# MONTANA DEPARTMENT OF TRANSPORTATION
# WETLAND MITIGATION MONITORING REPORT: YEAR 2012

*Woodson Creek*
*Ringling, Meagher County, Montana*



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
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December 2012

# MONTANA DEPARTMENT OF TRANSPORTATION

## WETLAND MITIGATION MONITORING REPORT:

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*Ringling, Meagher County, Montana*

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

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CCI Project No: MDT.004

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# 1. INTRODUCTION

The 2012 Woodson Creek Wetland Mitigation Monitoring Report presents the results of the fifth year of wetland monitoring at the Woodson Creek wetland mitigation project. The site was not monitored in 2009 based on Montana Department of Transportation (MDT) discussions with the US Army Corps of Engineers (USACE) concerning performance standard revisions to the goals and objectives for the site. The mitigation site was constructed in 2006 in Meagher County in the southeast portion of the Missouri-Sun-Smith watershed (Watershed #7). Approximately 50 acres of wetland credit were to be awarded to the MDT through a credit purchase agreement to compensate for wetland impacts associated with MDT highway and bridge reconstruction projects in the watershed. Woodson Creek was constructed on the Ringling Land and Cattle Company property. The goal of the project was to restore Woodson Creek to its historic configuration, to improve wetland hydrology, and to create wetlands. The mitigation area was projected to provide a maximum of 73.3 acres of palustrine emergent and scrub-shrub wetland within the boundaries of the site.

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

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

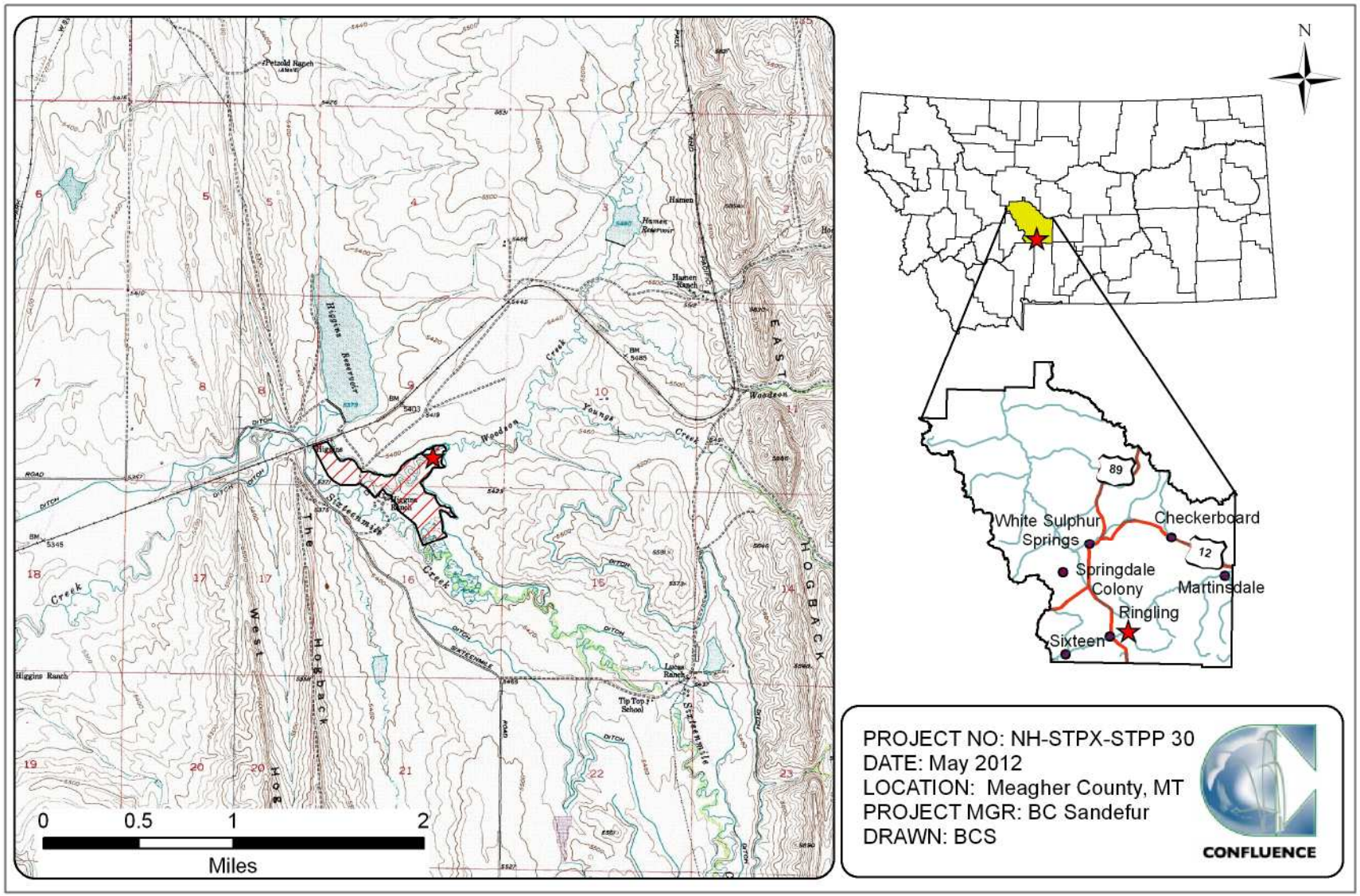



**Figure 1. Project location of the Woodson Creek Wetland Mitigation Site.**

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

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

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

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

4. 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 24, 2012. Information contained on the Mitigation Monitoring Form and Wetland Determination Data Form was entered electronically in the field on a palmtop computer during the field investigation (Appendix B). Monitoring activity locations were mapped using a global positioning system (GPS) (Figure 2, Appendix A). Information collected included a wetland delineation, wetland and upland boundary mapping, vegetation community mapping, vegetation transect monitoring, woody species survival monitoring, soil and hydrology data, bird and wildlife use documentation, photographs, functional assessment, and a non-engineering examination of the infrastructure established within the mitigation project area.

### 2.1. Hydrology

Technical criteria for wetland hydrology guidelines have been established as “permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (usually 14 days or 12.5 percent or more during the growing season)” (Environmental Laboratory 1987). Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are considered wetlands. The growing season is defined for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (Environmental Laboratory 1987). The growing season recorded for the meteorological station at White Sulphur Springs 2, Montana (248930), extends from May 23 to September 17, approximately 117 days (WRCC 2011). Areas

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

The presence of hydrologic indicators as outlined on the Wetland Determination Data Form was documented at four data points established within the project area. Hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded on the electronic Wetland Determination Data Form (Appendix B). Hydrologic assessments allowed evaluation of mitigation criteria addressing inundation/saturation requirements.

Groundwater levels were measured in six monitoring wells in 2012. 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 Determination Data Form (Appendix B).

### 2.2. Vegetation

The boundaries of general dominant, species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2012 aerial photograph. The percent cover of dominant species within a community type was estimated and recorded using the following ranges listed on the mitigation monitoring form: 0 (<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 assessment of 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 2012 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.

### 2.3. Soil

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

### 2.4. Wetland Delineation

Waters of the US including jurisdictional wetlands and other special aquatic sites were delineated throughout the project area in accordance with criteria established in the 1987 Wetland Delineation Manual. In order to delineate a representative area as a wetland, the technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology, as described in the 1987 Wetland Manual, must be satisfied. The name and indicator status of plant species was derived from the Draft 2012 National Wetland Plant List (NWPL) (Lichvar and Kartesz. 2009). Previous years' reports used the 1988 National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). The 2012 NWPL scientific plant names were used in this report. Many common names used in the 2012 NWPL appear incomplete or erroneous. When used in this report, 2012 NWPL common names that appear to be incomplete or erroneous are provided with parenthetical clarification. For example, the common given name for the plant *Agrostis exarata* in the 2012 NWPL is "spiked bent". As this is likely an error, this species' common name would be reported here as "spiked bent (grass)". The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate wetland areas within the project boundaries. The information was recorded electronically on the Wetland Determination Data Form (Appendix B).

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

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

on 2012 aerial photograph provided by MDT. Wetland areas were estimated using geographic information system (GIS) methods.

### 2.5. Wildlife

Direct observations of use by mammal, reptile, amphibian, and bird species were recorded on the mitigation monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones were also recorded (Appendix B). Direct sampling methods, such as snap, live, and pitfall traps were not used. A comprehensive animal species list collected from 2007 through 2012 was compiled for the report (Section 3.5).

### 2.6. Functional Assessment

Pre-construction, 2007, 2008, and 2010 to 2012 wetland conditions were assessed using the 1999 MDT MWAM. Field data for this assessment were collected during the site visit. A Wetland Assessment Form was completed for each wetland or group of wetlands; otherwise called Assessment Areas (AAs) (Appendix B).

### 2.7. Channel Cross-Sections

Two permanent cross-sections established in 2007 were monitored in 2008 and 2010 to 2012. 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 installed horizontally into streambanks at the outside of meander bends where high bank erosion rates were expected. The pins were located at the upstream and downstream ends of the stream channel. The lengths of the pins protruding from the bank were measured during each of the monitoring events.

### 2.9. Photo Documentation

Monitoring at photo points provided supplemental information for documenting wetland, upland, and vegetation transect conditions, site trends, and current land uses surrounding the site. Photographs were taken at 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 2012 monitoring season. Points were collected using WAAS-enabled differential correction satellites, typically improving resolution to sub-meter accuracy. The collected data were then transferred to a personal computer, imported into GIS, and presented in Montana State Plane Single Zone NAD 83 meters. Site features and survey points that were located with GPS included fence boundaries, photograph points, transect endpoints, and wetland data points.

### 2.11. Maintenance Needs

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

## 3. RESULTS

### 3.1. Hydrology

The closest active weather station to the wetland monitoring area is White Sulphur Springs 2 (station #248930-4). According to the Western Regional Climate Center (WRCC), mean annual precipitation at this station is approximately 12.82 inches; with the majority of precipitation occurring in April, May, June, and July. The annual precipitation total in 2010 was 15.12 inches, 2.3 inches higher than the 32 year average. The total precipitation reported for 2011 was 7.48 inches but included several days of missing data. The long-term cumulative precipitation for January to August is 9.81 inches. The cumulative precipitation for this same period in 2010, 2011, and 2012 was 11.94 inches, 8.59 inches, and 4.08, respectively. These data indicate that precipitation was substantially much less in 2012 than for this time period historic average.

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

Six groundwater monitoring wells were installed on the site in the spring of 2008 (Figure 2, Appendix A) and have been monitored during each subsequent site visit. Groundwater levels were measured in 2012 with a Solinst water level meter. The 2008 through 2012 data are presented in Table 1. Since 2011, none of the wells have shown water levels within one foot of the soil surface. Aside from MW-3 where the groundwater depth below ground surface (bgs) was 0.3 feet, no water was recorded in any well in 2012.

**Table 1. Groundwater depths bgs measured from July 2008 to July 2012 at the Woodson Creek Wetland Mitigation Site.**

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

Approximately 15 percent of the site was inundated in 2012. 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. The breach allowed irrigation flow from the canal to enter the northwest portion of the mitigation site, substantially increasing the extent of wetland hydrology in this area. The breach was repaired between the 2011 and 2012 site visits. Many of the wetland depressions that were not inundated in 2011 were inundated in 2012.

Data points WC-1 through WC-4 were established to assist in determining the wetland/upland boundary (Figure 2, Appendix A, and Wetland Determination Data Forms, Appendix B). The four data points were located in areas that met the wetland criteria. Data points WC-1 to WC-4 exhibited drainage patterns in wetlands. Saturation was present at 10 inches bgs at WC-4. A positive FAC-Neutral test was a secondary indicator at WC-3 and WC-4.

### 3.2. Vegetation

The one hundred vegetation species identified on the site in 2007, 2008 and 2010 to 2012 are presented in Table 2 and on the Mitigation Monitoring Form (Appendix B). Eight vegetation communities were identified in 2012 (Figure 3, Appendix A) and described below.

Wetland community Type 1 — *Alopecurus arundinaceus*/Mixed graminoids was originally identified as a community in 2008. This community is the largest on the site (44.6 acres) and encompasses a majority of the Woodson Creek floodplain and adjacent riverine wetlands. The vegetation is dominated by creeping meadow-foxtail (*Alopecurus arundinaceus*) and arctic rush (*Juncus arcticus,* called *J. balticus* in 1988 list). Thirteen other species were identified in this community with up to five percent cover.

Wetland community Type 3 – *Alopecurus arundinaceus* was located on 7.56 acres near the northwest and northeast borders of the site. The community was less diverse than Type 1 and was dominated by creeping meadow-foxtail. Common spikerush (*Eleocharis palustris*), American sloughgrass (*Beckmannia syzigachne*), and common silverweed (*Argentina anserina*) were present at 1 to 5 percent cover.

Upland community Type 4 – *Poa pratensis/Bromus inermis* was identified in several upland islands encompassing 11.78 acres in the north half of the site. The dominant species were Kentucky bluegrass, smooth brome, Canadian thistle (*Cirsium arvense*), and flatspine burr ragweed (*Ambrosia acanthicarpa*).

Wetland community Type 5 – Aquatic Macrophytes characterized the small, inundated depressions located adjacent to the Woodson Creek corridor. The

wetland type, first classified as an aquatic bed community in 2011, is generally defined as a wetland vegetation class dominated by plants "that grow principally on or below the surface of the water for most of the growing season in almost all years" (Cowardin et al. 1979). The Montana Natural Heritage Program (MTNHP) website further defines the Palustrine Aquatic Bed Class (PAB) as having aquatic plants at greater than 30 percent cover and water depths of greater than 0.5 meter (and less than 2 meters) (MTNHP 2011). Long-beak water-crowfoot (butter-cup, *Ranunculus longirostris*), water nymph (*Najas* sp.), water-milfoil (*Myriophyllum* sp.), and common mare's-tail (*Hippuris vulgaris*) dominated the aquatic community.

Wetland community 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. Northwest Territory sedge (Northwest Territory sedge, *Carex utriculata*), and Nebraska sedge (*Carex nebrascensis*) dominated the herbaceous cover). Reed canary grass, curly dock (*Rumex crispus*), common spikerush, and seaside arrow-grass were secondary species in this community.

Upland community Type 8 – *Bromus inermis*/*Alopecurus arundinaceus* was located within several isolated areas encompassing 3.3 acres along the outside perimeter of the mitigation site. The predominant species included smooth brome, creeping meadow-foxtail, common yarrow (*Achillea millefolium*), Arctic rush, flatspine burr ragweed (*Ambrosia acanthicarpa*), and Kentucky bluegrass.

Wetland community Type 9 – *Alopecurus arundinaceus*/*Juncus balticus* was a large, 10.54-acre vegetation community located adjacent to Woodson Creek and in the southeast portion of the site. The herbaceous cover was dominated by creeping meadow-foxtail, and arctic rush. Nineteen other species were present, at less than five percent cover each.

Wetland Type 10 – *Eleocharis palustris*/Mixed graminoids characterized 4.25 acres of depressions that were ponded in 2010 and 2012 and dry in 2011. This community type decreased in extent across the site in 2012 by 1.55 acres as areas converted to wetland community Type 5 – Aquatic Macrophytes. Common spikerush, creeping meadow-foxtail, American sloughgrass, American mannagrass (*Glyceria grandis*), water-milfoil, long beak water-crowfoot, bluejoint reedgrass (*Calamagrostis canadensis*), arctic rush, and reed canary grass dominated the vegetation cover.

**Table 2. Comprehensive list of vegetation species identified in 2007 and 2008, and 2010 to 2012 for the Woodson Creek Wetland Mitigation Site.**

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

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).
New species identified in 2012 are bolded.

**Table 2 (Continued). Comprehensive list of vegetation species identified in 2007 and 2008, and 2010 to 2012 for the Woodson Creek Wetland Mitigation Site.**

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

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).
New species identified in 2012 are bolded.

**Table 2 (Continued). Comprehensive list of vegetation species identified in 2007 and 2008, and 2010 to 2012 for the Woodson Creek Wetland Mitigation Site.**

| Scientific Names | Common Names | WMVC Indicator Status[1] |
|---|---|---|
| *Sisyrinchium montanum* | Strict Blue-Eyed-Grass | FAC |
| *Solidago canadensis* | Canadian Goldenrod | FACU |
| *Solidago sp.* | Goldenrod | NL |
| *Sonchus arvensis* | Field Sow-Thistle | FACU |
| *Sporobolus cryptandrus* | Sand Dropseed | FACU |
| *Taraxacum officinale* | Common Dandelion | FACU |
| *Thlaspi arvense* | Field Penny-Cress | UPL |
| *Trifolium longipes* | Long-Stalk Clover | FAC |
| *Trifolium pratense* | Red Clover | FACU |
| *Trifolium repens* | White Clover | FAC |
| *Triglochin maritima* | Seaside Arrow-Grass | OBL |
| *Triglochin palustris* | Marsh Arrow-Grass | OBL |
| *Triglochin sp.* | Arrowgrass | NL |
| *Typha latifolia* | Broad-Leaf Cat-Tail | OBL |
| *Valeriana edulis* | Tobacco-Root | FAC |
| *Vicia sativa* | Common Vetch | UPL |

[1]Draft 2012 NWPL (Lichvar and Kartesz 2009).
New species identified in 2012 are bolded.

Vegetation transect T-1 was located in the northeast corner of the site. The transect data is summarized on Table 3, Charts 1 and 2, and on the Monitoring Form (Appendix B). Photos at the transect end points are shown in Appendix C. The transect intersected wetland community Type 5 Aquatic Macrophytes, wetland Type 9 *Alopecurus/Juncus,* and the open water within the ordinary high water mark (OHWM) of Woodson Creek. The transect communities transitioned from Type 1 *Alopecurus*/Mixed Graminoid in 2010 to Type 9 in 2011 reflecting an increase in the number and extent of obligate and facultative wet wetland species on transect T-1. No changes to the transect intervals were observed between 2011 and 2012. This transect contained the highest number of vegetative species sampled at this site and reflected the diversity of habitat represented by the emergent wetlands, riverine, and aquatic bed communities. Hydrophytic plants dominated 99.2 percent of the transect, while open water of Woodson Creek occupied the remaining length.

**Table 3. Data summary of transect T-1 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

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

*Values as presented in 2008 monitoring report

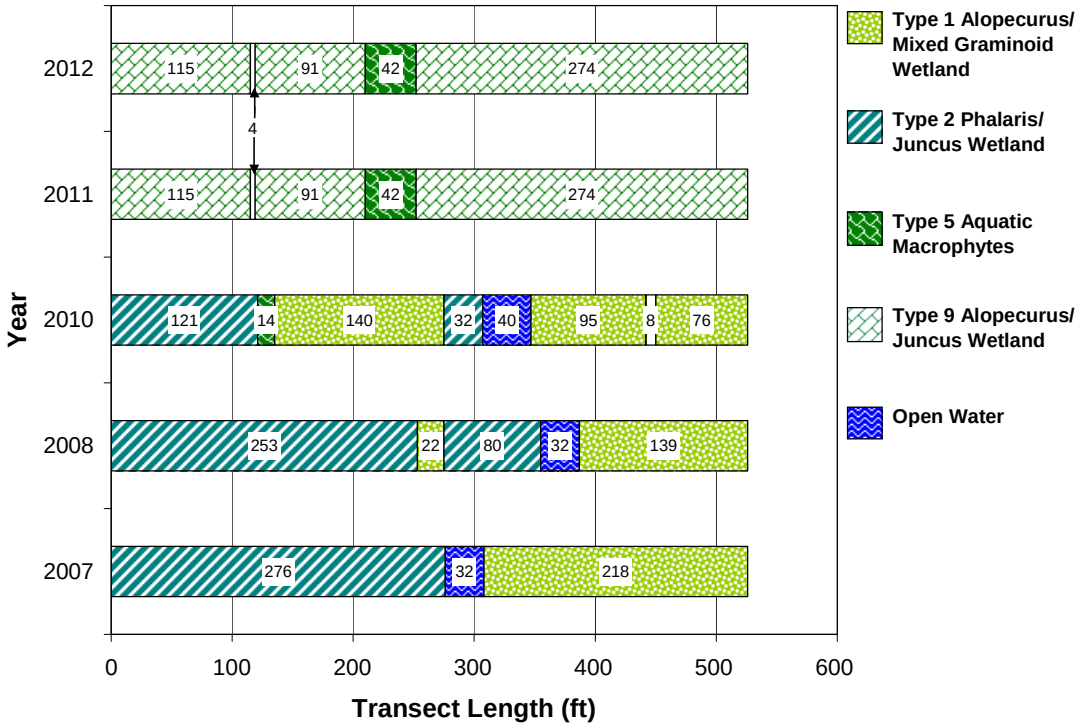



**Chart 1. Transect map of vegetation community composition from start (0 feet) to finish (526 feet) of transect T-1 for 2007and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

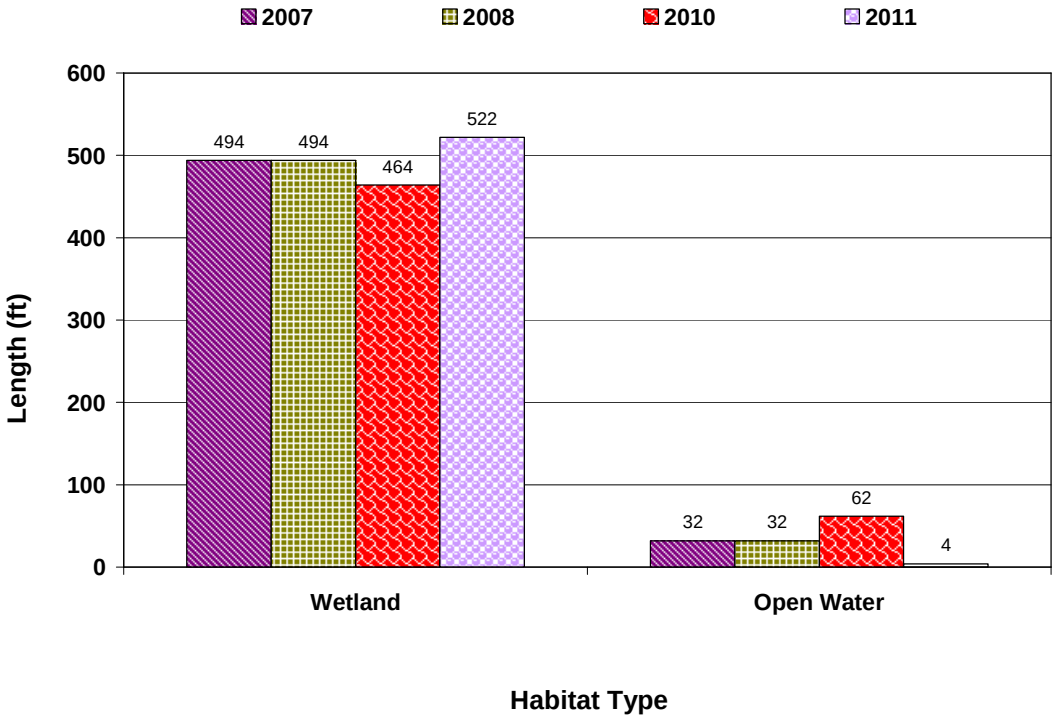



**Chart 2. Length of habitat types within transect T-1 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

The data from transect T-2, located near the center of the site, is summarized in Table 4 and graphed in Charts 3 and 4. Photos taken at the transect endpoints are shown in Appendix C. The transect intersected wetland communities Type 1 *Alopecurus*/Mixed Graminoid and Type 10 *Eleocharis*/Mixed Graminoid. The first interval of the transect (approximately 200 feet long) transitioned from Type 1 creeping meadow-foxtail/mixed graminoid in 2010 to Type 10 common spikerush/mixed graminoids in 2011. No change to the transect intervals was observed from 2011 to 2012. One hundred percent of the transect was dominated by hydrophytic plant species.

**Table 4. Data summary of transect T-2 for 2007and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

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

*Values as presented in 2008 monitoring report

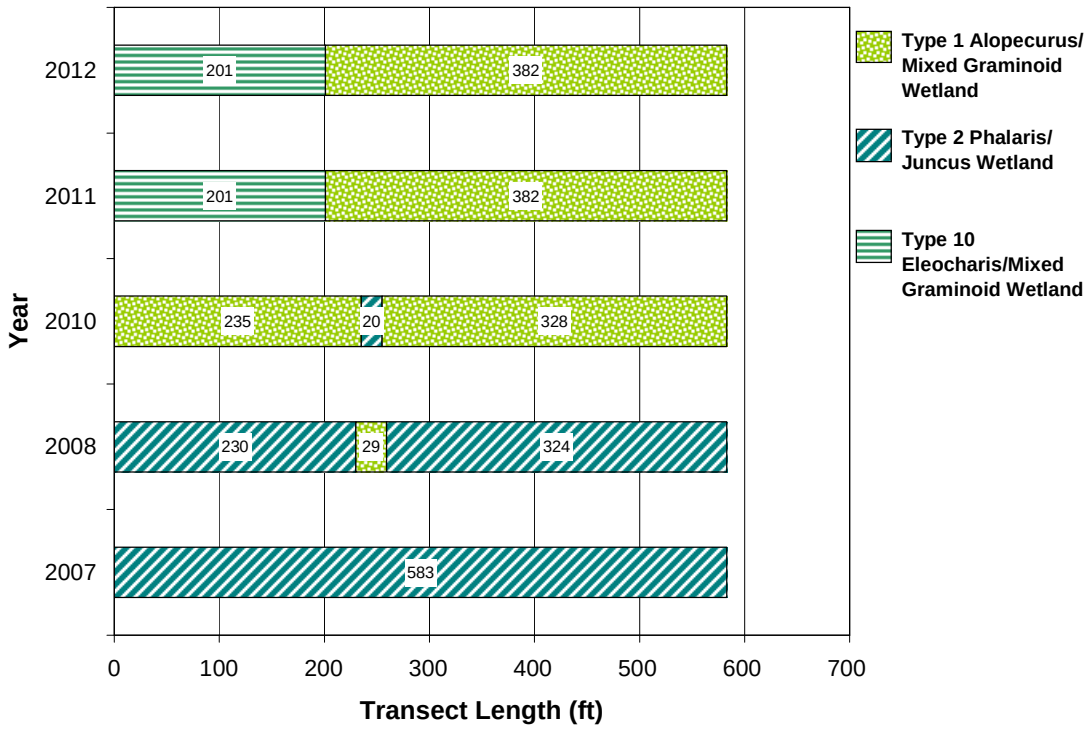



**Chart 3. Transect map of vegetation communities from start (0 feet) to finish (583 feet) of transect T-2 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

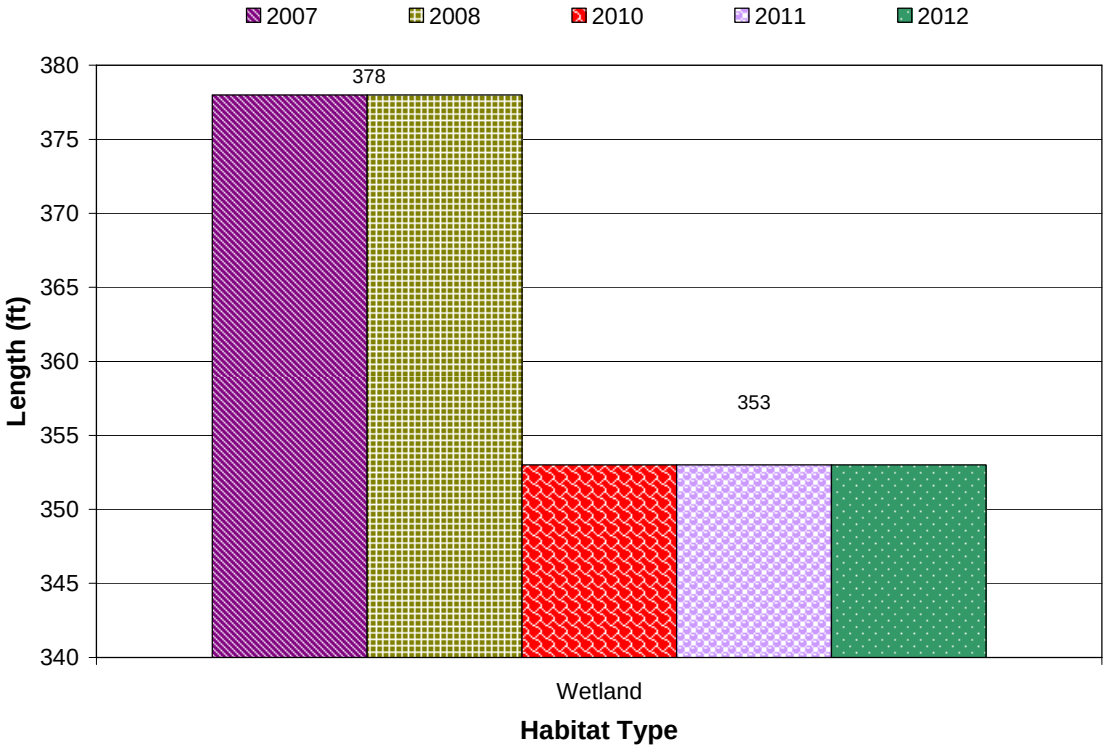



**Chart 4. Length of habitat types within transect T-2 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

Table 5 and Charts 5 and 6 present the data collected on transect T-3. Photographs of the transect endpoints are shown in Appendix C. A monoculture of creeping meadow-foxtail, located in the northwest corner of the site, has dominated the entire length of transect T-3 since 2007 and is responsible for the lowest total number of vegetative species observed within any of the three monitoring transects. The indicator status for creeping meadow-foxtail is facultative, meeting the wetland vegetation criteria.

**Table 5. Data summary of transect T-3 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

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

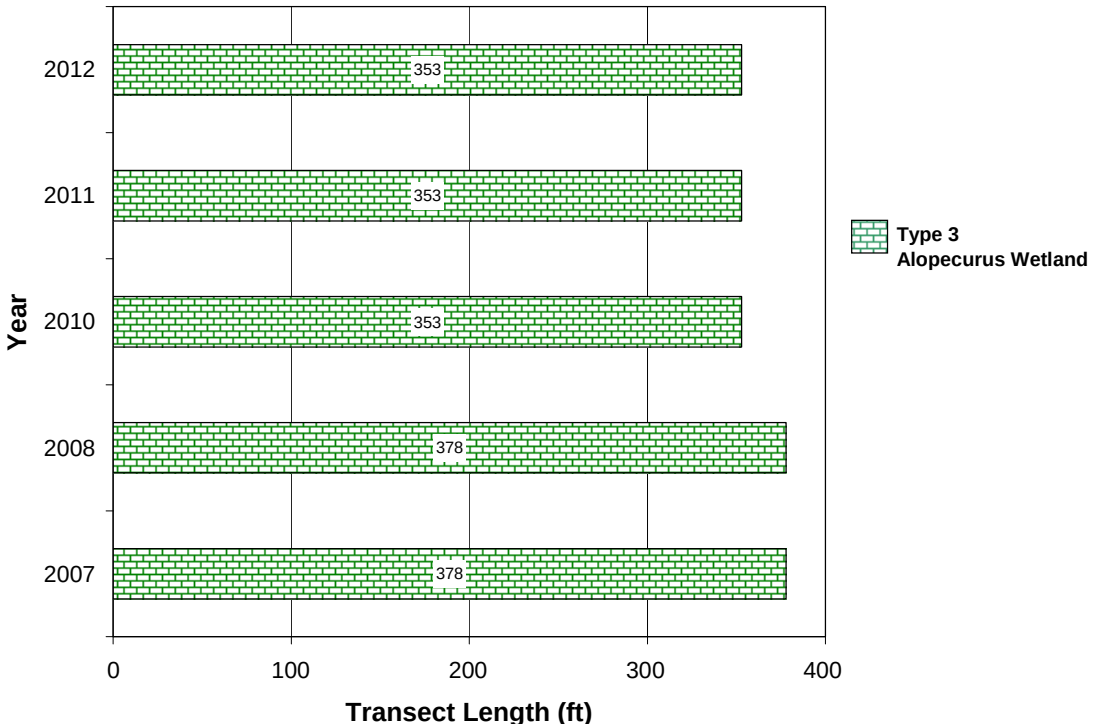



**Chart 5. Transect map of vegetation communities from start (0 feet) to finish (353 feet) of transect T-3 for 2007 and 2008, and 2010 to 2012 Woodson Creek Mitigation Site.**

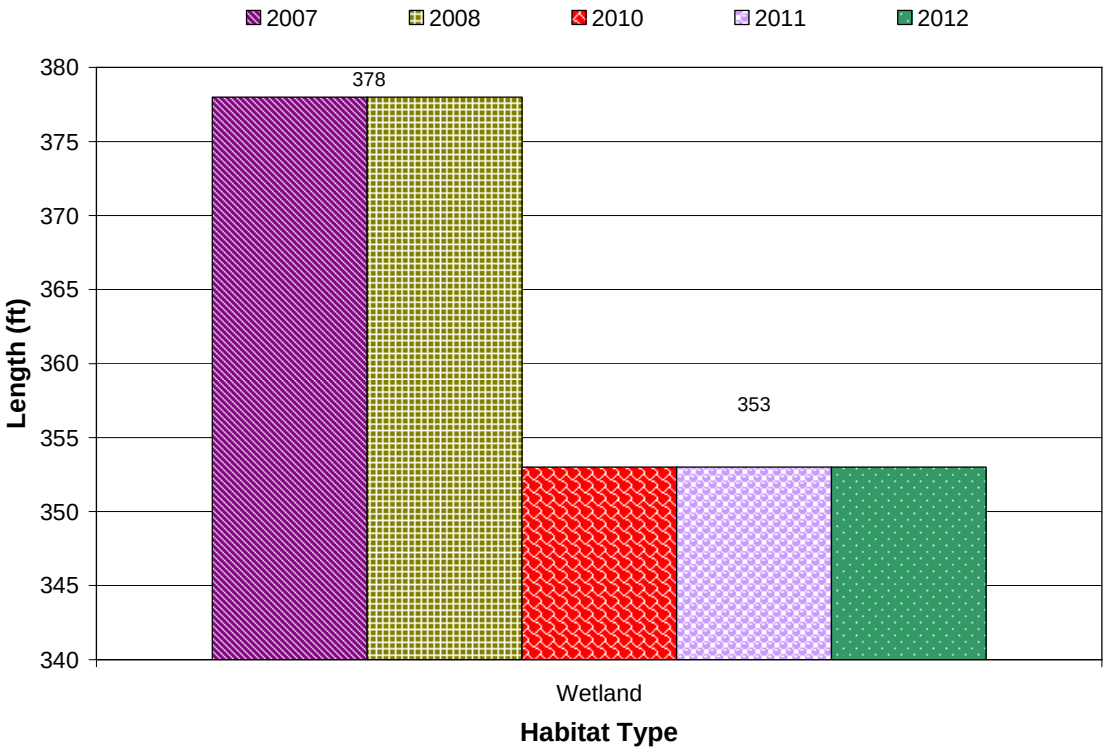



**Chart 6. Length of habitat types within transect T-3 for 2007 and 2008, and 2010 to 2012 at the Woodson Creek Mitigation Site.**

Eight infestations of Canadian thistle (*Cirsium arvense*) were mapped within the site boundaries in 2012 (Figure 3, Appendix A). The size of the infestations were less than 0.1 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 Canadian thistle increased site wide from 2010 to 2012. The site was not sprayed for weeds in 2011.

During the 2007 assessment of planted woody vegetation survival, only one planting location was found and no map of the planting locations had been provided. It was assumed that more than the 15 plantings observed during this investigation were installed, but they could not be located. A total of 69 planted willow cuttings were observed in 2008. A thick cover of creeping meadow-foxtail obscured many of the plants. The condition of the cuttings in 2008 was poor. Sixty-eight percent (47 cuttings) survived to 2008. Ten willow stems in poor condition and twelve green stems with leaves were observed in 2010. Eleven live willow cuttings exhibiting moderate vigor were observed in 2011. The cuttings had been heavily browsed by wildlife. Ten willows planted from cuttings were observed in 2012. The cuttings were heavily browsed and displayed moderate vigor.

### 3.3. Soil

Soil survey data for Meagher County identified three primary map units within the mitigation area boundaries and included the Fairway series (2A), the Soapcreek-

Fairway series (3A), and the Typic Fluvaquents-Fluvaquentic Haplaquolls, 0 to 4 percent slopes (501B). The Fairway and Soapcreek-Fairway series are somewhat poorly drained soils formed in alluvium. The taxonomic class for both is a frigid Fluvaquentic Haplustolls. The three soil map units are hydric. The soil data observed within the test pits except for WC-3 generally confirmed the mapped soil unit.

The soil profiles at WC-1 and WC-2 revealed a very dark gray (10YR 3/1) silt loam without redoximorphic concentrations in the matrix. Based on the 1987 Manual, the low chroma was a positive indicator of hydric soil. The soils were Fluvaquentic Haplustolls and identified on the National Hydric Soils List. The soil at WC-3 revealed a very dark gray (10YR 3/1) silty clay loam with yellowish brown (10 YR 5/6) redoximorphic concentrations and classified as hydric. The profile at WC-4 exhibited a black silty clay loam (10YR 2/1) with redox concentrations (10 YR 5/6) in the matrix. The low chroma colors and redox features were positive indicators of hydric soil at this location.

### 3.4. Wetland Delineation

The wetland boundaries delineated in 2012 are illustrated on Figure 3 (Appendix A) and the Wetland Determination Data Forms are included in Appendix B. Wetland acreages delineated in 2004 (baseline), 2007 and 2008, and 2010 to 2012 are summarized in Table 6. The total area of aquatic habitat delineated in 2012, which includes wetlands and waters of the US associated with Woodson Creek, was 69.64 acres. There was no change in wetland acreage between 2011 and 2012. The isolated, inundated depressions characterized by Type 5 were first 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 and an increase of wetland acreage in the west parcel where the canal breach inundated that portion of the site.

**Table 6. Summary of open water and wetland acreages delineated at the Woodson Creek Wetland Mitigation Site in 2004, 2007, 2008, and 2010 to 2012.**

| Aquatic Habitat Type | 2004 Pre-mitigation (ac) | 2007 (ac) | 2008 (ac) | 2010 (ac) | 2011 (ac) | 2012 (ac) |
|---|---|---|---|---|---|---|
| Open Water | 0.00 | 2.55 | 2.73 | 2.56 | 0.67* | 0.67* |
| Wetland/Aquatic Bed | 57.48 | 61.86 | 59.02 | 65.14 | 68.97 | 68.97 |
| **Total Aquatic Habitat** | 57.48 | 64.42 | 61.75 | 67.70 | 69.64 | 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 2012 is presented in Table 7 (Monitoring Form, Appendix B). Five bird species were identified in 2012. Three mule deer (*Odocoileus hemionus*), one white-tailed deer (*Odocoileus virginanus*), three northern river otters (*Lontra canadensis*), and one meadow vole (*Microtus pennsylvanicus*) were observed in 2012.

**Table 7. Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2012.**

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| **AMPHIBIANS** | |
| Columbia Spotted Frog | *Rana luteiventris* |
| Western Toad | *Bufo boreas* |
| **BIRDS** | |
| American Avocet | *Recurvirostra americana* |
| American Kestrel | *Falco sparverius* |
| American White Pelican | *Pelecanus erythrorhynchos* |
| American Wigeon | *Anas americana* |
| Bald Eagle | *Haliaeetus leucocephalus* |
| **Bank Swallow** | ***Riparia riparia*** |
| Barn Swallow | *Hirundo rustica* |
| Black-billed Magpie | *Pica hudsonia* |
| Blue-winged Teal | *Anas discors* |
| Brewer's Blackbird | *Euphagus cyanocephalus* |
| Canada Goose | *Branta canadensis* |
| Cassin's Finch | *Carpodacus cassinii* |
| Cinnamon Teal | *Anas cyanoptera* |
| Cliff Swallow | *Petrochelidon pyrrhonota* |
| Common Nighthawk | *Chordeiles minor* |
| Double-crested Cormorant | *Phalacrocorax auritus* |
| Eastern Kingbird | *Tyrannus tyrannus* |
| Gadwall | *Anas strepera* |
| Golden Eagle | *Aquila chrysaetos* |
| Gray Catbird | *Dumetella carolinensis* |
| Great Blue Heron | *Ardea herodias* |
| Great Horned Owl | *Bubo virginianus* |
| Green-winged Teal | *Anas crecca* |
| Killdeer | *Charadrius vociferus* |
| Lesser Scaup | *Aythya affinis* |
| Long-billed Curlew | *Numenius americanus* |
| Mallard | *Anas platyrhynchos* |
| **Northern Harrier** | ***Circus cyaneus*** |
| Northern Pintail | *Anas acuta* |
| Northern Shoveler | *Anas clypeata* |
| Red-tailed Hawk | *Buteo jamaicensis* |
| **Red-winged Blackbird** | ***Agelaius phoeniceus*** |
| Ring-necked Pheasant | *Phasianus colchicus* |
| Rock Pigeon | *Columba livia* |
| **Sandhill Crane** | ***Grus canadensis*** |

Species observed in 2012 are bolded.

**Table 7 (Continued). Wildlife species observed at the Woodson Creek Wetland Mitigation Site from 2007 to 2012.**

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| **BIRDS** | |
| 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* |
| **FISH** | |
| Brook Trout | *Salvelinus fontinalis* |
| **MAMMALS** | |
| 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* |
| **Northern River Otter** | ***Lontra canadensis*** |
| Porcupine | *Erethizon dorsatum* |
| Pronghorn | *Antilocapra americana* |
| Raccoon | *Procyon lotor* |
| Red Fox | *Vulpes vulpes* |
| Striped Skunk | *Mephitis mephitis* |
| Water Vole | *Microtus richardsoni* |
| **White-tailed Deer** | ***Odocoileus virginianus*** |
| **REPTILES** | |
| Common Gartersnake | *Thamnophis sirtalis* |

Species observed in 2012 are bolded.

### 3.6. Functional Assessment

The mitigation site was separated into three AAs, including Woodson Creek Floodplain, Woodson Creek East Parcel, and Woodson Creek West Parcel. The baseline assessment was completed in 2005. Functional assessment results for 2005, 2008, 2010, 2011, and 2012 are summarized in Table 8. Functional assessment forms were completed for the Woodson Creek wetlands using the 1999 MDT MWAM (Appendix B). The 2012 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, based on the high ratings for MTNHP species habitat.

**Table 8. Summary of 2005, 2007, 2008, and 2010 to 2012 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 | | | 2012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | Woodson Creek Floodplain | East Parcel | West Parcel |
| Listed/Proposed T&E Species Habitat | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | Low (0.0) | 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) | 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) | High (0.9) | High (0.8) | High (1.0) |
| General Fish/Aquatic Habitat | Low (0.3) | NA | Mod (0.6) | NA | 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 | 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) | 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) | 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 | High (1.0) | High (0.9) | Low (0.3) |
| 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) | 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) | 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) | 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) | 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 | 8.5 / 12 | 7.1 / 11 | 6.8/9 |
| % of Possible Score Achieved | 34.2 | 27.5 | 69 | 63 | 51 | 71 | 66 | 61 | 71 | 62 | 71 | 71 | 65 | 76 |
| Overall Category | III | IV | II | II | III | II | II | III | II | II | II | II | II | II |
| **Total Acreage of Assessed Aquatic Habitat within AA Boundaries** | 0.48 | 57.00 | **28.08** | **27.77** | **5.90** | **29.17** | **31.23** | **7.30** | **29.19** | **31.27** | **9.18** | **29.19** | **31.27** | **9.18** |
| **Functional Unit** (acreage x actual points) | 1.97 | 125.40 | **233.06** | **158.29** | **27.14** | **247.95** | **227.98** | **40.15** | **248.12** | **212.64** | **58.75** | **248.12** | **222.02** | **62.43** |
| **Net Acreage Gain** (from baseline conditions) | NA | NA | **4.27** | | | **10.22** | | | **12.16** | | | **12.16** | | |
| **Net Functional Unit Gain** (from baseline conditions) | NA | NA | **291.12** | | | **388.71** | | | **392.14** | | | **405.19** | | |

[1](Berglund 1999).

The restored Woodson Creek floodplain AA was rated the same in 2011 and 2012. The AA received 71 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 76 percent of the total possible points in 2012, an increase of 5 percent due to improvements in the Sediment/Shoreline and General Wildlife Habitat functional categories since 2011. The ratings were high for MTNHP species habitat, general wildlife habitat, short and long term water storage, sediment/nutrient/toxicant removal, and groundwater discharge/recharge.

The East parcel received 65 percent of the total possible points 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 net wetland acreage gain at the Woodson Creek Wetland Mitigation Site since the 2005 baseline assessment was 12.16 acres and the net functional unit gain was 405.19.

### 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-20 of Appendix C. The 2007, 2008, and 2010 to 2012 cross-section data are illustrated on Charts 7 through 10. Slight increases in channel depth and width were observed at both survey locations in 2007. The cause was unclear and assumed to be the result of minor adjustments in the channel geometry and settling of 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, upstream flooding and groundwater entering the site from seepage of the Sixteen Mile irrigation ditch located upgradient from XS-2. Both cross-sections showed very little change in channel geometry from 2010 to 2012. 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 meadow-foxtail (stability class 6), common spikerush (6), and reed canary grass (9).

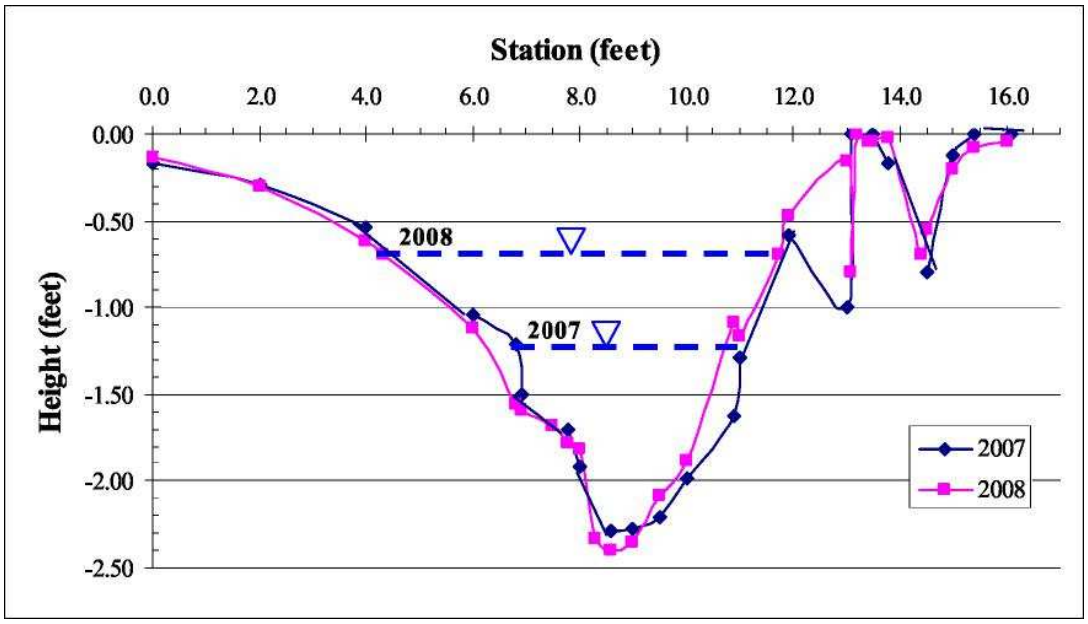



**Chart 7. Survey data at XS-1 collected in 2007 and 2008.**

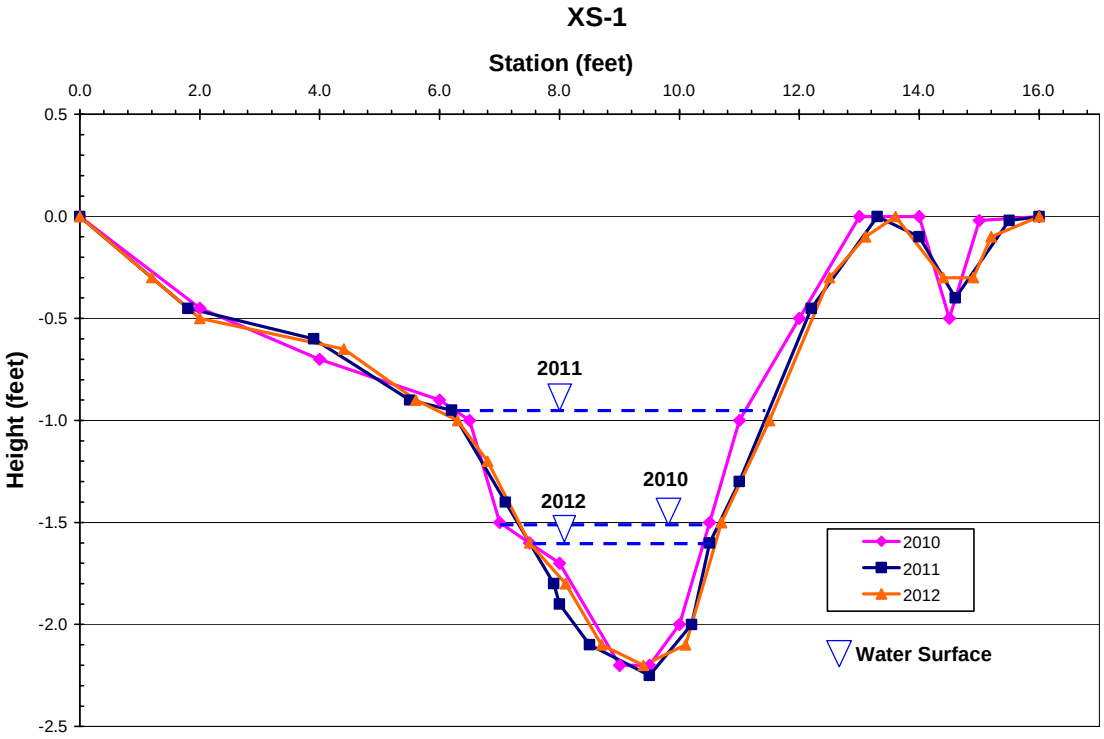



**Chart 8. Survey data collected at XS-1 from 2010 to 2012 at the Woodson Creek Wetland Mitigation Site.**

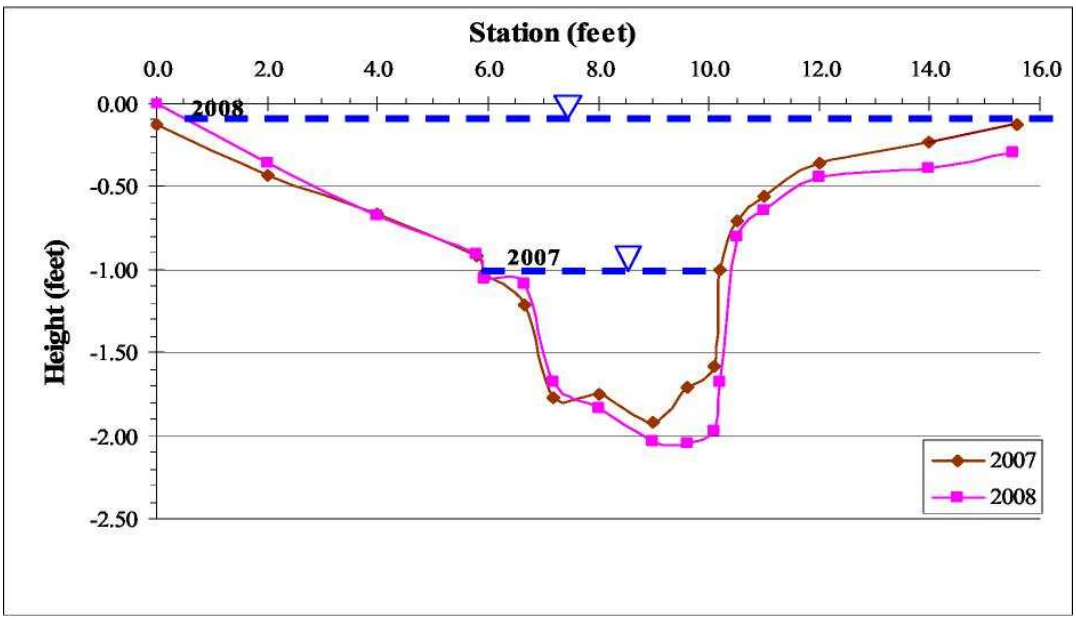



**Chart 9. Survey data collected at XS-2 in 2007 and 2008.**

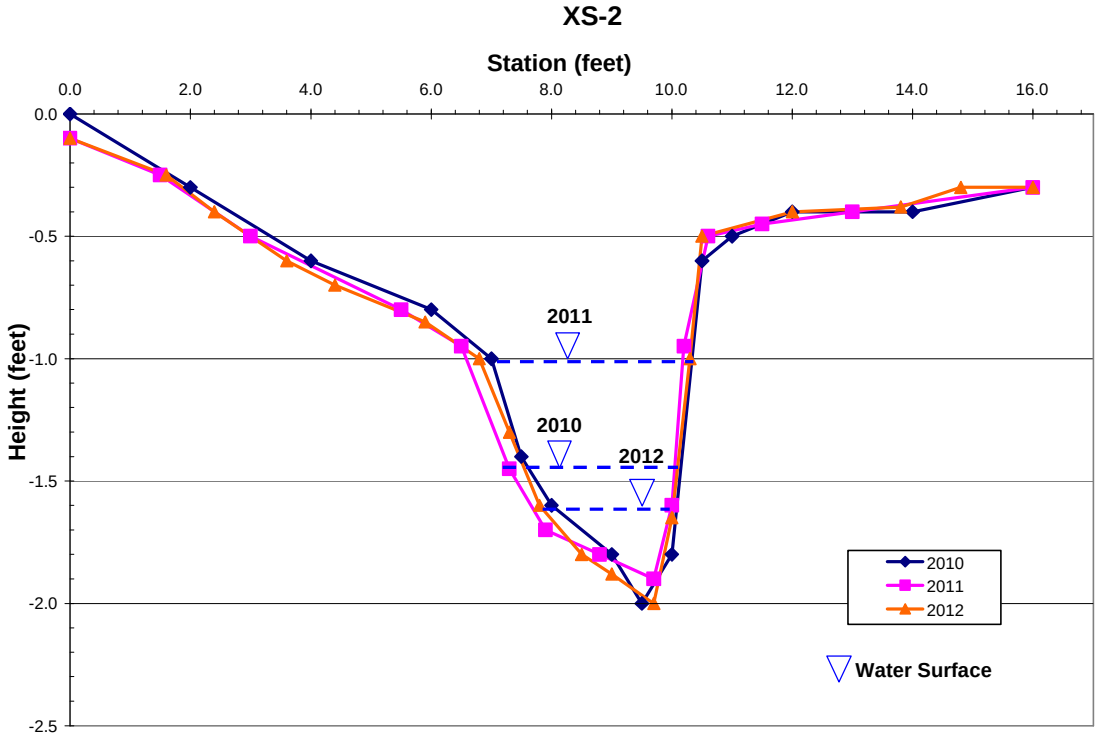



**Chart 10. Survey data collected at XS-2 from 2010 to 2012 at the Woodson Creek Wetland Mitigation Site.**

### 3.8. Streambank Erosion Pins

Streambank erosion pins were installed along outside meanders at two locations following construction (Figure 2, Appendix A). The pins were installed after the

majority of runoff had occurred in 2007. The downstream location was chosen specifically at a bend that was exhibiting severe bank erosion. Bank erosion was observed at both locations in 2008, with an average erosion rate of 0.29 feet per year at the upstream pin (Pin 1) and 0.14 feet per year at the downstream pin (Pin 2). A decrease in the rate of erosion was observed at Pin 1 in 2010 with 0.50 feet of erosion measured since 2008, or a rate of 0.25 feet/year. Streambank stability has been high at both pins throughout 2011 and 2012, as noted by the minimal amount of erosion measured at Pin 1 and shown on the photo presented on page C-10 of Appendix C. The planform of Woodson Creek through the restored reach has been considered stable during the last three monitoring years, with no observed erosion noted. The established root systems of plant species with high soil stability ratings is considered integral to streambank stability and has improved under-cut bank habitat.

### 3.9. Photo Documentation

Representative photographs were taken from established photo points and transect ends (Appendix C). Photo points 1 through 4 taken in 2008, and 2010 through 2012 are shown on pages C-1 to C-13. Photos of the transect end points are presented on pages C-20 to C-21 of Appendix C. Photos of the streambank erosion pins are shown on page C-19 of Appendix C. Photos of the surveyed cross-sections are shown on page C-20. The data points are shown on pages C-20 and 31.

### 3.10. Maintenance Needs

Eight infestations of Canadian thistle (*Cirsium arvense*) were mapped within the site boundaries in 2012 (Figure 3, Appendix A). The size of the infestations were less than 0.1 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 Canadian thistle increased site wide from 2010 to 2012. The site was not sprayed for weeds in 2011. Spraying is recommended for 2012.

The irrigation return on the north edge of the site was breached sometime between the 2010 and 2011 site visits. The entire flow 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 was well vegetated and showed no signs of erosion. The breach was repaired between 2011 and 2012.

### 3.11. Current Credit Summary

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

The adopted performance standards for this site required areas delineated as wetlands to meet all three wetland criteria as defined in the 1987 Corps of Engineers Wetland Delineation Manual. The wetlands delineated in 2012 met the three wetland criteria. Areas defined as wetlands exhibited soil saturation in the upper 12 inches of the soil profile for a minimum of 12.5 percent of the growing season. The maximum noxious weed coverage did not exceed 5 percent site wide. The aerial coverage of all plant species was at least 80 percent and the plant species have survived two years. The percent aerial cover of bare ground does not exceed 20 percent. The permanent open water exhibits either persistent emergent vegetation or aquatic bed vegetation. No single body of water exceeds three acres. The three credit areas have achieved a Category II functional rating. A total of 66.58 credit acres have been calculated for the Woodson Creek wetland mitigation site based on the 2012 monitoring results (Table 9).

**Table 9. Credit summary from 2010 to 2012 for the Woodson Creek Wetland Mitigation Site.**

| Credit Zone | Credit Category | 2010 Credit Ratio | 2010 Acres | 2010 Credit Acres | 2011 Acres | Functional Wetland Category Rating | 2011 Credit Ratio | 2011 Credit Acres | 2012 Acres | Functional Wetland Category Rating | 2012 Credit Ratio | 2012 Credit Acres |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Woodson Creek Floodplain | Restoration (Re-establishment) | 1:1 | 29.17 | 29.17 | 29.19 | II | 1:1 | 29.19 | 29.19 | II | 1:1 | 29.19 |
| East Parcel | Re-establishment | 1:1 | 31.23 | 31.23 | 31.27 | II | 1:1 | 31.27 | 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 | 9.18 | II | 1.5:1 | 6.12 |
| **Total** | | | **67.70** | **65.27** | **69.64** | | | **66.58** | **69.64** | | | **66.58** |

## 4. REFERENCES

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# Appendix A

Project Area Maps: Figures 2 and 3

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana

# Figure 2: 2012 Monitoring Activity Locations

PP1
T-1 start
T-1 finish
XS1
PP4
T-3 start
T-3 finish
MW-1
WC-1
WC-2
WC-3
XS2
MW-2
MW-3
MW-4
PP2
WC-4
T-2 finish
T-2 start
MW-5
MW-6
PP3

**Legend**

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

*Base Photography Date: June 26, 2012*

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/Monitor2012.mxd

*Project Name*
Woodson Creek Mitigation Site

*Drawing Title*
2012 Monitoring Activity Locations

| DRAWN | CHECKED | APPROVED |
|---|---|---|
| BCS | BV | JJ |

SCALE: Noted

Drawn: August 31, 2012

PROJ MGR: B Sandefur

CONFLUENCE
consulting incorporated

Figure 2

REV -

## Legend

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

*Base Photography Date: June 28, 2012*

1:3,500

## 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 arcticus
10. Eleocharis palustris/Mixed graminoids

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/Veg2012.mxd

Project Name: Woodson Creek Mitigation Site
Drawing Title: 2012 Mapped Site Features

DRAWN BCS | CHECKED BV | APPROVED JJ
SCALE: Noted
Drawn: August 31, 2012
PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 3

REV -

# Appendix B

2012 MDT Wetland Mitigation Site Monitoring Form
2012 USACE Routine Wetland Determination Data Form
2012 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 7/24/2012 9:00:10 AM

Person(s) conducting the assessment: Erik Nyquist

Weather: sunny, 70 deg., light wind 5-7 mp 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: 5 #Visits in Year: 1

Size of Evaluation Area: 84.72 (acres)

Land use surrounding wetland:

Agriculture (hay); farm outbuildings

### HYDROLOGY

Surface Water Source: Flood irrigation/groundwater

Inundation: ☑ Average Depth: 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**:**

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

#### Groundwater Monitoring Wells

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

| Well ID | Water Surface Depth (ft) |
|---|---|
| MW-1 | -1E+ **(inundated)** |
| MW-2 | -1E+ **(inundated)** |
| MW-3 | 0.3 |
| MW-4 | -1E+ **(inundated)** |
| MW-5 | -1E+ **(inundated)** |
| MW-6 | -1E+ **(inundated)** |

Additional Activities Checklist:

☑ Map emergent vegetation-open water boundary on aerial photograph.

☑ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)

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

**Hydrology Notes:**

Many of the depressional areas that were not inundated during the 2011 monitoring event were inundated during the 2012 site visit. Levee of irrigation canal was was fixed. -9999 in field above indicates well was dry.

## 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:** 44.6

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Achillea millefolium | 1 | Alopecurus arundinaceus | 4 |
| Ambrosia acanthicarpa | 1 | Cicuta douglasii | 1 |
| Cirsium arvense | 1 | Descurainia sophia | 1 |
| Hordeum jubatum | 1 | Juncus arcticus | 2 |
| Pascopyrum smithii | 1 | Phalaris arundinacea | 1 |
| Poa compressa | 1 | Ranunculus sp. | 1 |
| Taraxacum officinale | 0 | Thlaspi arvense | 0 |
| Triglochin palustris | 1 | | |

**Comments:**

**Community #** 3 **Community Type:** Alopecurus arundinaceus / **Acres:** 7.56

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

**Comments:**

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus arundinaceus | 1 | Ambrosia acanthicarpa | 2 |
| Bromus inermis | 4 | Cirsium arvense | 2 |
| Descurainia sophia | 1 | Equisetum arvense | 0 |
| Hordeum jubatum | 1 | Iris missouriensis | 0 |
| Poa pratensis | 4 | Solidago canadensis | 2 |
| Thlaspi arvense | 0 | | |

**Comments:**

**Community #** 5 **Community Type:** Aquatic macrophytes / **Acres:** 1.37

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| algae, green | 1 | Hippuris vulgaris | 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 |
| Phalaris arundinacea | 1 | Rumex crispus | 1 |
| Triglochin palustris | 1 | | |

**Comments:**

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Achillea millefolium | 2 | Alopecurus arundinaceus | 2 |
| Ambrosia acanthicarpa | 2 | Aster sp. | 0 |
| Bromus inermis | 5 | Cirsium arvense | 1 |
| Cirsium vulgare | 0 | Descurainia sophia | 1 |
| Equisetum arvense | 0 | Equisetum hyemale | 1 |
| Grindelia squarrosa | 0 | Hordeum jubatum | 1 |
| Iris missouriensis | 0 | Juncus arcticus | 2 |
| Melilotus officinalis | 1 | Poa pratensis | 2 |
| Puccinellia nuttalliana | 1 | Solidago canadensis | 0 |
| Taraxacum officinale | 1 | Thlaspi arvense | 1 |
| Trifolium repens | 1 | | |

**Comments:**

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

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

**Comments:**

**Community #** 10 **Community Type:** Eleocharis palustris / Mixed graminoids **Acres:** 4.25

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus arundinaceus | 2 | Argentina anserina | 1 |
| Beckmannia syzigachne | 2 | Calamagrostis canadensis | 2 |
| Carex utriculata | 1 | Eleocharis palustris | 3 |
| Glyceria grandis | 2 | Juncus arcticus | 2 |
| Myriophyllum sp. | 2 | Persicaria sp. | 0 |
| Phalaris arundinacea | 2 | Ranunculus longirostris | 2 |
| Scirpus microcarpus | 1 | Scirpus pallidus | 0 |
| Triglochin palustris | 0 | | |

**Comments:**

***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: 7/24/2012 9:00:10 AM

**Transect Number:** 1 **Compass Direction from Start:** 14

**Interval Data:**

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus arundinaceus | 5 | Argentina anserina | 1 |
| Carex nebrascensis | 1 | Cirsium arvense | 1 |
| Juncus arcticus | 3 | Poa compressa | 2 |
| Ranunculus sp. | 1 | Scirpus microcarpus | 1 |
| Triglochin palustris | 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 arcticus

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus arundinaceus | 5 | Carex nebrascensis | 2 |
| Carex utriculata | 1 | Cirsium arvense | 1 |
| Juncus arcticus | 3 | Lactuca serriola | 0 |
| Persicaria sp. | 1 | Phalaris arundinacea | 1 |
| Scirpus microcarpus | 1 | Triglochin palustris | 1 |

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Algae, green | 0 | Hippuris vulgaris | 0 |
| Open Water | 5 | | |

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Achillea millefolium | 0 | Agrostis gigantea | 1 |
| Alopecurus arundinaceus | 5 | Carex utriculata | 2 |
| Cicuta douglasii | 0 | Cirsium arvense | 1 |
| Juncus arcticus | 3 | Poa palustris | 2 |
| Rumex crispus | 1 | Scirpus microcarpus | 1 |
| Scutellaria lateriflora | 0 | Solidago canadensis | 1 |
| Triglochin palustris | 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 | 4 | Argentina anserina | 1 |
| Beckmannia syzigachne | 2 | Carex utriculata | 2 |
| Eleocharis palustris | 2 | Persicaria sp. | 1 |
| Triglochin palustris | 1 | | |

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

| Species | Cover class | Species | Cover class |
|---|---|---|---|
| Alopecurus arundinaceus | 5 | Cicuta douglasii | 0 |
| Juncus arcticus | 3 | Poa compressa | 2 |
| Triglochin palustris | 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 | Eleocharis palustris | 0 |

Transect Notes:

## PLANTED WOODY VEGETATION SURVIVAL

Woodson Creek

| Planting Type | #Planted | #Alive | Notes |
|---|---|---|---|
| Salix spp. | 69 | 10 | 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 | 10 | FO | WM |
| Northern Harrier | 3 | F | UP |
| Red-winged Blackbird | 4 | FO | MA, WM |
| Sandhill Crane | 2 | FO | WM |
| Wilson's Snipe | 3 | FO, L | OW, WM, 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 |
|---|---|---|---|---|---|
| Meadow Vole | 1 | No | No | No | |
| Mule Deer | 3 | No | No | No | |
| Northern River Otter | 3 | Yes | No | No | |
| White-tailed Deer | 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 |
|---|---|---|---|---|
| wc01 | | | 95 | photo point 3, photo 1 |
| wc02 | | | 132 | photo point 3, photo 2 |
| wc03 | | | 224 | photo point 3, photo 4 |
| wc04 | | | 187 | transect 3, photo 1 start |
| wc05 | | | 7 | transect 3, photo 2, end |
| wc06 | | | 130 | data point wc-1 |
| wc07 | | | 10 | data point wc-2 |
| wc08 | | | 90 | data point wc-3 |
| wc09 | | | 10 | bank erosion pin #1 |
| wc10 | | | 208 | photo point 1, photo 1 |
| wc11 | | | 226 | photo point 1, photo 2 |
| wc12 | | | 249 | photo point 1, photo 3 |
| wc13 | | | 134 | transect 1, photo 1 start |
| wc14 | | | 314 | transect 1, photo 2, end |
| wc15 | | | 314 | scenic photo |
| wc16 | | | 250 | hippuris vulgaris |
| wc17 | | | 170 | cross section 2, xs2 |
| wc18 | | | 197 | photo point 2, photo 1 |
| wc19 | | | 230 | photo point 2, photo 2 |
| wc20 | | | | photo point 2, photo 3 |
| wc21 | | | 255 | transect 2, photo 2, end |
| wc22 | | | 75 | transect 2, photo 1, start |
| wc23 | | | 203 | photo point 4, photo 1 |
| wc24 | | | 210 | photo point 4, photo 2 |
| wc25 | | | 262 | photo point 4, photo 3 |

| | | |
|---|---|---|
| wc26 | 296 | photo point 4, photo 4 |
| wc27 | 324 | photo point 4, photo 5 |
| wc28 | 75 | data point wc-4 |
| wc29 | 250 | scenic photo |
| wc30 | 180 | cross section 1, xs-1 |

**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? Yes

If yes, are the structures in need of repair? No

If yes, describe the problems below.

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

Project/Site: Woodson Creek | City/County: Meagher | Sampling Date: 7/24/2012

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

Investigator(s): Erik Nyquist | 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: 0 | Long: 0 | 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:
wet meadow

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Herb Stratum (Plot size: 5ft)** | | | |
| 1. Alopecurus arundinaceus | 50 | ☑ | FAC |
| 2. Rumex crispus | 15 | ☐ | FAC |
| 3. Poa palustris | 10 | ☐ | FAC |
| 4. Cirsium arvense | 5 | ☐ | FAC |
| 5. Ambrosia acanthicarpa | 5 | ☐ | UPL |
| 6. | 0 | ☐ | |
| 7. | 0 | ☐ | |
| 8. | 0 | ☐ | |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| 11. | 0 | ☐ | |
| | 85 = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 15

**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:

## 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 |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 3/1 | 100 | | | | | Silt Loam | |
| 16-24 | 10YR 3/1 | 100 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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 Haplustoll

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: 7/24/2012

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

Investigator(s): Erik Nyquist | 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: 0 | Long: 0 | 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:
wet meadow

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Herb Stratum (Plot size: 5ft)** | | | |
| 1. Alopecurus arundinaceus | 70 | ☑ | FAC |
| 2. Rumex crispus | 20 | ☐ | FAC |
| 3. Poa palustris | 10 | ☐ | FAC |
| 4. Thlaspi arvense | 5 | ☐ | UPL |
| 5. | 0 | ☐ | |
| 6. | 0 | ☐ | |
| 7. | 0 | ☐ | |
| 8. | 0 | ☐ | |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| 11. | 0 | ☐ | |
| | 105 = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 5

**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:

## 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 | 10YR 3/1 | 100 | | | | | Silt Loam | |
| 16-24 | 10YR 4/1 | 90 | 10YR 5/6 | 5 | C | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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: 7/24/2012

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

Investigator(s): Erik Nyquist | 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: 0 | Long: 0 | 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:
wet meadow

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Herb Stratum** (Plot size: 5ft) | | | |
| 1. Alopecurus arundinaceus | 65 | ☑ | FAC |
| 2. Beckmannia syzigachne | 15 | ☐ | OBL |
| 3. Deschampsia cespitosa | 10 | ☐ | UPL |
| 4. Argentina anserina | 5 | ☐ | OBL |
| 5. Eleocharis palustris | 5 | ☐ | OBL |
| 6. | 0 | ☐ | |
| 7. | 0 | ☐ | |
| 8. | 0 | ☐ | |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| 11. | 0 | ☐ | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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 |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 3/1 | 90 | 10YR 5/6 | 10 | C | M | Silty Clay Loam | |
| 16-24 | 10YR 3/1 | 90 | 10YR 5/6 | 10 | C | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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 Haplustoll

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: 7/24/2012

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

Investigator(s): Erik Nyquist | 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: 0 | Long: 0 | 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:
wet meadow

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| | 0 = Total Cover | | |
| **Herb Stratum (Plot size: 5ft)** | | | |
| 1. Alopecurus arundinaceus | 70 | ☑ | FAC |
| 2. Beckmannia syzigachne | 20 | ☐ | OBL |
| 3. Eleocharis palustris | 10 | ☐ | OBL |
| 4. Argentina anserina | 5 | ☐ | OBL |
| 5. | 0 | ☐ | |
| 6. | 0 | ☐ | |
| 7. | 0 | ☐ | |
| 8. | 0 | ☐ | |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| 11. | 0 | ☐ | |
| | 105 = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | 0 | ☐ | |
| 2. | 0 | ☐ | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 15

**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:

## 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 |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 2/1 | 85 | 10YR 5/6 | 15 | C | M | Silty Clay Loam | |
| 16-24 | 10YR 2/1 | 85 | 10YR 5/6 | 15 | C | M | Silty Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

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

Taxonomy Subgroup: Fluvaquentic Haplustolls

Confirm Mapped Type?: ☑

**Hydric Soil Present?** Yes ☑ No ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 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** 7/24/2012 **4. Evaluators** Eric Nyquist **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 | Permanently flooded | 5 |
| Riverine | Riverine | none | Emergent Wetland | | seasonally flooded | 20 |
| Riverine | Riverine | none | Unconsolidated Bottom | Excavated | Permanently flooded | 5 |
| Riverine | Riverine | none | Emergent Wetland | | seasonally flooded | 70 |
| | | | | | | |
| | | | | | | |

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

**12. General Condition of AA**

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

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

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

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

**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 cultivated (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 2012

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**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.

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**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 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 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 | .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 | | | | .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** 7/24/2012 **4. Evaluators** Erik Nyquist **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.

**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 2012

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**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)

**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]):

- [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**

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**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 M L

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

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

**Comments**

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

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

| *Estimated wetland area in AA subject to periodic flooding* | ≥ 10 acres | | | <10>2 acres | | | ≤ 2 acres | | |
|---|---|---|---|---|---|---|---|---|---|
| *% of flooded wetland classified as forested, scrub/shrub, or both* | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains not outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

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

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

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

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

| *Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding* | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|---|---|---|---|---|---|---|---|---|
| *Duration of surface water at wetlands within the AA* | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond **≥ 5 out of 10 years** | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond **< 5 out of 10 years** | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

**Comments:** Duration of ponding P/P based on depth of inundation observed during 2012 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 habitat in AA depression considered large enough to be subject to wave action.

**14I. Production Export/Food Chain Support:**

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

| *A* | Vegetated component 1-5 acres | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *B* | | | | | | | High | | Moderate | | Low | | | | | |
| *C* | | | | | | | Yes | No | Yes | No | Yes | No | | | | |
| **P/P** | | | | | | .7M | | | .8H | | | .6M | | | .4M | .3L |
| **S/I** | | | | | | | | | | | | | .5M | .5M | .3L | .3L | .2L |
| **T/E/A** | .8H | .7M | .7 | .6M | .6M | .5M | | | | | | | .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 west portion of the AA is fed by shallow groundwater and classifed as 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:**

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**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 | E | 1 | 1 | 9.18 |
| 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 | L | .3 | 0 | 2.754 |
| 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: | | 6.8 | 9 | 62.424 |
| Percent of Possible Score | | **75.56** % | | |

**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** 7/24/2012 **4. Evaluators** Eric Nyquist **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 southeast 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 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 2012

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**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]):

- [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** Depressions within AA were dry or close to being dry during 2012 site visit in July. Longest duration of SW assessed as "S/I".

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**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 [x] **(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 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 2012 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 1-5 acres | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *B* | | | | | | | High | | Moderate | | Low | | | | | |
| *C* | | | | | | | Yes | No | Yes | No | Yes | No | | | | |
| **P/P** | | | | | | | | | .8H | | | .6M | | | .4M | .3L |
| **S/I** | | | .8H | | | | | | | | | | .5M | .5M | .3L | .3L | .2L |
| **T/E/A** | .8H | .7M | .7 | .6M | .6M | .5M | | | | | | | .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 | H | .8 | 1 | 25.016 |
| 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: | | 7.1 | 11 | 222.017 |
| Percent of Possible Score | | **64.55** % | | |

**Category I Wetland:** (Must satisfy **one** of the following criteria; if does not meet criteria, go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points

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

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

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

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

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

# Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana



**Photo Point 1** – *Photo 1*
**Bearing:** North

**Location:** North pond, Rehab credit
**Taken in 2009**



**Photo Point 1 –** *Photo 1*
**Bearing:** North

**Location:** North pond, Rehab credit
**Taken in 2010**



**Photo Point 1 –** *Photo 1*
**Bearing:** North

**Location:** North pond, Rehab credit
**Taken in 2011**



**Photo Point 1 –** *Photo 1*
**Bearing:** North

**Location:** North pond, Rehab credit
**Taken in 2012**



**Photo Point 1** – *Photo 2*
**Bearing:** West
**Location:** North pond, Rehab credit
**Taken in 2009**



**Photo Point 1 –** *Photo 2*
**Bearing:** West
**Location:** North pond, Rehab credit
**Taken in 2010**



**Photo Point 1** – *Photo 2*
**Bearing:** West
**Location:** North pond, Rehab credit
**Taken in 2011**



**Photo Point 1** – *Photo 2*
**Bearing:** West
**Location:** North pond, Rehab credit
**Taken in 2012**



**Photo Point 1** – *Photo 3*
**Bearing:** South

**Location:** North pond, Rehab credit
**Taken in 2009**



**Photo Point 1 –** *Photo 3*
**Bearing:** South

**Location:** North pond, Rehab credit
**Taken in 2010**



**Photo Point 1 –** *Photo 3*
**Bearing:** South

**Location:** North pond, Rehab credit
**Taken in 2011**



**Photo Point 1 –** *Photo 3*
**Bearing:** South

**Location:** North pond, Rehab credit
**Taken in 2012**



**Photo Point 2** – *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 2 –** *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 2 –** *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 2 –** *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 2** – *Photo 2*
**Bearing:** West
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 2** – *Photo 2*
**Bearing:** West
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 2** – *Photo 2*
**Bearing:** West
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 2** – *Photo 2*
**Bearing:** West
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 3** – *Photo 1*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 3** – *Photo 1*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 3** – *Photo 1*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 3** – *Photo 1*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 3** – *Photo 2*
**Bearing:** East
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 3** – *Photo 2*
**Bearing:** East
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 3** – *Photo 2*
**Bearing:** East
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 3** – *Photo 2*
**Bearing:** East
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 4** – *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 4** – *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 4** – *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 4** – *Photo 1*
**Bearing:** North
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 4** – *Photo 2*
**Bearing:** Northeast
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 4** – *Photo 2*
**Bearing:** Northeast
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 4** – *Photo 2*
**Bearing:** Northeast
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 4** – *Photo 2*
**Bearing:** Northeast
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 4** – *Photo 3*
**Bearing:** Southeast
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 4** – *Photo 3*
**Bearing:** Southeast
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 4** – *Photo 3*
**Bearing:** Southeast
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 4** – *Photo 3*
**Bearing:** Southeast
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 4** – *Photo 4*
**Bearing:** Southwest
**Location:** Creation Credit
**Taken in 2009**



**Photo Point 4** – *Photo 4*
**Bearing:** Southwest
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 4** – *Photo 4*
**Bearing:** Southwest
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 4** – *Photo 4*
**Bearing:** Southwest
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 5** – *Photo 1*
**Compass Bearing:** East
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 5 –** *Photo 2*
**Compass Bearing:** South
**Location:** Creation Credit
**Taken in 2010**



**Photo Point 5** – *Photo 1*
**Compass Bearing:** East
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 5 –** *Photo 2*
**Compass Bearing:** South
**Location:** Creation Credit
**Taken in 2011**



**Photo Point 5** – *Photo 1*
**Compass Bearing:** Northeast
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 5 –** *Photo 2*
**Compass Bearing:** South
**Location:** Creation Credit
**Taken in 2012**



**Photo Point 5** – *Photo 3* **Location:** Creation Credit
**Compass Bearing:** West **Taken in 2010**



**Photo Point 5** – *Photo 3* **Location:** Creation Credit
**Compass Bearing:** West **Taken in 2011**



**Photo Point 5** – *Photo 3* **Location:** Creation Credit
**Compass Bearing:** West **Taken in 2012**



**Photo Point** – *T-1 Start*
**Bearing:** West
**Location:** Rehabilitation credit area
**Taken in 2009**



**Photo Point** – *T-1 Start*
**Bearing:** West
**Location:** Rehabilitation credit area
**Taken in 2010**



**Photo Point** – *T-1 Start*
**Bearing:** West
**Location:** Rehabilitation credit area
**Taken in 2011**



**Photo Point** – *T-1 Start*
**Bearing:** West
**Location:** Rehabilitation credit area
**Taken in 2012**



**Photo Point** – *T-1 Start*
**Bearing:** South
**Location:** Rehabilitation credit area
**Taken in 2009**



**Photo Point** – *T-1 Start*
**Bearing:** South
**Location:** Rehabilitation credit area
**Taken in 2010**



**Photo Point** – *T-1 Start*
**Bearing:** South
**Location:** Rehabilitation credit area
**Taken in 2011**



**Photo Point** – *T-1 Start*
**Bearing:** South
**Location:** Rehabilitation credit area
**Taken in 2012**



**Photo Point** – *T-1 Start*
**Bearing:** Southeast
**Location:** Rehabilitation credit area
**Taken in 2009**



**Photo Point** – *T-1 Start*
**Bearing:** Southeast
**Location:** Rehabilitation credit area
**Taken in 2010**



**Photo Point** – *T-1 Start*
**Bearing:** Southeast
**Location:** Rehabilitation credit area
**Taken in 2011**



**Photo Point** – *T-1 Start*
**Bearing:** Southeast
**Location:** Rehabilitation credit area
**Taken in 2012**



**Photo Point** – *T-1 Start*
**Bearing:** North
**Location:** Rehabilitation credit area
**Taken in 2009**



**Photo Point** – *T-1 Start*
**Bearing:** North
**Location:** Rehabilitation credit area
**Taken in 2010**



**Photo Point** – *T-1 Start*
**Bearing:** North
**Location:** Rehabilitation credit area
**Taken in 2011**



**Photo Point** – *T-1 Start*
**Bearing:** North
**Location:** Rehabilitation credit area
**Taken in 2012**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Northeast **Taken in 2009**

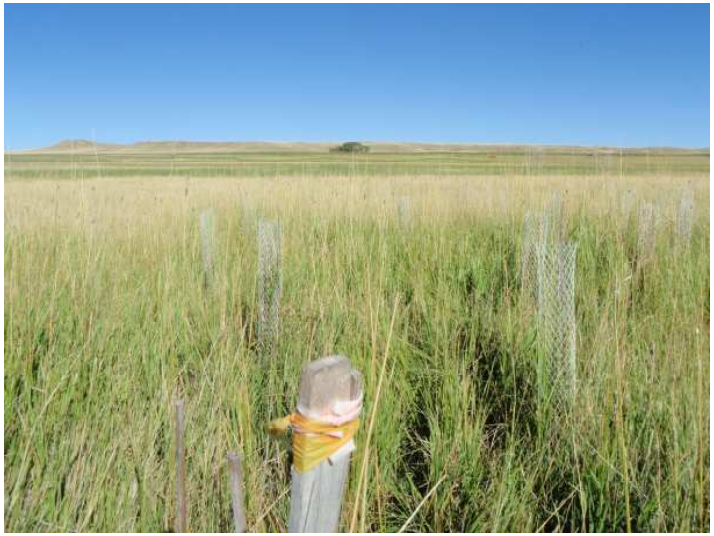


**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Northeast **Taken in 2010**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Northeast **Taken in 2011**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Northeast **Taken in 2012**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** North **Taken in 2009**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** North **Taken in 2010**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** North **Taken in 2011**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** North **Taken in 2012**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Southeast **Taken in 2009**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Southeast **Taken in 2010**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Southeast **Taken in 2011**



**Photo Point** – *T-1 Finish* **Location:** Creation Credit
**Bearing:** Southeast **Taken in 2012**



**Photo Point** – *T-1 Finish*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2009**



**Photo Point** – *T-1 Finish*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2010**



**Photo Point** – *T-1 Finish*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2011**



**Photo Point** – *T-1 Finish*
**Bearing:** South
**Location:** Creation Credit
**Taken in 2012**



**Data Point S – 1**
**Bearing:** Southeast
**Location:** Communities 1&2
**Taken in 2012**



**Data Point S – 2**
**Bearing:** West
**Location:** Community 4
**Taken in 2012**



**Data Point S – 3**
**Bearing:** East
**Location:** Comm.5
**Taken in 2012**



**Data Point S – 4**
**Bearing:** Southwest
**Location:** Communty 13
**Taken in 2012**

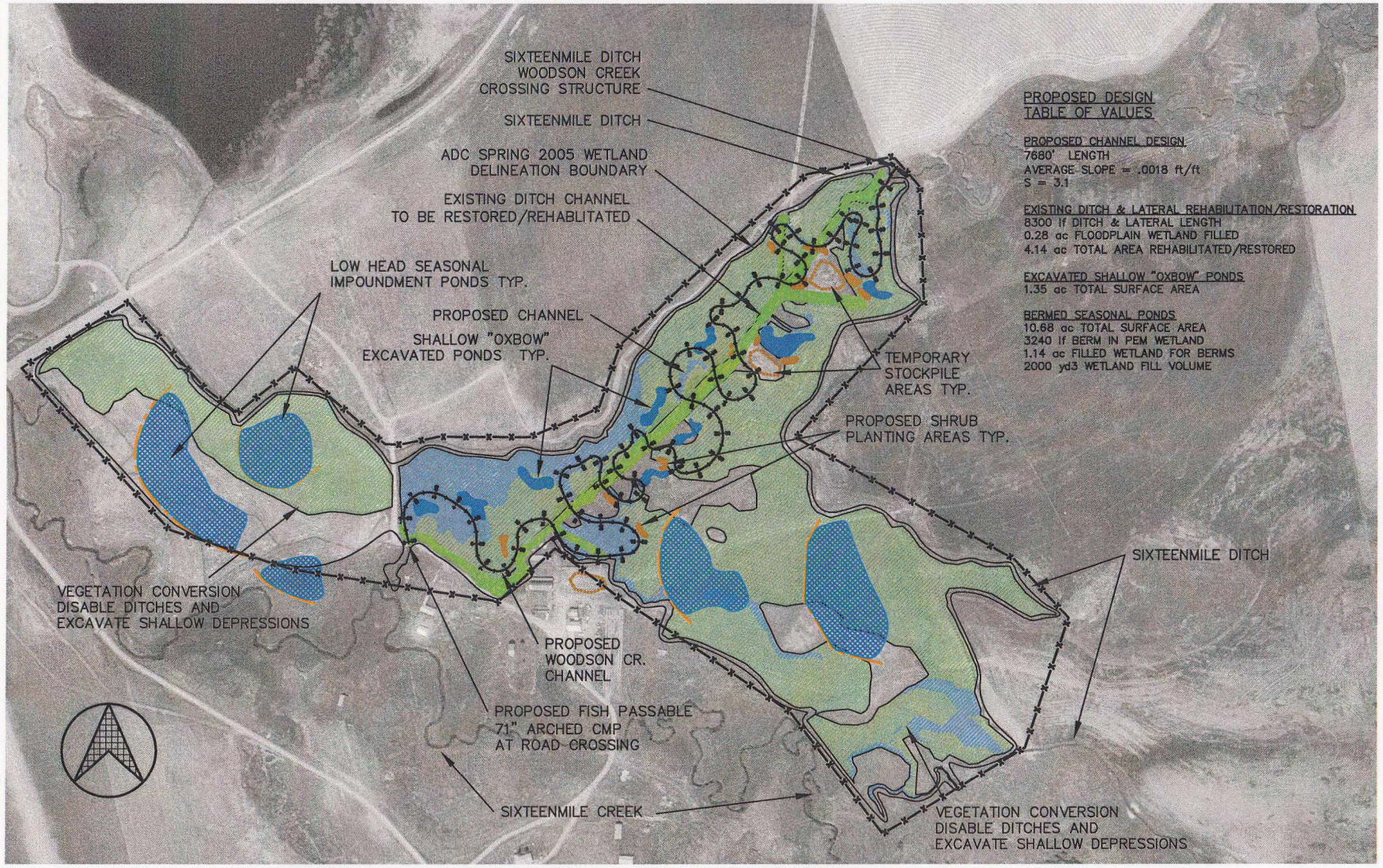


**Data Point S – 5**
**Bearing:** Northeast
**Location:** Community 5
**Taken in 2012**

# Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
Woodson Creek
Meagher County, Montana




DESIGN PAGE

ACOE WETLAND CREDITING
DESIGN PLAN

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

woodson 404 plans

REVISION 1

DRAWING NO.
FIGURE 3

| REV NO. | REVISION DESCRIPTION | BY | REVISION DATE |
|---|---|---|---|
| | | | |

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

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