MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2011

Woodson Creek
Ringling, Meagher County, Montana

Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Ave
Helena, MT 59620-1001

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December 2011

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

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1. INTRODUCTION

The 2011 Woodson Creek Wetland Mitigation Monitoring Report presents the results of the fourth year of wetland monitoring at the Woodson Creek 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 that would 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 goal of the project was to restore Woodson Creek to its historical 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 105-acre site.

The project occurs at an elevation of approximately 5,390 feet above mean sea level (amsl) and is located three miles northeast of Ringling, Montana, in Meagher County (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 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**.**

Seven different crediting areas were developed originally with individual performance standards. Credit ratios were 1:1 for restoration and creation and 1.5:1 for rehabilitation once the performance standards were achieved. Although maximum credit acres were projected to be 73.3, MDT's maximum amount of credit is 44.4 acres by an agreement with ADC, now Oasis Environmental and part of ERM. The existing 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 addressed the current method of awarding credits from a pass/fail system to a credit-reduction based methodology. The functional lift standard required 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 was to be assessed using the 1999 MDT Montana Wetland Assessment Method (MWAM) (Berglund

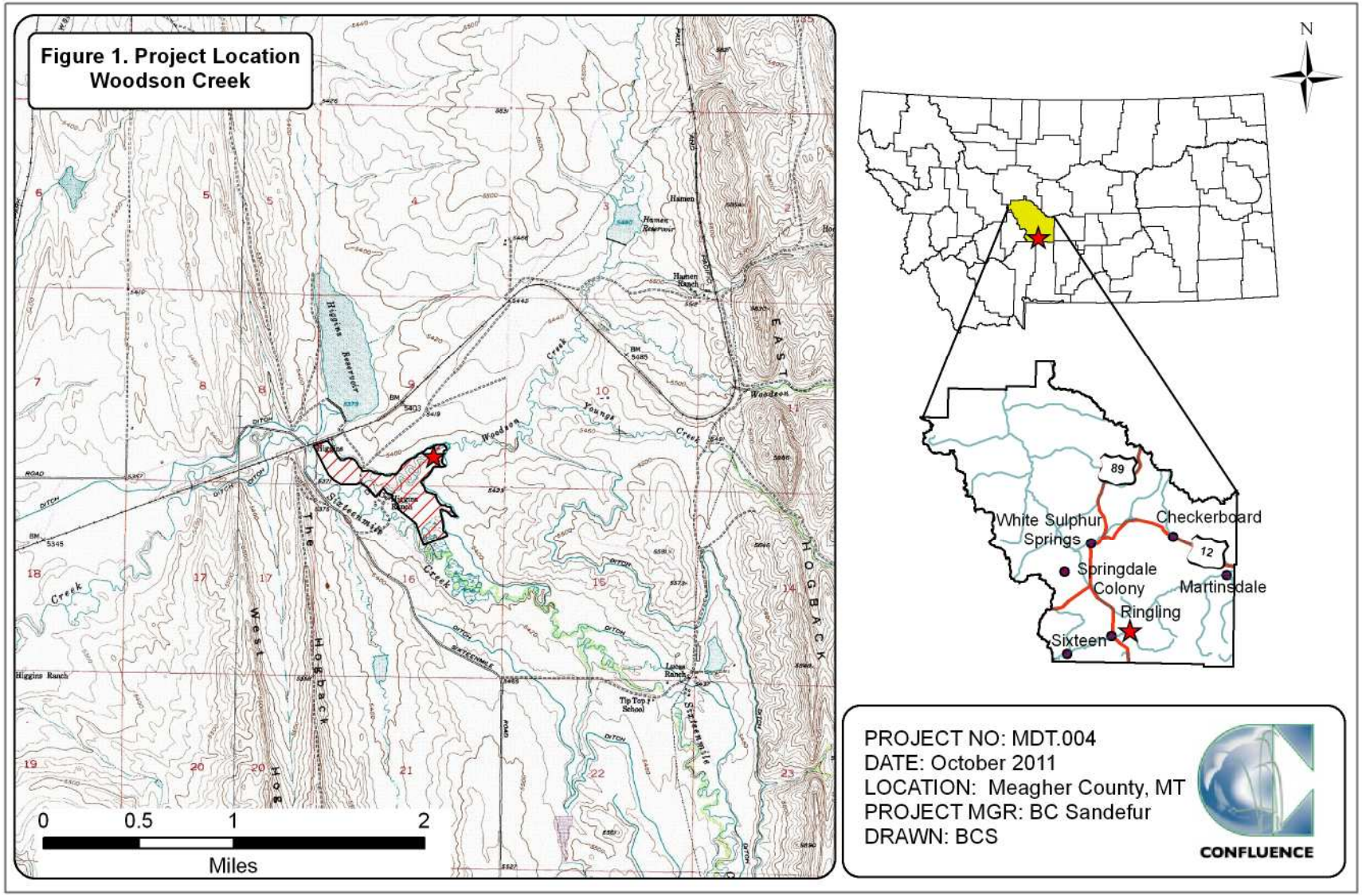

Figure 1. Project location Woodson Creek Mitigation Site.

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1999). The Primary Standards for performance as amended in 2010 are listed below.

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. Aerial 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 aerial 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

The site was monitored on July 26, 2011. Information contained on the Mitigation Monitoring Form and Wetland Data Form was entered electronically in the field on a personal digital assistant (PDA) 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 mapping, vegetation community mapping, vegetation transect monitoring, woody species survival monitoring, soil and hydrology data collection, 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 more or 12.5 percent) 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 (NRCS 2010). 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 hydrological indicators as outlined on the Wetland 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 Data Form (Appendix B). Hydrologic assessments allowed evaluation of mitigation goals addressing inundation/saturation requirements.

Groundwater levels were measured in six monitoring wells in 2011. 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 electronically on the Wetland 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 2011 aerial photograph. The percent cover of dominant species within a community type was estimated and recorded using the following ranges that are listed on the mitigation monitoring form: 0 (<1 percent), 1 (1-5 percent), 2 (6-10 percent),3 (11-20 percent), 4 (21-50 percent),and 5 (>50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figure 3, Appendix A).

Temporal changes in vegetation were evaluated through annual assessments of static belt transects (Figure 2, Appendix A). Vegetation composition was assessed and recorded on three vegetation belt transects approximately 10 feet wide and 526 feet (Transect 1), 582 feet (Transect 2), and 378 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 polygon data (Appendix B). Photographs were taken at the transect endpoints during the monitoring event (Appendix C).

The location of noxious weeds was noted in the field and mapped on the 2011 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 acre, 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, 2 to 25 percent, and 25 to 100 percent, respectively, as listed on Figure 3 (Appendix A). Observations of live willow saplings were recorded annually. The lack of information on post-construction plant numbers and locations precluded the calculation of precise survival rates.

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 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 indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). A 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 Data Form (Appendix B).

Consultation with the USACE determined that the 1987 manual should continue to be used at this site where 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 for vegetation, soil or hydrology, or other special aquatic site, i.e., mudflat. The wetland boundaries were identified on the 2011 aerial photograph. Wetland areas were estimated using geographic information system (GIS) methodology.

2.5. Wildlife

Direct observations of mammal, reptile, amphibian, and bird species were recorded on the mitigation monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones were also recorded (Appendix B). Direct sampling methods, such as snap, live, and pitfall

traps were not used. A comprehensive animal species list collected from 2007 through 2011 was compiled for the report (Section 3.5).

2.6. Functional Assessment

Pre-construction, 2007, 2008, 2010, and 2011 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 called Assessment Areas (AA) (Appendix B).

2.7. Channel Cross-Sections

Two permanent cross-sections established in 2007 were monitored in 2008, 2010, and 2011. The cross-sections were located near the north and south ends of the project area along 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 pounded 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 each year. Any remaining protrusions were measured.

2.9. Photo Documentation

Monitoring at photo points provided supplemental information documenting wetland, upland, and vegetation transect conditions, site trends, and current land uses surrounding the site. Photographs were taken at established photo points throughout the mitigation site and at transect end points (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 2011 monitoring season. Points were collected using WAAS-enabled differential corrected satellites, typically improving resolution to sub-meter accuracy. The collected data were then transferred to a personal computer, imported into GIS, and drawn in Montana State Plane Single Zone NAD 83 meters. In addition to GPS, some site features within the site were hand-mapped onto the 2011 aerial photograph and then digitized. Site features and survey points that were mapped included fence boundaries, photograph points, transect endpoints, wetland boundaries, and vegetation community boundaries.

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 average total annual precipitation at the White Sulphur Springs 2 station recorded from December 1978 to December 2010 was 12.82 inches(WRCC 2011). The average precipitation rate in 2010 was 15.12 inches. The average precipitation in 2010 was 2.3 inches greater than the 32 year average. Cumulative precipitation for January to June 2010 and 2011 was 7.32, and 7.82 inches(NCDC 2011) , respectively.

Surface water from Woodson Creek and Sixteen Mile Creek and groundwater are the primary sources of wetland hydrology at the site. The groundwater monitoring wells were installed and monitored in spring 2008 (Table 1). The Sixteen-mile Ditch was cleaned in fall 2007, resulting in decreased seepage from the ditch to the west parcel.

Groundwater levels were measured in 2011 with a Solinst Water Level Meter. The 2008 through 2011 data are presented in Table 1. Groundwater depths in MW-1 and MW-2 were 2.80 feet bgs, which were 2.8 feet and 2.28 feet deeper, respectively than levels measured in 2010. The groundwater depth in MW-4 was 2.2 feet bgs in 2011, approximately 1.88 feet lower than the level recorded in 2010. Wells MW-3, MW-5, and MW-6 were dry in 2011. Groundwater levels measured in 2011 reflected the general decrease in inundation levels observed in site wetlands during the site visit.

Table 1. Groundwater depths measured below the ground surface (bgs) from July 2008 to July 2011 at the Woodson Creek Wetland Mitigation Site.

Well Number	2008 Depth (ft.) bgs	2010 Depth (ft.) bgs	2011 Depth (ft.) bgs
MW-1	-0.02	0	2.80
MW-2	0.53	0.52	2.80
MW-3	0.48	0.45	Dry
MW-4	0.30	0.32	2.20
MW-5	0.68	0.71	Dry
MW-6	1.95	2.10	Dry

Approximately 15 percent of the site was inundated in 2011. The average surface water depth across the site was estimated at 2.0 feet with a range in depths of 0.0 to 4.0 feet. The surface water depth at the emergent vegetation and open water boundary was approximately 1.0 foot. The levee of the irrigation canal located at the northwest end of the site was breached between the 2010 and 2011 site visits. A photo of the canal breach is shown on page C-11 of Appendix C. This breach has allowed all irrigation flow from canal to enter into the northwest portion of the mitigation site, substantially increasing the area of

inundation in this area. It did not appear this breach affected hydrology in any other portion of the site. If this breach goes unrepaired, it would be likely that substantially more wetlands would develop in the northwest portion of this site. The large depression wetland west of the breach was flooded during the 2011 site visit. Many of the areas near Woodson Creek and the east parcel that were inundated in 2010 were dry in July 2011.

Data points WC-1 through WC-4 were established to determine the wetland/upland boundary (Figure 2, Appendix A, and Wetland Data Forms, Appendix B). Data points WC-2 and WC-4 were located in areas that met the wetland criteria. Saturation was present at 7 inches bgs at WC-2. The apparent water table was observed at 9 inches bgs. Data point WC-4 exhibited saturation at 10 inches bgs and a water table at 11 inches bgs. Secondary indicators at WC-4 included water-stained leaves, local soil survey data, and the FAC-Neutral test. There were no positive indicators of wetland hydrology at WC-1 and WC-3.

3.2. Vegetation

One hundred and seven vegetation species identified on the site in 2007, 2008, 2010, 2011 are presented in Table 2 and on the monitoring form (Appendix B). Eight vegetation communities were identified in 2011 (Figure 3, Appendix A), Community Type 1 — *Alopecurus arundinaceus*/Mixed graminoids Wetland, Community Type 3 — *Alopecurus arundinaceus* Wetland, Community Type 4 — *Poa pratensis/Bromus inermis* Upland, Community Type 5 – Aquatic Macrophytes Wetland, Community Type 7 – *Carex utriculata/Phalaris arundinaceus* Wetland, Community Type 8 – *Bromus inermis*/*Alopecurus arundinaceus* Upland, Community Type 9 – *Alopecurus arundinaceus*/*Juncus balticus* Wetland, and Community Type 10 – *Eleocharis palustris*/Mixed graminoids Wetland. Woodson Creek is identified as Type 11 on Figure 3 (Appendix A).

Wetland community Type 1 — *Alopecurus arundinaceus*/Mixed graminoids was originally identified as a community in 2008. This community is the largest on the site (43 acres) and encompasses the majority of Woodson Creek and adjacent riverine wetlands. The vegetation is dominated by creeping foxtail (*Alopecurus arundinaceus*), and Baltic rush (*Juncus balticus*), with one to five percent cover individually of common yarrow (*Achillea millefolium*), Canada thistle, Canada bluegrass (*Poa compressa*), Western wheatgrass (*Agropyron smithii*), Western water hemlock (*Cicuta douglasii*), foxtail barley (*Hordeum jubatum*), reed canary grass (*Phalaris arundinaceus*), buttercup species (*Ranunculus* sp.), and seaside arrowgrass (*Triglochin palustre*).

Wetland Type 3 – *Alopecurus arundinaceus* was located near the northwest and northeast borders of the site. The community was less diverse than Type 1 and was dominated by creeping foxtail. Creeping spikerush (*Eleocharis palustris*) and American sloughgrass (*Beckmannia syzigachne*) were present at cover classes of 6 to 10 percent and 1 to 5 percent, respectively.

Upland community Type 4 – *Poa pratensis/Bromus inermis* was identified in several upland islands in the north half of the site. The dominant species were Kentucky bluegrass, smooth brome, Canada thistle, white clover (*Trifolium repens*), redtop (*Agrostis stolonifera*), and creeping foxtail.

Wetland Type 5 – Aquatic Macrophytes characterized the small, inundated depressions located adjacent to the Woodson Creek corridor. The wetland type was classified as an aquatic bed community in 2011 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 butter-cup (*Ranunculus longirostris*), water nymph (*Najas* sp.), water milfoil (*Myriophyllum* sp.), and green algae dominated the aquatic community.

Wetland Type 7 – *Carex utriculata/Phalaris arundinaceus* was found in an abandoned meander of the Sixteen Mile canal located in the southwest corner of the site. Beaked sedge (*Carex utriculata*), reed canary grass, Nebraska sedge (*Carex nebrascensis*), common mint (*Mentha arvensis*), curly dock (*Rumex crispus*), creeping spikerush, and seaside arrow-grass dominated the herbaceous cover.

Upland Type 8 – *Bromus inermis*/*Alopecurus arundinaceus* was located within several isolated areas along the outside perimeter of the mitigation site. The predominant species included smooth brome, creeping foxtail, common yarrow, Baltic rush, and Kentucky bluegrass.

Wetland Type 9 – *Alopecurus arundinaceus*/*Juncus balticus* was a large (10.54 acres) vegetation community located adjacent to Woodson Creek and in the southeast portion of the site. The herbaceous cover included creeping foxtail, Baltic rush, common yarrow, beaked sedge, Canada bluegrass, small-fruit bulrush (*Scirpus microcarpus*), seaside arrowgrass, Nebraska sedge, reed canary grass, fowl bluegrass, silverweed (*Potentilla anserina*), and common dandelion (*Taraxacum officinale*).

Wetland Type 10 – *Eleocharis palustris*/Mixed graminoids characterized depressions that were ponded in 2010 and dry in 2011. Approximately 21 to 50 percent of the mapped community was bare ground. Creeping spikerush, creeping foxtail, American sloughgrass, American mannagrass (*Glyceria grandis*), water milfoil, long beak water butter-cup, bluejoint reedgrass (*Calamagrostis canadensis*), Baltic rush, and reed canary grass dominated the vegetation cover.

Table 2. Comprehensive list of vegetation species identified in 2007, 2008, 2010, and 2011 for the Woodson Creek Wetland Mitigation Site.

Scientific Name	Common Name	Region 9 Indicator Status[1]
Achillea millefolium	yarrow,common	FACU
Agropyron cristatum	crested wheatgrass	NL
Agropyron repens	quackgrass	FACU
Agropyron smithii	**wheatgrass,western**	**FACU**
Agrostis alba	redtop	FACW
Agrostis exarata	bentgrass,spike	FACW
Agrostis stolonifera	bentgrass,spreading	FAC+
Algae, green	**algae, green**	**NL**
Alopecurus aequalis	foxtail,short-awn	OBL
Alopecurus arundinaceus	foxtail,creeping	NI
Aquatic Macrophytes		NL
Aster sp. (purple)		NL
Aster sp. (yellow)		NL
Beckmannia syzigachne	sloughgrass,American	OBL
Bromus inermis	smooth brome	NL
Calamagrostis canadensis	**reedgrass,blue-joint**	**FACW+**
Carduus nutans	musk thistle	NL
Carex aquatilis	sedge,water	OBL
Carex lanuginosa	sedge,woolly	OBL
Carex lasiocarpa	sedge,woolly-fruit	OBL
Carex nebrascensis	sedge,Nebraska	OBL
Carex praegracilis	sedge,clustered field	FACW
*Carex utriculata**	beaked sedge	OBL
Chenopodium album	goosefoot,white	FAC
Cicuta douglasii	water-hemlock,western	OBL
Cirsium arvense	thistle,Canada	FACU+
Cirsium vulgare	**thistle,bull**	**FACU**
Cynoglossum officinale	gypsy-flower	NL
Deschampsia cespitosa	hairgrass,tufted	FACW
Descurainia sophia	common tansymustard	NL
Distichlis spicata	saltgrass,seashore	FAC+
Dodecatheon pulchellum	shooting-star,few-flower	FACW
Eleocharis palustris	spikerush,creeping	OBL
Elymus trachycaulus	slender wheatgrass	NL
Epilobium sp.		NL
Equisetum arvense	**horsetail,field**	**FAC**
Equisetum hyemale	horsetail,rough	FACW
Galium aparine	bedstraw,catchweed	FACU
Glyceria grandis	**American mannagrass**	**NL**
Glycyrrhiza lepidota	licorice,American	FAC+
Grindelia squarrosa	**gumweed,curly-cup**	**FACU**
Halogeton glomeratus	saltlover	NL
Helianthus annuus	sunflower,common	FACU+
Hieracium sp.		NL

[1]Region 9 (Northwest) (Reed 1988).
New species identified in 2011 are listed in bold type.
*Commonly accepted name not included on 1988 list.

Table 2 (Continued). Comprehensive list of vegetation species identified in 2007, 2008, 2010, and 2011 for the Woodson Creek Wetland Mitigation Site.

Scientific Name	Common Name	Region 9 Indicator Status[1]
Hordeum jubatum	barley,fox-tail	FAC+
Iris missouriensis	iris,Rocky Mountain	FACW+
Juncus balticus	rush,Baltic	OBL
Juncus effusus	rush,soft	FACW+
Juncus filiformis	rush,thread	FACW+
Lactuca serriola	lettuce,prickly	FAC-
Melilotus officinalis	sweetclover,yellow	FACU
Mentha arvensis	mint,field	FAC
Muhlenbergia richardsonis	muhly,mat	FACW
Myriophyllum sp.	**watermilfoil**	**NL**
Najas sp.		**NI**
Panicum virgatum	switchgrass	FAC+
Penstemon laricifolius	larch-leaf beardtongue	NL
Phalaris arundinacea	grass,reed canary	FACW
Phleum alpinum	timothy,alpine	FAC
Phleum pratense	timothy	FACU
Plantago major	plantain,common	FAC+
Poa compressa	bluegrass,Canada	FACU
Poa palustris	bluegrass,fowl	FAC
Poa pratensis	**bluegrass,Kentucky**	**FACU+**
Polygonum amphibium	smartweed,water	OBL
Polygonum pensylvanicum	**smartweed,Pennsylvania**	**FACW**
Potentilla anserina	silverweed	OBL
Potentilla fruticosa	cinquefoil,shrubby	FAC-
Potentilla sp.		NL
Puccinellia nuttalliana	**grass,Nuttall's alkali**	**OBL**
Ranunculus gmelinii	butter-cup,small yellow water	FACW
Ranunculus longirostris	**butter-cup,long-beak water**	**OBL**
Ranunculus sp.		NI
Rumex crispus	dock,curly	FACW
Salix exigua	willow,sandbar	OBL
Salix sp.		NL
Salsola kali	thistle,Russian	FACU
Scirpus acutus	bulrush,hard-stem	OBL
Scirpus microcarpus	bulrush,small-fruit	OBL
Scirpus pallidus	**bulrush,cloaked**	**OBL**
Scutellaria lateriflora	**skullcap,blue**	**FACW+**
Sisyrinchium montanum	blue-eye-grass,strict	NI
Solidago canadensis	**golden-rod,Canada**	**FACU**
Solidago sp.		NL
Sonchus arvensis	sowthistle,field	FACU+
Sporobolus cryptandrus	dropseed,sand	FACU

[1]Region 9 (Northwest) (Reed 1988).
New species identified in 2011 are listed in **bold** type.

Table 2 (Continued). Comprehensive list of vegetation species identified in 2007, 2008, 2010, and 2011 for the Woodson Creek Wetland Mitigation Site.

Scientific Name	Common Name	Region 9 Indicator Status[1]
Taraxacum officinale	dandelion,common	FACU
Thlaspi arvense	penny-cress,field	NI
Trifolium longipes	clover,long-stalk	FAC-
Trifolium pratense	clover,red	FACU
Trifolium repens	clover,white	FACU+
Triglochin maritimum	arrow-grass,seaside	OBL
Triglochin palustre	**arrow-grass,marsh**	**OBL**
Triglochin sp.		NL
Typha latifolia	cattail,broad-leaf	OBL
Valeriana edulis	valerian,edible	FAC
Vicia sativa	vetch,common	UPL

[1]Region 9 (Northwest) (Reed 1988).
New species identified in 2011 are listed in **bold** type.

Transect 1 was located in the northeast corner of the site. The transect data is summarized on Table 3 and 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, 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 in 2010 to Type 9 in 2011 reflecting an increase in the number and extent of obligate and facultative wet wetland species on Transect 1. Hydrophytic plants dominated 99 percent of the vegetated transect intervals and open water occupied the remaining one percent.

Table 3. Data summary of Transect 1 for 2007, 2008, 2010, and 2011.

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

*Values as presented in 2008 monitoring report

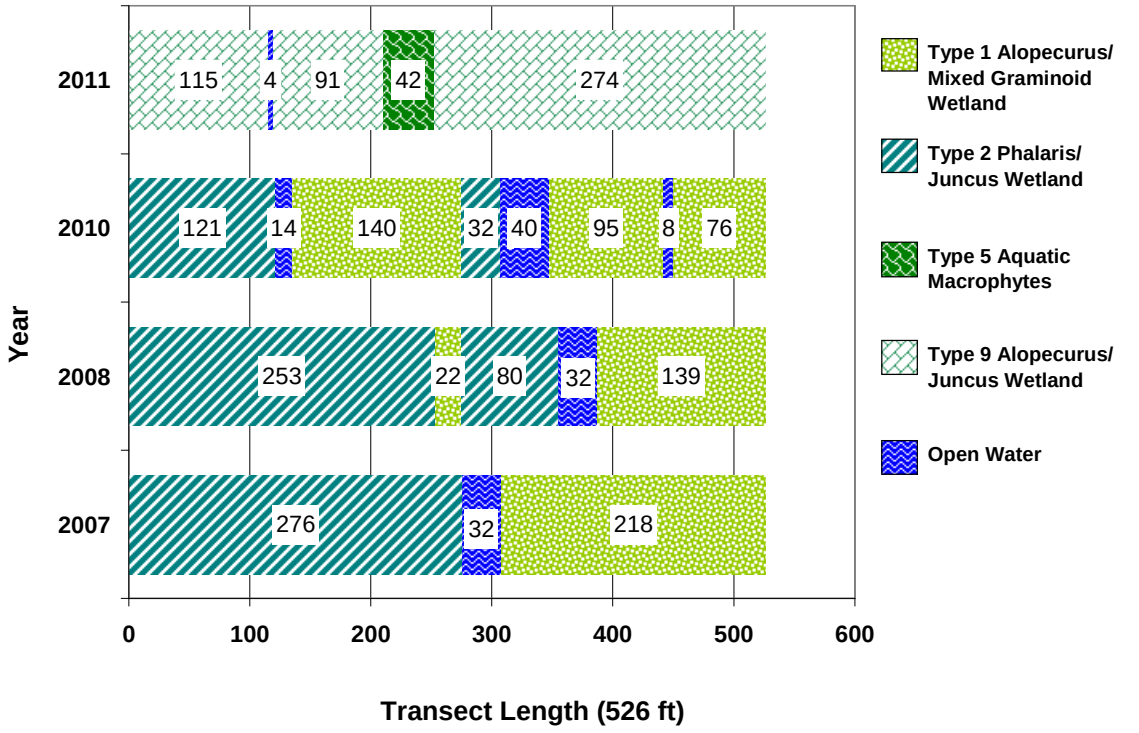

Chart 1. Transect map of vegetation communities from start (0 feet) to finish (526 feet) of Transect 1 for 2007, 2008, 2010, and 2011.

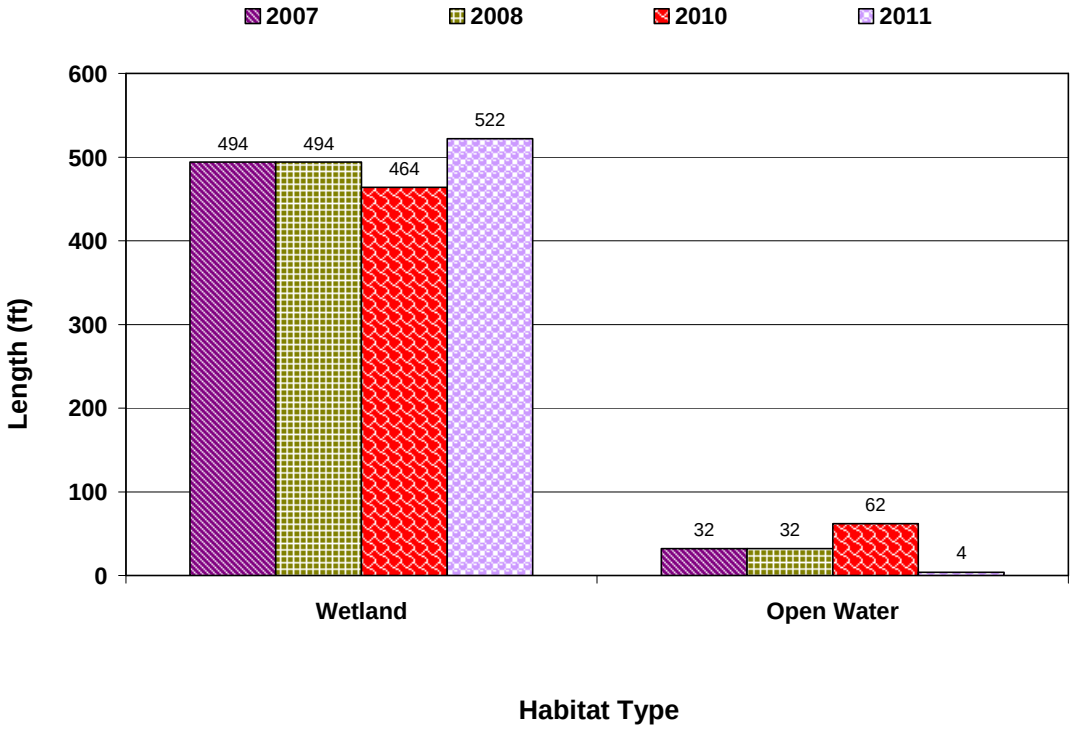

Chart 2. Length of habitat types within Transect 1 for 2007, 2008, 2010, and 2011.

The data from Transect 2 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 located near the center of the site in Woodson Creek East and intersected Type 1 and Type 10 wetland communities. The first interval of the transect (approximately 200 feet long) transitioned from Type 1 creeping foxtail/mixed graminoids in 2010 to Type 10 creeping spikerush/mixed graminoids in 2011. One hundred percent of the transect was dominated by hydrophytic plant species.

Table 4. Data summary of Transect 2 for 2007, 2008, 2010, and 2011.

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

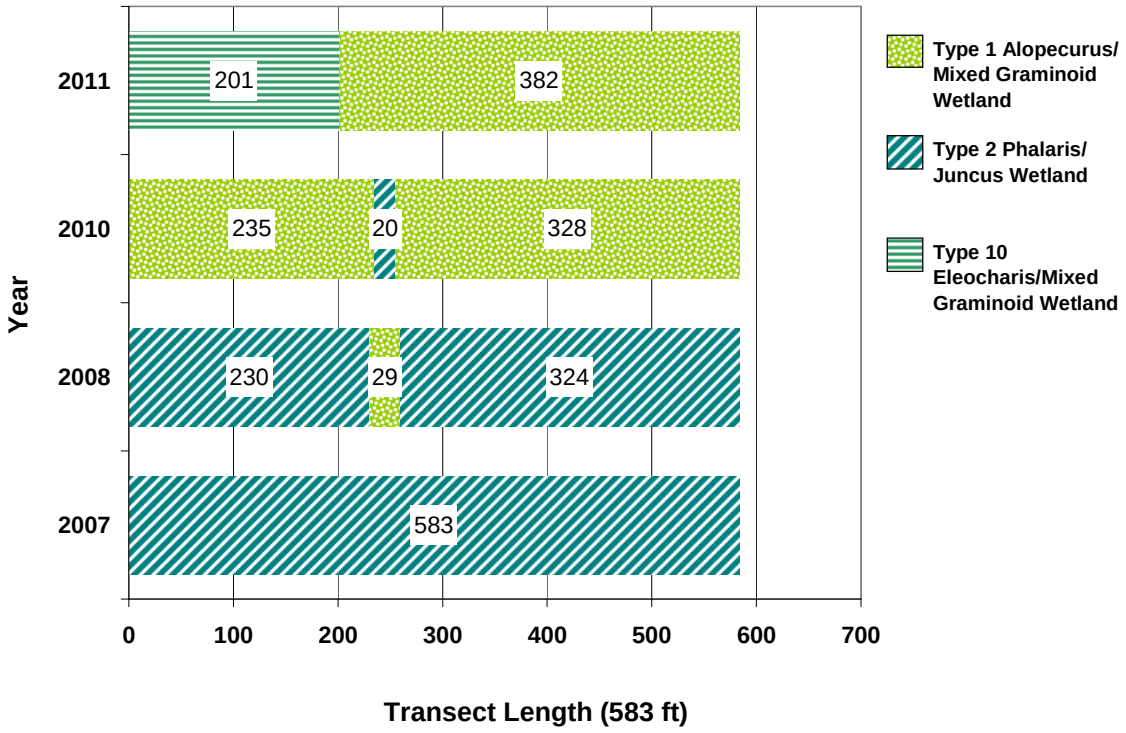

Chart 3. Transect map of vegetation communities from start (0 feet) to finish (583 feet) of Transect 2 for 2007, 2008, 2010, and 2011.

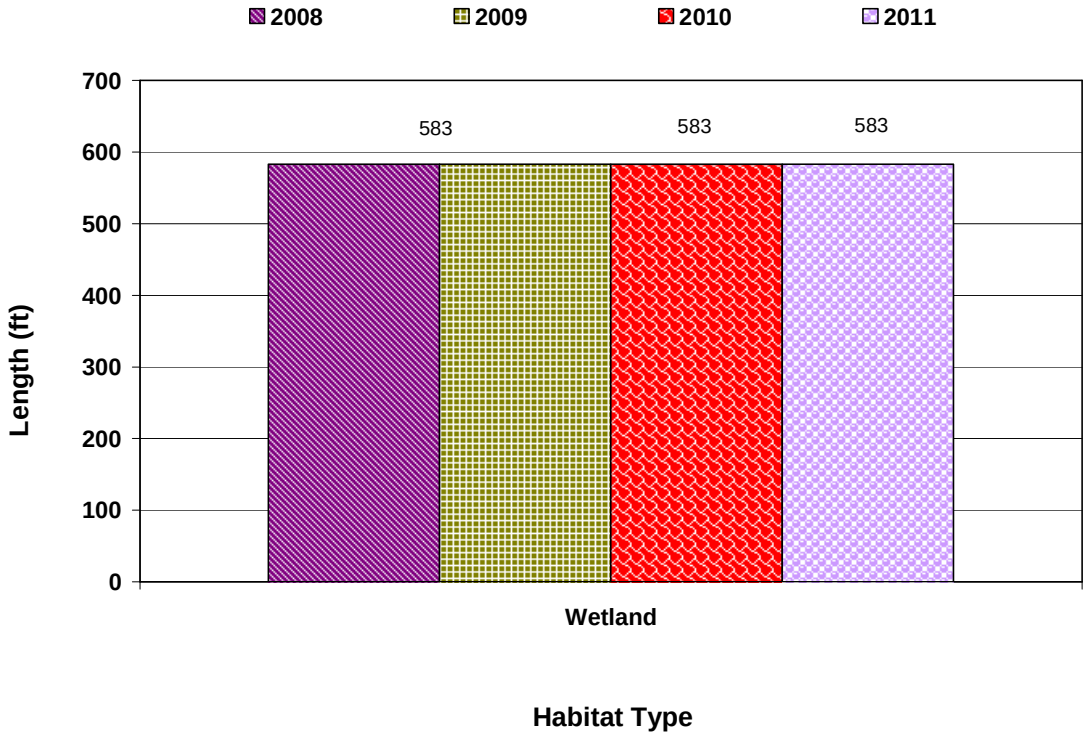

Chart 4. Length of habitat types within Transect 2 for 2007, 2008, 2010, and 2011.

Table 5 and Charts 5 and 6 present the data collected on Transect 3. Photographs of the transect endpoints are shown in Appendix C. One wetland community located in the northwest corner of the site where a monoculture of creeping foxtail persists dominated the entire length of Transect 3. Hydrophytic species dominated 100 percent of the transect.

Table 5. Data summary of Transect 3 for 2007, 2008, 2010, and 2011.

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

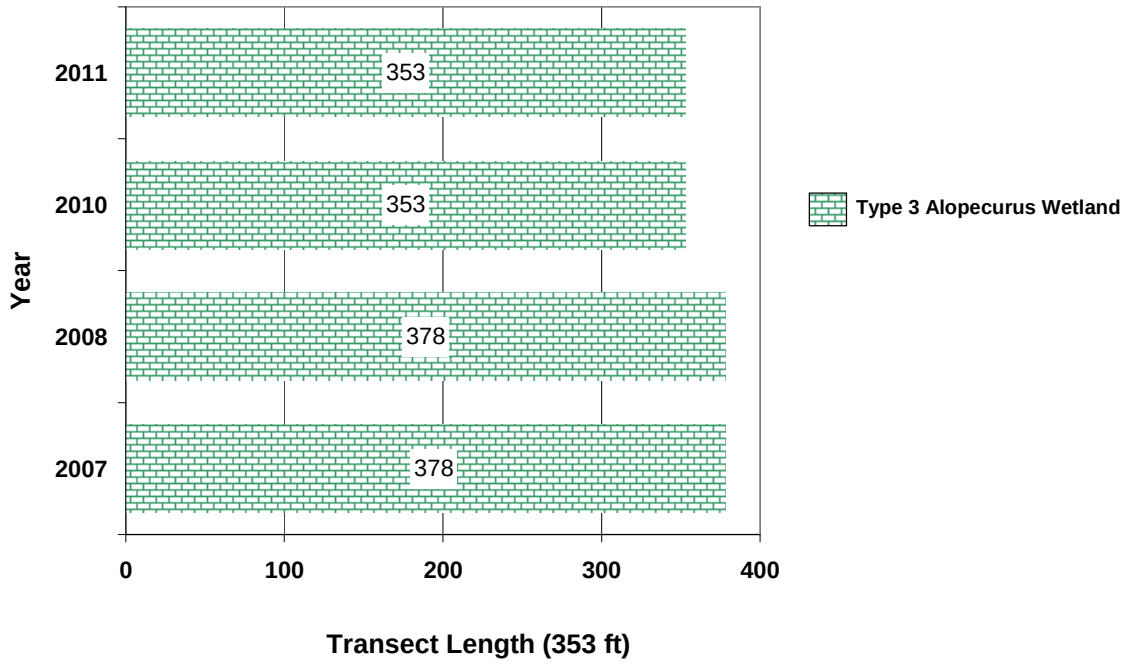

Chart 5. Transect map of vegetation communities from start (0 feet) to finish (353 feet) of Transect 3 for 2007, 2008, 2010, and 2011.

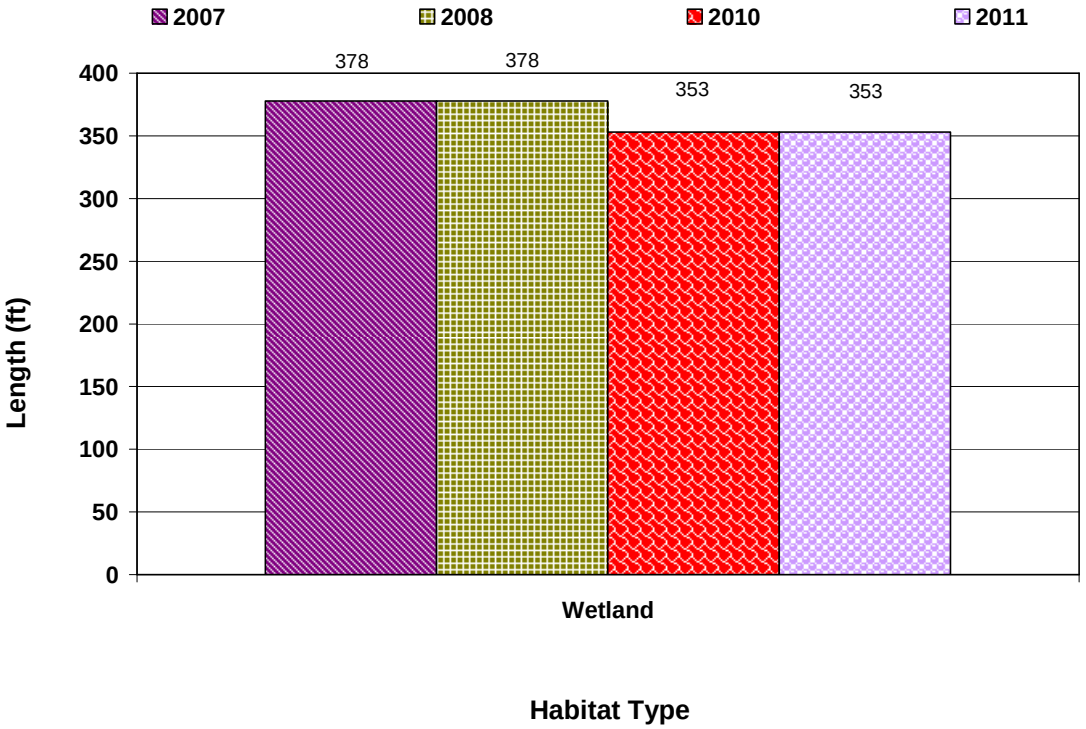

Chart 6. Length of habitat types within Transect 3 for 2007, 2008, 2010, and 2011.

Ten infestations of Canada thistle (*Cirsium arvense*) were mapped within the site boundaries in 2011 (Figure 3, Appendix A). The size of the infestations ranged from less than 0.1 acre to 1.0 acre with cover classes ranging from trace (less than 1.0 percent cover) to high (25.0 percent to 100.0 percent cover). The percent cover of Canada thistle increased site wide from 2010 to 2011. The site was not sprayed in 2011.

A total of 69 planted willow cuttings were observed in 2007. A thick cover of creeping foxtail obscured many of the plants. Two willow species, sandbar and a second unidentified willow, were observed. 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 exhibited moderate vigor in 2011. The cuttings had been heavily browsed by wildlife.

3.3. Soil

Soil survey data for Meagher County identified three primary map units within the mitigation area boundaries, 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 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 hydric. The soil data observed within the test pits except for WC-3 generally confirmed the mapped soil unit.

The soil profile at WC-1 revealed a very dark gray (10YR 3/1) clay loam with redoximorphic depletions (10YR 5/2) in the matrix. The low chroma was a positive indicator for a hydric soil. The soil profile at WC-2 was a very dark gray silty clay (3/N). The subsoil was saturated making it difficult to clarify the soil color. A hydrogen sulfide odor was detected. The low chroma and odor were hydric soil indicators. The soil at WC-3 revealed a very dark brown (10YR 4/2) clay loam without redoximorphic features. The mapped type was not confirmed although the taxonomy classified it a hydric soil. The profile at WC-4 exhibited a very dark gray silty clay loam (10YR 3/1) with redox concentrations (10 YR 4/4) in the matrix. The low chroma color and redox features were positive indicators of hydric soil.

3.4. Wetland Delineation

The wetland boundaries delineated in 2011 are illustrated on Figure 3 (Appendix A). The Wetland Data Forms are included in Appendix B. Wetland acreages delineated in 2004 (baseline), 2007, 2008, 2010, and 2011 are summarized in Table 6. The total area of aquatic habitat delineated in 2011, which includes wetlands and open water associated with Woodson Creek, was 69.64 acres. The isolated, inundated depressions characterized by Type 5 were classified as aquatic bed wetland habitat in 2011. There was an increase in total wetland acreage of 3.83 acres from 2010 to 2011. The increase in wetland acreage was primarily due to the reclassification of open water areas to aquatic macrophytes

in 2011 and an increase of wetland acreage in the west parcel where a breach in the canal inundated the area between 2010 and 2011.

Table 6. Summary of open water and wetland acreages delineated at the Woodson Creek Wetland Mitigation Site in 2004, 2007, 2008, 2010, and 2011.

Total Wetland and Open Water Area	2004 Pre-mitigation	2007	2008	2010	2011
Open Water (acres)	0.00	2.55	2.73	2.56	0.67*
Wetland/Aquatic Bed (acres)	57.48	61.86	59.02	65.14	68.97
Total Aquatic Habitat (acres)	57.48	64.42	61.75	67.70	69.64

*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 2011 is presented in Table 7 (Monitoring Form, Appendix B). Twelve bird species identified in 2011 are listed in Table 7 in bold type. A deer mouse and water vole were observed directly and the tracks of muskrat, raccoon, and striped skunk were noted in 2011.

Table 7. Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2011.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIAN	
Columbia Spotted Frog	*Rana luteiventris*
Western Toad	*Bufo boreas*
BIRD	
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*

Species identified in 2011 are listed in **bold** type.

Table 7 (Continued). Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2011.

COMMON NAME	SCIENTIFIC NAME
BIRD	
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*
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***
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*
MAMMAL	
American Mink	*Mustela vison*
Black-tailed Jack Rabbit	*Lepus californicus*
Bobcat	*Lynx rufus*
Coyote	*Canis latrans*
Deer Mouse	***Peromyscus maniculatus***
Dusky or Montane Shrew	*Sorex monticolus*
Meadow Vole	*Microtus pennsylvanicus*
Moose	*Alces americanus*
Mule Deer	*Odocoileus hemionus*
Muskrat	***Ondatra zibethicus***
Porcupine	*Erethizon dorsatum*
Pronghorn	*Antilocapra americana*

Species identified in 2011 are listed in **bold** type.

Table 7 (Continued). Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2011.

COMMON NAME	SCIENTIFIC NAME
MAMMAL	
Raccoon	***Procyon lotor***
Red Fox	*Vulpes vulpes*
Striped Skunk	***Mephitis mephitis***
Water Vole	***Microtus richardsoni***
White-tailed Deer	*Odocoileus virginianus*
REPTILE	
Common Gartersnake	*Thamnophis sirtalis*
FISH	
Brook Trout	*Salvelinus fontinalis*

Species identified in 2011 are listed in **bold** type.

3.6. Functional Assessment

Functional assessment forms were completed for the project wetlands in 2011 using the 1999 MDT MWAM (Appendix B). The baseline assessment was completed in 2005. Functional assessment results for 2005, 2008, 2010, and 2011 are summarized in Table 8. The mitigation site was separated into three AAs, Woodson Creek Floodplain, Woodson Creek East Parcel, and Woodson Creek West Parcel.

The 2011 functional assessments rated the restored Woodson Creek floodplain (29.19 acres), the rehabilitated west parcel (9.18 acres), and the reestablished east parcel (31.27 acres) as Category II wetlands, primarily the result of high ratings for MTNHP species habitat. The restored Woodson Creek floodplain received 70.83 percent of the possible points and high ratings for MTNHP species habitat, general wildlife habitat, 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 58.75 percent of the total possible points and high ratings for MTNHP species habitat, general wildlife habitat, short and long term water storage, sediment/nutrient/toxicant removal, and groundwater discharge/recharge. The water regime for the West parcel was classified as seasonal/intermittent (S/I) in 2011 versus permanent/perennial (P/P) in 2010 based on field observations and an analysis of the 2011 aerial photograph. The East parcel was rated with 61.82 percent of the total possible and high ratings for MTNHP species habitat, sediment/nutrient/toxicant removal, streambank/shoreline stabilization, production export/food chain support, and groundwater discharge and recharge functions. The percent of possible score for the East parcel decreased as a result of the duration of water from P/P to S/I in 2011. There was a net wetland acreage gain of 7.89 acres and a functional unit gain of 378.40 since the 2005 baseline for the Woodson mitigation site.

Table 8. Summary of 2005, 2007, 2008, 2010, and 2011 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			2010			2011		
	Woodson Floodplain	East & 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)
MNHP Species Habitat	Low (0.1)	Low (0.1)	High (1.0)	High (1.0)	Mod (0.6)	High (1.0)	High (1.0)	Mod (0.6)	High (1.0)	High (1.0)	High (1.0)
General Wildlife Habitat	Low (0.3)	Low (0.3)	High (0.9)	Mod (0.7)	Mod (0.7)	High (0.9)	Mod (0.7)	Mod (0.7)	High (0.9)	Mod (0.5)	High (0.9)
General Fish/Aquatic Habitat	Low (0.3)	NA	Mod (0.6)	NA	NA	Mod (0.6)	NA	NA	Mod (0.6)	NA	NA
Flood Attenuation	Low (0.1)	NA	Mod (0.6)	NA	NA	Mod (0.6)	Mod (0.4)	NA	Mod (0.6)	Mod (0.5)	NA
Short and Long Term Surface Water Storage	Low (0.3)	NA	High (1.0)	High (0.8)	Low (0.3)	High (1.0)	High (0.8)	Low (0.6)	High (1.0)	Mod (0.6)	High (0.8)
Sediment/Nutrient/Toxicant Removal	Mod (0.6)	Mod (0.7)	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	Mod (0.7)	NA	High (1.0)	NA	NA	High (1.0)	High (1.0)	NA	High (1.0)	High (0.9)	NA
Production Export/Food Chain Support	Mod (0.4)	Mod (0.7)	High (0.9)	High (0.9)	Mod (0.6)	High (0.9)	High (0.9)	Mod (0.6)	High (0.9)	High (0.8)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	Low (0.1)	Mod (1.0)	Mod (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 (0.2)	Low (0.2)	Low (0.3)	Low (0.2)	Low (0.2)	Low (0.3)	Low (0.2)	Low (0.2)	Low (0.3)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.3)	Low (0.3)	Mod (0.7)	Low (0.3)	Low (0.3)	Mod (0.7)
Actual Points / Possible Points	4.1/12	2.2 / 8	8.3/12	5.7 / 9	4.6 / 9	8.5 / 12	7.3 / 11	5.5 / 9	8.5 / 12	6.8 / 11	6.4/9
% of Possible Score Achieved	34.0	27.5	69	63	51	71	66	61	71	62	59
Overall Category	III	IV	II	II	III	II	II	III	II	II	II
Total Acreage of Assessed Aquatic Habitat within AA Boundaries	48	57.00	**28.08**	**27.77**	**5.90**	**29.17**	**31.23**	**7.30**	**29.19**	**31.27**	**9.18**
Functional Unit (acreage x actual points)	16.40	124.70	**233.06**	**158.29**	**27.14**	**247.95**	**227.98**	**40.15**	**248.12**	**212.64**	**58.75**
Net Acreage Gain (from baseline conditions)	NA	NA	**4.27**			**5.95**			**7.89**		
Net Functional Unit Gain (from baseline conditions)	NA	NA	**277.39**			**374.97**			**378.40**		

[1](Berglund 1999).

3.7. Channel Cross-Sections

Locations of the channel cross-sections are shown on Figure 2 (Appendix A) and photographs are shown on page C-10 of Appendix C. The 2007 and 2008, and 2010 and 2011 cross-sectional data are illustrated on Charts 7 through 10. Slight increases in channel depth and width were observed at both locations in 2007. The cause was unclear and assumed to be the result of minor adjustments in the channel geometry and settling of the banks. The channel conveyed substantially more water in 2008 than that observed in 2007. The estimated 2008 discharges at Cross-section 1 (XS-1) and Cross-section 2 (XS-2) were 7.4 cubic feet per second (cfs) and 11 cfs, respectively. The flow increase at cross-section 2 was attributed to return flows from upstream flooding and groundwater entering the site from seepage of the Sixteen Mile irrigation ditch located upgradient from cross-section 2.

The stream cross-section measured at both cross-sections in 2010 and 2011 showed little change in channel geometry. The depth and bankfull width adjustments were minimal at both cross-sections. The streambanks were well vegetated by species with high soil stability ratings, which contributed to the overall stability of the stream morphology. These species predominantly included creeping foxtail (stability class 6), creeping spikerush (6), and reed canary grass (9).

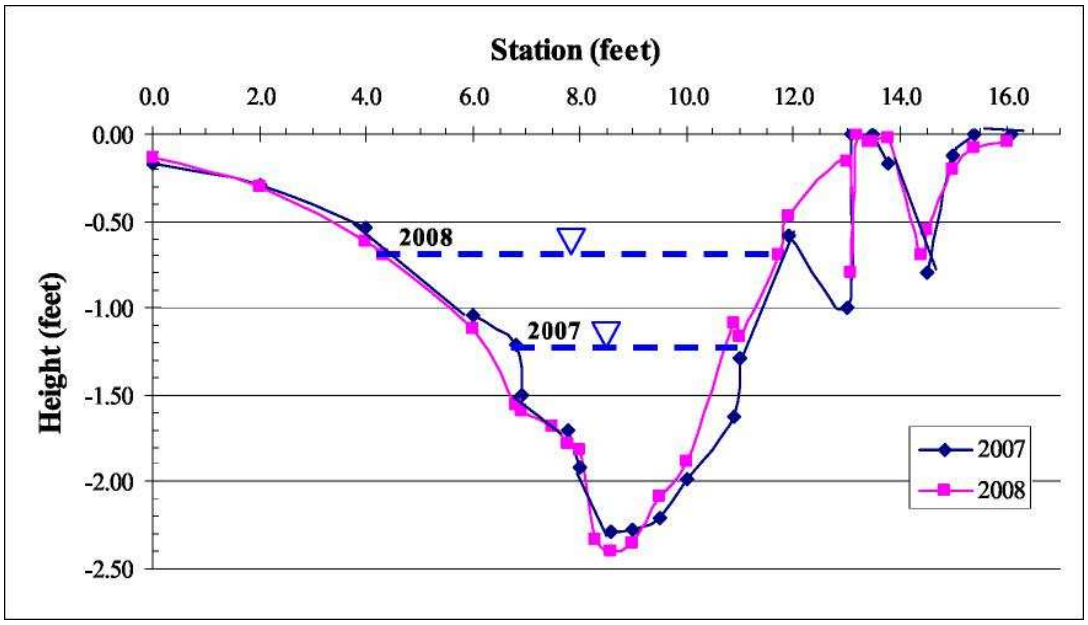

Chart 7.Survey data at XS-1 collected in 2007 and 2008.

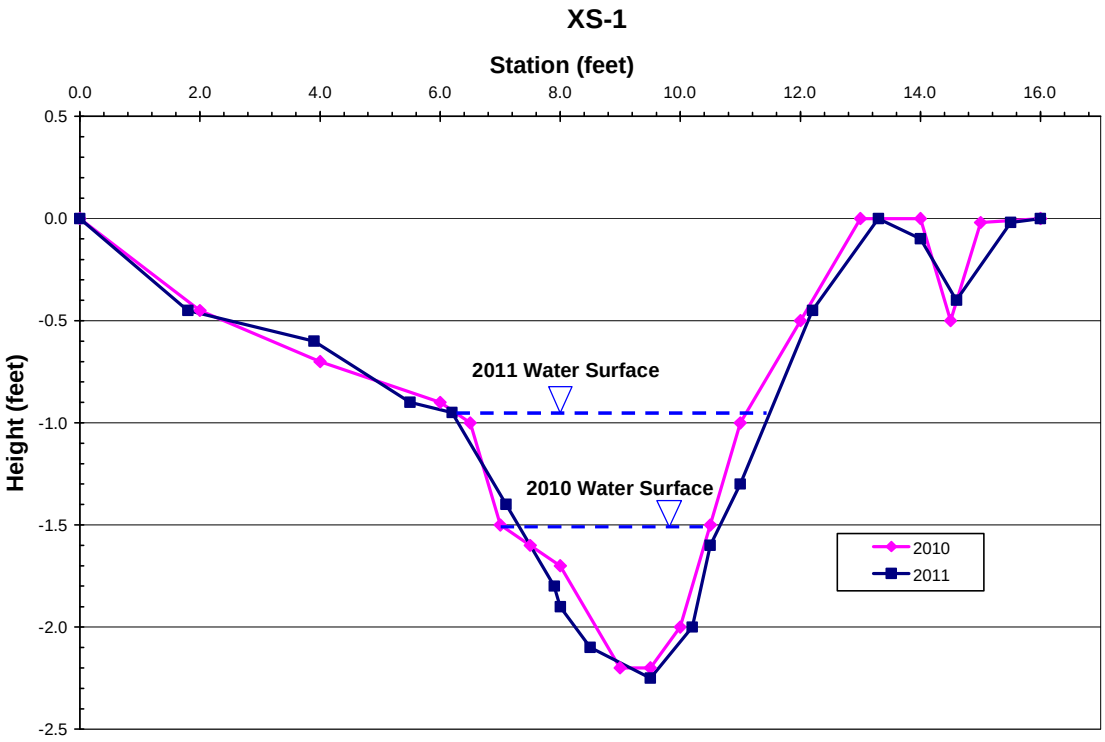

Chart 8. Survey data collected at XS 1 in 2010 and 2011.

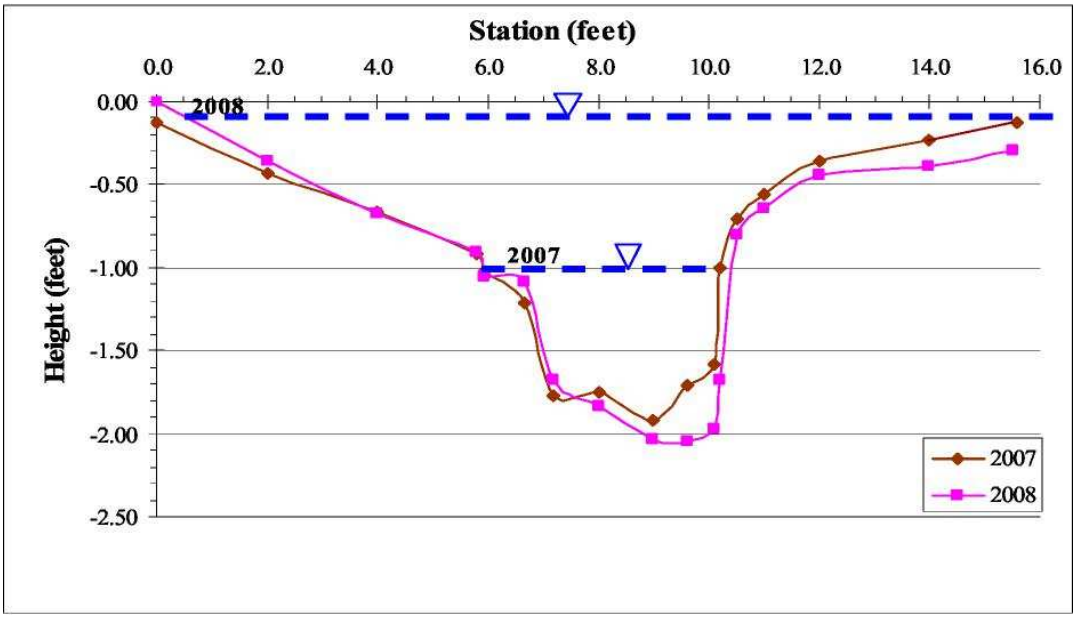

Chart 9. Survey data collected at XS 2 in 2007 and 2008.

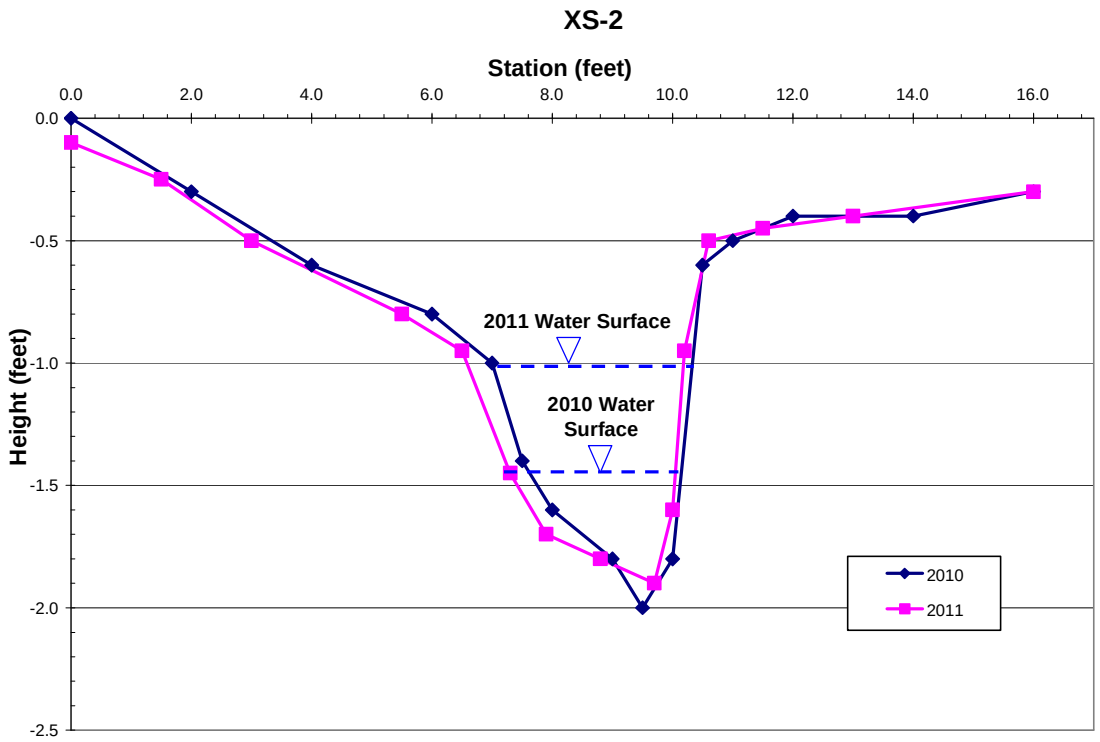

Chart 10. Survey data collected at XS 2 in 2010 and 2011.

3.8. Streambank Erosion Pins

Streambank erosion pins were installed at upstream and downstream locations along outside meanders in the channel 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 an area that was exhibiting severe bank erosion. Additional bank erosion was observed at both locations in 2008, with an average erosion rate of 0.29 feet per year at the upper pin and 0.14 feet per year at the lower pin. A slight decrease in the level of erosion was observed at the upstream pin (Pin 1) in 2010 with 0.50 feet of erosion measured since 2008 or a rate of 0.25 feet/year. Streambank erosion at Pin 1 was minor in 2011 as shown on the photo presented on page C-10 of Appendix C. Minimal erosion was noted in 2010 and 2011 at the downstream pin (Pin 2), measuring 0.10 feet since 2008. The established root systems of plant species with high soil stability ratings have been integral in maintaining the overall bank stability as demonstrated by the cross-section data and in limiting the current streambank erosion to minor annual channel adjustments.

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, 2010, and 2011 are shown on pages C-1 to C-7. Photos of the transect end points taken in 2008, 2010, and 2011 are presented on pages C-8 to C-10 of Appendix C. Photos of the streambank erosion pins are shown on page C-10 of Appendix C.

Photos of the surveyed cross-sections are shown on page C-10. The data points are shown on page C-11.

3.10. Maintenance Needs

Ten infestations of Canada thistle (*Cirsium arvense*) were mapped within the site boundaries in 2011 (Figure 3, Appendix A). The size of the infestations ranged from less than 0.1 acre to 1.0 acre with cover classes ranging from trace (less than 1.0 percent cover) to high (25.0 percent to 100.0 percent cover). The percent cover of Canada thistle increased site wide from 2010 to 2011. The site was not sprayed by MDT in 2011. Spraying is recommended in 2012.

The irrigation return on the north edge of the site was breached between 2010 and 2011. The entire flow volume of the canal was diverted to the mitigation area and a majority of the west parcel was flooded in 2011. The area surrounding the breach is well vegetated and shows no signs of erosion. It is unclear if this is a maintenance need that needs to be addressed as the current condition of the canal does not adversely impact the existing wetlands and may eventually lead to the development of additional wetlands within the site.

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 as summarized in Section 1.0 (USACE 2010a). The 2010 credit summary used the AA acreages and assumed a 1:1 credit ratio for wetlands that received a Category II rating and a 1.5:1 credit ratio for wetlands that received a Category III rating (Table 9). Full credit has been assigned to all three AAs as a result of these areas achieving wetland category II in 2011. A total of 66.58 credit acres have been calculated for the Woodson Creek wetland mitigation site based on the 2011 monitoring results.

Table 9. Credit summary for the Woodson Creek Wetland Mitigation Site.

Credit Zone	Credit Category	2010 Credit Ratio	2010 Acres	2010 Credit Acres	2011 Acres	Wetland Category	2011 Credit Ratio	2011 Credit Acres
Woodson Creek Floodplain	Restoration (Re-establishment)	1:1	29.17	29.17	29.19	II	1:1	29.19
East Parcel	Re-establishment	1:1	31.23	31.23	31.27	II	1:1	31.27
West Parcel	Rehabilitation	1.5:1	7.3	4.87	9.18	II	1.5:1	6.12
Total			**67.70**	**65.27**	**69.64**			**66.58**

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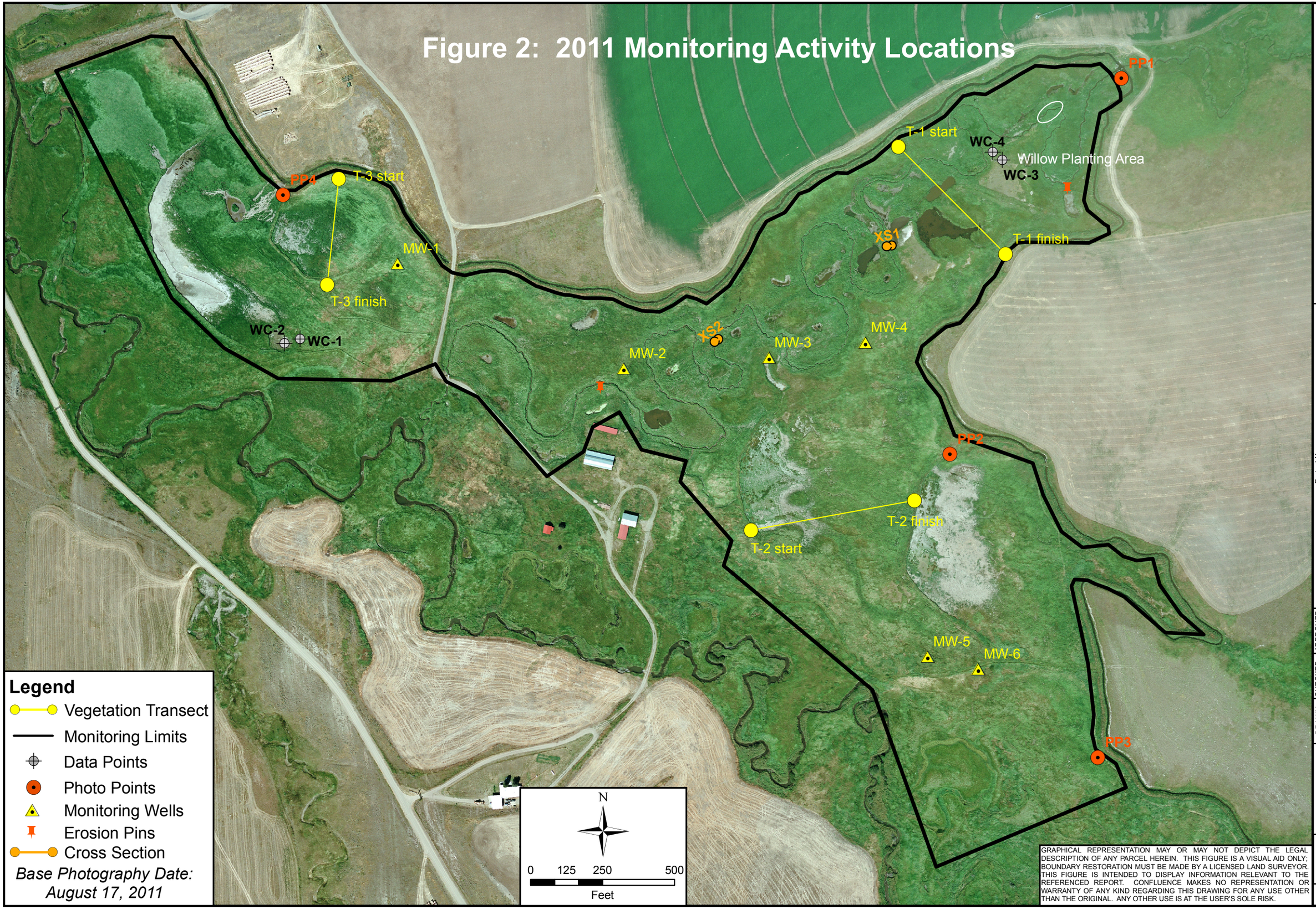
Appendix A

Figures 2 and 3

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana

Figure 2: 2011 Monitoring Activity Locations



Legend

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

Base Photography Date: August 17, 2011

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.004

FILE: Woodson/Monitor2011.mxd

Project Name
Woodson Creek Mitigation Site

Drawing Title
2011 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BCS	BV	JJ

SCALE: Noted

Drawn: September 19, 2011

PROJ MGR: B Sandefur

CONFLUENCE
consulting incorporated

Figure 2

REV -

Figure 3: 2011 Mapped Site Features

Irrigation canal breach

Legend

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

Base Photography Date: August 17, 2011

Acreages

Project Area	84.72 acres
Gross Wetlands	69.64 acres
Woodson Creek	0.67 acres
Net Wetlands	68.97 acres
Uplands	15.08 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 (5-25% cover)
H = High (25-100% 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 balticus
10 Eleocharis palustris/Mixed graminoids

1:3,500

N

0 125 250 500
Feet

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.004
FILE: Woodson/Veg2011.mxd

Project Name: Woodson Creek Mitigation Site
Drawing Title: 2011 Mapped Site Features

DRAWN	CHECKED	APPROVED
BCS	BV	JJ

SCALE: Noted
Drawn: September 20, 2011
PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 3

REV -

Appendix B

2011 MDT Wetland Mitigation Site Monitoring Form
2011 USACE Routine Wetland Determination Data Form
2011 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 7/26/2011 8:49:28 AM

Person(s) conducting the assessment: S. Frazier, B. Sandefur

Weather: Sunny with scattered clouds 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: 4 #Visits in Year: 1

Size of Evaluation Area: 85 (acres)

Land use surrounding wetland:

Agriculture (hay); outbuildings of a farmstead

HYDROLOGY

Surface Water Source: Flood irrigation/ groundwater

Inundation: ☑ Average Depth: 2 **(ft)** Range of Depths: 0-4 **(ft)**

Percent of assessment area under inundation: 15 %

Depth at emergent vegetation-open water boundary: 1 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes

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

Water stained leaves and shallow groundwater table.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
MW-6	DRY
MW-5	DRY
MW-4	2.2
MW-3	DRY
MW-2	2.8
MW-1	2.8

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:

Levee of irrigation canal at northwest end of site was recently breached and was flooding the large depressional wetland to the west of the breach at the time of the site visit. Many of the depressional areas that were inundated during the 2010 site visit were dry during the 2011 visit.

VEGETATION COMMUNITIES

Site Woodson Creek

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

* Indicates accepted spp name not on '88 list.

Community # 1 **Community Type:** Alopecurus arundinaceus / Mixed graminoids **Acres:** 42.89

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agropyron smithii	1
Alopecurus arundinaceus	5	Cicuta douglasii	1
Cirsium arvense	1	Hordeum jubatum	1
Juncus balticus	2	Phalaris arundinacea	1
Poa compressa	1	Ranunculus spp.	1
Taraxacum officinale	0	Triglochin palustre	1

Comments:

Community # 3 **Community Type:** Alopecurus arundinaceus / **Acres:** 7.9

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Beckmannia syzigachne	1
Eleocharis palustris	2		

Comments:

Community # 4 **Community Type:** Poa pratensis / Bromus inermis **Acres:** 11.78

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bromus inermis	4
Cirsium arvense	2	Equisetum arvense	0
Hordeum jubatum	1	Iris missouriensis	0
Poa pratensis	4	Solidago canadensis	1
Trifolium repens	2		

Comments:

Community # 5 **Community Type:** Aquatic Macrophytes / **Acres:** 1.19

Species	Cover class	Species	Cover class
Algae, green	1	Myriophyllum sp.	2
Najas sp.	2	Open water	5
Ranunculus longirostris	3		

Comments:

Community # 7 Community Type: Carex utriculata* / Phalaris arundinacea **Acres:** 0.66

Species	Cover class	Species	Cover class
Carex nebrascensis	2	Carex utriculata*	5
Cicuta douglasii	0	Eleocharis palustris	1
Mentha arvensis	1	Phalaris arundinacea	3
Rumex crispus	1	Triglochin palustre	1

Comments:

Community # 8 Community Type: Bromus inermis / Alopecurus arundinaceus **Acres:** 3.3

Species	Cover class	Species	Cover class
Achillea millefolium	2	Alopecurus arundinaceus	3
Aster spp. (purple)	0	Bromus inermis	5
Cirsium arvense	0	Cirsium vulgare	0
Equisetum arvense	0	Equisetum hyemale	1
Grindelia squarrosa	0	Hordeum jubatum	1
Iris missouriensis	0	Juncus balticus	2
Melilotus officinalis	1	Poa pratensis	2
Puccinellia nuttalliana	1	Solidago canadensis	0
Taraxacum officinale	1	Thlaspi arvense	0
Trifolium repens	1		

Comments:

Community # 9 Community Type: Alopecurus arundinaceus / Juncus balticus **Acres:** 10.54

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis alba	0
Alopecurus arundinaceus	5	Carex nebrascensis	1
Carex utriculata*	1	Cicuta douglasii	0
Juncus balticus	4	Phalaris arundinacea	1
Poa compressa	1	Poa palustris	1
Polygonum pensylvanicum	0	Potentilla anserina	1
Ranunculus sp.	0	Rumex crispus	0
Scirpus microcarpus	1	Scutellaria lateriflora	0
Solidago canadensis	0	Taraxacum officinale	1
Triglochin palustre	1		

Comments:

Community # 10 **Community Type:** Eleocharis palustris / Mixed graminoids **Acres:** 5.8

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	2	Bare ground	4
Beckmannia syzigachne	2	Calamagrostis canadensis	2
Carex utriculata*	1	Eleocharis palustris	4
Glyceria grandis	2	Juncus balticus	2
Myriophyllum spp.	2	Phalaris arundinacea	2
Polygonum pensylvanicum	0	Potentilla anserina	0
Ranunculus longirostris	2	Scirpus acutus	0
Scirpus microcarpus	1	Scirpus pallidus	0
Triglochin palustre	0		

Comments:

This community exists in depressions that were ponded and mapped as "open water" during the 2010 site visit, but lacked surface water during this years site visit.

Total Vegetation Community Acreage **84.06**

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

VEGETATION TRANSECTS

Site: Woodson Creek Date: 7/26/2011 8:49:28 AM

Transect Number: 1 **Compass Direction from Start:** 140

Interval Data:

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

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Carex nebrascensis	1
Juncus balticus	4	Poa compressa	2
Potentilla anserina	0	Ranunculus sp.	1
Scirpus microcarpus	1	Triglochin palustre	1

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 balticus

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Carex nebrascensis	2
Carex utriculata*	1	Juncus balticus	3
Phalaris arundinacea	1	Polygonum pensylvanicum	1
Scirpus microcarpus	1	Triglochin palustre	0

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

Species	Cover class	Species	Cover class
Algae, green	0	Open water	5

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

Species	Cover class	Species	Cover class
Agrostis alba	1	Alopecurus arundinaceus	5
Carex utriculata*	2	Cicuta douglasii	0
Juncus balticus	3	Poa palustris	2
Rumex crispus	0	Scirpus microcarpus	1
Scutellaria lateriflora	0	Solidago canadensis	1
Triglochin palustre	0		

Transect Notes:

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

Interval Data:

Ending Station 201 **Community Type:** Eleocharis palustris / Mixed graminoids

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	3	Bare ground	5
Beckmannia syzigachne	2	Carex utriculata*	2
Eleocharis palustris	3	Polygonum pensylvanicum	1
Potentilla anserina	0	Triglochin palustre	0

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

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Cicuta douglasii	0
Juncus balticus	3	Poa compressa	2
Triglochin palustre	0		

Transect Notes:

Transect Number: 3 **Compass Direction from Start:** 174

Interval Data:

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

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Beckmannia syzigachne	1
Eleocharis palustris	2		

Transect Notes:

PLANTED WOODY VEGETATION SURVIVAL

Woodson Creek

Planting Type	#Planted	#Alive	Notes
Salix spp.	69	11	cuttings heavily browsed; moderate vigor, 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
Bank Swallow	6	FO	WM
Black-billed Magpie	2	FO	WM
Brewer's Blackbird	2	FO	MA, WM
Canada Goose	2	N	MA, OW, WM
Cassin's Finch	2	F	WM
Common Nighthawk	3	FO	OW, UP, WM
Gray Catbird	1	FO	WM
Killdeer	4	F	US
Mallard	2	N	OW, WM
Red-tailed Hawk	2	F, FO	UP, WM
Sandhill Crane	2	N	WM
Spotted Sandpiper	2	F, L	OW, US
Wilson's Phalarope	2	N	OW, US

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
Deer Mouse	1	No	No	No	
Muskrat		Yes	No	No	
Raccoon		Yes	No	No	
Striped Skunk		Yes	No	No	
Water Vole	1	No	No	No	

Wildlife Comments:

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
001	46.28611	-110.73307	80	start T2
002	46.286449	-110.730797	255	end T2
004	46.289211	-110.739441	203	PP4
005			225	PP4
006			262	PP4
007			296	PP4
008			324	PP4
012	46.2869	-110.730293	197	PP2
013			230	PP2
014			266	PP2
016	46.284061	-110.728325	95	PP-3
018			132	PP3
020			224	PP3
023	46.289402	-110.738762	187	T3 start
024	46.288395	-110.738922	7	T-3, end
025	46.289669	-110.729645	160	WC-3
8244				XS-1, dw strm
8246				XS-1, upstream
8248	46.28986	-110.730995	134	T-1, start
8250	46.288754	-110.729652	314	T-1, end
8252	46.290466	-110.728065	208	PP1
8253			226	PP1
8254			249	PP1
8262, 8263	46.287464	-110.735161		bank pin downstream
8270	46.287876	-110.739258	90	WC-1

8271	46.28775	-110.739494	270	WC-2
8275	46.289726	-110.729744	0	WC-4

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.

Although outside of project area, irrigation return along northern spur of site has been breached. All flow through canal now enters mitigation area. Area well vegetated with minimal threat to erosion and may convert to wetland if condition persist.

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

Project/Site: Woodson Creek | City/County: Meagher | Sampling Date: 7/26/2011

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

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

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): flat | Slope (%): 1

Subregion (LRR): LRR E | Lat: 46.2878633333333 | Long: -110.739273333333 | Datum:

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)			
1. Alopecurus arundinaceus	85	☑	NI
2. Poa pratensis	10	☐	FACU+
3. Taraxacum officinale	5	☐	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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Dominance Test is >50% ☐

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

Although Alopecurus has a National Wetland Indicator Status of "FACW?", associate species suggest dry upland site.

SOIL

Sampling Point: WC-1

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 3/1	100					Clay Loam	
8-14	10YR 3/1	95	10YR 5/2	5	D	M	Clay Loam	
14-16	10YR 5/1	100					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:

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

Project/Site: Woodson Creek | City/County: Meagher | Sampling Date: 7/26/2011

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

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

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): LRR E | Lat: 46.2877266666667 | Long: -110.739473333333 | Datum:

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:
Problematic soil - recently constructed mitigation wetland; Problematic veg- dominant vegetation has an indicator status of "NI" in Region 9 and Region 4.

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)			
1. Eleocharis palustris	15	☑	OBL
2. Beckmannia syzigachne	5	☐	OBL
3. Alopecurus arundinaceus	50	☑	NI
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	70 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Dominance Test is >50% ☐

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:
Alo arun has an indicator status of NI in Region 9 and 4, but has a National Indictor Status of "FACW?".The associate species have an indicator status of OBL. Based on this information, and the presence of hydric soil and wetland hydriology indicators, it was determined that the area sampled by this data point meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: WC-2

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
0-16	N 3/1	100					Silty 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: Fluvaquentic Haplustolls

Confirm Mapped Type?: ☐

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Hydrogen sulfide odor detected; subsoil too wet to get accurate colors for soil matrix and redox features

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): 8
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 7

Wetland Hydrology Present? Yes ☑ No ☐

Remarks:

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

Project/Site: Woodson Creek | City/County: Meagher | Sampling Date: 7/26/2011

Applicant/Owner: MDT | State: MT | Sampling Point: WC-3

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

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

Subregion (LRR): LRR E | Lat: 46.2896583333333 | Long: -110.729636666667 | Datum:

Soil Map Unit Name: Typic Fluvaquents-Fluvaquentic Haplaquolls, 0 to 4 percent 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)			
1. Alopecurus arundinaceus	5	☐	NI
2. Cirsium arvense	15	☐	FACU+
3. Trifolium repens	10	☐	FACU+
4. Solidago canadensis	5	☐	FACU
5. Poa pratensis	40	☑	FACU+
6. Bromus inermis	40	☑	NO
7. Iris missouriensis	3	☐	FACW+
8. Hordeum jubatum	5	☐	FAC+
9. Equisetum arvense	3	☐	FAC
10.	0	☐	
11.	0	☐	
	126 = 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Dominance Test is >50% ☐

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: WC-3

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	
5-15	10YR 4/2	100					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: Typic Fluvaquents-Fluvaquentic Haplaquolls

Confirm Mapped Type?: ☐

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Although taxonomy represents a hydric soil, mapped type not confirmed.

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 wetland hydrology indicators observed.

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

Project/Site: Woodson Creek | City/County: Meagher | Sampling Date: 7/26/2011

Applicant/Owner: MDT | State: MT | Sampling Point: WC-4

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

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): flat | Slope (%): 1

Subregion (LRR): LRR E | Lat: 46.2897266666667 | Long: -110.729763333333 | Datum:

Soil Map Unit Name: Typic Fluvaquents-Fluvaquentic Haplaquolls, 0 to 4 percent 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:
Dominant vegetation has an indicator status of "NI" in Region 9 and Region 4.

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)			
1. Alopecurus arundinaceus	75	☑	NI
2. Juncus balticus	20	☐	OBL
3. Glyceria grandis	5	☐	NO
4. Carex utriculata*	10	☐	OBL
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	110 = 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 (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:
Alo arun has an indicator status of NI in Region 9 and Region 4, but a National Indicator Status of "FACW?". Although Gly gran is not listed, all other Glyceria spp. are FACW or OBL. This info coupled with the presence of an OBL associate species and wetland soil and hydrology indicators rendered the positive determination for hydrophytic vegetation.

SOIL

Sampling Point: WC-4

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
0-3	10YR 3/1	100					Clay Loam	
3-13	10YR 3/1	95	10YR 4/4	5	C	M	Silty Clay Loam	
13-15	10YR 4/1		2.5Y 4/3	5	C	M	Sandy 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: Typic Fluvaquents-Fluvaquentic Haplaquolls

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): 11
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 10

Wetland Hydrology Present? Yes ☑ No ☐

Remarks:

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

1. Project name Woodson Creek **2. MDT project#** **Control#**

3. Evaluation Date 7/26/2011 **4. Evaluators** S.Frazier, B.Sandefur **5. Wetland/Site# (s)** AA-1 WC-Floodplain

6. Wetland Location(s): T 6N **R** 8E **Sec1** 9 **T** **R** **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 29.19

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) 29.19

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	Intermittantly exposed	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 grazed and cultivated agriculture. AA reclassified as Riverine wetlands (HGM) based on proximity and inferred hydro connection to Woodson Creek and Sixteen Mile Creek and hydrolo inputs from Sixteen Mile Irrigation Ditch.

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

Cirsium arvense, Priority 2B

iii. Brief descriptive summary of surrounding land use/habitat

Lands adjacent to AA are grazed and used for cultivated agriculture (field crops-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 - August 2011

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** Ferriginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B), Bald Eagle (S3)

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 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 (Comm 5) exhibit P/P surface water duration and comprise 10% of AA.

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: Brook Trout (Tier 4 introduced game fish); longest duration of ponding in the AA is in Woodson

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 subject to periodic flooding. No forested or scrub-shrub wetlands located within the AA. Culvert (i.e., restricted outlet) located downstream of AA and downstream of site.

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: Max depth of inundation = average of 6 inches over 15 acre (1/2 of AA) = 7.5 acre-feet. Small open water depressions (Comm.5) and Woodson Creek were inundated 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 bank of Woodson Creek with stability rating =>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	.7	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments: The P/P rating was assessed 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:

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:

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 located 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	29.19
C. General Wildlife Habitat	H	.9	1	26.271
D. General Fish Habitat	M	.6	1	17.514
E. Flood Attenuation	M	.6	1	17.514
F. Short and Long Term Surface Water Storage	H	1	1	29.19
G. Sediment/Nutrient/Toxicant Removal	H	1	1	29.19
H. Sediment/Shoreline Stabilization	H	1	1	29.19
I. Production Export/Food Chain Support	H	.9	1	26.271
J. Groundwater Discharge/Recharge	H	1	1	29.19
K. Uniqueness	L	.2	1	5.838
L. Recreation/Education Potential	L	.3	1	8.757
Totals:		8.5	12	248.115
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#** **Control#**

3. Evaluation Date 7/26/2011 **4. Evaluators** S. Frazier / B. Sandefur **5. Wetland/Site# (s)** AA-2 WC-West

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

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 9.18

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) 9.18

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)

The AA consists of the northwest portion of the mitigation site. Wetlands within the AA were constructed in 2006. The AA is managed in a natural state. The land surrounding the AA is grazed. Wetlands in the AA were classified as Riverine wetlands (HGM) in 2011 based on proximity and inferred hydrologic connections to Woodson Creek and Sixteen Mile Creek.

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

Cirsium arvense, Priority 2B.

iii. Brief descriptive summary of surrounding land use/habitat

The land immediately surrounding the AA is grazed.

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 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 List - August 2011

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** Ferriginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B), Bald Eagle (S3)

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

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: 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 2011 site visit. Max depth of ponding in large depression = average of 4 feet over approx. 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 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: Palustrine unconsolidated bottom habitat in AA depression considered too small 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	.7	.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 relatively deep depression in the western portion of the AA is fed by shallow groundwater and was interpreted to be permanently inundated. The depression has no direct outlet (i.e., 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:

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 w/ low rec 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	9.18
C. General Wildlife Habitat	H	.9	1	8.262
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	7.344
G. Sediment/Nutrient/Toxicant Removal	H	1	1	9.18
H. Sediment/Shoreline Stabilization	NA	0	0	0
I. Production Export/Food Chain Support	M	.7	1	6.426
J. Groundwater Discharge/Recharge	H	1	1	9.18
K. Uniqueness	L	.3	1	2.754
L. Recreation/Education Potential	M	.7	1	6.426
Totals:		6.4	9	58.752
Percent of Possible Score		**71.11** %		

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#** **Control#**

3. Evaluation Date 7/26/2011 **4. Evaluators** S. Frazier / 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 31.27

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) 31.27

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	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 southeastern portion of the mitigation site. The AA is managed in a natural state and is bordered by pasture and cultivated ag fields. The wetlands/waters in the AA were classified as riverine wetlands (HGM) in 2011 based on proximity and inferred hydrologic connections to Woodson Creek and Sixteen Mile Creek.

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

Cirsium arvense, Priority 2 B weed.

iii. Brief descriptive summary of surrounding land use/habitat

The AA is bordered by pasture and cultivated ag 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 wetland 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 - August 2011

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** Ferriginous Hawk (S3B), Greater Sage-Grouse (S2)

Incidental habitat (list species) ◉ **D** ○ **S** American White Pelican (S3B), Bald Eagle (S3)

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 Depressions within AA were dry or close to being dry during 2011 site visit in July. Longest duration of SW assessed as "S/I".

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 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 all dry or close to being dry during 2011 site visit. Longest duration of ponding was assessed as "S/I". Max 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 AA. 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 shoreline, 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	.7	.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 w/ 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:

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**

Site is privately owned.

Comments:

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	31.27
C. General Wildlife Habitat	M	.5	1	15.635
D. General Fish Habitat	NA	0	0	0
E. Flood Attenuation	M	.5	1	15.635
F. Short and Long Term Surface Water Storage	M	.6	1	18.762
G. Sediment/Nutrient/Toxicant Removal	H	1	1	31.27
H. Sediment/Shoreline Stabilization	H	.9	1	28.143
I. Production Export/Food Chain Support	H	.8	1	25.016
J. Groundwater Discharge/Recharge	H	1	1	31.27
K. Uniqueness	L	.2	1	6.254
L. Recreation/Education Potential	L	.3	1	9.381
Totals:		6.8	11	212.636
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* **Location:** North Side
Bearing: 208 Degrees **Taken in 2008**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Photo Point 3 – *Photo 4* **Location:** West Side
Bearing: 224 Degrees **Taken in 2008**

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

Photo Point 3 – *Photo 4* **Location:** West Side
Bearing: 224 Degrees **Taken in 2010**

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

Photo Point 3 – *Photo 4* **Location:** West Side
Bearing: 224 Degrees **Taken in 2011**

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

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

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

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

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

Photo Point 4 – *Photo 2* **Location:** East Side
Bearing: 210 Degrees **Taken in 2011**

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

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

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

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

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

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

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

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

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

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

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

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

Intentionally Blank

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

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

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 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*
Bearing: 7 Degrees
Location: End
Taken in 2010

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

Bank Erosion Pin #1
Taken in 2010

Bank Erosion Pin #1
Taken in 2011

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

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

Data Point – *WC-1*
Bearing: 90 Degrees
Location: Community 4
Taken in 2011

Data Point – *WC-2*
Bearing: 270 Degrees
Location: Community 3
Taken in 2011

Data Point – *WC-3*
Bearing: 160 Degrees
Location: Community 4
Taken in 2011

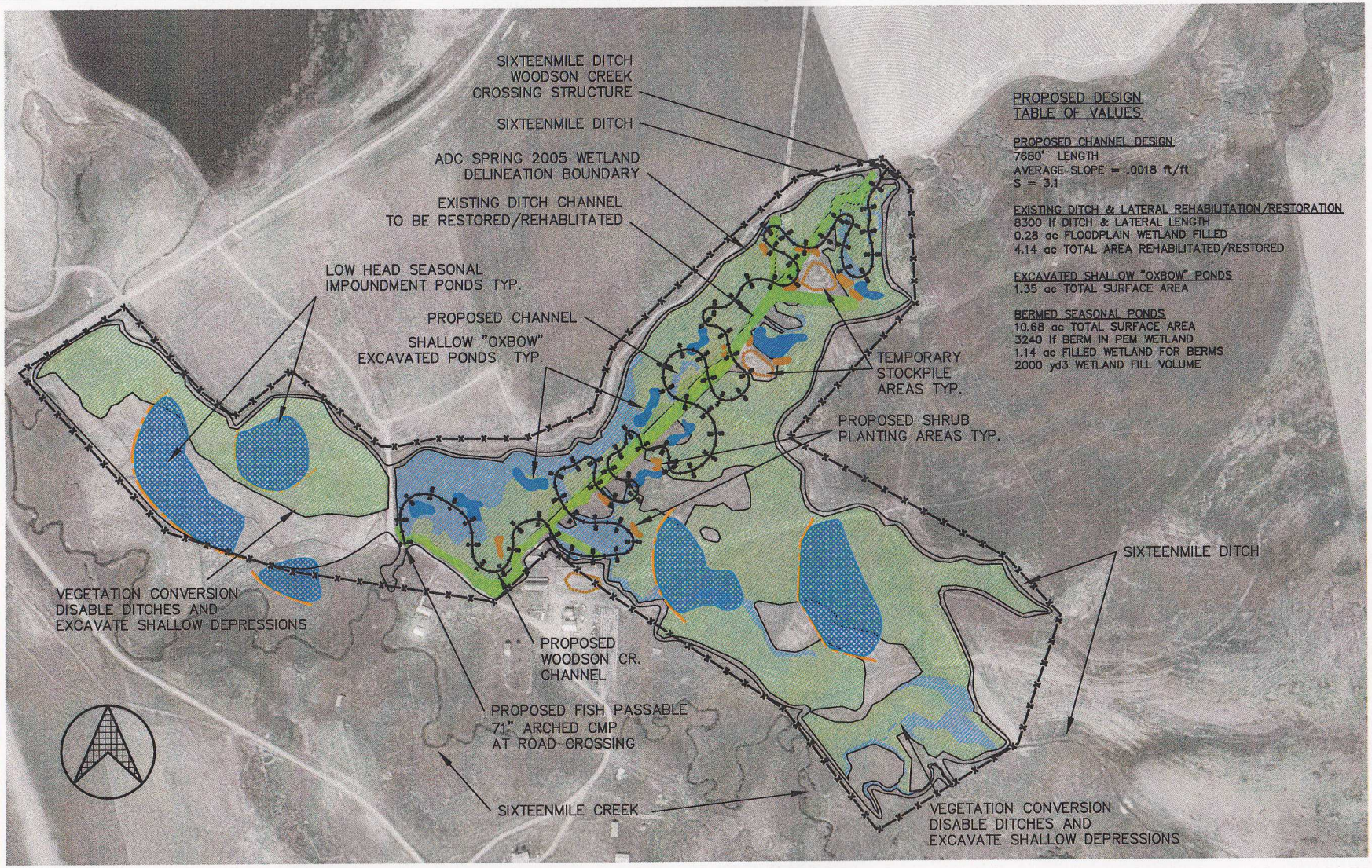
Data Point – *WC-4*
Bearing: 0 Degrees
Location: Community 1
Taken in 2011

Photo – *Irrigation canal breach*
Bearing: 250 Degrees
Location: Community 3
Taken in 2011

Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana



DESIGN PAGE

ACOE WETLAND CREDITING
DESIGN PLAN

DRAWING NO.
FIGURE 3

REVISION

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

woodson 404 plans

REV NO.	REVISION DESCRIPTION	BY	REVISION DATE

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

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