MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2014

McGinnis Meadows
Lincoln County, Montana

Prepared for:

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December 2014

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WETLAND MITIGATION MONITORING REPORT:

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McGinnis Meadows
Lincoln County, Montana
Constructed: 2009

MDT Project Number STPX-NH 27(17)
Control Number 4143

MFWP: SPA MDT-R1-81-2008
USACE: NWO-2008-03130 MTH

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CCI Project No: MDT.006

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Cover Photo: Reed canarygrass-dominated wet meadow within McGinnis Meadows.

1. INTRODUCTION

The McGinnis Meadows 2014 Wetland Mitigation Monitoring Report presents the results of the fifth year of post-construction monitoring at the McGinnis Meadows Mitigation Site. This Montana Department of Transportation (MDT) wetland mitigation project is located in Section 33, Township 26 North, Range 28 West, Lincoln County, Montana (Figure 1). The project lies within the boundaries of Watershed 1 - Kootenai River Basin. McGinnis Meadows is located approximately seven miles south of the US Highway 2 corridor on two parcels that encompass 33 acres of an historic hay field and pasture (Figure 2, Appendix A). McGinnis Creek, a tributary to the Fisher River, bisects the parcels. Figures 2 and 3 (Appendix A) show the Monitoring Activity Locations and Mapped Site Features, respectively. Figure 4 delineates the 2014 Wetland Credit Areas. The MDT Mitigation Site Monitoring Form, US Army Corps of Engineers (USACE) Wetland Determination Data Forms (USACE 2010), and the 2008 MDT Montana Wetland Assessment Method (MWAM) forms (Berglund and McEldowney 2008) are included in Appendix B. Representative photographs are included in Appendix C and the Project Plan Sheet is included in Appendix D.

Wetlands developed at this location provide compensatory mitigation for wetland impacts associated with transportation projects in the Missoula District. The McGinnis Meadows site was selected after an extensive search of potential wetland and stream restoration sites by MDT within the Kootenai River Watershed in cooperation with a consortium of Conservation Districts known as the Montana Watersheds Incorporated (MWI). The consortium consisted of the Lincoln, Sanders, and Flathead County Conservation Districts with technical assistance from the US Department of Agriculture (USDA), and Natural Resource Conservation Service (NRCS) centers in Bozeman, Kalispell, Libby, and Eureka. The wetland and stream restoration project was developed to improve the flood storage, stream length, and fisheries habitat of McGinnis Creek, and to enhance the overall wildlife, riparian, and wetland habitats impacted by past agricultural practices within the McGinnis Creek watershed.

Project goals are the restoration/re-establishment of approximately 0.8 acres of riparian habitat and 17.3 acres of degraded wetlands, creation of 2.9 acres of emergent wetlands, enhancement of 1.74 acres of existing emergent wetland and an intermittent drainage, preservation of 0.3 acres of existing riparian communities along McGinnis Creek, and protection of 2.2 acres of upland buffer. Section 3.9 of this report presents the project credit ratios approved by the USACE under Permit Number NWO-2008-03130-MTH. The MDT also seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet of McGinnis Creek. The approved performance standards (MDT 2009) are listed below.

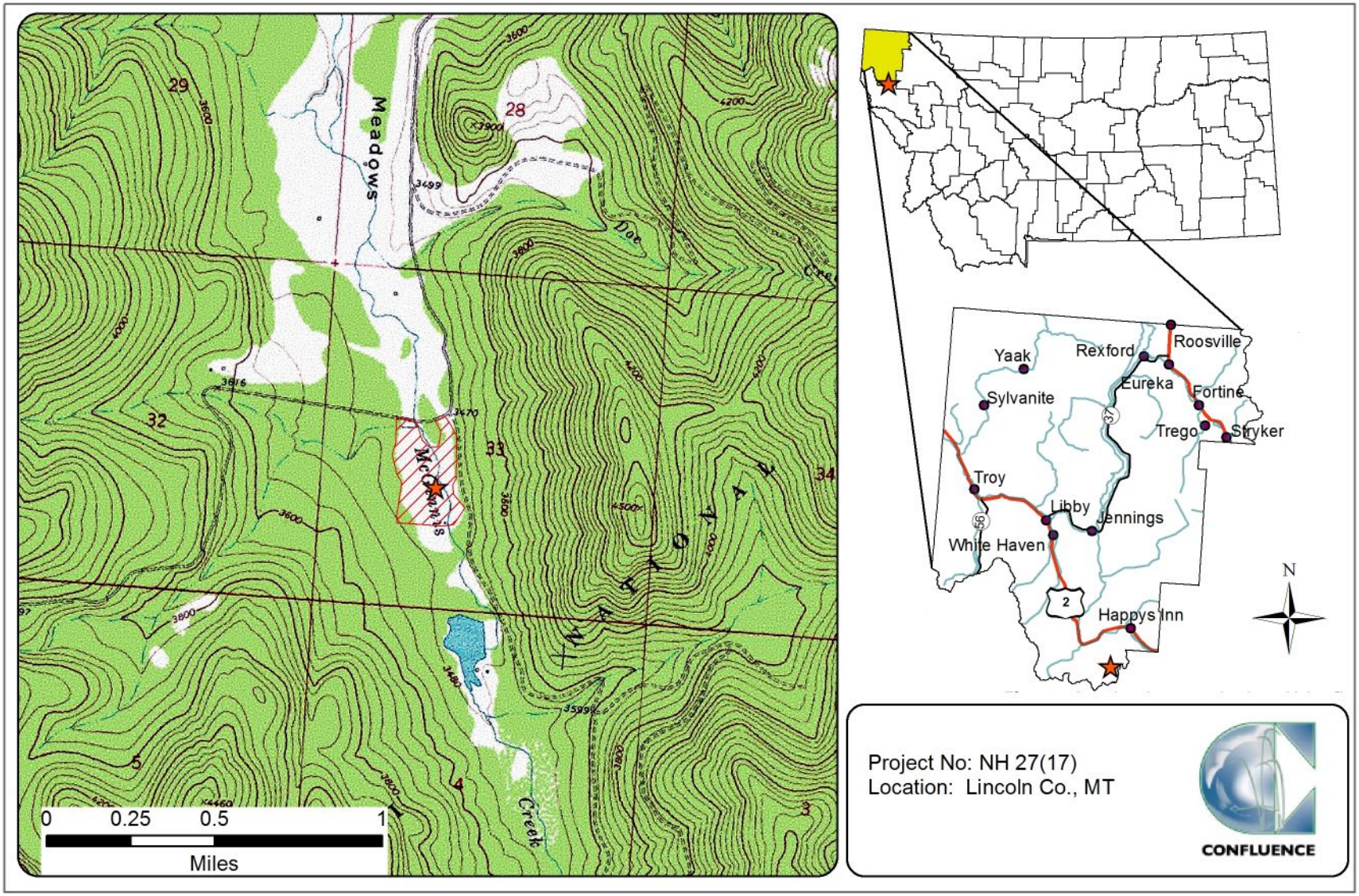

Figure 1. Project location of McGinnis Meadows Wetland Mitigation Site.

1. **Wetland Characteristics**: All restored, created, enhanced, and preserved wetlands within the project limits will meet the three parameter criteria for hydrology, vegetation, and soils established for determining wetland areas as outlined in the *1987 Corps of Engineers Wetlands Delineation Manual for the Determination of Wetlands* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0*)* (USACE 2010).
    a) **Wetland Hydrology Success** will be achieved where wetland hydrology is present as per the technical guidelines in the 1987 USACE wetland manual and 2010 regional supplement. Soil saturation will be present for at least 12.5 percent of the growing season.
    b) **Hydric Soil Success** will be achieved where hydric soil conditions are present (per the most recent NRCS definitions for hydric soil) or appear to be forming, the soil is sufficiently stable to prevent erosion, and the soil is able to support plant cover. Soil profile development will be documented during the course of the monitoring period to determine if wetland areas are exhibiting characteristics of hydric soils per current guidance. Since typical hydric soil indicators may require long periods to form, a lack of distinctive hydric soil features will not be considered a failure if hydrologic and vegetation success are achieved.
    c) **Hydrophytic Vegetation Success** will be achieved where aerial cover of facultative or wetter species is greater than or equal to 70 percent and Montana State-listed noxious weeds do not exceed 5 percent cover.

    The following concept of "dominance", as defined in the 1987 USACE manual, will be applied during future routine wetland determinations in created/restored wetlands: "*Subjectively determine the dominant species by estimating those having the largest relative basal area (woody overstory), greatest height (woody understory), greatest percentage of aerial cover (herbaceous understory), and/or greatest number of stems (woody vines).*"
        i. Woody Plants – Plantings will be considered successful where they exceed 50 percent survival after five years. The natural colonization of woody plant species from nearby sources is anticipated once the grazing, haying, and construction activities are removed from the site. The rate and extent of natural woody plant colonization will be dependent on factors such as habitat availability, beaver activity, seed sources, and other natural selection factors.

2. **Open Water:** It is the intent of the project to provide open water during the spring and early summer within excavated depressions. Open water will be considered successful and creditable.

3. **McGinnis Creek Channel Restoration Success** will be evaluated in terms of revegetation success.
    a) Revegetation along the new McGinnis Creek channel corridor will be considered successful when banks are vegetated with a majority of deep-rooting riparian and wetland plant species.
    b) The intent of the stream restoration is to allow the stream to migrate naturally within the floodplain and to give it enough room to move and stabilize itself within the site.

4. **Upland Buffer Success** will be achieved when the noxious weeds do not exceed 5 percent of cover within the buffer areas on site. Any area within the creditable buffer zone disturbed by project construction must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.

5. **Weed Control** will be based upon annual monitoring of the site to determine weed species and degree of infestation within the site. Control measures, based upon the monitoring results, will be implemented by MDT to minimize and/or eliminate the intrusion of State Listed Noxious weed species within the site. The MDT is currently managing the property to control relic weed problems prior to the initiation of wetland construction activities within the site.

6. **Fencing** of the proposed mitigation site has been installed around the perimeter of the site to protect the integrity of the wetland from disturbance. Fencing installed along the perimeter of the site was designed to be “wildlife friendly” to allow for wildlife movement into and out of the wetland complex.

2. METHODS

The fifth monitoring event was completed on July 30, 2014. Information collected during the field investigation was recorded on the Mitigation Monitoring Form and Wetland Determination Data Form (Appendix B). Monitoring activity locations were located with a global positioning system (GPS) (Figure 2, Appendix A). Information collected during the site visit included a wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data, stream channel cross-sectional surveys, bird and wildlife use documentation, photographs, and a non-engineering examination of the infrastructure established within the mitigation project area.

2.1. Hydrology

Technical criteria for wetland hydrology guidelines have been established as “permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (usually 14 days or 12.5 percent or more during the growing season) (Environmental Laboratory 1987).” Systems with continuous inundation or saturation for greater than 12.5 percent of the growth period are classified as wetlands. The growth period is defined for purposes of

this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28.5 degrees Fahrenheit (Environmental Laboratory 1987). The growth period recorded for the meteorological station at Libby 32 SSE, Montana (245020), located approximately 20 miles northwest of the project site, extends from June 13 to September 1 for a total of 81 days (NRCS 2010). Areas defined as wetlands would require 10 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria and performance standards.

Hydrologic indicators as outlined on the Wetland Determination Data Form were documented at four data points established within the project area. Groundwater levels were measured in three monitoring wells with an electronic water level meter. The well locations are shown on Figure 2 (Appendix A).

2.2. Stream Channel Survey

Three baseline stream cross-sections were surveyed in 2010 at permanent locations marked with bank pins to assess bank stability and lateral migration throughout the monitoring period. The cross-section locations are shown on Figure 2 (Appendix A). The stream cross-sections were resurveyed from 2011 through 2014. The results of the three cross-section surveys over the four monitoring years are presented on Charts 1 through 3. Photographs of the cross-sections from 2010 to 2014 are shown on pages C-17 through C-28 of Appendix C.

2.3. Vegetation

The boundaries of dominant species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2014 aerial photograph (Figure 3, Appendix A). The community types listed on the Mitigation Monitoring Form and Figure 3 were named for the top one and/or two most prevalent species according to percent cover. The percent cover of dominant species within a community type was estimated and recorded on the monitoring form using the following ranges: 0 (less than 1 percent), 1 (1 to 5 percent), 2 (6 to 10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B).

Temporal changes in vegetation are evaluated through annual assessments of static belt transects established in summer 2010 (Figure 2, Appendix A). Vegetation composition was assessed and recorded along two vegetation belt transects approximately 10 feet wide and 504 feet (T-1) and 1000 feet long (T-2) (Figure 2, Appendix A). The transect locations were recorded with a resource gradeGPS unit. Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same cover ranges listed for the community data (Appendix B). Photographs were taken at the endpoints of each transect during the monitoring event (Appendix C).

The Montana State Noxious Weed List (September 2010), prepared by the Montana Department of Agriculture, was used to categorize weeds identified within the site. The location of noxious weeds was noted in the field and mapped on the 2013 aerial photograph (Figure 3, Appendix A). The noxious weed species identified are color-coded and marked by the symbol "**x**", "▲", or "■", representing 0 to 0.1 acre, 0.1 to 1.0 acre, or greater than 1.0 acre in extent, respectively. The letters T, L, M, or H on Figure 3 represent cover classes of less than 1 percent, 1 to 5 percent, 6 to 25 percent, and 26 to 100 percent, respectively (Appendix A). Site monitoring included an evaluation of the condition of woody species planted onsite. Woody species survival is assessed annually.

2.4. Soil

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

2.5. Wetland Delineation

Waters of the US including jurisdictional wetlands and special aquatic sites were delineated throughout the project area in accordance with criteria established in the 1987 USACE Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010). 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 USACE Manual, must be satisfied. The name and indicator status of plant species were derived from the 2014 National Wetland Plant List (NWPL) (Lichvar *et al*. 2014). The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate jurisdictional areas within the project boundaries. Four wetland data points (Figure 2 in Appendix A) were evaluated in 2014 to help define the wetland/upland boundaries. The information was recorded electronically on the Wetland Determination Data Form (Appendix B).

The wetland boundaries were determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross-referenced with soil and vegetation communities as supportive information for the delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. When 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. mud flat. In the case of constructed mitigation wetlands, hydric soils do not

have to be present based on the timeframe required for soil development. The wetland boundaries were GPS-surveyed and identified on the 2014 aerial photography. Wetland areas reported were determined using GIS methods.

2.6. Wildlife

Observations of mammal, reptile, amphibian, and bird use within the project area 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. These signs were recorded incidental to other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of animal species observed from 2010 to 2014 was compiled for this report.

2.7. Functional Assessment

The 2008 MDT MWAM was used to evaluate functions and values on the site from 2010 to 2014. This method provides an objective means of assigning wetlands an overall rating and provides regulators a means of assessing mitigation success based on wetland functions. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and relate to ecological significance without regard to subjective human values (Berglund and McEldowney 2008).

An MDT MWAM form was completed for each of four Assessment Areas (AAs) within the McGinnis Meadows mitigation site. Figure 4 shows the location of the four AAs, which include: Creation (excavated cells), Restoration (re-establishment and rehabilitation area), Enhancement (existing emergent wetland), and Preservation (existing riverine wetlands).

2.8. Photo Documentation

Monitoring at photo points provided supplemental information documenting wetland and upland conditions, site trends, current land uses surrounding the site, and vegetation transect conditions. Photographs were taken at established photo points throughout the mitigation site during the 2014 site visit (Appendix C). Photo point locations were recorded with a resource grade GPS unit and are shown on Figure 2 of Appendix A.

2.9. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit and a Trimble GeoHX GPS unit during the 2014 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 a GPS included wetland boundaries, fence boundaries, photograph points, transect endpoints, and wetland data points.

2.10. Maintenance Needs

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

3. RESULTS

3.1. Hydrology

Climate data from the Libby 32 SSE, Montana (245020) weather station recorded an average total annual precipitation rate of 24.44 inches from 1949 to 2013 (WRCC 2014). Annual precipitation for 2010, 2011, 2012, and 2013 was 22.01, 22.64, 27.19, and 16.75 inches, respectively. Average precipitation for the period of record from January to August was 14.94 inches. Precipitation totals recorded from January to August were 11.65 inches (2010), 15.05 inches (2011), 16.2 inches (2012), 10.01 inches (2013) and 15.90 inches (2014). In general, the region surrounding the project area exhibited below-average precipitation in 2010 and 2013 and above-average precipitation in 2011, 2012, and 2014 prior to and during the growing season. Based on field observations of hydrology within the site over the 5-year monitoring period, water levels within the excavated basins appear largely influenced by groundwater and stream discharge with moderate influence from direct precipitation.

The project site was historically drained, filled, and leveled for agricultural purposes in the early to mid 1900's. The McGinnis Creek corridor was channelized during the same timeframe, substantially altering the natural floodplain of the property. Mitigation activities included constructing a more sinuous McGinnis Creek channel. The creek bisects the project area. The McGinnis Creek watershed is approximately 10.2 square miles in area. The hydrologic connection between the creek and associated floodplain resulted in an elevated local groundwater table along the drainage. The constructed depressions were excavated to a depth that would intercept the peak seasonal groundwater elevation. Overbank flooding events recharge surface water to the depressions excavated within the floodplain along McGinnis Creek and throughout the mitigation site. Groundwater, precipitation, overbank flooding of McGinnis Creek, and surface runoff from ephemeral drainages on the adjacent slopes of the Kootenai National Forest sustain the wetland hydrology throughout McGinnis Meadows.

The average depth of surface water in areas of inundation across the site in 2014 was estimated at 1.0 foot with surface water depths ranging from 0.0 to 3.5 feet within the created cells. Approximately 15 percent of the entire site was inundated during the July site investigation, including the aquatic macrophytes/open water community and McGinnis Creek. The average depth at the emergent vegetation and open water boundary was 1.5 feet.

Groundwater levels were measured in three onsite wells (Table 1 and Figure 2, Appendix A) located within areas that were originally delineated as wetlands in 2005 and 2006. Groundwater elevations were more than 1.0 foot below the ground surface (bgs) in 2010 (Table 1). Groundwater levels were higher overall in 2011, measuring less than 1.0-foot bgs at Well 1 in 2011. Groundwater depths were lower in July 2012, ranging between 1.9 feet and 3.3 feet bgs. Groundwater levels measured in all three wells in 2013 were lower than the previous two years. The groundwater elevation of 2.0 feet bgs measured in Well 1 was the same in 2014 as in 2013. The groundwater level in Well 2 was 0.74 feet higher in 2014 than in 2013. The groundwater depth dropped 0.47 feet in Well 3 in 2014 as compared to 2013. Groundwater elevations in Well 2 appear to be more closely linked to annual precipitation rates based on the groundwater level increases measured in 2011, 2012, and 2014, years with above-average precipitation. Overall, the water levels documented from 2010 to 2014 indicate the site has a fluctuating water table that drops well below one foot of the ground surface during the latter part of the growing season.

Table 1. Groundwater depths measured in Wells 1, 2 and 3 from 2010 to 2014.

	Groundwater Depth (feet bgs)				
Well Number	**2010**	**2011**	**2012**	**2013**	**2014**
Well 1	1.5	0.7	1.9	2.00	2.00
Well 2	3.3	2.4	2.4	3.24	2.5
Well 3	3.7	2.8	3.3	4.13	4.6

Four data points were sampled in 2014 to help define the wetland and upland boundaries (Figure 2, Appendix A and Monitoring Form, Appendix B). Data points TP A wet and TP B wet were located in areas that met the wetland criteria. Secondary wetland hydrology indicators at TP A wet located in wetland Community Type 7 included drainage patterns and geomorphic position. Oxidized rhizospheres, geomorphic position, and a positive FAC-neutral test were observed at TP B wet located within wetland Community Type 18. Data points TP A up and TP B up did not display any primary or secondary indicators of wetland hydrology.

3.2. McGinnis Creek Channel

Surface water flow rates through the McGinnis Meadows wetland mitigation site are dependent upon releases from a reservoir located less than one mile south of the project site. Two, 24-inch equalizing pipes and a lower culvert that serves as a drain through an impoundment control the flow rates from the reservoir. The base of the new McGinnis Creek channel was constructed at a higher elevation than the incised, abandoned channel to facilitate overbank flow from the creek and to raise groundwater elevations across the site. The fisheries habitat was improved by excavating pools in the outside channel bends. The stream banks of McGinnis Creek were minimally disturbed during construction and are currently primarily vegetated with field meadow-foxtail (*Alopecurus pratensis*), common spikerush (*Eleocharis palustris*), Baltic rush (*Juncus balticus*), sedges

(*Carex spp*.) and reed canary grass (*Phalaris arundinacea*) throughout the project site. Reed canary grass and Baltic rush have plant stability ratings of 9, where 1 is the lowest and 10 is the highest. Most sedges have stability ratings of 8 or 9. Field meadow-foxtail and common spikerush are not rated (Winward 2000). The existing vegetation on the banks of the restored channel is expected to provide long-term stability and allow minimal lateral stream migration across the site.

The results of the three cross-sectional surveys collected over the five years of monitoring are presented on Charts 1 through 3. Photographs of the cross-sections from 2010 to 2014 are shown on pages C-17 through C-28 of Appendix C. The photos illustrate a notable increase in the vegetation cover since construction. Results of the cross-section surveys indicate that stream adjustments occurred at the permanent monitoring locations between 2012 and 2013. A slight widening of the channel occurred at each of the three surveyed cross sections in 2013. Undercut banks have been observed at cross sections 2 and 3 in previous years. The stream widening observed in 2013 at cross-sections 2 and 3 is likely the result of partial collapse of these undercut banks. Coarse woody debris was placed throughout the channel immediately following construction to promote in-stream habitat. Large trees were situated in the stream within the immediate vicinity of cross-sections 2 and 3. Increased stream velocities associated with the large woody debris exert a corresponding increase in erosional forces on the streambanks immediately adjacent to these trees. The increased velocities around the in-stream woody debris appear to have modified the channel morphology. Incision of the channel (approximately 1-foot) was observed in 2013 at cross section 3, potentially the result of these increased water velocities flowing around coarse woody debris placed in the stream during construction. A portion of this streambed at cross-section 3 exhibited slight incision again in 2014, although this may be the results of slight survey variability. Steep banks were observed upstream of cross section 1 where the stream enters the site. The surveyed cross-sections indicated relatively stable conditions between 2013 and 2014, with some slight aggradation along the left bank of cross-section 1. Minimal changes were observed at cross-section 2 and cross-section 3 in 2014. Overall, the banks of McGinnis Creek were well vegetated and did not exhibit visible erosion on any of the reaches throughout the project area in 2014.

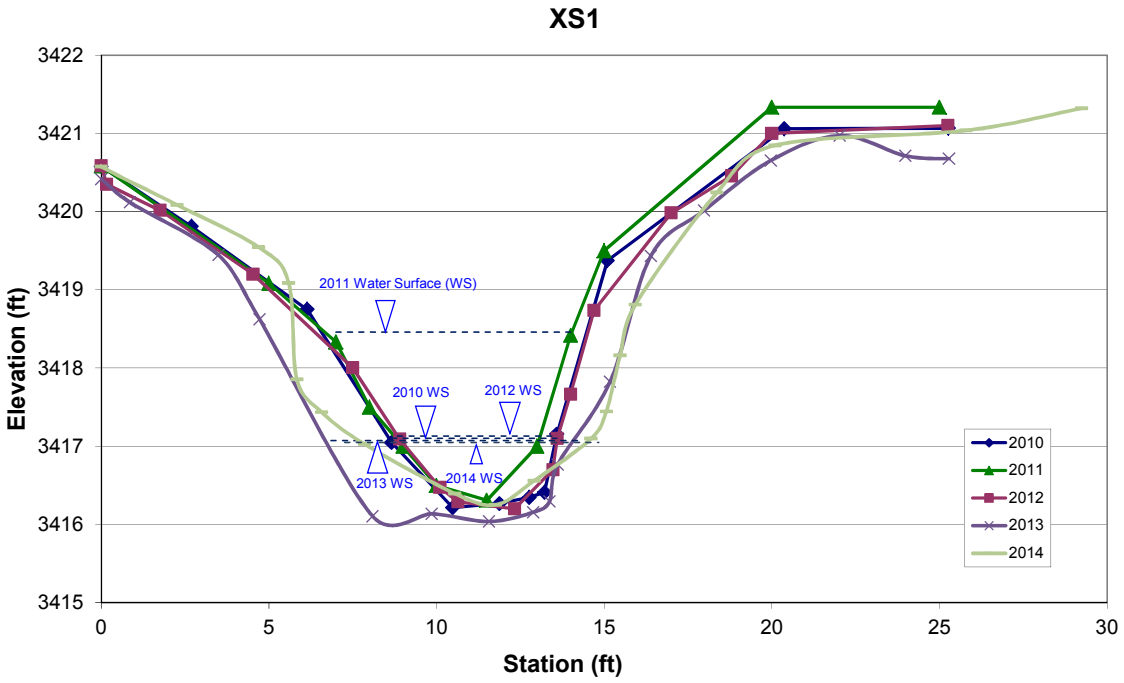

Chart 1. McGinnis Creek stream cross-section one.

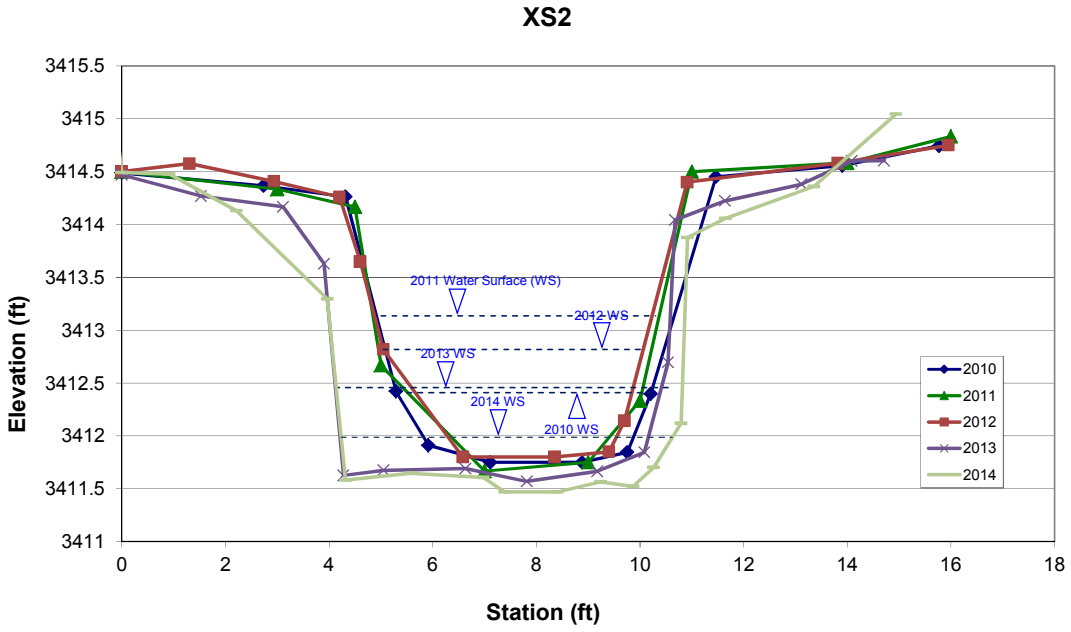

Chart 2. McGinnis Creek stream cross-section two.

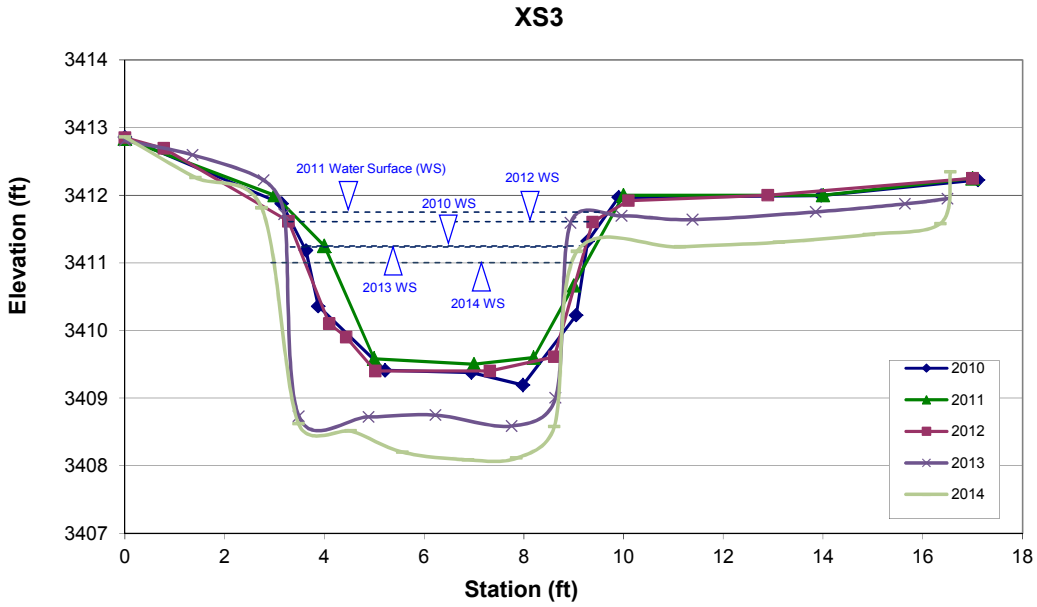

Chart 3. McGinnis Creek stream cross-section three.

3.3. Vegetation

Vegetation communities were mapped and named based on the dominant species within a community and the results of the wetland delineation data. A list of the 154 plant species identified at the McGinnis Meadows wetland mitigation site from 2010 to 2014 is provided in Table 2. The communities and associated species are listed on the Mitigation Monitoring Form in Appendix B and mapped on Figure 3 in Appendix A. The 2014 monitoring event identified eleven vegetation communities, seven wetland types, and four upland types (Figure 3, Appendix A). In general, vegetation communities across the majority of the site (95%) have remained stable with just a slight change to a portion of the upland/boundary in an area that displayed increased hydrology and sedge development. These communities are discussed below.

Upland community Type 1 – *Alopecurus pratensis/Phalaris arundinacea* was identified within 2.14 acres in 2014, a reduction of 1.17 acres since 2013. The frequency and duration of wetland hydrology in portions of the historic upland area resulted in the conversion of portions of this upland community to a new wetland community Type (18) in 2013 and 2014. The upland community is found along the higher elevations adjacent to wetland communities. This upland community was dominated by facultative and facultative wetland species. A wetland determination data point completed in this community did not provide evidence of wetland hydrology within the upland community during the 2014 field investigation. Field meadow-foxtail (*Alopecurus pratensis*) dominated the community with lesser amounts of reed canary grass (*Phalaris arundinacea*) and thirteen secondary species present at five percent cover or less (Mitigation Monitoring Form, Appendix B).

Table 2. Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Scientific Names	Common Names	WMVC Indicator Status[1]
Abies lasiocarpa	Subalpine Fir	FACU
Achillea millefolium	Common Yarrow	FACU
Agrostis gigantea	Black Bent	FAC
Agrostis scabra	Rough Bent	FAC
Agrostis stolonifera	Spreading Bent	FAC
Algae, brown	Algae, brown	NL
Algae, green	Algae, green	NL
Alnus incana	Speckled Alder	FACW
Alnus viridis	Sitka Alder	FACW
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL
Alopecurus pratensis	Field Meadow-Foxtail	FAC
Amelanchier alnifolia	Saskatoon Service-Berry	FACU
Antennaria parvifolia	Nuttall's Pussytoes	NL
Antennaria rosea	Rosy Pussytoes	NL
Apera interrupta	Dense Silky Bentgrass	NL
Arctostaphylos uva-ursi	Red Bearberry	FACU
Argentina anserina	Silverweed cinquefoil	NL
Arnica chamissonis	Leafy Leopardbane	FACW
Aster sp.	Aster	NL
Beckmannia syzigachne	American Slough Grass	OBL
Berberis repens	Creeping Oregon-grape	NL
Bromus carinatus	California Brome	NL
Bromus inermis	Smooth Brome	FAC
Calamagrostis canadensis	Bluejoint	FACW
Calamagrostis rubescens	Pinegrass	NL
Campanula rotundifolia	Bluebell-of-Scotland	FACU
Capsella bursa-pastoris	Shepherd's-Purse	FACU
Cardamine pensylvanica	Quaker Bittercress	FACW
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex athrostachya	Slender-Beak Sedge	FACW
Carex bebbii	Bebb's Sedge	OBL
Carex microptera	Small-Wing Sedge	FACU
Carex nebrascensis	Nebraska Sedge	OBL
Carex pachystachya	Thick-Head Sedge	FAC
Carex petasata	Liddon Sedge	UPL
Carex praticola	Northern Meadow Sedge	FACW
Carex sp.	Sedge	NL

[1] 2014 NWPL (Lichvar *et al* ., 2014)

Species identified for the first time in 2014 are **bolded**.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Scientific Names	Common Names	WMVC Indicator Status[1]
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Centaurea stoebe	Spotted Knapweed	NL
Cerastium fontanum	Common Mouse-Ear Chickweed	FACU
Ceratophyllum demersum	Coon's-Tail	OBL
Chenopodium album	Lamb's-Quarters	FACU
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Comarum palustre	Purple Marshlocks	OBL
Convolvulus arvensis	Field Bindweed	NL
Crataegus douglasii	Black Hawthorn	FAC
Cynoglossum officinale	Gypsy-Flower	FACU
Dactylis glomerata	Orchard Grass	FACU
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Herb Sophia	NL
Eleocharis palustris	Common Spike-Rush	OBL
Eleocharis sp.	**Spike-Rush**	
Elymus glaucus	Blue Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FAC
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Epilobium palustre	Marsh Willowherb	OBL
Equisetum arvense	Field Horsetail	FAC
Equisetum sp.	Horsetail	NL
Erysimum cheiranthoides	Worm-Seed Wallflower	FACU
Fragaria virginiana	Virginia Strawberry	FACU
Galium trifidum	Three-Petal Bedstraw	FACW
Galium triflorum	Fragrant Bedstraw	FACU
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria borealis	Small Floating Manna Grass	OBL
Glyceria elata	Tall Manna Grass	FACW
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Gnaphalium palustre	Western Marsh Cudweed	FACW
Heracleum maximum	American Cow-Parsnip	FAC
Heracleum sphondylium	Eltrot	FAC
Hordeum brachyantherum	Meadow Barley	FACW

[1] 2014 NWPL (Lichvar *et al*., 2014)

Species identified for the first time in 2014 are **bolded**.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Scientific Names	Common Names	WMVC Indicator Status[1]
Juncus articulatus	Joint-Leaf Rush	OBL
Juncus balticus	Baltic Rush	FACW
Juncus bufonius	Toad Rush	FACW
Juncus confusus	Colorado Rush	FAC
Juncus effusus	Lamp Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus longistylis	Long-Style Rush	FACW
Juncus nevadensis	Sierran Rush	FACW
Juncus nodosus	**Knotted Rush**	**OBL**
Juncus tenuis	Lesser Poverty Rush	FAC
Larix occidentalis	Western Larch	FACU
Lemna minor	Common Duckweed	OBL
Linaria vulgaris	**Butter-and-eggs**	**NL**
Linum lewisii	Prairie Flax	NL
Maianthemum stellatum	Starry False Solomon's-Seal	FAC
Medicago lupulina	Black Medick	FACU
Mentha arvensis	American Wild Mint	FACW
Mimulus guttatus	Seep Monkey-Flower	OBL
Montia linearis	Linear-Leaf Candy-Flower	FAC
Myosotis stricta	Small-flowered Forget-me-not	NL
Myriophyllum sp.	Water-Milfoil	NL
Myriophyllum spicatum	Eurasian Water-Milfoil	OBL
Packera pseudaurea	Streambank Groundsel	FACW
Penstemon confertus	Yellow Beardtongue	NL
Persicaria amphibia	Water Smartweed	OBL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Picea engelmannii	Engelmann's Spruce	FAC
Pinus contorta	Lodgepole Pine	FAC
Pinus ponderosa	Ponderosa Pine	FACU
Plantago major	Great Plantain	FAC
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Poa sp.	Blue Grass	NL
Polygonum douglasii	Douglas' Knotweed	FACU
Populus tremuloides	Quaking Aspen	FACU
Potentilla gracilis	Graceful Cinquefoil	FAC

[1] 2014 NWPL (Lichvar *et al*., 2014)

Species identified for the first time in 2014 are **bolded**.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Scientific Names	Common Names	WMVC Indicator Status[1]
Potentilla norvegica	Norwegian Cinquefoil	FAC
Potentilla recta	Sulphur Cinquefoil	NL
Potentilla sp.	Cinquefoil	NL
Prunella vulgaris	Common Selfheal	FACU
Pseudotsuga menziesii	Douglas-Fir	FACU
Puccinellia nuttalliana	Nuttall's Alkali Grass	FACW
Ranunculus aquatilis	White Water-Crowfoot	OBL
Rorippa palustris	Bog Yellowcress	OBL
Rosa woodsii	Woods' Rose	FACU
Rubus idaeus	Common Red Raspberry	FACU
Rumex acetosella	Common Sheep Sorrel	FACU
Rumex crispus	Curly Dock	FAC
Salix sp.	Willow	NL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Scutellaria galericulata	Hooded Skullcap	OBL
Senecio hydrophilus	Alkali-Marsh Ragwort	OBL
Silene menziesii	White Catchfly	FAC
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sparganium angustifolium	Narrow-Leaf Burr-Reed	OBL
Sparganium emersum	European Burr-Reed	OBL
Stellaria longifolia	Long-Leaf Starwort	FACW
Symphoricarpos albus	Common Snowberry	FACU
Symphyotrichum laeve	Smooth Blue American-Aster	FACU
Symphyotrichum lanceolatum	White Panicled American-Aster	OBL
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	NL
Trifolium aureum	Yellow Clover	NL
Trifolium hybridum	Alsike Clover	FAC
Trifolium repens	White Clover	FAC
Triglochin maritima	Seaside Arrow-Grass	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Urtica dioica	Stinging Nettle	FAC
Vaccinium caespitosum	Dwarf Blueberry	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica americana	American-Brooklime	OBL
Veronica peregrina	Neckweed	OBL
Veronica scutellata	Grass-Leaf Speedwell	OBL
Veronica serpyllifolia	Thyme-Leaf Speedwell	FAC
Viola adunca	Hook-Spur Violet	FAC
Viola sp.	Violet	NL

[1] 2014 NWPL (Lichvar *et al* ., 2014)

Species identified for the first time in 2014 are **bolded**.

Wetland community Type 2 – Aquatic Macrophytes/Open Water has developed on 1.9 acres in the deeper contours of the excavated depressions. The vegetation community has established under persistently inundated growing conditions. Vegetation species within the inundated areas included aquatic macrophytes, green algae, American manna grass (*Glyceria grandis*), reed canary grass, Northwest Territory sedge (*Carex utriculata*), and 16 other species with less than one percent cover each.

Upland Type 4 – *Picea engelmannii/Alopecurus pratensis* represented two small upland forests located on 0.86 acres in the southeast corner of the property that contained a high percent cover of Canadian thistle (*Cirsium arvense*). Woody species included Englemann's spruce (*Picea engelmannii*), lodgepole pine *(Pinus contorta*), ponderosa pine (*Pinus ponderosa*) and common snowberry (*Symphoricarpos albus*). Field meadow-foxtail and reed canary grass dominated the understory.

Wetland community Type 5 – *Phalaris arundinacea/Alnus incana* was a 1.64-acre, scrub-shrub, speckled alder (*Alnus incana*) and black hawthorn (*Crataegus douglasii*) community located near the southwest property corner. Reed canary grass dominated the understory. Northwest Territory sedge, Nebraska sedge (*Carex nebrascensis*), American cow-parsnip (*Heracleum maximum*), and red-tinge bulrush (*Scirpus microcarpus*) were identified within the community.

The 0.63-acre Wetland community Type 6 - *Carex utriculata* community was identified in two small depressions surrounded by community type 7 in the northwest portion of the site, and in the area east of center of the site. Northwest Territory sedge was the predominant species. Reed canarygrass, field meadow-foxtail, American wild mint (*Mentha arvensis*), fowl bluegrass (*Poa palustris*), and stinging nettle (*Urtica dioica*) were also present within this community at less than 10 percent cover.

Wetland community Type 7 – *Phalaris arundinacea/Alopecurus pratensis* dominated 16.83 acres within pre-existing wetlands throughout the site. A detailed investigation of the community in 2012 characterized the entire area as wetland. Reed canary grass and field meadow-foxtail dominated the community with less than five percent cover of each of 23 additional species including five *Carex* spp.

Wetland Type 11 – *Alnus incana*/*Phalaris arundinacea* was identified on the 0.51-acre former McGinnis channel that traverses the property north to south. Speckled alder, reed canary grass, Northwest Territory sedge, red-tinge bulrush, field meadow-foxtail, and American cow-parsnip dominated the vegetation.

Upland community Type 14 – *Alopecurus pratensis*/*Pseudotsuga menziesii* was located within 2.16 acres in the southwest corner of the project site. Douglas-fir (*Psuedotsuga menziesii*), lodgepole pine, and western larch (*Larix occidentalis*)

dominated the overstory. Woody species present within the understory included common snowberry, speckled alder, and subalpine fir (*Abies lasiocarpa*). Field meadow-foxtail dominated the herbaceous understory combined with six other species present at less than five percent cover.

Upland community Type 16 – *Phalaris arundinacea*/Soil mounds was identified on 0.30 acres that included the mounds created to provide woody species habitat throughout the site. The community contained reed canary grass, Canadian thistle, and great mullein (*Verbascum thapsus*). None of the woody species planted in these areas survived, likely a result of herbivory by native ungulates.

Wetland community Type 17 – *Glyceria grandis/Carex* spp. characterized 3.71 acres of the excavated depressions that exhibited a slightly drier moisture regime (saturated, not inundated) than the adjacent open water of Community 2. The community was renamed in 2012 from community Type 13 – *Deschampsia caespitosa*/*Glyceria grandis* to reflect an increase in the prevalence of sedge species and a decrease in the amount of tufted hairgrass. American manna grass, Nebraska sedge, Bebb's sedge (*Carex bebbii*), slender-beak sedge (*Carex arthrostachya*), thick-head sedge (*Carex pachystachya*), stalk-grain sedge (*Carex stipata*), Northwest Territory sedge, speckled alder, smooth brome (*Bromus inermis*), Canadian thistle, common spike-rush (*Eleocharis palustris*), and reed canary grass dominated the diverse community.

Wetland community Type 18 – *Alopecurus pratensis*/*Carex* spp. was identified for the first time in 2013 to characterize a 0.16-acre area located near the southeast border of the project. The extent of the community increased by 1.17 acres to 1.33 acres in 2014. A wetland plant community has developed in an area previously delineated as upland. The community is dominated by field-meadow foxtail, Bebb's sedge, slender-beak sedge, tufted hairgrass, and Colorado rush (*Juncus confusus*).

Polygon 15 in Figure 3 (Appendix A) represents 0.75 acres identified as waters of the US within the ordinary high water mark (OHWM) of the McGinnis Creek channel.

Table 3 and Charts 4 and 5 summarize the data collected in 2014 for transect T-1. The transect intersects two excavated wetland basins and four communities, including upland Type 4 – *Picea engelmannii*/*Alopecurus pratensis*, wetland Type 2 – Aquatic Macrophytes/Open Water, wetland Type 7 – *Phalaris arundinacea/Alopecurus pratensis*, and wetland Type 17 – *Glyceria grandis/Carex* spp. The cover of sedge species increased on the transect initially in 2012, which was reflected by the transition from 2011 wetland Type 13 – *Deschampsia/Glyceria* to 2012 wetland Type 17 – *Glyceria/Carex* spp. The extent of open water in the constructed depressions decreased slightly from 2012 to 2013 while the length of wetland Type 17 increased. Changes in the transect intervals from 2013 to 2014 included the replacement to upland Type 4 from

upland Type 1 on the first transect interval and the increase in the amount of open water in the large southeast depression. Hydrophytic species dominated 93.7 percent of the transect from 2012 to 2014. The cover of wetland plants in the constructed depressions continued to increase from 2012 to 2014.

Table 3. Data summary for transect T-1 from 2010 to 2014 at the McGinnis Meadows Wetland Mitigation Site.

Monitoring Year	2010	2011	2012	2013	2014
Transect Length (feet)	504	504	504	504	504
Vegetation Community Transitions along Transect	5	7	5	5	5
Vegetation Communities along Transect	2	4	4	4	4
Hydrophytic Vegetation Communities along Transect	0	3	3	3	3
Total Vegetative Species	43	59	41	30	29
Total Hydrophytic Species	30	37	30	24	24
Total Upland Species	13	22	11	6	5
Estimated % Total Vegetative Cover	60	80	95	95	95
Estimated % Unvegetated	40	20	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	0.0	91.9	93.7	93.7	93.7
% Transect Length Comprising Upland Vegetation Communities	75.4	8.1	6.3	6.3	6.3
% Transect Length Comprising Unvegetated Open Water	24.6	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	29.3*	0.0	0.0	0.0	0.0

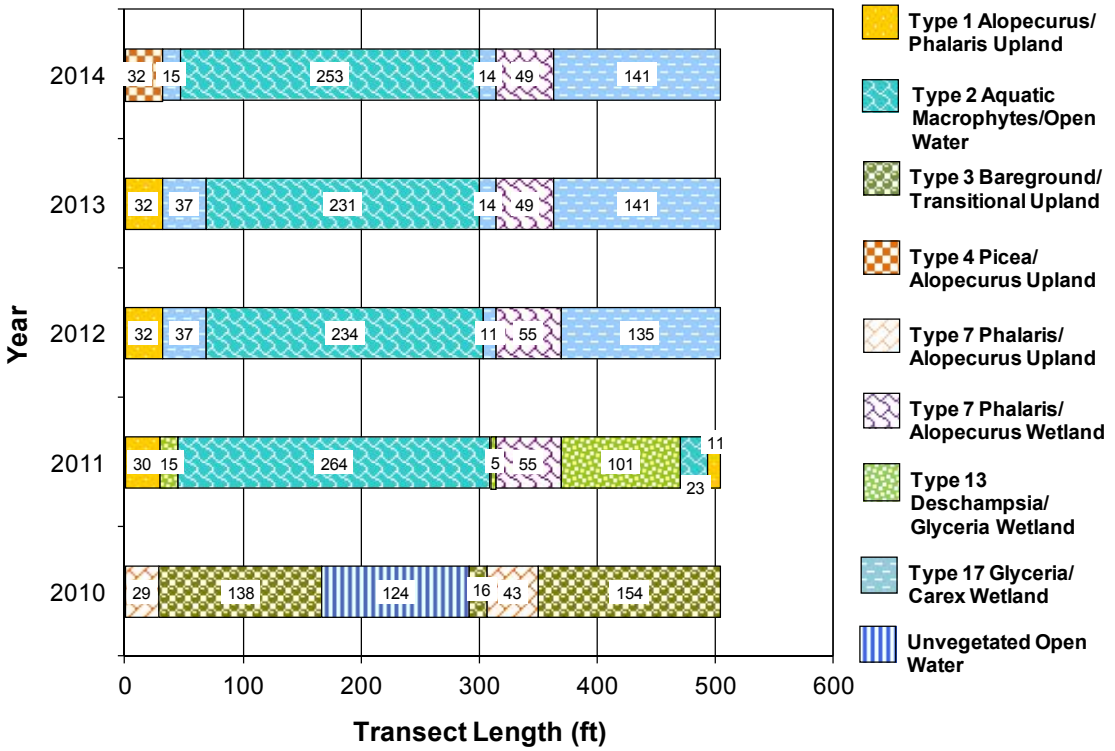

Chart 4. Transect map showing community types on transect T-1 from 2010 to 2014 from start (0 feet) to finish (504 feet).

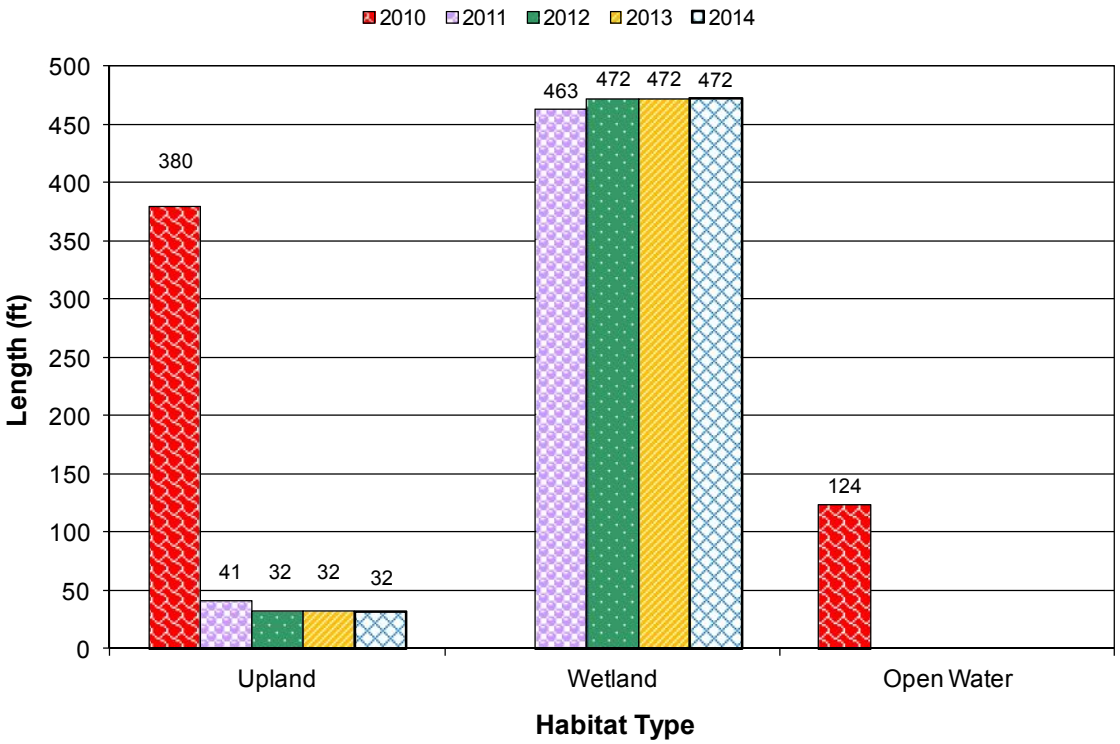

Chart 5. Length of habitat types within transect T-1 from 2010 to 2014.

Transect T-2 extends 1000 feet from the center of the property north to the site boundary. The transect crossed the waters of the US associated with the constructed McGinnis Creek channel and two wetland communities in 2014, Type 7 – *Phalaris arundinacea/Alopecurus pratensis* and Type 17 – *Glyceria grandis/Carex* spp. The seven- and ten-foot intervals of open water shown on Chart 6 represent the McGinnis Creek crossings. Hydrophytic vegetation communities accounted for 98.3 percent of this transect from 2012 to 2014.

Table 4. Data summary for transect T-2 from 2010 to 2014 at the McGinnis Meadows Wetland Mitigation Site.

Monitoring Year	2010	2011	2012	2013	2014
Transect Length (feet)	1000	1000	1000	1000	1000
Vegetation Community Transitions along Transect	14	18	12	12	12
Vegetation Communities along Transect	4	5	2	2	3
Hydrophytic Vegetation Communities along Transect	3	4	2	2	2
Total Vegetative Species	44	49	22	21	20
Total Hydrophytic Species	29	38	19	18	17
Total Upland Species	15	11	3	3	3
Estimated % Total Vegetative Cover	60	80	95	95	95
Estimated % Unvegetated	40	20	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	63.5	91.0	98.3	98.3	98.3
% Transect Length Comprising Upland Vegetation Communities	34.6	7.8	0.0	0.0	0.0
% Transect Length Comprising Unvegetated Open Water	1.9	1.2	1.7	1.7	1.7
% Transect Length Comprising Mudflat	5.0*	0.0	0.0	0.0	0.0

*Percent Bare Substrate calculated from total length of Type 3 along transect multiplied by bare ground cover in Type 3 community.

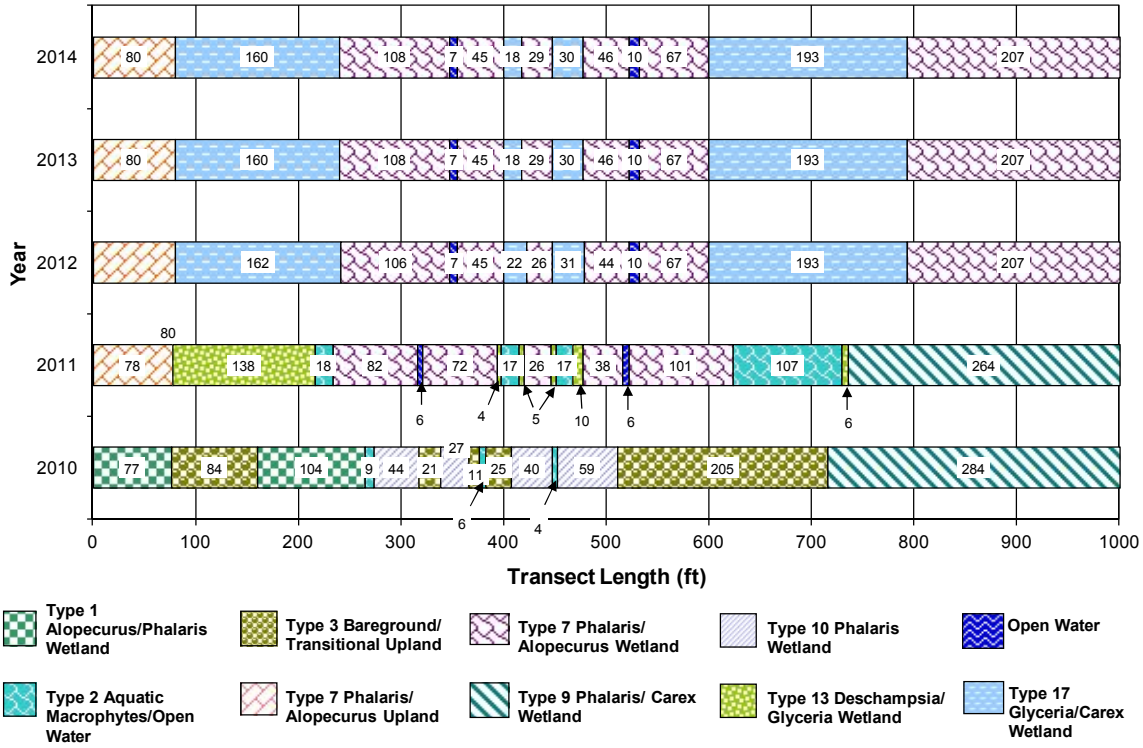

Chart 6. Transect map showing community types on transect T-2 from 2010 to 2014 from start (0 feet) to finish (1000 feet).

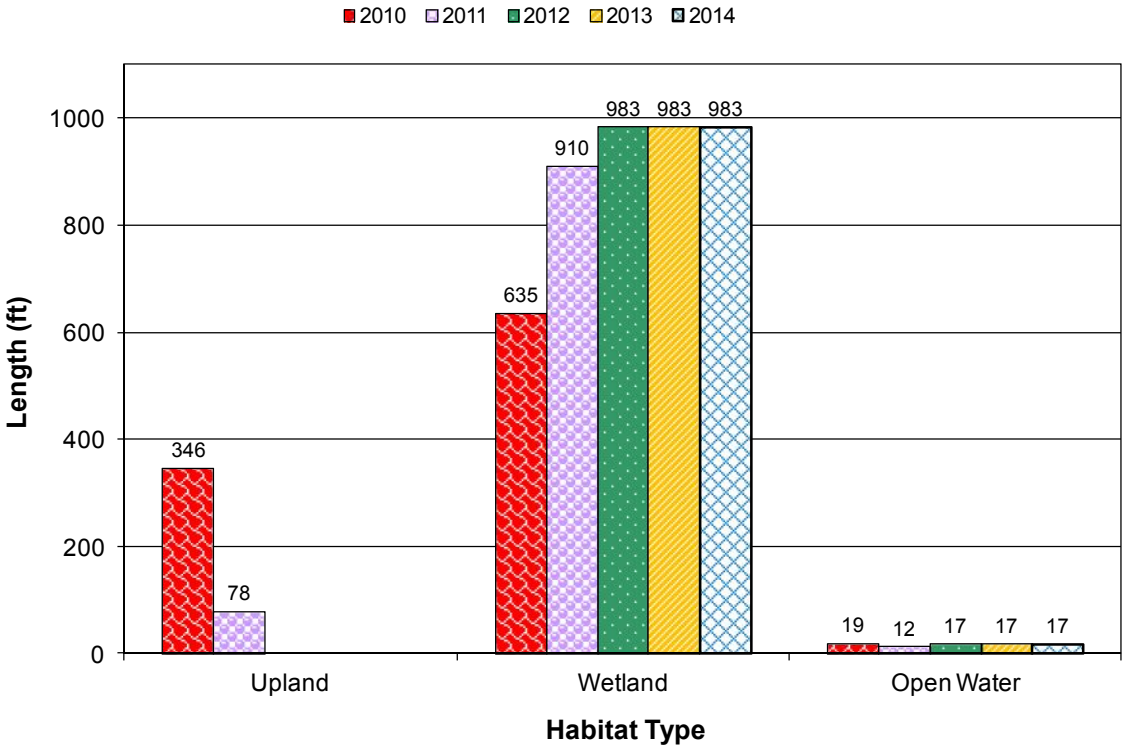

Chart 7. Length of habitat types within transect T-2 from 2010 to 2014.

Canadian thistle and Gypsy flower (*Cynoglossum officinale*, called houndstongue on 1988 list), both Priority 2B noxious weeds, were identified at the McGinnis Creek Mitigation Site. Infestations ranged in size from less than 0.1 acre to a maximum 1.0 acre in size with cover classes ranging from trace (less than 1 percent) to high (25 to 100 percent cover). The thistle cover was highest in Community 1 near the southeast boundary and in Community 7 north of McGinnis Creek near the northwest boundary. Canadian thistle has invaded upland areas that were disturbed during construction. One infestation of gypsy flower was mapped in the northwest quarter of the site near the project boundary. The infestation size was less than 0.1 acre and the cover class was low, at 1.0 to 5.0 percent.

Skeletons of numerous containerized woody plants were observed across the site in 2010 following the initial planting effort. A majority of the plants were installed on upland islands site wide. Inadequate planting methods and intensive wildlife browse and traffic severely compromised the survival of the woody plants. Initial survival rates were estimated at less than 10 percent. Additional woody species were planted in spring 2011. One hundred and fifty (150) alder (*Alnus* sp.), fifteen quaking aspen (*Populus tremuloides*), and fifteen planted willows were observed alive in 2012. Approximately 125 living alder were observed along the former channel of McGinnis Creek in 2013. The number of alder observed in 2014 was similar to 2013. The survival rate was estimated at 40 percent. The shrubs appeared to be a combination of planted, relic, and recruited alders and were not differentiated during the field survey. The natural recruitment of quaking aspen was noted in the southeast and northeast corners of the site in 2013 and 2014. Approximately 250 live quaking aspen were observed in 2014. No live red-osier dogwoods or birch (*Betula* sp.) were observed within the planting clusters. The height and density of reed canary grass site wide obscured the smaller woody saplings complicating the survival assessment.

3.4. Soil

The project site is mapped in the Lincoln County Soil Survey (USDA 2010) as Fluvents, found on floodplains in mixed alluvium. These soil types are excessively drained, gravelly silt loams taxonomically classified as sandy, mixed, frigid Typic Udifluvents that are considered hydric.

Four test pits were profiled throughout the McGinnis Meadows mitigation site in 2014. Data points TP A wet and TP B wet met the three wetland criteria. The test pits were located near the transition zone at the edge of wetland communities 7 and 18, respectively. The soil at TP A wet was a very dark brown (10YR 2/2) loam with strong brown (7.5 YR 5/6) redoximorphic concentrations in the matrix. The soil matrix in the TP B wet profile was a black (10 YR 2/1) loam with light olive brown (2.5Y 5/6) redox concentrations. The soil at TP A up was a dark grayish-brown (10YR 4/2) fine sandy loam with no hydric indicators down to 18 inches bgs. The soil pit at TP B up, located at the edge of wetland community 18, revealed a very dark brown (10 YR 2/2) loam with strong brown (7.5 YR 5/8)

redox concentrations, a positive indication of a redox dark surface. The soil in the test pit was impervious below 10 inches. The data point met the wetland criteria for vegetation and soil. However, there were no indicators of wetland hydrology at the data point. In general, the soils evaluated within the McGinnis Meadows project area did confirm the NRCS mapped series.

3.5. Wetland Delineation

Four data points were sampled in 2014 to define the vegetation, soil, and hydrology of site wetlands (Figure 2, Appendix A). The Wetland Determination Data Forms are included in Appendix B. The July 30, 2014, delineation identified a total of 26.55 acres of wetland habitat and 0.75 acres of stream habitat within the 32.75-acre project area (Table 5). The wetland acreage increased 1.17 acres from 2013 to 2014, the result of wetland development within the rehabilitated areas previously characterized as upland community 1 – *Alopecuris/Phalaris* and replaced by the newly formed wetland community 18 – *Alopecurus/Carex* spp. Wetland habitat on the site included the aquatic bed wetland community (Type 2) that has established in the open water areas of the constructed depressions from 2011 through 2014. The percent cover of vegetation within the depressions has increased annually. The MDT seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet (0.75 acres) of McGinnis Creek associated with the area below the OHWM of this channel.

Table 5. Total wetland and stream habitat acres delineated from 2010 to 2014 at the McGinnis Meadows Wetland Mitigation Site.

Habitat Type	2010 (ac)	2011 (ac)	2012 (ac)	2013 (ac)	2014 (ac)
Unvegetated Open Water	1.00	0.00	0.00	0.00	0.00
Wetlands	18.22	20.64	25.12	25.38	26.55
Total Wetland Habitat	**19.22**	**20.64**	**25.12**	**25.38**	**26.55**
McGinnis Creek - open water	0.75	0.75	0.75	0.75	0.75
Total Stream Habitat	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**

3.6. Wildlife

Table 6 is a comprehensive list of animal species observed directly or indirectly from 2010 to 2014 (Mitigation Monitoring Form, Appendix B). Species identified in 2014 included seven bird species, two Columbia spotted frogs (*Rana luteiventris*), three white-tailed deer (*Odocoileus virginianus*), one common gartersnake (*Thamnophis sirtalis*), one meadow vole (*Microtus pennsylvanicus*), and one Richardson's ground squirrel (*Spermophilus richardsonii*). The tracks of a moose (*Alces americanus*) were also noted. There were numerous deer beds in the grassy areas. Several small, unidentified fish were observed in McGinnis Creek. The birds seen in 2014, including a great horned owl (*Bubo viginianus*), are listed in bold type in Table 6. Five bird boxes were installed onsite in fall 2012. Tree swallows are using the bird boxes located in the northwest section of the site.

Table 6. Wildlife species observed at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIANS	
Columbia Spotted Frog	***Rana luteiventris***
Western Toad	*Bufo boreas*
BIRDS	
Alder Flycatcher	*Empidonax alnorum*
American Robin	*Turdus migratorius*
American Three-toed Woodpecker	*Picoides dorsalis*
Bald Eagle	*Haliaeetus leucocephalus*
Bank Swallow	*Riparia riparia*
Black-billed Magpie	*Pica hudsonia*
Bufflehead	*Bucephala albeola*
Calliope Hummingbird	*Stellula calliope*
Canada Goose	*Branta canadensis*
Cedar Waxwing	***Bombycilla cedrorum***
Common Merganser	*Mergus merganser*
Common Raven	*Corvus corax*
Common Sandpiper	*Actitis hypoleucos*
Eastern Kingbird	*Tyrannus tyrannus*
Evening Grosbeak	*Coccothraustes vespertinus*
Gadwall	*Anas strepera*
Golden Eagle	*Aquila chrysaetos*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	*Ardea herodias*
Great Horned Owl	***Bubo virginianus***
Hairy Woodpecker	***Picoides villosus***
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*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted Sandpiper	*Actitis macularius*
Tree Swallow	***Tachycineta bicolor***
Turkey Vulture	*Cathartes aura*
Unknown Flycatcher	
REPTILES	
Common Gartersnake	***Thamnophis sirtalis***

Species identified in 2014 are **bolded**.

Table 6 (continued). Wildlife species observed at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

COMMON NAME	SCIENTIFIC NAME
BIRDS	
Western Kingbird	***Tyrannus verticalis***
Western Meadowlark	*Sturnella neglecta*
Western Tanager	*Piranga ludoviciana*
Wilson's Snipe	***Gallinago delicata***
Wood Duck	*Aix sponsa*
Yellow Warbler	*Dendroica petechia*
MAMMALS	
Deer Sp.	*Odocoileus vsp.*
Elk or Wapiti	*Cervus canadensis*
Gray Wolf	*Canis lupus*
Meadow Vole	***Microtus pennsylvanicus***
Moose	***Alces americanus***
Richardson's Ground Squirrel	***Spermophilus richardsonii***
Striped Skunk	*Mephitis mephitis*
White-tailed Deer	***Odocoileus virginianus***

Species identified in 2014 are **bolded**.

3.7. Functional Assessment

Functional assessments were completed on four AAs from 2010 to 2014 using the 2008 MWAM (Table 7). The MWAM forms are included in Appendix B. The four AAs were divided into creation (excavated cells – 6.42 acres), restoration (re-establishment and rehabilitation – 18.09 acres), enhancement (existing emergent wetland – 1.74 acres), and preservation (existing riverine wetlands – 0.30 acres) (Figure 4 in Appendix A). The 1.17-acre wetland expansion in wetland community 18 was apportioned into the Restoration and Enhancement AAs based on the original design map. The acreage of the Restoration AA increased from 17.34 acres in 2013 to 18.09 acres in 2014 and the acreage of the Enhancement AA increased from 1.32 acres in 2013 to 1.74 acres in 2014.

The original onsite wetlands were impacted historically from grazing, leveling, channel straightening, and hydrological alterations, according to the 2005 baseline site evaluation. The wetland conservation easement area has been fenced and grazing has been excluded. David, Evans & Associates rated the historic waters of the US as Category III wetlands using the 1999 MDT Wetland Assessment Method.

Approximately 6.42 acres of wetlands have developed within the created cells that were located in areas identified as uplands in the baseline delineation. The cover of wetland vegetation within the footprint of the excavated cells developed rapidly from 2010 to 2014 as documented in the site photographs. The improvement in percent cover resulted in a corresponding increase in the function and value ratings. The creation AA received 79.0 percent of the total possible points in 2013 and 2014, an increase from 69.0 percent in 2012. This

AA achieved a total of 50.72 functional units in 2013 and 2014. Ratings in the MTNHP species habitat, sediment/nutrient/toxicant removal, and sediment/shoreline stabilization increased from 2012 to 2013 owing to the documentation of the site as secondary habitat for great blue heron and golden eagle and increase of vegetation within and around the shoreline of the excavated basins. Ratings in 2014 were excellent for general wildlife habitat and high for short and long-term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, groundwater discharge/recharge, and recreation/education potential.

The area of the restoration AA increased 0.75 acres to 18.09 acres in 2014. The restoration/rehabilitation of the existing wet meadow received 81.8 percent of the total possible points and attained 162.81 functional units, 10.22 more than in 2013. The AA received excellent ratings for MTNHP species habitat, general wildlife habitat and production export/food chain support and high ratings for short and long-term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, groundwater discharge/recharge, and recreation/education potential. The 1.4 percent overall increase from 2011 to 2012 was the result of substantial wildlife sightings, documented sightings of S3 species, and an increase in the cover of streambank species with high stability ratings. The increase of 0.9 percent from 2012 to 2013 was the result of correctly assessing the documented/secondary habitat sighting by the Montana Department of Fish, Wildlife, and Parks (MFWP) of Westslope cutthroat trout and Columbia River red-band trout (S1) in McGinnis Creek.

The 1.74-acre enhancement AA received 57.8 percent of the total possible points in 2014, an increase of 17.2 percent since 2011. Many of the woody plants installed in this area with the intention of enhancing structural diversity did not survive. This AA attained 9.05 functional units in 2014, an increase of 3.1 functional units since 2013.

The preservation AA for the existing riverine wetlands along the former channel of McGinnis Creek was defined in the USACE-approved mitigation plan as 0.30 acres in size. The wetland fringe along the former channel of McGinnis Creek currently encompasses 0.53 acres as a result of the increase in water levels once the former channel of McGinnis Creek was plugged in 2010. The additional 0.23 acres has been included in the creation AA in this monitoring report to maintain congruence between the approved mitigation plan and original credit ratios. The Preservation AA evaluated only the 0.30 acres abutting the plugged former channel of McGinnis Creek. This AA received 79.0 percent of the total points and 2.37 functional units in 2013 and 2014. The AA received excellent ratings in general wildlife habitat and high ratings for flood attenuation, short and long term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, groundwater discharge/recharge, and recreation/education potential.

Table 7. Functions and Values at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method[1]	2010 Creation (Excavated Cells)	2011 Creation (Excavated Cells)	2012 Creation (Excavated Cells)	2013 Creation (Excavated Cells)	2014 Creation (Excavated Cells)	2010 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2011 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2012 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2013 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2014 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.2)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.7)	High (1.0)
General Wildlife Habitat	Low (0.3)	High (0.9)	Exc. (1.0)	Exc. (1.0)	Exc (1.0)	Mod (0.7)	High (0.9)	Exc. (1.0)	Exc. (1.0)	Exc (1.0)
General Fish/Aquatic Habitat	NA	NA	NA	NA	NA	Mod (0.7)	High (0.8)	High (0.8)	High (0.8)	Mod (0.7)
Flood Attenuation	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.5)	High (0.8)	Mod (0.5)	Mod (0.5)	Mod (0.5)
Short and Long Term Surface Water Storage	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)	High (1.0)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.7)	Mod (0.7)	High (1.0)	High (1.0)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Sediment/Shoreline Stabilization	NA	Mod (0.7)	Mod (0.7)	High (1.0)	High (1.0)	Low (0.3)	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)
Production Export/ Food Chain Support	Low (0.3)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.9)	Exc. (1.0)	Exc. (1.0)	Exc. (1.0)	Exc (1.0)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.1)	Mod (0.4.)	Mod (0.4.)	Mod (0.4.)	Mod (0.4)	Low (0.3)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential (bonus points)	Low (0.05)	High (0.15)	High (0.20)	High (0.20)	High (0.20)	Low (0.05)	High (0.15)	High (0.20)	High (0.20)	High (0.20)
Actual Points / Possible Points	**3.45/9**	**6.65 / 10**	**6.90 / 10**	**7.90 / 10**	**7.90 / 10**	**7.25/11**	**8.55 / 11**	**8.70 / 11**	**8.80 / 11**	**9.0 / 11**
% of Possible Score Achieved	**38.3**	**66.5**	**69.0**	**79.0**	**79.0**	**65.9**	**77.7**	**79.1**	**80.0**	**81.8**
Overall Category	**III**	**II**	**II**	**II**	**II**	**III**	**II**	**II**	**II**	**I**
Acreage of Assessed Aquatic Habitats within Easement (ac)	**0.20**	**6.42**	**6.42**	**6.42**	**6.42**	**16.57**	**12.60**	**17.08**	**17.34**	**18.09**
Functional Units (acreage x actual points).	**0.69**	**42.69**	**44.30**	**50.72**	**50.72**	**120.13**	**107.73**	**148.60**	**152.59**	**162.81**

[1]Berglund and McEldowney 2008 MDT MWAM.

Table 7 (Continued). Functions and Values at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2014.

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method[1]	2010 Enhancement (Existing emergent wetland)	2011 Enhancement (Existing emergent wetland)	2012 Enhancement (Existing emergent wetland)	2013 Enhancement (Existing emergent wetland)	2014 Enhancement (Existing emergent wetland)	2010 Preservation (Existing riverine wetlands)	2011 Preservation (Existing riverine wetlands)	2012 Preservation (Existing riverine wetlands)	2013 Preservation (Existing riverine wetlands)	2014 Preservation (Existing riverine wetlands)
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.2)	Mod (0.6)	Mod (0.6)	Low (0.1)	Low (0.1)	Low (0.2)	Mod (0.6)	Mod (0.6)
General Wildlife Habitat	Mod (0.5)	Mod (0.5)	High (0.9)	High (0.9)	High (0.9)	Mod (0.7)	High (0.9)	Exc. (1.0)	Exc. (1.0)	Exc (1.0)
General Fish/Aquatic Habitat	NA	NA	NA	NA	Mod (0.7)	NA	NA	NA	NA	NA
Flood Attenuation	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Short and Long Term Surface Water Storage	Low (0.3)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Mod (0.4)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	NA	NA	NA	NA	NA	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Production Export/ Food Chain Support	Mod (0.4)	Low (0.3)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Groundwater Discharge/Recharge	Mod (0.7)	NA	NA	Low (0.1)	Low (0.1)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.3)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Low (0.3)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential (bonus points)	Low (0.05)	High (0.15)	High (0.20)	High (0.20)	High (0.20)	Low (0.05)	High (0.15)	High (0.2)	High (0.2)	High (0.2)
Actual Points / Possible Points	**4.25/9**	**3.25 / 8**	**4.0 / 8**	**4.5 / 9**	**5.2 / 9**	**6.25/10**	**7.25 / 10**	**7.50 / 10**	**7.90 / 10**	**7.90 / 10**
% of Possible Score Achieved	**47.2**	**40.6**	**50.0**	**50.0**	**57.8**	**62.5**	**72.5**	**75.0**	**79.0**	**79.0**
Overall Category	**III**	**III**	**III**	**III**	**II**	**III**	**II**	**II**	**II**	**II**
Acreage of Assessed Aquatic Habitats within Easement (ac)	**1.74**	**1.32**	**1.32**	**1.32**	**1.74**	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**
Functional Units (acreage x actual points).	**7.40**	**4.29**	**5.28**	**5.94**	**9.05**	**1.88**	**2.18**	**2.25**	**2.37**	**2.37**

3.8. Photo Documentation

Photographs taken at photo points one through seven (PP1 through PP7, Figure 2, Appendix A) are shown on pages C-1 to C-12 of Appendix C. Transect end points are shown on pages C-13 to C-16. The stream cross-sections are presented on pages C-17 through C-28 and photos of data points are included on pages C-29.

3.9. Maintenance Needs

Canadian thistle and Gypsy flower (*Cynoglossum officinale*), both Priority 2B noxious weeds, were identified at the McGinnis Creek Mitigation Site (Figure 3, Appendix A). The number and extent of the weed infestations has remained unchanged since 2012. Canadian thistle invaded areas that were disturbed during construction. The thistle cover was highest within Communities 1 and 7 primarily along the southeast boundary and the northwest boundary. One infestation of gypsy flower was emapped in the northwest quarter of the site near the project boundary. The MDT has an ongoing weed assessment and management program for their mitigation sites, which included spraying this site on June 20, 2014.

Five bird boxes were installed onsite in fall 2012. Swallows were using the boxes in 2014. The mitigation site design relied on the excavation of shallow depressions to intercept groundwater, an increase in hydrologic connectivity with McGinnis Creek and the adjacent floodplain, and the passive increase in the local water table. Consequently, water control structures were not a part of the design. The majority of fencing surrounding the perimeter of the site was intact in 2014. A dead tree has fallen on the fence near Photo Point 6. The top wire of the fence is down near the pullout along the east boundary. The fencing is compromised along the south boundary.

3.10. Current Credit Summary

Goals established in 2009 for the McGinnis Meadows mitigation project included the restoration of approximately 0.8 acres of riparian/stream habitat on McGinnis Creek and 17.3 acres of degraded wetlands. Credit was to be awarded for creation of 2.9 acres of emergent wetlands and enhancement of 1.74 acres of existing emergent wetland and an intermittent drainage. Preservation of 0.3 acres of existing riparian communities along the abandoned McGinnis Creek corridor and maintenance of 2.2 acres of upland buffer provided additional wetland credits. Table 8 and table 9 detail the project credit ratios approved by the USACE and the calculated credit acreages from 2010 to 2014. Total wetland mitigation credits calculated for the McGinnis Meadows site in 2014 were 19.58 credit acres, an increase of 0.64 credit acres since 2013.

The acreage of the created wetland cells has exceeded the anticipated 2.90 acres proposed in the 2009 MDT Mitigation Plan by 3.52 acres. The credit for the excavated wetland depressions was estimated at 6.42 credit acres from 2012 through 2014 based on a 1:1 creation to impact credit ratio.

Approximately 18.09 acres of wetland were delineated within the restoration (rehabilitation) AA in 2014, a 0.75-acre increase since 2013. The restored area included the pre-existing impaired reed canary grass and field-meadow foxtail meadow characterized by wetland community type 7 – *Phalaris/Alopecurus*. The area defined by wetland community 18 – *Glyceria/Carex* spp. expanded by 1.17 acres in 2014. The estimated credit acres for restoration were 11.56 in 2013 and 12.06 in 2014, based on a 1.5:1, restoration to impact, credit ratio.

The approved 0.30 acreage presented in the Mitigation Plan was used to calculate the preservation credit estimate. Preservation credits were 0.08 acre in 2014 based on a 4:1 preservation to impact ratio.

The enhancement AA included the existing emergent wetland located along the south and southwest boundary of the property, upgradient from the channel restoration area. The 2011 through 2013 wetland delineation identified 1.32 acres of wetland within this AA. The wetland delineation in 2014 defined 1.74 wetland acres in this AA owing to the expansion of Community 18. Applying the USACE approved 3:1 credit ratio to this area netted 0.58 acre of wetland credit in 2014, an increase of 0.14 acre since 2013 and meeting the goal.

The restored McGinnis Creek channel encompassed 0.75 acre of riverine habitat bisecting the site. The MDT seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet of McGinnis Creek associated with the area below the OHWM of the channel. This acreage was excluded from the wetland credit totals summarized on Table 8. The MDT and USACE will calculate the stream credits separately once monitoring has been concluded.

Table 8. Summary of Wetland Credits at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2011.

Proposed Mitigation Activity	Compensatory Mitigation Type	COE Mitigation Ratios	Proposed Acres	Final Credit Estimate (Acres)	2010 Delineated Acreage	2010 Credit (acres)	2011 Delineated Acreage	2011 Credit (acres)
Creation of palustrine emergent depression wetlands through shallow excavation.	Creation	1:1	2.90	2.90	0.20	0.20	6.42	6.42
Restoration/Re-establishment of the McGinnis Creek Channel and wetland fringe.	Restoration (Re-Establishment)	1:1	0.80	0.80	0.75*	0.75*	0.75*	0.75*
Rehabilitation of existing impaired wet meadow wetlands.	Restoration (Rehabilitation)	1.5:1	17.30	11.53	16.57	11.05	12.60	8.40
Enhancement of existing emergent wetland upgradient of channel restoration.	Enhancement	3:1	1.74	0.58	1.74	0.58	1.32	0.44
Preservation of existing wetlands within abandoned McGinnis Creek reaches.	Preservation	4:1	0.30	0.08	0.30	0.08	0.30	0.08
Maintenance of upland buffer averaging 50 feet in length on site perimeter.	Upland Buffer	5:1	2.20	0.44	2.20	0.44	2.20	0.44
Total				**16.33**	**21.01**	**12.34**	**22.84**	**15.78**

*Stream Credit being sought for McGinnis Creek, acreage excluded from total.

Table 9. Summary of Wetland Credits at the McGinnis Meadows Wetland Mitigation Site from 2012 to 2014.

Proposed Mitigation Activity	Compensatory Mitigation Type	COE Mitigation Ratios	Proposed Acres	Final Credit Estimate (Acres)	2012 Delineated Acreage	2012 Credit (acres)	2013 Delineated Acreage	2013 Credit (acres)	2014 Delineated Acreage	2014 Credit (acres)
Creation of palustrine emergent depression wetlands through shallow excavation.	Creation	1:1	2.90	2.90	6.42	6.42	6.42	6.42	6.42	6.42
Restoration/Re-establishment of the McGinnis Creek Channel and wetland fringe.	Restoration (Re-Establishment)	1:1	0.80	0.80	0.75*	0.75*	0.75*	0.75*	0.75*	0.75*
Rehabilitation of existing impaired wet meadow wetlands.	Restoration (Rehabilitation)	1.5:1	17.30	11.53	17.08	11.39	17.34	11.56	18.09	12.06
Enhancement of existing emergent wetland upgradient of channel restoration.	Enhancement	3:1	1.74	0.58	1.32	0.44	1.32	0.44	1.74	0.58
Preservation of existing wetlands within abandoned McGinnis Creek reaches.	Preservation	4:1	0.30	0.08	0.30	0.08	0.30	0.08	0.30	0.08
Maintenance of upland buffer averaging 50 feet in length on site perimeter.	Upland Buffer	5:1	2.20	0.44	2.20	0.44	2.20	0.44	2.20	0.44
Total				**16.33**	**27.32**	**18.77**	**27.58**	**18.94**	**28.75**	**19.58**

*Stream Credit being sought for McGinnis Creek, acreage excluded from total.

Table 10 provides a summary of the site's performance against approved success criteria. All wetlands delineated within the site in 2014 satisfied the criteria for wetland hydrology, hydrophytic vegetation, and hydric soils. The cover of wetland plants increased significantly from 60 percent in 2010 to 95 percent from 2012 to 2014. The success criteria stipulating 70 percent cover of wetland plants was met site-wide in 2012. The cover density continued to increase into 2014. Vegetation cover within the disturbed areas of the upland buffer also exceeded 50 percent by 2012. The cover of state-listed noxious weed species in the site wetlands has remained less than five percent, satisfying the performance standard. MDT continues to monitor and control noxious weeds within this mitigation site. The woody plants installed in 2011 exhibited high mortality immediately following installation with approximately 20 percent survival. The majority of woody plants that initially survived have continued to develop. The success criterion for 50 percent survival of the woody vegetation has not been met. An increase in natural recruitment of quaking aspen and speckled alder was observed in 2013 and 2014. Supplemental plantings of shrubs/trees should be considered at this site to meet this criterion. Photographs of the cross-sections in Appendix C illustrate the high vegetation cover on the banks of the restored channel. The McGinnis Creek restoration success criterion pertaining to well-vegetated banks with a majority of deep-rooting riparian and wetland plant species has been satisfied. The stream banks of McGinnis Creek were minimally disturbed during construction and are primarily vegetated with field meadow-foxtail, common spikerush, Baltic rush, sedges and reed canary grass.

Table 10. Summary of success criteria and site performance.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	All restored, created, enhanced, and preseved wetlands within the project limits will meet the three parameter criteria for hydrology, vegetation, and soils as outlined in the 1987 Wetland Delineation Manual and 2010 Mountains, Valleys, Coast Region.	Y	Areas identified as wetland habitat within the mitigation site meet the three parameter criteria.
Wetland Hydrology	Soil saturation present for at least 12.5 percent of the growing season.	Y	Areas identified as wetland habitat within the mitigation site exhibit soil saturation for a minimum 12.5 percent of growing season.
Hydric Soil	Hydric soil conditions present or appear to be forming.	Y	Hydric soil characteristics, including redoximorphic concentrations and depleted matrix, have developed throughout a majority of the constructed wetlands.
	Soil is sufficiently stable to prevent erosion.	Y	Disturbed soil is stable and does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Plant cover across disturbed soils is near 100 percent.
Hydrophytic Vegetation	Achieved where aerial cover of facultative or wetter species is greater than or equal to 70 percent.	Y	Areas identified as wetland habitat within the mitigation site support a prevalence of hydrophytic vegetation (OBL, FACW, and FAC) at greater than 70 percent cover.
	Montana State-listed noxious weeds do not exceed 5 percent cover.	Y	Montana State-listed noxious weed cover within wetland areas of the site is estimated at 2 to 3 percent.
Woody Plants	Plantings will be considered successful where they exceed 50 percent survival after 5 years.	N	The percentage of living woody vegetation (including natural recruitement of *Alnus* aong the former channel) is well below the 50 percent target.
Open Water	Open water will be considered successful and creditable.	Y	Open water appears to be perennial in several of the excavated cells. These areas exhibit vegetation cover generally greater than 20 percent.
McGinnis Creek Channel	Revegetation along the new McGinnis Creek channel corridor will be considered successful when banks are vegetated with a majority of deep-rooting riparian and wetland plant species.	Y	Vegetation along the constructed McGinnis Creek support robust vegetation with high root-stability indecis and predominantly includes reed canarygrass.
	The intent of the stream restoration is to allow the stream to migrate naturally within the flodplain and to give it enough room to move and stabilize itself within the site.	Y	The stream has plenty of room to migrate within the boundary of the mitigation site.
Upland Buffer	Noxious weeds do not exceed 5 percent cover within upland buffer area.	Y	Noxious weed cover is less than 5 percent within the upland buffer.
	Any area disturbed within creditable buffer zone must have at least 50 percent aerial cover of non-weed species by end of monitoring period.	Y	Disturbed areas are well-vegetated (~100 percent) by non-weed species.
Weed Control	Based upon annual monitoring of the site to determine weed species and degree of infestation within the site. Control measures, based upon the monitoring results, will be implemented by MDT to minimize and/or eliminate the intruation of State-listed noxious weed species within the site.	Y	State-listed noxious weed species across the site have been mapped yearly. Maps of weed infestations have been provided to MDT for evaluation and control measures have been employed.
Fencing	Install wildlife-friendly fencing along the easement boundaries.	Y	Wildlife-friendly fencing has been installed around the easement boundaries.

4. REFERENCES

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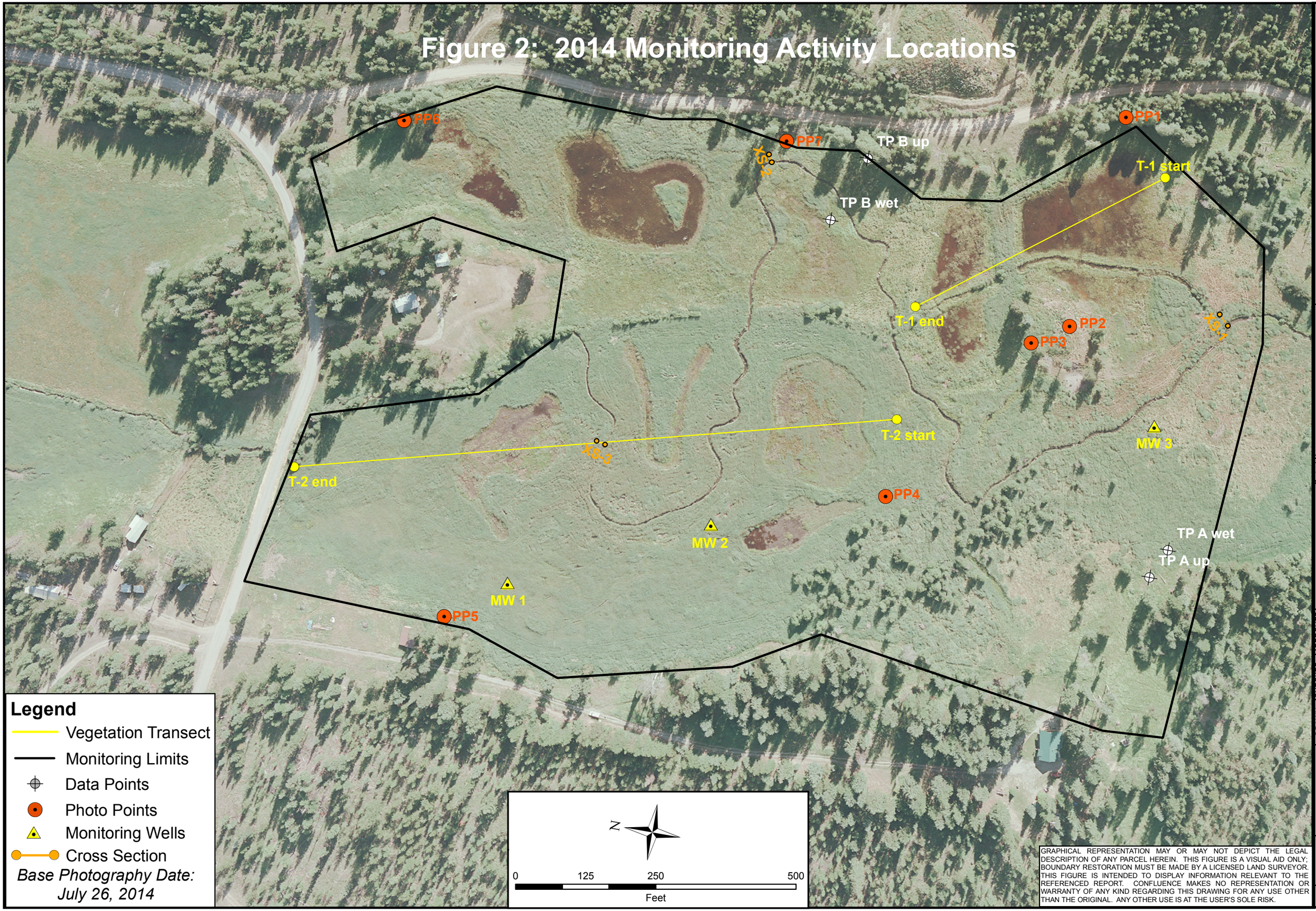
Appendix A

Project Area Maps – Figures 2, 3, and 4

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

Figure 2: 2014 Monitoring Activity Locations



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: Lincoln Co., MT

PROJECT NO: STPX-NH 27(17)

FILE: McGinnis/Monitor2014.mxd

Project Name: McGinnis Meadows Mitigation Site

Drawing Title: 2014 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BCS	BV	

SCALE: Noted

Drawn: October 10, 2014

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 2

REV -

Figure 3: 2014 Mapped Site Features

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities
- McGinnis Creek (15)

Base Photography Date: July 26, 2014

Noxious Weeds
- Cynoglossum officinale
- Cirsium arvense

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

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

Vegetation Community Types

1. Alopecurus pratensis/Phalaris arundinacea
2. Aquatic Macrophytes/Open Water
4. Picea engelmannii/Alopecurus pratensis
5. Phalaris arundinacea/Alnus incana
6. Carex utriculata
7. Phalaris arundinacea/Alopecurus pratensis
11. Alnus incana/Phalaris arundinacea
14. Alopecurus pratensis/Pseudotsuga menziesii
16. Phalaris arundinacea/Soil Mounds
17. Glyceria grandis/Carex spp.
18. Alopecurus pratensis/Carex spp.

Acreages

Project Area	32.75 acres
Total Aquatic Habitat	27.30 acres
McGinnis Creek	0.75 acres
Net Wetlands	26.55 acres
Uplands	5.45 acres

N

0 125 250 500

Feet

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

LOCATION: Lincoln Co., MT

PROJECT NO: STPX-NH 27(17)

FILE: McGinnis/Veg2014.mxd

Project Name: McGinnis Meadows Mitigation Site

Drawing Title: 2014 Mapped Site Features

DRAWN BCS | CHECKED BV | APPROVED

SCALE: Noted

Drawn: October 10, 2014

PROJ MGR: B Sandefur

CONFLUENCE consulting Incorporated

Figure 3

REV -

Figure 4: 2014 Wetland Credit Areas

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.

Legend

- Monitoring Limits
- Creation
- Enhancement
- Preservation
- Restoration
- Stream Restoration

AA Acreages

Total Wetlands	27.30 acres
Restoration	18.09 acres
Enhancement	1.74 acres
Preservation	0.30 acres
Creation	6.42 acres
McGinnis Creek	0.75 acres

N

0 125 250 500

Feet

LOCATION: Lincoln Co., MT

PROJECT NO: STPX-NH27(17)

FILE: McGinnis/2014AAs.mxd

Project Name
McGinnis Meadows Mitigation Site

Drawing Title
2014 Wetland Assessment Areas

DRAWN	CHECKED	APPROVED
BCS		

SCALE: Noted

Drawn: October 10, 2014

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 4

REV -

Appendix B

2014 MDT Wetland Mitigation Site Monitoring Form
2014 USACE Wetland Determination Data Forms
2014 MDT Montana Wetland Assessment Method Forms

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: McGinnis Meadows Assessment Date/Time 7/30/2014

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

Weather: Clear,low 90s Location: 7 miles south of US 2

MDT District: Missoula Milepost: NA

Legal Description: T 26N R 28W Section(s) 33

Initial Evaluation Date: 7/16/2010 Monitoring Year: 5 #Visits in Year: 1

Size of Evaluation Area: 32.75 (acres)

Land use surrounding wetland:

Hay production and grazing, rural residential, USFS property (forest), Plum Creek properties (commercial forest).

HYDROLOGY

Surface Water Source: McGinnis Creek, precipitation, shallow groundwater.

Inundation: ☑ Average Depth: 1 **(ft)** Range of Depths: 0-3.5 **(ft)**

Percent of assessment area under inundation: 15 %

Depth at emergent vegetation-open water boundary: 1.5 **(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:

FAC-neutral test, dry season water table, overflow channels, geomorphic position, oxidized rhizosphere along living roots, drainage patterns.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
MW-1	2
MW-2	2.5
MW-3	4.6

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:

VEGETATION COMMUNITIES

Site McGinnis Meadows

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

Community # 1 **Community Type:** Alopecurus pratensis / Phalaris arundinacea **Acres** 2.14

Species	Cover class	Species	Cover class
Achillea millefolium	0	Alopecurus pratensis	5
Cirsium arvense	1	Cynoglossum officinale	0
Geum macrophyllum	0	Mentha arvensis	0
Mimulus guttatus	0	Phalaris arundinacea	2
Pinus contorta	0	Poa pratensis	0
Populus tremuloides	0	Rumex crispus	0
Taraxacum officinale	0	Urtica dioica	1
Verbascum thapsus	0		

Comments:

This upland area is dominated by hearty facultative and facultative wet grasses. Contemporary wetland hydrology is not apparent through this community.

Community # 2 **Community Type:** Aquatic macrophytes / Open Water **Acres** 1.9

Species	Cover class	Species	Cover class
Algae, green	2	Aquatic macrophytes	4
Carex bebbii	0	Carex nebrascensis	0
Carex stipata	0	Carex utriculata	1
Cirsium arvense	0	Deschampsia caespitosa	0
Eleocharis palustris	0	Equisetum arvense	0
Geum macrophyllum	0	Glyceria grandis	2
Juncus confusus	0	Juncus ensifolius	0
Lemna minor	0	Mentha arvensis	0
Mimulus guttatus	0	Open Water	5
Persicaria amphibia	0	Phalaris arundinacea	2
Scirpus microcarpus	0	Typha latifolia	0

Comments:

Veg com is predominantly characterized by persistent inundated growing conditions.

Community # 4 **Community Type:** Picea engelmannii / Alopecurus pratensis **Acres** 0.86

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus pratensis	5
Antennaria parvifolia	0	Cirsium arvense	3
Fragaria virginiana	0	Linum lewisii	0
Medicago lupulina	0	Mentha arvensis	0
Phalaris arundinacea	3	Phleum pratense	0
Picea engelmannii	4	Pinus contorta	1
Pinus ponderosa	1	Poa pratensis	1
Rumex crispus	0	Symphoricarpos albus	1
Taraxacum officinale	0		

Comments:

Community # 5 **Community Type:** Phalaris arundinacea / Alnus incana **Acres** 1.64

Species	Cover class	Species	Cover class
Algae, green	1	Alnus incana	4
Carex nebrascensis	1	Carex utriculata	1
Cirsium arvense	1	Crataegus douglasii	2
Heracleum maximum	1	Mentha arvensis	0
Phalaris arundinacea	4	Rumex crispus	0
Scirpus microcarpus	1	Urtica dioica	0

Comments:

Community # 6 **Community Type:** Carex utriculata / **Acres** 0.63

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex utriculata	5
Mentha arvensis	0	Phalaris arundinacea	2
Poa palustris	0	Urtica dioica	0

Comments:

Community # 7 Community Type: Phalaris arundinacea / Alopecurus pratensis **Acres** 16.83

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alnus incana	0
Alopecurus pratensis	3	Carex athrostachya	0
Carex nebrascensis	0	Carex pachystachya	0
Carex stipata	0	Carex utriculata	0
Cirsium arvense	2	Cynoglossum officinale	0
Epilobium ciliatum	0	Geum macrophyllum	0
Glyceria grandis	0	Heracleum maximum	0
Mentha arvensis	0	Phalaris arundinacea	5
Plantago major	0	Poa pratensis	0
Rumex crispus	0	Scirpus microcarpus	0
Taraxacum officinale	0	Urtica dioica	0
Verbascum thapsus	0	Veronica americana	0
Viola sp.	0		

Comments:

Community # 11 Community Type: Alnus incana / Phalaris arundinacea **Acres** 0.51

Species	Cover class	Species	Cover class
Algae, green	0	Alnus incana	4
Alopecurus pratensis	1	Carex stipata	0
Carex utriculata	2	Cirsium arvense	0
Eleocharis palustris	0	Geum macrophyllum	0
Heracleum maximum	1	Mentha arvensis	0
Phalaris arundinacea	5	Rumex crispus	0
Scirpus microcarpus	1	Sparganium angustifolium	0

Comments:

Community # 14 Community Type: Alopecurus pratensis / Pseudotsuga menziesii **Acres** 2.16

Species	Cover class	Species	Cover class
Abies lasiocarpa	0	Achillea millefolium	0
Alnus incana	1	Alopecurus pratensis	5
Calamagrostis canadensis	0	Fragaria virginiana	0
Larix occidentalis	2	Maianthemum stellatum	0
Phalaris arundinacea	1	Pinus contorta	2
Poa pratensis	1	Pseudotsuga menziesii	4
Symphoricarpos albus	1		

Comments:

Community # 15 **Community Type:** McGinnis Creek / **Acres** 0.75

Species	Cover class	Species	Cover class
Open Water	5		

Comments:

Community # 16 **Community Type:** Phalaris arundinacea / Soil Mounds **Acres** 0.3

Species	Cover class	Species	Cover class
Bare Ground	0	Cirsium arvense	3
Phalaris arundinacea	5	Verbascum thapsus	1

Comments:

Community # 17 **Community Type:** Glyceria grandis / Carex spp. **Acres** 3.71

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Algae, green	0
Alnus incana	1	Alopecurus pratensis	0
Aquatic macrophytes	0	Aster sp.	0
Bare Ground	1	Beckmannia syzigachne	0
Bromus inermis	1	Calamagrostis canadensis	0
Carex athrostachya	0	Carex bebbii	1
Carex nebrascensis	1	Carex pachystachya	0
Carex stipata	0	Carex utriculata	0
Cirsium arvense	1	Deschampsia caespitosa	0
Eleocharis palustris	1	Eleocharis sp.	0
Epilobium ciliatum	0	Equisetum arvense	0
Geum macrophyllum	0	Glyceria grandis	4
Juncus articulatus	0	Juncus balticus	0
Juncus confusus	0	Juncus effusus	0
Juncus ensifolius	0	Juncus longistylis	0
Juncus nodosus	0	Linaria vulgaris	0
Mentha arvensis	0	Mimulus guttatus	0
Open Water	2	Persicaria amphibia	0
Phalaris arundinacea	1	Phleum pratense	0
Plantago major	0	Poa palustris	0
Rumex crispus	0	Scirpus microcarpus	0
Sparganium emersum	0	Triglochin maritima	0
Typha latifolia	0	Verbascum thapsus	0
Veronica americana	0		

Comments:

Community # 18 **Community Type:** Alopecurus pratensis / Carex spp. **Acres** 1.33

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Carex athrostachya	2
Carex bebbii	2	Deschampsia caespitosa	2
Juncus confusus	1		

Comments:

Total Vegetation Community Acreage **32.76**

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

VEGETATION TRANSECTS

Site: McGinnis Meadows Date: 7/30/2014

Transect Number: 1 **Compass Direction from Start:** 318

Interval Data:

Ending Station 32 **Community Type:** Picea engelmannii / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Cirsium arvense	1
Mentha arvensis	1	Phalaris arundinacea	1

Ending Station 47 **Community Type:** Glyceria grandis / Carex sp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Carex bebbii	1
Eleocharis palustris	3	Geum macrophyllum	0
Glyceria grandis	4	Juncus confusus	2
Juncus nodosus	2	Mentha arvensis	0

Ending Station 300 **Community Type:** Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, green	2	Aquatic macrophytes	2
Eleocharis palustris	1	Glyceria grandis	1
Open Water	5	Persicaria amphibia	0
Scirpus microcarpus	0		

Ending Station 314 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Carex athrostachya	0
Carex pachystachya	1	Carex stipata	1
Carex utriculata	0	Eleocharis palustris	2
Glyceria grandis	2	Juncus confusus	3
Juncus nodosus	2	Phalaris arundinacea	2
Scirpus microcarpus	2		

Ending Station 363 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alnus incana	1	Alopecurus pratensis	0
Cirsium arvense	1	Mentha arvensis	0
Phalaris arundinacea	5	Poa pratensis	0

Ending Station 504 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Algae, green	1	Alnus incana	0
Alopecurus pratensis	1	Aster sp.	0
Bromus inermis	0	Carex bebbii	1
Carex pachystachya	1	Carex stipata	1
Carex utriculata	1	Cirsium arvense	0
Deschampsia caespitosa	0	Eleocharis palustris	1
Glyceria grandis	4	Juncus confusus	1
Juncus ensifolius	1	Juncus nodosus	1
Linaria vulgaris	1	Mentha arvensis	0
Mimulus guttatus	0	Open Water	2
Phalaris arundinacea	1	Scirpus microcarpus	0
Sparganium emersum	0	Typha latifolia	1

Transect Notes:

Transect Number: 2 **Compass Direction from Start:** 330

Interval Data:

Ending Station 80 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Carex athrostachya	0
Phalaris arundinacea	5		

Ending Station 240 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bare Ground	1
Calamagrostis canadensis	2	Carex athrostachya	1
Carex bebbii	1	Carex nebrascensis	2
Carex stipata	2	Carex utriculata	0
Eleocharis palustris	2	Glyceria grandis	1
Juncus balticus	1	Juncus longistylis	0
Phalaris arundinacea	2	Sparganium emersum	0
Triglochin maritima	0	Typha latifolia	1

Ending Station 348 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Phalaris arundinacea	5

Ending Station 355 **Community Type:** McGinnis Creek /

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 400 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Phalaris arundinacea	5

Ending Station 418 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Bare Ground	2	Carex nebrascensis	3
Carex utriculata	4	Eleocharis palustris	2
Glyceria grandis	1	Phalaris arundinacea	0

Ending Station 447 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 477 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Aquatic macrophytes	1	Carex stipata	1
Carex utriculata	3	Eleocharis palustris	4
Open Water	0	Phalaris arundinacea	1
Sparganium emersum	2		

Ending Station 523 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 533 **Community Type:** McGinnis Creek /

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 600 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 793 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Bare Ground	1	Carex nebrascensis	3
Carex utriculata	1	Eleocharis palustris	3
Eleocharis sp.	0	Glyceria grandis	3
Juncus confusus	2	Juncus nodosus	2
Phalaris arundinacea	2	Typha latifolia	2

Ending Station 1000 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex nebrascensis	1
Phalaris arundinacea	5		

Transect Notes:

More Eleocharis and less bare ground on this transect than previous year.

PLANTED WOODY VEGETATION SURVIVAL

McGinnis Meadows

Planting Type	#Planted	#Alive	Notes
Alnus sp.	360	125	Native recruitment along former channel of McGinnis Creek
Betula	100	0	Betula sp.
Cornus stolonifera	100	0	
Populus tremuloides	180	250	Natural recruitment in SE and NE corners of site.
Salix sp.	100	0	

Comments

Similar to 2013, approx. 40% of planted alders along the stream were alive in 2014.

McGinnis Meadows

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: nest boxes

How many? 5

Are the nesting structures being used? Yes

Do the nesting structures need repairs? No

Nesting Structure Comments:
Bird boxes in northwest section of the site being used by tree swallows.

Species	#Observed	Behavior	Habitat
Cedar Waxwing	1	FO	SS, WM
Great Horned Owl	1	FO	FO
Hairy Woodpecker	1	FO	FO
Mallard	3	F, L	OW
Northern Flicker	1	FO	FO, WM
Western Kingbird	1	FO	OW, WM
Wilson's Snipe	1	FO	WM

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
Columbia Spotted Frog	2	No	No	No	
Common Gartersnake	1	No	No	No	
Meadow Vole	1	No	No	No	
Moose		Yes	No	No	
Richardson's Ground Squirrel	1	No	No	No	
White-tailed Deer	3	No	No	No	

Wildlife Comments:

Several small fish seen in the creek. Numerous deer beds in grassy areas.

McGinnis Meadows

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
1381	47.964188	-115.216629	320	Veg tran 1, start
1383	47.965172	-115.217987	140	Veg tran 1, end
1384	47.964584	-115.218834	330	Veg tran 2, start
1385	47.965222	-115.219133	150	Veg tran 2, end
1386-1391	47.966888	-115.220978	90	PP-5
1392-1396	47.965092	-115.219429	15	PP-4
1397-1400	47.964512	-115.217896	140	PP-2
1401-1404	47.964561	-115.218163	285	PP-3
1405-1409	47.966015	-115.217171	270	PP-7
1410-1412	47.964584	-115.2164	250	PP-1, pano
1414	47.964336666	-115.21865666	180	TPA up
1415	47.964336666667	-115.2186566667	0	TPA wet
1416	47.964336666667	-115.2186566667	180	TPB wet
1417	47.964336666	-115.2186566	0	TPB up
3198-3200	47.963699	-115.217606	330	XS-1, downstream
3201-3205	47.963699	-115.217606	150	XS-1, upstrean
3209-11	47.966236	-115.217056	165	XS-2, upstream
3212	47.966236	-115.217056	345	XS-2, downstream
3214	47.966434	-115.219559	260	XS-3, upstream
3216	47.966434	-115.219559	70	XS-3, downstream
3221-3224	47.967838	-115.217644	180	PP-6

Comments:

McGinnis Meadows

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

Upland vegetation community 1 around pond and southeast of stream in east central section of the site has transitioned to wetland community 18. Wetland boundary was changed accordingly.

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.

A dead tree fell on the fence near photo point 6. The top wire of the fence is down near the pullout along east boundary. Fencing is compromised along the south boundary.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows | City/County: Lincoln | Sampling Date: 7/30/2014

Applicant/Owner: MDT | State: Montana | Sampling Point: TP A up

Investigator(s): S. Wall | Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E | Lat: 47.963731 | Long: -115.219522 | Datum: WGS84

Soil Map Unit Name: Fluvents, floodplains | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Vegetation passes the dominance test but hydrology and hydric soils are lacking.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Achillea millefolium	2	☐	FACU
Alopecurus pratensis	50	☑	FAC
Carex pachystachya	5	☐	FAC
Cirsium arvense	5	☐	FAC
Fragaria virginiana	5	☐	FACU
Melilotus officinalis	6	☐	FACU
Plantago major	3	☐	FAC
Poa pratensis	25	☑	FAC
Polypodium hesperium	1	☐	NL
Trifolium repens	2	☐	FAC
Viola adunca	1	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	91	X 3	273
FACU species	13	X 4	52
UPL species	0	X 5	0
Column Totals	104 (A)		325 (B)

Prevalence Index = B/A = 3.125

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

SOIL

Sampling Point: TP A up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Loam	
05-10	2.5Y 5/2	98	5YR 5/6	2	C	M	Silt Loam	**Does not meet hydric soil crite**
10-18	10YR 4/2	100					Fine Sandy Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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 ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 7/30/2014

Applicant/Owner: MDT State: Montana Sampling Point: TP A wet

Investigator(s): S. Wall Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E Lat: 47.963676 Long: -115.219296 Datum: WGS84

Soil Map Unit Name: Fluvents, floodplains NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Phalaris arundinacea	100	☑	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	% (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	100	X 2	200
FAC species	0	X 3	0
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	100	(A)	200 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

SOIL

Sampling Point: TP A wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Loam	
5-18	10YR 2/2	95	7.5YR 5/6	5	C		Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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 ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows | City/County: Lincoln | Sampling Date: 7/30/2014

Applicant/Owner: MDT | State: Montana | Sampling Point: TP B up

Investigator(s): S. Wall | Section, Township, Range: S 33 T 26N R 28W

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): convex | Slope (%): 5

Subregion (LRR): LRR E | Lat: 47.965569 | Long: -115.217063 | Datum: WGS84

Soil Map Unit Name: Fluvents, floodplains | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Picea engelmannii	10	☑	FAC
Pinus contorta	5	☑	FAC
Populus tremuloides	10	☑	FACU

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus pratensis	65	☑	FAC
Cirsium arvense	5	☐	FAC
Poa pratensis	20	☑	FAC
Populus tremuloides	10	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 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: 80 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	105	X 3	315
FACU species	20	X 4	80
UPL species	0	X 5	0
Column Totals	125 (A)		395 (B)

Prevalence Index = B/A = 3.16

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

SOIL

Sampling Point: TP B up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Loam	
03-10	10YR 2/2	95	7.5YR 5/8	5	C	M	Loam	
10+								**Compacted, impervious**

[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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted

Depth (inches): 10 in

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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 ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 7/30/2014

Applicant/Owner: MDT State: Montana Sampling Point: TP B wet

Investigator(s): S. Wall Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E Lat: 47.965673 Long: -115.217565 Datum: WGS84

Soil Map Unit Name: Fluvents, floodplains NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: — Domiant Species? — Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus pratensis	60	☑	FAC
Carex bebbii	30	☑	OBL
Carex pachystachya	5	☐	FAC
Deschampsia caespitosa	2	☐	FACW
Poa pratensis	10	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	30	X 1	30
FACW species	2	X 2	4
FAC species	75	X 3	225
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	107 (A)		259 (B)

Prevalence Index = B/A = 2.42056

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

SOIL

Sampling Point: TP B wet

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
0-6	10YR 2/1	100					Loam	
6-18	10YR 2/1	80	2.5YR 5/6	20	C	M,	Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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 ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#** 4143

3. Evaluation Date 7/30/2014 **4. Evaluators** S Wall, B Sandefur **5. Wetland/Site# (s)** Creation

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 6.42

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 6.42

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Aquatic Bed	Excavated	Permanent/Perennial	60
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittent	40

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

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 contains several depression areas that were excavated wihin uplands in 2009. Many of these depressions were ponded in 2014 with 0.2 to 1 foot of standing water. The edges were vegetated with emergent plants.

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

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

Surrounding land use is low density residential, moderate road density, Forest Service land, and Plum Creek properties (commercial forest).

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Aquatic bed and emergent

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	◉ D ○ S	Grizzly bear, Canada lynx
No usable habitat	☐ S	

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

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

Sources for documented use Site is within year-round range of Grizzly and lynx. Adjacent landowner reported seeing a grizzly according to 2012 monitoring report.

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	◉ D ○ S	Great Blue Heron (S3), Golden Eagle (S3)
Incidental habitat (list species)	○ D ◉ S	Pileated woodpecker (S3)
No usable habitat	☐ S	

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use Great blue heron observed on site, golden eagle flyover in 2013, MNHP SOC list for Lincoln County.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Substantial

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, check 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 [check] 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 AA borders natural forested areas under management by both the USFS and Plum Creek Timber companies.

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ○ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

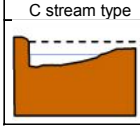
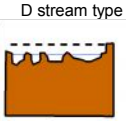
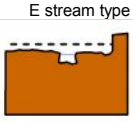
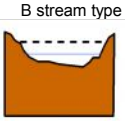
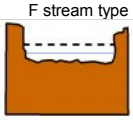
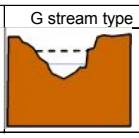
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ○ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

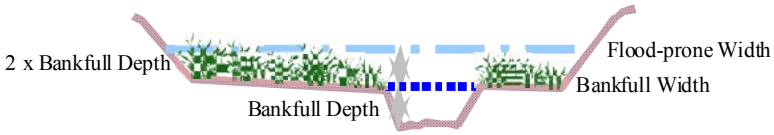
iii. Final Score and Rating: 0 NA **Comments:**

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

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodprone width 18 / **Bankfull width** 6 = **Entrenchment ratio** 3

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 (check)? **Y** ○ **N** ◉

Comments: Excavated depression hydrologically connected to periodic overbank flooding along McGinnis Creek.

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

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

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

Comments: Depressions located along the floodplain of McGinnis Creek, assumes 6.42 acres flooded to a minimum of one foot.

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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:

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 [check] 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: Assumes perennial open water areas subject to wave action. Banks dominated by sedges, reed canarygrass, and meadow foxtail.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .8H

Comments: AA has closed depressions with no outlet, appear to be perennially saturated.

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 [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

Public access, no permission required.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Creation

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.3	1	1.926	☐
B. MT Natural Heritage Program Species Habitat	M	.6	1	3.852	☐
C. General Wildlife Habitat	E	1	1	6.42	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	3.852	☐
F. Short and Long Term Surface Water Storage	H	1	1	6.42	☑
G. Sediment/Nutrient/Toxicant Removal	H	1	1	6.42	☑
H. Sediment/Shoreline Stabilization	H	1	1	6.42	☐
I. Production Export/Food Chain Support	H	.8	1	5.136	☐
J. Groundwater Discharge/Recharge	H	1	1	6.42	☑
K. Uniqueness	M	.4	1	2.568	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	1.284	☐
Totals:		7.9	10	50.718	
Percent of Possible Score			**79** %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☐ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☑ Percent of possible score > 65% (round to nearest whole #).

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

☐

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- ☐ Percent of possible score < 35% (round to nearest whole #).

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

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#** 4143

3. Evaluation Date 7/30/2014 **4. Evaluators** S Wall, B Sandefur **5. Wetland/Site# (s)** Enhancement

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 1.74

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 1.74

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Temporary/Ephemeral	100

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

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)

Area includes existing emergent wetland along intermittent drainage.

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

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes existing emergent wetland. Surrounding land use is residential, moderate road density, US Forest Service land, and Plum Creek properties (commercial forest).

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Emergent class present

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	◉ D ○ S	Grizzly bear, Canada lynx
No usable habitat	☐ S	

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

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

Sources for documented use Site is within year-round range of Grizzly and lynx. Adjacent landowner reported seeing a grizzly according to 2012 monitoring report.

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	◉ D ○ S	Great Blue Heron (S3), Golden Eagle (S3)
Incidental habitat (list species)	○ D ◉ S	Pileated woodpecker (S3)
No usable habitat	☐ S	

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use Great blue heron observed on site, golden eagle flyover in 2013, MNHP SOC ist for Lincoln County.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Substantial

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, check 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 [check] 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 AA borders natural forested areas under management by both the USFS and Plum Creek Timber companies.

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◉ **N** ○ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .7M

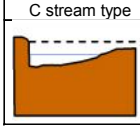
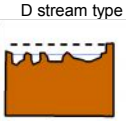
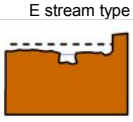
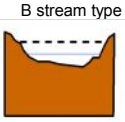
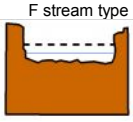
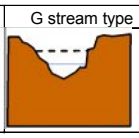
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ○ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .7M

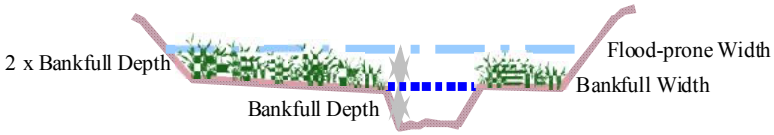
iii. Final Score and Rating: .7 M **Comments:** Perched culvert at Bayhorse Pass Road on northern boundary of the site prevents fish passage at certain times of the year.

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, click ☐ **NA** here and proceed to 14F.)

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodprone width 18 / **Bankfull width** 6 = **Entrenchment ratio** 3

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 (check)? **Y** ○ **N** ◉

Comments: AA subject to periodic flooding from restored McGinnis Creek

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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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] 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: AA is too small to provide much storage.

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Well vegetated with sedges - no outlet.

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

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: No wave action due to small size of AA.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .5M

Comments:

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 [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: AA has ephemeral hydrology in spring.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

Public access, no permission required.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Enhancement

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.3	1	0.522	☑
B. MT Natural Heritage Program Species Habitat	M	.6	1	1.044	☐
C. General Wildlife Habitat	H	.9	1	1.566	☑
D. General Fish Habitat	M	.7	0	1.218	☐
E. Flood Attenuation	M	.6	1	1.044	☑
F. Short and Long Term Surface Water Storage	L	.1	1	0.174	☐
G. Sediment/Nutrient/Toxicant Removal	H	.8	1	1.392	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	M	.5	1	0.87	☐
J. Groundwater Discharge/Recharge	L	.1	1	0.174	☐
K. Uniqueness	M	.4	1	0.696	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	0.348	☐
Totals:		5.2	9	9.048	
Percent of Possible Score			**57.78** %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☐ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☐ Percent of possible score > 65% (round to nearest whole #).

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

☐

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- ☐ Percent of possible score < 35% (round to nearest whole #).

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

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#** 4143

3. Evaluation Date 7/30/2014 **4. Evaluators** S Wall, B Sandefur **5. Wetland/Site# (s)** Preservation

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.3

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.3

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Scrub-Shrub Wetland	Impounded	Permanent/Perennial	50
Riverine	Emergent Wetland	Impounded	Permanent/Perennial	50

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

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)

No disturbance within AA.

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

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

Area includes former channel of McGinnis Creek that was abandoned when McGinnis Creek was restored. Former channel runs north-south through the property. Surrounding habitat includes undisturbed upland and other assessment areas.

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Scrub-shrub and emergent

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	◉ D ○ S	Grizzly bear, Canada lynx
No usable habitat	☐ S	

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

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

Sources for documented use USFWS database, site within year-round range of Grizzly and lynx. Adjacent landowner reported seeing a grizzly according to 2012 monitoring report.

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	◉ D ○ S	Great Blue Heron (S3), Golden Eagle (S3)
Incidental habitat (list species)	○ D ◉ S	Pileated woodpecker (S3)
No usable habitat	☐ S	

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use Great blue heron observed on site, golden eagle flyover in 2013, MNHP SOC database for Lincoln County.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Substantial

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, check 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 [check] 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 AA borders natural forested areas under management by both the USFS and Plum Creek Timber companies.

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

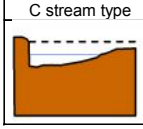
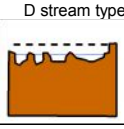
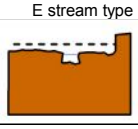
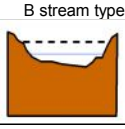
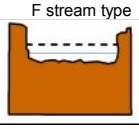
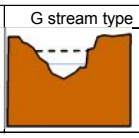
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

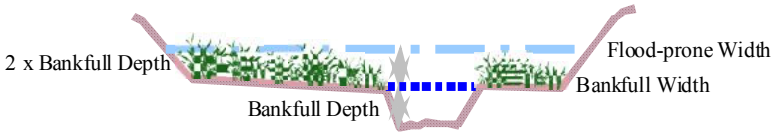
iii. Final Score and Rating: 0 NA **Comments:** AA without stream habitat, not connected to the restored creek channel.

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, click ☐ **NA** here and proceed to 14F.)

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodprone width 18 / **Bankfull width** 6 = **Entrenchment ratio** 3

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 (check)? **Y** ◯ **N** ◉

Comments: AA subject to periodic flooding from restored McGinnis Creek.

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

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] 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: AA includes former channel of McGinnis Creek with potential to store several feet of surface water.

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Well vegetated with restricted outlet (ditch plugs).

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 [check] 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: Shoreline dominated by reed canarygrass, meadow foxtail, and sedges.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .7M

Comments: AA is small, no surface outlet, well vegetated buffer

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 [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: shallow water table contributes surface water to former channel of McGinnis Creek.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

Public access, no permission required. Signs of hunting identified during 2012 site visit.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Preservation

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.3	1	0.09	☐
B. MT Natural Heritage Program Species Habitat	M	.6	1	0.18	☐
C. General Wildlife Habitat	E	1	1	0.3	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	H	.9	1	0.27	☐
F. Short and Long Term Surface Water Storage	H	.8	1	0.24	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	0.3	☑
H. Sediment/Shoreline Stabilization	H	1	1	0.3	☑
I. Production Export/Food Chain Support	M	.7	1	0.21	☐
J. Groundwater Discharge/Recharge	H	1	1	0.3	☑
K. Uniqueness	M	.4	1	0.12	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	0.06	☐
Totals:		7.9	10	2.37	
Percent of Possible Score			**79** %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☐ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ☑ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☑ Percent of possible score > 65% (round to nearest whole #).

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

☐

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- ☐ Percent of possible score < 35% (round to nearest whole #).

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

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#** 4143

3. Evaluation Date 7/30/2014 **4. Evaluators** S Wall, B Sandefur **5. Wetland/Site# (s)** Restoration

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 18.09

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 18.09

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland		Permanent/Perennial	5
Depressional	Emergent Wetland		Permanent/Perennial	90
Depressional	Scrub-Shrub Wetland		Permanent/Perennial	5

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

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)

All areas disturbed by construction are entirely revegetated.

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

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes previously delineated wetlands within conservation easement boundary. Adjacent land use includes low density residential, roads, US Forest Service land, and Plum Creek properties (commercial forest).

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Increased alder cover noted in 2014.

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	◉ D ○ S	Grizzly bear, Canada lynx
No usable habitat	☐ S	

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

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

Sources for documented use Site is within year-round range of Grizzly and lynx. Adjacent landowner reported seeing a grizzly according to 2012 monitoring report.

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

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	◉ D ○ S	Westslope cutthroat trout, Columbia River red-band trout (S1), Great blue her
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	○ D ◉ S	Pileated woodpecker (S3)
No usable habitat	☐ S	

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MFWP surveyed, MNHP list for Lincoln County

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Substantial

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, check 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 [check] 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 AA borders natural forested areas under management by both the USFS and Plum Creek Timber companies.

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◉ **N** ○ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .7M

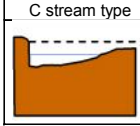
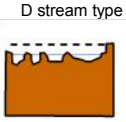
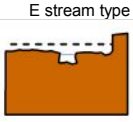
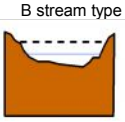
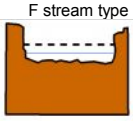
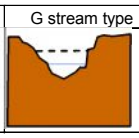
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ○ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .7M

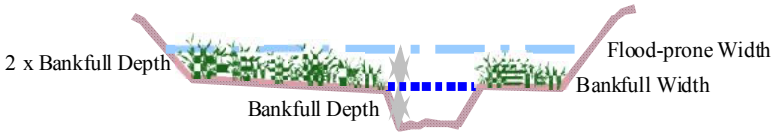
iii. Final Score and Rating: .7 M **Comments:** Perched culvert at Bayhorse Pass Road on northern boundary of the site prevents fish passage at certain times of the year.

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, click ☐ **NA** here and proceed to 14F.)

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodprone width 18 / **Bankfull width** 6 = **Entrenchment ratio** 3

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 (check)? **Y** ○ **N** ◉

Comments: Residence located north of AA, elevated above floodplain and not subject to flooding. Road and culvert located directly downstream.

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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] 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: Greater than 5 acre feet capacity across 18.09-acre wetland

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Area receives surface runoff during precipitation events

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 [check] 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: Open water areas are subject to wave action, streambank is subject to erosion. The streambank is well vegetated (reed canary grass, meadow foxtail) and open water areas have >65% vegetation cover.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** 1 E

Comments: AA is well vegetated and high biological activity.

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 [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: increased water table elevation saturated most of the AA to the surface.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

Public access, no permission required. Signs of hunting identified during 2012 site visit.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Restoration

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.3	1	5.427	☐
B. MT Natural Heritage Program Species Habitat	H	1	1	18.09	☐
C. General Wildlife Habitat	E	1	1	18.09	☐
D. General Fish Habitat	M	.7	1	12.663	☐
E. Flood Attenuation	M	.5	1	9.045	☐
F. Short and Long Term Surface Water Storage	H	1	1	18.09	☑
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	16.281	☑
H. Sediment/Shoreline Stabilization	H	1	1	18.09	☐
I. Production Export/Food Chain Support	E	1	1	18.09	☑
J. Groundwater Discharge/Recharge	H	1	1	18.09	☑
K. Uniqueness	M	.4	1	7.236	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	3.618	☐
Totals:		9	11	162.81	
Percent of Possible Score			**81.82** %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ☑ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☐ Percent of possible score > 65% (round to nearest whole #).

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

☐

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- ☐ Percent of possible score < 35% (round to nearest whole #).

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

I	II	III	IV

Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2010**

Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2011**

Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2012**

Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2013**

Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2014**

Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2010**

Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2011**

Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2012**

Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2013**

Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2014**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2010**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2011**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2012**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2013**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2014**

Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2010**

Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2011**

Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2012**

Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2013**

Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2014**

Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2010**

Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2011**

Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2012**

Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2013**

Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2014**

Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2010**

Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2011**

Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2012**

Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2013**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2014**

Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2010**

Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2011**

Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2012**

Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2013**

Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2014**

Photo Point 3 – *Panorama*
Bearing: 300-10 degrees

Location: PP3
Taken in 2010

Photo Point 3 – *Panorama*
Bearing: 300-10 degrees

Location: PP3
Taken in 2012

Photo Point 3 – *Panorama*
Bearing: 300-10 degrees

Location: PP3
Taken in 2013

Photo Point 3 – *Panorama*
Bearing: 300-10 degrees

Location: PP3
Taken in 2014

Photo Point 4 – *Panorama*
Bearing: 310-90 degrees

Location: PP4
Taken in 2010

Photo Point 4 – *Pamorama*
Bearing: 310-90 degrees

Location: PP4
Taken in 2012

Photo Point 4 – *Panorama*
Bearing: 310-90 degrees

Location: PP4
Taken in 2013

Photo Point 4 – *Pamorama*
Bearing: 310-90 degrees

Location: PP4
Taken in 2014

Photo Point 5 – *Panorama*
Bearing: 80-180 degrees

Location: PP5
Taken in 2010

Photo Point 5 – *Panorama*
Bearing: 80-180 degrees

Location: PP5
Taken in 2012

Photo Point 5 – *Panorama*
Bearing: 80-180 degrees

Location: PP5
Taken in 2013

Photo Point 5 – *Panorama*
Bearing: 80-180 degrees

Location: PP5
Taken in 2014

Photo Point 6 – *Panorama*
Bearing: 180-260 degrees

Location: PP6
Taken in 2010

Photo Point 6 – *Panorama*
Bearing: 180-260 degrees

Location: PP6
Taken in 2012

Photo Point 6 – *Panorama*
Bearing: 180-260 degrees

Location: PP6
Taken in 2013

Photo Point 6 – *Panorama*
Bearing: 180-260 degrees

Location: PP6
Taken in 2014

Photo Point 7 – *Panorama*
Bearing: 180-240 degrees

Location: PP7
Taken in 2010

Photo Point 7 – *Panorama*
Bearing: 180-240 degrees

Location: PP7
Taken in 2012

Photo Point 7 – *Panorama*
Bearing: 180-240 degrees

Location: PP7
Taken in 2013

Photo Point 7 – *Panorama*
Bearing: 180-240 degrees

Location: PP7
Taken in 2014

Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2010**

Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2011**

Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2012**

Transect 1 – *Start* **Location:** T-1
Bearing: 320 degrees **Taken in 2013**

Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2014**

Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2010**

Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2011**

Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2012**

Transect 1 – *Finish* **Location:** T-1
Bearing: 140 degrees **Taken in 2013**

Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2014**

Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2010**

Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2011**

Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2012**

Transect 2 – *Start* **Location:** T-2
Bearing: 330 Degrees **Taken in 2013**

Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2014**

Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2010**

Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2011**

Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2012**

Transect 2 – *Finish* **Location:** T-2
Bearing: 150 Degrees **Taken in 2013**

Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2014**

Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2010**

Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2011**

Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2012**

Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2013**

Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2014**

Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2010**

Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2011**

Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2012**

Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2013**

Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2014**

Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2010

Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2011

Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2012

Cross-Section 1 – *Photo 3*
Bearing: 150 Degrees

Location: XS-1 upstream
Taken in 2013

Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2014

Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2010

Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

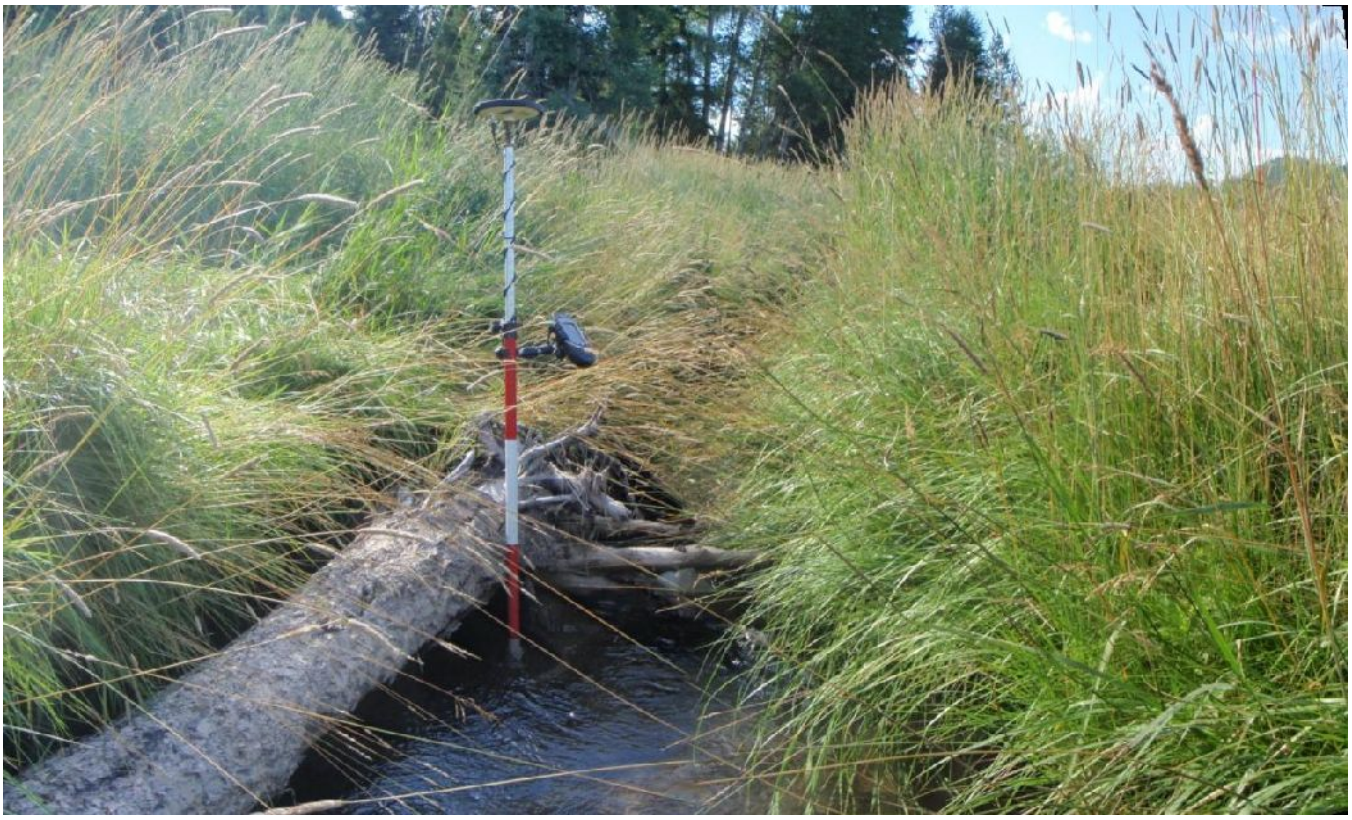
Location: XS-2 upstream
Taken in 2011

Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2012

Cross-Section 2: *Photo 1*
Bearing: 165 Degrees

Location: XS-2 upstream
Taken in 2013



Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2014

Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2010

Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2011

Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2012

Cross-Section 2 – *Photo 2*
Bearing: 345 Degrees

Location: XS-2 downstream
Taken in 2013

Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2014

Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2010

Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2011

Cross-Section 3 – *Photo 2*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2011

Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2012

Cross-Section 3 – *Photo 1*
Bearing: 260 Degrees

Location: XS-3 upstream
Taken in 2013

Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2014

Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2010

Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2011

Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2012

Cross-Section 3 – *Photo 3*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2012

Cross-Section 3 – *Photo 2*
Bearing: 70 Degrees

Location: XS-3 downstream
Taken in 2013

Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2014

Data Point TPA-up
Bearing: 180 Degrees
Location: Community 14
Taken in 2014

Data Point TP A-wet
Bearing: 0 Degrees
Location: Community 7
Taken in 2014

Data Point TPB-up
Bearing: 0 Degrees
Location: Community 1
Taken in 2014

Data Point TPB-wet
Bearing: 180 Degrees
Location: Community 18
Taken in 2014

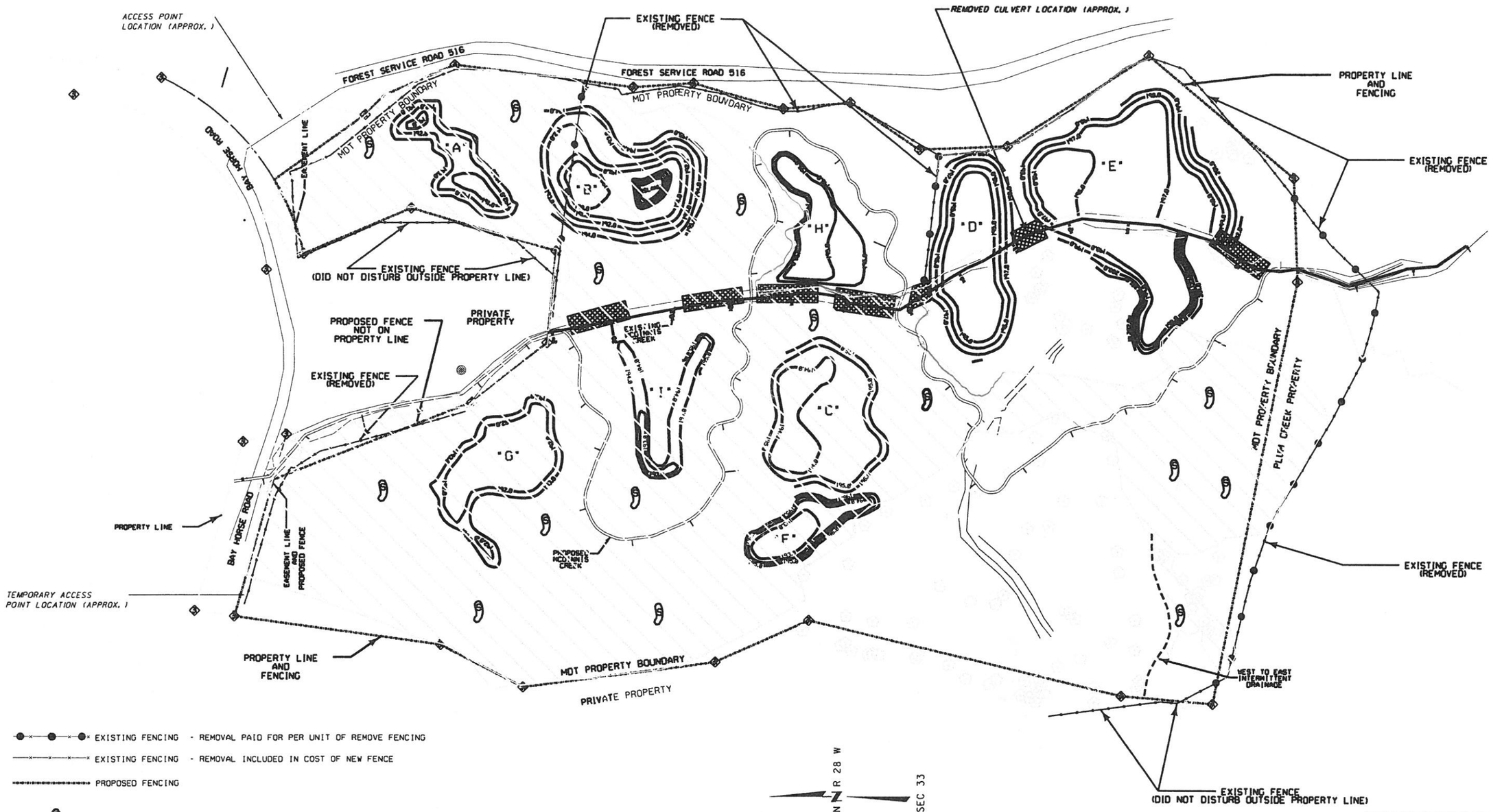
Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

05/14/2010
Highways & Engineering Division



EXISTING FENCING - REMOVAL PAID FOR PER UNIT OF REMOVE FENCING

EXISTING FENCING - REMOVAL INCLUDED IN COST OF NEW FENCE

PROPOSED FENCING

SOIL MOUND

DELINEATED WETLANDS

DITCH PLUGS FOR EXISTING CHANNEL - 100' +/-

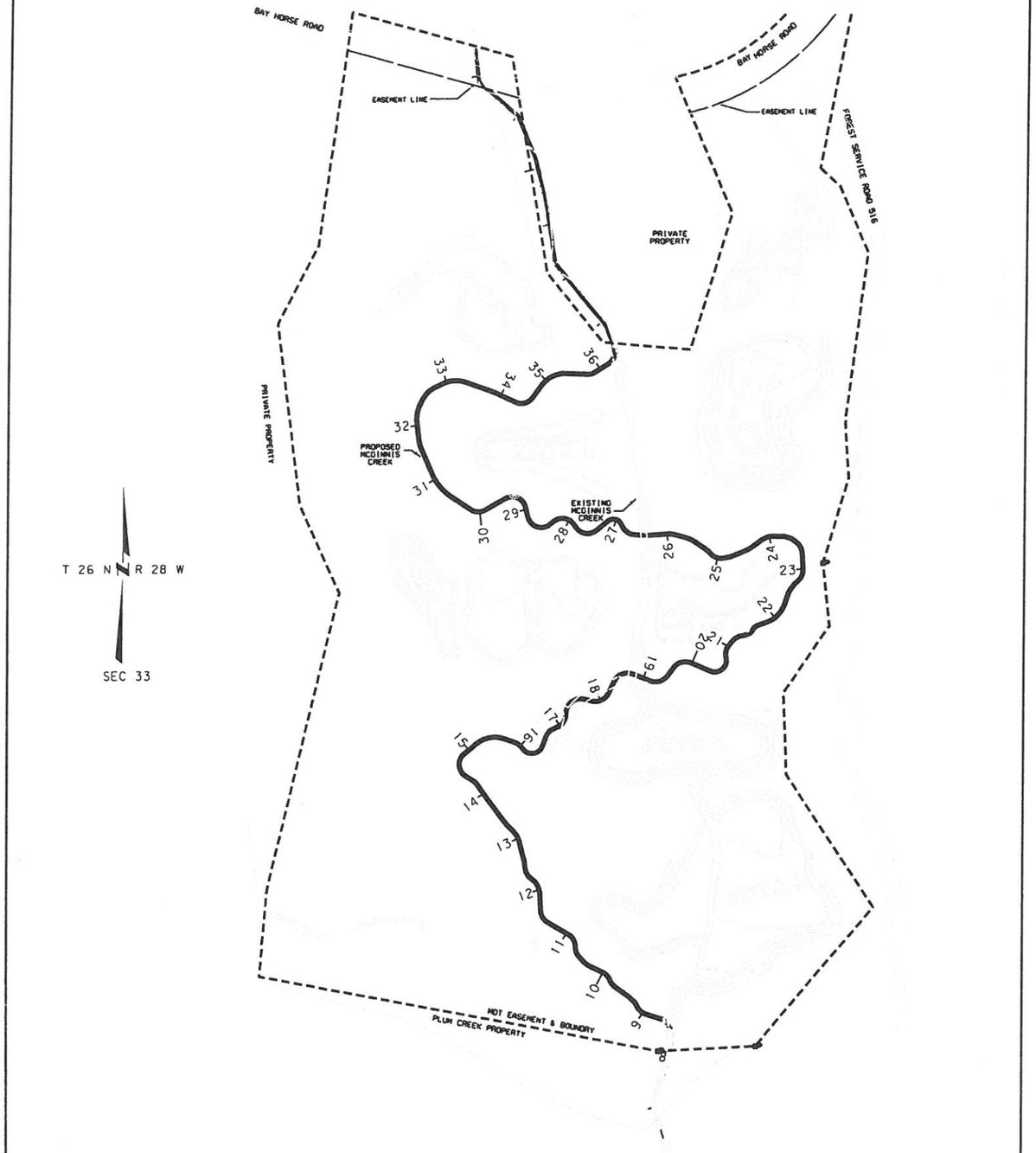
SITE PLAN for McGINNIS CREEK WETLAND MITIGATION

NO SCALE

3	MDT serving you with pride — MONTANA DEPARTMENT OF TRANSPORTATION	c:\dgn\4143rddet002ab.dgn	DESIGNED BY	MARK FRENCH	10/25/2008	WETLAND MITIGATION	McGINNIS MEADOWS - WETLAND MITIGATION / NH 27 (17)
2		5/14/2010	REVIEWED BY				
1		10:36:59 AM CPS - U4853	CHECKED BY			LINCOLN COUNTY	UPN 4143 / SHEET 5 OF 21

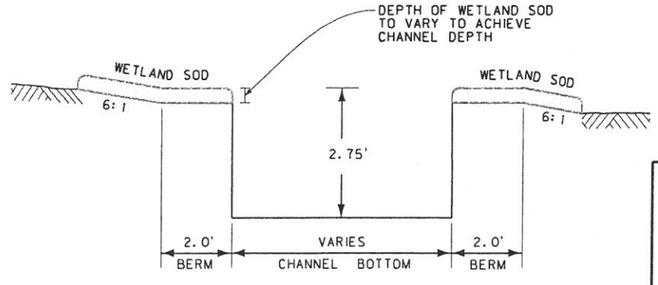
AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

05/14/2010
Highways & Engineering Division



PROPOSED CURVE/STREAM ℄ LAYOUT DATA

PI STATION	POINT OF INTERSECTION (PI) COORDINATES X	Y	POINT OF CURVATURE (PC) COORDINATES X	Y	POINT OF TANGENCY (PT) COORDINATES X	Y	RADIUS OF CURVE (FT)
8+05.00 P.O.T.	1076.1720	670.1733	BEGINING OF PROPOSED MCGINNIS STREAM				
8+53.65	1077.3920	718.8012	1076.9184	699.9236	1059.3635	724.4188	25.000
9+01.56	1026.4718	734.6678	1034.3349	732.2177	1021.6046	741.3118	25.000
9+33.07	1007.5700	760.4700	1015.0637	751.9234	998.3493	767.1168	100.000
9+73.16	974.9700	783.9700	980.1294	780.2508	972.2152	789.7027	25.000
9+92.56	966.4500	801.7000	970.2457	793.8013	958.5535	805.5002	25.000
10+31.45	930.8063	818.8534	934.8057	816.9288	927.7139	822.0371	25.000
10+60.06	910.8100	839.4400	917.9029	832.1377	910.8359	849.6200	25.000
10+83.87	910.8731	864.2780	910.8365	849.8526	898.4024	871.5286	25.000
11+50.26	851.0632	898.8183	861.6653	892.7246	849.3653	910.9285	25.000
11+96.11	847.4900	946.1900	847.3495	940.9161	845.4876	951.0709	25.000
12+12.81	841.0900	961.7900	843.5873	955.7027	835.9196	965.8592	25.000
12+36.06	822.5900	976.3500	830.5221	970.1072	821.2162	986.3502	25.000
12+59.53	819.2600	1000.5900	819.5751	998.2961	810.5289	1002.7870	25.000
13+03.48	808.4300	1043.1700	810.8440	1031.1476	799.6929	1051.7739	40.000
13+33.12	786.7900	1064.4800	792.0279	1059.3219	782.3627	1070.3486	100.000
13+82.06	757.3000	1103.5700	758.0024	1102.6390	756.6195	1104.5172	100.000
14+25.26	732.0972	1138.6498	735.1401	1134.4144	727.6147	1141.3154	25.000
14+79.21	685.6000	1166.3000	716.6962	1147.8082	713.8938	1188.8473	25.000
15+45.85	756.5312	1222.8249	734.9689	1205.6419	782.5697	1213.7593	50.000
15+95.04	807.4700	1205.0900	801.4890	1207.1723	811.7382	1200.4113	25.000
16+42.45	839.5960	1169.8743	817.2117	1194.4114	850.8122	1201.1365	20.000
16+77.84	860.0833	1226.9772	856.2454	1216.2800	870.6658	1231.1186	25.000
17+08.74	890.1604	1238.7465	875.5691	1233.0369	891.3829	1254.3674	25.000
17+55.68	894.0835	1288.8750	891.8408	1260.2185	922.1522	1282.6805	25.000
18+05.67	957.2890	1274.9262	937.8485	1279.2165	965.8228	1292.9128	25.000
18+65.57	985.6225	1334.6445	975.7263	1313.7863	1007.2010	1326.4367	25.000
19+32.70	1056.6742	1307.6187	1038.6841	1314.4616	1067.8895	1323.2611	25.000
19+83.87	1089.8026	1353.8241	1078.0442	1337.4243	1108.3141	1345.7906	25.000
20+72.60	1177.3900	1316.6700	1142.8648	1331.3154	1170.3161	1353.4998	20.000
20+93.74	1167.4100	1368.6300	1169.7672	1356.3574	1175.8119	1377.8810	25.000
21+22.83	1188.1900	1391.5100	1182.3564	1385.0868	1196.7486	1392.9380	25.000
21+47.27	1212.9360	1395.6388	1203.4470	1394.0556	1217.6222	1404.0403	20.000
21+61.99	1220.7400	1409.6300	1217.9255	1404.5841	1226.2122	1411.4840	15.000
22+07.80	1264.6300	1424.5000	1241.1962	1416.5606	1272.5328	1447.9462	50.000
22+58.99	1282.1100	1476.3600	1278.2136	1464.8001	1290.8924	1484.8266	50.000
22+90.20	1304.9100	1498.3400	1296.5970	1490.3260	1304.1985	1509.8649	25.000
23+34.82	1302.0700	1544.3400	1302.5305	1536.8818	1297.5922	1550.3222	25.000
23+61.77	1285.6700	1566.2500	1297.1814	1550.8711	1266.4704	1566.8800	40.000
24+04.60	1240.2600	1567.7400	1254.6908	1567.2665	1228.8538	1558.8873	40.000
24+41.95	1209.8400	1544.1300	1221.6472	1553.2940	1195.8693	1538.8188	100.000
24+74.09	1179.5900	1532.6300	1182.3437	1533.6769	1176.7324	1531.9137	50.000
25+01.97	1152.5400	1525.8500	1166.4410	1529.3342	1142.5087	1536.0847	25.000
25+24.70	1134.7800	1543.9700	1138.5313	1540.1427	1130.3028	1546.9154	50.000
25+59.09	1106.0200	1562.8900	1112.9896	1558.3050	1097.9393	1564.9639	50.000
25+95.06	1071.0300	1571.8700	1074.9986	1570.8515	1066.9439	1571.5684	25.000
26+37.51	1028.6200	1568.7400	1032.3604	1569.0161	1024.8803	1569.0250	50.000
26+71.45	994.7700	1571.3200	1008.9338	1570.2405	988.4471	1584.0401	25.000
27+07.78	977.4517	1606.1598	985.9169	1589.1301	962.8626	1593.9603	15.000
27+69.48	921.7197	1559.5563	943.7976	1578.0180	906.5275	1583.9995	25.000
28+17.74	888.4426	1613.0967	904.5436	1587.1914	866.2021	1592.2235	25.000
28+79.18	831.3954	1559.5563	863.4315	1589.6231	821.9122	1602.4561	25.000
29+37.48	811.2165	1650.8415	818.6016	1617.4328	781.6320	1633.6532	25.000
30+04.94	734.3459	1606.1806	747.7851	1613.9886	721.3975	1614.7780	25.000
30+85.58	664.4366	1652.5983	689.3589	1636.0507	652.6961	1680.1138	100.000
31+66.48	632.0220	1728.5664	634.7746	1722.1154	631.1506	1735.5258	50.000
32+20.25	625.3300	1782.0100	627.0336	1768.4051	630.8044	1794.5808	50.000
32+62.87	642.6100	1821.6900	635.0520	1804.3347	659.7667	1829.6885	50.000
33+15.23	691.5800	1844.5200	673.0178	1835.8662	710.8792	1837.6655	50.000
33+85.07	759.3500	1820.4500	755.3734	1821.8624	763.1935	1818.7076	100.000
34+48.59	817.2100	1794.2200	798.7822	1802.5740	829.2219	1810.5014	25.000
35+15.89	860.9939	1853.5664	845.2885	1832.2786	887.4290	1852.5581	50.000
35+83.45	932.7400	1850.8300	924.9475	1851.1272	939.3195	1855.0158	25.000
36+37.27	978.5600	1879.9800	961.1709	1868.9173	971.0173	1899.1600	25.000
36+51.14 P.O.T.	971.0173	1899.1600	END OF PROPOSED MCGINNIS STREAM				



TYPICAL X-SECTION OF PROPOSED STREAM CHANNEL

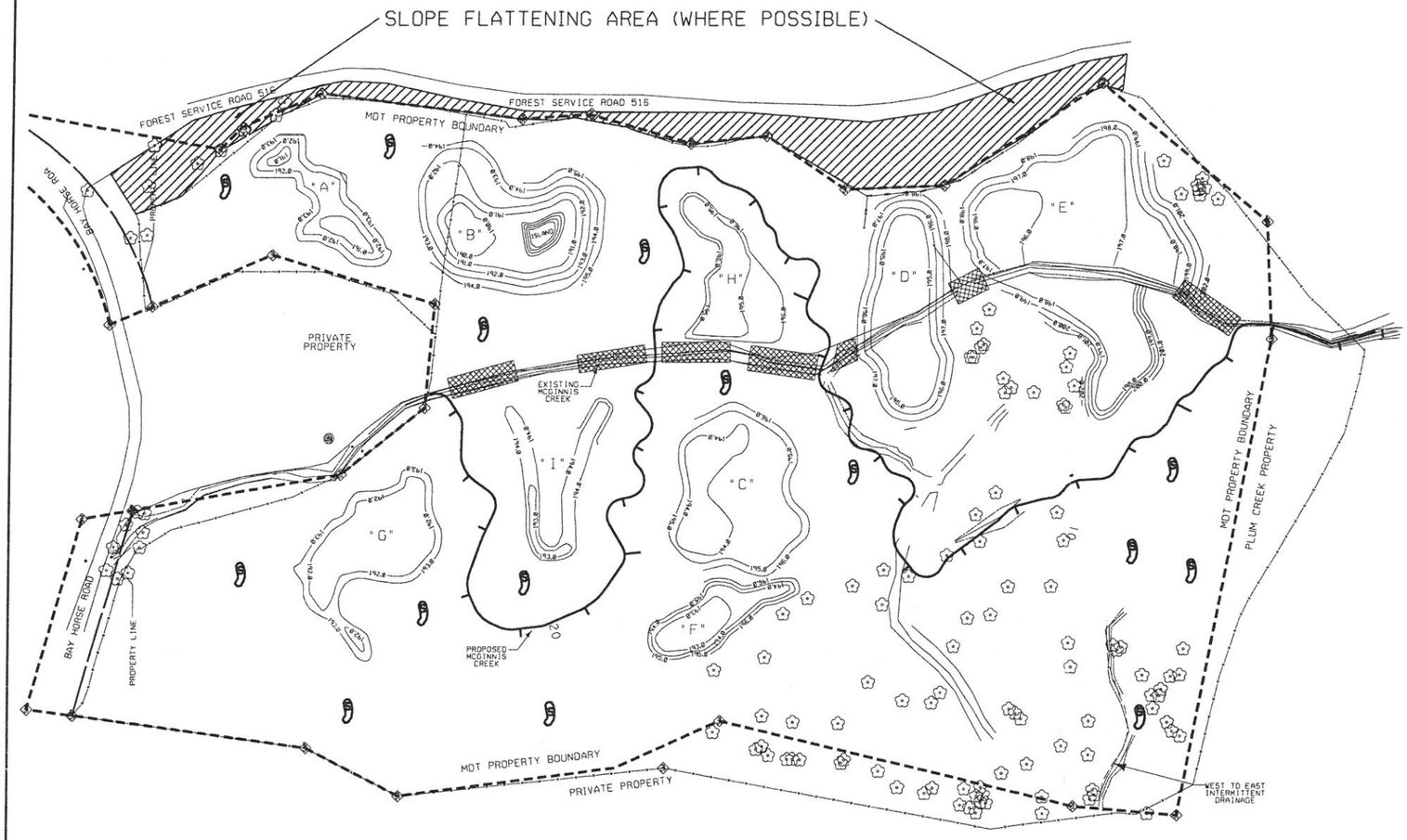
PROPOSED CHANNEL for McGINNIS CREEK

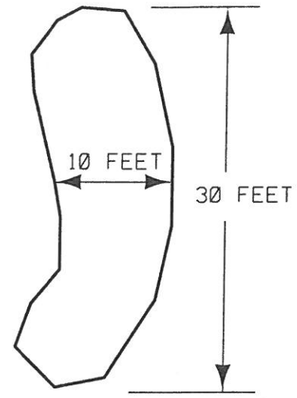
ALIGNMENT COORDINATE TABLE

3	MDT serving you with pride	MONTANA DEPARTMENT OF TRANSPORTATION	c:\dgn\4143rddet002ab.dgn	DESIGNED BY MARK FRENCH	10/25/2008	WETLAND MITIGATION	McGINNIS MEADOWS - WETLAND MITIGATION / NH 27 (17)
2			5/14/2010	REVIEWED BY		LINCOLN COUNTY	UPN 4143
1			10:37:03 AM CPS - U4853	CHECKED BY			SHEET 7 OF 21

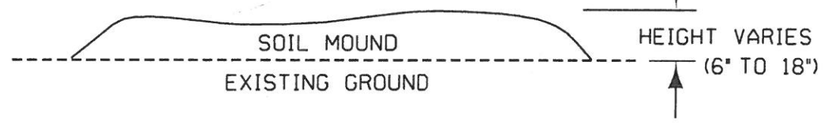
AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

05/14/2010
Highways & Engineering Division



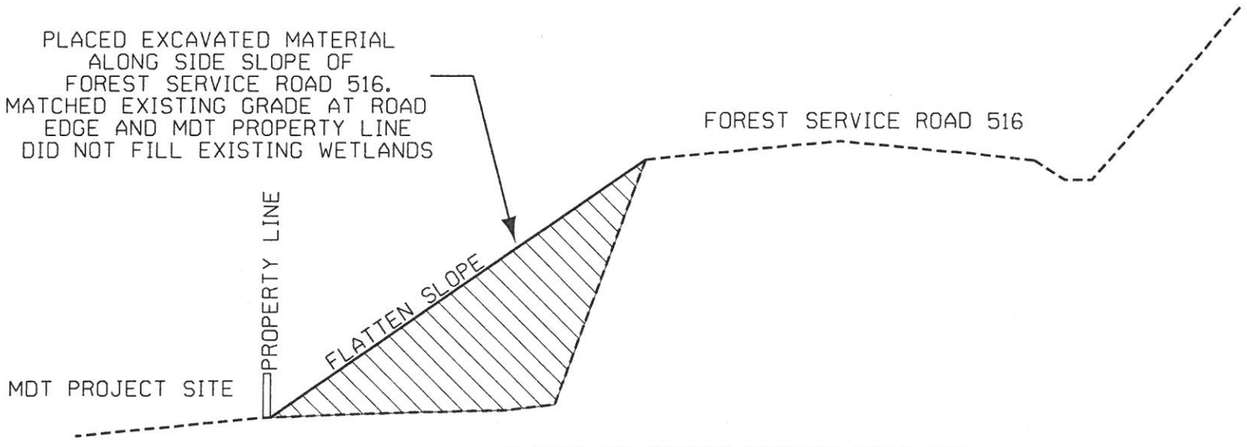


PLAN VIEW OF SOIL MOUNDS



X-SECT OF SOIL MOUNDS

PRECISE LOCATIONS AND HEIGHT OF SOIL MOUNDS
WAS MARKED IN THE FIELD BY
MDT STAFF BOTANIST



X-SECT OF FOREST SERVICE ROAD 516

DETAIL
SOIL MOUNDS
(1 OF 1)

3	MONTANA DEPARTMENT OF TRANSPORTATION	c:\dgn\4143rddet006ab.dgn	DESIGNED BY	W. SALYARDS	02/06/09	WETLAND MITIGATION	McGINNIS MEADOWS - WETLAND MITIGATION	NH 27 (17)
2	serving you with pride	5/14/2010	REVIEWED BY					
1		10:37:40 AM CPS - U4853	CHECKED BY			LINCOLN COUNTY	UPN 4143	SHEET 17 OF 21