MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2013

Woodson Creek
Ringling, Meagher County, Montana



Prepared for:

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December 2013

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MDT Project Number: NH-STPX-STPP 30(15)
Control Number: 5912

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1. INTRODUCTION

The 2013 Woodson Creek Wetland Mitigation Monitoring Report presents the results of the sixth and final year of wetland monitoring at the Woodson Creek wetland mitigation project. The site was not monitored in 2009 based on Montana Department of Transportation (MDT) discussions with the US Army Corps of Engineers (USACE) concerning performance standard revisions to the goals and objectives for the site. The mitigation site was constructed in 2006 in Meagher County in the southeast portion of the Missouri-Sun-Smith watershed (Watershed- 7). Approximately 50 acres of wetland credit were to be awarded to the MDT through a credit purchase agreement to compensate for wetland impacts associated with MDT highway and bridge reconstruction projects in the watershed. Woodson Creek was constructed on the Ringling Land and Cattle Company property. The goals of the project were to restore Woodson Creek to its historic configuration, to improve wetland hydrology, and to create wetlands. The mitigation area was projected to provide a maximum of 73.3 acres of palustrine emergent and scrub-shrub wetland within the boundaries of the site.

The project site is at an elevation of approximately 5,390 feet above mean sea level and located in Meagher County three miles northeast of Ringling, Montana, (Figure 1). The Woodson Creek site is shown on the Hamen, Montana, US Geological Survey 7.5 minute topographic quadrangle in Sections 9 and 16, Township 6 North, Range 8 East. The approximate universal transverse mercator (UTM) coordinates (NAD83) for the center of the site are (Zone 12N) 5,126,147 Northing, 520,656 Easting. Figures 2 and 3 (Appendix A) show the onsite Monitoring Activity Locations and Mapped Site Features, respectively. The MDT Wetland Mitigation Site Monitoring Form, USACE Routine Wetland Determination Data Forms (Environmental Laboratory 1987), and the 1999 MDT Montana Wetland Assessment Method forms (Berglund 1999) are included in Appendix B. Representative photographs are shown in Appendix C and the project plan sheet is presented in Appendix D.

The mitigation site originally included seven different crediting areas developed with individual performance standards. The original performance standards for Woodson Creek were amended on March 29, 2010, as referenced in a USACE letter dated August 6, 2010 (USACE 2010a). The amendment replaced the seven previous sets of performance standards with a single set of performance standards that apply to all assessment areas. The new method of awarding credits is based on a credit-reduction methodology in contrast to the prior standard which was a pass/fail system. The newly adopted standards require an assurance of a functional lift with the most favorable credit ratios awarded if wetland assessment areas achieve a Category II status or better. The functional lift continues to be assessed using the 1999 MDT Montana Wetland Assessment

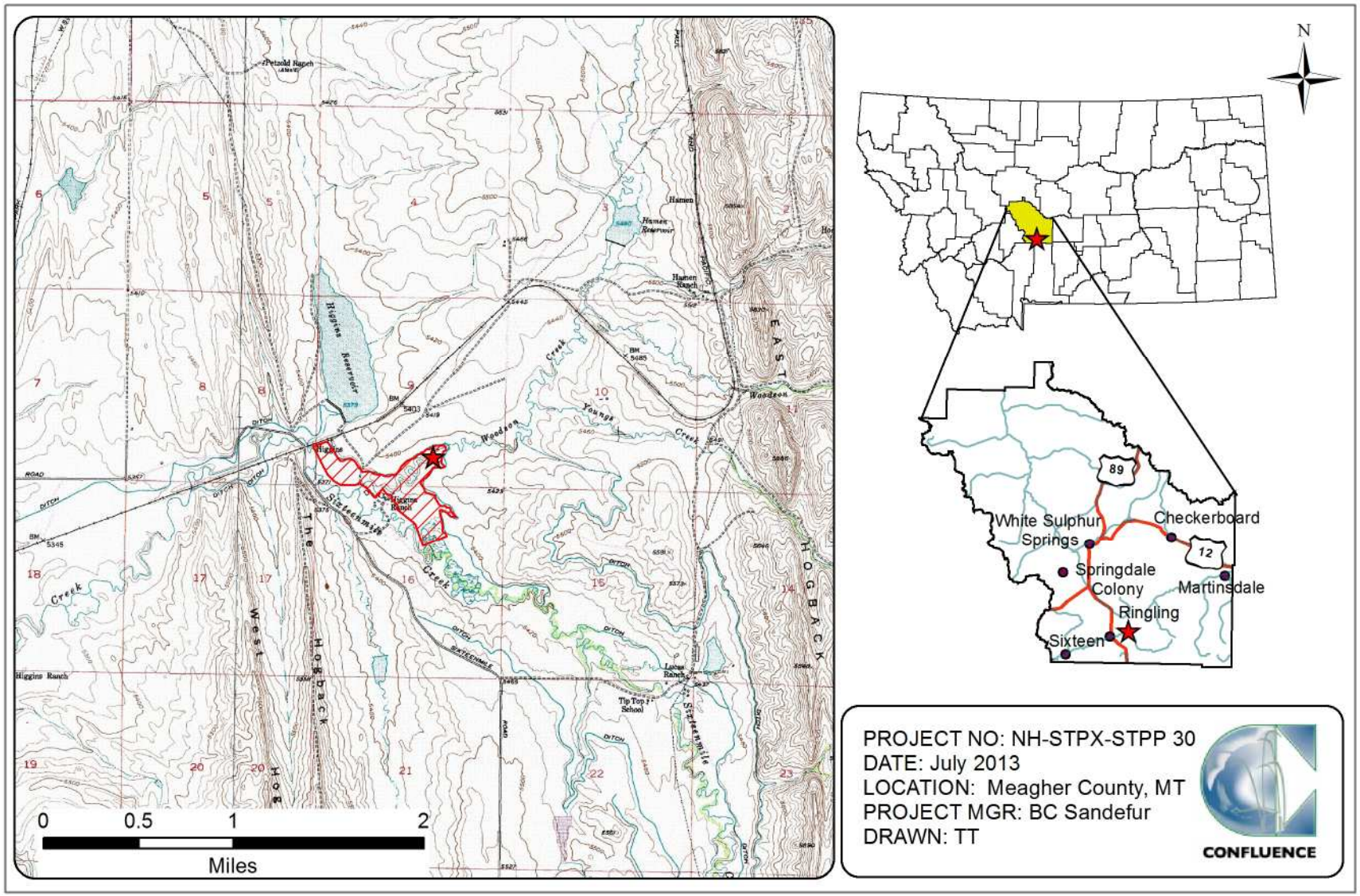


Figure 1. Project location of the Woodson Creek Wetland Mitigation Site.

Method (MWAM) (Berglund 1999). The six Primary Standards for performance as amended in 2010 are listed below. These standards are to be applied to each assessment area within the wetland mitigation site individually.

1. Meet all three wetland criteria (as defined in 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

2. Maximum noxious weed coverage is not to exceed 5 percent.

3. Soil saturation in the upper 12 inches of the soil profile for a minimum of 12.5 percent of the growing season.

4. Areal coverage of all plant species must be at least 80 percent and requires a 2-year survival period; bare ground shall not exceed 20 percent areal coverage.

5. Permanent open water lacking persistent emergent vegetation or aquatic bed vegetation will comprise less than 15 percent of the total wetland project area and no single body is to exceed 3 acres.

6. Achieve a Category II functional rating.

2. METHODS

This year's monitoring was conducted on August 12, 2013. Information contained on the Mitigation Monitoring Form and Wetland Determination Data Form was entered electronically in the field on a palmtop computer during the field investigation (Appendix B). Monitoring activity locations were mapped using a global positioning system (GPS) (Figure 2, Appendix A). Information collected included a wetland delineation, wetland and upland boundary survey, vegetation community mapping, vegetation transect monitoring, woody species survival monitoring, soil and hydrology data, bird and wildlife use documentation, photographs, functional assessment, and a non-engineering examination of the infrastructure established within the mitigation project area.

2.1. Hydrology

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 (usually 14 days or 12.5 percent or more during the growing season)" (Environmental Laboratory 1987). Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are considered wetlands. The growing season is defined 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 (Environmental Laboratory 1987). The growing season recorded for the meteorological station at White Sulphur Springs 2, Montana (248930), extends from May 23 to September 17, approximately 117 days (WRCC 2011). Areas

defined as wetlands would require 15 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria and performance standards.

The presence of hydrologic indicators as outlined on the Wetland Determination Data Form was documented at four data points established within the project area. 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). Hydrologic assessments allowed evaluation of mitigation criteria addressing inundation/saturation requirements.

Groundwater levels were measured in five monitoring wells in 2013. Soil pits excavated during the wetland delineation were also 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 general dominant, species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2013 aerial photograph. The percent cover of dominant species within a community type was estimated and recorded using the following ranges listed on the Mitigation Monitoring Form: 0 (less than 1 percent), 1 (1-5 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 assessment of three vegetation belt transects approximately 10 feet wide and 526 feet (Transect 1), 583 feet (Transect 2), and 353 feet (Transect 3) long (Figure 2, Appendix A). The transect location was recorded with a GPS unit. Spatial changes in the dominant vegetation communities (based on percent cover) were recorded along the stationed transect. The percent cover of each vegetation species within the belt was estimated using the same cover ranges listed for the vegetation community data (Appendix B). Photographs were taken at the transect endpoints 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 2013 aerial photo (Figure 3, Appendix C). The noxious weed species identified are color-coded. The locations are denoted with the symbol "**x**", "▲", or "■" representing 0 to 0.1 acres, 0.1 to 1.0 acre, or greater than 1.0 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, as listed on Figure 3 (Appendix A).

2.3. Soil

Soil information was obtained from the *Soil Survey for Meagher County* and *in situ* soil descriptions accessed from the Natural Resource Conservation Service (NRCS) official soil description website (USDA 2010). Soil cores were excavated using a hand auger and evaluated according to procedures outlined in the 1987 Wetland Delineation Manual. A description of the soil profile, including hydric indicators when present, was recorded on the USACE Wetland Determination Data Form for each profile (Appendix B).

2.4. Wetland Delineation

Waters of the US including jurisdictional wetlands and other special aquatic sites were delineated throughout the project area in accordance with criteria established in the 1987 Wetland Delineation Manual. In order to delineate a representative area as a wetland, the technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology, as described in the 1987 Wetland Manual, must be satisfied. 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 9 (Reed 1988). The 2012 NWPL scientific plant names were used in this report. The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate wetland areas within the project boundaries. The information was recorded electronically on the Wetland Determination Data Form (Appendix B).

Consultation with the USACE determined that the 1987 manual should continue to be used at this site as the baseline wetland conditions had been established prior to 2008. The use of the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010b) was not required.

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area, or special aquatic site, i.e., mudflat. The wetland boundary was GPS surveyed and is presented on the 2013 aerial photograph. Wetland areas were calculated using geographic information systems (GIS) methods.

2.5. Wildlife

Observations of use by 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 (Appendix B). Direct sampling methods, such as snap, live, and pitfall traps were not used. A comprehensive species list of wildlife observed from 2007 through 2013 during the annual monitoring periods has been compiled.

2.6. Functional Assessment

Pre-construction, 2007, 2008, and 2010 through 2013 wetland conditions were assessed using the 1999 MDT MWAM. Field data for this assessment were collected during the site visit. A Wetland Assessment Form was completed for each wetland or group of wetlands; otherwise called Assessment Areas (AAs) (Appendix B).

2.7. Channel Cross-Sections

Two permanent cross-sections established in 2007 were monitored in 2008 and 2010 through 2013. The cross-sections were located at the upper and lower ends of the restored Woodson Creek (Figure 2, Appendix A).

2.8. Streambank Erosion Pins

Streambank erosion pins were installed in 2007 at two locations. Smooth, 4-foot long, 1/4 inch steel bars were installed horizontally into streambanks at the outside of meander bends where high bank erosion rates were expected. The pins were located at the upstream and downstream ends of the stream channel. The lengths of the pins protruding from the bank were measured during each of the monitoring events.

2.9. Photo Documentation

Monitoring at photo points provided supplemental information for documenting wetland, upland, and vegetation transect conditions, site trends, and current land uses surrounding the site. Photographs were taken at four established photo points throughout the mitigation area during the site visit (Appendix C). Photo point locations were recorded with a resource grade GPS unit (Figure 2, Appendix A).

2.10. 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 wetland boundaries, fence boundaries, photograph points, transect endpoints, and wetland data points.

2.11. Maintenance Needs

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

3. RESULTS

3.1. Hydrology

The closest active weather station to the wetland monitoring area is White Sulphur Springs 2 (248930). According to the Western Regional Climate Center (WRCC), mean annual precipitation at this station was approximately 12.66 inches from December 1978 to March 2013. The annual precipitation total in 2010 was 15.12 inches, 2.46 inches higher than the 32 year average. The total precipitation reported for 2011 and 2012 were 9.30 inches and 5.24 inches, respectively, but included several days of missing data during each year. The long-term cumulative precipitation for January to August is 9.81 inches. The cumulative precipitation for this same period was 11.94 inches (2010), 8.59 inches (2011), 4.08 inches (2012), and 8.12 inches (2013). These data indicate that precipitation has been below average at this site from 2011 through 2013 and substantially less in 2012 than for the historic average.

Average annual reference evapotranspiration rates between April 2nd and September 29th are estimated to be approximately 37.1 inches at White Sulphur Springs, nearly three times the yearly precipitation rate, indicating that precipitation alone is insufficient to supply wetland hydrology. Surface water from Woodson Creek and Sixteen Mile Creek and groundwater are the primary sources of wetland hydrology at the site.

Six groundwater monitoring wells were installed on the site in the spring of 2008 (Figure 2, Appendix A) and were monitored during each subsequent site visit. Groundwater levels were measured in 2013 with an electronic water level meter. The 2008 through 2013 data are presented in Table 1. Since 2011, none of the wells have shown water levels within one foot of the soil surface. In 2013, the groundwater depth in MW-6 was recorded at 2.5 feet below ground surface. There was no water recorded in MW-1 through MW-4. The groundwater monitoring well MW-5 was not located. The nearby MW-6 well included incisor marks on the PVC cap, reflective of black bear disturbance, and it is assumed MW-5 had been removed by an animal between the 2012 and 2013 monitoring events.

Approximately 10 percent of the site was inundated in 2013. Inundation occurred within Woodson Creek and in excavated cells. The average surface water depth across the site was estimated at 1.0 foot, with a range in depths of 0.0 to 2.0 feet. The surface water depth at the emergent vegetation and open water boundary was approximately 0.5 feet. The levee of the irrigation canal located at the northwest end of the site was breached between the 2010 and 2011 site visits. The breach allowed irrigation flow from the canal to enter the northwest portion of the mitigation site, substantially increasing the extent of wetland hydrology in this area. The breach was repaired between the 2011 and 2012 site visits and prevented extra irrigation water from entering the site, effectively decreasing the extent of wetland hydrology in this area.

Table 1. Groundwater depths bgs measured from July 2008 to August 2013 at the Woodson Creek Wetland Mitigation Site.

Well Number	2008 Depth (ft.) bgs	2010 Depth (ft.) bgs	2011 Depth (ft.) bgs	2012 Depth (ft.) bgs	2013 Depth (ft.) bgs
MW-1	-0.02	0.00	2.80	Dry	Dry
MW-2	0.53	0.52	2.80	Dry	Dry
MW-3	0.48	0.45	Dry	0.30	Dry
MW-4	0.30	0.32	2.20	Dry	Dry
MW-5	0.68	0.71	Dry	Dry	N/A
MW-6	1.95	2.10	Dry	Dry	2.50

Data points W-1u, W-1w, W-2u, and W-2w (Figure 2, Appendix A, and Wetland Determination Data Forms, Appendix B) were established to assist in determining the wetland/upland boundary. Two data points were located in areas that met the wetland criteria. Data point W-1w had a positive FAC-Neutral test and intercepted a seasonally high groundwater table. Point W-2w was located in a seasonally saturated wet meadow. There were no hydrology indicators present at data points W-1u or W-2u. Additional hydrologic indicators observed site-wide included inundation visible on aerial imagery, water stained leaves, wetland drainage patterns, and shallow groundwater table.

3.2. Vegetation

One hundred and four vegetation species identified on site in 2007, 2008 and 2010 through 2013 are presented in Table 2. Eight vegetation communities were identified in 2013 and included: wetland Community Type 1 — *Alopecurus arundinaceus*/Mixed graminoids, wetland Type 3 – *Alopecurus arundinaceus,* upland Type 4 – *Poa pratensis/Bromus inermis*, wetland Type 5 – Aquatic Macrophytes, wetland Type 7 – *Carex utriculata/Phalaris arundinaceus*, upland Type 8 – *Bromus inermis*/*Alopecurus arundinaceus*, wetland Type 9 – *Alopecurus arundinaceus*/*Juncus balticus*, and wetland Type 10 – *Eleocharis palustris*/Mixed graminoids. The eight communities identified in 2013 and complete lists of the associated species are on the Monitoring Form in Appendix B and the mapped communities are shown on Figure 3 in Appendix A. These communities are described below.

Wetland community Type 1 — *Alopecurus arundinaceus*/Mixed graminoids was originally identified as a community in 2008. This community is the largest on the site (47.23 acres) and encompasses a majority of the Woodson Creek floodplain and adjacent riverine wetlands. The primary vegetation is creeping meadow-foxtail (*Alopecurus arundinaceus*), Arctic rush (*Juncus arcticus*) and reed canary grass (*Phalaris arundinaceus*). Seventeen other species were identified in this community with up to five percent cover.

Table 2. Comprehensive list of vegetation species identified in 2007, 2008, and 2010 to 2013 for the Woodson Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis exarata	Spiked Bent	FACW
Agrostis gigantea	Black Bent	FAC
Agrostis stolonifera	Spreading Bent	FAC
Algae, green	Algae, green	NL
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FAC
Ambrosia acanthicarpa	Flastspine Burr Ragweed	UPL
Aquatic Macrophytes	Aquatic macrophytes	NL
Argentina anserina	Common Silverweed	OBL
Aster sp.	Aster	NL
Aster sp. (purple)	Aster	NL
Aster sp. (yellow)	Aster	NL
Beckmannia syzigachne	American Slough Grass	OBL
Bromus inermis	Smooth Brome	FAC
Calamagrostis canadensis	Bluejoint	FACW
Carduus nutans	Nodding Plumeless Thistle	UPL
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex lasiocarpa	Woolly-Fruit Sedge	OBL
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex utriculata	Northwest Territory Sedge	OBL
Chenopodium album	Lamb's-Quarters	FACU
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Cynoglossum officinale	Gypsy-Flower	FACU
Dasiphora fruticosa	Golden-Hardhack	FAC
Deschampsia cespitosa	Tufted Hairgrass	FACW
Descurainia sophia	Herb Sophia	UPL
Distichlis spicata	Coastal Salt Grass	FACW
Dodecatheon pulchellum	Dark-Throat Shootingstar	FACW
Eleocharis palustris	Common Spike-Rush	OBL
Elymus repens	Creeping Wild Rye	FAC
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium sp.	Willowherb	NL
Equisetum arvense	Field Horsetail	FAC
Equisetum hyemale	Tall Scouring-Rush	FACW
Galium aparine	Sticky-Willy	FACU

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).

New species identified in 2013 are bolded.

Table 2 (Continued). Comprehensive list of vegetation species identified in 2007, 2008, and 2010 to 2013 for the Woodson Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Glyceria grandis	American Manna Grass	OBL
Glycyrrhiza lepidota	American Licorice	FAC
Grindelia squarrosa	Curly-Cup Gumweed	FACU
Halogeton glomeratus	Saltlover	UPL
Helianthus annuus	Common Sunflower	FACU
Hieracium sp.	Hawkweed	NL
Hippuris vulgaris	Common Mare's-Tail	OBL
Hordeum jubatum	Fox-Tail Barley	FAC
Iris missouriensis	Rocky Mountain Iris	FACW
Juncus arcticus	Arctic Rush	FACW
Juncus effusus	Lamp Rush	FACW
Juncus filiformis	Thread Rush	FACW
Lactuca serriola	Prickly Lettuce	FACU
Lemna minor	**Common Duckweed**	**OBL**
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Muhlenbergia richardsonis	Matted Muhly	FAC
Myriophyllum sp.	Water-Milfoil	NL
Najas sp.	Waternymph	NL
Panicum virgatum	Wand Panic Grass	FACW
Pascopyrum smithii	Western-Wheat Grass	FACU
Penstemon laricifolius	Larchleaf Beardtongue	UPL
Persicaria amphibia	Water Smartweed	OBL
Persicaria pensylvanica	Pinkweed	FACW
Persicaria sp.	Smartweed	NL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum alpinum	Mountain Timothy	FAC
Phleum pratense	Common Timothy	FAC
Plantago major	Great Plantain	FAC
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Potentilla sp.	Cinquefoil	NL
Puccinellia nuttalliana	Nuttall's Alkali Grass	FACW
Ranunculus gmelinii	Lesser Yellow Water Buttercup	FACW
Ranunculus longirostris	Long-Beak Water-Crowfoot	OBL
Ranunculus sp.	Buttercup	NL
Rumex crispus	Curly Dock	FAC
Ruppia sp.	**Widgeonweed**	**NL**
Salix exigua	Narrow-Leaf Willow	FACW
Salix sp.	Willow	NL

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).

New species identified in 2013 are bolded.

Table 2 (Continued). Comprehensive list of vegetation species identified in 2007, 2008, and 2010 to 2013 for the Woodson Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Salsola kali	Russian Thistle	UPL
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Scirpus pallidus	Pale Bulrush	OBL
Scutellaria lateriflora	Mad Dog Skullcap	FACW
Sisyrinchium montanum	Strict Blue-Eyed-Grass	FAC
Solidago canadensis	Canadian Goldenrod	FACU
Solidago sp.	Goldenrod	NL
Sonchus arvensis	Field Sow-Thistle	FACU
Sparganium angustifolium	**Narrow-Leaf Burr-Reed**	**OBL**
Sporobolus cryptandrus	Sand Dropseed	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Penny-Cress	UPL
Trifolium longipes	Long-Stalk Clover	FAC
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Triglochin maritima	Seaside Arrow-Grass	OBL
Triglochin palustris	Marsh Arrow-Grass	OBL
Triglochin sp.	Arrowgrass	NL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Valeriana edulis	Tobacco-Root	FAC
Vicia sativa	Common Vetch	UPL

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).

New species identified in 2013 are bolded.

Wetland community Type 3 – *Alopecurus arundinaceus* was located on 7.15 acres in the northwest portion of the site. This community has decreased in size by 0.41 acres since 2012. The community was dominated by creeping meadow-foxtail. Common spikerush (*Eleocharis palustris*), American sloughgrass (*Beckmannia syzigachne*), and common silverweed (*Argentina anserina*) were present at 1 to 5 percent cover.

Upland community Type 4 – *Poa pratensis/Bromus inermis* was identified in several upland islands encompassing 12.62 acres in the north half of the site. The dominant species were Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and Canadian goldenrod (*Solidago canadensis*).

Wetland community Type 5 – Aquatic Macrophytes characterized the small, inundated depressions (cumulative 0.99 acres) located adjacent to the Woodson Creek corridor. The wetland type, first classified as an aquatic bed community in 2011, is generally defined as a wetland vegetation class dominated by plants "that grow principally on or below the surface of the water for most of the growing season in almost all years" (Cowardin et al. 1979). The Montana Natural Heritage Program (MTNHP) website further defines the Palustrine Aquatic Bed Class (PAB) as having aquatic plants at greater than 30 percent cover and water

depths of greater than 0.5 meter (and less than 2 meters) (MTNHP 2011). Long-beak water-crowfoot (*Ranunculus longirostris*), common spikerush, and reed canary grass dominated this aquatic community.

Wetland community Type 7 – *Carex utriculata/Phalaris arundinaceus* was found on 0.65 acres in an abandoned meander of the Sixteen Mile Canal located in the southwest corner of the site. Northwest Territory sedge (*Carex utriculata*), reed canary grass, and common spikerush dominated the herbaceous cover. Nebraska sedge (*Carex nebrascensis*) and Arctic rush were secondary species in this community.

Upland community Type 8 – *Bromus inermis*/*Alopecurus arundinaceus* was primarily located along the perimeter of the mitigation site. This site increased in size by 3.47 acres to 6.77 acres in 2013. The predominant species included smooth brome, creeping meadow-foxtail, Kentucky bluegrass, and common yarrow (*Achillea millefolium*). Thirteen other species were present at less than five percent cover each.

Wetland community Type 9 – *Alopecurus arundinaceus*/*Juncus balticus* was located on 7.99 acres in the northeast and southern portion of the site. This community has decreased by 2.55 acres in 2013. The herbaceous cover was dominated by creeping meadow foxtail, Arctic rush, flat stem bluegrass (*Poa compressa*), and reed canary grass. Seventeen other species were present in this community.

Wetland community Type 10 – *Eleocharis palustris*/Mixed graminoids characterized 0.68 acres of a depression that was ponded in 2010 and 2012 and dry in 2011 and 2013. This community type decreased in extent across the site in 2013 by 3.57 acres, mostly a result of areas reverting to wetland community Type 1 –*Alopecurus arunidaceus*/Mixed graminoids. Common spikerush, creeping meadow-foxtail, American sloughgrass, American mannagrass (*Glyceria grandis*), long beak water-crowfoot, bluejoint reedgrass (*Calamagrostis canadensis*), Arctic rush, and reed canary grass dominated the vegetation cover.

Vegetation transect T-1 was located in the northeast corner of the site. The transect data is summarized on Table 3, Charts 1 and 2, and on the Monitoring Form (Appendix B). Photos at the transect end points are shown in Appendix C. The transect intersected wetland community Type 5 - Aquatic Macrophytes, wetland Type 9 - *Alopecurus/Juncus,* and the open water within the ordinary high water mark (OHWM) of Woodson Creek. The transect communities transitioned from Type 1 - *Alopecurus/*Mixed Graminoid in 2010 to Type 9 in 2011 reflecting an increase in the number and extent of obligate and facultative wet wetland species on transect T-1. No changes to the transect intervals were observed between 2011, 2012 and 2013. This transect contained the highest number of vegetative species sampled at this site and reflected the diversity of habitat represented by the emergent wetlands, riverine, and aquatic bed communities.

Hydrophytic plant communities dominated 99.2 percent of the transect, while open water of Woodson Creek occupied the remaining length.

Table 3. Data summary of transect T-1 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

Monitoring Year	2007	2008	2010	2011	2012	2013
Transect Length (feet)	526	526	526	526	526	526
Vegetation Community Transitions along Transect	2	4	7	4	4	4
Vegetation Communities along Transect	3	3	2	2	2	2
Hydrophytic Vegetation Communities along Transect	3	3	2	2	2	2
Total Vegetative Species	31	20	22	18	23	19
Total Hydrophytic Species	20	18	15	13	15	16
Total Upland Species	11	2	7	5	8	3
Estimated % Total Vegetative Cover	90	90	80	90	95	95
% Transect Length Comprising Hydrophytic Vegetation Communities	100*	100*	88	99	99.2	99.2
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0	0
% Transect Length Comprising Unvegetated Open Water	6*	6*	12	1	0.8	0.8
% Transect Length Comprising Bare Substrate	0	0	0	0	0	0

*Values as presented in 2008 monitoring report

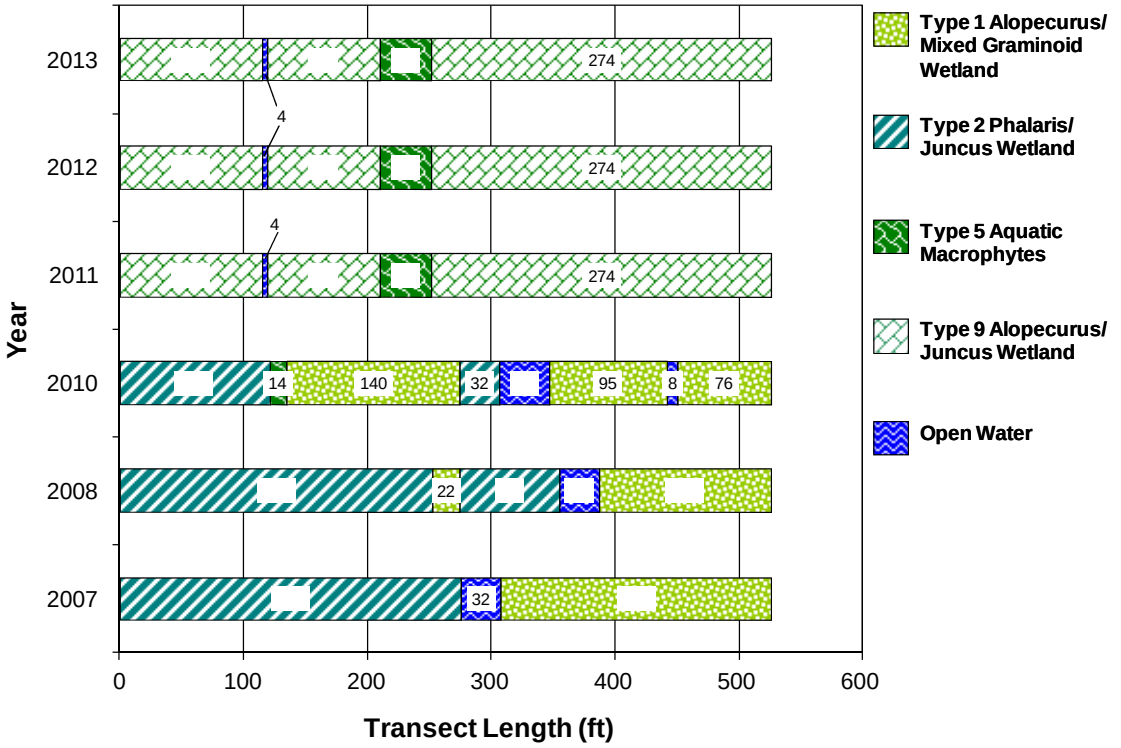


Chart 1. Transect map of vegetation community composition from start (0 feet) to finish (526 feet) of transect T-1 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

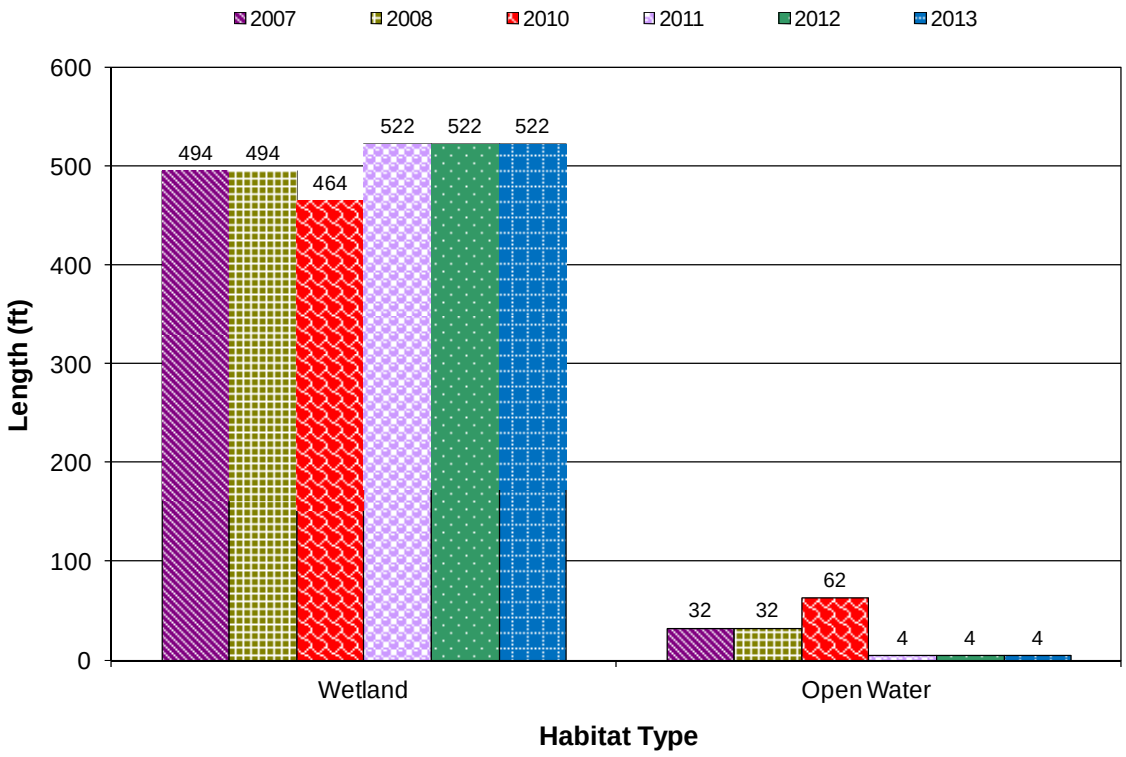


Chart 2. Length of habitat types within transect T-1 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

The data from transect T-2, located near the center of the site, is summarized in Table 4 and graphed in Charts 3 and 4. Photos taken at the transect endpoints are shown in Appendix C. The transect was dominated by wetland community Type 1 *Alopecurus*/Mixed Graminoid. In 2011 and 2012, 200 feet of transect T-2 was classified as wetland Type 10 - common spikerush/mixed graminoids. In 2013, this community reverted to community Type - 1. This change was due to the dominance of *Alopecurus arundinaceus* and the subsequent reduction of common spikerush and other less-competitive hydrophytes through this length of the vegetation transect.

Table 4. Data summary of transect T-2 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

Monitoring Year	2007	2008	2010	2011	2012	2013
Transect Length (feet)	**583**	**583**	**583**	**583**	**583**	**583**
Vegetation Community Transitions along Transect	0	2	2	1	1	0
Vegetation Communities along Transect	1	2	2	2	2	1
Hydrophytic Vegetation Communities along Transect	1	2	2	2	2	1
Total Vegetative Species	17	13	15	10	10	10
Total Hydrophytic Species	14*	11	12	8	8	10
Total Upland Species	2	2	3	2	2	0
Estimated % Total Vegetative Cover	95	90	90	90	95	95
% Transect Length Comprising Hydrophytic Vegetation Communities	100*	100	100	100	100	100
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0	0
% Transect Length Comprising Unvegetated Open Water	2*	0	0	0	0	0
% Transect Length Comprising Bare Substrate	0	0	0	0	0	0

*Values as presented in 2008 monitoring report

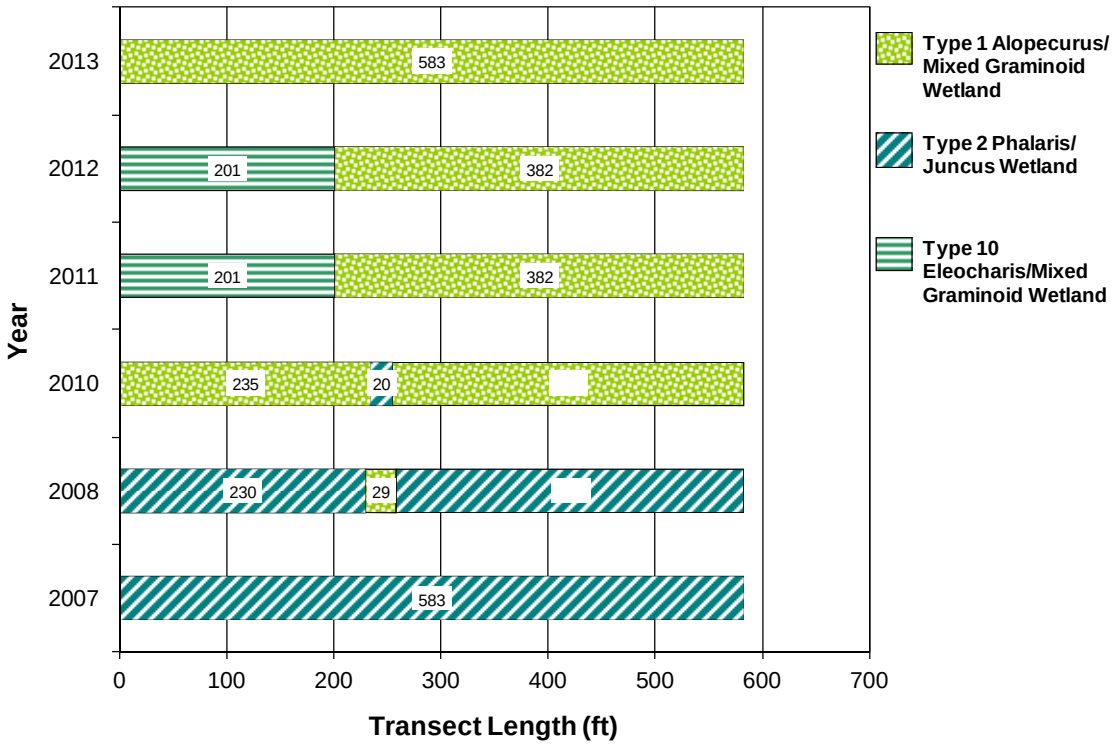


Chart 3. Transect map of vegetation communities from start (0 feet) to finish (583 feet) of transect T-2 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

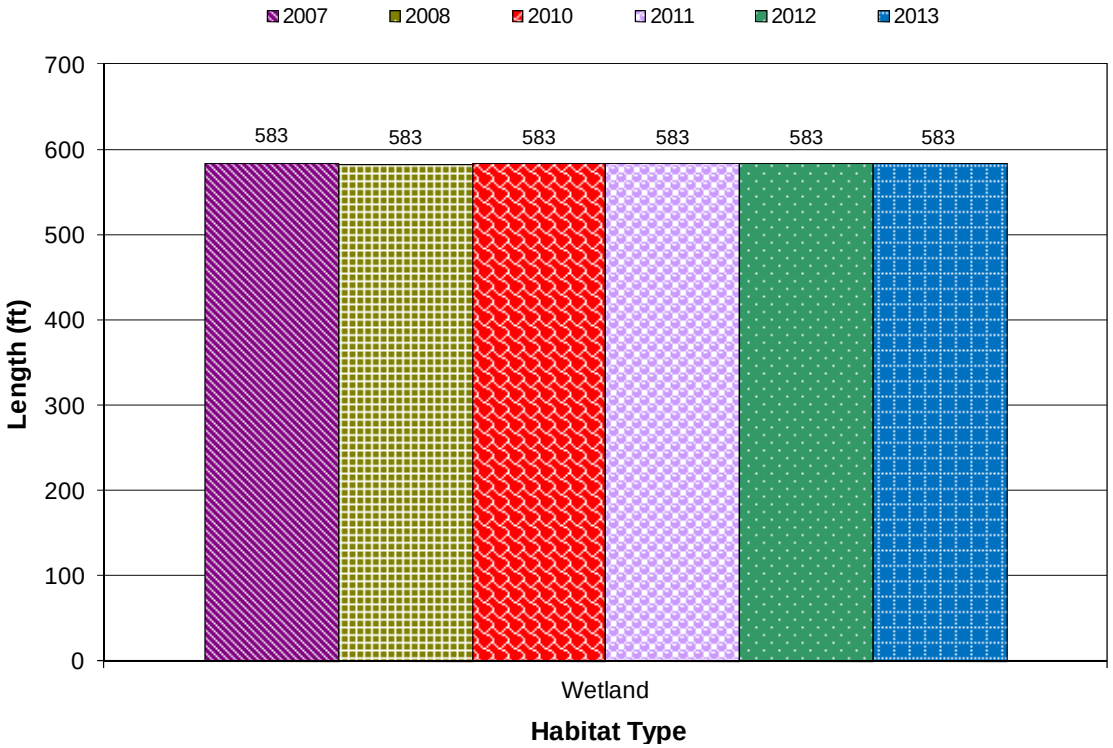


Chart 4. Length of habitat types within transect T-2 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

Table 5 and Charts 5 and 6 present the data collected along transect T-3. Photographs of the transect endpoints are shown in Appendix C. A monoculture of creeping meadow-foxtail, located in the northwest corner of the site, has dominated the entire length of transect T-3 since 2007 and is responsible for the lowest total number of vegetative species observed within any of the three monitoring transects. The indicator status for creeping meadow-foxtail is facultative, meeting the wetland vegetation criteria. No other plant species were observed along this 353-foot transect.

Table 5. Data summary of transect T-3 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

Monitoring Year	2007	2008	2010	2011	2012	2013
Transect Length (feet)	**378**	**378**	**353**	**353**	**353**	**353**
Vegetation Community Transitions along Transect	0	0	0	0	0	0
Vegetation Communities along Transect	1	1	1	1	1	1
Hydrophytic Vegetation Communities along Transect	1	1	1	1	1	1
Total Vegetative Species	3	3	4	3	2	1
Total Hydrophytic Species	2	3	3	2	2	1
Total Upland Species	1	0	1	1	0	0
Estimated % Total Vegetative Cover	80	90	90	90	100	100
% Transect Length Comprising Hydrophytic Vegetation Communities	100	100	100	100	100	100
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0	0
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising Bare Substrate	0	0	0	0	0	0

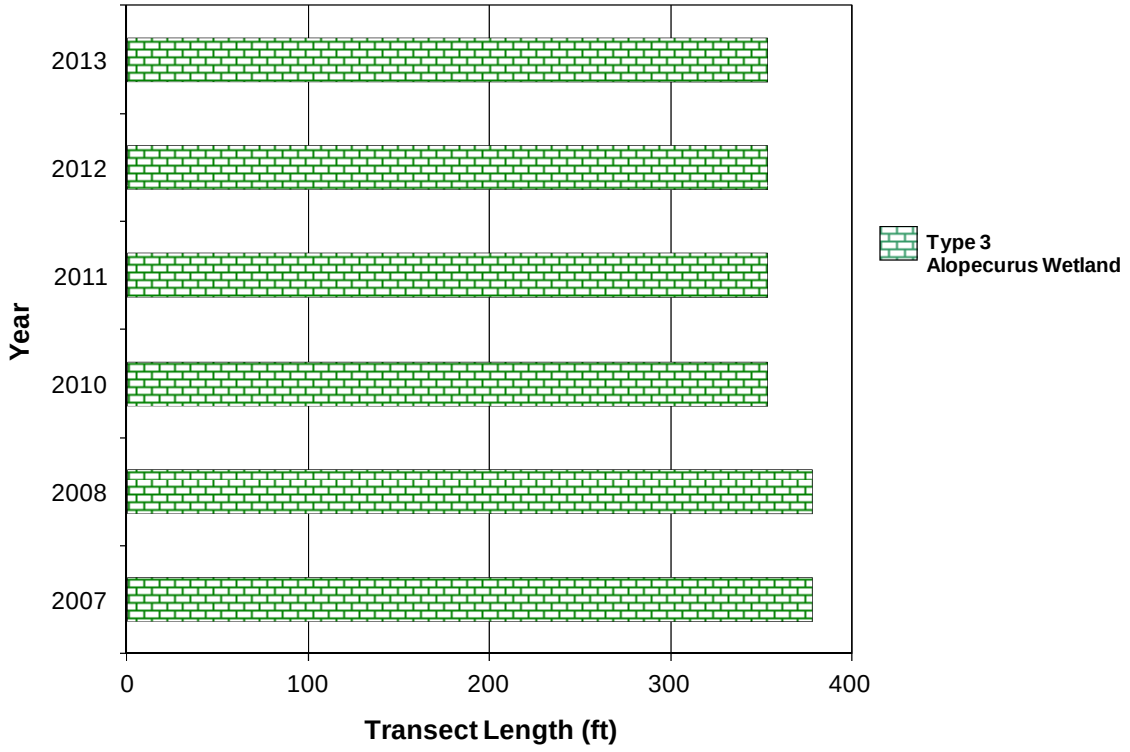


Chart 5. Transect map of vegetation communities from start (0 feet) to finish (353 feet) of transect T-3 for 2007, 2008, and 2010 to 2013 Woodson Creek Mitigation Site.

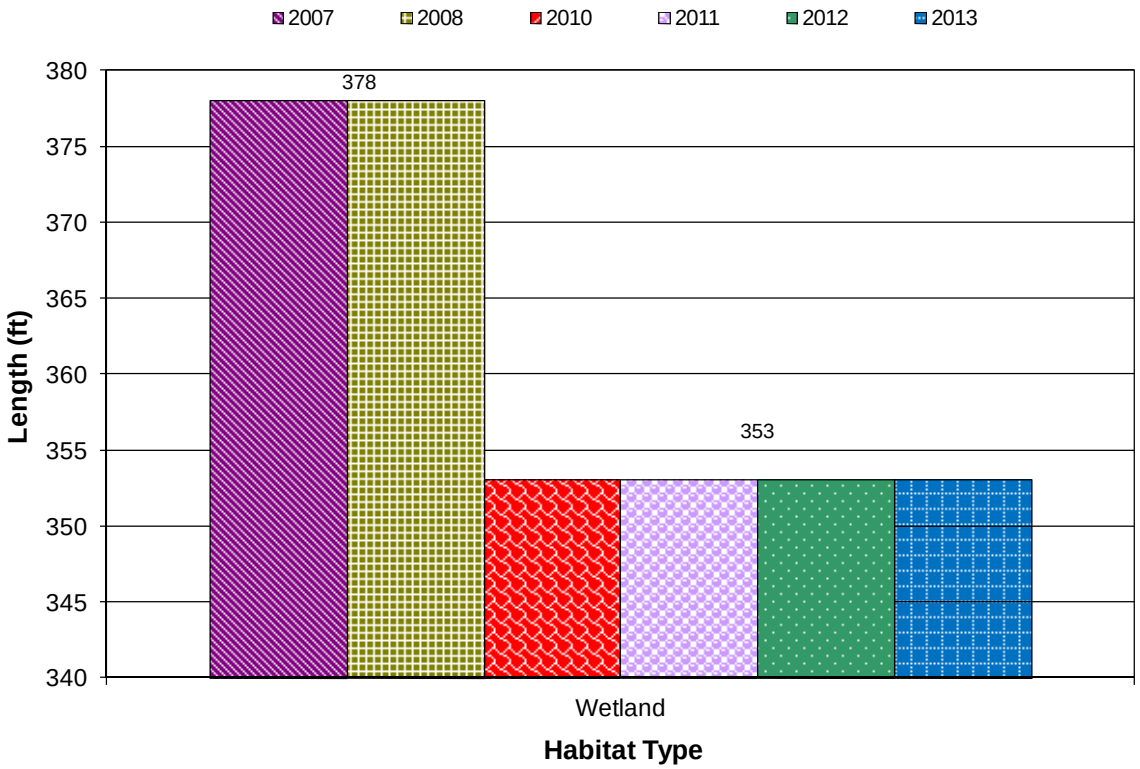


Chart 6. Length of habitat types within transect T-3 for 2007, 2008, and 2010 to 2013 at the Woodson Creek Mitigation Site.

Eleven infestations of Canadian thistle (*Cirsium arvense*) were mapped within the site boundaries in 2013 (Figure 3, Appendix A). The size of the infestations ranged from less than 0.1 acre to 1 acre with cover classes ranging from low (1 to 5 percent) to high (25 percent to 100 percent). The percent cover of Canadian thistle increased site wide from 2010 to 2013.

During the 2007 assessment of planted woody vegetation survival, only one planting location was found. It was assumed that more than the 15 plantings observed during this investigation were installed, but they could not be located. A total of 69 planted willow cuttings were observed in 2008. A thick cover of creeping meadow-foxtail obscured many of the plants. The condition of the cuttings in 2008 was poor. Sixty-eight percent (47 cuttings) survived to 2008. Ten willow stems in poor condition and twelve green stems with leaves were observed in 2010. Eleven live willow cuttings exhibiting moderate vigor were observed in 2011. The cuttings had been heavily browsed by wildlife. Ten willows planted from cuttings were observed in 2013. The cuttings were heavily browsed and displayed moderate vigor.

3.3. Soil

Soil survey data for Meagher County identified three primary map units within the mitigation area boundaries and included the Fairway series (2A), the Soapcreek-Fairway series (3A), and the Typic Fluvaquents-Fluvaquentic Haplaquolls, 0 to 4 percent slopes (501B). The Fairway and Soapcreek-Fairway series are

somewhat poorly drained soils formed in alluvium. The taxonomic class for both is a frigid Fluvaquentic Haplustolls. The three soil map units are identified on Montana's hydric soil list.

The soil profile at W-1u revealed a dark brown (10 YR 3/3) silt loam without redoximorphic concentrations in the matrix. Data point W-2u exhibited a very dark grayish brown (10 YR 3/2) silt loam soil. Data points W-1u and W-2u did not exhibit hydric soil characteristics. The profile at W-1w revealed a dark gray (10 YR 4/1) clay loam soil with brown (7.5 YR 4/4) redox concentrations in ten percent of the matrix. The soil at W-2w displayed a brown (10 YR 4/2) silty clay loam with five percent strong brown (10 YR 4/6) concentrations in the soil matrix. Based on the 1987 Manual, the low chroma and redox features were positive indicators of hydric soil.

3.4. Wetland Delineation

The wetland boundaries delineated and surveyed in 2013 are illustrated on Figure 3 (Appendix A). The completed Wetland Determination Data Forms are included in Appendix B. Wetland acreages delineated in 2005 (baseline), 2007 and 2008, and 2010 through 2013 are summarized in Table 6. The total area of aquatic habitat delineated in 2013, which includes wetlands and waters of the US associated with Woodson Creek, was 65.34 acres. There was a decrease of 4.3 wetland acres between 2012 and 2013, which is likely due to the northwest corner of the site drying out after the 2010/2011 canal breach and lower than average precipitation rates. Overall, wetland development at this site appears to have reached maximum development as constructed. A total of 7.86 acres above 2005 baseline wetland acreage have developed at this mitigation site.

Table 6. Summary of open water and wetland acreages delineated at the Woodson Creek Wetland Mitigation Site in 2004, 2007, 2008, and 2010 to 2013.

Aquatic Habitat Type	2005 Basline (ac)	2007 (ac)	2008 (ac)	2010 (ac)	2011 (ac)	2012 (ac)	2013 (ac)
Open Water	0.00	2.55	2.73	2.56	0.67*	0.67*	0.65*
Wetland/Aquatic Bed	57.48	61.86	59.02	65.14	68.97	68.97	64.69
Total Aquatic Habitat	57.48	64.42	61.75	67.70	69.64	69.64	65.34

*Open water within the OHWM of Woodson Creek.

3.5. Wildlife

A comprehensive list of bird and wildlife species observed directly and indirectly on the site from 2007 to 2013 is presented in Table 7 (Monitoring Form, Appendix B). Five bird species were identified in 2013. Two mule deer (*Odocoileus hemionus*), one white-tailed deer (*Odocoileus virginanus*), one northern river otter (*Lontra canadensis*), and fifteen elk (*Cervus canadensis*) were observed in 2013. Of note, what appeared to be black bear (*Ursus americanus*) teeth marks were noted on the well cap at MW-6.

Table 7. Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2013.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIANS	
Columbia Spotted Frog	*Rana luteiventris*
Western Toad	*Bufo boreas*
BIRDS	
American Avocet	*Recurvirostra americana*
American Kestrel	*Falco sparverius*
American White Pelican	*Pelecanus erythrorhynchos*
American Wigeon	*Anas americana*
Bald Eagle	*Haliaeetus leucocephalus*
Bank Swallow	*Riparia riparia*
Barn Swallow	***Hirundo rustica***
Black-billed Magpie	*Pica hudsonia*
Blue-winged Teal	*Anas discors*
Brewer's Blackbird	*Euphagus cyanocephalus*
Canada Goose	*Branta canadensis*
Cassin's Finch	*Carpodacus cassinii*
Cinnamon Teal	*Anas cyanoptera*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Nighthawk	*Chordeiles minor*
Double-crested Cormorant	*Phalacrocorax auritus*
Eastern Kingbird	*Tyrannus tyrannus*
Gadwall	*Anas strepera*
Golden Eagle	*Aquila chrysaetos*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	***Ardea herodias***
Great Horned Owl	***Bubo virginianus***
Green-winged Teal	*Anas crecca*
Killdeer	*Charadrius vociferus*
Lesser Scaup	*Aythya affinis*
Long-billed Curlew	*Numenius americanus*
Mallard	*Anas platyrhynchos*
Northern Harrier	*Circus cyaneus*
Northern Pintail	*Anas acuta*
Northern Shoveler	*Anas clypeata*
Swainson's Hawk	***Buteo swainsoni***
Tundra Swan	*Cygnus columbianus*
Willet	*Tringa semipalmata*
Wilson's Phalarope	*Phalaropus tricolor*
Wilson's Snipe	*Gallinago delicata*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*

Species observed in 2013 are bolded.

Table 7 (Continued). Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2013.

COMMON NAME	SCIENTIFIC NAME
BIRDS	
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-necked Pheasant	*Phasianus colchicus*
Rock Pigeon	*Columba livia*
Sandhill Crane	***Grus canadensis***
Savannah Sparrow	*Passerculus sandwichensis*
Sora	*Porzana carolina*
Spotted Sandpiper	*Actitis macularius*
FISH	
Brook Trout	*Salvelinus fontinalis*
MAMMALS	
American Mink	*Mustela vison*
Black-tailed Jack Rabbit	*Lepus californicus*
Black Bear	*Ursus americanus*
Bobcat	*Lynx rufus*
Coyote	*Canis latrans*
Deer Mouse	*Peromyscus maniculatus*
Dusky or Montane Shrew	*Sorex monticolus*
Elk or Wapiti	***Cervus canadensis***
Meadow Vole	*Microtus pennsylvanicus*
Moose	*Alces americanus*
Mule Deer	***Odocoileus hemionus***
Muskrat	*Ondatra zibethicus*
Northern River Otter	***Lontra canadensis***
Porcupine	*Erethizon dorsatum*
Pronghorn	*Antilocapra americana*
Raccoon	*Procyon lotor*
Red Fox	*Vulpes vulpes*
Striped Skunk	*Mephitis mephitis*
Water Vole	*Microtus richardsoni*
White-tailed Deer	***Odocoileus virginianus***
REPTILES	
Common Gartersnake	*Thamnophis sirtalis*

Species observed in 2013 are bolded.

3.6. Functional Assessment

The mitigation site was separated into three AAs, including the Woodson Creek Floodplain, Woodson Creek East Parcel, and Woodson Creek West Parcel. The baseline assessment was completed in 2005. Functional assessment results for 2005, 2008 and 2010 through 2013 are summarized in Table 8. Functional assessment forms were completed for the Woodson Creek wetlands using the 1999 MDT MWAM (Appendix B).

Table 8. Summary of 2005, 2007, 2008, and 2010 to 2013 wetland function/value ratings and functional points at the Woodson Creek Wetland Mitigation Site.

Function and Value Parameters from the 1999 MDT Montana Wetland Assessment Method[1]	2005 Baseline		2008		
	Woodson Floodplain	East & West Parcel	Woodson Creek Floodplain	East Parcel	West Parcel
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
MNHP Species Habitat	Low (0.1)	Low (0.1)	High (1.0)	High (1.0)	Mod (0.6)
General Wildlife Habitat	Low (0.3)	Low (0.3)	High (0.9)	Mod (0.7)	Mod (0.7)
General Fish/Aquatic Habitat	Low (0.3)	NA	Mod (0.6)	NA	NA
Flood Attenuation	Low (0.1)	NA	Mod (0.6)	NA	NA
Short and Long Term Surface Water Storage	Low (0.3)	NA	High (1.0)	High (0.8)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	Mod (0.6)	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	Mod (0.7)	NA	High (1.0)	NA	NA
Production Export/Food Chain Support	Mod (0.4)	Mod (0.7)	High (0.9)	High (0.9)	Mod (0.6)
Groundwater Discharge/Recharge	High (1.0)	Low (0.1)	Mod (1.0)	Mod (1.0)	High (1.0)
Uniqueness	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.3)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)
Actual Points / Possible Points	4.1/12	2.2 / 8	8.3/12	5.7 / 9	4.6 / 9
% of Possible Score Achieved	34.2	27.5	69	63	51
Overall Category	III	IV	II	II	III
Total Acreage of Assessed Aquatic Habitat within AA Boundaries	0.48	57.00	**28.08**	**27.77**	**5.90**
Functional Unit (acreage x actual points)	1.97	125.40	**233.06**	**158.29**	**27.14**
Net Acreage Gain (from baseline conditions)	NA	NA	**4.27**		
Net Functional Unit Gain (from baseline conditions)	NA	NA	**291.12**		

[1](Berglund 1999).

Results for 2010 through 2013 MWAMs continued on next page

Table 8 (continued). Summary of 2005, 2007, 2008, and 2010 to 2013 wetland function/value ratings and functional points at the Woodson Creek Wetland Mitigation Site.

Function and Value Parameters from the 1999 MDT Montana Wetland Assessment Method[1]	2010			2011			2012			2013		
	Woodson Creek Floodplain	East Parcel	West Parcel	Woodson Creek Floodplain	East Parcel	West Parcel	Woodson Creek Floodplain	East Parcel	West Parcel	Woodson Creek Floodplain	East Parcel	West 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)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
MNHP Species Habitat	High (1.0)	High (1.0)	Mod (0.6)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
General Wildlife Habitat	High (0.9)	Mod (0.7)	Mod (0.7)	High (0.9)	Mod (0.5)	High (0.9)	High (0.9)	High (0.8)	High (1.0)	Exc (1.0)	High (0.9)	Exc. (1.0)
General Fish/Aquatic Habitat	Mod (0.6)	NA	NA	Mod (0.6)	NA	NA	Mod (0.6)	NA	NA	Mod (0.6)	NA	NA
Flood Attenuation	Mod (0.6)	Mod (0.4)	NA	Mod (0.6)	Mod (0.5)	NA	Mod (0.6)	Mod (0.5)	NA	Mod (0.6)	Mod (0.5)	NA
Short and Long Term Surface Water Storage	High (1.0)	High (0.8)	Low (0.6)	High (1.0)	Mod (0.6)	High (0.8)	High (1.0)	Mod (0.6)	High (0.8)	High (1.0)	Mod (0.6)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	High (1.0)	High (1.0)	NA	High (1.0)	High (0.9)	NA	High (1.0)	High (0.9)	Low (0.3)	High (1.0)	High (0.9)	Low (0.3)
Production Export/Food Chain Support	High (0.9)	High (0.9)	Mod (0.6)	High (0.9)	High (0.8)	Mod (0.7)	High (0.9)	High (0.8)	Mod (0.7)	High (0.9)	High (0.8)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.2)	Low (0.2)	Low (0.3)	Low (0.2)	Low (0.2)	Low (0.3)	Low (0.2)	Low (0.2)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
Recreation/Education Potential	Low (0.3)	Low (0.3)	Mod (0.7)	Low (0.3)	Low (0.3)	Mod (0.7)	Low (0.3)	Low (0.3)	Mod (0.7)	Low (0.3)	Low (0.3)	Mod (0.7)
Actual Points / Possible Points	8.5 / 12	7.3 / 11	5.5 / 9	8.5 / 12	6.8 / 11	6.4/9	8.5 / 12	7.1 / 11	6.8/10	8.7 / 12	7.3 / 11	6.8/10
% of Possible Score Achieved	71	66	61	71	62	71	71	65	68*	73	66	68
Overall Category	II	II	III	II	II	II	II	II	II	II	II	II
Total Acreage of Assessed Aquatic Habitat within AA Boundaries	**29.17**	**31.23**	**7.30**	**29.19**	**31.27**	**9.18**	**29.19**	**31.27**	**9.18**	**28.62**	**29.57**	**7.15**
Functional Unit (acreage x actual points)	**247.95**	**227.98**	**40.15**	**248.12**	**212.64**	**58.75**	**248.12**	**222.02**	**64.42**	**248.99**	**215.86**	**48.62**
Net Acreage Gain (from baseline conditions)	**10.22**			**12.16**			**12.16**			**7.86**		
Net Functional Unit Gain (from baseline conditions)	**388.71**			**392.14**			**407.18**			**386.11**		

[1](Berglund 1999).

* Value was adjusted in 2013.

The 2013 functional assessments rated the restored Woodson Creek floodplain (28.62 acres), the rehabilitated west parcel (7.15 acres), and the re-established east parcel (29.57 acres) as Category II wetlands, based on the high ratings for MTNHP species habitat and total actual functional points greater than 65 percent.

The restored Woodson Creek floodplain AA attained a consistent Category II rating between 2011, 2012 and 2013. The AA received 73 percent of the possible points, an exceptional rating for general wildlife habitat, and high ratings for short and long term surface water storage, sediment/nutrient/ toxicant removal, streambank/shoreline stabilization, production export/food chain support, and groundwater discharge and recharge.

The West parcel received 68 percent of the total possible points in 2012 and 2013 and a decrease of 3 and 4 percent since 2011. An error was noted on the 2012 Functional Assessment form, calculating total percentage of points as 71. This error occurred due to the Sediment/Shoreline Stabilization category not being accounted for in the potential assessment total. The ratings were high for general wildlife habitat, short and long term water storage, sediment/nutrient/toxicant removal, and groundwater discharge/recharge.

The East parcel received 66 percent of the total possible points and high ratings for MTNHP species habitat, general wildlife habitat, sediment/nutrient/toxicant removal, streambank/ shoreline stabilization, production export/food chain support, and groundwater discharge and recharge functions. The net wetland acreage gain at the Woodson Creek Wetland Mitigation Site since the 2005 baseline assessment was 7.86 acres and the net functional unit gain was 383.15, a decrease of 4.3 acres and 21.08 functional units since 2012. The decrease in wetland acreage is primarily associated with the drying out of the west parcel following repair to the canal breach (2.5-acre wetland decrease in this area). Lower than average precipitation and regional drought conditions over the past two years may have contributed to a minor decrease in wetland acreage observed in 2013 with the remaining difference in wetland acres the result mapping this boundary via GPS-survey in 2013 versus the previous mapping by hand-drawing the wetland boundary on a non-orthorectified aerial photograph.

3.7. Channel Cross-Sections

Locations of the two channel cross-sections are shown on Figure 2 (Appendix A) and photographs are shown on page C-24 of Appendix C. The 2007, 2008, and 2010 to 2013 cross-section data are illustrated on Charts 7 through 10. Slight increases in channel depth and width were observed at both survey locations in 2007. The cause was unclear and assumed to be the result of minor adjustments in the channel geometry and settling of streambanks. Cross section 1 showed little change in channel geometry from 2010 to 2012. This cross section was not surveyed in 2013 due to an overly aggressive otter protecting its nearby den. Cross section 2 exhibited minor lateral channel migration in 2013. The streambanks were well vegetated by species with high soil stability ratings, which contributed to the overall stability of the stream morphology. The

predominant species included creeping meadow-foxtail (6 - stability rating) and reed canary grass (9 - stability rating).

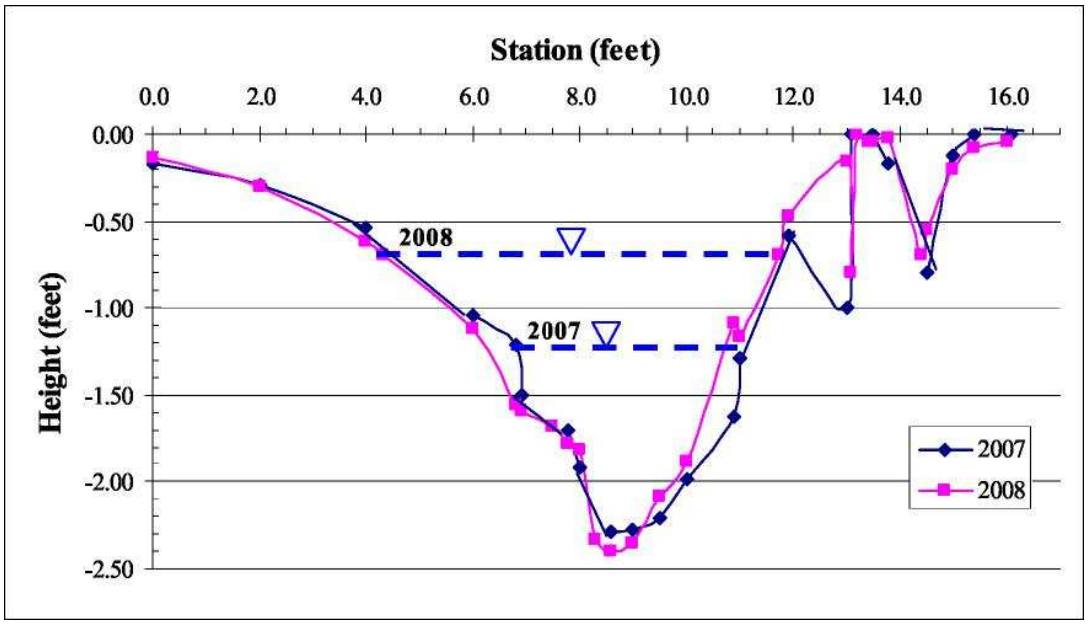


Chart 7. Survey data at XS-1 collected in 2007 and 2008.

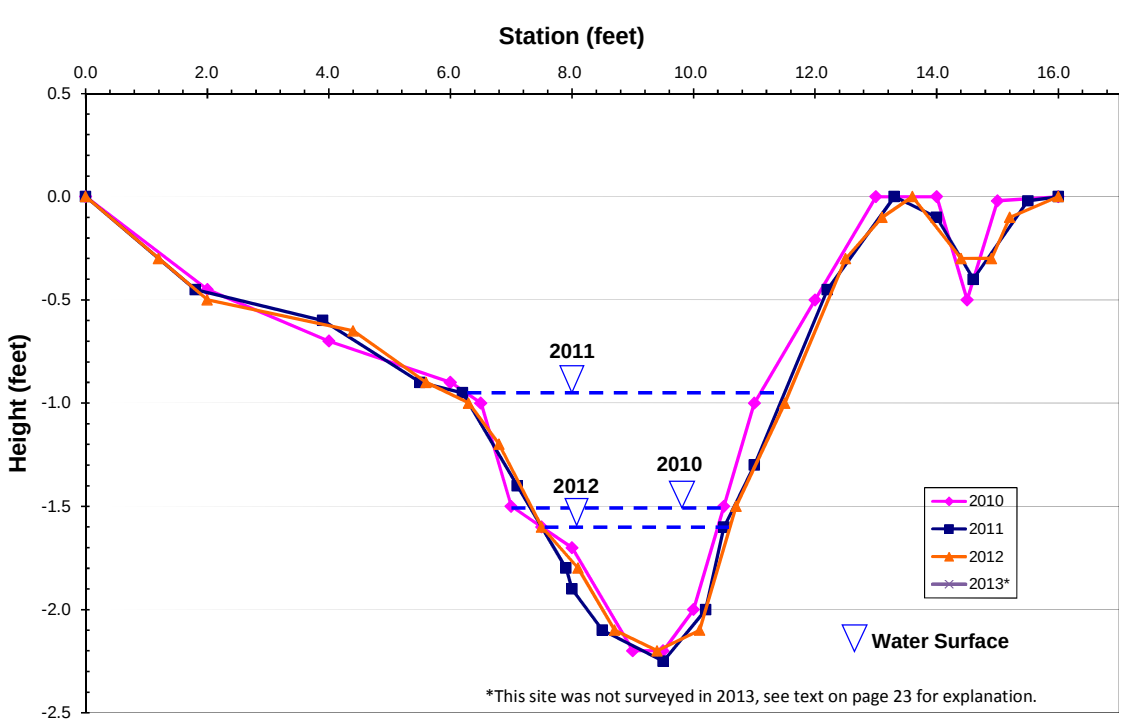


Chart 8. Survey data collected at XS-1 from 2010 to 2012 at the Woodson Creek Wetland Mitigation Site.*

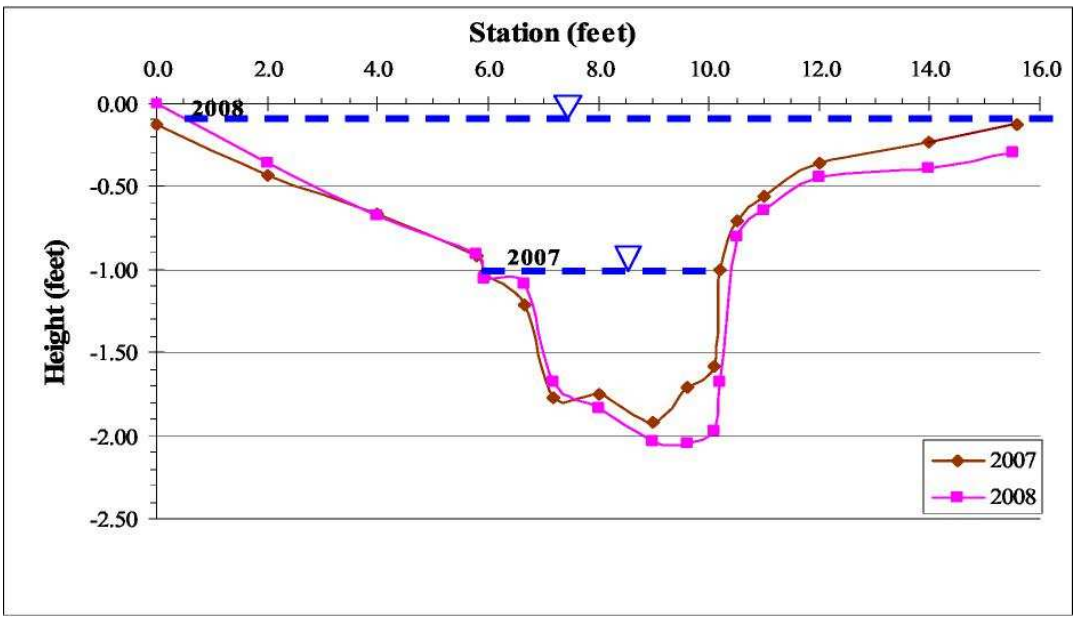


Chart 9. Survey data collected at XS-2 in 2007 and 2008.

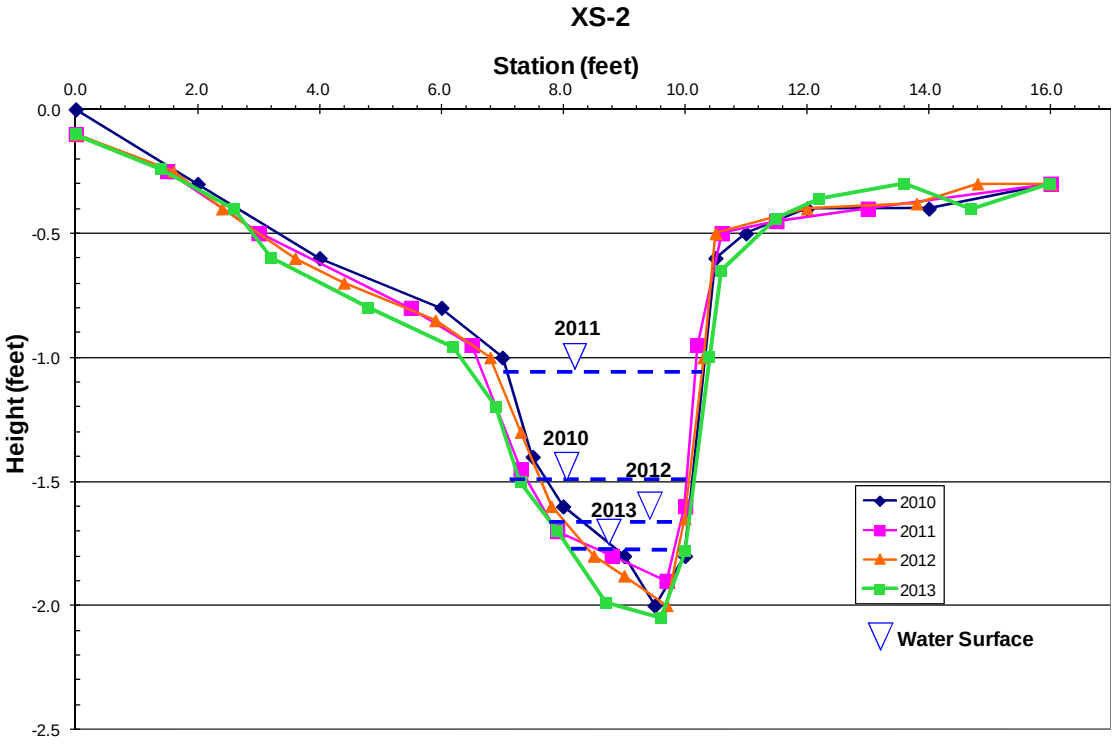


Chart 10. Survey data collected at XS-2 from 2010 to 2013 at the Woodson Creek Wetland Mitigation Site.

3.8. Streambank Erosion Pins

Streambank erosion pins were installed along outside meanders at two locations following construction (Figure 2, Appendix A). The pins were installed after the majority of runoff had occurred in 2007. The downstream location was chosen specifically at a bend that was exhibiting severe bank erosion. Bank erosion was observed at both locations in 2008, with an average erosion rate of 0.29 feet per year at the upstream pin (Pin 1) and 0.14 feet per year at the downstream pin (Pin 2). In 2013, an increase in the erosion rate was observed at both pins, with an average erosion rate of 0.3 feet per year at Pin 1 and 0.43 feet per year at Pin 2. The increased erosional rate observed at the monitored bank pins appears to be the result of a partial collapse of undercut banks as unconsolidated material below the root zone is eroded. The toe of banks is generally composed of non-cohesive, fine-grained materials. The root masses do not penetrate deep enough (approximately 1 1/2 -foot below ground surface) to provide additional stability. At bankfull, channel dimensions may create hydraulic forces that exceed the resistance of the bed and bank material. Consequently, banks collapse. The planform of Woodson Creek through the restored reach has been considered stable during the last three monitoring years, with minimal erosion and minor lateral channel migration noted. The established root systems of plant species with high soil stability ratings have been integral in maintaining the overall bank stability and has improved undercut bank habitat.

3.9. Photo Documentation

Representative photographs were taken from established photo points and transect ends (Appendix C). Photo points 1 through 4 taken in 2008, and 2010 through 2013 are shown on pages C-1 to C-16. Photos of the transect end points are presented on pages C-17 to C-22 of Appendix C. Photos of the streambank erosion pins are shown on page C-23 of Appendix C. Photos of the surveyed cross-sections are shown on page C-24. The wetland determination data points are shown on page C-25.

3.10. Maintenance Needs

Eleven infestations of Canadian thistle (*Cirsium arvense*) were mapped within the site boundaries in 2013 (Figure 3, Appendix A). The size class of the infestation size ranged from less than 0.1 acres to 0.1 to 1 acre with cover classes ranging from low (1-5 percent cover) to high (26 to 100 percent cover). The percent cover of Canadian thistle increased site wide from 2010 to 2013. Spraying is recommended for 2014.

The irrigation return on the north edge of the site was breached sometime between the 2010 and 2011 site visits. The entire return flow of the canal was diverted to the mitigation area and a majority of the west parcel was flooded in 2011. The breach was repaired between the 2011 and 2012 monitoring events. The area surrounding the breach was well vegetated and showed no signs of erosion.

3.11. Current Credit Summary

The Woodson Creek Mitigation Site originally encompassed seven different credit zones. The performance standards were amended by the USACE in 2010 (USACE 2010a) as summarized in Section 1.0 of this report. The 2010 approved credit summary used a 1:1 credit ratio for the re-established wetland AAs (Woodson Creek Floodplain and East Parcel) that received a Category II rating and a 1.5:1 credit ratio for the rehabilitated wetland AAs (West Parcel) that received a Category II rating. Full credit has been assigned to all three AAs as a result of these areas achieving a functional wetland Category II rating. There was no credit assigned to the upland buffer in the approved 2010 amendment.

The adopted performance standards for this site and summary of the site's performance toward these standards are provided in Table 9. These standards required areas delineated as wetlands to meet all three wetland criteria as defined in the 1987 Corps of Engineers Wetland Delineation Manual. Areas defined as wetlands exhibited soil saturation in the upper 12 inches of the soil profile for a minimum of 12.5 percent of the growing season and the wetlands delineated in 2013 met the three wetland criteria. The maximum noxious weed coverage did not exceed 5 percent site wide. The areal coverage of all plant species was at least 80 percent and the plant species have survived two years. The percent aerial cover of bare ground does not exceed 20 percent. The permanent open water areas outside of Woodson Creek exhibit either persistent emergent vegetation or aquatic bed vegetation and have been classified as Aquatic Macrophytes communities. No single body of water exceeds three acres. The three credit areas have achieved a Category II functional rating. A total of 62.96 credit acres have been calculated for the Woodson Creek wetland mitigation site based on the final year (2013) monitoring results (Table 10).

Table 9. Summary of performance standards for Woodson Creek wetland mitigation site.

PERFOMANCE STANDARD	Achieved Y/N	DISCUSSION
Meet all three wetland criteria (as defined in 1987 Corps of Engineers Wetland Delineation Manual).	Y	All wetlands delineated within the Woodson Creek wetland mitigation site in 2013 meet all three wetland criteria.
Maximum noxious weed coverage is not to exceed 5 percent.	Y	Site-wide coverage of Montana state-listed noxious weeds is less than 5 percent.
Soil saturation in the upper 12 inches of the soil profile for a minimum of 12.5 percent of the growing season.	Y	Areas identified as wetlands in 2013 exhibited positive indication of soil saturation for a minimum of 15 days consecutive days during the growing season.
Areal coverage of all plants species must be at least 80 percent and requires a 2-year survival period; bare ground shall not exceed 20 percent areal coverage.	Y	Areal coverage of established vegetation within the Woodson Creek site in 2013 is estimated to be greater than 95 percent; the percentage of bare ground observed in 2013 is estimated at less than 5 percent.
Permanent open water lacking persistent emergent vegetation or aquatic bed vegetation will comprise less than 15 percent of the total wetland project area and no single body is to exceed 3 acres.	Y	Permanent open water areas within the site have been classified as Aquatic Macrophytes communities with a prevalence of both emergent and aquatic bed species. These areas account for approximately 1 percent of the project area.
Achieve a Category II functional rating.	Y	All three Assessment Areas within the Woodson Creek wetland mitigation site achieved a Category II function rating in 2013.

Table 10. Credit summary from 2010 to 2013 for the Woodson Creek Wetland Mitigation Site.

AA	Credit Category	2010 Credit Ratio	2010 Acres	2010 Credit Acres	2011 Acres	2011 Credit Acres	2012 Acres	2012 Credit Acres	2013 Acres	2013 Credit Acres
Woodson Creek Floodplain	Restoration (Re-establishment)	1:1	29.17	29.17	29.19	29.19	29.19	29.19	28.62	28.62
East Parcel	Re-establishment	1:1	31.23	31.23	31.27	31.27	31.27	31.27	29.57	29.57
West Parcel	Rehabilitation	1.5:1	7.3	4.87	9.18	6.12	9.18	6.12	7.15	4.77
Total			**67.70**	**65.27**	**69.64**	**66.58**	**69.64**	**66.58**	**65.34**	**62.96**

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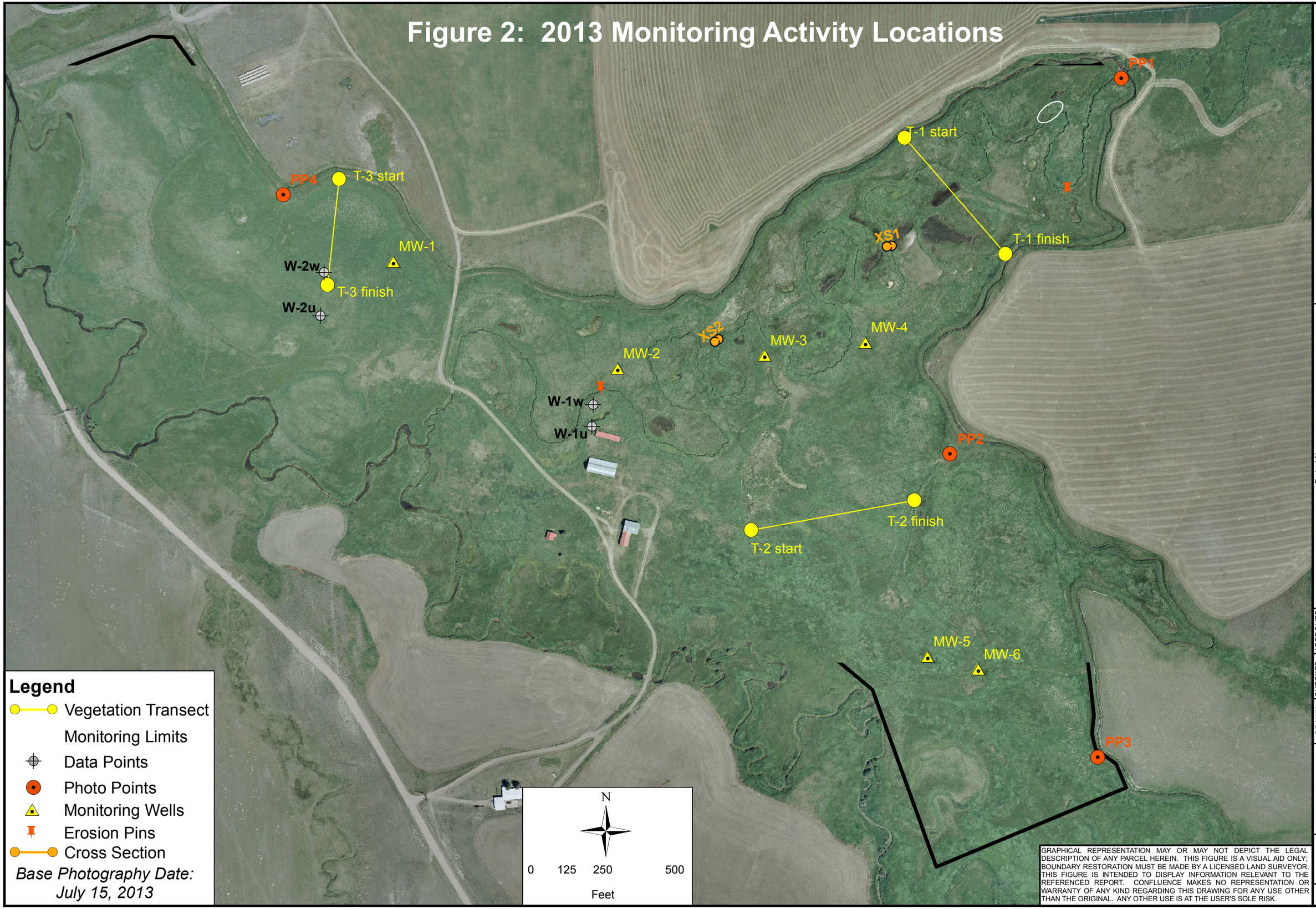
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Appendix A

Project Area Maps: Figures 2 and 3

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana

Figure 2: 2013 Monitoring Activity Locations



Legend

- Vegetation Transect
- Monitoring Limits
- Data Points
- Photo Points
- Monitoring Wells
- Erosion Pins
- Cross Section

Base Photography Date: July 15, 2013

GRAPHICAL REPRESENTATION MAY OR MAY NOT DEPICT THE LEGAL DESCRIPTION OF ANY PARCEL HEREIN. THIS FIGURE IS A VISUAL AID ONLY; BOUNDARY RESTORATION MUST BE MADE BY A LICENSED LAND SURVEYOR. THIS FIGURE IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

LOCATION: Meagher Co., MT

PROJECT NO: MDT.006

FILE: Woodson/Monitor2013.mxd

Project Name: Woodson Creek Mitigation Site

Drawing Title: 2013 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BCS	Brie	LU

SCALE: Noted

Drawn:September 25, 2013

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 2

REV -

Figure 3: 2013 Mapped Site Features

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities
- Woodson Creek (11)

Base Photography Date: July 15, 2013

Acreages

Project Area	84.72 acres
Gross Wetlands	65.34 acres
Woodson Creek	0.65 acres
Net Wetlands	64.69 acres
Uplands	19.38 acres

Noxious Weeds

Cirsium arvense

Infestation Size

- X = <0.1 acre
- ▲ = 0.1 to 1 acre
- ■ = 1 to 5 acre

Cover Class

- T = Trace (<1% cover)
- L = Low (1-5% cover)
- M = Moderate (6-25% cover)
- H = High (26-100% cover)

Vegetation Community Types

1. Alopecurus arundinaceus/Mixed graminoids
3. Alopecurus arundinaceus
4. Poa pratensis/Bromus inermis
5. Aquatic Macrophytes
7. Carex utriculata/Phalaris arundinacea
8. Bromus inermis/Alopecurus arundinaceus
9. Alopecurus arundinaceus/Juncus arcticus
10. Eleocharis palustris/Mixed graminoids

GRAPHICAL REPRESENTATION MAY OR MAY NOT DEPICT THE LEGAL DESCRIPTION OF ANY PARCEL HEREIN. THIS FIGURE IS A VISUAL AID ONLY; BOUNDARY RESTORATION MUST BE MADE BY A LICENSED LAND SURVEYOR. THIS FIGURE IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

LOCATION: Meagher Co., MT

PROJECT NO: MDT.006

FILE: Woodson/Veg2013.mxd

Project Name: Woodson Creek Mitigation Site

Drawing Title: 2013 Mapped Site Features

DRAWN BCS | CHECKED Brie | APPROVED LU

SCALE: Noted

Drawn: September 25, 2013

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 3

REV -

Appendix B

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

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Woodson Creek Assessment Date/Time 8/12/2013 8:52:57 AM

Person(s) conducting the assessment: B. Schultz; B. Sandefur

Weather: Sunny, clear, hot Location: Ringling, MT

MDT District: Butte Milepost: NA

Legal Description: T 6N R 8E Section(s) 9 & 16

Initial Evaluation Date: 7/18/2007 Monitoring Year: 6 #Visits in Year: 1

Size of Evaluation Area: 84.72 (acres)

Land use surrounding wetland:

Agriculture (hay); farm outbuildings

HYDROLOGY

Surface Water Source: Flood irrigation/groundwater

Inundation: ☑ Average Depth: 1 **(ft)** Range of Depths: 0-2 **(ft)**

Percent of assessment area under inundation: 10 %

Depth at emergent vegetation-open water boundary: 0.5 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: No

Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc**:**

Inundation on aerial imagery, water stained leaves, wetland drainage patterns, and shallow groundwater table identified on site.

Groundwater Monitoring Wells

Record depth of water surface below ground surface, in feet.

Well ID	Water Surface Depth (ft)
MW-1	DRY
MW-2	DRY
MW-3	DRY
MW-4	DRY
MW-6	2.5

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:

Many of the depressional areas that were inundated during the 2011 monitoring event were not inundated during the 2013 monitoring event. Well MW-5 could not be located in the field.

VEGETATION COMMUNITIES

Site Woodson Creek

(Cover Class Codes **0** = < 1%, **1** = 1-5%, **2** = 6-10%, **3** = 11-20%, **4** = 21-50% , **5** = >50%)

Community # 1 **Community Type:** Alopecurus arundinaceus / Mixed Graminoids **Acres** 47.23

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus arundinaceus	4
Argentina anserina	0	Beckmannia syzigachne	0
Carex utriculata	0	Cicuta douglasii	0
Cirsium arvense	1	Descurainia sophia	0
Eleocharis palustris	0	Hordeum jubatum	1
Juncus arcticus	2	Pascopyrum smithii	1
Phalaris arundinacea	2	Poa compressa	1
Poa pratensis	0	Scirpus microcarpus	0
Taraxacum officinale	0	Thlaspi arvense	0
Triglochin maritima	1	Triglochin palustris	0

Comments:

Community appears to be trending towards domination by alopecurus arundinaceus.

Community # 3 **Community Type:** Alopecurus arundinaceus / **Acres** 7.15

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Argentina anserina	1
Beckmannia syzigachne	1	Deschampsia cespitosa	0
Eleocharis palustris	1		

Comments:

Community # 4 **Community Type:** Poa pratensis / Bromus inermis **Acres** 12.62

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bromus inermis	4
Cirsium arvense	2	Descurainia sophia	1
Equisetum arvense	1	Poa pratensis	4
Solidago canadensis	2	Thlaspi arvense	1

Comments:

Community # 5 **Community Type:** Aquatic macrophytes / **Acres** 0.99

Species	Cover class	Species	Cover class
Algae, green	1	Bare Ground	2
Carex utriculata	1	Eleocharis palustris	3
Hippuris vulgaris	1	Lemna minor	0
Myriophyllum sp.	1	Najas sp.	1
Open Water	4	Persicaria amphibia	0
Phalaris arundinacea	2	Ranunculus longirostris	3
Ruppia sp.	0	Scirpus microcarpus	1
Sparganium angustifolium	1	Typha latifolia	1

Comments:

Community # 7 **Community Type:** Carex utriculata / Phalaris arundinacea **Acres** 0.65

Species	Cover class	Species	Cover class
Carex nebrascensis	1	Carex utriculata	5
Cicuta douglasii	0	Eleocharis palustris	2
Juncus arcticus	1	Phalaris arundinacea	2
Triglochin palustris	0		

Comments:

Community # 8 **Community Type:** Bromus inermis / Alopecurus arundinaceus **Acres** 6.77

Species	Cover class	Species	Cover class
Achillea millefolium	2	Alopecurus arundinaceus	2
Aster sp.	0	Bromus inermis	5
Cirsium arvense	1	Equisetum arvense	1
Equisetum hyemale	1	Grindelia squarrosa	0
Juncus arcticus	1	Melilotus officinalis	1
Poa pratensis	2	Puccinellia nuttalliana	1
Solidago canadensis	1	Taraxacum officinale	1
Thlaspi arvense	1	Trifolium repens	1

Comments:

Community # 9 Community Type: Alopecurus arundinaceus / Juncus arcticus **Acres** 7.99

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus aequalis	0
Alopecurus arundinaceus	5	Argentina anserina	1
Carex nebrascensis	1	Carex utriculata	1
Cicuta douglasii	0	Cirsium arvense	1
Juncus arcticus	4	Lactuca serriola	1
Persicaria sp.	0	Phalaris arundinacea	2
Poa compressa	3	Poa palustris	1
Rumex crispus	0	Scirpus microcarpus	1
Scutellaria lateriflora	0	Solidago canadensis	1
Taraxacum officinale	1	Trifolium repens	0
Triglochin palustris	1		

Comments:

Community # 10 Community Type: Eleocharis palustris / Mixed Graminoids **Acres** 0.68

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Argentina anserina	1
Beckmannia syzigachne	2	Calamagrostis canadensis	2
Carex utriculata	1	Eleocharis palustris	3
Glyceria grandis	2	Juncus arcticus	2
Myriophyllum sp.	1	Phalaris arundinacea	2
Ranunculus longirostris	2		

Comments:

Community # 11 Community Type: Woodson Creek / **Acres** 0.65

Species	Cover class	Species	Cover class
Algae, green	1	Aquatic macrophytes	1
Open Water	5		

Comments:

Total Vegetation Community Acreage **84.73**

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

VEGETATION TRANSECTS

Site: Woodson Creek Date: 8/12/2013 8:52:57 AM

Transect Number: 1 **Compass Direction from Start:** 135

Interval Data:

Ending Station 115 **Community Type:** Alopecurus arundinaceus / Juncus arcticus

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Argentina anserina	0
Carex nebrascensis	1	Cirsium arvense	0
Juncus arcticus	3	Poa compressa	1
Triglochin palustris	0		

Ending Station 119 **Community Type:** Open Water / Woodson Creek

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 210 **Community Type:** Alopecurus arundinaceus / Juncus arcticus

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Carex utriculata	1
Cicuta douglasii	0	Cirsium arvense	0
Juncus arcticus	3	Poa compressa	1
Scirpus microcarpus	1		

Ending Station 252 **Community Type:** Aquatic macrophytes /

Species	Cover class	Species	Cover class
Hippuris vulgaris	1	Open Water	2
Persicaria amphibia	0	Ruppia sp.	0
Typha latifolia	0		

Ending Station 526 **Community Type:** Alopecurus arundinaceus / Juncus arcticus

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Carex nebrascensis	1
Carex utriculata	1	Cicuta douglasii	0
Cirsium arvense	0	Juncus arcticus	3
Poa compressa	1	Scirpus microcarpus	0
Scutellaria lateriflora	0	Trifolium repens	0
Triglochin palustris	2		

Transect Notes:

Transect Number: 2 **Compass Direction from Start:** 80

Interval Data:

Ending Station 583 **Community Type:** Alopecurus arundinaceus / Mixed Graminoid

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Argentina anserina	0
Beckmannia syzigachne	1	Carex utriculata	1
Eleocharis palustris	1	Hordeum jubatum	1
Juncus arcticus	1	Phalaris arundinacea	0
Poa pratensis	1	Triglochin palustris	0

Transect Notes:

Transect Number: 3 **Compass Direction from Start:** 355

Interval Data:

Ending Station 353 **Community Type:** Alopecurus arundinaceus /

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5		

Transect Notes:

Very dense stand of Alopecurus arundinaceus.

PLANTED WOODY VEGETATION SURVIVAL

Woodson Creek

Planting Type	#Planted	#Alive	Notes
Salix spp.	69	10	cuttings have moderate vigor and low survival

Comments

Woodson Creek

WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure: _____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
Barn Swallow	5	F, FO	UP, WM
Great Blue Heron	1	FO	UP, WM
Great Horned Owl	1	L	UP
Sandhill Crane	3	FO	UP, WM
Swainson's Hawk	1	F, FO	UP

Bird Comments

BEHAVIOR CODES

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

HABITAT CODES

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

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

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Black Bear		No	No	No	Chew marks on well MW-6
Elk or Wapiti	15	No	No	No	West of site
Mule Deer	2	Yes	No	No	
Northern River Otter	1	Yes	Yes	Yes	
White-tailed Deer	1	Yes	No	No	

Wildlife Comments:

An angry river otter that appeared to be protecting its den was seen at stream transect 1.

Woodson Creek

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
1126	46.290081	-110.731293	135	T-1, Start
1128	46.288757	-110.729637	220	T-1, End
1130-1132	46.289425	-110.728729		upper bank pins-- pin 1 out 0.9 pin 2 out 2.0
1133-1139	46.290459	-110.728035	220	PP 1 pano
1140	46.286163	-110.733093	80	T-2, Start
1141-42	46.286373	-110.730835	260	T-2, End
1143-1154	46.286873	-110.730354	200	PP 2 pano
1155-1164	46.289204	-110.739418	250	PP 4 pano
1171-1173	46.28788	-110.733589	170	XS-2
1174-1175	46.287415	-110.735115		lower bank pins-low 17-middle 16- 5 top
1181				W-1u
1182				W-1w
1184	46.289261	-110.738754	174	T-3, Start
1185-1193	46.284012	-110.728188	180	PP 3 pano
1194	46.288387	-110.738976	180	T-3, End
1197	46.288258	-110.738548	0	W-2w
1198	46.28854	-110.738991	180	W-2u

Comments:

Woodson Creek

ADDITIONAL ITEMS CHECKLIST

Hydrology

☐ Map emergent vegetation/open water boundary on aerial photos.
☐ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).

Photos

☐ One photo from the wetland toward each of the four cardinal directions
☐ One photo showing upland use surrounding the wetland.
☐ One photo showing the buffer around the wetland
☐ One photo from each end of each vegetation transect, toward the transect

Vegetation

☑ 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 forms.

Functional Assessment Comments:

Maintenance

Were man-made nesting structure installed at this site? No

If yes, do they need to be repaired?

If yes, describe the problems below and indicate if any actions were taken to remedy the problems

Were man-made structures built or installed to impound water or control water flow into or out of the wetland? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

Well MW-5 assumed destroyed.

WETLAND DETERMINATION DATA FORM – Routine Weltand Delineation, 1987 COE Protocol

Project/Site: Woodson | City/County: Ringling/Meagher Co. | Sampling Date: 8/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: W-1u

Investigator(s): B Schultz, B Sandefur | Section, Township, Range: S 16 T 6N R 8E

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%):

Subregion (LRR): LRR E | Lat: 46.2870783333333 | Long: -110.735131666667 | Datum: WGS84

Soil Map Unit Name: Soapcreek Fairway complex, 0-2% slopes

Do Normal Circumstances Exist on this site? Yes ☑

Is the site significantly disturbed (Atypical Situation)? Yes ☐

Is the area a potential Problem Area? Yes ☐

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Alopecurus arundinaceus	50	☑	FAC
2. Bromus inermis	50	☑	FAC
3. Cirsium arvense	5	☐	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	105 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00% (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: W-1u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100					Silt Loam	highly friable
10-14	10YR 4/3	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Soils List
- ☑ Listed on National Soils List
- ☐ Other (explain in remarks)

Taxonomy Subgroup: Fluvaquentic Haplustolls

Confirm Mapped Type?: ☐

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No redox identified in the upper 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators

- ☐ Innundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required)

- ☐ Oxidized Rhizospheres along Living Roots
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Remarks: No surface hydro indicators. Landform approximately 3 feet above creek elevation.

WETLAND DETERMINATION DATA FORM – Routine Weltand Delineation, 1987 COE Protocol

Project/Site: Woodson | City/County: Ringling/Meagher Co. | Sampling Date: 8/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: W-1w

Investigator(s): B Schultz, B Sandefur | Section, Township, Range: S 16 T 6N R 8E

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 46.2872816666667 | Long: -110.735236666667 | Datum: WGS84

Soil Map Unit Name: Soapcreek Fairway complex, 0-2% slopes

Do Normal Circumstances Exist on this site? Yes ☑

Is the site significantly disturbed (Atypical Situation)? Yes ☐

Is the area a potential Problem Area? Yes ☐

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
DP W-1w is at approx 2ft lower surface than W-1u, intercepts seasonally high groundwater table.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Alopecurus arundinaceus	80	☑	FAC
2. Carex utriculata	10	☐	OBL
3. Juncus arcticus	10	☐	FACW
4. Scirpus microcarpus	5	☐	OBL
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	105 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00% (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: W-1w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Silty Clay Loam	
5-8	10YR 3/1	100					Silty Clay Loam	
8-16	10YR 4/1	90	7.5YR 4/4	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Soils List
- ☑ Listed on National Soils List
- ☐ Other (explain in remarks)

Taxonomy Subgroup: Fluveaqentic Haplustolls

Confirm Mapped Type?: ☑

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators

- ☐ Innundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required)

- ☐ Oxidized Rhizospheres along Living Roots
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☑ FAC-Neutral Test
- ☑ Other (Explain in Remarks)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Remarks: Adjacent aquatic macrophyte community with high water elevation at ground surface at DP. This site intercepts seasonally high groundwater table.

WETLAND DETERMINATION DATA FORM – Routine Weltand Delineation, 1987 COE Protocol

Project/Site: Woodson | City/County: Ringling/Meagher Co. | Sampling Date: 8/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: W-2u

Investigator(s): B Schultz, B Sandefur | Section, Township, Range: S 9 T 6N R 8E

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 46.2884633333333 | Long: -110.73887 | Datum: WGS84

Soil Map Unit Name: Soapcreek Fairway complex, 0-2% slopes

Do Normal Circumstances Exist on this site? Yes ☑

Is the site significantly disturbed (Atypical Situation)? Yes ☐

Is the area a potential Problem Area? Yes ☐

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
DP with seasonal watertable below 16in.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Alopecurus arundinaceus	40	☑	FAC
2. Bromus inermis	40	☑	FAC
3. Taraxacum officinale	20	☑	FACU
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.70% (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: W-2u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Clay Loam	
8-16	10YR 3/3	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Soils List
- ☑ Listed on National Soils List
- ☐ Other (explain in remarks)

Taxonomy Subgroup: Fluveaqentic Haplustolls

Confirm Mapped Type?: ☐

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No redox in upper 16in, seasonal high groundwater table at least 16in below surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators

- ☐ Innundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required)

- ☐ Oxidized Rhizospheres along Living Roots
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Remarks: Area at slightly higher elevation than adjacent wetland area, no signs of surface hydrology identified.

WETLAND DETERMINATION DATA FORM – Routine Weltand Delineation, 1987 COE Protocol

Project/Site: Woodson | City/County: Ringling/Meagher Co. | Sampling Date: 8/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: W-2w

Investigator(s): B Schultz, B Sandefur | Section, Township, Range: S 9 T 6N R 8E

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 46.288335 | Long: -110.738895 | Datum: WGS84

Soil Map Unit Name: Soapcreek Fairway complex, 0-2% slopes

Do Normal Circumstances Exist on this site? Yes ☑

Is the site significantly disturbed (Atypical Situation)? Yes ☐

Is the area a potential Problem Area? Yes ☐

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
DP in seasonally saturated wet meadow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Alopecurus arundinaceus	100	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00% (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: W-2w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Clay Loam	
5-14	10YR 4/2	95	10YR 4/6	5	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☑ Listed on Local Soils List
- ☑ Listed on National Soils List
- ☐ Other (explain in remarks)

Taxonomy Subgroup: Fluvaquentic Haplustolls

Confirm Mapped Type?: ☑

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators

- ☐ Innundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required)

- ☐ Oxidized Rhizospheres along Living Roots
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☑ Other (Explain in Remarks)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Remarks: Data point in seasonally saturated wet meadow. Saturation on aerials is present.

MDT Montana Wetland Assessment Form (revised 5/25/1999)

1. Project name Woodson Creek **2. MDT project#** STPX-STPP 30(15) **Control#** 5912

3. Evaluation Date 8/12/2013 **4. Evaluators** B Schultz, B Sandefur **5. Wetland/Site# (s)** AA-1 WC-Floodplain

6. Wetland Location(s): T 6N **R** 8E **Sec1** 9 **T** 6N **R** 8E **Sec2** 16

Approx Stationing or Mileposts

Watershed 10030101 **Watershed/County** 7-Missouri/Sun/Smith Watersheds/Meagher County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 28.62

Purpose of Evaluation

- ☐ **Wetlands potentially affected by MDT project**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 28.62

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	System	Subsystem	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Riverine	none	Aquatic Bed	Excavated	Permanently flooded	5
Riverine	Riverine	none	Emergent Wetland		seasonally flooded	20
Riverine	Riverine	none	Unconsolidated Bottom	Excavated	Permanently flooded	5
Riverine	Riverine	none	Emergent Wetland		seasonally flooded	70

11. Estimated Relative Abundance: (of similarly classified sites within the same major Montana Watershed Basin, see definitions) Abundant

12. General Condition of AA

i. Regarding disturbance: (use matrix below to determine [circle] appropriate resonse)

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

Comments: (types of disturbance, intensity, season, etc)

AA consists of Woodson Creek and adjacent wetland depressions and floodplains, managed in a natural state. Mitigation wetlands/waters were constructed in 2006. Surrounding land used for grazing and cultivated agriculture.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense.

iii. Brief descriptive summary of surrounding land use/habitat

Lands adjacent to AA are grazed and cultivated (hay, wheat, etc.)

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

# of "Cowardin" vegetated classes present in AA (see #10)	> 3 vegetated classes (or > 2 if one is forested)	2 vegetated classes (or 1 if forested)	< 1 vegetated class
Rating (circle)	H	M	L

Comments: Two vegetated classes: emergent and aquatic bed.

SECTION PERTAINING TO FUNCTION VALUES ASSESSMENT

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ◉ **S**

Secondary habitat (list Species) ◉ **D** ◉ **S**

Incidental habitat (list species) ◉ **D** ◉ **S**

No usable habitat ◉ **S**

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.5L	.3L	0L

Sources for documented use USFWS T&E List - July 2013.

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ○ **S** Western Toad (S2)

Secondary habitat (list Species) ○ **D** ◉ **S** Ferruginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B)

No usable habitat ◉ **S**

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for the function)

Highest Habitat Level	Doc./primary	Sus./primary	Doc./secondary	Sus./secondary	Doc./incidental	Sus./incidental	None
Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L

Sources for documented use MTNHP county list, site observations.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA Substantial

Substantial (based on any of the following [check]):

- [x] observations of abundant wildlife #s or high species diversity (during any period)
- [x] abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- [ ] presence of extremely limiting habitat features not available in the surrounding area
- [ ] interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- [ ] few or no wildlife observations during peak use periods
- [ ] little to no wildlife sign
- [ ] sparse adjacent upland food sources
- [ ] interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- [ ] observations of scattered wildlife groups or individuals or relatively few species during peak periods
- [ ] common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- [ ] adequate adjacent upland food sources
- [ ] interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	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	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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

Comments Woodson Creek and open water depressions exhibit P/P surface water duration and comprise 10% of the AA. Water levels w ere much lower in 2013 than 2012

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., click ☐ **(NA)** here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], the Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

i. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Permanent/ Perennial			Seasonal/ Intermittent			Temporary/ Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	H	H	H	M	M	M	M
Shading – 50 to 75% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	H	M	M	M	M	M	L	L
Shading - <50% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	M	M	M	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E=H, H=M, M=L, L=L]). *Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?* Y ◯ N ◉ Modified habitat quality rating = (circle) E H M L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E=exceptional, H=high, M=moderate, L=low] for this function)

Types of fish known or suspected within AA	*Modified Habitat Quality (ii)*			
	Exceptional	High	Moderate	Low
Native game fish	1E	.9H	.7M	5M
Introduced game fish	.9H	.8H	..6M	.4M
Non-game fish	.7M	.6M	.5M	.3L
No fish	.5M	.3L	.2L	.1L

Comments Suspected fish species: Eastern Brook Trout (Tier 4 introduced game fish).

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, check ☐ **NA** here and proceed to the next function.)

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

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			<10>2 acres			≤ 2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains not 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

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

Comments: Most of AA is subject to periodic flooding. No forested or scrub/shrub wetlands are located within the AA. Culvert (i.e., restricted outlet) located downstream of the AA.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, check ☐ **NA** here and proceed to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre 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**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Maximum depth of inundation = average of 6 inches over 15 acres (1/2 of AA) = 7.5 acre feet. Small open water depressions and Woodson Creek contained very little water during site visit.

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

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Culvert (i.e., restricted outlet) located downstream of the AA.

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

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

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

Comments: Rooted vegetation along streambanks of Woodson Creek has a stability rating of 6 (rushes, sedges, and creeping foxtail)

14I. Production Export/Food Chain Support:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = Structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P=permanent/perennial; S/I=seasonal/intermittent; T/E/A=temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments: The P/P rating was based on perennial flows in Woodson Creek.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H=high, L=low] for this function.

Criteria	*Functional Points and Rating*
AA is known Discharge/Recharge area or one or more indicators of D/R present	1H
No Discharge/Recharge indicators present	0.1L
Available Discharge/Recharge information inadequate to rate AA D/R potential	NA

Comments: Shallow groundwater is present in this AA.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: This AA has moderate disturbance.

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. Site ○ Y ◉ **N** (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. **Check categories that apply to the AA:** ☐ Educational/;scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. **Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use?** ○ Y ◉ **N** (If yes, go to i then proceed to iv; if no, then rate as [circle] Low [0.1])

iv. **Rating** (use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function)

Ownership	*Disturbance at AA (#12i)*		
	Low	Moderate	High
Public ownership	1H	.5M	.2L
Private ownership	.7M	.3L	.1L

Final Rating: **.3L**

Comments: AA is on private land off main highway.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S) AA-1 WC-Floodplain

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	0
B. MT Natural Heritage Program Species Habitat	H	1	1	28.62
C. General Wildlife Habitat	H	.9	1	25.758
D. General Fish Habitat	M	.6	1	17.172
E. Flood Attenuation	M	.6	1	17.172
F. Short and Long Term Surface Water Storage	H	1	1	28.62
G. Sediment/Nutrient/Toxicant Removal	H	1	1	28.62
H. Sediment/Shoreline Stabilization	H	1	1	28.62
I. Production Export/Food Chain Support	H	.9	1	25.758
J. Groundwater Discharge/Recharge	H	1	1	28.62
K. Uniqueness	L	.2	1	5.724
L. Recreation/Education Potential	L	.3	1	8.586
Totals:		8.5	12	243.27
Percent of Possible Score		**70.83** %		

Category I Wetland: (Must satisfy **one** of the following criteria; if does not meet criteria, 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**
- ☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; if not satisfied, go to Category IV)
- ☑ Score of 1 functional point for Species Rated S1,S2, or S3 by the MT Natural Heritage Program; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish/Aquatic 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**
- ☑ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

☐ **Category III Wetland:** (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export/Food Chain Support; **and**
- ☐ Total actual functional points < 30% (round to nearest whole #) of total possible functional points

OVERALL ANALYSIS AREA RATING:
(circle appropriate category based on the criteria outlined below)

I **II** **III** **IV**

MDT Montana Wetland Assessment Form (revised 5/25/1999)

1. Project name Woodson Creek **2. MDT project#** STPX-STPP 30(15) **Control#** 5912

3. Evaluation Date 8/12/2013 **4. Evaluators** B Schultz, B Sandefur **5. Wetland/Site# (s)** AA-2 WC-West

6. Wetland Location(s): T 6N **R** 8E **Sec1** 9 **T** 6N **R** 8E **Sec2** 16

Approx Stationing or Mileposts

Watershed 10030101 **Watershed/County** 7-Missour/Sun/Smith Watersheds/ Meagher County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 7.15

Purpose of Evaluation

- ☐ **Wetlands potentially affected by MDT project**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 7.15

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	System	Subsystem	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Slope	Palustrine	none	Unconsolidated Bottom	Excavated	Permanently flooded	10
Slope	Palustrine	none	Emergent Wetland	Excavated	seasonally flooded	75
Depressional	Palustrine	none	Emergent Wetland		temporarily flooded	15

11. Estimated Relative Abundance: (of similarly classified sites within the same major Montana Watershed Basin, see definitions) Abundant

12. General Condition of AA

i. Regarding disturbance: (use matrix below to determine [circle] appropriate resonse)

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

Comments: (types of disturbance, intensity, season, etc)

This AA consists of the northwest portion of the mitigation site. Wetlands within the AA were constructed in 2006. The AA is in a managed natural state. The surrounding land is grazed and hayed with low disturbance.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Brief descriptive summary of surrounding land use/habitat

The land immediately surrounding the AA is grazed and hayed.

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

# of "Cowardin" vegetated classes present in AA (see #10)	> 3 vegetated classes (or > 2 if one is forested)	2 vegetated classes (or 1 if forested)	< 1 vegetated class
Rating (circle)	H	M	L

Comments: One vegetated class is present: emergent wetland.

SECTION PERTAINING TO FUNCTION VALUES ASSESSMENT

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ◉ **S**

Secondary habitat (list Species) ◉ **D** ◉ **S**

Incidental habitat (list species) ◉ **D** ◉ **S**

No usable habitat ◉ **S**

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.5L	.3L	0L

Sources for documented use USFWS T&E - July 2013

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ○ **S** Western Toad (S2)

Secondary habitat (list Species) ○ **D** ◉ **S** Ferruginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B)

No usable habitat ◉ **S**

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for the function)

Highest Habitat Level	Doc./primary	Sus./primary	Doc./secondary	Sus./secondary	Doc./incidental	Sus./incidental	None
Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L

Sources for documented use MTNHP County list, observations on site

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	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	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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

Comments .9H rating decrease due to Bald Eagle being changed from S3 to S4 species.

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., click ☑ **(NA)** here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], the Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

i. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Permanent/ Perennial			Seasonal/ Intermittent			Temporary/ Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	H	H	H	M	M	M	M
Shading – 50 to 75% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	H	M	M	M	M	M	L	L
Shading - <50% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	M	M	M	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E=H, H=M, M=L, L=L]). *Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?* Y ◯ N ◉ Modified habitat quality rating = (circle) E H M L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E=exceptional, H=high, M=moderate, L=low] for this function)

Types of fish known or suspected within AA	*Modified Habitat Quality (ii)*			
	Exceptional	High	Moderate	Low
Native game fish	1E	.9H	.7M	5M
Introduced game fish	.9H	.8H	..6M	.4M
Non-game fish	.7M	.6M	.5M	.3L
No fish	.5M	.3L	.2L	.1L

Comments

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, check ☑ **NA** here and proceed to the next function.)

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

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			<10>2 acres			≤ 2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains not 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

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

Comments: NA rating based on the assumption that the AA does not receive any overbank flow from Woodson Creek or Sixteen Mile Creek.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, check ☐ **NA** here and proceed to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre 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**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Duration of ponding P/P based on depth of inundation observed during 2013 site visit. Maximum depth of ponding in large depression = average 4 feet over approximately one acre = 4 acre feet.

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

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: AA drains via overland flow (it contains no outlet).

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

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

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

Comments: Palustrine habitat in AA depression considered large enough to be subject to wave action.

14I. Production Export/Food Chain Support:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = Structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P=permanent/perennial; S/I=seasonal/intermittent; T/E/A=temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments: The AA contains no direct surface or subsurface outlet. The regime is P/P based on the presence of permanent inundation from groundwater and irrigation water in the large depression.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☑ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H=high, L=low] for this function.

Criteria	*Functional Points and Rating*
AA is known Discharge/Recharge area or one or more indicators of D/R present	1H
No Discharge/Recharge indicators present	0.1L
Available Discharge/Recharge information inadequate to rate AA D/R potential	NA

Comments: The deep depression in the west portion of the AA is fed by shallow groundwater and classified as permanently inundated. The depression has no direct outlet (i.e., it drains via overland flow).

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: AA had low disturbance with low species diversity.

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. Site ○ Y ◉ **N** (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. **Check categories that apply to the AA:** ☐ Educational/;scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. **Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use?** ○ Y ◉ **N** (If yes, go to i then proceed to iv; if no, then rate as [circle] Low [0.1])

iv. **Rating** (use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function)

Ownership	*Disturbance at AA (#12i)*		
	Low	Moderate	High
Public ownership	1H	.5M	.2L
Private ownership	.7M	.3L	.1L

Final Rating: **.7M**

Comments: Site is privately owned with low recreational potential.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S) AA-2 WC-West

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	0
B. MT Natural Heritage Program Species Habitat	H	1	1	7.15
C. General Wildlife Habitat	H	.9	1	6.435
D. General Fish Habitat	NA	0	0	0
E. Flood Attenuation	NA	0	0	0
F. Short and Long Term Surface Water Storage	H	.8	1	5.72
G. Sediment/Nutrient/Toxicant Removal	H	1	1	7.15
H. Sediment/Shoreline Stabilization	L	.3	1	2.145
I. Production Export/Food Chain Support	M	.7	1	5.005
J. Groundwater Discharge/Recharge	H	1	1	7.15
K. Uniqueness	L	.3	1	2.145
L. Recreation/Education Potential	M	.7	1	5.005
Totals:		6.7	10	47.905
Percent of Possible Score		**67** %		

Category I Wetland: (Must satisfy **one** of the following criteria; if does not meet criteria, 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**
- ☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; if not satisfied, go to Category IV)
- ☑ Score of 1 functional point for Species Rated S1,S2, or S3 by the MT Natural Heritage Program; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish/Aquatic 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**
- ☑ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

☐ **Category III Wetland:** (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export/Food Chain Support; **and**
- ☐ Total actual functional points < 30% (round to nearest whole #) of total possible functional points

OVERALL ANALYSIS AREA RATING:
(circle appropriate category based on the criteria outlined below)

I **II** **III** **IV**

MDT Montana Wetland Assessment Form (revised 5/25/1999)

1. Project name Woodson Creek **2. MDT project#** STPX-STPP 30(15) **Control#** 5912

3. Evaluation Date 8/12/2013 **4. Evaluators** B Schultz, B Sandefur **5. Wetland/Site# (s)** AA-3 WC-East

6. Wetland Location(s): T 6N **R** 8E **Sec1** 16 **T** **R** **Sec2**

Approx Stationing or Mileposts

Watershed 10030101 **Watershed/County** 7-Missouri/Sun/Smith Watershed/Meagher County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 29.57

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 29.57

How assessed: Measured e.g. by GPS

Purpose of Evaluation

- ☐ **Wetlands potentially affected by MDT project**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	System	Subsystem	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Palustrine	none	Aquatic Bed	Excavated	semi-permanently flooded	10
Riverine	Palustrine	none	Emergent Wetland		seasonally flooded	90

11. Estimated Relative Abundance: (of similarly classified sites within the same major Montana Watershed Basin, see definitions) Abundant

12. General Condition of AA

i. Regarding disturbance: (use matrix below to determine [circle] appropriate resonse)

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

Comments: (types of disturbance, intensity, season, etc)

The AA consists of the wet meadow located in the southeast portion of the mitigation site. The AA is managed in a natural state and is bordered by pasture and cultivated agricultural fields. The wetlands/waters in the AA were classified as riverine wetlands based on proximity and inferred hydrologic connections to Woodson Creek and Sixteen Mile Creek.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Brief descriptive summary of surrounding land use/habitat

The AA is bordered by pasture and cultivated agricultural fields.

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

# of "Cowardin" vegetated classes present in AA (see #10)	> 3 vegetated classes (or > 2 if one is forested)	2 vegetated classes (or 1 if forested)	< 1 vegetated class
Rating (circle)	H	M	L

Comments: Two vegetated classes: emergent wetlands and aquatic bed

SECTION PERTAINING TO FUNCTION VALUES ASSESSMENT

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ◉ **S**

Secondary habitat (list Species) ◉ **D** ◉ **S**

Incidental habitat (list species) ◉ **D** ◉ **S**

No usable habitat ◉ **S**

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.5L	.3L	0L

Sources for documented use USFWS T&E List - July 2013

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

i. AA is documented (D) or suspected (S) to contain (circle one basedon definition contained in instructions):

Primary or critical habitat (list species) ◉ **D** ○ **S** Western Toad (S2)

Secondary habitat (list Species) ○ **D** ◉ **S** Ferruginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B)

No usable habitat ◉ **S**

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for the function)

Highest Habitat Level	Doc./primary	Sus./primary	Doc./secondary	Sus./secondary	Doc./incidental	Sus./incidental	None
Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L

Sources for documented use MTNHP County List; on stie observations.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	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	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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

Comments Depressions within the AA were almost dry during the August 2013 site visit.

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., click ☑ **(NA)** here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], the Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

i. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Permanent/ Perennial			Seasonal/ Intermittent			Temporary/ Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	H	H	H	M	M	M	M
Shading – 50 to 75% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	H	M	M	M	M	M	L	L
Shading - <50% of streambank or shoreline within AA contains rip. Or wetland scrub-shrub or forested communities	H	M	M	M	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E=H, H=M, M=L, L=L]). *Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?* Y ◯ N ◉ Modified habitat quality rating = (circle) E H M L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E=exceptional, H=high, M=moderate, L=low] for this function)

Types of fish known or suspected within AA	*Modified Habitat Quality (ii)*			
	Exceptional	High	Moderate	Low
Native game fish	1E	.9H	.7M	5M
Introduced game fish	.9H	.8H	..6M	.4M
Non-game fish	.7M	.6M	.5M	.3L
No fish	.5M	.3L	.2L	.1L

Comments

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, check ☐ **NA** here and proceed to the next function.)

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

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			<10>2 acres			≤ 2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains not 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

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

Comments: Oxbow area potentially subject to overbank flow from Sixteen Mile Creek.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, check ☐ **NA** here and proceed to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre 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**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Depressions within AA were nearly dry during the 2013 site visit. Longest duration of ponding was assessed as "S/I". Maximum depth = average of 6 inches over 3 acres = 1.5 acre feet.

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

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Evidence of ponding noted within the AA. The AA contains no outlet (i.e., drains via overland flow).

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

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

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

Comments: Seasonally inundated areas with well vegetated shorline, larger area in SE corner of the site potentially subject to wave action during periods of inundation

14I. Production Export/Food Chain Support:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = Structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P=permanent/perennial; S/I=seasonal/intermittent; T/E/A=temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments: Most of the AA contains no direct surface or subsurface outlet, but the oxbow in the southwest corner of the AA likely has surface/subsurface connection to Sixteen Mile Creek.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H=high, L=low] for this function.

Criteria	*Functional Points and Rating*
AA is known Discharge/Recharge area or one or more indicators of D/R present	1H
No Discharge/Recharge indicators present	0.1L
Available Discharge/Recharge information inadequate to rate AA D/R potential	NA

Comments: The AA exhibits a shallow water table with saturation to the ground surface.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: There is moderate disturbance within the AA.

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. Site ○ Y ◉ **N** (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. **Check categories that apply to the AA:** ☐ Educational/;scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. **Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use?** ○ Y ◉ **N** (If yes, go to i then proceed to iv; if no, then rate as [circle] Low [0.1])

iv. **Rating** (use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low] for this function)

Ownership	*Disturbance at AA (#12i)*		
	Low	Moderate	High
Public ownership	1H	.5M	.2L
Private ownership	.7M	.3L	.1L

Final Rating: **.3L**

Comments: Site is privately owned.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S) AA-3 WC-East

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	0
B. MT Natural Heritage Program Species Habitat	H	1	1	29.57
C. General Wildlife Habitat	M	.5	1	14.785
D. General Fish Habitat	NA	0	0	0
E. Flood Attenuation	M	.5	1	14.785
F. Short and Long Term Surface Water Storage	M	.6	1	17.742
G. Sediment/Nutrient/Toxicant Removal	H	1	1	29.57
H. Sediment/Shoreline Stabilization	H	.9	1	26.613
I. Production Export/Food Chain Support	H	.8	1	23.656
J. Groundwater Discharge/Recharge	H	1	1	29.57
K. Uniqueness	L	.2	1	5.914
L. Recreation/Education Potential	L	.3	1	8.871
Totals:		6.8	11	201.076
Percent of Possible Score		**61.82** %		

Category I Wetland: (Must satisfy **one** of the following criteria; if does not meet criteria, 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**
- ☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; if not satisfied, go to Category IV)
- ☑ Score of 1 functional point for Species Rated S1,S2, or S3 by the MT Natural Heritage Program; **or**
- ☐ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish/Aquatic 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**
- ☐ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

☐ **Category III Wetland:** (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export/Food Chain Support; **and**
- ☐ Total actual functional points < 30% (round to nearest whole #) of total possible functional points

OVERALL ANALYSIS AREA RATING:
(circle appropriate category based on the criteria outlined below)

I **II** **III** **IV**

Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana



Photo Point 1 – *Photo 1*
Bearing: 208 Degrees
Location: North Side
Taken in 2008



Photo Point 1 – *Photo 1*
Bearing: 208 Degrees
Location: North Side
Taken in 2010



Photo Point 1 – *Photo 1*
Bearing: 208 Degrees
Location: North Side
Taken in 2011



Photo Point 1 – *Photo 1*
Bearing: 208 Degrees
Location: North Side
Taken in 2012



Photo Point 1 – *Photo 1*
Bearing: 208 Degrees
Location: North Side
Taken in 2013



Photo Point 1 – *Photo 2* **Location:** North Side
Bearing: 226 Degrees **Taken in 2008**



Photo Point 1 – *Photo 2* **Location:** North Side
Bearing: 226 Degrees **Taken in 2010**



Photo Point 1 – *Photo 2* **Location:** North Side
Bearing: 226 Degrees **Taken in 2011**



Photo Point 1 – *Photo 2* **Location:** North Side
Bearing: 226 Degrees **Taken in 2012**



Photo Point 1 – *Photo 2* **Location:** North Side
Bearing: 226 Degrees **Taken in 2013**



Photo Point 1 – *Photo 3* **Location:** North Side
Bearing: 249 Degrees **Taken in 2008**



Photo Point 1 – *Photo 3* **Location:** North Side
Bearing: 249 Degrees **Taken in 2010**



Photo Point 1 – *Photo 3* **Location:** North Side
Bearing: 249 Degrees **Taken in 2011**



Photo Point 1 – *Photo 3* **Location:** North Side
Bearing: 249 Degrees **Taken in 2012**



Photo Point 1 – *Photo 3* **Location:** North Side
Bearing: 249 Degrees **Taken in 2013**



Photo Point 2 – *Photo 1* **Location:** East-central
Bearing: 197 Degrees **Taken in 2008**



Photo Point 2 – *Photo 1* **Location:** East-central
Bearing: 197 Degrees **Taken in 2010**



Photo Point 2 – *Photo 1* **Location:** East-central
Bearing: 197 Degrees **Taken in 2011**



Photo Point 2 – *Photo 1* **Location:** East-central
Bearing: 197 Degrees **Taken in 2012**



Photo Point 2 – *Photo 1* **Location:** East-central
Bearing: 197 Degrees **Taken in 2013**



Photo Point 2 – *Photo 2*
Bearing: 230 Degrees
Location: East-central
Taken in 2008



Photo Point 2 – *Photo 2*
Bearing: 230 Degrees
Location: East-central
Taken in 2010



Photo Point 2 – *Photo 2*
Bearing: 230 Degrees
Location: East-central
Taken in 2011



Photo Point 2 – *Photo 2*
Bearing: 230 Degrees
Location: East-central
Taken in 2012



Photo Point 2 – *Photo 2*
Bearing: 230 Degrees
Location: East-central
Taken in 2013



Photo Point 2 – *Photo 3* **Location:** East-central
Bearing: 266 Degrees **Taken in 2008**



Photo Point 2 – *Photo 3* **Location:** East-central
Bearing: 266 Degrees **Taken in 2010**



Photo Point 2 – *Photo 3* **Location:** East-central
Bearing: 266 Degrees **Taken in 2011**



Photo Point 2 – *Photo 3* **Location:** East-central
Bearing: 266 Degrees **Taken in 2012**



Photo Point 2 – *Photo 3* **Location:** East-central
Bearing: 266 Degrees **Taken in 2013**



Photo Point 3 – *Photo 1* **Location:** West Side
Bearing: 95 Degrees **Taken in 2008**



Photo Point 3 – *Photo 1* **Location:** West Side
Bearing: 95 Degrees **Taken in 2010**



Photo Point 3 – *Photo 1* **Location:** West Side
Bearing: 95 Degrees **Taken in 2011**



Photo Point 3 – *Photo 1* **Location:** West Side
Bearing: 95 Degrees **Taken in 2012**



Photo Point 3 – *Photo 1* **Location:** West Side
Bearing: 95 Degrees **Taken in 2013**



Photo Point 3 – *Photo 2* **Location:** West Side
Bearing: 132 Degrees **Taken in 2008**



Photo Point 3 – *Photo 2* **Location:** West Side
Bearing: 132 Degrees **Taken in 2010**



Photo Point 3 – *Photo 2* **Location:** West Side
Bearing: 132 Degrees **Taken in 2011**



Photo Point 3 – *Photo 2* **Location:** West Side
Bearing: 132 Degrees **Taken in 2012**



Photo Point 3 – *Photo 2* **Location:** West Side
Bearing: 132 Degrees **Taken in 2013**



Photo Point 3 – *Photo 3* **Location:** West Side
Bearing: 224 Degrees **Taken in 2008**



Photo Point 3 – *Photo 3* **Location:** West Side
Bearing: 224 Degrees **Taken in 2010**



Photo Point 3 – *Photo 3* **Location:** West Side
Bearing: 224 Degrees **Taken in 2011**



Photo Point 3 – *Photo 3* **Location:** West Side
Bearing: 224 Degrees **Taken in 2012**



Photo Point 3 – *Photo 3* **Location:** West Side
Bearing: 224 Degrees **Taken in 2013**



Photo Point 4 – *Photo 1* **Location:** East Side
Bearing: 203 Degrees **Taken in 2008**



Photo Point 4 – *Photo 1* **Location:** East Side
Bearing: 203 Degrees **Taken in 2010**



Photo Point 4 – *Photo 1* **Location:** East Side
Bearing: 203 Degrees **Taken in 2011**



Photo Point 4 – *Photo 1* **Location:** East Side
Bearing: 203 Degrees **Taken in 2012**



Photo Point 4 – *Photo 1* **Location:** East Side
Bearing: 203 Degrees **Taken in 2013**



Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 225 Degrees **Taken in 2008**



Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 225 Degrees **Taken in 2010**



Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 225 Degrees **Taken in 2011**



Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 225 Degrees **Taken in 2012**



Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 225 Degrees **Taken in 2013**



Photo Point 4 – *Photo 3* **Location:** East Side
Bearing: 262 Degrees **Taken in 2008**



Photo Point 4 – *Photo 3* **Location:** East Side
Bearing: 262 Degrees **Taken in 2010**



Photo Point 4 – *Photo 3* **Location:** East Side
Bearing: 262 Degrees **Taken in 2011**



Photo Point 4 – *Photo 3* **Location:** East Side
Bearing: 262 Degrees **Taken in 2012**



Photo Point 4 – *Photo 3* **Location:** East Side
Bearing: 262 Degrees **Taken in 2013**



Photo Point 4 – *Photo 4* **Location:** East Side
Bearing: 296 Degrees **Taken in 2008**



Photo Point 4 – *Photo 4* **Location:** East Side
Bearing: 296 Degrees **Taken in 2010**



Photo Point 4 – *Photo 4* **Location:** East Side
Bearing: 296 Degrees **Taken in 2011**



Photo Point 4 – *Photo 4* **Location:** East Side
Bearing: 296 Degrees **Taken in 2012**



Photo Point 4 – *Photo 4* **Location:** East Side
Bearing: 296 Degrees **Taken in 2013**



Photo Point 4 – *Photo 5* **Location:** East Side
Bearing: 324 Degrees **Taken in 2008**



Photo Point 4 – *Photo 5* **Location:** East Side
Bearing: 324 Degrees **Taken in 2010**



Photo Point 4 – *Photo 5* **Location:** East Side
Bearing: 324 Degrees **Taken in 2011**



Photo Point 4 – *Photo 5* **Location:** East Side
Bearing: 324 Degrees **Taken in 2012**



Photo Point 4 – *Photo 5* **Location:** East Side
Bearing: 324 Degrees **Taken in 2013**



Photo Point 1 – *Panorama* **Location:** North Side
Bearing: 220 Degrees **Taken in 2013**



Photo Point 2 – *Panorama* **Location:** East-central
Bearing: 200 Degrees **Taken in 2013**



Photo Point 3 – *Panorama* **Location:** West Side
Bearing: 180 Degrees **Taken in 2013**



Photo Point 4 – *Panorama* **Location:** East Side
Bearing: 250 Degrees **Taken in 2013**



Transect 1 – *Photo 1*
Bearing: 134 Degrees
Location: Start (west end)
Taken in 2008



Transect 1 – *Photo 1*
Bearing: 134 Degrees
Location: Start (west end)
Taken in 2010



Transect 1 – *Photo 1*
Bearing: 134 Degrees
Location: Start (west end)
Taken in 2011





Transect 1 – *Photo 1*
Bearing: 134 Degrees
Location: Start (west end)
Taken in 2013

Intentionally Blank



Transect 1 – *Photo 2* **Location:** End
Bearing: 314 Degrees **Taken in 2010**





Transect 1 – *Photo 2* **Location:** End
Bearing: 314 Degrees **Taken in 2011**



Transect 1 – *Photo 2* **Location:** End
Bearing: 220 Degrees **Taken in 2013**



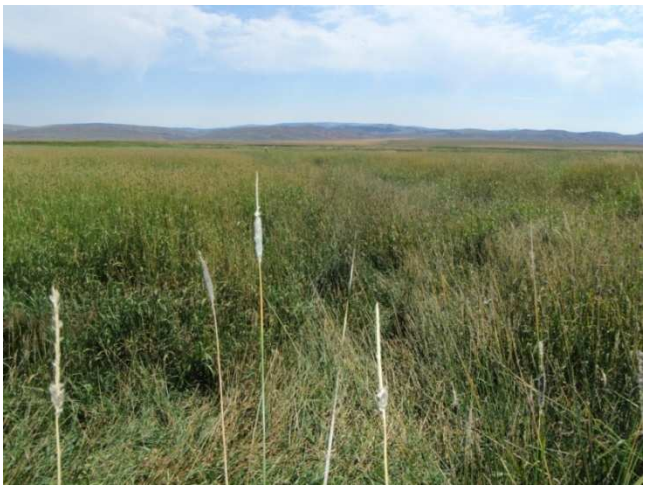
Transect 2 – *Photo 1*
Bearing: 75 Degrees
Location: Start
Taken in 2010



Transect 2 – *Photo 1*
Bearing: 75 Degrees
Location: Start
Taken in 2011



Transect 2 – *Photo 1*
Bearing: 75 Degrees
Location: Start
Taken in 2012



Transect 2 – *Photo 1*
Bearing: 80 Degrees
Location: Start
Taken in 2013



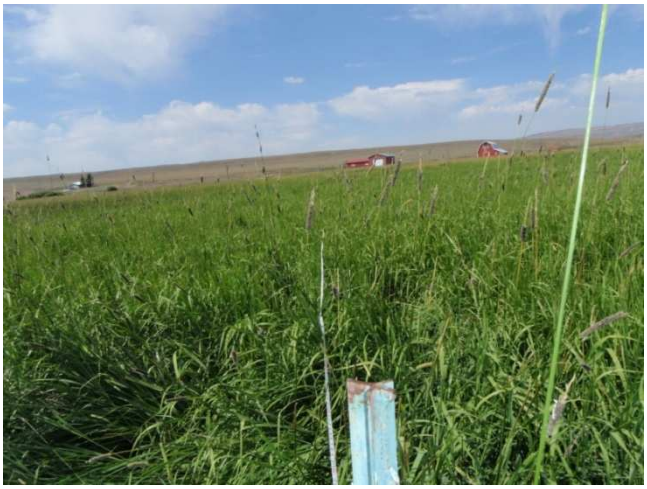
Transect 2 – *Photo 2* **Location:** End
Bearing: 255 Degrees **Taken in 2010**



Transect 2 – *Photo 2* **Location:** End
Bearing: 255 Degrees **Taken in 2011**



Transect 2 – *Photo 2* **Location:** End
Bearing: 255 Degrees **Taken in 2012**



Transect 2 – *Photo 2* **Location:** End
Bearing: 260 Degrees **Taken in 2013**



Transect 3 – *Photo 1* **Location:** Start
Bearing: 187 Degrees **Taken in 2010**



Transect 3 – *Photo 1* **Location:** Start
Bearing: 187 Degrees **Taken in 2011**



Transect 3 – *Photo 1* **Location:** Start
Bearing: 187 Degrees **Taken in 2012**



Transect 3 – *Photo 1* **Location:** Start
Bearing: 174 Degrees **Taken in 2013**



Transect 3 – *Photo 1* **Location:** End
Bearing: 7 Degrees **Taken in 2010**



Transect 3 – *Photo 1* **Location:** End
Bearing: 7 Degrees **Taken in 2011**



Transect 3 – *Photo 1* **Location:** End
Bearing: 7 Degrees **Taken in 2012**



Transect 3 – *Photo 1* **Location:** End
Bearing: 180 Degrees **Taken in 2013**



Bank Erosion Pin #1
Taken in 2010



Bank Erosion Pin #1
Taken in 2011



Bank Erosion Pin #1
Taken in 2012



Bank Erosion Pin #1
Taken in 2013



Bank Erosion Pin #2
Taken in 2013



Cross-Section 1 **Location:** XS-1
Bearing: 180 Degrees **Taken in 2011**



Cross-Section 2 **Location:** XS-2
Bearing: 170 Degrees **Taken in 2011**



Cross-Section 1 **Location:** XS-1
Bearing: 180 Degrees **Taken in 2012**



Cross-Section 2 **Location:** XS-2
Bearing: 170 Degrees **Taken in 2012**

No 2013 Photo Available





Cross-Section 2 **Location:** XS-2
Bearing: 170 Degrees **Taken in 2013**



Data Point – *W-1u*
Bearing: 180 Degrees
Location: Community 4
Taken in 2013



Data Point – *W-1w*
Bearing: 0 Degrees
Location: Community 3
Taken in 2013



Data Point – *W-2u*
Bearing: 180 Degrees
Location: Community 4
Taken in 2013

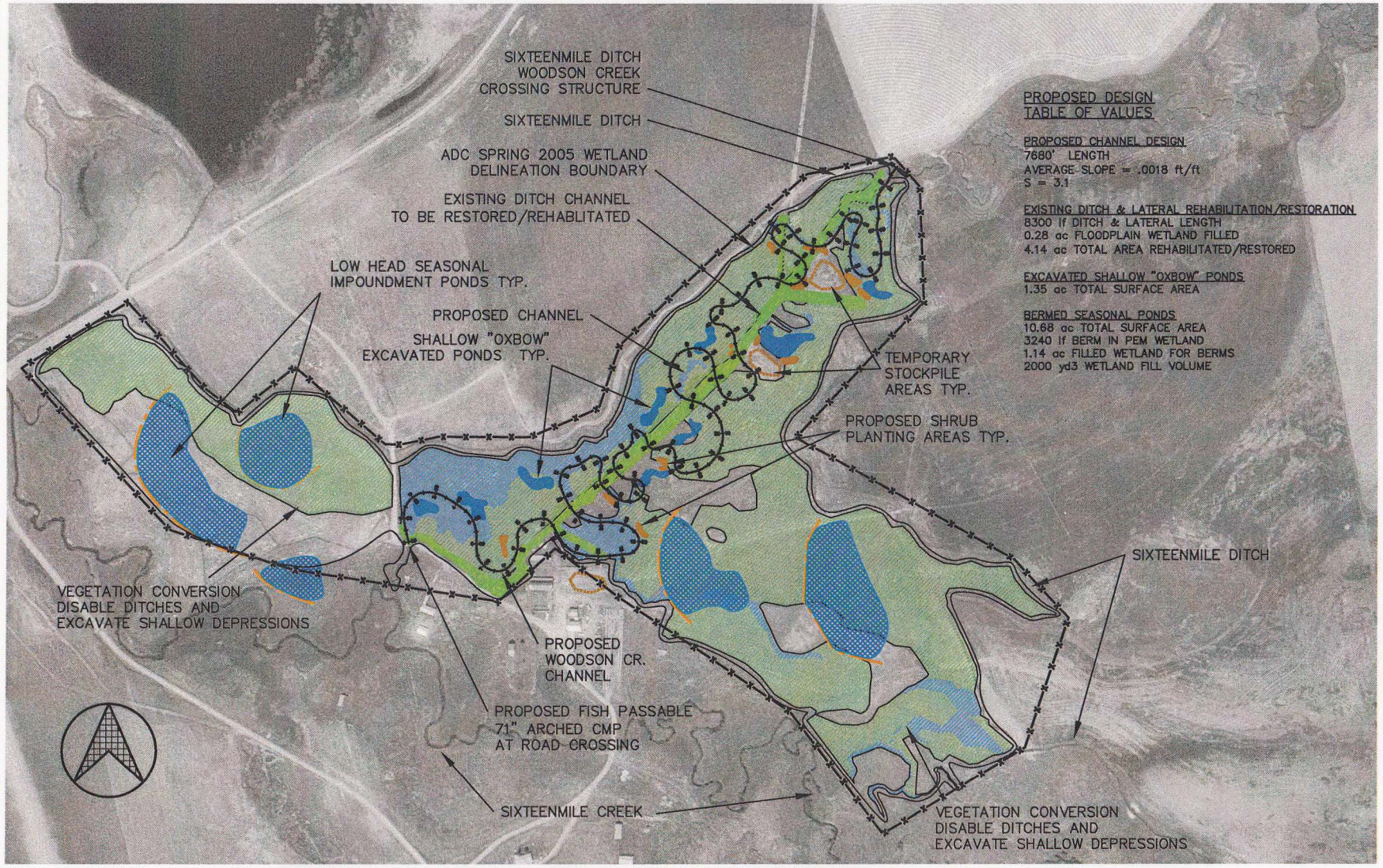


Data Point – *W-2w*
Bearing: 0 Degrees
Location: Community 3
Taken in 2013

Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana



DESIGN PAGE

ACOE WETLAND CREDITING
DESIGN PLAN

Woodson Creek
Stream Channel Restoration
Sixteen Mile Road
Meagher County, MT
Sections 9 & 16 T6N R8E

woodson 404 plans

REVISION 1

DRAWING NO.
FIGURE 3

REV NO.	REVISION DESCRIPTION	BY	REVISION DATE

SCALE: 1" = 300'
PROJECT NO. 205
DRAWN bz
CHECK
DATE 7/05/05

PO Box 582 - Livingston MT 59047
Phone 406.222.7600 - Fax 406.222.7677