loderate					.6N		luring :		,	.41	М					.2L					.1

i. Habitat Quality and	Known	/Suspec	ted Fish	Specie	s in A	A (use m	natrix to	ints and	rating)					_					
Duration of surface water in AA		Pe	rmanent / I	Perennial				Se	asonal / I	Intermitten	t		Temporary / Ephemeral						
Aquatic hiding / resting / escape cover	Op	timal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	quate	Po	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	1E	.9Н	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L	
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L	
FWP Tier III or Introduced Game fish	.8H	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L	
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L	

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

<ul> <li>ii. Modified Rating (NOTE: Modified score can         a) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of 7         fishery or aquatic life support, or do aquatic nuisar         yes, reduce score in i above by 0.1: Modified F</li> </ul>	culvert, dik MDL deve	e, or other ma elopment with	an-made sti listed "Prol	bable Impa	aired Úse	es" including	g cold or w	arm water	ne If	
b) Does the AA contain a documented spawning a comments) for native fish or introduced game fish?		er critical habi	If yes, ac		he adjuste	ol, upwelling ed score in				
iii. Final Score and Rating: 0 NA	Comment	ts: Closed	wetland o	ells with	n no dir	ect surfa	ce wate	inlet or o	outlet.	
	and procee	ed to 14F.)					s in AA ar	e not floode	d from in-	
i. Rating (working from top to bottom, use the m Estimated or Calculated Entrenchment (Rosgen		entrenched -				nd rating) nched – B	Entrencl	ned-A, F, G	stream	
1994, 1996) % of flooded wetland classified as forested		stream types			tream typ	oe		types		
and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	6 <25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2		Moderately E ER = 1.4					ntrenched = 1.0 - 1.4			7
C stream type D stream type E stream ty	/pe	B stream		As	tream type		stream type		stream type	
		7				Ę				
2 x Bankfull Dep	th	Bankfull De	epth		Ba	Flood-proi nkfull Widt				
Floodprone width	/ Bankf width				=	Entrend ratio	chment			
ii. Are ≥10 acres of wetland in the AA subject to fl within 0.5 mile downstream of the AA (check)?	ooding AN	ID are man-m	nade feature	s which n	nay be siç	gnificantly d	amaged b	y floods loc	ated	
Comments:  AA is adjacent to unnamed to	_	_	dy Craal	, and ac	ntoino	no outlot	Hanan	and tribut	on in out	oido
mitigation area. Floodprone	and bar	nkfull width	is not me	asured.	visual	estimatio	n of B s	tream tvp	e.	side
14F. Short and Long Term Surface Water upland surface flow, or groundwater flow. If 14G.)										
<ul> <li>Rating (Working from top to bottom, use water durations are as follows: P/P = perma further definitions of these terms].)</li> </ul>										
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet			1.1 to	5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P		S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9Н	.8H	.81	1	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.71	И	.5M	.4M	.3L	.2L	.1L

Comments:

Constructed cells were either inundated at time of site visit or showed sufficient signs of inundation during early growing season. Cells with greater than 5 ac ft of storage potential.

<ul><li>to 14H.)</li><li>i. Rating (working from top to botte</li></ul>	om, use the n	natrix below t	o arrive a	t [check	the fu	nctional	points	and rat	ing [H	= high, I	M = m	oderate,	or L
= low]) Sediment, nutrient, and toxicant input levels within AA	to deliver compounds a not substan sources o	or surrounding levels of sedir at levels such t tially impaired. f nutrients or to eutrophication	ments, nutri hat other fu Minor sedii oxicants, or present.	ents, or nctions a mentation signs of	re , c	develonutrients; with pote	opment f , or toxicantial to d ls such the imentati	or "prob ants <b>or</b> leliver h hat othe on, sour of eutro	able cau AA recei igh level r functio ces of n	ses" rela ves or su s of sedions are su	ted to surround ments, obstanti or toxica t.	d of TMDL ediment, ing land u nutrients, ally impai ants, or sign	ise or red.
% cover of wetland vegetation in AA Evidence of flooding / ponding in AA	≥ 70% Yes	No Y	< 709	% No		Yes	≥ 70%	No		Yes	< 70	No	
AA contains no or restricted outlet	1H -	8H .7	M	.5M		.5M		.41	1	.3L		.2L	
AA contains unrestricted outlet	.9H .	7M .6	м	.4M		.4M		.31	-	.2L		.1L	
Comments: Vegetation cover alo	ng shoreline a	around const	ructed cel	ls has d	evelop	ed to gre	eater th	an 70%	, o.				
14H Sediment/Shoreline Stabilization drainage, or on the shoreline of a standiproceed to 14I.)  i. Rating (working from top to bottom, % Cover of wetland streambank or	ng water body v	which is subject	et to wave a	ction. If	14H doo onal po	es not ap	ply, click ating)		ural or m NA her		e		
shoreline by species with stability ratings of ≥6 (see Appendix F).	Permanent / F			sonal / Inte		ooled vege		nporary /	Ephemer	al			
≥ 65%	1H	_		.9H				.7	м				
35-64%	.7M			.6M				.5	М				
< 35%	.3L			.2L				.1	L				
i. Level of Biological Activity (synth General Fish Habitat Rating (14D.iii.)		Habitat Rating		heck])									
E/H H		Н	N		_								
M H		M M	L	_									
N/A H		M	L										
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows [see instructions for further definitions of	= level of biolog ertain to duration	ical activity rat	ing from al	ove (14I	i.); Fac	tor C = w	hether o	r not the	AA cor	ntains a s	surface	or	
A Vegetated component >5 at B High Moderate	Low	High	egetated compo Mode	rate	Lov		High	1	Mode		L	ow	
C         Yes         No         Yes         No           P/P         1E         .7H         .8H         .5M	Yes No	Yes No	Yes .7H	No .4M	Yes .5M	.3L	Yes .8H	.6M	Yes .6M	No .4M	Yes .3L	No .2L	
s/i .9H .6M .7H .4M	.5M .3L	.8H .5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L	
T/E/A .8H .5M .6M .3L	.4M .2L	.7H .4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L	
ii. <b>Modified Rating (NOTE:</b> Modified s lant cover, ≤ 15% noxious weed or ANVS ontrol).													

i. Discharge Indi									
	cators				ii.	Recharge I	Indicators	;	
The AA is a slope wet			_	Perm		_		ying impeding	layer
Springs or seeps are k			_		and contains				
Vegetation growing du Wetland occurs at the	•		ought _	Strea Othe		'losing' strea	ım; discharg	e volume decr	eases
Seeps are present at t			-	Othe	1.				
AA permanently floode	-		S						
Wetland contains an o	•								
Shallow water table ar	nd the site is satu	urated to	the surface						
Other:									
. Rating (use the information	ation from i and	ii above							
			Duration of satu		Wetlands FRO RECHARGING				TH WATER
iteria			P/P		S/I		Т	No	ne
roundwater Discharge or Re	charge		1H		.7M		.4M		IL
ufficient Data/Information									
						NA			
mments:									
illicitis.									
K Heimmanaa									
K. Uniqueness: Rating (working from top	p to bottom, use	the ma	trix below to arr	ive at [check	k] the function	nal points and	d rating)		
				AA does	not contain p	oreviously			
eplacement potential	AA contains fe or mature (>				re types and (#13) is high (			s not contain pre types or ass	•
opiacoment potential	wetland <b>or</b> pla	-			ociation listed			ctural diversit	
stimated relative	as "S1" l	by the Modern	MTNHP abundant	rare	the MTNHP common	abundant	rare	low-moderate common	abundant
oundance (#11)	iale (	n	abundant	Tale	Common	abundant	iaie	Common	abundant
ow disturbance at AA	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
#12i)  Moderate disturbance at	.9H	.8H	.7M	_					
A (#12i)	.911	.0П	.7101	.7M	.5M	.4M	.4M	.3L	.2L
igh disturbance at AA :12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L
mments:									
L. Recreation/Education	n Potential: (aff	fords "bo	onus" points if A	A provides	recreation or	education or	portunity)		
s the AA a known or po	tential rec./ed.	site: (c	heck) Y 💿	A provides				if 'No' then cli	ick 🗌 NA
	tential rec./ed.	site: (c	heck) Y 💿					if 'No' then cli	ick 🗌 NA
Is the AA a known or po	tential rec./ed. the overall sum	site: (cl nmary a	heck) Y   nd rating page)	NO	(if 'Yes' cont	tinue with the	evaluation;		
Is the AA a known or po here and proceed to	tential rec./ed. the overall sum	site: (cl nmary a	heck) Y   nd rating page)	NO	(if 'Yes' cont	tinue with the	evaluation;		
Is the AA a known or po here and proceed to ii. Check categorie	otential rec./ed.  the overall sum  that apply to	site: (cl nmary a	heck) Y  nd rating page)  Education	N al/scientific	(if 'Yes' cont study; V C	tinue with the	evaluation;		
Is the AA a known or po here and proceed to ii. Check categorie Other	otential rec./ed.  the overall sum  that apply to  below to arrive a	site: (cl nmary and the AA: at [check	heck) Y  nd rating page)  Education	N al/scientific	(if 'Yes' cont study; V C	tinue with the	evaluation;	n-consumptiv	e rec.;
ii. Check categorie Other  i. Rating (use the matrix to nown or Potential Recreation of	tential rec./ed. the overall sum that apply to below to arrive a or Education Area	site: (cl nmary and the AA: at [check	heck) Y  nd rating page)  Education  the functional	nal/scientific	(if 'Yes' cont study; <b>_✓</b> C rating)	tinue with the	evaluation;	n-consumptiv	e rec.;
Is the AA a known or po here and proceed to ii. Check categorie Other ii. Rating (use the matrix be nown or Potential Recreation of ublic ownership or public ea	tential rec./ed. The overall sum The that apply to The below to arrive a The second sum of the control of the c	site: (cl nmary and the AA: at [check eral publ	heck) Y  nd rating page)  Education  help the functional lic access (no per	nal/scientific	(if 'Yes' cont study; <b>_✓</b> C rating)	tinue with the	evaluation;	n-consumptiv	e rec.;
Is the AA a known or po here and proceed to ii. Check categorie Other	tential rec./ed. The overall sum The that apply to The below to arrive a The second sum of the control of the c	site: (cl nmary and the AA: at [check eral publ	heck) Y  nd rating page)  Education  help the functional lic access (no per	nal/scientific	(if 'Yes' cont study; <b>_✓</b> C rating)	tinue with the	evaluation;	n-consumptiv	e rec.;
Is the AA a known or po here and proceed to ii. Check categorie Other  Rating (use the matrix become or Potential Recreation of tiblic ownership or public earlivate ownership with general	the overall sum of the overall sum of the overall sum of the overall sum of Education Area assement with general al public access (	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.;
is the AA a known or po here and proceed to ii. Check categorie Other  Rating (use the matrix become or Potential Recreation of biblic ownership or public earlivate ownership with general	the overall sum of the overall sum of the overall sum of the overall sum of Education Area assement with general al public access (	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.;
Is the AA a known or pohere and proceed to ii. Check categorie Other  Rating (use the matrix belown or Potential Recreation of biblic ownership or public earlivate ownership with generalivate or public ownership with generalization of the public ownership wi	the overall sum of the overall sum of the overall sum of the overall sum of Education Area assement with general al public access (	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
Is the AA a known or pohere and proceed to  ii. Check categorie Other  i. Rating (use the matrix because of the country of the pown or Potential Recreation of the country	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
Is the AA a known or pohere and proceed to  ii. Check categorie Other  i. Rating (use the matrix to	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
Is the AA a known or pohere and proceed to ii. Check categorie Other  Rating (use the matrix because of the country of the pown or Potential Recreation of the country of t	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
is the AA a known or po here and proceed to ii. Check categorie Other  Rating (use the matrix becown or Potential Recreation of bilic ownership or public earlivate ownership with generalivate or public ownership with generalization of the public owners	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
s the AA a known or pohere and proceed to ii. Check categorie Other  Rating (use the matrix town or Potential Recreation of blic ownership or public earwate ownership with general vate or public ownership with general vate of the public ownership with general vate of the public ownership with general vate of the public ownership with	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H
s the AA a known or pohere and proceed to ii. Check categorie Other  Rating (use the matrix town or Potential Recreation of blic ownership or public earwate ownership with general vate or public ownership with general vate of the public ownership with general vate of the public ownership with general vate of the public ownership with	tential rec./ed. the overall sum that apply to below to arrive a or Education Area asement with general public access ( without general pu	site: (cl nmary al the AA: at [check eral publ	heck) Y  nd rating page)  Education  k] the functional  caccess (no per  dission required)	N al/scientific	(if 'Yes' cont study; ✓ C rating)	inue with the	evaluation;	n-consumptive	e rec.; ential .15H

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.5	1	3.76	
C. General Wildlife Habitat	Н	.9	1	6.768	✓
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.5	1	3.76	
F. Short and Long Term Surface Water Storage	Н	1	1	7.52	<b>✓</b>
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	7.52	
H. Sediment/Shoreline Stabilization	Н	1	1	7.52	<b>V</b>
Production Export/Food Chain Support	М	.7	1	5.264	
J. Groundwater Discharge/Recharge	Н	1	1	7.52	<b>✓</b>
K. Uniqueness	L	.3	1	2.256	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	1.504	
Totals:		7.1	10	53.392	
Percent of Possible Score			71 %		

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

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

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

. Project name			0 1107	.!4"	NILL 4 40/04	OC)		A		40E0 004
	Big Muddy		2. MDT pro	oject#	NH 1-10(62	<b>20)</b>		Cont	trOI#	4058-001
. Evaluation Date	8/7/2013	4. Evaluators	B Sandefur	5.	Wetland/Site	e# (s)	North Ce	II - Prese	rvation	
Wetland Location(s	s): T	28N R 5	5E <b>Sec1</b> 2	1	Т	R		Sec2		
pprox Stationing or	Mileposts	~639.75 on Hwy	2							
atershed 10600	006	Wa	atershed/County	Big Mud	ddy Creek, L	ower Mis	souri, S	neridan C	ю.	
Evaluating Agency	Conf	luence for MDT			8. We	tland si	ze acres			0.73
Purpose of Evaluation	on				How a	ssesse	l:	Measure	ed e.g.	by GPS
☐ Wetlands potent	ially affected	l by MDT project				sesssme				0.73
Mitigation Wetla	nds: pre-con	struction			` '	ize (acre	•			h CDC
✓ Mitigation Wetla	nds: post co	nstruction			now a	ssesse	1:	Measure	a e.g.	by GPS
Other										
O Classification of	Watlandon	d Agustia Habitata	in AA							
0. Classification of				Cowardir	) Wa	stor Boss	ima		0/ of /	
HGM Class (Brinson		ass (Cowardin) ergent Wetland	Modifier (	Cowardii		ater Reg			% of A	100
Verific	Line	rigent vvettand			ı ciiii	anoni/i c	TCTTTIAT			100
. Estimated Relativ	e Abundanc	e Common								
2. General Condition	on of AA matrix below t	to determine [circle] ap	ppropriate response	– see instr	uctions for Mo	ntana-list	ed noxiou	s weed an	d	
2. General Condition i. Disturbance: (use	on of AA matrix below t	to determine [circle] ap		Predon	ninant conditions	adjacent to	(within 500	) feet of) AA		r heavily grazeer
General Conditio     i. Disturbance: (use aquatic nuisance veg	on of AA matrix below t	to determine [circle] ap	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not or roads or buildings; an weed or ANVS cover i	Predon antly azed, erwise ontain d noxious		adjacent to ated, but ma zed or haye ged; or has or clearing; ou uildings; no	e (within 500 ay be ed or been contains kious	Land cult or logged placemen hydrologi	tivated of d; subject nt, gradir ical alter density; o	t to substantial ng, clearing, or ation; high road or noxious weed
2. General Condition in Disturbance: (use aquatic nuisance vegocomment of the condition of	e matrix below t getation species ditions within AA	to determine [circle] as s (ANVS) lists)	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not converted; does not converted; and so rouldings; an	Predon antly azed, erwise ontain d noxious s <=15%.	Land not cultive moderately gra selectively logg subject to mino few roads or bu weed or ANVS	adjacent to ated, but ma zed or haye ged; or has or clearing; ou uildings; no	a (within 500) ay be ed or been contains kious 30%.	Land cult or logged placemen hydrologi building o	tivated or d; subject nt, gradir ical alter density; c cover is	ation; high road or noxious weed
2. General Condition i. Disturbance: (use aquatic nuisance vegation and its managed in grazed, hayed, logged, or other oads or occupied buildings; ac=15%.  An and cultivated, but may be delectively logged; or has beel blacement, or hydrological all	e matrix below to getation specie:  ditions within AA  a predominantly na	atural state; is not it, does not contain d or ANVS cover is ed or hayed or tively minor clearing, fill	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not converted; does not converted; and weed or ANVS cover is	Predon antly azed, erwise ontain d noxious s <=15%.	Land not cultive moderately gra selectively logg subject to mino few roads or bu weed or ANVS	adjacent to ated, but m zed or hayged; or has r clearing; uildings; no cover is <=	o (within 500) ay be ad or been contains dious 30%.	Land cult or logged placemen hydrologi building o or ANVS	tivated or d; subject t, gradir ical alter density; c cover is	t to substantial ing, clearing, or ation; high road or noxious week >=30%.
AA occurs and is managed in grazed, hayed, logged, or oth roads or occupied buildings; <=15%.  AA not cultivated, but may be selectively logged; or has bee placement, or hydrological all noxious weed or ANVS cover  AA cultivated or heavily graze substantial fill placement, gra	e matrix below to getation species  ditions within AA  a predominantly na predominantly na predominantly na predominantly na previse converted and noxious weed and noxious didney, clearing, or didney, clearing, or didney, clearing, or didney and the previous weeds.	atural state; is not contain d or ANVS cover is ed or hayed or ively minor clearing, fill few roads or buildings; ject to relatively hydrological alteration;	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not croads or buildings; an weed or ANVS cover in low disturbate moderate disturbance	Predon antly azed, erwise ontain d noxious s <=15%.	Land not cultive moderately graselectively logg subject to mino few roads or buweed or ANVS	adjacent to ated, but m zed or hayged; or has r clearing; uildings; no cover is <=	ay be ead or been contains dious 30%.	Difect of) AA  Land cult or logged placemen hydrologi building o or ANVS  mode	tivated on t; subject nt, gradinical alteridensity; of cover is erate of	t to substantial gg, clearing, or ation; high roa or noxious wee >=30%.
AA occurs and is managed in grazed, hayed, logged, or oth roads or occupied buildings; <=15%.  AA not cultivated, but may be selectively logged; or has been placement, or hydrological all noxious weed or ANVS cover AA cultivated or heavily grazed.	e matrix below to getation species ditions within AA a predominantly na pr	atural state; is not i; does not contain d or ANVS cover is ed or hayed or ively minor clearing, fill few roads or buildings; ject to relatively hydrological alteration; d or ANVS cover is	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not croads or buildings; an weed or ANVS cover is low disturbate moderate disturbance high disturba	Predon antly azed, erwise ontain d noxious s <=15%.	Land not cultive moderately graselectively logg subject to mino few roads or ANVS  low distance moderate high moderate high di	adjacent to ated, but m zed or haye ged; or has r clearing; aildings; no: cover is <= sturban e disturb	ay be ed or been contains dous 30%.	Difect of) AA  Land cult or logged placemer hydrologic building or ANVS  mode	tivated or d; subject nt, gradini ical alten density; c cover is erate of gh dist	t to substantial ng, clearing, or ation; high roac or noxious weed >=30%.  disturbance turbance
2. General Condition i. Disturbance: (use aquatic nuisance vegonal aquatic nuisance vegonal aquatic nuisance aquatic nuisa	e matrix below to getation species ditions within AA a predominantly national predominantly	atural state; is not i; does not contain d or ANVS cover is ed or hayed or iively minor clearing, fill few roads or buildings; iject to relatively hydrological alteration; d or ANVS cover is i, intensity, season ea. Grazing still occ	Managed in predomin natural state; is not gr hayed, logged, or othe converted; does not or roads or buildings; an weed or ANVS cover is low disturbate disturbance high disturba	Predon antly azed, erwise ontain d noxious s <=15%.	Land not cultive moderately graselectively logg subject to mino few roads or ANVS  low distance moderate high moderate high di	adjacent to ated, but m zed or haye ged; or has r clearing; aildings; no: cover is <= sturban e disturb	ay be ed or been contains dous 30%.	Difect of) AA  Land cult or logged placemer hydrologic building or ANVS  mode	tivated or d; subject nt, gradini ical alten density; c cover is erate of gh dist	t to substantial ing, clearing, or attion; high road or noxious weed >=30%.  disturbance turbance turbance

AA encompasses existing emergent wetland associated with an abandoned oxbow of Big Muddy Creek that borders mitigation site on west and north boundaries. The wetland within the mitigation site is currently managed in natural state. The preservation AA was not disturbed during construction.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified Existing # of "Cowardin" Vegetated Classes in AA Rating existence of additional vegetated classes? R ating NA NΑ >=3 (or 2 if 1 is forested) classes Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture Μ <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: Emergent vegetation class. SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS database for Roosevelt County Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S ○ D • S Blue Heron (S3) Secondary habitat (list Species) O D • S Greater Sage-Grouse (S2) Incidental habitat (list species) S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M 0L 1H .8H .6M .2L .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

B-31
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MTNHP tracker for Roosevelt County

Sources for documented use

observations of abundant wildlif																			Mod	erate	<b>;</b>
abundant wildlif	on any	of the f	following	g [che	ck]):						Minir	<b>nal</b> (b	ased or	any of	the follo	owing	[check])	):			
	f abunc	dant wild	dlife #s	or high	n specie	es diver	sity (dur	ing an	y period	1)	fe	w or n	o wildlif	e obser	vations	during	peak u	se perio	ods		
_	fe sign	such a	s scat, t	tracks	, nest st	ructure	s, game	trails,	etc.		lit	tle to r	o wildlif	e sign							
presence of ext	tremely	/ limitino	g habita	ıt featu	ıres not	availal	ole in the	surro	unding a	area	sp	arse a	adjacent	upland	food s	ources					
interviews with	local b	iologist	s with k	nowle	dge of t	he AA					in	terviev	vs with I	ocal bio	ologists	with kı	nowledg	ge of the	e AA		
derate (based on	n any o	f the fol	llowing [	[check	:]):																
observations of	f scatte	red wild	dlife gro	ups or	r individ	uals or	relativel	y few s	species	during	oeak pe	riods									
common occurr	rence o	of wildlif	fe sign s	such a	s scat, f	tracks,	nest stru	uctures	s, game	trails, e	etc.										
adequate adjac	ent up	land for	od sourc	ces																	
interviews with	local b	iologist	s with k	nowle	dge of t	he AA															
Wildlife habita m #13. For claner in terms of rmanent/perer ms])	lass co	over to percer	be cont	positi positi al/inte	ered ev ion of the ermitte	enly d	listribut (see #	ed, th	ie mos Abbrev	t and l	east pr s for su	revale irface \ = ab	ent veg water sent [s	etateo duratio	d class	es mi	ust be ollows:	within P/P = r defin	20% o	f each	
liversity (see ±13)				Hi	gh							Mode	erate					Lo	w		
Class cover distribution (all vegetated classes)		Eve	en			Une	ven			Eve	n			Une	/en			Eve	en		
Ouration 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	А	
Low disturbance at AA (see #12i)	Е	Е	Е	н	Е	Е	Н	н	E	Н	Н	М	Е	Н	М	М	Е	Н	М	м	
oderate sturbance at AA ee #12i)	Н	Н	Н	н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Ι	M	L	L	
igh disturbance t AA (see #12i)	м	м	м	L	М	м	L	L	М	М	L	L	М	L	L	L	L	L	L		
ii. Rating (us Evidence of wi					omia Except		above a	and t	he ma		Vildlife		ive at itat fea		ratin			points	and	rating	) Low
Substantial					1E					.91	1					8H					.7N
<b>Moderate</b>					.91	1				.71	И					5M					.3L
Minimal					.6N	1				.41	л					.2L					.1L

i. Habitat Quality and	Known	/Suspec	ted Fish	Specie	s in A	A (use m	natrix to	arrive a	t [c he ck	the funct	ional po	ints and	d rating)					
Duration of surface water in AA		Pei	manent /	Perennia	ļ			Se	asonal / l	Intermitten	t			Tem	porary/	Epheme	ral	
Aquatic hiding / resting / escape cover	Ор	timal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	quate	Po	or
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	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

sources used for identifying fish sp. potentially  ii. Modified Rating (NOTE: Modified score c a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need c fishery or aquatic life support, or do aquatic nur yes, reduce score in i above by 0.1: Modifie	cannot exceed a culvert, die of TMDL dev Sance plant	ed 1 or be les ike, or other r relopment wit	man-made st th listed "Pro	bable Imp	aired Ú	ses" includi	ng cold or v	varm water	he If	
b) Does the AA contain a documented spawnin comments) for native fish or introduced game fi		ner critical ha Y	If yes, a	•	he adju	sted score i	•			
iii. Final Score and Rating: 0 NA	Comme	nts:								
,	re and proce	eed to 14F.)					nds in AA ar	e not floode	ed from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosqu		w to arrive at y entrenched				and rating) enched – B	Entrend	hed-A, F, G	stream	
1994, 1996)	ong	stream type			tream t		2.11.01.10	types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-7	5% <25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7N	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6N	.4N	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2			Entrenched				Entrenched	•		
C stream type D stream type E stream  2 x Bankfull D			The state of the s		stream ty		F stream typ		stream type	
Floodprone width	/ Bank	h	made feetur	oo which w		= ratio	nchment	ny floodo los	ento d	
ii. Are ≥10 acres of wetland in the AA subject t within 0.5 mile downstream of the AA (check)?	Y (	N ●	made reatur	es wnich r	nay be	significantly	damaged t	by floods loc	ated	
Comments: Unnamed tributary of Big periodic flooding of unnamentary		eek visual	ly estimate	ed as B	type s	stream. A	AA receiv	es surfac	e water fro	om
<ul> <li>14F. Short and Long Term Surface W upland surface flow, or groundwater flow 14G.)</li> <li>i. Rating (Working from top to bottom, water durations are as follows: P/P = per</li> </ul>	. If no wetling the second sec	ands in the	AA are sub	oject to flo check] th	ooding e func	orponding tional poin	g, dick [ ts and rati	NA here	e and proce	eed to
further definitions of these terms].)  Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic		>5 acre feet			1.1	to 5 acre feet			≤1 acre foot	
flooding or ponding  Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/F	1	S/I	T/E	P/P	S/I	T/E
1								41		

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.	1 to 5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9Н	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: AA 0.73 acres without potential to support greater than 1ft of surface water

	water or o	on and Redirect input	moval:	(Applies wetlands	s to wetl s in the A	ands w AA are	rith poter subject t	ntial to o such	receive input,	sedime click	ents, nu <b>N</b>		, ortoxic and prod	
<ul><li>i. Rating (working from top to bot = low])</li></ul>	tom, use	the matrix	below to	o arrive a	at [chec	k] the f	unctiona	l points	and ra	ting [H	= high,	M = m	oderate,	or L
Sediment, nutrient, and toxicant input levels within AA	to component su	eives or surro deliver levels unds at level destantially in roes of nutrie	of sedim s such th npaired.	nents, nutr nat other for Minor sed xicants, or	ients, or unctions imentatio	are n,	nutrients with pote compoun	opment , or toxion ential to ds such	for "prob cants <b>or</b> deliver h that othe tion, sou	oable car AA rece nigh leve er function rces of r	uses" relatives or so ls of sed ons are s	ated to surround iments, ubstantion	d of TMDL ediment, ing land u nutrients, ally impai ants, or sig	se or red.
% cover of wetland vegetation in AA Evidence of flooding / ponding in AA	≥	70% No	Ye	< 70	No		Yes	≥ 70°			Yes	< 70	% No	
AA contains no or restricted outlet	1H	.8H		M	.5M		.5M		.41		.3L	ΠÍ	.2L	
AA contains unrestricted outlet	.9Н	.7M	.6	М	.4M		.4M		.3	L	.2L		.1L	
Comments: Cover of veg in exis  14H Sediment/Shoreline Stabilization drainage, or on the shoreline of a stand proceed to 14I.)	n: (Applies	s only if AA o	occurs o	n or withir	n the ban	ks or a	river, strea	am, or o	other nat		nan-mac		cted outl	∋t.
i. Rating (working from top to bottom, % Cover of wetland streambank or	use the m	atrix below t		at [check]				- 0,				1		
shoreline by species with stability ratings of ≥6 (see Appendix F).	Permar	nent / Perennia			asonal / In	•	Ť		mporary /	/ Epheme	ral			
≥ 65%		1H			.91	_				м				
35-64%		.7M			.61	1			.!	5M				
< 35%		.3L			.21					1L		İ		
14l. Production Export/Food Chai	n Sunnort													
i. Level of Biological Activity (synthesis General Fish Habitat G	thesis of wi													
i. Level of Biological Activity (synthesis)  General Fish Habitat G Rating (14D.iii.) E/H	thesis of wi	Idlife and fis dlife Habita M	t Rating	j (14C.iii.)	) 	7								
i. Level of Biological Activity (synthesis)  General Fish Habitat Rating (14D.iii.)  E/H  H	thesis of wi	ldlife and fis dlife Habita M	t Rating	(14C.iii.)	M									
i. Level of Biological Activity (synthesis)  General Fish Habitat Grating (14D.iii.)  E/H	thesis of wi	Idlife and fis	t Rating	g (14C.iii.)	M M									
i. Level of Biological Activity (synt General Fish Habitat Rating (14D.iii.) E/H   E/H   M  H	thesis of wi	ldlife and fis dlife Habita M	t Rating	g (14C.iii.)	M									
i. Level of Biological Activity (synthesis)  General Fish Habitat Rating (14D.iii.)  E/H  H  M  L  N/A  H  ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows page instructions for further definitions of the component of the component of the AA; Factor B subsurface outlet; the final three rows page instructions for further definitions of the component of the component of the AA; Factor B subsurface outlet; the final three rows page instructions for further definitions of the component of the compo	n, use the n	M  H  M  M  M  M  M  M  M  M  M  M  M  M	to arrive	e at [checking from a atter in the	M L L   C   the fundabove (14 AAA, whe	II.i.); Fa	ctor C = w	hether	or not th as previo	e AA co ously def	ntains a ined, an	surface d A = "a	or	
i. Level of Biological Activity (syntage of Biological Activit	n, use the n	M  H  M  M  M  matrix below biological acuration of sums].)	to arrive	e at [checking from a ster in the	M L L   C   the fundabove (14 AAA, whe	II.i.); Faire P/P,	ctor C = w	hether	or not thas previo	e AA co ously def	ntains a	surface d A = "a	or	
i. Level of Biological Activity (syntage of Biological Activit	n, use the n = level of lettain to do f these tern acres Low	M  H  M  M  M  M  M  M  M  M  M  M  M  M	to arrive	e at [checking from a ster in the	M L L S] the fundbove (14 AA, whee ponent 1-5 serate	II.i.); Facre P/P,	ctor C = w S/I, and T	hether /E are a	or not th as previo	e AA co ously def etated com Mod	ntains a ined, an ponent <1	surface d A = "a	or bsent"	
i. Level of Biological Activity (syntage of Biological Activit	n, use the n = level of leertain to do f these terraces  Low Yes  Low	M  H  M  M  M  M  M  M  M  M  M  M  M  M	to arrive tivity ratifrace wa	e at [checking from a atter in the getated comp	M L L L S] the fundbove (14 AA, where the content 1-5; leerate No.	H.i.); Far re P/P, acres	ctor C = w S/I, and T	hether /E are a	or not the as previous Veg	etated com  Mod  Yes	ntains a fined, an ponent <1 a erate	surface d A = "a acre L Yes	or absent"	
i. Level of Biological Activity (syntage of Biological Activit	n, use the n level of level these terrances Low Yes	M  H  M  M  M  M  M  M  M  M  M  M  M  M	to arrive tivity rati frace wa	e at [checking from a atter in the getated comp Mod Yes .7H	M L L L S] the fun bove (14 AA, when boonent 1-5; lerate No .4M	II.i.); Farre P/P, acres Lo Yes	ctor C = w S/I, and T	Hit Yes .8H	veggh No	etated com Mod Yes	ntains a fined, an ponent <1 per service   No	surface d A = "a  acre L  Yes  .3L	or bsent"	

Vegetation growing of Wetland occurs at the Seeps are present at AA permanently floor Wetland contains an Shallow water table a Other:	e toe of a na the wetland ded during d outlet, but n and the site i	nt season/dro tural slope ledge rought period o inlet s s aturated to	the surface	Stree Othe	r:	n 'losing' strea	am; discharg	e volume decre	
					RECHARGING				
Criteria	looha		P/P		S/I		T 1	Nor	
Groundwater Discharge or R			1H		.7M		.4M	.1	L
nsufficient Data/Information	<u> </u>					NA			
4K. Uniqueness: Rating (working from to	AA contai	ns fen, bog, ure (>80 yr-ol	warm springs d) forested	AA does cited rar diversity (	not contain re types <b>and</b> (#13) is high	previously structural or contains	AA does	s not contain p	ociations
		<b>or</b> plant asso "S1" by the M		d as "S2" by	and stru	uctural diversity low-moderate			
Estimated relative abundance (#11)	rare	common	abundant						
Low disturbance at AA (#12i)	1H	.9Н	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L
14L. Recreation/Education i. Is the AA a known or proceed to the categoric of the categoric	otential rec to the overal	./ed. site: (cl	neck) Y   nd rating page	NO)	(if 'Yes' con	tinue with the	e evaluation;	if 'No' then cli	
iii. Rating (use the matrix	below to ar	rive at [check	:1 the functiona	al points and	rating)				
Known or Potential Recreation			-				l k	(nown Pote	ential
Public ownership or public e			ic access (no pe	ermission req	uired)		<del>-   f</del>		.15H
Private ownership with gene	ral public acc	cess (no perm	ssion required)						.1M
Private or public ownership	without gene	ral public acce	ess, or requiring	permission f	or public acce	ess		_	.05L
omments:									
MDT-owned site, signs	of hunting.								

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.5	1	0.365	
C. General Wildlife Habitat	Н	.9	1	0.657	<b>~</b>
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.4	1	0.292	
F. Short and Long Term Surface Water Storage	М	.4	1	0.292	<b>✓</b>
G. Sediment/Nutrient/Toxicant Removal	Н	.9	1	0.657	<b>✓</b>
H. Sediment/Shoreline Stabilization	Н	1	1	0.73	
Production Export/Food Chain Support	Н	.9	1	0.657	
J. Groundwater Discharge/Recharge	Н	1	1	0.73	<b>✓</b>
K. Uniqueness	М	.4	1	0.292	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	0.146	
Totals:		6.6	10	4.818	
Percent of Possible Score			66 %		Į.

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

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

I II III IV
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# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Big Muddy			2. MDT	project#	NH	H 1-10(626)		Control	# 4058-001	
3. Evaluation Date	8/7/2013	4. Evaluators	B Sa	ndefur	5	. Wet	land/Site# (s)	South Ce	ell - Created		
6. Wetland Location(s	s): T	28N <b>R</b>	55E	Sec1	21	Т	R		Sec2		
Approx Stationing or	Mileposts	~639.75 on Hw	y 2								
Watershed 10060	0006	1	Vaters	hed/Coun	ty Lowe	r Miss	ouri River Wate	rshed/Roo	sevelt Co., N	<b>Л</b> Т	
7. Evaluating Agency	Confl	uence for MDT					8. Wetland	size acres	,	4.17	
Purpose of Evaluation	on						How assesse	ed:	Measured e	.g. by GPS	
☐ Wetlands potenti	ally affected	by MDT project	:				9. Assesssn			4.17	
☐ Mitigation Wetlar	nds: pre-con	struction					(AA) size (ac		Measured e.	a by GPS	
✓ Mitigation Wetlar	nds: post co	nstruction					11011 033033	ou.	wcasarca c.	g. by Gr G	
Other											
10. Classification of	Wetland and	d Aquatic Habita	ts in A	A							
HGM Class (Brinson		ss (Cowardin)			er (Coware	din)	Water Re	gime	% (	of AA	
Depressional		rgent Wetland		Excavat			Seasonal/Int			100	
<ul><li>11. Estimated Relative</li><li>12. General Condition</li><li>i. Disturbance: (use aquatic nuisance veg</li></ul>	n of AA matrix below to	o determine [circle]		riate respon	se – see in	structio	ns for Montana-li	sted noxiou	s weed and		
	,,,,,,,				Pred	lominan	t conditions adjacent	to (within 500	feet of) AA		
Cond	ditions within AA		natu haye conv roac	aged in predo iral state; is no ed, logged, or verted; does no ds or buildings d or ANVS cov	ot grazed, otherwise ot contain ; and noxious	mod sele subj	d not cultivated, but lerately grazed or ha ctively logged; or ha lect to minor clearing roads or buildings; r d or ANVS cover is	yed or is been g; contains noxious	Land cultivated or heavily grazed or logged; subject to substantial fi placement, grading, clearing, or hydrological alteration; high road building density; or noxious weed or ANVS cover is >=30%.		
AA occurs and is managed in grazed, hayed, logged, or oth roads or occupied buildings; a <=15%.	erwise converted;	; does not contain	_'	ow disturl	bance		low disturba	nce	moderate disturbance		
selectively logged; or has been placement, or hydrological alt	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%.					m	oderate distu	rbance	high disturbance		
substantial fill placement, grad	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 disturba	ince	high o	listurbance	
Comments: (types of	disturbance.	, intensity, seas	on, etc	)							
Constructed wetland ce wetland area (2011). A	ell continues to	o exhibit vegetat		•	AA consid	ered n	noderately distu	irbed due	to recent con	struction of	
ii. Prominent noxious,	, aquatic nui	sance, other ex	otic sp	ecies:							
Cirsium arvense	rintivo over	many of AA arra		nding lass	1 1100/656	itat					
iii. Provide brief desc The AA includes the co	•						of Big Muddy b	oorders this	s AA.		

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified Existing # of "Cowardin" Vegetated Classes in AA Rating existence of additional vegetated classes? R ating NA NΑ >=3 (or 2 if 1 is forested) classes Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture Μ YES> L <NO 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: Vegetation class only includes emergent wetland. SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS database for Roosevelt County Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S ○ D • S Blue Heron (S3) Secondary habitat (list Species) Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .6M 0L 1H .8H .2L .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

B-38

Suspected species identified by MTNHP for Roosevelt County

Sources for documented use

of abundation abundation and control of scatter rence cent up a local to tat feachass of their	a such a y limiting piologist of the fol ered wild of wildlift pland for piologist atures (	dlife #s s scat, g habita s with k flowing flo	or high tracks at feature and the control of the co	h specie, nest st ures not dge of the cl): r individuals scat, the dge of the	ructure: availab he AA uals or tracks, i he AA	sity (dur s, game ble in the relativel nest stru	trails, e surro	etc. unding	area	lit sp	ew or note to	o wildlife o wildlif djacent	e obser e sign upland	vations	during	check]) peak u		ods		
ife sign dremel n local b n any co of scatte rrence cent up n local b tat fea class co f their	a such a y limiting piologist of the fol ered wild of wildlift pland for piologist atures (	as scat, ag habitates with keep the sign of sources with the sign	tracks at feature inowle [check bups of such a ces inowle ing fro onside	nest st ures not dge of the cipic r individuals scat, the dge of the municipals	ructure: availab he AA uals or tracks, i he AA	s, game ole in the relativel nest stru	trails, e surro	etc. unding	area	lit	tle to n	o wildlif djacent	e sign upland	food s	ources	peak u	se perio	ods		
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cent up local to tat fea class of f their	bland foo biologist atures ( cover to	od sour s with k (Workii o be co	ces nowle ng fro	dge of the	he AA to bott		uctures	s, game		peak pe	eriods									
tat fea class of	oiologist utures (	(Workin	nowle	m top	to bott	om ch			trails, e	etc.										
tat fea class of f their	tures (	(Workii o be co	ng fro	m top	to bott	om ch														
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			- "	9"							Wiode	idio								
	Eve	en			Une	ven			Eve	en			Unev	/en			Eve	en		
P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А	
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						above a	and t	he ma	V	Vildlife				ratin	g (ii)		ooints	and i	rating	) Low
																Ī				.7M
							T		.7	М										.3L
				.6N	1				 .41	м					.2L	Т				.1L
Fish Foy fish	labita	t Rati fish u	ng: (se is ints,	obser (Asses	ved d	s functi	ion if ched	the A	A is u	used b	arrie	, etc.]	. If th	ting si	tuatio	t used	by fis	sh, fisl	h use	that the
	H M See th Seve	P/P S/I  E E  H H  M M  See the condition of the see the see the see the condition of the see the se	E E E H H H M M M Se the conclusion il diffe use (i)  Several bird specifish Habitat Ration of the several bird specifish i.e., fish upon habitat constraints.	Even  P/P S/I T/E A  E E E H  H H H H H  M M M L  se the conclusions from the second s	P/P S/I T/E A P/P  E E E H E H H H H H M M M L M  See the conclusions from i a ril dlife use (i)  Except  1E .9H .6N  Several bird species observing fish [i.e., fish use is precluon habitat constraints, or is reliable.	Even Une  P/P S/I T/E A P/P S/I  E E E H E E  H H H H H H H H  M M M L M M  se the conclusions from i and ii a dil diffe use (i)  Exceptional  1E  9H  6M  Several bird species observed dil difference observed dil difference observed dil dil difference observed dil dil difference observed dil dil difference observed dil dil dil dil dil dil dil dil dil di	Even  Uneven  P/P S/I T/E A P/P S/I T/E  E E E H E H  H H H H H H H H H  M M M L M M L  se the conclusions from i and ii above iil diffe use (i)  Exception al  1E  .9H  .6M  Several bird species observed during ish Habitat Rating: (Assess this funct by fish [i.e., fish use is precluded by per o habitat constraints, or is not desired in the constraints.	Even  Uneven  P/P S/I T/E A P/P S/I T/E A  E E E H E H H H H H H M  M M M L M M L L  se the conclusions from i and ii above and to the conclusions from i	Even  Uneven  P/P S/I T/E A P/P S/I T/E A P/P  E E E H E H H E E H H E E H H H E  H H H H	Even  Uneven  Even  Uneven  Even  Uneven  Even  Uneven  Even  Dividing use (i)  Exception al High and in the species observed during site visits.  Even  Uneven  Even  Even  Uneven  Even  Even  Even  Solution  Even  E	Even    Discreption   Discreption   Even   Even	Even    Discrete   Discrete   Even   Even   Even	Even    Uneven   Even   Even   Even	Even Uneven Even Even Uneven Even Even Even Uneven Even Even Even Even Even Even Even	Even Uneven Even Uneven Even Uneven Uneven Uneven P/P S/I T/E A P/P S/I T/E A P/P S/I T/E A P/P S/I T/E E E E H E H H H H H H H H H H H H H H	Even Uneven Even Uneven  Even Uneven  Even Uneven  Even Uneven  Even Uneven  Even Uneven  Discreption A PiP S/I T/E A PiP S/I T/E A PiP S/I T/E A  E E E H E H H H H H H H H H H H H H H	Even Uneven Even Uneven    Even   Uneven   Even   Uneven   Even   Uneven	Even Uneven Even Even Uneven Even Even Uneven Even Even Uneven Even Even Even Uneven Even Even Uneven Even Even Even Even Even Even Even	Even Uneven Uneven Even Uneven Uneven Even Uneven Uneven Even Uneven Uneve	Even Uneven Even Even Uneven Even Even Even Uneven Even Even Even Even Even Even Even

i. Habitat Quality and	Known	Suspec	tea Fish	Specie	es in A	A (usen	iatrix to	arnve a	t [c ne ck	the lunct	ionai po	ints and	a rating)								
Duration of surface water in AA		Permanent / Perennial							Seasonal / Intermittent						Temporary / Ephemeral						
Aquatic hiding / resting / escape cover	Opt	imal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	quate	Po	or			
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	1E	.9Н	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L			
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L			
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L			
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L			

Sources used for identifying fish sp. potentially four ii. Modified Rating (NOTE: Modified score cant a) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of T fishery or aquatic life support, or do aquatic nuisar yes, reduce score in i above by 0.1: Modified R	not exceed sulvert, dik MDL deve ace plant d	e, or other melopment with	an-made s listed "Pro	bable Imp	aired Úses"	including	cold or w	arm water	ne If	
b) Does the AA contain a documented spawning at comments) for native fish or introduced game fish?		er critical hab '			he adjusted					
iii. Final Score and Rating: 0 NA	Commen	ts: Closed	wetland	cell with	no direct	surface	e water i	inlet or ou	ıtlet.	
	and proce	ed to 14F.)					s in AA are	e not floode	d from in-	
i. Rating (working from top to bottom, use the ma Estimated or Calculated Entrenchment (Rosgen		entrenched -			ely entrench		Entrench	ned-A, F, G	stream	
1994, 1996) % of flooded wetland classified as forested		stream types			tream type	050/	750/	types	050/	
and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched		Moderately E	ntronohod			E,	ntrenched			$\neg$
ER = >2.2		ER = 1.4	1 – 2.2			ER	= 1.0 - 1.4			
C stream type D stream type E stream ty	pe I	B stream	- <u></u>	AS	tream type		stream type	1 ~	tream type	
2 x Bankfull Dep	th	Bankfull De	The state of the s		Bet & R. d.	ood-pronull Width				
Floodprone width  ii. Are ≥10 acres of wetland in the AA subject to floor	/ Banki width ooding AN Y	ND are man-m					amaged b			ıtside
within 0.5 mile downstream of the AA (check)?  Comments:  AA is adjacent to unnamed t mitigation area. Flood prone								3 stream		

further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic		>5 acre feet		1.	1 to 5 acre feet			≤1 acre foot	
flooding or ponding  Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7М	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Constructed cell showed signs of inundation during early growing season. Cell is 4.17-ac with storage potential >1.5ft deep.

14G. Sediment/Nutrient/Toxicant through influx of surface or ground v to 14H.)				
i. Rating (working from top to botto	om, use the matrix below	to arrive at [check] the	functional points and rat	ing [H = high, M = moderate, or L
= low]) Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding to deliver levels of sedi compounds at levels such not substantially impaired s ources of nutrients or t eutrophication	ments, nutrients, or that other functions are . Minor sedimentation, toxicants, or signs of	development for "prob nutrients, or toxicants <b>or</b> with potential to deliver h compounds such that othe Major s edimentation, sour	st of waterbodies in need of TMDL able causes" related to sediment, AA receives or surrounding land use igh levels of sediments, nutrients, or r functions are substantially impaired. ces of nutrients or toxicants, or signs ephication present.
% cover of wetland vegetation in AA  Evidence of flooding / ponding in AA	≥ 70% Yes No N	< 70% Yes No	≥ 70% Yes No	< 70% Yes No
AA contains no or restricted outlet		7M .5M	.5M .4N	
AA contains unrestricted outlet	.9H .7M .6	6M .4M	.4M .3L	.2L .1L
Comments: Vegetation cover with	nin constructed cell estima	ated to be >70%.		
14H Sediment/Shoreline Stabilization: drainage, or on the shoreline of a standir proceed to 14l.)  i. Rating (working from top to bottom, to the cover of wetland streambank or the stabilization).	ng water body which is subjections use the matrix below to arrive	ct to wave action. If 14H	does not apply, click  points and rating)	ural or man-made NA here and
shoreline by species with stability ratings of ≥6 (see Appendix F).	Permanent / Perennial	Seasonal / Intermitte	<u> </u>	Ephemeral
≥ 65%	1H	.9Н	.7	и
35-64%	.7M	.6M	5	М
< 35%	.3L	.2L	.1	L
Comments:  Shoreline vegetation  14I. Production Export/Food Chain  i. Level of Biological Activity (synth			a.	
	eneral Wildlife Habitat Ratin			
E/H	н	м		
М	М	М		
L	М	L		
N/A H	M	L		
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B = subsurface outlet; the final three rows pe [see instructions for further definitions of	<ul> <li>level of biological activity ra ertain to duration of surface w</li> </ul>	ating from above (14l.i.); F	actor C = whether or not the	e AA contains a surface or
A Vegetated component >5 ac  B High Moderate		/egetated component 1-5 acres Moderate	Low High	tated component <1 acre  Moderate Low
C Yes No Yes No P/P 1F 7H 8H 5M	Yes No Yes No	1 1 1	No Yes No	Yes No Yes No
	.6M .4M .9H .6M		<del>                                     </del>	.6M .4M .3L .2L
S/I .9H .6M .7H .4M	.5M .3L .8H .5M			.5M .3L .3L .2L
T/E/A 8H .5M .6M .3L	.4M .2L .7H .4M	.3L .3L	. 1L .6M .4M	.4M .2L .2L .1L
iii. Modified Rating (NOTE: Modified s plant cover, ≤ 15% noxious weed or ANVS control).  a) Is there an average ≥ 50 foot-wide vege to the score in ii above and adjust rating a Comments:  Average 50-foot uplant	S cover, and that is not subje	ected to periodic mechanic ≥ 75% of the AA circumfer ting .4M	cal mowing or clearing (unle	

14J. Groundwater Di	scharge/Recharge	: (check the app	ropriate in	dicators in i	& ii below)		
i. Discharge Inc	etland			neable substra	•	ithout underl	; ying impeding layer
Springs or seeps are Vegetation growing of	known or observed during dormant seasor	n/drought		and contains am is a known			e volume decreases
Wetland occurs at th	e toe of a natural slop	e	Othe				
Seeps are present a	=						
AA permanently floor Wetland contains an	ded during drought pe	riods					
	and the site is saturate	ed to the surface					
Other:							
Deting (upo the inform	matian fram i and ii ak	save and the table	halaw ta arri	iva at labaakl	the function	al nainta and	I ration)
. Rating (use the inforr	nation nom randirat		uration at AA	Wetlands FRO	OM GROUNDV	VATER DISC	HARGE OR WITH WATER
			THAT IS	RECHARGING	THE GROUN	DWATER SY	<u>STEM</u>
riteria	)k	P/P		S/I		T	None
oundwater Discharge or R		1H		.7M		.4M	1L
sufficient Data/Information	1				NA		
mments:							
K. Uniqueness:							
Rating (working from to	op to bottom, use the	matrix below to ari		k] the function not contain p		d rating)	
	AA contains fen, b		cited rai	re types and	structural		s not contain previously
eplacement potential	or mature (>80 y wetland <b>or</b> plant a	•		(#13) is high ociation listed			e types or associations actural diversity (#13) is
	as "S1" by th		piant asso	the MTNHP		and suc	low-moderate
stimated relative	rare com		rare	common	abundant	rare	common abundant
bundance (#11)  w disturbance at AA	n	1 1	1	1	1	1	
12i)	1H9	H .8H	.8H	.6M	.5M	.5M	.4M .3L
loderate disturbance at A (#12i)	.9H .8	H .7M	.7M	.5M	.4M	.4M	.3L .2L
ligh disturbance at AA	.8H .7	H .6M	.6M	.4M	.3L	.3L	.2L .1L
12i)	.0П ./	.OIVI	.OIVI	.4101	.SL	.SL	.ZL .IL
mments:							
L. Recreation/Education							761-16
Is the AA a known or p here and proceed	otential rec./ed. site to the overall summa	, , -	N()	(If 'Yes' cont	tinue with the	evaluation;	if 'No' then click NA
·							
ii. Check categori	ies that apply to the	AA: <a href="#">MA</a> : <a href="#">Education</a>	nal/scientific	study; <u>V</u> C	onsumptive	rec.; _ <b>V</b> No	n-consumptive rec.;
Other							
Rating (use the matrix	below to arrive at [cl	neck] the functiona	I points and	rating)			
nown or Potential Recreation	or Education Area					k	nown Potential
ublic ownership or public e	easement with general	oublic access (no pe	rmission req	uired)			.2H .15H
rivate ownership with gene	ral public access (no p	ermission required)					
							.15H .1M
rivate or public ownership	without general public	access, or requiring	permission f	or public acce	ess		.1M .05L
mmanta.						<u> </u>	
mments:							
DT-owned site with kr	nown hunting.						
anoral Sita Natas							
neral Site Notes							

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.5	1	2.085	
C. General Wildlife Habitat	М	.7	1	2.919	
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.5	1	2.085	
F. Short and Long Term Surface Water Storage	Н	.9	1	3.753	<b>V</b>
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	4.17	<b>✓</b>
H. Sediment/Shoreline Stabilization	Н	.9	1	3.753	<b>~</b>
Production Export/Food Chain Support	М	.4	1	1.668	
J. Groundwater Discharge/Recharge	М	.7	1	2.919	<b>V</b>
K. Uniqueness	L	.2	1	0.834	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	0.834	
Totals:		6	10	25.02	
Percent of Possible Score			60 %		

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

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

I II III IV	
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### MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Big Mu	ıddy				2. MDT	pro	ject#	NI	H 1-1	0(626)			Cont	rol#	4058-001	
3. Evaluation Date	8/7/20	013	4. Evalu	ators	B San	defur		5.	Wet	land/	Site# (s)	South (	Cell - F	>resei	rvation		
6. Wetland Location(s	): T		28N	R 5	55E	Sec1	2	1	Т		R		S	ec2			
Approx Stationing or I	Milepo	sts	~639.75	on Hwy	2												
Watershed 10600	06			W	atersh	ed/Cour	nty	Big M	uddy	Creel	k, Lower	Missouri,	Sheric	lan Co	٥.		
7. Evaluating Agency		Confl	uence for	MDT						8.	Wetland	size acre	es			1.8	3
Purpose of Evaluatio	n									Но	w asses	sed:	Me	asure	d e.g. l	by GPS	
☐ Wetlands potentia	ally aff	ected	by MDT p	roject							Assesss A) size (a	ment are	а			1.8	.3
Mitigation Wetlan	ds: pr	e-con	struction							•	w asses	•	Mea	asure	d e.g. b	y GPS	
✓ Mitigation Wetlan	ds: po	st co	nstruction													,	
Other																	
10. Classification of \	Wetlan	d and	d Aquatic	Habitat	s in A	A											
HGM Class (Brinson)	)	Cla	ass (Cowa	rdin)		Modifi	ier (0	Coward	in)		Water R	egime		(	% of A	Α	
Riverine		Eme	rgent Wetl	and						Se	easonal/li	ntermitten	t			35	
Depressional		Eme	rgent Wetl	and						Se	asonal/l	ntermitten	t			65	
										7 -							
General Condition     i. Disturbance: (use aquatic nuisance vege	matrix b	elow to			Mana	ged in pred	domina	Pred antly	ominan Lan	<i>t condit</i> d not c	tions adjace	nt to (within 5	500 feet	of) AA and culti	vated or	heavily graze	
Cond	litions with	hin AA			conve roads	al state; is n d, logged, o erted; does s or building or ANVS co	or othe not co js; and	rwise ontain d noxious	sele sub few	ectively ject to r roads	r grazed or l logged; or l minor clearing or buildings NVS cover is	nas been ng; contains noxious	pli hy bu	acemen drologio uilding d	t, grading cal altera	to substantial g, clearing, or tion; high roa r noxious wee = 30%.	id or
AA occurs and is managed in grazed, hayed, logged, or other roads or occupied buildings; at <=15%.	erwise co	nverted;	; does not con	tain	lo	w distu	rbar	nce	Г	low	disturb	ance	r	node	rate d	isturband	е
AA not cultivated, but may be r selectively logged; or has beer placement, or hydrological alte noxious weed or ANVS cover i	n subject eration; co	to relati ontains	ively minor cle	aring, fill		moder disturba		е	m	oder	ate dist	urbance		hig	h dist	urbance	
AA cultivated or heavily grazed substantial fill placement, gradhigh road or building density; >=30%.	ding, clear	ring, or l	hydrological a	Iteration;	hi	gh distu	ırbaı	nce		high	n disturb	ance		hig	h distı	urbance	
Comments: (types of c																	
ii. Prominent noxious,	aquati	ic nui:	sance, oth	ner exo	tic spe	cies:											
Cirsium arvense iii. Provide brief descr	rintivo	elimn	mary of A	and s	ırrour	dina lan	nd u	sa/hahi	tat								
AA encompasses existir										Big N	Лuddy Сг	eek and a	idjace	nt low	land.		

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified Existing # of "Cowardin" Vegetated Classes in AA Rating existence of additional vegetated classes? R ating >=3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture Μ <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: Emergent vegetation class. SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS database for Roosevelt County Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S ○ D • S Blue Heron (S3) Secondary habitat (list Species) Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .6M 0L 1H .8H .2L .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

MTNHP tracker for Roosevelt County

Sources for documented use

observations of abundant wildlif presence of ext																			Mod	erate	<del>)</del>	
abundant wildlif	on any	of the	following	g [che	ck]):						Minir	<b>nal</b> (b	ased or	any of	the foll	owing	[check])	l.				
	abunc	dant wile	dlife #s	or high	n specie	es diver	sity (dur	ring an	y period	i)	fe	w or n	o wildlif	e obser	vations	during	peak u	se perio	ds			
presence of ext	fe sign	such a	s scat, t	racks,	, nest st	ructure	s, game	trails,	etc.		lit	tle to r	o wildlif	e sign								
	tremely	/ limitin	g habita	t featu	ıres not	availab	ole in the	e surro	unding a	area	sp	arse a	adjacent	upland	food s	ources						
interviews with	local b	iologist	s with k	nowle	dge of t	he AA					in	terviev	vs with I	ocal bio	ologists	with kı	nowledg	e of the	AA			
oderate (based on	n anv o	f the fol	llowina [	check	D:																	
observations of	-					uals or	relativel	ly few s	species	during	peak pe	riods										
common occurr	rence (	of wildlit	fe sign s	such a	s scat,	tracks,	nest stru	uctures	s, game	trails, e	etc.											
adequate adjac	ent up	land foo	od sour	ces																		
] interviews with	local b	iologist	s with k	nowle	dge of t	he AA																
. Wildlife habite rom #13. For clather in terms of ermanent/perererms])	lass co	over to percer	be cont	nside positi	ered ev	enly d he AA	istribut (see #	ed, th	e mos Abbrev	t and l	east pr s for su	evale ırface	nt <b>veg</b> water	<b>etate</b> durati	d class	es mo	ust be sollows:	within 2 P/P =	20% o	f each		
Structural liversity (see				Hi	gh							Mode	erate					Lov	v			
‡13) Class cover																						
distribution (all vegetated		Eve	en			Une	ven			Eve	en			Une	/en			Eve	n			
lasses) Duration of																						
urface water in ≥ 0% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α		
ow disturbance t AA (see #12i)	Е	Е	E	Н	Е	Е	Н	н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М		
loderate isturbance at AA see #12i)	Н	Н	н	Н	Н	Н	Н	М	Н	Н	М	М	н	М	М	L	Н	М	L	L		
ligh disturbance at AA (see #12i)	м	М	м	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	L	L		
<b>iii. Rating</b> (us Evidence of wi							above a	and t	he ma		elow t						tional	points	and	rating	)	
D. d. = ( = ( ) = l				E	xcept	tion al				High	1				Мо	derat	<u>e</u>				Low	-1
Substantial					1E					.91	1					.8H					.7M	1
Moderate					.9F	1				.71	M					5M					.3L	
					.6N	.				.41											.1L	

i. Habitat Quality and	Known	Suspec	tea Fish	Specie	25 III A	4 (use n	iallix lo	arnve a	t [check	the lunct	ionai po	ints and	a raung)					
Duration of surface water in AA		Pe	rmanent /	Perennial	ļ.			Se	asonal / I	ntermitten	t			Tem	porary/	Epheme	eral	
Aquatic hiding / resting / escape cover	Opt	imal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Aded	quate	Po	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	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8Н	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially  ii. Modified Rating (NOTE: Modified score a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need fishery or aquatic life support, or do aquatic nuyes, reduce score in i above by 0.1:  Modifie	cannot excee a culvert, di of TMDL dev isance plant	ed 1 or be les ike, or other r relopment wit	man-made st th listed "Pro	bable Imp	aired Ús	ses" includii	ng cold or w	varm water	ne If	
b) Does the AA contain a documented spawnin comments) for native fish or introduced game for		her critical ha Y	If yes, a	•	he adjus	sted score i	ng area, etc n <b>i</b> or <b>iia</b> ab			
iii. Final Score and Rating: 0 NA	Comme	nts:					·			
,	ere and proce	eed to 14F.)					ds in AA ar	e not floode	ed from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosqu		w to arrive at y entrenched				and rating) enched – B	Entrenc	hed-A, F, G	stream	
1994, 1996)	on ong	stream type			tream t		2.11.0110	types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7N	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6N	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2			Entrenched				Entrenched R = 1.0 - 1.4			
C stream type D stream type E stream  2 x Bankfull I			The state of the s		tream type		F stream typ		stream type	
Floodprone width ii. Are ≥10 acres of wetland in the AA subject	/ Banl width	h	made feature	es which n		ratio	nchment damaged b	by floods loc	ated	
within 0.5 mile downstream of the AA (check)?  Comments:  Unnamed tributary of Big	Y () Muddy Cr	N (●) reek visual	ly estimate	ed as B-	type s	tream.				
14F. Short and Long Term Surface W upland surface flow, or groundwater flow 14G.)	ater Storag	<b>ge:</b> (Applies ands in the	to wetland AA are sub	ls that flo oject to flo	od or p ooding	ond from o	overbank o g, dick [		nel flow, pre e and proce	
<ul> <li>i. Rating (Working from top to bottom, water durations are as follows: P/P = per further definitions of these terms].)</li> </ul>										
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic		>5 acre feet			1.1	o 5 acre feet			≤1 acre foot	
flooding or ponding  Duration of surface water at wetlands within the AA				-			I			

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.	1 to 5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9Н	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:** AA is 1.83 acres without potential to support greater than 0.5 feet of surface water.

Elow]) Sedimerevels with the control of the control	r of wetta e of floor ains no ains un dimenta e, or on I to 141.	and veger and veger and veger and restricted Cover  Shorelin the shore and streamlies with sta	greater tha	Yes  11  19  10  10  10  10  10  10  10  10	receives of to deliver appounds at substant cources of the total transfer and the total transfer and transfer	or surrous levels of act levels of act levels of act levels of act levels of tally important of the control of	inding la f sedime such that baired. M ts or toxication p  Yes  .7N  .6M  .curs on subject to arrive at	nd use wents, nutrat other fit inor sedicants, or resent.	vith poter ients, or unctions imentatic signs of %  No .5M .4M .4M .the ban action. I	ks or a l	Water devel nutrients with pote compoun- Major sec  Yes  .5M  .4M  .4M	body on lopment s, or toxic ential to ds such dimental ≥ 70%	MDEQ lifer "probants or deliver I that other ion, sour of eutro"  No .4N .3I	ist of war pable cau AA rece igh leve er function rees of no phication	terbodies uses" relatives or sits of sedions are subutrients con preser  Yes  .2L  .2L	s in need to surroundi ments, i ubstantitor toxicant.	d of TMDL ediment, ing land use nutrients, or ally impaired ants, or signs
A contact A con	r of wetland ains un  ains un  ains un  dimentale, or on I to 141.  ng (wor of wetland by special	and veger and veger and veger being / po or restricted  Cover  Shorelin the shore king from nd streamlies with sta	ration in AA Inding in AA Cited outlet I outlet Greater tha Legreater tha	Yes  Yes  11  .9i  n 70%, u  ion: (Appnding water	to deliver	levels of at levels. The levels of at levels	of sedime such that such that such that so it to red to xi ication p  Yes  .7M  .6M  .curs on subject to arrive at	ents, nutrit other full funders and funder	ients, or unctions immentation signs of No .5M .4M	ks or a I	devel nutrients with pote compoun. Major see	am, or coply, clic	for "problem for "	wable cau AA rece iigh leve er functio rces of n ophicatio	uses" relatives or site of sed on preser  Yes  .2L  nan-mad re and	ated to s urroundi ments, i ubstantia or toxica nt. < 70	ediment, ing land use nutrients, or ally impaired ints, or signs No
AA contact	ains un  ains un  nents: dimentale, or on la to 141. ng (wor of wetland by specification)	cover  Shorelin the shore  cover  sing from distreamiles with sta	cted outlet  I outlet  greater tha  e Stabilizate eline of a state top to botto bank or	n 70%, u	H	Poed duri	.7M .6M ng cons	< 70 struction or within to wave a	.5M .4M	f 14H do	.5M .4M	am, or copply, clic	No .4N .3I	M	Yes .3L .2L	< 70	No .2L
AA contact  AA co	ains no ains un ains u	Cover  Shorelin the shore  king from d streamles with sta	greater tha  Be Stabilizate top to botto bank or	n 70%, u	H  Indisturb  Ilies only er body v  manent / F	7M oed duri	.7N .6N ng cons	struction or within to wave a	.5M .4M n.	f 14H do	.5M .4M	am, or copply, clico	.3I	ural or n	.3L .2L		.2L
AH Sector AH Se	dimentale, or on to 141.	Cover  Shorelin the shore king from d streamlies with sta	greater tha  e Stabilizateline of a state  top to botto  pank or	n 70%, u  ion: (App nding wate	ndisturb lies only ver body ver matrix be	oed duri	.6M ng cons curs on subject t	or within to wave a	.4M  the ban action. I	f 14H do	.4M	am, or copply, clico	.3I	ural or m	.2L		
4H Sectoral Articles	dimentale, or on I to 141.	Cover Shorelin the shore	greater tha  e Stabilizat eline of a state top to botto	n 70%, u	ndisturb lies only er body v e matrix b	ed duri	ng cons curs on subject t	or within to wave a	n.  the ban action. I	f 14H do	river, streations not appoints and	am, or copply, clico	other nat	ural or m	nan-mad re and		.1L
4H Sec Irainage roceed  Ratir 6 Cover horeline f ≥6 (see 65% 5-64% 35%	diment/e, or on I to 141.  ng (wor of wetlane by speci	Shoreling the shore sking from the stream of	e Stabilizateline of a state top to bottopank or	ion: (App nding wate	lies only er body v matrix b	if AA oc which is a pelow to	curs on subject t	or within to wave a	the ban action. I	f 14H do	oes not ap	oply, clic			re and	e	
Ratir 6 Cover horeline f ≥6 (see 65% 5-64%	e, or on I to 14l. ng (wor of wetla	the shore king from nd streaml fes with sta	eline of a state	nding wate	er body v matrix b manent / F	which is	subject t arrive at	to wave a	action. I	f 14H do	oes not ap	oply, clic			re and	le	
6 Cover horeline f ≥6 (see 65% 5-64% 35%	of <u>wetla</u> by spec	nd stream ies with sta	bank or		manent / F										vol		
f ≥6 (see 65% 5-64% 35%			willy faultys	Peri		Perennial									rol		
5-64%					1H			Sea	asonal / In	termitten	t	Те	mporary /	Epheme	ıaı		
35%									.9H	1			.7	М			
					.7M				.61	1			.5	БМ			
omme					.3L				.21					1L			
i. Lev	vel of E	-	ort/Food Ch		f wildlife a												
Ra	ating (1	4D.iii.)	E/	1		М		Ĺ									
	E/H		H			Н			М								
	М		+			М			М								
	L		N			М			L								
	N/A		H			M			L								
etland ubsurfa see inst	compo ace outl	nent in th et; the fin s for furth	m top to bott e AA; Factor al three row er definition	B = level s pertain to s of these	of biolog duration	ical activ	vity ratin ace wate	g from a er in the	bove (14	I.i.); Fac re P/P,	ctor C = w	vhether o	or not th is previo	e AA co usly def	ntains a	surface d A = "a	or
;	Hig Yes		Moderate Yes No		.ow No	Hi Yes	igh No		erate No		ow No	Hiç Yes		Mode Yes			ow No
/P	1E	.7H	.8H .5M	1	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
/1	.9H	.6M	.7H .4N		.3L	.8H	.5M	.6M	.3L	.4M	.3L	.7H	.5M	.5M	.3L	.3L	.2L
/E/A	.8H	.5M	.6M .3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
int cove ntrol).			DTE: Modifi	ed score c	r, and tha	at is not	subjecte	ed to peri		chanica	l mowing			ess for w		1	

i. Discharge Ind The AA is a slope we Springs or seeps are Vegetation growing of Wetland occurs at the Seeps are present at AA permanently flood Wetland contains an Shallow water table a	etland known or obs during dorman e toe of a natu t the wetland of ded during dro outlet, but no	nt season/dro ural slope edge ought periods inlet	6	Wetl	neable substr and contains um is a knowr	inlet but no	without unde outlet	erlying im		·
i. Rating (use the inform	nation from i	and ii above	and the table  Duration of sate	uration at AA	Wetlands FR	OM GROUNE	WATER DIS	CHARGE		TH WATER
riteria			D/D	THAT IS	RECHARGING	THE GROU		SYSTEM	No	
roundwater Discharge or R	echarge		P/P 1H		.7M		.4M		No	ne 1L
sufficient Data/Information	ı					NA				
M. Uniqueness: Rating (working from to	op to bottom,	use the mat	rix below to arı		k] the functio		nd rating)			
Replacement potential	or matur wetland <b>o</b>	ns fen, bog, v re (>80 yr-old r plant assoo S1" by the M	ciation listed	cited rar diversity (	re types and #13) is high ociation listed the MTNHF	structural or contains I as "S2" by	cited r	are type: tructural	s or as	oreviously sociations ty (#13) is
stimated relative bundance (#11)	rare	commo	abundant	rare	common	abundant	rare	con	nmon	abundant
ow disturbance at AA 12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	[ .	4M	.3L
oderate disturbance at A (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M		3L	.2L
igh disturbance at AA #12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L		2L	.1L
AL. Recreation/Education Is the AA a known or poster and proceed to ii. Check categori  Other  i. Rating (use the matrix	otential rec./ to the overall es that apply	/ed. site: (check summary are yet o the AA:	neck) Y    nd rating page)  M Education	N nal/scientific	(if 'Yes' constudy; \( \subseteq \text{C} \)	tinue with th	e evaluation	n; if 'No'		
Known or Potential Recreation			a access (no no	rmission roa	uirod)			Known	Pot	tential
ublic ownership or public e				mission req	uirea)			.2H	_	.15H
rivate or public ownership	•	` .	. ,	nermission f	or nublic acco	199		.15H		.1M
or public ownership	yener	pasiio acce	oo, or requirily	Politicaliti	o. public acce			.1M		.05L
eneral Site Notes										

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.5	1	0.915	
C. General Wildlife Habitat	М	.7	1	1.281	
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.4	1	0.732	
F. Short and Long Term Surface Water Storage	L	.3	1	0.549	
G. Sediment/Nutrient/Toxicant Removal	Н	.9	1	1.647	
H. Sediment/Shoreline Stabilization	Н	1	1	1.83	
Production Export/Food Chain Support	М	.7	1	1.281	
J. Groundwater Discharge/Recharge	М	.7	1	1.281	
K. Uniqueness	М	.4	1	0.732	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	0.366	
Totals:		5.8	10	10.614	
Percent of Possible Score			58 %		,

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

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

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Big Muddy Creek 2013 Wetland Mitigation Monitoring Re	port
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# Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring Big Muddy Creek Roosevelt County, Montana



Photo Point 1 – Photo 1 Bearing: North



**Location:** SE property corner Northern Parcel Taken in 2011



Photo Point 1 – Photo 1 Bearing: North





Photo Point 1 – Photo 1

Bearing: North Taken in 2013



Photo Point 1 – Photo 2

Bearing: Northwest

**Location:** SE property corner Northern Parcel

Taken in 2011



Photo Point 1 – Photo 2

Bearing: Northwest

**Location:** SE property corner Northern Parcel

Taken in 2012



Photo Point 1 – Photo 2

Bearing: Northwest

**Location:** SE property corner Northern Parcel



Taken in 2011

Photo Point 1 – Photo 3 Bearing: Southwest



Northern Parcel



Bearing: Southwest



Northern Parcel Taken in 2012



Photo Point 1 – Photo 3

Location: SE property corner Northern Parcel

Bearing: Southwest Taken in 2013



Photo Point 2 - Photo 1 Bearing: North

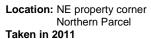




Photo Point 2 - Photo 1

Bearing: North

**Location:** NE property corner Northern Parcel

Taken in 2012



Photo Point 2 - Photo 1

Bearing: North

**Location:** NE property corner Northern Parcel



Photo Point 2 – Photo 2 Bearing: East



Location: NE property corner Northern Parcel



Photo Point 2 – Photo 2 Bearing: East



**Location:** NE property corner Northern Parcel Taken in 2012



Bearing: East

**Location:** NE property corner Northern Parcel Taken in 2013



Taken in 2011

Photo Point 2 – Photo 3 Bearing: South

**Location:** NE property corner Northern Parcel Taken in 2011



Photo Point 2 – Photo 3

Bearing: South



**Location:** NE property corner Northern Parcel

Taken in 2012



Photo Point 2 – Photo 3

Bearing: South

**Location:** NE property corner Northern Parcel



Taken in 2011

Photo Point 2 – Photo 4 Bearing: West



Photo Point 2 - Photo 4 Bearing: West



**Location:** NE property corner Northern Parcel Taken in 2012



Photo Point 2 – Photo 4

Location: NE property corner Northern Parcel

Bearing: West Taken in 2013



Photo Point 3 – Photo 1

Bearing: East

**Location:** NW property corner Northern Parcel

Taken in 2011



Photo Point 3 - Photo 1

Bearing: East

**Location:** NW property corner Northern Parcel Taken in 2012



Photo Point 3 – Photo 1

Bearing: East



**Location:** NW property corner Northern Parcel



Photo Point 3 – Photo 2 Bearing: South



**Location:** NW property corner Northern Parcel Taken in 2011



Photo Point 3 – Photo 2

Bearing: South

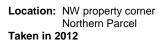




Photo Point 3 – Photo 2

**Location:** NW property corner Northern Parcel

Bearing: South Taken in 2013



Photo Point 3 – Photo 3

Bearing: West

**Location:** UT of Big Muddy Northern Parcel

Taken in 2011



Photo Point 3 – Photo 3

Bearing: West

**Location:** UT of Big Muddy Northern Parcel

Taken in 2012



Photo Point 3 – Photo 3

Bearing: West

**Location:** UT of Big Muddy Northern Parcel



Photo Point 3 - Photo 4 Bearing: North

Location: UT of Big Muddy Northern Parcel

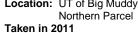




Photo Point 3 – Photo 4

Bearing: North



Taken in 2012



Photo Point 3 – Photo 4

Bearing: North



Taken in 2013



Photo Point 4 – Photo 1

Bearing: North

**Location:** SW property corner Northern Parcel

Taken in 2011



Photo Point 4 – Photo 1

Bearing: North

**Location:** SW property corner Northern Parcel

Taken in 2012



Photo Point 4 – Photo 1

Bearing: North

**Location:** SW property corner Northern Parcel



Photo Point 4 – Photo 2

Bearing: Northeast

**Location:** SW property corner Northern Parcel

Taken in 2011



Photo Point 4 – Photo 2

Bearing: Northeast



**Location:** SW property corner Northern Parcel

Taken in 2012



Photo Point 4 – Photo 2

Bearing: Northeast

**Location:** SW property corner Northern Parcel

Taken in 2013



Photo Point 4 - Photo 3

Bearing: Northwest

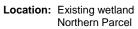
**Location:** Existing wetland Northern Parcel

Taken in 2011



Photo Point 4 – Photo 3

Bearing: Northwest



Taken in 2012



Photo Point 4 – Photo 3

Bearing: Northwest

**Location:** Existing wetland Northern Parcel



Photo Point 5 - Photo 1 Bearing: 221 deg

**Location:** Veg Com 5, Southern Parcel **Taken in 2012** 



Photo Point 5 – Photo 1 Bearing: 221 deg

**Location:** Veg Com 9, Southern Parcel **Taken in 2013** 



Photo Point 6 – Photo 1 Bearing: 0 deg

Location: Veg Com 1, Southern Parcel Taken in 2012



Photo Point 6 – Photo 1 Bearing: 0 deg

**Location:** Veg Com 8, Southern Parcel **Taken in 2013** 



Photo Point 7 – Photo 1 Bearing: 180 deg

**Location:** Veg Com 7, Southern Parcel **Taken in 2012** 



Photo Point 7 – Photo 1 Bearing: 180 deg

**Location:** Veg Com 10, Southern Parcel **Taken in 2013** 



Transect 1 - Start Bearing: 220 deg



Location: Veg Com 1 Northern Parcel Taken in 2011



Bearing: 220 deg



**Location:** Veg Com 1 Northern Parcel Taken in 2012



Transect 1 - Start Bearing: 220 deg

Location: Veg Com 8 Northern Parcel Taken in 2013



Transect 1 - Finish Bearing: 0 deg

**Location:** Veg Com 2 Northern Parcel Taken in 2011



Transect 1 - Finish

Bearing: 0 deg

**Location:** Veg Com 2 Northern Parcel Taken in 2012



Transect 1 - Finish

Bearing: 0 deg

**Location:** Veg Com 8 Northern Parcel Taken in 2013



Transect 2 - Start

Bearing: 130 deg

**Location:** Veg Com 5 Southern Parcel

Taken in 2012



Transect 2 - Start

Bearing: 130 deg

Location: Veg Com 4 Southern Parcel

Taken in 2013



Transect 2 - Finish

Bearing: 310 deg

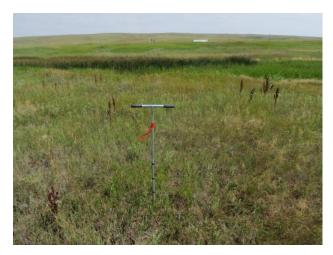
Location: Veg Com 1 Southern Parcel Taken in 2012



Transect 2 - Finish

Bearing: 310 deg

**Location:** Veg Com 8 Southern Parcel



Data Point 1 – BM-1u

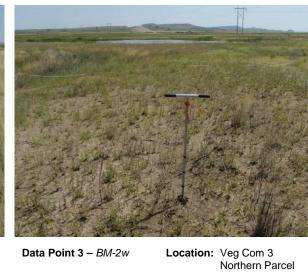
Bearing: 10 deg

**Location:** Veg Com 8 Northern Parcel Taken in 2013



Data Point 2 – BM-1w

**Location:** Veg Com 8 Northern Parcel Bearing: 180 deg Taken in 2013



Data Point 3 – BM-2w

Bearing: 100 deg Taken in 2013



Data Point 4 – BM-3w

Location: Veg com 9 Southern Parcel

Bearing: 0 deg Taken in 2013

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Ria Muddy	Creek 2013	Wetland	Mitigation	Monitoring	Report

# Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring Big Muddy Creek Roosevelt County, Montana

