MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2012

Camp Creek
Ravalli County, Montana

Prepared for:

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December 2012

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Sula, Ravalli County, Montana

MDT Project Number NH 41(24)
Control Number 1285

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CCI Project No: MDT.004

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Cover: Photo of Camp Creek showing well-developed shrub-dominated riparian corridor.

1. INTRODUCTION

The Camp Creek Wetland Mitigation 2012 Monitoring Report documents the results of the tenth year of monitoring completed at the Camp Creek mitigation site. The Montana Department of Transportation (MDT) developed the Camp Creek mitigation project to compensate for stream and wetland impacts associated with the Sula-North and South construction projects. Excess credits may be applied toward future MDT projects in the Bitterroot Valley.

Camp Creek is located in the Lower Clark Fork region within MDT Watershed 3, approximately three miles south of Sula, Montana (Figure 1). The property is located in Sections 27 and 34, Township 1 North and Range 19 West, Ravalli County. Elevations at the site range from 4,600 feet at the north boundary to 4,730 feet at the south boundary. The approximate site boundary is delineated on Figure 2 (Appendix A).

Figures 2 and 3 (Appendix A) show the Mapped Site Features and Monitoring Activity Locations, respectively. Appendix B contains the MDT Mitigation Site Monitoring Form, the US Army Corps of Engineers (USACE) Routine Wetland Determination Data Forms (Environmental Laboratory 1987), and the MDT Montana Wetland Assessment Forms (Berglund 1999). Appendix C contains project site photographs and Appendix D contains the project plan sheet.

The project is located along the historic Camp Creek floodplain. Camp Creek traverses the valley bottom, eventually draining into the East Fork of the Bitterroot River. The primary source of hydrology for the restored channel and floodplain margins is seasonal flooding and perennial surface water flow. Local groundwater systems serve as a secondary hydrology source, flowing through the deep alluvial substrate underlying the project area. Andrews and Praine Creeks drain into Camp Creek within the project boundaries.

Construction at the Camp Creek mitigation site was completed during spring 2002. Long-term project goals included restoration of the Camp Creek channel bottom; restoration of wetland functions, creation and enhancement of riverine wetlands; and enhancement of heavily grazed and cleared riparian vegetation. Construction diagrams are presented in Appendix D. The project goals are summarized below.

Functional Restoration

- Return Camp Creek to its historic channel and establish a new channel.
- Restore hydrology and vegetation, recreating high value wetland habitat along the Camp Creek riparian corridor.
- Fill existing ditches.

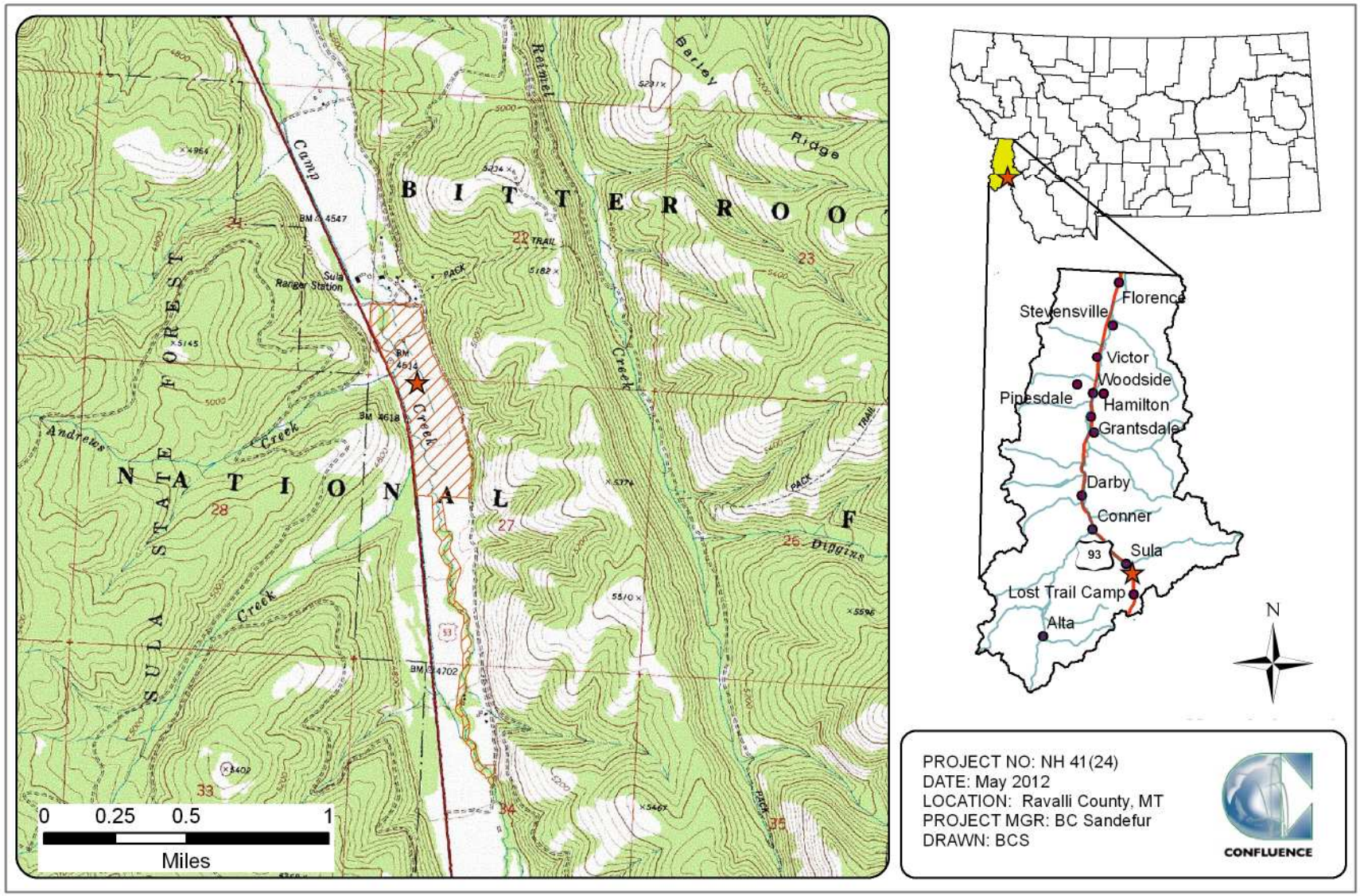

Figure 1. Project Location of Camp Creek Wetland Mitigation Site

Enhancement

- Plant riparian shrubs and trees throughout the created floodplain margins.
- Plant drier upland species on constructed upland slopes.

Creation

- Create emergent/scrub-shrub wetlands along the floodplain margins of the new channel.

The mitigation site design focused on replacing specific wetland functions affected by MDT roadway projects including stormwater retention, roadway runoff filtration, sediment and nutrient retention, water quality, groundwater recharge, and wildlife habitat. The MDT and the USACE developed the credit allocation method for this project in 2006. The method is functional-unit based, where the wetland acreage for each assessment area (AA) is multiplied by the total functional point score of the AA to yield the overall functional unit score. The calculation was completed before and after project construction. The difference between the two numbers, or functional unit gain, was divided by the post-project score to arrive at the approximate credit acreage for that AA. Credit acreages for each AA are summed to arrive at a total for the site. Created wetlands within the project corridor are required to meet the three parameter criteria for hydrology, vegetation, and soils established for determining wetland areas as outlined in the *1987 US Army Corps of Engineers Wetland Delineation Manual for the Determination of Wetlands* (Environmental Laboratory 1987).

2. METHODS

The Camp Creek mitigation site encompasses two parcels that were assessed on July 11, 2012. Monitoring was conducted on the MDT-owned portion of the site and the fenced portion of the adjacent, upstream Grasser property. All monitoring activities were consistent with previous years monitoring efforts.

Information contained on the Mitigation Monitoring Form and the Wetland Determination Data Form was entered electronically in the field on a personal digital assistant (PDA) palmtop computer during the field investigation (Appendix B). Monitoring activity locations were mapped using a global positioning system (GPS) (Figure 2, Appendix A). Information collected included a wetland delineation, wetland/open water/aquatic habitat boundary mapping, vegetation community mapping, vegetation transect monitoring, soil and hydrology data collection, bird and wildlife use documentation, photographic documentation, stream cross-section data collection at two established points, functional assessments, 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 of 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 frost-free period recorded for the area defined by the predominant soil map unit, Beehive-Jeru-Jurvannah complex, is 40 to 75 days (USDA 2010). Areas defined as wetlands would require at least 5 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria.

The presence of hydrologic indicators as outlined on the Wetland Determination Data Form was assessed at three data points established within the project area (Figure 2, Appendix A). 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 allow evaluation of wetland criteria addressing inundation/saturation requirements.

No groundwater monitoring wells were present on the site. Soil pits excavated during the wetland delineation were 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).

Two Camp Creek cross-sections were surveyed on the MDT-owned parcel, one upstream and one downstream of the Praine Creek confluence. These are designated as “XS 3-A” and “XS 4-A” on Figure 2 (Appendix A). A benchmark was established along the left bank at the beginning of each cross-section for elevation reference. The cross-sectional surveys are used to monitor the extent of lateral and vertical migration of the channel and are not a performance standard or a factor in the credit allocation method for this site.

2.2. Vegetation

The boundaries of dominant species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on a 2012 aerial photograph. The percent cover of dominant species within a community type was estimated and recorded using the following values: 0 (less than 1 percent) 1 (1 to 5 percent), 2 (6 to10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figure 3, Appendix A).

Temporal changes in vegetation were evaluated through annual assessments of a static belt transect (Figure 2, Appendix A). Vegetation composition was assessed and recorded on one vegetation belt transect approximately 10 feet wide and 471 feet long. The transect endpoints were recorded with a GPS unit (Figure 2, Appendix A). Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent cover of each vegetation species within the “belt” was estimated using the same values and cover ranges listed for the community polygon data on the aerial photograph (Appendix B). Photographs were taken at the endpoints of the transect during the monitoring event (Appendix C).

A comprehensive plant species list has been maintained for the site. Trees and shrubs were planted in spring 2002 and 2008 for revegetation enhancement credit. Survival of the planted species was evaluated during the monitoring event.

The location of noxious weeds was noted in the field and mapped on the aerial photo (Figure 3, Appendix A). The noxious weed species identified are color-coded. The locations are denoted with the symbol "**x**", "▲", or "■" representing 0 to 0.1 acre, 0.1 to 1.0 acre, or greater than 1 acre in extent, respectively. Cover classes are represented by T, L, M, or H, for less than 1 percent, 1 to 5 percent, 2 to 25 percent, and 25 to 100 percent, respectively, as listed on Figure 3 (Appendix A).

2.3. Soil

Soil information was obtained from the Soil Survey for *Ravalli County* and *in situ* soil descriptions (USDA 2010). Soil cores were excavated at each of the three data points using a hand auger and evaluated according to procedures outlined in the USACE 1987 Wetland Delineation Manual. A description of the soil profile, including hydric indicators when present, was recorded on the Wetland Determination Data Form for each profile (Appendix B).

2.4. Wetland Delineation

Waters of the US including jurisdictional wetlands and other special aquatic sites were delineated throughout the project area in accordance with criteria established in the 1987 USACE delineation manual. In order to delineate a representative area as wetland, the technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology, as described in the 1987 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)". A Routine Level-2 Onsite 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).

The USACE determined that the 1987 Wetland Manual should continue to be used at MDT mitigation sites where baseline wetland conditions had been established prior to 2008. Consequently, the use of the 2010 Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010) was not required.

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area, or special aquatic site, i.e., mudflat. The wetland boundary was identified on the 2012 aerial photograph. Wetland areas were estimated using geographic information system (GIS) methods.

2.5. Wildlife

Observations and other positive indicators of use by mammal, reptile, amphibian, and bird species were recorded on the wetland monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones, were also recorded (Appendix B). These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of wildlife species observed directly and indirectly from 2002 to 2012 was compiled for this report.

2.6. Functional Assessment

The 1999 MDT Montana Wetland Assessment Method (Berglund 1999) has been used to complete pre- and post-construction functional assessments of the site. The baseline functional assessment was completed by Turnstone Biological in 2001. Field data for this assessment were collected during the site visit. A Wetland Assessment Form (Appendix B) was completed for each wetland or group of wetlands (Assessment Areas).

2.7. Photo Documentation

Monitoring at photo points provided supplemental information documenting wetland and upland conditions, trends, current land uses surrounding the site, and vegetation transect changes. Photographs were taken at thirteen established photo points throughout the mitigation site during the site visit. Photographs at the photo points, vegetation transect end points, surveyed cross-sections, and wetland data points are included in Appendix C. Photo point locations were recorded with a sub-meter grade GPS unit (Figure 2, Appendix A).

2.8. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit during the 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.

2.9. Maintenance Needs

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

3. RESULTS

3.1. Hydrology

The average annual total precipitation recorded at the Sula 3 ENE, Montana (247964) weather station from December 1955 to December 2010 was 16.06 inches (Western Regional Climate Center [WRCC] 2011). Total precipitation for 2010 was 16.82 inches, 0.75 above the 55 year average. A total of 16.03 inches of precipitation was recorded in 2011 and represented an average precipitation year. Precipitation totals from January to August were 11.32 inches (long-term average), 11.32 inches (2009), 12.21 inches (2010), and 10.58 inches (2011). The precipitation data at the Sula 3 ENE station on the WRCC website are incomplete for 2012. The closest meteorological station with complete data for the last two years is Hamilton (243885), located 35 miles north of Sula. Mean annual precipitation from January 1895 to August 2012 at the Hamilton station is 12.65 inches, which is 3.45 inches less than the mean reported for the Sula 3 ENE station. The long-term monthly precipitation average at the Hamilton station from January through August was 8.34 inches. Monthly precipitation totals at this station from January through August were 10.11 inches in 2011 and 7.04 inches in 2012. These data indicate precipitation in the region of the mitigation site was above average in 2011 and below average in 2012.

The average surface water depth observed at Camp Creek in 2012 was 0.5 feet with a range between 0.0 and 2.0 feet. Approximately 10 percent of the site was inundated during the 2012 site visit, primarily located in the Camp Creek channel. Three data points (Figure 2, Appendix A) were located near the northwest and southeast boundaries. All three data points, CC-1 to CC-3, exhibited wetland hydrology. Hydrological indicators at CC-1 included sediment deposits, drainage patterns in wetlands, water-stained leaves, and local soil survey data. The primary hydrologic indicator at CC-2 was drainage patterns in wetlands. Data point CC-3 was saturated at 12 inches below the ground surface and exhibited drainage patterns. Water marks and drift deposits were noted within the floodplain of Camp Creek. Saturation was observed within the lower topographical areas east of the creek.

The main source of hydrology for this mitigation site is Camp Creek, a perennial stream that flows out of the south end of the Bitterroot Mountains. The creek floods seasonally. It historically provided surface water inflow to a hydrologically connected swale that flows through the floodplain east of the main channel.

Aggradation at the head of this floodswale resulted in the isolation of the wetland area to the east of the channel. Corrective actions completed in the spring of 2012 regraded this historic swale to reconnect to the seasonal high-water level within the Camp Creek channel and allow flood water to periodically enter the eastern wetland complex Two other channels, Andrews and Praine Creeks, flow into Camp Creek within the project site and provide supplemental surface hydrology adjacent to the channels and into Camp Creek. Secondary hydrological sources include runoff from ephemeral drainages east of the site, groundwater movement through coarse alluvium materials located throughout the valley bottom, overland flow, and precipitation.

The mitigation site, located within the historic Camp Creek floodplain, consists of a constructed main channel, streambanks, and floodplain terraces. There are depressional wetlands on the site that have been supported historically by seasonal overland flooding of Camp Creek and groundwater flows. The creek was historically diverted into a ditch that flowed along the edge of Highway 93. Several ditches designed to drain the wetland meadow complex were filled and abandoned during mitigation construction. The ditches were located south of the MDT-owned parcel and at the point where the creek leaves Grasser's parcel. The filling of the drain ditches has facilitated groundwater recharge.

There is no active river gauge identified on Camp Creek. The closest active US Geological Survey river gauge to the site is in the Bitterroot River near Darby (12344000) and has been incorporated for general analysis of the larger watershed (Chart 1). The monthly mean flows in cubic feet per second (cfs) for the period of May through August at the Darby gauge peak in May (3,222cfs), then decrease slightly in June (2,648cfs) before dropping considerably in July (824cfs) and August (441cfs). The 2009 Bitterroot River flow rates near Darby were above normal for the month of May and below normal for June in 2009. Stream flow rates in May 2010 were more than 1,500 cfs below average. Stream flows were 500 cfs higher than the mean in June 2010 and average during July and August 2010. The August 2010 flows were slightly lower than the August 2009 rates. Stream flows were consistently above average during 2011, a reflection of the above average snowpack in the mountains within this watershed. The hydrograph peaked in June 2011, potentially reflecting higher runoff levels for a longer duration through Camp Creek and across the site during the 2011 growing season. Stream flows in 2012 were slightly above average in May, slightly below in June, with near average conditions recorded for July and August. Ravalli County was assigned "severe drought" status in 2007 by the Montana Department of Natural Resources and Conservation (DNRC). Ravalli County was not listed on the Montana Natural Disaster Determinations from 2008 through 2012 (Farm Service Agency 2012). Based on this data and inferring a similar relationship between water levels within Camp Creek and the recorded water levels in Bitterroot River near Darby, the site experienced a normal hydrograph in 2012, above average flow levels in 2011, and relatively normal

flow conditions in 2009 and 2010. Stream flow was sub-normal in 2007 and well above normal in 2008.

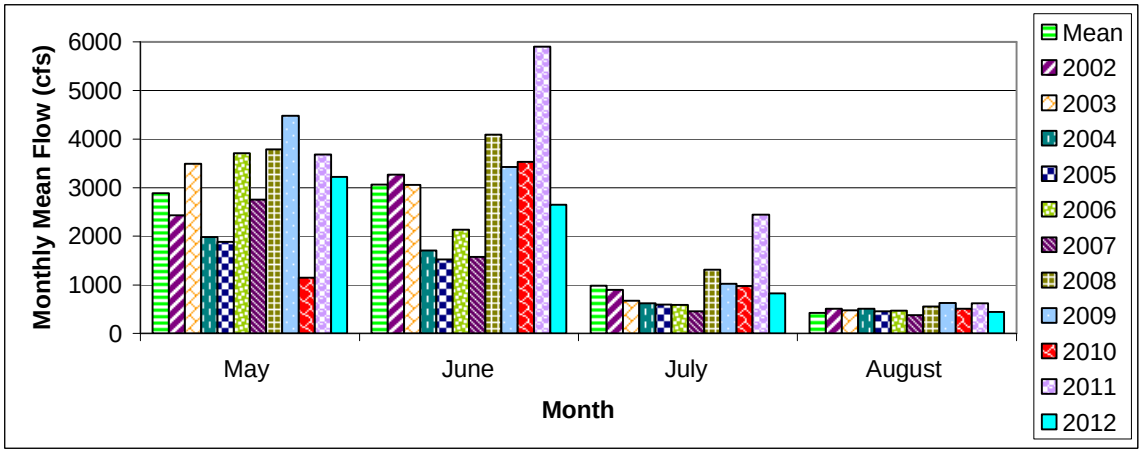

Chart 1. Graph of mean monthly flows for May to August of 2002 to 2012 as compared to long-term mean monthly flows (1937-2008) at the USGS station on the Bitterroot River near Darby, Montana.

Cross-section survey results of XS-3A and XS-4A are presented in Charts 2 through 5. Photographs of the cross-sections are shown on pages C-18 through C-21 of Appendix C. The cross-sections present post-project baseline (2002) and survey results from 2007 through 2012.

Cross Section 3-A is located below the Praine Creek confluence on a riffle (Figure 3, Appendix A). Annual daily flows in Camp Creek increased significantly during the 2008 and 2009 seasonal runoffs, which contributed to channel and bank movement at this cross section location. The left bank was stable from 2007 to 2009. Sand and gravel deposition increased slightly in the middle of the channel bottom through this period. The right bank shifted east notably in 2009. A large ponderosa pine fell into the creek upstream of the transect during the 2008 spring runoff, resulting in additional cross-sectional changes in 2009. A comparison with the 2010 data showed active deposition and the formation of a mid-channel bar that split the stream flow between the active side-channel left of the bar and the thalweg on the right bank. In 2011, a long-duration, higher than average spring runoff led to substantial channel adjustment. The inside point bar along the left bank degraded while the outside (right) bank aggraded to form a wider base-flow channel with the thalweg shifted toward the left bank. Although the 2012 survey data indicated continued aggradation/degredation between bankfull elevations, the streambanks appeared relatively stable without any appreciable lateral shift of either bank or planform through this reach.

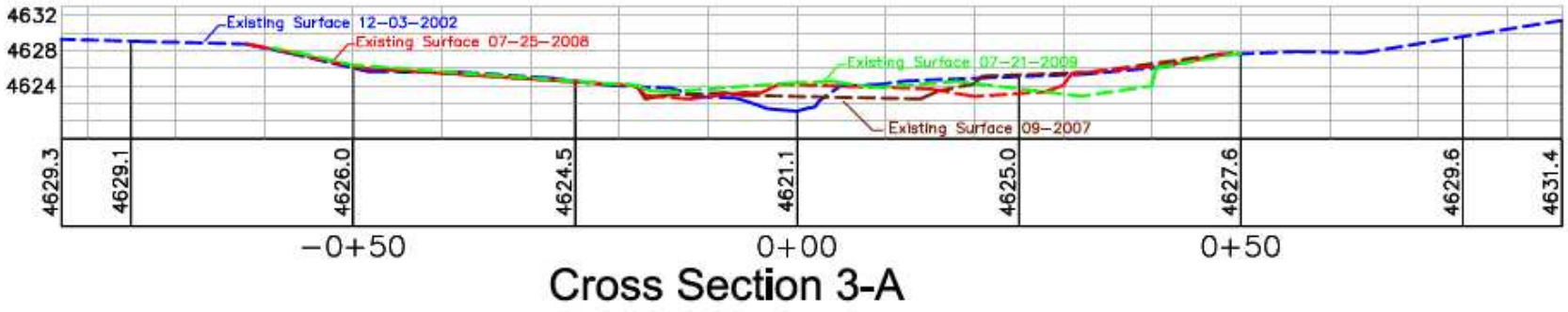

Chart 2. Cross Section data for 3-A between 2002 and 2009.

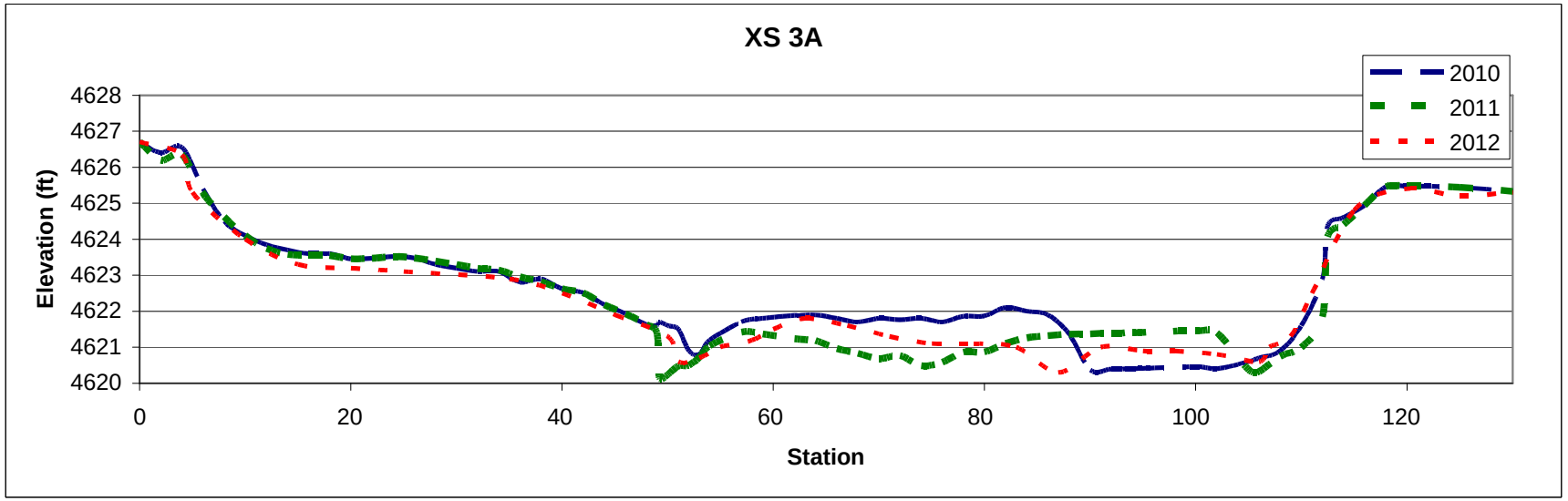

Chart 3. Cross Section data for 3-A between 2010 and 2012.

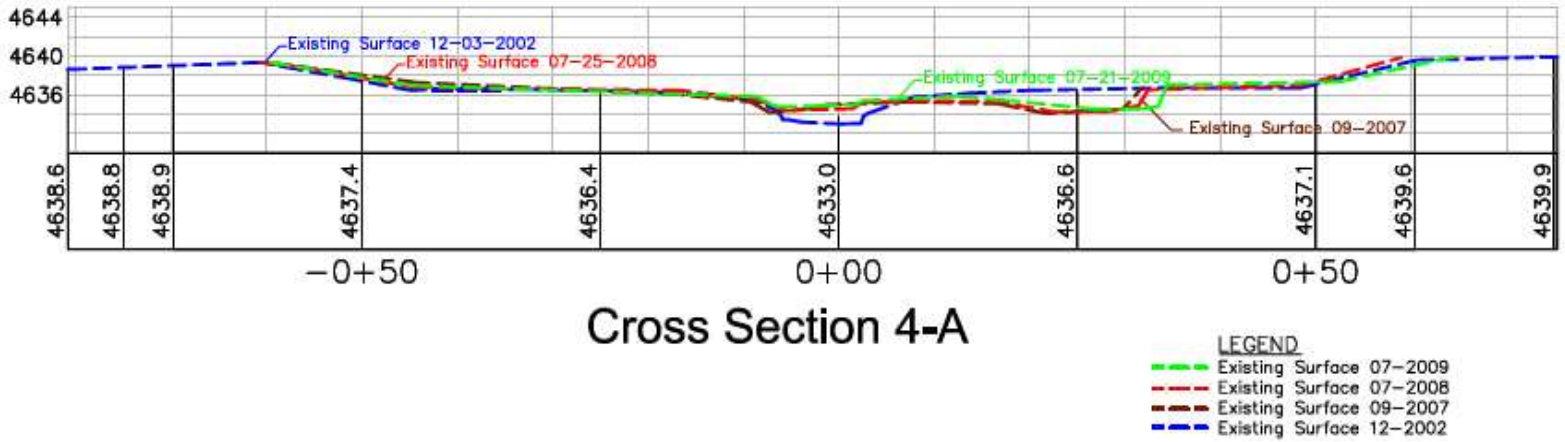

Chart 4. Cross Section data for 4-A between 2002 and 2009.

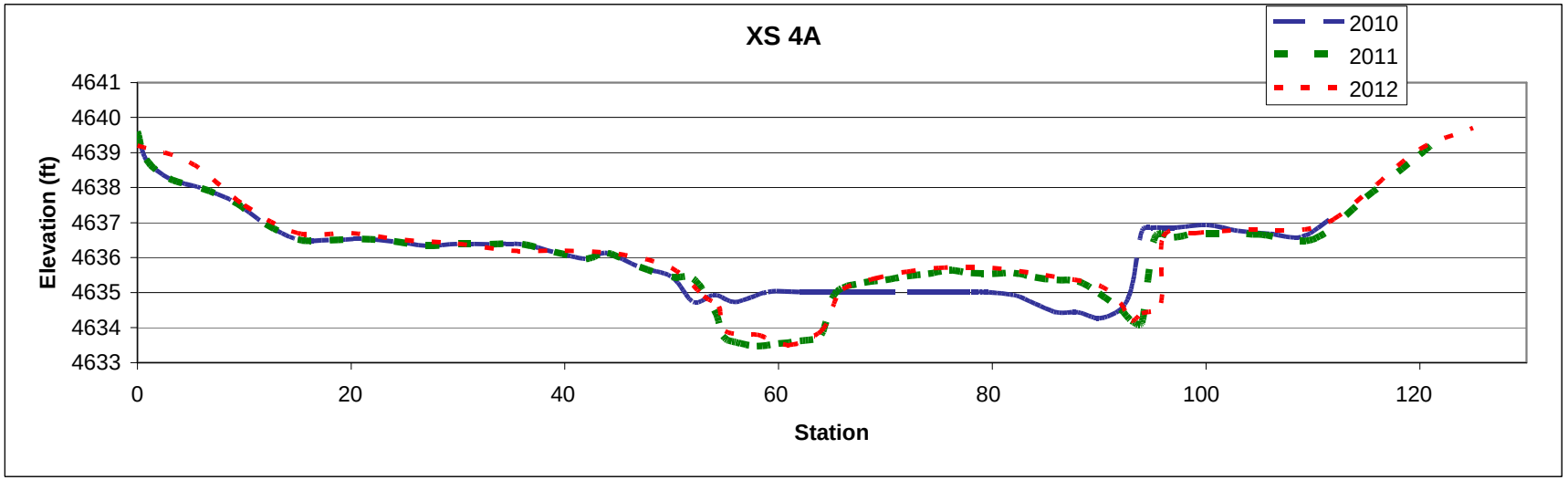

Chart 5. Cross Section data for 4-A between 2010 and 2012.

Cross Section 4-A is located above the Praine Creek confluence along a riffle. The right bank shifted to the east and the channel bottom increased slightly in depth in 2009. The 2010 survey data showed the stream reach remained relatively stable between 2009 and 2010. The 2011 survey (Chart 5) and photos (C-20 and C-21 in Appendix C) showed a considerable channel adjustment at this cross section in response to the 2011 spring runoff. Sediment deposition within the channel shifted the base-flow from the right bank to the left and scoured a new thalweg along the left bank. Established willows appeared to resist some erosion and provided new undercut bank habitat for resident fish following the 2011 runoff. No considerable changes were observed at this cross-section in 2012.

Overall, the results of both cross-sections show that natural hydrogeomorphic processes appear to be acting on the channel and do not appear to be compromising overall stream stability. Although aggradation/degredation of the channel is apparent through analysis of the cross-section survey data and visual observations, the continued establishment of woody species along the stream and noted channel adjustments will likely result in long-term channel stability and replenished aquatic habitat. It is not recommended that MDT perform any maintenance or bank stabilization to Camp Creek through the mitigation site as no concerns of channel migration or noteworthy instability have been identified through long-term analysis of the surveyed cross-sections. These data do not reflect any performance standards for the overall success of this site.

3.2. Vegetation

A comprehensive list of 112 vegetation species identified on the site from 2002 to 2012 is presented in Table 1. Four wetland and two upland community types were identified and mapped at the mitigation site in 2012 (Figure 3, Appendix A). The vegetation community types included wetland Type 2 – *Carex* spp*. /Phalaris arundinacea*, upland Type 5 – *Elymus repens/Centaurea maculosa*, wetland Type 6 – *Populus* spp*./Salix* spp., wetland Type 8 – *Phalaris arundinacea/Juncus arcticus*, wetland Type 10 – *Salix* spp./*Populus* spp., and upland Type 11 – *Elymus repens*/*Bromus* spp. Individual plant species observed within each of these communities are listed on the Monitoring Form (Appendix B). Open water below the ordinary high water mark (OHWM) of the stream channel was identified on Figure 3 (Appendix A) as polygon 9.

Wetland Types 2 and 6 were present prior to construction of the main channel. A pre-construction wetland delineation mapped a majority of the site as emergent wetlands. Type 2 encompassed a remnant wetland historically altered by livestock grazing and riparian vegetation removal. Type 6 consisted of willow (*Salix*), dogwood (*Cornus*), aspen (*Populus*), snowberry (*Symphoricarpos*), and rose (*Rosa*) shrubs within historic dry oxbows and depressions on the Grasser property. This community has also developed within the MDT parcel since construction of the channel. Mature cottonwoods are present along the historic high terraces above the streambed.

Table 1. Vegetation species identified from 2002 to 2012 at the Camp Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Achillea millefolium	Common Yarrow	FACU
Agrostis gigantea	Black Bent	FAC
Alnus incana	Speckled Alder	FACW
Alopecurus pratensis	Field Meadow-Foxtail	FAC
Amelanchier alnifolia	Saskatoon Service-Berry	FACU
Artemisia cana	**Coaltown Sagebrush**	**FACU**
Aster sp.	Aster	NL
Betula occidentalis	Water Birch	FACW
Betula pumila	Bog Birch	OBL
Boehmeria cylindrica	Small-Spike False Nettle	OBL
Bromus arvensis	Japanese Brome	UPL
Bromus inermis	Smooth Brome	FAC
Bromus tectorum	Cheatgrass	UPL
Calamagrostis canadensis	Bluejoint	FACW
Campanula rotundifolia	Bluebell-of-Scotland	FACU
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex bebbii	Bebb's Sedge	OBL
Carex crawfordii	Crawford's Sedge	FACW
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Centaurea maculosa	Spotted Knapweed	UPL
Cercocarpus ledifolius	Curl-Leaf Mountain Mahogany	UPL
Chenopodium album	Lamb's-Quarters	FACU
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Cornus alba	Red Osier	FACW
Crataegus douglasii	Black Hawthorn	FAC
Cynoglossum officinale	Gypsy-Flower	FACU
Dasiphora fruticosa	Golden-Hardhack	FAC
Deschampsia cespitosa	Tufted Hairgrass	FACW
Elymus glaucus	Blue Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FAC
Epilobium brachycarpum	Panicled Willow-Herb	UPL
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum arvense	Field Horsetail	FAC
Equisetum hyemale	**Tall Scouring-Rush**	**FACW**
Equisetum laevigatum	Smooth Scouring-Rush	FACW
Festuca idahoensis	**Bluebunch Fescue**	**FACU**

[1]Draft 2012 NWPL (Lichvar and Kartesz. 2009).
Species identified for the first time in 2012 are bolded.

Table 1 (continued). Vegetation species identified from 2002 to 2012 at the Camp Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Festuca pratensis	Meadow Fescue	FACU
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria elata	Tall Manna Grass	FACW
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Gnaphalium palustre	Western Marsh Cudweed	FACW
Juncus arcticus	Arctic Rush	FACW
Juncus bufonius	Toad Rush	FACW
Juncus confusus	Colorado Rush	FAC
Juncus effusus	Lamp Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus tenuis	Lesser Poverty Rush	FAC
Lactuca serriola	Prickly Lettuce	FACU
Lepidium perfoliatum	Clasping Pepperwort	FACU
Leucanthemum vulgare	Ox-Eye Daisy	FACU
Linaria vulgaris	Butter And Eggs	UPL
Lonicera involucrata	Four-Line Honeysuckle	FAC
Lupinus caudatus	**Tailcup Lupine**	**UPL**
Lupinus polyphyllus	**Blue-Pod Lupine**	**FAC**
Lupinus wyethii	Wyeth's Lupine	UPL
Maianthemum stellatum	Starry False Solomon's-Seal	FAC
Matricaria discoidea	Pineapple-Weed	FACU
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Mimulus guttatus	Seep Monkey-Flower	OBL
Myosotis asiatica	Asian Forget-Me-Not	FAC
Myosotis stricta	**Small-Flowered Forget-Me-Not**	**UPL**
Persicaria amphibia	Water Smartweed	OBL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Pinus ponderosa	Ponderosa Pine	FACU
Plantago major	Great Plantain	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Populus angustifolia	Narrow-Leaf Cottonwood	FACW
Populus balsamifera	Balsam Poplar	FAC
Populus deltoides	Eastern Cottonwood	FAC
Populus tremuloides	Quaking Aspen	FACU
Potamogeton friesii	**Flat-Stalk Pondweed**	**OBL**
Potentilla gracilis	Graceful Cinquefoil	FAC
Pseudoroegneria spicata	Blue-Bunch Wheatgrass	UPL
Ranunculus aquatilis	White Water-Crowfoot	OBL
Ranunculus repens	Creeping Buttercup	FAC

[1]Draft 2012 NWPL (Lichvar and Kartesz. 2009).
Species identified for the first time in 2012 are bolded.

Table 1 (continued). Vegetation species identified from 2002 to 2012 at the Camp Creek Wetland Mitigation Site.

Scientific Names	Common Names	WMVC Indicator Status[1]
Ranunculus sp.	Buttercup	NL
Rosa woodsii	Woods' Rose	FACU
Rubus idaeus	Common Red Raspberry	FACU
Rumex acetosella	**Common Sheep Sorrel**	**FACU**
Rumex crispus	Curly Dock	FAC
Rumex sp.	Dock	NL
Salix bebbiana	Gray Willow	FACW
Salix boothii	Booth's Willow	FACW
Salix drummondiana	Drummond's Willow	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix geyeriana	Geyer's Willow	FACW
Salix lutea	Yellow Willow	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Senecio vulgaris	Old-Man-In-The-Spring	FACU
Silene pratensis	Bladder campion	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sium suave	Hemlock Water-Parsnip	OBL
Solidago canadensis	Canadian Goldenrod	FACU
Stuckenia filiformis	Slender-Leaf False Pondweed	OBL
Symphoricarpos albus	Common Snowberry	FACU
Symphyotrichum lanceolatum	White Panicled American-Aster	OBL
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Penny-Cress	UPL
Tragopogon dubius	**Yellow Salsify**	**UPL**
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica americana	American-Brooklime	OBL

[1]Draft 2012 NWPL.
Species identified for the first time in 2012 are bolded.

Wetland community Type 2 – *Carex* spp./*Phalaris arundinacea* occupied 4.01 acres of the site and was characterized by seasonally saturated conditions and emergent vegetation intermixed with grasses and forbs commonly found in marginal wetlands. The dominant vegetation included reed canary grass (*Phalaris arundinacea*), Northwest Territory sedge (beaked sedge, *Carex utriculata*), Nebraska sedge (*Carex nebrascensis*), leafy tussock sedge (water sedge, *Carex aquatilis*), creeping wildrye (*Elymus repens*, called *Agropyron repens* on the 1988 list), and eighteen other species with a cover of five percent or less.

The upland community Type 5 – *Elymus repens/Centaurea maculosa* consisted of 4.15 acres located in the southwest corner of the MDT property and in isolated upland segments adjacent to the creek corridor on the Grasser property. The

community was dominated by creeping wildrye, spotted knapweed (*Centaurea maculosa*), smooth brome, and cheatgrass (*Bromus tectorum*). Other species identified within this community at a low percent cover include common yarrow (*Achillea millefolium*), field meadow foxtail (*Alopecurus pratensis*), graceful cinquefoil (*Potentilla gracilis*), Woods rose (*Rosa woodsii*), and Ponderosa pine (*Pinus ponderosa*).

Wetland community Type 6 – *Populus* spp*./Salix* spp. characterized an isolated community on the MDT parcel and a remnant wetland with a woody overstory situated along the upper reach of Camp Creek on the Grasser parcel. The dominant species within this 3.04 acres of the mitigation site were balsam poplar (black cottonwood, *Populus balsamifera,* called *P. trichocarpa* on 1988 list), quaking aspen (*Populus tremuloides*), Geyer willow (*Salix geyeriana*), gray willow (Bebb willow, *Salix bebbiana*), Drummond willow (*Salix drummondiana*), narrow-leaf (sandbar willow, *Salix exigua*), speckled alder (*Alnus incana*), Wood's rose (*Rosa woodsii*), red-osier dogwood (*Cornus alba*, called *C. stolonifera* on 1988 list), and common snowberry (*Symphoricarpos albus*).

The wetland community Type 8 – *Phalaris arundinacea/Juncus arcticus* community (15.46 acres) was defined in the large wetland swale east of the creek and hydrologically connected to Camp Creek during periods of high flow. During the 2012 survey, signs of inundation and saturated soils were present throughout the Type 8 community. This community was previously mapped as Type 2 and later renamed Type 8 in 2011 as a result of the proliferation of reed canary grass, a decrease of sedges, and an increase in arctic rush. Reed canary grass dominated the community, with *Juncus* articus (arctic rush, called *J. balticus* on 1988 list), Northwest Territory sedge, field meadow foxtail, Nebraska sedge, black bent grass (*Agrostis gigantea*), and narrow-leaf willow.

Polygon 9 on Figure 3 in Appendix A was characterized by the surface water in Camp Creek below the OHWM of the channel. This 3.32-acre area was considered a jurisdictional water of the US and includes some aquatic species and flooded rooted hydrophytes as listed in vegetation community 9 (Mitigation Monitoring Form, Appendix B).

Wetland community Type 10 – *Salix* spp./*Populus* spp. Developed on 12.40 acres along the restored floodplain of Camp Creek in response to revegetation efforts following construction in 2002. Numerous containerized shrub and tree species (2002) and sprigs of willows (2008) were planted along the Camp Creek corridor. The success of the planted woody vegetation in conjunction with the natural recruitment of additional woody species has resulted in a shift from the previous herbaceous *Agrostis/Deschampsia* community type to the current scrub/shrub community. Dominant species include gray willow, narrow-leaf willow, Booth's willow (*Salix boothii*), yellow willow (*Salix lutea*), balsam cottonwood, quaking aspen, narrow-leaf cottonwood (*Populus angustifolia*), speckled alder, bog birch (*Betula pumila*), and a diversity of sedges and rushes.

A total of forty-nine species, predominantly hydrophytes, were identified in this wetland community.

The 2010 upland community Type 1 – *Agropyron repens*/*Trifolium* spp. was reclassified as upland Type 11 – *Elymus repens*/*Bromus* spp based on the increase in cover of smooth brome and cheatgrass. Creeping wildrye, smooth brome, cheatgrass, Kentucky bluegrass (*Poa pratensis*), field meadow-foxtail, graceful cinquefoil, meadow fescue (*Festuca pratensis*), common timothy (*Phleum pratense*), and Canada golden rod (*Solidago canadensis*) dominated the community. Uplands within the Camp Creek mitigation area were planted with several upland species including Ponderosa pine, Douglas fir (*Pseudotsuga menziesii*), lodgepole pine (*Pinus contorta*), common snowberry, Wood's rose, shrubby cinquefoil, and Saskatoon service-berry (*Amelanchier alnifolia*).

Vegetation transect results are detailed on the Monitoring Form (Appendix B) and summarized from 2002 to 2012 in tabular and graphic formats (Table 2, Charts 6 and 7, respectively). Photos of the transect endpoints are shown on page C-1 and C-2 of Appendix C. The transect intersected wetland communities Types 8 and 10, upland community Type 11 and Camp Creek (polygon 9). Hydrophytic species dominated 39.3 percent of the transect and have displayed a relative stable composition of the transect since 2010, when a 21 percent decrease was recorded between 2010 and 2009. The decrease in wetland habitat along the transect in 2010 was reflective of the decreased wetland habitat delineated site-wide. A total of 48 species were identified along the 471-foot transect in 2012 including 35 hydrophytic species. The diversity of wetland plants established within the riparian corridor along the creek from station 240 to 290 contributed to the high number of hydrophytes observed along this transect.

Infestations of spotted knapweed, ox-eye daisy (*Chrysanthemum leucanthemum*) and Canadian thistle (*Cirsium arvense*), all Priority 2B noxious weeds, were identified and mapped in 2012 (Figure 3, Appendix A; Monitoring Form, Appendix B). Community 5 was dominated by spotted knapweed. Twelve additional infestations of spotted knapweed were identified across the site ranging in size from less than 0.1 acre to 1.0 acre. The cover class within the infestations ranged from low (1 to 5 percent cover) to high (25 to 100 percent cover). A majority of the spotted knapweed was observed in the upland periphery of the site. Spotted knapweed was also prevalent in the USFS areas surrounding the project site. Successfully controlling spotted knapweed on the MDT site will require the implementation of joint weed control measures on the USFS properties. The cover of spotted knapweed within the stream corridor on the MDT parcel decreased between 2009 and 2012 in response to MDT's weed-spraying efforts.

Canadian thistle was mapped at six locations in 2012 (Figure 3, Appendix A). The size of the infestations was less than 0.1 acre and the cover class ranged from low (1 to 5 percent cover) to moderate (5 to 25 percent cover). The prevalence of Canadian thistle continued to decrease between 2010 and 2012 in

response to weed control efforts by MDT. Ox-eye daisy was mapped in communities 2, 5, and 10 in areas less than 0.1 acre in size and at low to moderate cover classes. This species displayed a slight reduction between 2010 and 2012 following herbicide application.

Table 2. Data summary of Transect 1 from 2002 to 2012 at the Camp Creek Wetland Mitigation Site.

Monitoring Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Transect Length (feet)	471	471	471	471	471	471	471	471	471	471	471
Vegetation Community Transitions along Transect	4	4	4	4	4	4	4	4	6	6	6
Vegetation Communities along Transect	3	3	3	3	3	3	3	3	3	3	3
Hydrophytic Vegetation Communities along Transect	2	2	2	2	2	2	2	2	2	2	2
Total Vegetative Species	28	27	30	31	31	37	34	36	46	44	48
Total Hydrophytic Species	15	16	17	17	17	17	20	21	30	27	35
Total Upland Species	13	11	13	14	14	20	14	15	16	17	13
Estimated % Total Vegetative Cover	85	95	86	84	84	88	87	87	85	95	95
% Transect Length Comprised of Hydrophytic Vegetation Communities	59	59	59	60	60	60	60	60	40	39	39.3
% Transect Length Comprised of Upland Vegetation Communities	37	37	37	36	36	36	36	36	53	55	54.4
% Transect Length Comprised of Unvegetated Open Water	4	4	4	4	4	4	4	4	7	6	6.4
% Transect Length Comprised of Bare Substrate	0	0	0	0	0	0	0	0	0	0	0

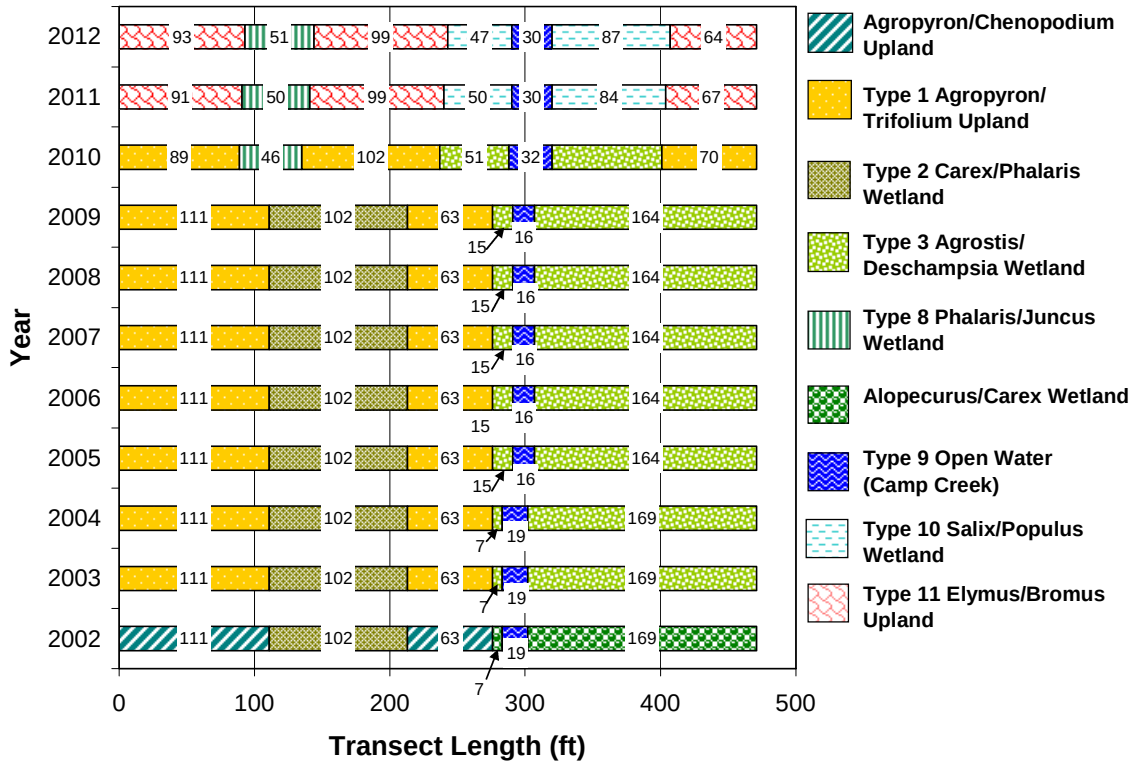

Chart 6. Transect 1 maps showing vegetation types from transect start (0 feet) to finish (471 feet) from 2002 to 2012.

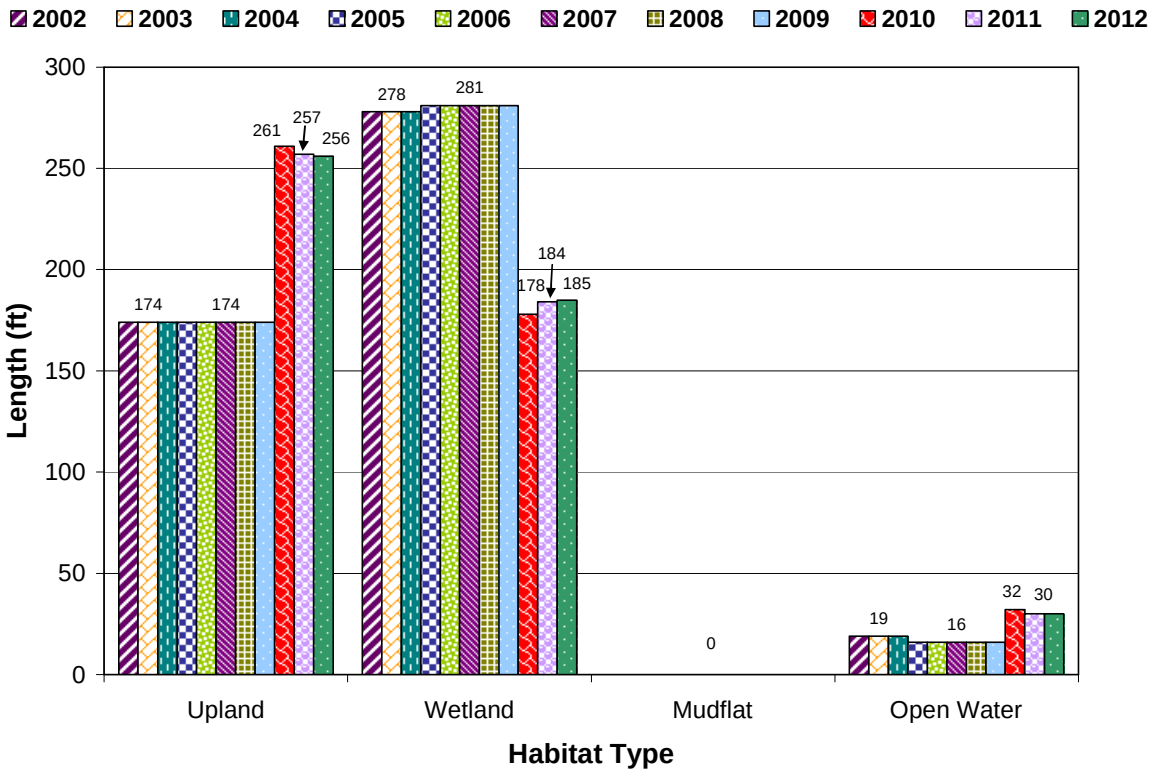

Chart 7. Length of habitat types within Transect 1 from 2002 to 2012.

The streambanks and floodplain margins were revegetated during the 2002 construction season and in 2008 when 120 willows cuttings were planted on several banks. The streambanks were seeded with a grass mix developed by MDT and 20,480 willow cuttings were sprigged through the erosion control fabric. One- and five-gallon containerized shrubs and trees were also planted in 2002. Woody species included cottonwood, willows, red-osier dogwood, and quaking aspen. Upland slopes were planted with Douglas-fir, lodgepole pine, ponderosa pine, Western serviceberry, shrubby potentilla, common snowberry, and Wood's rose. Five exposed banks were planted with 120 willow cuttings during spring 2008 to promote streambank stability.

The 2012 survival rates within the upland areas were similar to those observed during the 2004 to 2011 monitoring with the site supporting a low survival rate of planted vegetation. Upland species that have survived include six Ponderosa pines in Community 11 (19 originally planted). Volunteer species identified within the site included aspen seedlings in Community 10, cottonwood seedlings along Camp Creek, and isolated plants of Wood's rose, common snowberry, graceful potentilla and red-osier dogwood throughout the site. The majority of Douglas-fir plantings died after the first year. Wetland species planted along the streambank and floodplain margins had much better survival rates than the upland species. The renaming of the riparian vegetation community to a scrub/shrub habitat in 2011 was the result of the vigorous growth of the woody species observed. The development of the riparian shrub canopy has improved the quality of the stream

cover, nesting, and thermal protection for fish within Camp Creek. The willow sprigs planted during 2002 continue to increase in size and density each growing season. An active beaver dam was observed within the Camp Creek channel. Beaver activity has led to the loss of some willows and aspen within the area of the dam but has resulted in increased inundation and saturation along the floodplain near this dam.

3.3. Soil

The bulk of the mitigation site was mapped within the Beehive-Jeru-Jurvannah families complex. These soils are rocky and somewhat poorly drained. The map unit is listed on the Montana hydric soils list and taxonomically classified as Typic Cyaquents/Dystrocryepts. A small upland area along the east boundary of the mitigation site was mapped in the Lolo series. This gravelly loam is classified as a frigid Pachic Haplustolls and is not listed as a hydric soil.

Soil test pits were excavated at three data points in 2012 located within Communities 2 and 8. All three data points CC1 to CC-3 met the wetland criteria. The soil profile at CC-1 revealed a dark grayish brown (10YR 4/2) sandy loam with dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The diagnostic horizon in pit CC-2 displayed a black (10YR 2/1) loamy sand with five percent gray (10YR 5/1) redox depletions. The very dark brown (10YR 2/2) matrix with five percent dark yellowish brown redox concentrations provided a positive indication for hydric soil at test pit CC-3. The test pits generally confirmed the mapped complex.

3.4. Wetland Delineation

The wetlands delineated in 2012 are mapped on Figure 3 in Appendix A. The 2012 delineation identified 38.23 acres of aquatic and wetland habitat within the Camp Creek wetland mitigation site, an increase of 0.73 acres over 2011 (Table 3). Approximately 47.23 wetland acres and 1.5 open water channel acres were identified within the monitoring area in 2000 prior to project implementation. A steady decrease in wetland acreage has been documented from 2007 to 2011, potentially the result of changes in irrigation practices since the reconstruction of the creek. The area in the southeast corner located upgradient and east of the flood channel historically received hydrological inputs from flood irrigation on the Grasser parcel. The area upstream of the Andrews Creek inlet is located on the terrace above Camp Creek and the associated floodplain. These areas historically were flooded or saturated from irrigation flows. Wetlands identified within the site in 2012 were associated with the riparian corridor along Camp Creek and the low-lying swale east of the Creek. The wetland acreages in these areas are expected to remain stable based on the topography of the site and the current hydrological conditions.

Table 3. Summary of aquatic habitat acreages in 2000 (baseline) and from 2007 to 2012 at the Camp Creek Wetland Mitigation Site.

HABITAT	ACREAGES													
	2000 MDT Parcel	2000 Grasser Parcel	2007 MDT Parcel	2007 Grasser Parcel	2008 MDT Parcel	2008 Grasser Parcel	2009 MDT Parcel	2009 Grasser Parcel	2010 MDT Parcel	2010 Grasser Parcel	2011 MDT Parcel	2011 Grasser Parcel	2012 MDT Parcel	2012 Grasser Parcel
Wetland Area	42.61	4.62	34.84	6.93	32.44	6.93	32.33	6.93	31.51	6.22	27.26	6.92	27.99	6.92
Open Water Area	0.75	0.75	0.95	1.20	0.95	1.20	0.95	1.20	1.28	2.03	1.28	2.04	1.28	2.04
SUBTOTAL	43.36	5.37	35.79	8.13	33.39	8.13	33.28	8.13	32.79	8.25	28.54	8.96	29.27	8.96
Aquatic Habitat Total	**48.73**		**43.92**		**41.52**		**41.41**		**41.04**		**37.50**		**38.23**	

3.5. Wildlife

A comprehensive list of fish and wildlife species observed directly or indirectly at the site from 2002 to 2012 is presented in Table 4 (Monitoring Forms, Appendix B). Seventeen bird species and 52 individual birds were sighted in 2012. Birds observed for the first time in 2012 included a Bohemian waxwing (*Bombycilla garrulous*), Eastern kingbird (*Tyrannus tyrannus*), rock pigeon (*Columba ivia*), song sparrow (*Melospiza melodia*), and willow flycatcher (*Empidonax traillii*). An Idaho pocket gopher (*Thomomys idahoensis*) and white-tailed deer (*Odocoileus virginianus*) were observed during the 2012 survey. Coyote (*Canis latrans*) tracks and Richardson's ground squirrel (*Spermophilus richardsonii*) burrows were noted. Recent beaver signs (*Castor canadensis*) were observed within Camp Creek.

Table 4. Wildlife species observed at the Camp Creek Wetland Mitigation Site from 2002 to 2012.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIAN	
Columbia Spotted Frog	*Rana luteiventris*
BIRD	
American Crow	*Corvus brachyrhynchos*
American Dipper	*Cinclus mexicanus*
American Goldfinch	*Spinus tristus*
American Kestrel	*Falco sparverius*
American Robin	***Turdus migratorius***
Bald Eagle	*Haliaeetus leucocephalus*
Barn Swallow	***Hirundo rustica***
Black-billed Magpie	***Pica hudsonia***
Bohemian Waxwing	***Bombycilla garrulus***
Brewer's Blackbird	***Euphagus cyanocephalus***
Brown-headed Cowbird	***Molothrus ater***
Canada Goose	*Branta canadensis*
Cedar Waxwing	*Bombycilla cedrorum*

Species identified in 2012 are bolded.

Table 4 (continued). Wildlife species observed at the Camp Creek Wetland Mitigation Site from 2002 to 2012.

COMMON NAME	SCIENTIFIC NAME
BIRD	
Clark's Nutcracker	*Nucifraga columbiana*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Common Yellowthroat	***Geothlypis trichas***
Dusky Grouse	*Dendragapus obscurus*
Eastern Kingbird	***Tyrannus tyrannus***
European Starling	*Sturnus vulgaris*
Grasshopper Sparrow	*Ammodramus savannarum*
Great Blue Heron	*Ardea herodias*
Killdeer	*Charadrius vociferus*
Mallard	*Anas platyrhynchos*
Mountain Bluebird	*Sialia currucoides*
Northern Flicker	***Colaptes auratus***
Northern Harrier	*Circus cyaneus*
Red-tailed Hawk	***Buteo jamaicensis***
Red-winged Blackbird	***Agelaius phoeniceus***
Rock Pigeon	***Columba livia***
Song Sparrow	***Melospiza melodia***
Spotted Sandpiper	***Actitis macularius***
Starling	*Sturnus vulgaris*
Tree Swallow	***Tachycineta bicolor***
Unknown Flycatcher	
Willow Flycatcher	***Empidonax traillii***
Wilson's Snipe	*Gallinago delicata*
Yellow Warbler	***Dendroica petechia***
FISH	
Brook Trout	*Salvelinus fontinalis*
Brown Trout	*Salmo trutta*
CutthroatXRainbow Trout	
Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*

Species identified in 2012 are bolded.

Table 4 (continued). Wildlife species observed at the Camp Creek Wetland Mitigation Site from 2002 to 2012.

COMMON NAME	SCIENTIFIC NAME
MAMMAL	
Badger	*Taxidea taxus*
Beaver	***Castor canadensis***
Bobcat	*Lynx rufus*
Coyote	***Canis latrans***
Deer Mouse	*Peromyscus maniculatus*
Deer Sp.	
Elk or Wapiti	*Cervus canadensis*
Idaho Pocket Gopher	***Thomomys idahoensis***
Meadow Vole	*Microtus pennsylvanicus*
Moose	*Alces americanus*
Mule Deer	*Odocoileus hemionus*
Porcupine	*Erethizon dorsatum*
Red Fox	*Vulpes vulpes*
Richardson's Ground Squirrel	***Spermophilus richardsonii***
White-tailed Deer	***Odocoileus virginianus***
REPTILE	
Common Gartersnake	*Thamnophis sirtalis*

Species identified in 2012 are bolded.

Pre-project and post-project fish surveys along Camp Creek on the MDT parcel were conducted by Montana Fish Wildlife and Parks (MFWP) during 1999, 2003, 2004 to 2007, and 2009. The constructed channel provides habitat for several fish species, including Westslope cutthroat (*Oncorhynchus clarkii lewisi*), hybrid cutthroat and rainbow trout, brook trout (*Salvelinus foninalis*), and brown trout (*Salmo trutta*) (Table 4). The 2007 survey documented 297 Westslope cutthroat/ rainbow trout hybrids ranging in size from 3 to 9 inches. The 2009 survey documented 344 Westslope cutthroat/rainbow trout hybrids in the 3- to 9^{+}-inch size range.

3.6. Functional Assessment

The 2001 baseline assessment was completed by Turnstone Biological and used the 1999 MDT Montana Wetland Assessment Method (Berglund 1999). For consistency, the 2009 to 2012 functional assessments also employed the 1999 MWAM. The baleline assessment separated The Grasser property into three assessment areas (AAs): emergent (Type I), scrub-shrub emergent (Type II), and rock bottom with narrow mixed wetland fringe (Type III) wetland classifications. This AA was later modified to encompass the entire Grasser parcel. Two AAs have been assessed since 2009 and include the MDT parcel (AA-1) and the Grasser parcel (AA-2) (Table 5).

Table 5. Summary of 2001 (baseline) and 2009 to 2012 wetland function/value ratings and functional points at the Camp Creek Wetland Mitigation Site.

Function and Value Parameters from the 1999[1] MDT Montana Wetland Assessment Method	2001 Type I, MDT Parcel	2001 Type III, MDT Parcel	2001 Type I, Grasser Parcel	2001 Type II, Grasser Parcel	2001 Type III, Grasser Parcel	2009 Grasser Parcel AA-2	2009 MDT Parcel AA-1	2010 Grasser Parcel AA-2	2010 MDT Parcel AA-1	2011 Grasser Parcel AA-2	2011 MDT Parcel AA-1	2012 Grasser Parcel AA-2	2012 MDT Parcel AA-1
Listed/Proposed T&E Species Habitat	Mod (0.8)	Mod (0.8)	Mod (0.8)	Mod (0.8)	Mod (0.8)	Mod (0.8)	Mod (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
General Wildlife Habitat	Low (0.3)	Mod (0.5)	Low (0.3)	Mod (0.5)	Mod (0.5)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	High (0.9)
General Fish/Aquatic Habitat	Low (0.1)	Mod (0.5)	Low (0.1)	Low (0.1)	Mod (0.5)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	Exel (1.0)	High (0.9)	Exel (1.0)
Flood Attenuation	Mod (0.6)	Mod (0.4)	Mod (0.6)	Mod (0.5)	Mod (0.4)	Mod (0.4)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	High (0.8)
Short and Long Term Surface Water Storage	Low (0.3)	High (0.8)	Low (0.3)	Low (0.3)	High (0.8)	Mod (0.6)	High (1.0)	Mod (0.6)	High (1.0)	Mod (0.6)	High (1.0)	High (0.8)	High (1.0)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.6)	Mod (0.7)	Mod (0.7)	Mod (0.6)	Mod (0.6)	High (0.9)	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Sediment/Shoreline Stabilization	Low (0.2)	Low (0.3)	Low (0.2)	Mod (0.6)	Low (0.3)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Production Export/Food Chain Support	Mod (0.7)	High (0.9)	Mod (0.7)	Mod (0.7)	High (0.9)	High (0.9)	High (0.9)	High (1.0)	High (0.9)	High (1.0)	High (0.9)	High (1.0)	High (0.8)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.1)	Low (0.2)	Low (0.1)	Low (0.3)	Low (0.2)	Low (0.2)	Mod (0.4)	Mod (0.5)	Mod (0.4)	Mod (0.5)	Mod (0.4)	Mod (0.5)	Mod (0.4)
Recreation/Education Potential	Low (0.2)	Low (0.1)	Low (0.2)	Low (0.3)	Low (0.1)	Low (0.3)	High (1.0)	Low (0.3)	High (1.0)	Low (0.3)	High (1.0)	Low (0.3)	High (1.0)
Actual Points / Possible Points	**5.1 / 12**	**6.1 / 12**	**5.1 / 12**	**5.9 / 12**	**6.2 / 12**	**8.2 / 12**	**10 / 12**	**8.2 / 12**	**10 / 12**	**9.1 / 12**	**10.1 / 12**	**9.3 / 12**	**10.4 / 12**
% of Possible Score Achieved	**42%**	**52%**	**42%**	**49%**	**52%**	**68%**	**83%**	**73%**	**83%**	**76%**	**84%**	**78%**	**87%**
Overall Category	**III**	**III**	**III**	**III**	**III**	**II**	**I**	**II**	**I**	**II**	**I**	**II**	**I**
Total Acreage of Assessed Wetlands and Open Water within Easement	**42.3**	**1.062**	**3.512**	**0.502**	**1.362**	**8.13**	**33.28**	**8.25**	**32.79**	**8.25**	**29.25**	**8.25**	**29.98**
Functional Units (fu) (acreage x actual points)	**215.73**	**6.57**	**17.90**	**2.95**	**8.43**	**66.66**	**332.80**	**67.65**	**327.90**	**75.08**	**295.43**	**76.73**	**311.79**
Functional Unit Gain to Date by Ownership	NA	NA	NA	NA	NA	**37.38**	**110.5**	**38.37**	**105.6**	**45.8**	**73.13**	**47.45**	**96.062**
Total Functional Unit Gain	NA	NA	NA	NA	NA	**147.88**		**143.97**		**118.93**		**143.512**	

(Dougherty 1999)

The AA-1 on the MDT parcel was rated as a Category I wetland in 2012 with 87 percent of the total points possible, an increase of 3% from 2011 (Wetland Assessment Form, Appendix B). In 2011, the rating increased from high to excellent for general fish/aquatic habitat based on the continued development of the woody riparian cover along the stream. In 2012, the ratings for general wildlife habitat improved from moderate to high. Ratings in 2012 were high for the listed/proposed threatened and endangered (T&E) species habitat, Montana Natural Heritage Program (MTNHP) species habitat, general wildlife habitat, flood attenuation, surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, groundwater discharge/recharge, and recreation/education ratings (public ownership with excellent access). The acreage for the MDT AA increased slightly from 29.25 acres in 2011 to 29.98 acres in 2012.

The MFWP decided to classify Westslope cutthroat trout captured during surveys in 2006 as Westslope cutthroat / rainbow trout hybrids because they could not be differentiated in the field. These were the same species that had been captured during 2003 to 2005 surveys. Consequently, the "suspected primary habitat" rather than "documented primary habitat" MTNHP species habitat ranking for Westslope cutthroat trout was conservatively assigned.

The AA-2 on the Grasser parcel is not within a conservation easement and, therefore, is subject to a higher degree of disturbance from grazing. The Grasser parcel was rated as a Category II wetland in 2011 and 2012 (Wetland Assessment Form, Appendix B). The percent score increased from 73 percent in 2010, to 76 percent in 2011, and to 78 percent in 2012; primarily the result of wetland plant growth along the creek and adjacent wetland. The increase in 2012 was the result of a point increase in the short and long term water storage function. The AA received high ratings for listed/proposed T and E species habitat (bull trout), general fish habitat, MTNHP species habitat (based on the suspected presence of Westslope cutthroat trout), short and long term water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, and groundwater discharge/recharge. The acreage of the Grasser AA was consistent between 2011 and 2012.

3.7. Photo Documentation

Representative photographs taken in 2012 from established photo and data points, transect end points, and stream cross-sections are provided in Appendix C. The 2009 through 2012 photos of the start and finish stations of the transect (PP1 and PP2) are shown on page C-1 and C-2 of Appendix C. Photos and panoramas of photo points PP3 through PP13 are included on pages C-3 through C-17. The stream cross-section photos are presented on C-18 through C-21 of Appendix C. Photos of the data points are shown on C-22.

3.8. Maintenance Needs

Due to the continued aggrading of the right bank along this feature, the flood channel created by MDT to inundate the large emergent wetland complex was regraded in 2012 to re-activate the ability of the stream to access the flood channel. There was evidence of surface inundation within the flood channel; however, it was not apparent during this year's field survey that Camp Creek flows entered the flood channel in 2012. Localized streambank erosion observed along two reaches within the Grasser parcel was mapped on Figure 3 in Appendix 1 and has resulted in minor lateral migration of the corridor from the original plan form. This natural stream process does not threaten any structures or the overall stability of this reach.

Infestations of spotted knapweed, ox-eye daisy (*Chrysanthemum leucanthemum*), and Canadian thistle (*Cirsium arvense*), Priority 2B noxious weeds, were identified and mapped in 2012 (Figure 3, Appendix A; Monitoring Form, Appendix B). Community 5 was dominated by spotted knapweed and twelve additional infestations of spotted knapweed were identified across the site ranging in size from less than 0.1 acre to 1.0 acre. The cover class ranged from low to high within the infestations. A majority of the spotted knapweed was observed in the upland periphery of the site. Spotted knapweed was also prevalent in the USFS areas surrounding the project site. The USFS would have to implement weed control measures on their property to fully control the weeds on the MDT property. The cover of spotted knapweed within the stream corridor on the MDT parcel decreased between 2009 and 2012 in response to MDT's weed-spraying efforts.

Canadian thistle was mapped at six locations in 2012 (Figure 3, Appendix A). The size of the infestations was less than 0.1 acre and the cover class ranged from low to moderate. The prevalence of Canadian thistle continued to decrease between 2010 and 2012 in response to the weed spraying conducted by MDT. Ox-eye daisy was mapped in communities 2, 5, and 10 in areas less than 0.1 acre in size and at low to moderate cover classes. The three weed species were sprayed in 2010 and 2011 by an MDT contractor, which has been effective in reducing the noxious weed infestations within the mitigation site.

Six blue bird boxes were installed at the site. The nesting structures were being used and were not in need of repair.

3.9. Current Credit Summary

The credit allocation method for this site was determined by MDT and USACE in early 2006. The wetland acreage in each AA was multiplied by the functional points for the AA to yield the overall functional unit score. The difference between the baseline and current functional units (functional unit "gain") was divided by the post-project score to arrive at an approximate credit acreage for that AA. Credit acreages from each AA were summed to arrive at the site total (Table 6). Approximately 133.9 functional units (functional points times wetland

acreage) have been gained to date at the Camp Creek mitigation site. An increase of calculated credit for Camp Creek was observed between 2011 and 2012 and was the result of a slight increase in delineated wetland acreage and improvement in functional units. The current potential wetland credit for the Camp Creek site is 13.67 acres (Table 6).

Table 6. Functional unit-based credit estimates from 2010 to 2012 for the Camp Creek Wetland Mitigation Site.

AA	2001 Baseline Functional Units	2010 Wetland & Channel Acreage	2010 Functional Points	2010 Functional Units	2010 Functional Unit "Gain"	2010 "Gain" Divided by Current Score (potential credit acres)	2011 Wetland & Channel Acreage
MDT (AA-1)	222.30	32.79	10	327.90	105.60	10.56	29.25
Grasser (AA-2)	29.28	8.25	8.2	67.65	38.37	4.68	8.25
Total	**251.58**	**41.04**	**18.2**	**395.55**	**143.97**	**15.24**	**37.50**

AA	2011 Functional Points	2011 Functional Units	2011 Functional Unit "Gain"	2011 "Gain" Divided by Current Score (potential credit acres)	2012 Wetland & Channel Acreage	2012 Functional Points	2012 Functional Units	2012 Functional Unit "Gain"	2012 "Gain" Divided by Current Score (potential credit acres)
MDT (AA-1)	10.1	295.43	73.13	7.24	29.98	10.1	302.80	86.49	8.56
Grasser (AA-2)	9.1	75.08	45.80	5.03	8.25	9.3	76.73	47.45	5.10
Total	**19.2**	**370.51**	**118.93**	**12.27**	**38.23**	**19.4**	**379.53**	**133.94**	**13.67**

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Appendix A

Project Area Maps – Figures 2 and 3

MDT Wetland Mitigation Monitoring
Camp Creek
Ravalli County, Montana

Figure 2: 2012 Monitoring Activity Locations

0 125 250 500
Feet

Match Line
PP9
PP6
XS 4-A
XS 3-A
Grasser
MDT
CC-2
CC-3
PP8
T-1, finish
PP1
PP3
PP4
PP5
T-1, start
PP2
CC-1
PP7
N

PP13
PP11
PP12
PP10
Match Line
N

Legend

- Vegetation Transect
- Monitoring Limits
- Data Points
- Photo Points
- Cross Section

Base Photography Date: June 27, 2012

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: Ravalli Co., MT
PROJ NO: NH 41(24)
FILE: CampCreek/Monitor2012.mxd

Project Name
Camp Creek Wetland Mitigation

Drawing Title
2012 Monitoring Activity Locations

DRAWN BCS	CHECKED BV	APPROVED JJ	
SCALE: Noted			
Drawn: September 11, 2012			
PROJ MGR: B Sandefur			

CONFLUENCE
consulting Incorporated

Figure 2

REV -

Figure 3: 2012 Mapped Site Features

0 125 250 500
Feet

Match Line

Grasser MDT

Acreages

Project Area	101.58 acres
Gross Wetland Area	38.23 acres
Camp Creek (9)	3.32 acres
Upland Buffer	60.03 acres

Noxious Weeds
Chrysanthemum leucanthemum
Centaurea maculosa
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

(2) Carex spp./Phalaris arundinacea
(5) Elymus repens/ Centaurea maculosa
(6) Populus spp./Salix spp.
(8) Phalaris arundinacea/Juncus arcticus
(10) Salix spp./Populus spp.
(11) Elymus repens/Bromus spp

Legend

Monitoring Limits
Wetland Limits
Vegetation Communities
Localized Bank Erosion

Base Photography Date: June 27, 2012

0 125 250 500
Feet

LOCATION: Ravalli Co., MT
PROJ NO: NH 41(24)
FILE: CampCreek/Veg2012.mxd

Project Name: Camp Creek Wetland Mitigation
Drawing Title: 2012 Mapped Site Features

DRAWN BCS | CHECKED BV | APPROVED JJ
SCALE: Noted
Drawn: September 11, 2012
PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 3

REV -

Appendix B

2012 Wetland Mitigation Site Monitoring Form
2012 USACE Wetland Determination Data Forms
2012 MDT Functional Assessment Forms

MDT Wetland Mitigation Monitoring
Camp Creek
Ravalli County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Camp Creek Assessment Date/Time 7/11/2012 6:31:00 AM

Person(s) conducting the assessment: B Sandefur, E Sandefur

Weather: Sunny AM, T-storms PM, mid 80s Location: Sula Valley

MDT District: Lower Clark Fork Milepost: NA

Legal Description: T 1N R 19W Section(s) 22, 27 & 34

Initial Evaluation Date: 9/5/2002 Monitoring Year: 10 #Visits in Year: 1

Size of Evaluation Area: 101.6 (acres)

Land use surrounding wetland:

Low-density residential, agriculture (livestock), Sula Ranger Station, & NFS

HYDROLOGY

Surface Water Source: Camp Creek, Praine Creek & Andrews Creek

Inundation: ☑ Average Depth: 0.5 **(ft)** Range of Depths: 0-2.0 **(ft)**

Percent of assessment area under inundation: 10 %

Depth at emergent vegetation-open water boundary: 0.2 **(ft)**

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

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

Sediment deposits and water stained leaves through flood swale, drainage pattern to the east of Camp Creek. Drift lines and debris movement within floodplain of Camp Creek. Channel migration and sediment recruitment. FAC neutral test.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
No wells	

Additional Activities Checklist:

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

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

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

Hydrology Notes:

Hydrology at this site comes from Camp Creek, Praine Creek and Andrews Creek. Also likely to have groundwater recharge from forested slope to east of site. Areas of inundation primarily restricted to open channels. Saturation observed within lower topography east of creek.

VEGETATION COMMUNITIES

Site Camp 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 # 2 **Community Type:** Carex spp. / Phalaris arundinacea **Acres:** 4

Species	Cover class	Species	Cover class
Achillea millefolium	1	Bromus tectorum	1
Carex aquatilis	1	Carex nebrascensis	2
Carex utriculata	3	Centaurea maculosa	0
Cirsium arvense	0	Dasiphora fruticosa	1
Deschampsia cespitosa	0	Elymus glaucus	1
Elymus repens	2	Equisetum arvense	0
Festuca pratensis	1	Glyceria striata	1
Juncus arcticus	1	Juncus tenuis	1
Juncus tenuis	0	Leucanthemum vulgare	0
Phalaris arundinacea	4	Sisymbrium altissimum	1
Thlaspi arvense	0	Trifolium repens	1
Verbascum thapsus	0		

Comments:

Community # 5 **Community Type:** Elymus repens / Centaurea maculosa **Acres:** 4.1

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus pratensis	1
Aster sp.	1	Bromus inermis	2
Bromus tectorum	2	Centaurea maculosa	2
Dasiphora fruticosa	1	Elymus repens	4
Leucanthemum vulgare	1	Pinus ponderosa	0
Potentilla gracilis	1	Rosa woodsii	1
Silene latifolia	0	Sisymbrium altissimum	1
Thlaspi arvense	1	Verbascum thapsus	1

Comments:

Community # 6 **Community Type:** Populus spp. / Salix spp. **Acres:** 3

Species	Cover class	Species	Cover class
Alnus incana	2	Cornus alba	0
Populus balsamifera	4	Populus tremuloides	2
Rosa woodsii	2	Salix bebbiana	2
Salix drummondiana	1	Salix exigua	1
Salix geyeriana	2	Symphoricarpos albus	0

Comments:

Community # 8 **Community Type:** Phalaris arundinacea / Juncus arcticus **Acres:** 15.5

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis gigantea	1
Alopecurus pratensis	2	Bromus inermis	0
Carex nebrascensis	1	Carex utriculata	3
Centaurea maculosa	0	Cirsium arvense	0
Dasiphora fruticosa	0	Deschampsia cespitosa	0
Geum macrophyllum	0	Juncus arcticus	3
Linaria vulgaris	0	Phalaris arundinacea	5
Populus tremuloides	0	Potentilla gracilis	0
Rumex crispus	0	Salix exigua	1
Salix lutea	0	Sisymbrium altissimum	0
Solidago canadensis	0	Thlaspi arvense	0

Comments:

Community # 9 **Community Type:** Open Water / **Acres:** 3.3

Species	Cover class	Species	Cover class
Alnus incana	0	Alopecurus pratensis	0
Open Water	5	Phalaris arundinacea	0
Ranunculus aquatilis	1	Salix exigua	1

Comments:

Community # 10 **Community Type:** Salix spp. / Populus spp. **Acres:** 12.4

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alnus incana	2
Aster sp.	1	Betula pumila	2
Carex aquatilis	1	Carex bebbii	1
Carex crawfordii	0	Carex nebrascensis	1
Carex praegracilis	1	Carex stipata	0
Carex utriculata	2	Centaurea maculosa	0
Cicuta douglasii	0	Dasiphora fruticosa	1
Deschampsia cespitosa	1	Equisetum arvense	0
Festuca pratensis	0	Geum macrophyllum	0
Juncus arcticus	1	Juncus effusus	0
Juncus ensifolius	0	Juncus tenuis	0
Leucanthemum vulgare	1	Lupinus caudatus	0
Lupinus polyphyllus	1	Mentha arvensis	0
Mimulus guttatus	0	Myosotis asiatica	0
Myosotis stricta	0	Phalaris arundinacea	1
Populus angustifolia	0	Populus balsamifera	1
Populus tremuloides	1	Potamogeton friesii	0
Potentilla gracilis	0	Ranunculus aquatilis	0
Ranunculus repens	0	Rumex crispus	0
Salix bebbiana	2	Salix boothii	1
Salix exigua	2	Salix lutea	2
Scirpus microcarpus	1	Sium suave	1
Solidago canadensis	1	Stuckenia filiformis	0
Symphyotrichum lanceolatu		Trifolium pratense	0
Trifolium repens	0		

Comments:

Community # 11 **Community Type:** Elymus repens / Bromus spp. **Acres:** 58.8

Species	Cover class	Species	Cover class
Achillea millefolium	0	Alopecurus pratensis	1
Artemisia cana	0	Bromus inermis	2
Bromus tectorum	2	Campanula rotundifolia	0
Centaurea maculosa	1	Cirsium arvense	0
Cynoglossum officinale	0	Dasiphora fruticosa	1
Elymus repens	4	Equisetum hyemale	0
Festuca idahoensis	0	Festuca pratensis	1
Juncus arcticus	0	Lepidium perfoliatum	0
Linaria vulgaris	0	Phleum pratense	1
Pinus ponderosa	0	Poa pratensis	2
Potentilla gracilis	0	Pseudoroegneria spicata	0
Rumex acetosella	0	Rumex crispus	0
Sisymbrium altissimum	0	Solidago canadensis	1
Thlaspi arvense	0	Tragopogon dubius	0
Trifolium pratense	0	Verbascum thapsus	0

Comments:

Total Vegetation Community Acreage **101.1**

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

VEGETATION TRANSECTS

Site: Camp Creek Date: 7/11/2012 6:31:00 AM

Transect Number: 1 **Compass Direction from Start:** 180

Interval Data:

Ending Station 93 **Community Type:** Elymus repens / Bromus spp.

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus pratensis	2
Bromus tectorum	2	Centaurea maculosa	2
Dasiphora fruticosa	1	Elymus repens	3
Phalaris arundinacea	1	Potentilla gracilis	0
Tragopogon dubius	0		

Ending Station 144 **Community Type:** Phalaris arundinacea / Juncus arcticus

Species	Cover class	Species	Cover class
Carex bebbii	1	Carex nebrascensis	1
Deschampsia cespitosa	1	Juncus arcticus	2
Phalaris arundinacea	5	Salix exigua	1
Salix lutea	1	Sisymbrium altissimum	0
Thlaspi arvense	1		

Ending Station 243 **Community Type:** Elymus repens / Bromus spp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bromus inermis	2
Bromus tectorum	1	Cirsium arvense	1
Elymus repens	3	Juncus arcticus	3
Lepidium perfoliatum	0	Phalaris arundinacea	2
Rumex crispus	0		

Ending Station 290 **Community Type:** Salix spp. / Populus spp.

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alnus incana	2
Alopecurus pratensis	1	Carex crawfordii	2
Carex praegracilis	1	Carex stipata	1
Carex utriculata	2	Cicuta douglasii	1
Deschampsia cespitosa	2	Equisetum arvense	1
Juncus ensifolius	1	Mentha arvensis	1
Myosotis asiatica	0	Phalaris arundinacea	1
Potentilla gracilis	0	Salix bebbiana	2
Salix exigua	2	Salix lutea	1
Scirpus microcarpus	1	Sium suave	0
Sium suave	1		

Ending Station 320 **Community Type:** Open Water /

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 407 **Community Type:** Salix sp. / Populus spp.

Species	Cover class	Species	Cover class
Agrostis gigantea	2	Alnus incana	2
Carex aquatilis	1	Carex crawfordii	1
Carex nebrascensis	1	Juncus arcticus	2
Juncus effusus	1	Juncus ensifolius	1
Leucanthemum vulgare	0	Mentha arvensis	1
Populus angustifolia	1	Populus tremuloides	1
Potentilla gracilis	1	Ranunculus aquatilis	0
Ranunculus repens	0	Salix boothii	1
Salix lutea	2	Sium suave	1
Solidago canadensis	0	Symphyotrichum lanceolatu	0

Ending Station 471 **Community Type:** Elymus repens / Bromus spp.

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus pratensis	1
Bromus inermis	1	Bromus tectorum	1
Centaurea maculosa	1	Elymus repens	5
Festuca pratensis	2	Juncus arcticus	0
Poa pratensis	2	Potentilla gracilis	1
Thlaspi arvense	1		

Transect Notes:

PLANTED WOODY VEGETATION SURVIVAL

Camp Creek

Planting Type	#Planted	#Alive	Notes
Alnus incana	4		Several stems observed throughout Camp Creek floodplain
Amelanchier alnifolia	4	0	
Betula occidentalis	6	0	
Cornus alba	22	0	
Pinus ponderosa	19	6	Surviving stems in veg com 11
Populus balsamifera	55		Increased recruitment along Camp Creek floodplain
Populus tremuloides	11		Aspen recruits within veg com 10
Potentialla fruiticosa	30	30	Good survival within uplands and marginal wetlands
Psuedotsuga menziesii	17	0	
Rosa woodsii	8		Woods rose present on Grasser parcel
Salix bebbiana			Numbers planted unknown
Salix boothii			Numbers planted unknown
Salix drummondiana			Numbers planted unknown
Salix exigua			Numbers planted unknown
Salix geyeriana			Numbers planted unknown
Salix lutea	3		Recruitment along floodplain
Symphoricarpos albus	17	0	
Willow suckers/sprouts	225		Hundreds of recruits along floodplain

Comments

Excellent willow and cottonwood survival along creek and adjacent floodplain, although several Populus have been recently felled by resident beavers within Camp Creek. Additional natural recruitment of these species observed throughout floodplain. Shrubby potentilla showing good survival in upland planting zones.

Camp Creek

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Blue Bird boxes

How many? 6

Are the nesting structures being used? Yes

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
American Robin	2	F, L	OW, SS, UP
Barn Swallow	2	F, FO	OW, SS, UP, WM
Black-billed Magpie	1	FO	UP, WM
Bohemian Waxwing	1	L	OW, SS, UP, WM
Brewer's Blackbird	1	FO	UP
Brown-headed Cowbird	1	FO	UP, WM
Common Yellowthroat	1	F	OW, SS, UP
Eastern Kingbird	2	F	OW, SS, UP
Northern Flicker	1	F	SS
Red-tailed Hawk	2	FO	UP, WM
Red-winged Blackbird	13	F, FO, L	OW, SS, UP
Rock Pigeon	5	F, FO	OW, SS, UP
Song Sparrow	1	F, L	SS, UP
Spotted Sandpiper	2	F, L	OW, WM
Tree Swallow	15	F, FO	SS
Willow Flycatcher	1	F	UP, WM
Yellow Warbler	1	F	SS, UP

Bird Comments

BEHAVIOR CODES

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

HABITAT CODES

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

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

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Beaver		No	No	No	Recnt activity
Coyote		Yes	No	No	
Deer Sp.		Yes	Yes	No	
Idaho Pocket Gopher	1	No	No	Yes	
Richardson's Ground Squirrel		No	No	Yes	Numerous burrows
White-tailed Deer	2	No	No	No	

Wildlife Comments:

Camp 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
9323	45.815712	-113.95385	215	T-1, start, PP-2
9324	45.814629	-113.954277	20	T-1, end, PP-1
9329	45.817965	-113.957405	270	CC-1
9340	45.809486666667	-113.9505533333	180	CC-2
9341	45.811241666667	-113.95018	180	CC-3
9344	45.81472	-113.954277	45	PP-3
9345	45.814671	-113.954254	0	PP-4
9347-9350	45.814064	-113.953568	270	PP-5
9357-9361	45.812328	-113.950233	270	PP-8
9362	45.796776	-113.948776	180	PP-13
9363-9367	45.799068	-113.94886	0	PP11
9372	45.799011	-113.949028	180	PP-12
9373-9380	45.804028	-113.950249	270	PP-10
9381	45.818008	-113.956688	165	PP-7
9385-9388	45.810829	-113.952507	270	XS-3, dwnstrm
9389-9392	45.811008	-113.953003	115	XS-3, upstrm
9393-9395	45.808922	-113.952034	0	XS-4, dwnstrm
9396-9400	45.809227	-113.952377	180	XS-4, upstrm
9401-9404	45.808487	-113.951714	350	PP-6
9405-9408	45.807003	-113.951599	5	PP-9

Comments:

Camp 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? Yes

If yes, do they need to be repaired? No

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

Were man-made structures built or installed to impound water or control water flow

into or out of the wetland? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

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

Project/Site: Camp Creek | City/County: Ravalli | Sampling Date: 7/10/2012

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

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 1N R 19W

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

Subregion (LRR): LRR E | Lat: 45.817965 | Long: -113.957405 | Datum: WGS84

Soil Map Unit Name: Beehive-Jeru-Jurvannah families, complex

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:
Data point in nw corner of site in subtle isolated swale.

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 pratensis	30	☑	FAC
2. Juncus arcticus	45	☑	FACW
3. Pascopyrum smithii	10	☐	FACU
4.	0	☐	
5.	0	☐	
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 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: CC-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
0-10	10YR 2/2	95	10YR 4/6	5	C	M	Sandy Loam	
10-14	10YR 4/2	95	10YR 4/6	5	C	M	Loamy Sand	

[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: Oxyaquic Cryofluvents

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: Camp Creek | City/County: Ravalli | Sampling Date: 7/10/2012

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

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 1N R 19W

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

Subregion (LRR): LRR E | Lat: 45.8094866666667 | Long: -113.950553333333 | Datum: WGS84

Soil Map Unit Name: Beehive-Jeru-Jurvannah families, complex

Do Normal Circumstances Exist on this site? Yes ☑

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

Is the area a potential Problem Area? Yes ☐

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

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

Remarks:
DP at head of flood swale and relic channel from south.

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: 15ft)			
1. Salix exigua	20	☑	FACW
2. Populus tremuloides	10	☑	FACU
3.	0	☐	
4.	0	☐	
5.	0	☐	
	30 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus pratensis	30	☑	FAC
2. Juncus arcticus	35	☑	FACW
3. Achillea millefolium	15	☐	FACU
4. Carex utriculata	20	☐	OBL
5. Poa pratensis	30	☑	FAC
6. Cirsium arvense	2	☐	FAC
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	132 = 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: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.8 (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: CC-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
0-10	10YR 2/1	100					Sandy Loam	
10-18	10YR 2/1	95	10YR 5/1	5	D	M	Loamy Sand	
18-25	10YR 3/1	95	10YR 4/6	5	C	M	Sand	

[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: Oxyaquic Cryofluvents

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: Sand layer around 18in likely transporting ground water.

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

Project/Site: Camp Creek | City/County: Ravalli | Sampling Date: 7/10/2012

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

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 1N R 19W

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

Subregion (LRR): LRR E | Lat: 45.8112416666667 | Long: -113.95018 | Datum: WGS84

Soil Map Unit Name: Beehive-Jeru-Jurvannah families, complex

Do Normal Circumstances Exist on this site? Yes ☑

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

Is the area a potential Problem Area? Yes ☐

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

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

Remarks:
DP in isolated swale alond old side channel. Hydrology likely from hillside groundwater.

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. Carex utriculata	40	☑	OBL
2. Carex nebrascensis	10	☐	OBL
3. Carex sp.	20	☐	NI
4. Alopecurus pratensis	40	☑	FAC
5. Juncus arcticus	5	☐	FACW
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	115 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Dominance Test is >50% ☑

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: CC-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
0-8	10YR 2/1	100					Sandy Loam	
8-16	10YR 2/2	95	10YR 4/6	5	C	M	Loamy Sand	

[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: Oxyaquic Cryofluvents

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): 12

Wetland Hydrology Present? Yes ☑ No ☐

Remarks:

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

1. Project name Camp Creek **2. MDT project#** NH 41(24) **Control#**

3. Evaluation Date 7/11/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** AA-1, MDT Property

6. Wetland Location(s): T 1N **R** 19W **Sec1** 27 & 34 **T** **R** **Sec2**

Approx Stationing or Mileposts

Watershed 17010205 **Watershed/County** Lower Clark Fork Watershed/Ravalli County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 29.98

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) 29.98

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	upper perennial	Rock Bottom		Permanently flooded	5
Riverine	Palustrine	none	Emergent Wetland		seasonally flooded	55
Riverine	Palustrine	none	Scrub-Shrub Wetland		seasonally flooded	40

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

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 managed in conservation easement and has been undisturbed for several years. Prior disturbances had included clearing, grazing, and hydrologic alterations. AA with active weed control program.

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

Spotted knapweed, Canada thistle, oxeye daisy

iii. Brief descriptive summary of surrounding land use/habitat

AA located in Sula Basin and includes Camp Creek and adjacent wetlands. USFS land and private ownership surrounding AA, landuses include pasture and livestock grazing.

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: Site includes a scrub/shrub floodplain corridor and wet meadow with emergent vegetation.

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**	Bull trout
Incidental habitat (list species)	○ **D** ◉ **S**	Canada lynx
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 US F&WS, MFISH, MFWP records

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**	Westslope cutthroat trout
Secondary habitat (list Species)	◉ **D** ○ **S**	Bald eagle
Incidental habitat (list species)	○ **D** ◉ **S**	Wolverine, flammulated owl
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 MFWP records and fish surveys and MDT observation of bald eagles

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA Moderate

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

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

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

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

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

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

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

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

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

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

Comments Area adjacent to USFS property with good connectivity, valley bottom between two mnt regions and flowing water source.

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

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

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

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

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

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

Comments Good pool and riffle habitat in stream and continued development of general fish habitat.

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: Majority of wetland within AA subject to overbank flooding into large swale with restricted outlet. Camp Creek with unrestricted outlet USFS offices and residents downstream, adjacent parcel with MDT boundary.

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: No water appeared to have entered the flood swale within the eastern half of the site in 2012, although hydrology indicators in this area indicated flooding from Camp Creek in 2011.

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: Although the large wetland swale does not contain an outlet, Camp Creek through the AA is unrestricted.

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: Continued increase development of willow, alders, and cottonwoods along streambanks.

14I. Production Export/Food Chain Support:

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

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

Comments: 95% of the AA is seasonally flooded.

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: Large slope to east of AA likely provides groundwater recharge. Seasonal shallow water table along Camp Creek.

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: **1 H**

Comments: Site used for fishing and bird watching.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S) AA-1, MDT Property

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	H	.8	1	23.984
B. MT Natural Heritage Program Species Habitat	H	.8	1	23.984
C. General Wildlife Habitat	H	.9	1	26.982
D. General Fish Habitat	E	1	1	29.98
E. Flood Attenuation	H	.8	1	23.984
F. Short and Long Term Surface Water Storage	H	1	1	29.98
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	26.982
H. Sediment/Shoreline Stabilization	H	1	1	29.98
I. Production Export/Food Chain Support	H	.8	1	23.984
J. Groundwater Discharge/Recharge	H	1	1	29.98
K. Uniqueness	M	.4	1	11.992
L. Recreation/Education Potential	H	1	1	29.98
Totals:		10.4	12	311.792
Percent of Possible Score		**86.67** %		

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

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

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

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

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

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

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

1. Project name Camp Creek **2. MDT project#** NH 41(24) **Control#**

3. Evaluation Date 7/11/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** AA-2, Grasser Property

6. Wetland Location(s): T 1N **R** 19W **Sec1** 22, 27 **T** 1N **R** 19W **Sec2** 34

Approx Stationing or Mileposts

Watershed 17010205 **Watershed/County** Lower Clark Fork Watershed/Ravalli County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 8.25

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) 8.25

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	Emergent Wetland		seasonally flooded	55
Riverine	Riverine	upper perennial	Rock Bottom		Permanently flooded	20
Riverine	Palustrine	none	Scrub-Shrub Wetland		seasonally flooded	15
Riverine	Palustrine	none	Forested Wetland		seasonally flooded	10

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

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 used for horse and cattle grazing.

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

Spotted knapweed, Canada thistle, oxeye daisy

iii. Brief descriptive summary of surrounding land use/habitat

Camp Creek and adjacent wetland within the Sula Basin. Surrounding land uses include pasture, past logging, private residences, and USFS property.

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: Area with mature cottonwoods, developing willows and shrubs, emergent wetlands, and the main channel of Camp Creek.

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**	Bull trout
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 FWP observations and records

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**	Westslope cutthroat trout
Secondary habitat (list Species)	◉ **D** ○ **S**	Bald eagle
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 [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 FWP records, MDT observations

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA Moderate

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

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

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

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

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

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

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

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

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

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

Comments Good connectivity to surrounding habitats.

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

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

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

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

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

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

Comments Reconstructed channel supports native fish populations. Enhancement of habitat: pools, riffles, and overhanging banks.

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: MDT property directly downstream of Grasser AA, no man-made features on dowstream parcel.

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: Adjacent wetlands within floodplain of Camp Creek with a maximum capacity of approximately 2 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: Shrub cover along channel

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: Some areas of localized bank erosion and channel migration/adjustment observed, <10%.

14I. Production Export/Food Chain Support:

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

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

Comments: Perennial stream with high structural diversity and surface outlet.

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: AA likely picks up hydrology from adjacent slope to east of creek.

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:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S) AA-2, Grasser Property

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	H	.8	1	6.6
B. MT Natural Heritage Program Species Habitat	H	.8	1	6.6
C. General Wildlife Habitat	M	.7	1	5.775
D. General Fish Habitat	H	.9	1	7.425
E. Flood Attenuation	M	.6	1	4.95
F. Short and Long Term Surface Water Storage	H	.8	1	6.6
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	7.425
H. Sediment/Shoreline Stabilization	H	1	1	8.25
I. Production Export/Food Chain Support	H	1	1	8.25
J. Groundwater Discharge/Recharge	H	1	1	8.25
K. Uniqueness	M	.5	1	4.125
L. Recreation/Education Potential	L	.3	1	2.475
Totals:		9.3	12	76.725
Percent of Possible Score		**77.5** %		

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 Site Photographs

MDT Wetland Mitigation Monitoring
Camp Creek
Ravalli County, Montana

Photo Point 1 – *Photo 1*
Bearing: Northeast
Location: T-1, finish
Taken in 2009

Photo Point 1 – *Photo 1*
Bearing: Northeast
Location: T-1, finish
Taken in 2010

Photo Point 1 – *Photo 1*
Bearing: Northeast
Location: T-1, finish
Taken in 2011

Photo Point 1 – *Photo 1*
Bearing: Northeast
Location: T-1, finish
Taken in 2012

Photo Point 2 – *Photo 1*
Bearing: Southwest
Location: T-1, start
Taken in 2009

Photo Point 2 – *Photo 1*
Bearing: Southwest
Location: T-1, start
Taken in 2010

Photo Point 2 – *Photo 1*
Bearing: Southwest
Location: T-1, start
Taken in 2011

Photo Point 2 – *Photo 1*
Bearing: Southwest
Location: T-1, start
Taken in 2012

Photo Point 3 – *Photo 1*
Bearing: Northeast
Location: Camp Creek riparian
Taken in 2009

Photo Point 3 – *Photo 1*
Bearing: Northeast
Location: Camp Creek riparian
Taken in 2010

Photo Point 3 – *Photo 1*
Bearing: Northeast
Location: Camp Creek riparian
Taken in 2011

Photo Point 3 – *Photo 1*
Bearing: Northeast
Location: Camp Creek riparian
Taken in 2012

Photo Point 4 – *Photo 1*
Bearing: North
Location: Veg Com 3
Taken in 2009

Photo Point 4 – *Photo 1*
Bearing: North
Location: Veg Com 3
Taken in 2010

Photo Point 4 – *Photo 1*
Bearing: North
Location: Veg Com 3
Taken in 2011

Photo Point 4 – *Photo 1*
Bearing: North
Location: Veg Com 3
Taken in 2012

Photo Point 5 – *Photo 1*
Bearing: West

Location: Camp Creek riparian corridor and upland community 1
Taken in 2009

Photo Point 5 – *Photo 1*
Bearing: West

Location: Camp Creek riparian corridor and upland community 1
Taken in 2010

Photo Point 5 – *Photo 1*
Bearing: West

Location: Camp Creek riparian corridor and upland community 1
Taken in 2011

Photo Point 5 – *Photo 1*
Bearing: West

Location: Camp Creek riparian corridor and upland community 1
Taken in 2012

Photo Point 6 – *Photo 1*
Bearing: North

Location: Camp Creek channel
Taken in 2009

Photo Point 6 – *Photo 1*
Bearing: North

Location: Camp Creek channel
Taken in 2010

Photo Point 6 – *Photo 1*
Bearing: North

Location: Camp Creek channel
Taken in 2011

Photo Point 6 – *Photo 1*
Bearing: North

Location: Camp Creek channel
Taken in 2012

Photo Point 7 – *Photo 1*
Bearing: South
Location: North end of site
Taken in 2009

Photo Point 7 – *Photo 1*
Bearing: South
Location: North end of site
Taken in 2010

Photo Point 7 – *Photo 1*
Bearing: South
Location: North end of site
Taken in 2011

Photo Point 7 – *Photo 1*
Bearing: South
Location: North end of site
Taken in 2012

Photo Point 8 – *Photo 1*
Bearing: West

Location: North end of site
Taken in 2009

Photo Point 8 – *Photo 1*
Bearing: West

Location: North end of site
Taken in 2010

Photo Point 8 – *Photo 1*
Bearing: West

Location: North end of site
Taken in 2011

Photo Point 8 – *Photo 1*
Bearing: West

Location: North end of site
Taken in 2012

Photo Point 9 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2009

Photo Point 9 – *Photo 1*
Bearing: Northeast

Location: Downstream of culvert on Grasser parcel
Taken in 2010

Photo Point 9 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2011

Photo Point 9 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2012

Photo Point 10 – *Photo 1*
Bearing: West

Location: East side of Camp Creek riparian corridor on Grasser parcel
Taken in 2009

Photo Point 10 – *Photo 1*
Bearing: West

Location: East side of Camp Creek riparian corridor on Grasser parcel
Taken in 2010

Photo Point 10 – *Photo 1*
Bearing: West

Location: East side of Camp Creek riparian corridor on Grasser parcel
Taken in 2011

Photo Point 10 – *Photo 1*
Bearing: West

Location: East side of Camp Creek riparian corridor on Grasser parcel
Taken in 2012

Photo Point 11 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2009

Photo Point 11 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2010

Photo Point 11 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2010

Photo Point 11 – *Photo 1*
Bearing: North

Location: Downstream of culvert on Grasser parcel
Taken in 2012

Photo Point 12 – *Photo 1*
Bearing: South
Location: Upstream of culvert
Taken in 2009

Photo Point 12 – *Photo 1*
Bearing: South
Location: Upstream of culvert
Taken in 2010

Photo Point 12 – *Photo 1*
Bearing: South
Location: Upstream of culvert
Taken in 2011

Photo Point 12 – *Photo 1*
Bearing: South
Location: Upstream of culvert
Taken in 2012

Photo Point 13 – *Photo 1* **Location:** Camp Creek
Bearing: South **Taken in 2009**

Photo Point 13 – *Photo 1* **Location:** Camp Creek
Bearing: South **Taken in 2010**

Photo Point 13 – *Photo 1* **Location:** Camp Creek
Bearing: South **Taken in 2011**

Photo Point 13 – *Photo 1* **Location:** Camp Creek
Bearing: South **Taken in 2012**

Photo – *XS-3 downstream*
Bearing: West

Location: Camp Creek
Taken in 2010

Photo– *XS-3 downstream*
Bearing: East

Location: Camp Creek
Taken in 2011

Photo– *XS-3 downstream*
Bearing: East

Location: Camp Creek
Taken in 2012

Photo– *XS-3 upstream* **Location:** Camp Creek
Bearing: East **Taken in 2010**

Photo– *XS-3 upstream* **Location:** Camp Creek
Bearing: East **Taken in 2011**

Photo– *XS-3 upstream* **Location:** Camp Creek
Bearing: East **Taken in 2012**

Photo– *XS-4 downstream* **Location:** Camp Creek
Bearing: North **Taken in 2010**

Photo– *XS-4 downstream* **Location:** Camp Creek
Bearing: North **Taken in 2011**

Photo– *XS-4 downstream* **Location:** Camp Creek
Bearing: North **Taken in 2012**

Photo– *XS-4 upstream*
Bearing: South

Location: Camp Creek
Taken in 2010

Photo– *XS-4 upstream*
Bearing: South

Location: Camp Creek
Taken in 2011

Photo– *XS-4 upstream*
Bearing: South

Location: Camp Creek
Taken in 2012

Data Point 1 **Location:** CC-1
Bearing: **Taken in 2012**

Data Point 2 **Location:** CC-2
Bearing: **Taken in 2012**

Data Point 3 **Location:** CC-3
Bearing: **Taken in 2012**

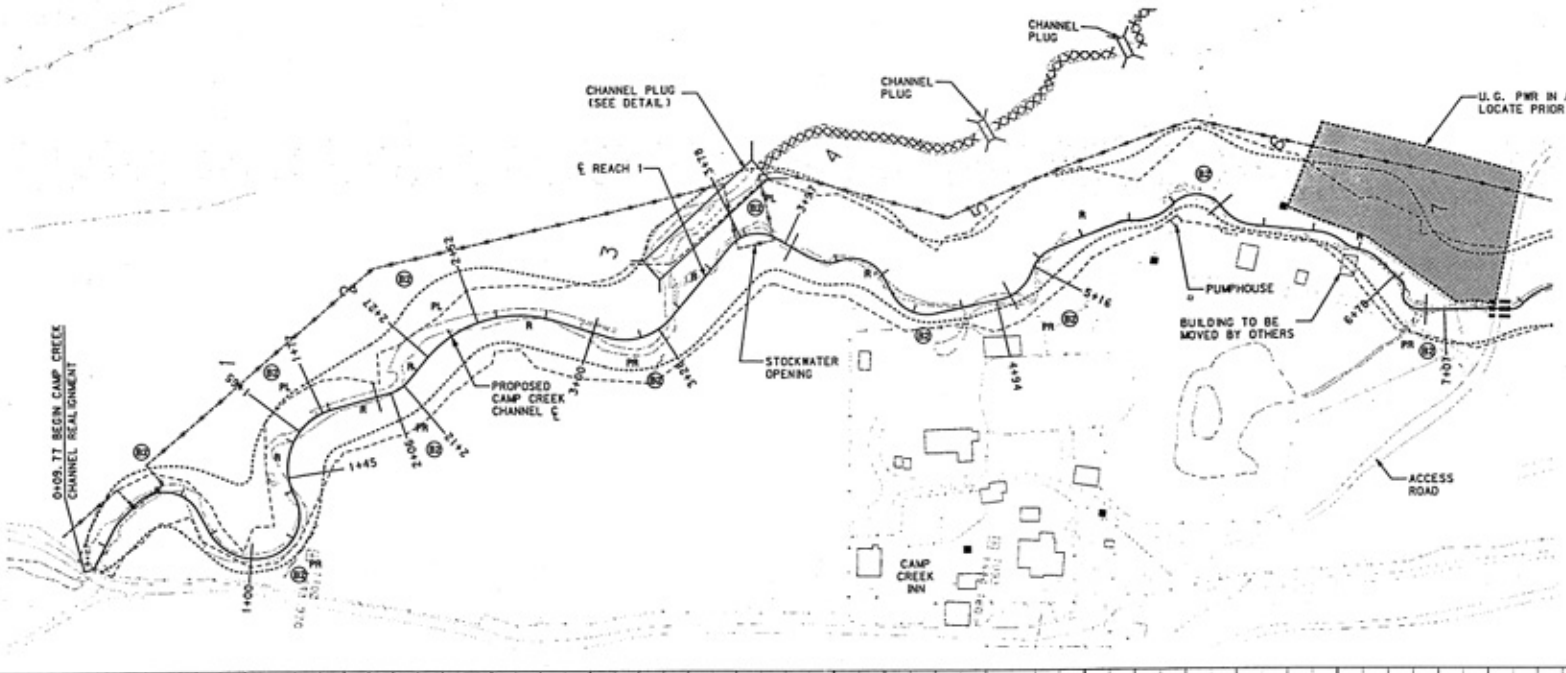
Appendix D

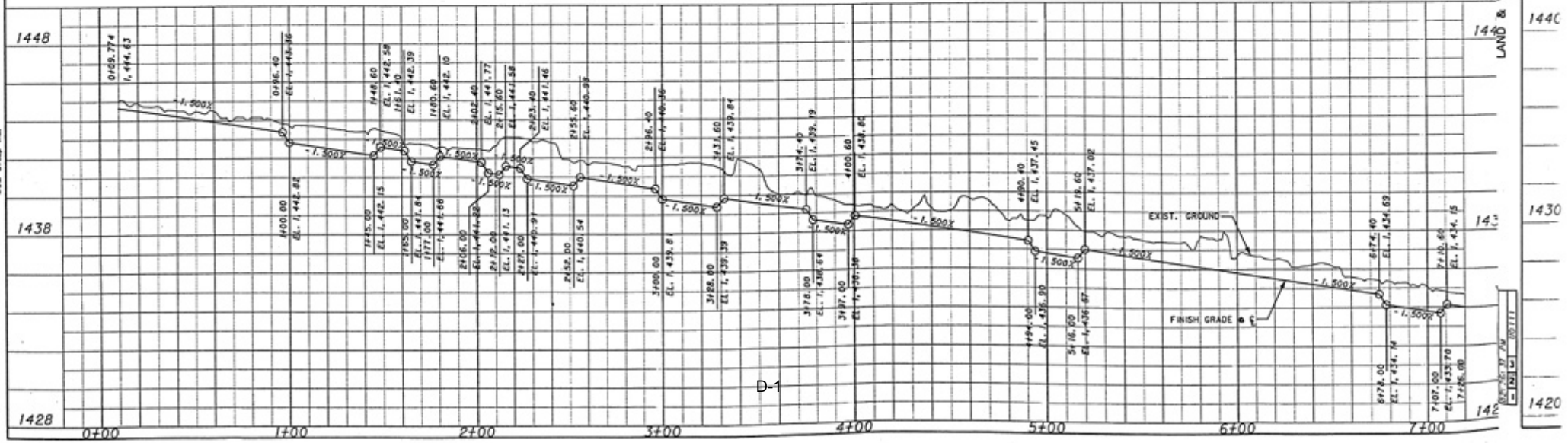
Project Site Plan

MDT Wetland Mitigation Monitoring
Camp Creek
Ravalli County, Montana

STATE	PROJECT NUMBER	SHEET
MONTANA	NH 41 (24)	29

CAMP CREEK RESTORATION

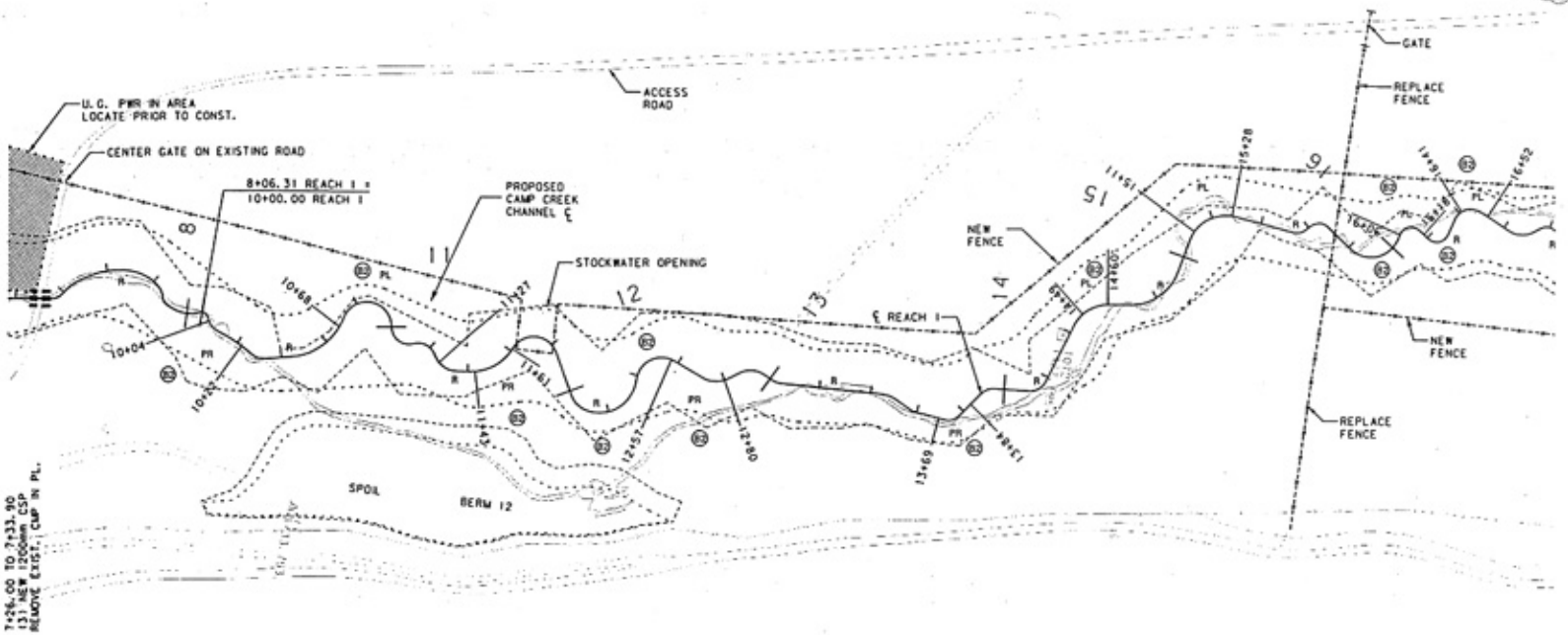




STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 41(24)	30

CAMP CREEK RESTORATION

LAND & WATER D-2



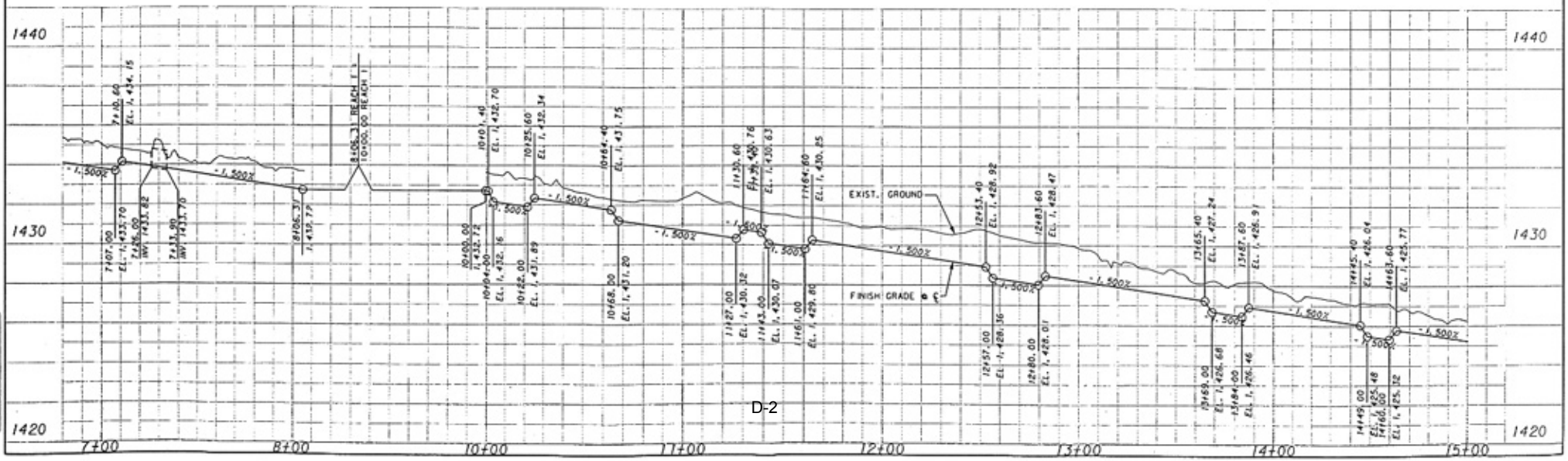
LEGEND

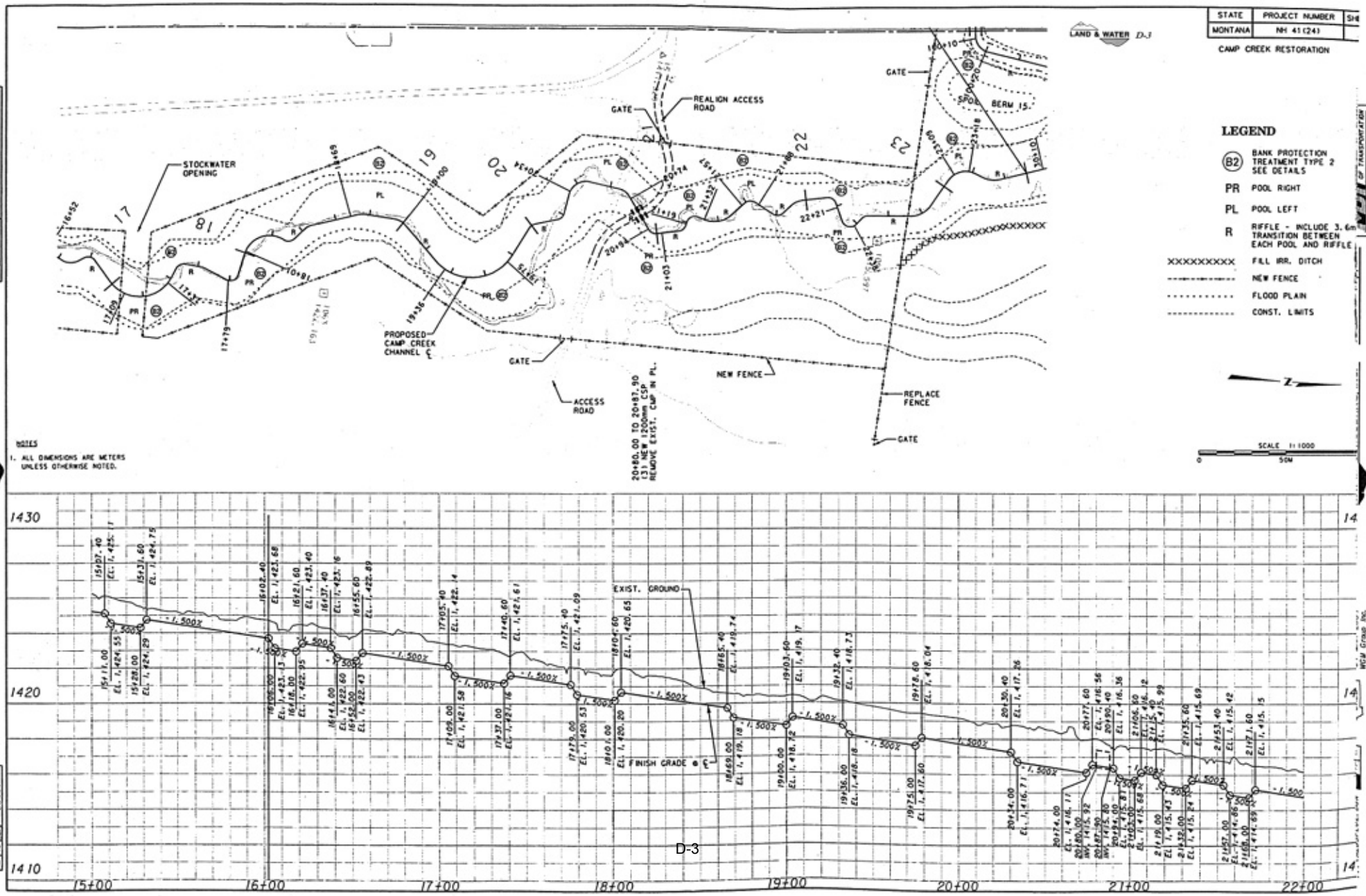
- (B2) BANK PROTECTION TREATMENT TYPE 2 SEE DETAILS
- PR POOL RIGHT
- PL POOL LEFT
- R RIFFLE - INCLUDE 3.6m TRANSITION BETWEEN EACH POOL AND RIFFLE
- XXXXXXXXX F&L WR. DITCH
- NEW FENCE
- FLOOD PLAIN
- CONST. LIMITS

NOTES

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

SCALE 1:1000

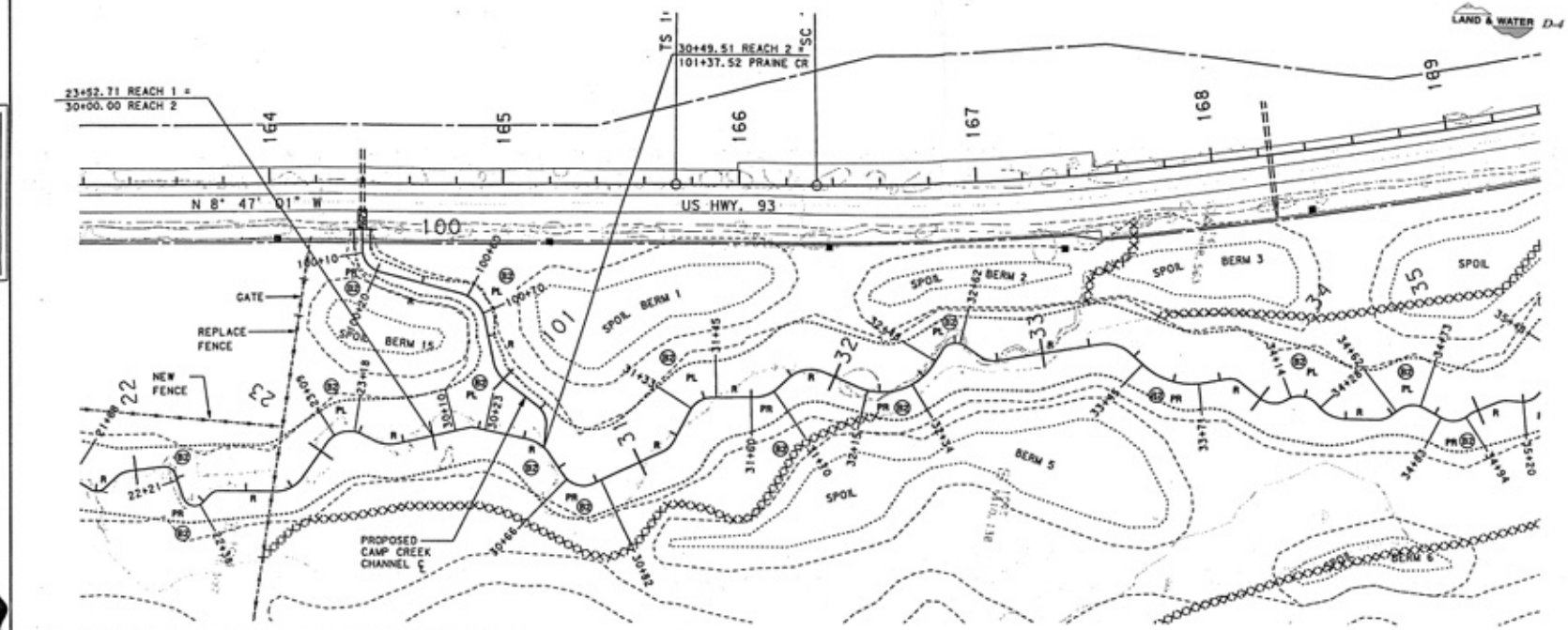



LAND & WATER D-3
STATE
MONTANA
PROJECT NUMBER
NH 41 (24)
CAMP CREEK RESTORATION
LEGEND
B2 BANK PROTECTION TREATMENT TYPE 2 SEE DETAILS
PR POOL RIGHT
PL POOL LEFT
R RIFFLE - INCLUDE 3.6m TRANSITION BETWEEN EACH POOL AND RIFFLE
XXXXXXXXX FILL IRR. DITCH
NEW FENCE
FLOOD PLAIN
CONST. LIMITS
STOCKWATER OPENING
REALIGN ACCESS ROAD
GATE
SPOIL BERM 15.
PROPOSED CAMP CREEK CHANNEL ℄
ACCESS ROAD
NEW FENCE
REPLACE FENCE
20+80.00 TO 20+87.90 (3) NEW 1200mm CSP REMOVE EXIST. CMP IN PL.
NOTES
1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
SCALE 1:1000
EXIST. GROUND
FINISH GRADE ℄
1430
1420
1410
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 41 (24)	32

CAMP CREEK RESTORATION

LAND & WATER D-4



LEGEND

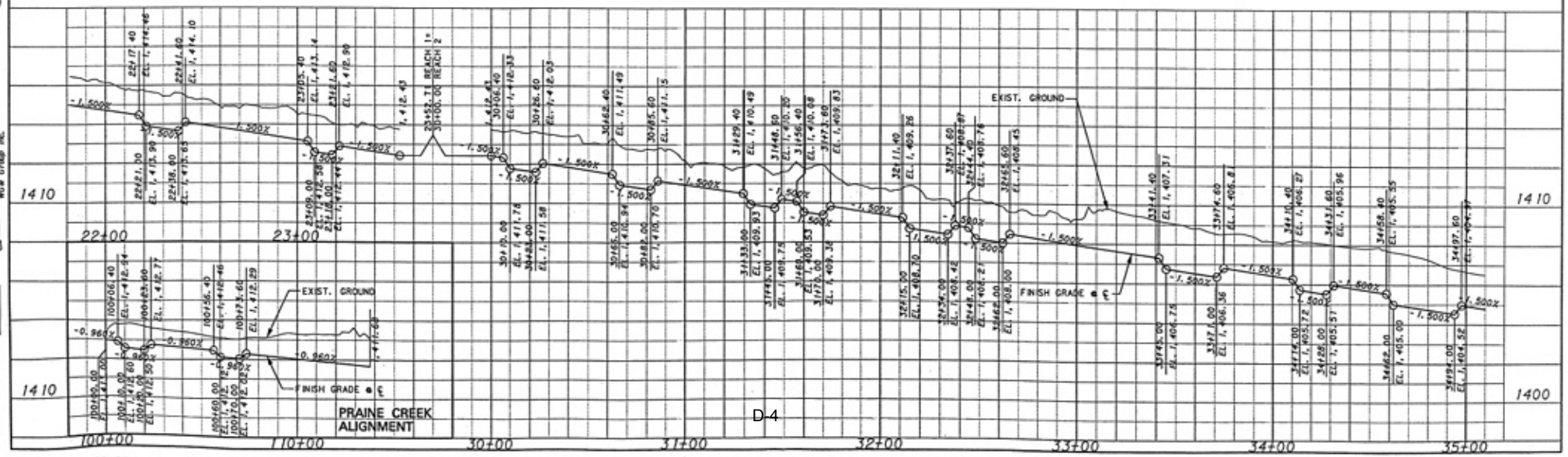
- (B2) BANK PROTECTION TREATMENT TYPE 2 SEE DETAILS
- PR POOL RIGHT
- PL POOL LEFT
- R RIFFLE - INCLUDE 3.6m TRANSITION BETWEEN EACH POOL AND RIFFLE
- XXXXXXXXX FILL IRR. DITCH
- NEW FENCE
- FLOOD PLAIN
- CONST. LIMITS

NOTES

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

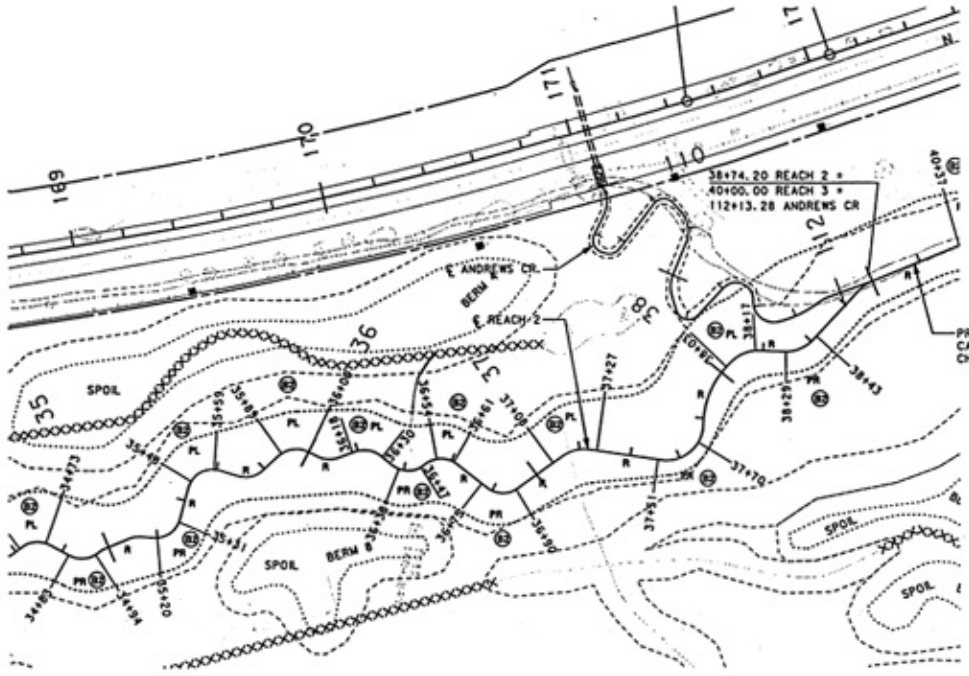
SCALE 1:1000

0 50M 100M



STATE	PROJECT NUMBER	SHEET NO
MONTANA	NH 41 (24)	33

CAMP CREEK RESTORATION



LEGEND

- (B2) BANK PROTECTION TREATMENT TYPE 2 SEE DETAILS
- PR POOL RIGHT
- PL POOL LEFT
- R RIFFLE - INCLUDE 3.6m TRANSITION BETWEEN EACH POOL AND RIFFLE
- XXXXXXXXX FILL IRR. DITCH
- NEW FENCE
- FLOOD PLAIN
- CONST. LIMITS

NOTES

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

SCALE 1:1000