MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2010

McGinnis Meadows
Lincoln County, Montana

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MORRISON MAIERLE, INC.
An Employee-Owned Company

December 2010

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MDT Project Number STPX-NH 27(17)
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December 2010

CCI Project No: MDT.004

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TABLE OF CONTENTS

1. INTRODUCTION 1

2. METHODS 5
- 2.1. Hydrology 5
- 2.2. Vegetation 5
- 2.3. Soil 6
- 2.4. Wetland Delineation 6
- 2.5. Wildlife 7
- 2.6. Functional Assessment 7
- 2.7. Photo Documentation 7
- 2.8. GPS Data 7
- 2.9. Maintenance Needs 8

3. RESULTS 8
- 3.1. Hydrology 8
- 3.2. Vegetation 11
- 3.3. Soil 18
- 3.4. Wetland Delineation 18
- 3.5. Wildlife 19
- 3.6. Functional Assessment 19
- 3.7. Photo Documentation 20
- 3.8. Maintenance Needs 20
- 3.9. Current Credit Summary 21

4. REFERENCES 23

TABLES

Table 1. Groundwater depths measured in Wells 1, 2 and 3 in 2010.....8
Table 2. Comprehensive list of plant species identified in 2010.....12
Table 3. Data summary for Transect 1 in 2010 at the McGinnis Meadows Wetland Mitigation Site. 15
Table 4. Data summary for Transect 2 in 2010 at the McGinnis Creek Wetland Mitigation Site. 16
Table 5. Total wetland acres delineated in 2010.....18
Table 6. Wildlife species observed at the McGinnis Creek Mitigation Site in 2010.....19
Table 7. Functions and Values of McGinnis Creek wetlands. 21
Table 8. 2010 Summary of Wetland Credits. 22

CHARTS

Chart 1. McGinnis Creek stream cross-section one.....9
Chart 2. McGinnis Creek stream cross-section two. 10
Chart 3. McGinnis Creek stream cross-section three.....10
Chart 4. Transect map showing community types on Transect 1 in 2010 from start (0 feet) to end (504 feet). 15
Chart 5. Length of habitat types within Transect 1 in 2010. 16
Chart 6. Transect map showing community types on Transect 2 in 2010 from start (0 feet) to end (1000 feet). 17
Chart 7. Length of habitat types within Transect 2 in 2010. 17

FIGURES

Figure 1. Project location of McGinnis Meadows Mitigation Site.....2
Figure 2. Monitoring Activity Locations – Appendix A
Figure 3. Mapped Site Features – Appendix A

APPENDICES

Appendix A Figures 2 and 3
Appendix B 2010 Wetland Mitigation Site Monitoring Form
2010 USACE Wetland Delineation Form
2010 MDT Functional Assessment Form
Appendix C Project Area Photographs
Appendix D Project Plan Sheet

Cover: Photo of McGinnis Meadows near MW 2 in reed canarygrass community.

1. INTRODUCTION

The McGinnis Meadows Wetland Mitigation 2010 Monitoring Report presents the results of the first of five years of post-construction monitoring at the McGinnis Meadows mitigation area. The Montana Department of Transportation (MDT) wetland mitigation project is located in Section 33, Township 26 North, Range 28 West, MPM, Lincoln County, Montana (Figure 1). McGinnis Meadows is located approximately seven miles south of the US Highway 2 corridor (Figure 1) on two parcels encompassing 34.6 acres of an existing hay field and pasture (Figure 2, Appendix A). The parcels are bisected by McGinnis Creek, a tributary to the Fisher River. Figures 2 and 3 in Appendix A show the site monitoring activity locations and mapped site features, respectively. The MDT Mitigation Monitoring Form, US Army Corps of Engineers (USACE) Routine Wetland Determination Data Forms (USACE 2010), and the 2008 MDT Montana Wetland Assessment Forms are included in Appendix B. Representative photographs are included in Appendix C and the Project Plan Sheet is included in Appendix D.

The wetland restoration project falls within the boundaries of Watershed 1 – Kootenai River Basin. Wetlands developed at this location will 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 called Montana Watersheds Incorporated (MWI), consisting of the Lincoln, Sanders and Flathead County Conservation Districts with technical assistance from the USDA Natural Resource Conservation Service Centers (NRCS) in Bozeman, Kalispell, Libby, and Eureka. The wetland and stream restoration project will aid in improving the flood storage, stream length, and fisheries habitat of McGinnis Creek, and improve 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 new emergent wetlands, enhancement of 1.74 acres of emergent wetlands and intermittent drainage, preservation of 0.3 acres of existing riparian communities within McGinnis Creek, and protection of 2.2 acres of upland buffer. The project credit ratios approved by the US Army Corps of Engineers (USACE) (Corps File Number NWO-2008-03130-MTH) are shown in Section 3.9. The MDT credit proposal may also allow for MDT to utilize the newly restored McGinnis Creek (approx 2850 linear feet) for stream mitigation credits in the future. The approved performance standards (MDT 2009) are listed below.

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

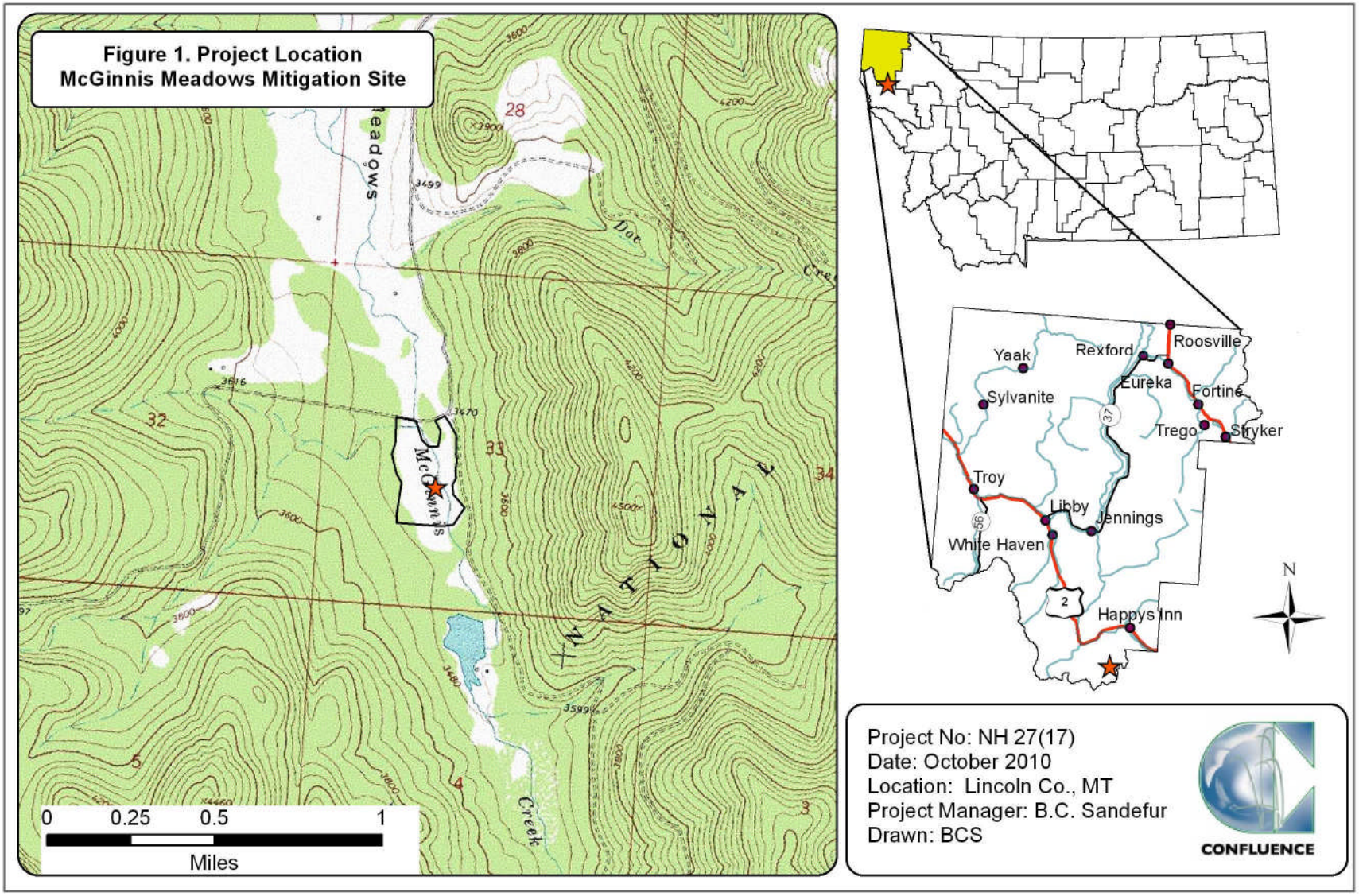

Figure 1. Project location of McGinnis Meadows Mitigation Site.

outlined in the *1987 Corps of Engineers Wetlands Delineation Manual for the Determination of Wetlands* (Environmental Laboratory 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 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 sampling will be conducted during the course of the monitoring period to determine if wetland areas are exhibiting characteristics of hydric soils per the 1987 USACE manual and 2010 regional supplement. 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 is 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. We anticipate natural colonization of woody plant species from nearby sources 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 therefore be considered successful and creditable.

3. **McGinnis Creek Channel Restoration Success** will be evaluated in terms of revegetation success.
    a) Re-vegetation 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 for the stream to naturally migrate 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, and 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. MDT is currently managing the property to control current weed problems (knapweed and houndstongue) prior to the initiation of wetland construction activities within the site.

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

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2. METHODS

The first year of monitoring was completed on July 16, 2010. Information for the MDT Wetland Mitigation Site Monitoring Form and USACE Routine Wetland Determination Data Form (2010 Regional Supplement) was entered electronically in the field on a personal digital assistant (PDA) palmtop computer during the field investigation (Appendix B). Monitoring activity locations were located with a global positioning system (GPS) (Figure 2, Appendix A). Information collected during this site visit included wetland delineation, vegetation community mapping, vegetation transect monitoring, soil data collection, hydrology data collection, 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 more or 12.5 percent) during the growing season (Environmental Laboratory 1987)." Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are considered wetlands. The growing season is defined for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (Environmental Laboratory 1987).

Hydrological indicators as outlined on the wetland data form were documented at four data points established within the project area. The hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded on electronic field data sheets (Appendix B). Hydrologic assessments allow evaluation of mitigation goals addressing inundation/saturation requirements. Groundwater levels were measured in three monitoring wells with a Solinst Water Level Meter. The well locations are shown on Figure 2 (Appendix A).

2.2. Vegetation

The boundaries of general dominant species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on aerial photographs. The percent cover of dominant species within a community type was estimated and recorded using the following ranges listed on the monitoring form verbatim: 0 (<1 percent), 1 (1-5 percent), 2 (6-10 percent), 3 (11-20 percent), 4 (21-50 percent), and 5 (>50 percent) (Appendix B).

Temporal changes in vegetation will be 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), respectively (Figure 2, Appendix A). The transect locations were recorded with a

GPS unit. Spatial changes in the dominant vegetation communities based on percent cover 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 above (Appendix B). Photographs were taken at the endpoints of each transect during the monitoring event (Appendix C).

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

The condition of the woody species installed onsite was evaluated during monitoring. Survival will be assessed annually.

2.3. Soil

Soil information was obtained from the NRCS official soil description website (USDA 2010) and *in situ* soil descriptions. Soil cores were excavated using a hand auger and evaluated according to procedures outlined in the USACE 1987 manual and 2010 Regional Supplement. A description of the soil profile, including hydric indicators when present, was recorded on the wetland data form for each profile (Appendix B).

2.4. 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 wetland manual and the 2010 Regional Supplement. In order to delineate a representative area as wetland, the technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology, as described in the 1987 Manual, must be satisfied. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). A Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate jurisdictional areas within the project boundaries. The information was recorded electronically on the wetland determination form (Appendix B).

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. 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 boundary was identified on aerial photography. Wetland areas reported were determined using geographic information system (GIS) methodology.

2.5. Wildlife

Observations and other positive indicators of use of mammal, reptile, amphibian, and bird species were recorded on the wetland monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones, were also recorded. These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of animal species observed in 2010 was compiled.

2.6. Functional Assessment

The 2008 MDT Montana Wetland Assessment Method (Berglund and McEldowney 2008) was used to evaluate functions and values on the site in 2010. 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).

Field data for this assessment were collected during the site visit. A Functional Assessment Form was completed for each wetland or group of wetlands (Assessment Areas) (Appendix B).

2.7. Photo Documentation

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

2.8. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit during the 2010 monitoring season. Points were collected using WAAS-enabled differential corrected satellites, typically improving resolution to sub-meter accuracy. The collected data were then transferred to a personal computer, exported into GIS, and drawn in Montana State Plane Single Zone NAD 83 meters. In addition to GPS, some site features were hand-mapped onto an aerial photograph and then digitized. Mapped site features and survey points included fence boundaries, photograph points, transect beginnings and endings, wetland boundaries, and vegetation community boundaries.

2.9. Maintenance Needs

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

3. RESULTS

3.1. Hydrology

The growing season recorded for the meteorological station at Libby 32 SSE (245020), located approximately 20 miles northwest of the project, 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.

Climate data from the Libby 32 SSE (245020) weather station recorded an average total annual precipitation rate of 24.58 inches from 1910 to 2010 (WRCC 2010). Annual precipitation from January to September for 2009, 2010, and the period of record was 14.57 inches, 15.53 inches, and 16.33 inches, respectively. The precipitation total for June 2010 was 4.00 inches, compared to 1.28 inches in 2009, and 2.16 inches as the overall average.

Groundwater and precipitation are the primary sources of hydrology at the mitigation site. The average surface water depth in areas of inundation across the site was estimated at 0.8 feet with a range of surface water depths from 0 to 2.5 feet. The depth at the emergent vegetation and open water boundary was one foot.

Groundwater levels were measured in three onsite wells located within areas that were originally delineated as wetlands (Figure 2, Appendix A). The groundwater levels were greater than 12 inches below the ground surface (bgs) (Table 1).

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

Well Number	Groundwater Depth (feet bgs)
Well 1	1.5
Well 2	3.3
Well 3	3.7

Four data points, M-1 to M-4, were sampled to determine the wetland and upland boundaries (Figure 2, Appendix A and Monitoring Forms, Appendix B). Data points M-1 and M-2 were located in upland areas at the edge of the constructed cells. Neither data point exhibited wetland hydrological indicators. Data point M-3 was located in an area previously delineated as wetland. Two secondary indicators, drainage patterns and frost-heave hummocks, provided a positive

indication of wetland hydrology. Data point M-4, located at the edge of an excavated cell, met the hydric soil and hydrology criteria although it did not meet the wetland vegetation criteria due to the lack of vegetation development at the time of the investigation. Wetland hydrology indicators at M-4 included a high water table at 8 inches bgs and saturation at 2 inches bgs.

Three baseline stream cross-sections were surveyed in 2010 at permanent locations to assess bank stability and lateral migration throughout the monitoring period. The results of the cross-section surveys are presented below. The cross-section locations are shown on Figure 2 (Appendix A). Photographs of the cross-sections are shown on pages C-5 and C-6 of Appendix C.

The stream banks of McGinnis Creek were minimally disturbed during construction and are primarily vegetated with sod-forming meadow foxtail (*Alopecurus pratensis*) and reed canary grass (*Phalaris arundinacea*) throughout the project site. Reed canary grass has a plant stability rating of 9 where 1 is the lowest and 10 is the highest (Berglund and McEldowney 2008). 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.

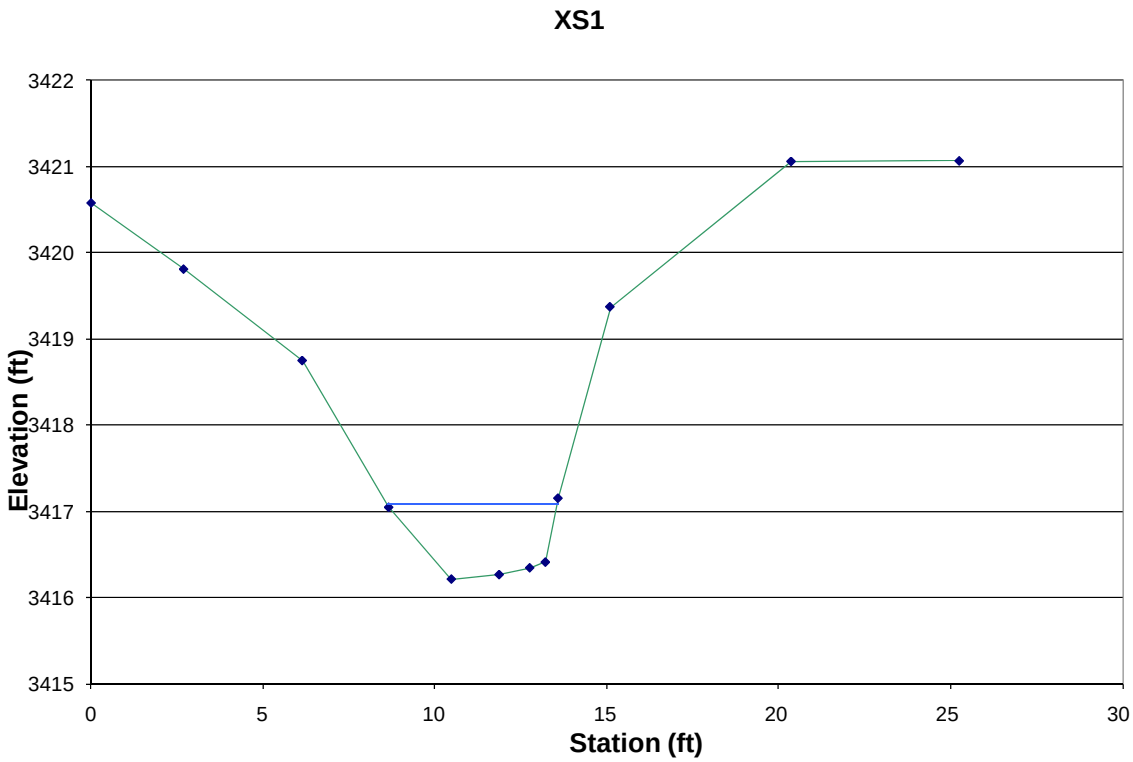

Chart 1. McGinnis Creek stream cross-section one.

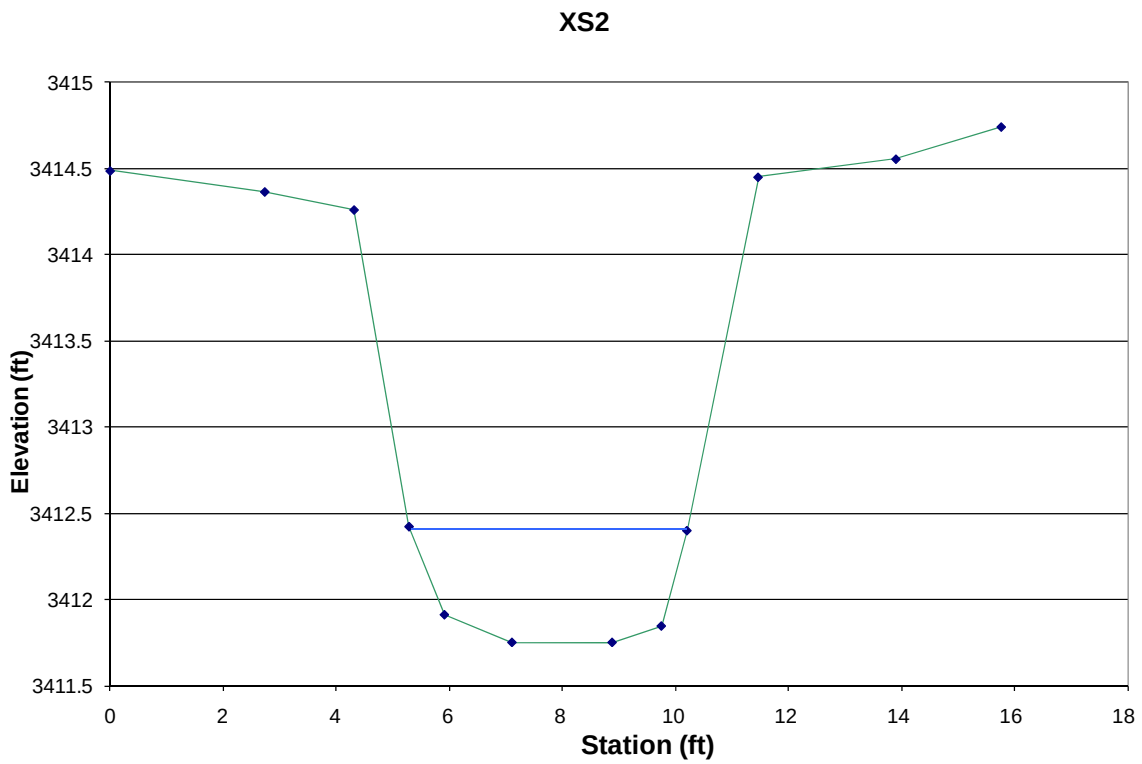

Chart 2. McGinnis Creek stream cross-section two.

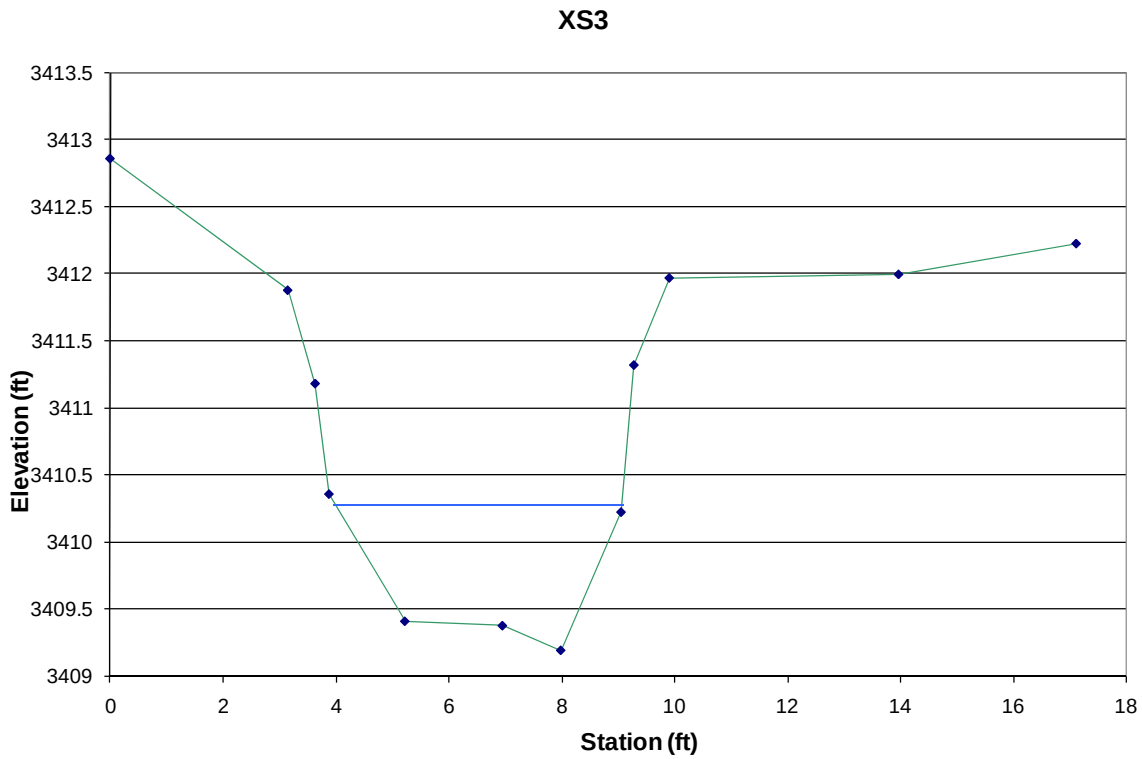

Chart 3. McGinnis Creek stream cross-section three.

3.2. Vegetation

Vegetation plant communities were identified by plant composition, topography, and hydrology. The 104 plant species observed site wide in 2010 are listed in Table 2 and on the mitigation monitoring forms (Appendix B). Six wetland and four upland communities were identified in 2010. Vegetation community types named for the dominant species based on percent cover were Type 1 – *Alopecurus pratensis/Phalaris arundinacea* Wetland, Type 3 – Bare Ground/Transitional (Upland), Type 4 – *Picea engelmannii/Alopecurus pratensis* Upland, Type 5 – *Phalaris arundinacea/Alnus incana* Wetland, Type 6 – *Carex utriculata* Wetland, Type 7 – *Phalaris arundinacea/Alopecurus pratensis* Upland, Type 8 – *Abies lasiocarpa* Upland, Type 9 – *Phalaris arundinacea/Carex* spp. Wetland, Type 10 – *Phalaris arundinacea* Wetland, and Type 11 – *Alnus incana* Wetland. Open water in McGinnis Creek and the constructed depressions were represented on Figure 3 by the polygon number 2 (Appendix A).

Wetland community Type 1 – *Alopecurus pratensis/Phalaris arundinacea* was identified primarily in areas adjacent to McGinnis Creek. Meadow foxtail and reed canary grass dominated the community type. Approximately 35 secondary species were identified within this community at five percent cover or less.

Upland Type 3 – Bare ground/Transitional was found in the constructed cells located throughout the site and within the upland islands scattered across the site. Bare ground encompassed over 50 percent of total cover. The dominant vegetation species included slender rush (*Juncus tenuis*) and tufted hairgrass (*Deschampsia cespitosa*) recorded at 10 percent or less cover. The cover of wetland species is expected to increase long-term within the constructed cells. Data point M-4 located within one of the cells indicated that the wetland hydrology was sufficient to support a hydrophytic plant community.

Upland Type 4 – *Picea engelmannii/Alopecurus pratensis* represented two small upland forests located in the southeast corner of the property that contained a high percent cover of Canada thistle (*Cirsium arvense*). Woody species included Englemann spruce (*Picea engelmannii*), lodgepole pine *(Pinus contorta*), and Western serviceberry (*Amelanchier alnifolia*). Meadow foxtail and reed canary grass dominated the understory.

Wetland Type 5 – *Phalaris arundinacea/Alnus incana* was a scrub-shrub speckled alder (*Alnus incana*) and Douglas hawthorn (*Crataegus douglasii*) community located near the southwest property corner. Reed canary grass and meadow foxtail dominated the understory.

Wetland Type 6 – *Carex utriculata* was identified in a small remnant ditch located in the southwest property corner. Beaked sedge (*Carex utriculata)* dominated the community.

Table 2. Comprehensive list of plant species identified in 2010.

SCIENTIFIC NAME	COMMON NAME	REGION 9 INDICATOR SPECIES[1]
Abies lasiocarpa	fir,subalpine	FACU
Achillea millefolium	yarrow,common	FACU
Agropyron repens	quackgrass	FACU
Agrostis interrupta	dense silkybent	NL
Agrostis scabra	bentgrass,rough	FAC
Agrostis stolonifera	bentgrass,spreading	FAC+
Alnus incana	alder,speckled	FACW
Alopecurus aequalis	foxtail,short-awn	OBL
Alopecurus pratensis	foxtail,meadow	FACW
Amelanchier alnifolia	service-berry,Saskatoon	FACU
Antennaria rosea	rosy pussy toes	NL
Arctostaphylos uva-ursi	bearberry	FACU-
Arnica chamissonis	arnica,leafy	FACW
Aster spp.		NL
Calamagrostis canadensis	reedgrass,blue-joint	FACW+
Calamagrostis rubescens	pinegrass	NL
Cardamine pensylvanica	bitter-cress,Pennsylvania	FACW
Carex aquatilis	sedge,water	OBL
Carex athrostachya	sedge,slender-beak	FACW
Carex bebbii	sedge,bebb's	OBL
Carex nebrascensis	sedge,Nebraska	OBL
Carex pachystachya	sedge,thick-head	FAC
Carex petasata	Liddon sedge	NL
Carex spp.		NL
Carex stipata	awlfruit sedge	NL
Carex rostrata (utriculata)*	beaked sedge	OBL
Centaurea maculosa	spotted knapweed	NL
Cerastium fontanum	common mouse-eared chickweed	NL
Chenopodium album	goosefoot,white	FAC
Cirsium arvense	thistle,creeping	FACU+
Cirsium vulgare	thistle,bull	FACU
Convolvulus arvensis	field bindweed	NL
Crataegus douglasii	hawthorn,Douglas	FAC
Cynoglossum officinale	gypsy-flower	NL
Deschampsia cespitosa	hairgrass,tufted	FACW
Descurainia sophia	common tansymustard	NL
Elymus trachycaulus	slender wheatgrass	NL
Epilobium ciliatum	willow-herb,hairy	FACW-
Equisetum arvense	horsetail,field	FAC
Erysimum cheiranthoides	wallflower,worm-seed	FACU
Fragaria virginiana	strawberry,Virginia	UPL
Galium triflorum	bedstraw,sweet-scent	FACU
Geum macrophyllum	avens,large-leaf	FACW+
Glyceria borealis	grass,small floating manna	OBL
Gnaphalium palustre	cudweed,Western marsh	FAC+
Heracleum sphondylium	cow-parsnip,American	NI

[1]Region 9 (Northwest) (Reed 1988).
*Commonly accepted name not included in 1988 list.

Table 2. (Continued). Comprehensive list of plant species identified in 2010.

SCIENTIFIC NAME	COMMON NAME	REGION 9 INDICATOR SPECIES[1]
Hordeum brachyantherum	barley,meadow	FACW
Juncus bufonius	rush,toad	FACW+
Juncus effusus	rush,soft	FACW+
Juncus ensifolius	rush,three-stamen	FACW
Juncus tenuis	rush,slender	FAC
Larix occidentalis	larch,Western	FACU+
Mahonia repens	creeping barberry	NL
Maianthemum stellatum	starry false lily-of-the-valley	NL
Medicago lupulina	medic,black	FAC
Mentha arvensis	mint,field	FAC
Mimulus guttatus	monkey-flower,common large	OBL
Montia linearis	narrowleaf minerslettuce	NL
Myosotis micrantha	strict forget-me-not	NL
Penstemon confertus	yellow penstemon	NL
Phalaris arundinacea	grass,reed canary	FACW
Phleum pratense	timothy	FACU
Picea engelmannii	spruce,Engelmann's	FAC
Pinus contorta	pine,lodge-pole	FAC-
Pinus ponderosa	pine,ponderosa	FACU-
Plantago major	plantain,common	FAC+
Poa palustris	bluegrass,fowl	FAC
Poa pratensis	bluegrass,Kentucky	FACU+
Poa spp.		NL
Polygonum amphibium	smartweed,water	OBL
Populus tremula (tremuloides)*	quaking aspen	FAC+
Potentilla anserina	silverweed	OBL
Potentilla gracilis	cinquefoil,Northwest	FAC
Potentilla norvegica	cinquefoil, Norwegian	FAC
Potentilla palustris	cinquefoil,marsh	OBL
Potentilla recta	sulfur cinqufoil	NL
Prunella vulgaris	heal-all	FACU+
Ranunculus aquatilis	butter-cup,white water	OBL
Rorippa palustris	yellow-cress,bog	OBL
Rumex acetosella	sorrel,sheep	FACU
Rumex crispus	dock,curly	FACW
Scirpus microcarpus	bulrush,small-fruit	OBL
Scutellaria galericulata	skullcap,hooded	OBL
Senecio hydrophilus	groundsel,water	OBL
Senecio pseudaureus	groundsel,golden	FACW
Silene menziesii	campion,Menzies	FAC
Sisymbrium altissimum	mustard,tall tumble	FACU-
Stellaria longifolia	starwort,long-leaf	FACW
Symphoricarpos albus	snowberry	FACU
Symphyotrichum laeve	smooth blue aster	NL

[1]Region 9 (Northwest) (Reed 1988).
*Commonly accepted name not included in 1988 list.

Table 2. (Continued). Comprehensive list of plant species identified in 2010.

SCIENTIFIC NAME	COMMON NAME	REGION 9 INDICATOR SPECIES[1]
Taraxacum officinale	dandelion,common	FACU
Thlaspi arvense	penny-cress,field	NI
Trifolia aureum	golden clover	NL
Trifolium repens	clover,white	FACU+
Typha latifolia	cattail,broad-leaf	OBL
Urtica dioica	nettle,stinging	FAC+
Verbascum thapsus	common mullein	NL
Veronica americana	speedwell,American	OBL
Veronica peregrina	speedwell,purslane	OBL
Veronica scutellata	speedwell,marsh	OBL
Veronica serpyllifolia	speedwell,thyme-leaf	FAC
Viola adunca	violet,hooked-spur	FAC
Viola spp.		NL

[1]Region 9 (Northwest) (Reed 1988).
*Commonly accepted name not included in 1988 list.

Upland Type 7 – *Phalaris arundinacea/Alopecurus pratensis* dominated the vegetation in areas adjacent to the pre-existing wetlands in the south half of the site. Reed canary grass and meadow foxtail dominated the community. Although the two dominant species are hydrophytic within Community Type 7, this area was excluded from the wetland area delineated in 2010 based on the lack of soil and hydrologic indicators. Several of the secondary species exhibited an upland indicator status. These areas were not included in the original wetland delineation. If the water table increases within the project area, it is likely portions of this community will classify as wetlands.

Upland Type 8 – *Abies lasiocarpa* was identified in the upland forest located at the southwest boundary of the project. Subalpine fir (*Abies lasiocarpa*), Douglas fir (*Pseudotsuga menziesii*), and western larch (*Larix occidentalis*) dominated the woody overstory.

Wetland Type 9 – *Phalaris arundinacea/Carex* spp. covered the northwest corner of the mitigation site. The community was dominated by reed canary grass and beaked sedge. There was a high diversity of wetland forbs within the community.

Wetland Type 10 – *Phalaris arundinacea* dominated by a monoculture of reed canary grass was located in wetland areas adjacent to the creek in the north half of the property.

Wetland Type 11 – *Alnus incana* (speckled alder) was identified in the ditch that traverses the property north to south. Speckled alder, reed canary grass, and meadow foxtail dominated the vegetation. The vegetation cover included one to five percent Canada thistle.

The data collected for Transect 1 is summarized in Table 3 and graphed in Charts 4 and 5. The transect intersected open water and two communities, Type 7 – *Phalaris arundinacea/Alopecurus pratensis* Upland and Type 3 – Bare Ground/Transitional Upland. Open water encompassed 24.6 percent of the transect intervals. Bare ground was present along the transect as a result of the recent excavation of the wetland cells.

Table 3. Data summary for Transect 1 in 2010 at the McGinnis Meadows Wetland Mitigation Site.

Monitoring Year	**2010**
Transect Length (feet)	**504**
Vegetation Community Transitions along Transect	5
Vegetation Communities along Transect	2
Hydrophytic Vegetation Communities along Transect	0
Total Vegetative Species	43
Total Hydrophytic Species	30
Total Upland Species	13
% Transect Length Comprising Hydrophytic Vegetation Communities	0.0
% Transect Length Comprising Upland Communities	75.4
% Transect Length Comprising Unvegetated Open Water	24.6
% Transect Length Comprising Bare Substrate	29.3*

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

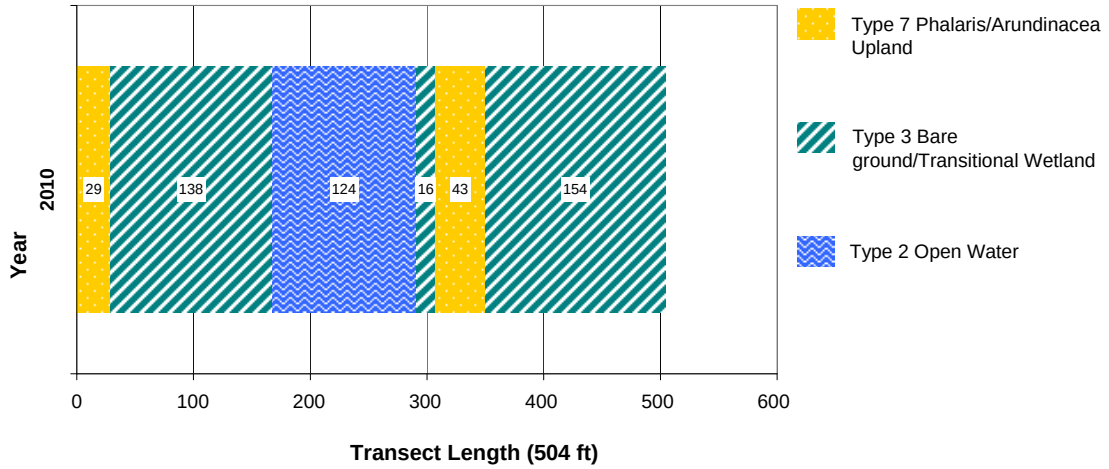

Chart 4. Transect map showing community types on Transect 1 in 2010 from start (0 feet) to end (504 feet).

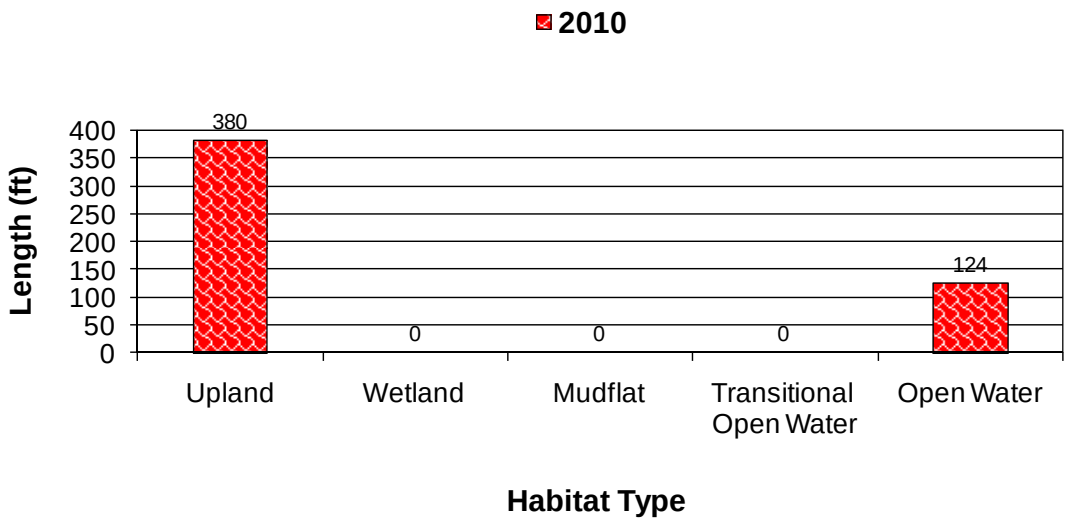

Chart 5. Length of habitat types within Transect 1 in 2010.

Table 4. Data summary for Transect 2 in 2010 at the McGinnis Creek Wetland Mitigation Site.

Monitoring Year	2010
Transect Length (feet)	**1000**
Vegetation Community Transitions along Transect	14
Vegetation Communities along Transect	4
Hydrophytic Vegetation Communities along Transect	3
Total Vegetative Species	44
Total Hydrophytic Species	29
Total Upland Species	15
% Transect Length Comprising Hydrophytic Vegetation Communities	63.5
% Transect Length Comprising Upland Communities	34.6
% Transect Length Comprising Unvegetated Open Water	1.9
% Transect Length Comprising Bare Substrate	5*

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

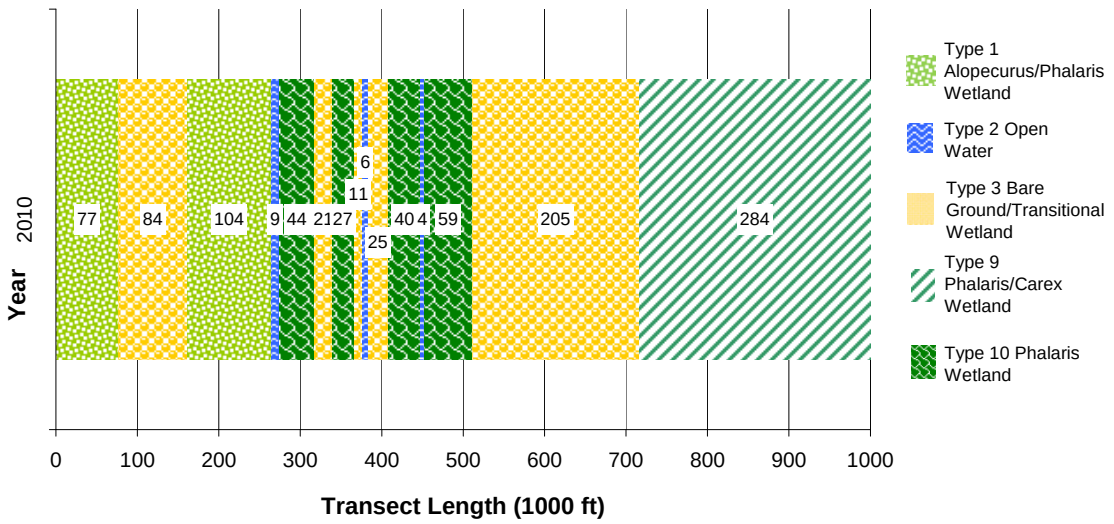

Chart 6. Transect map showing community types on Transect 2 in 2010 from start (0 feet) to end (1000 feet).

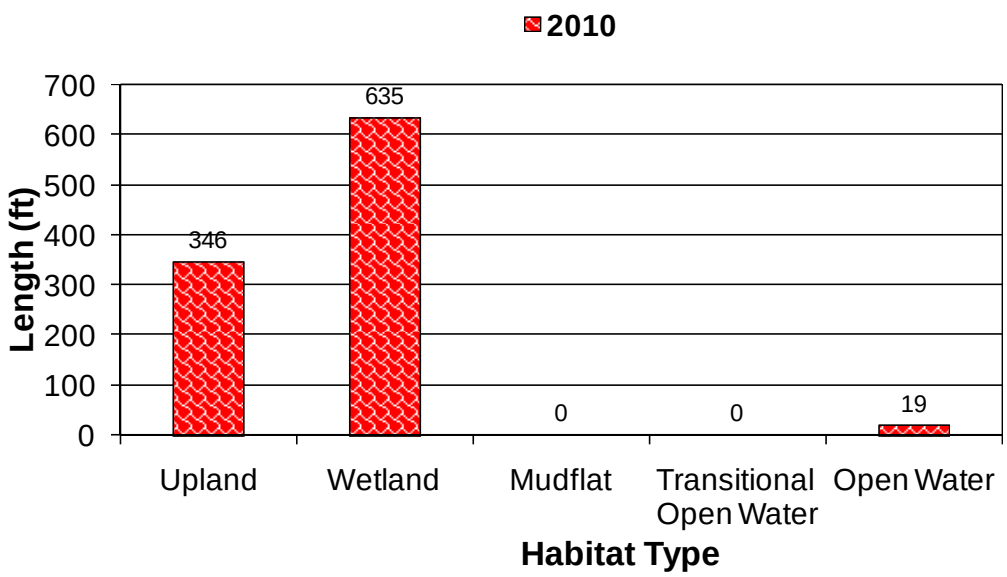

Chart 7. Length of habitat types within Transect 2 in 2010.

Priority 2B noxious weeds were identified at the McGinnis Creek Mitigation Site. Three Canada thistle (*Cirsium arvense*) infestations were recorded at less than 0.1 acre and 0.1 to 1.0 acre in size. The cover of the noxious weed ranged from less than 1 to five percent up to 25 percent. The infestations were identified primarily near the pre-existing ditch that bisects the property (Community 11).

The skeletons of numerous containerized woody species were observed across the site. The majority had been planted on the upland islands of the enhancement area in the center of the south boundary. The survival was low as a result of wildlife browse and traffic, and the installation of woody material that

did not meet MDT specifications. Initial survival was estimated at less than 10 percent.

3.3. Soil

The project site is mapped in the Lincoln County Soil Survey (USDA 2010) as Fluvents (101) found on floodplains in mixed alluvium. The soil is an excessively drained, gravelly silt loam, taxonomically classified as a sandy, mixed, frigid Typic Udifluvent, which is a hydric soil.

Data points M-1, M-2, and M-4 did not meet all three criteria for wetlands. The profile at M-1 revealed a dark brown 10 YR 3/2 silt loam soil with redox features (10 YR 3/4) in the matrix. The soil at M-2 was a dark brown sandy clay (10 YR 4/2) with redox concentrations (10 YR 2/2) in the matrix. The soil at M M-2 did not meet hydric soil criteria. Data point M-3 revealed a dark brown (10 YR 3/1) sandy loam with manganese redox concentrations (10 YR 4/4) in the matrix. The redox dark surface provided a positive indication of a hydric soil. The soil profile at data point M-4 consisted of a very fine loam (10 YR 4/3) soil with redox concentrations (10 YR 2/1) in the matrix. Concentrations of iron were observed in the matrix. The test pit met the wetland criteria for soil based on indicator F6: redox dark surface.

3.4. Wetland Delineation

Four data points were used to define the vegetation, soil, and hydrology of site wetlands (M-1 to M-4, Figure 2, Appendix A) and wetland data forms, Appendix B. The July 16, 2010, delineation identified and mapped 19.97 acres of depression and riverine wetlands with emergent and shrub-scrub vegetation (Table 5). The total wetland acreage included 1.00 acres of open water within the constructed cells and did not include McGinnis Creek as stream mitigation credits are being sought for this project as well. With the exception of a narrow strip of emergent riparian wetland along the newly realigned McGinnis Creek, the majority of wetlands identified within the site in 2010 were pre-existing wetlands. The recently constructed cells were predominantly bare ground that did not meet the criteria for wetland vegetation. There were many very small vegetative sprouts that appeared to have germinated from the wetland seed planted throughout these areas. Based on the presence of wetland hydrology observed during the 2010 site visit, the cover of wetland species in these areas are expected to increase in subsequent years as these plants develop and mature.

Table 5. Total wetland acres delineated in 2010.

Habitat	2010 (acres)
Gross Wetlands	19.97
Open Water	1.00
Net Wetlands	18.22
Total Aquatic Habitat	**39.19**

3.5. Wildlife

A comprehensive list of animal species observed directly or indirectly during the 2010 monitoring visit is presented in Table 6**.** Two white-tailed deer, five northern leopard frogs, and three common gartersnakes were observed. Moose tracks were noted.

Table 6. Wildlife species observed at the McGinnis Creek Mitigation Site in 2010.

Common Name	Scientific Name
AMPHIBIAN	
FROG	*Rana luteiventris*
Northern Leopard Frog	*Rana pipiens*
BIRDS	
AMERICAN ROBIN	*Turdus migratorius*
MAGPIE	*Pica hudsonia*
COMMON RAVEN	*Corvus corax*
EVENING GROSSBEAK	*vespertinus*
MOUNTAIN BLUEBIRD	*Sialia currucoides*
RED-TAILED HAWK	*Buteo jamaicensis*
FLYCATCHER	
WILSONS' SNIPE	*Gallinago delicata*
MAMMAL	
GRAY WOLF	*Canis lupus*
Moose	*Alces americanus*
White-tailed Deer	*Odocoileus virginianus*
REPTILE	
Common Gartersnake	*Thamnophis sirtalis*

3.6. Functional Assessment

Functional assessments were completed on four AAs in 2010 using the 2008 MWAM (Berglund and McEldowney 2008). The site was divided into Creation (excavated cells – 0.2 acres), Restoration (re-establishment and rehabilitation – 16.57 acres), Enhancement (existing emergent wetland – 1.74 acres), and Preservation (existing riverine wetlands – 0.30 acres). The AAs all received Category III ratings.

One open water area (0.2 acres) has developed within the created cells that were located in areas identified as uplands in the baseline delineation. A majority of the constructed cells did not meet the wetland criteria for hydrophytic vegetation. It is expected that the cover of wetland plants and extent of wetland habitat will increase long-term within the footprint of the cells. The creation AA received 38.3 percent of the total possible points. Ratings were moderate for short and long term surface water storage, flood attenuation,

sediment/nutrient/toxicant removal, groundwater discharge/recharge, and uniqueness.

The restoration/rehabilitation of the existing wet meadow received 65.9 percent of the total possible with high ratings for shore and long term surface water storage, sediment/nutrient/toxicant removal, production/export/food chain support, and groundwater discharge/recharge.

The enhanced existing emergent wetland located at the south edge of the site received 47.2 percent of the total with a high rating in sediment/nutrient/toxicant removal. Woody species were planted to improve the structural diversity of the enhancement area. The initial success of the planting effort has been marginal.

Preservation of the existing riverine wetlands received 62.5 percent of the total and high ratings in flood attenuation, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, and uniqueness.

The proposed credit acres presented in the 2009 MDT Mitigation Plan (MDT 2009) for enhancement (1.74 acres) and preservation (0.3 acres) were used to determine the size of the respective AAs and the allowable 2010 credit estimates; however, the proposed acreages for these areas differed slighlty from that actually surveyed in 2010. The enhancement area was estimated at 1.85 acres and the preservation area was estimated at 0.53 acres using GIS. These numbers were incorporated on the wetland acreage totals presented on Figure 3 (Appendix A) and discussed in Section 3.4.

3.7. 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-3 of Appendix C. Transect end points are shown on page C-4 of Appendix C and photos of data points M-1 through M-4 are included on pages C-6 and C-7. The stream cross-sections are presented on pages C-5 and C-6.

3.8. Maintenance Needs

Priority 2B noxious weeds were identified at the McGinnis Creek Mitigation Site. Three Canada thistle infestations were identified primarily near the pre-existing ditch that bisects the property (Community 11). Weed control should be implemented to prevent the spread of noxious weeds to other areas. Construction and planting debris including landscape fabric and empty plant containers were found in several areas in the south half of the site.

Table 7. Functions and Values of McGinnis Creek wetlands.

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method[1]	Creation (Excavated Cells)	Restoration (Re-establishment - McGinnis Creek and Rehabilitation - existing wet meadow)	Enhancement (Existing emergent wetland)	Preservation (Existing riverine wetlands)
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
MTNHP Species Habitat	Low (0.1)	Mod (0.6)	Low (0.1)	Low (0.1)
General Wildlife Habitat	Low (0.3)	Mod (0.7)	Mod (0.5)	Mod (0.7)
General Fish/Aquatic Habitat	NA	Mod (0.7)	NA	NA
Flood Attenuation	Mod (0.6)	Mod (0.5)	Mod (0.6)	High (0.9)
Short and Long Term Surface Water Storage	Low (0.3)	High (1.0)	Low (0.3)	Mod (0.4)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (0.9)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	NA	Low (0.3)	NA	High (1.0)
Production Export/ Food Chain Support	Low (0.3)	High (0.9)	Mod (0.4)	Mod (0.5)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	Mod (0.7)	High (1.0)
Uniqueness	Low (0.1)	Low (0.3)	Low (0.3)	Low (0.3)
Recreation/Education Potential (bonus points)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)
Actual Points / Possible Points	**3.45/9**	**7.25/11**	**4.25/9**	**6.25/10**
% of Possible Score Achieved	**38.3**	**65.9**	**47.2**	**62.5**
Overall Category	**III**	**III**	**III**	**III**
Acreage of Assessed Aquatic Habitats within Easement (ac)	**0.20**	**16.57**	**1.74**	**0.30**
Functional Units (acreage x actual points) (f^1-)	**0.69**	**120.13**	**7.40**	**1.88**

[1]Berglund and McEldowney 2008 MDT MWAM.

3.9. Current Credit Summary

Goals for the McGinnis Meadows mitigation project included the restoration (re-establishment and rehabilitation) of approximately 0.8 acres of riparian/stream habitat (McGinnis Creek), 17.3 acres of degraded wetlands, creation of 2.9 acres of new emergent wetlands, enhancement of 1.74 acres of emergent wetlands and intermittent drainage, preservation of 0.3 acres of existing riparian communities along the abandoned McGinnis Creek corridor, and protection of 2.2 acres of upland buffer. The project credit ratios approved by the USACE and the 2010 estimated credits are shown in Table 8.

The created and rehabilitated cells did not exhibit sufficient wetland vegetation cover in 2010, the first year post-construction, to meet the wetland criteria. This AA is certain to increase as wetland vegetation develops within the cells. The proposed credit acres presented in the 2009 MDT Mitigation Plan (MDT 2009) for enhancement (1.74 acres) and preservation (0.3 acres) were used to determine the allowable 2010 credit estimates. However, the proposed acreages differed

from that actually identified in 2010 with the enhancement area and the preservation area calculated using GIS at 1.85 acres and 0.53 acres, respectively. The restoration of McGinnis Creek channel was not included in the 2010 evaluation and credit summary as the MDT has recently submitted a proposal to the ACOE for stream mitigation credits in the future.

Table 8. 2010 Summary of Wetland Credits.

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

4. REFERENCES

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Appendix A

Figures 2 and 3

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

Figure 2: 2010 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 THAT THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

LOCATION: Lincoln Co., MT

PROJECT NO: STPX-NH 27(17)

FILE: McGinnis/Monitor2010.mxd

Project Name
McGinnis Meadows Mitigation Site

Drawing Title
2010 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BCS	BV	JL

SCALE: Noted

Drawn: November 2, 2010

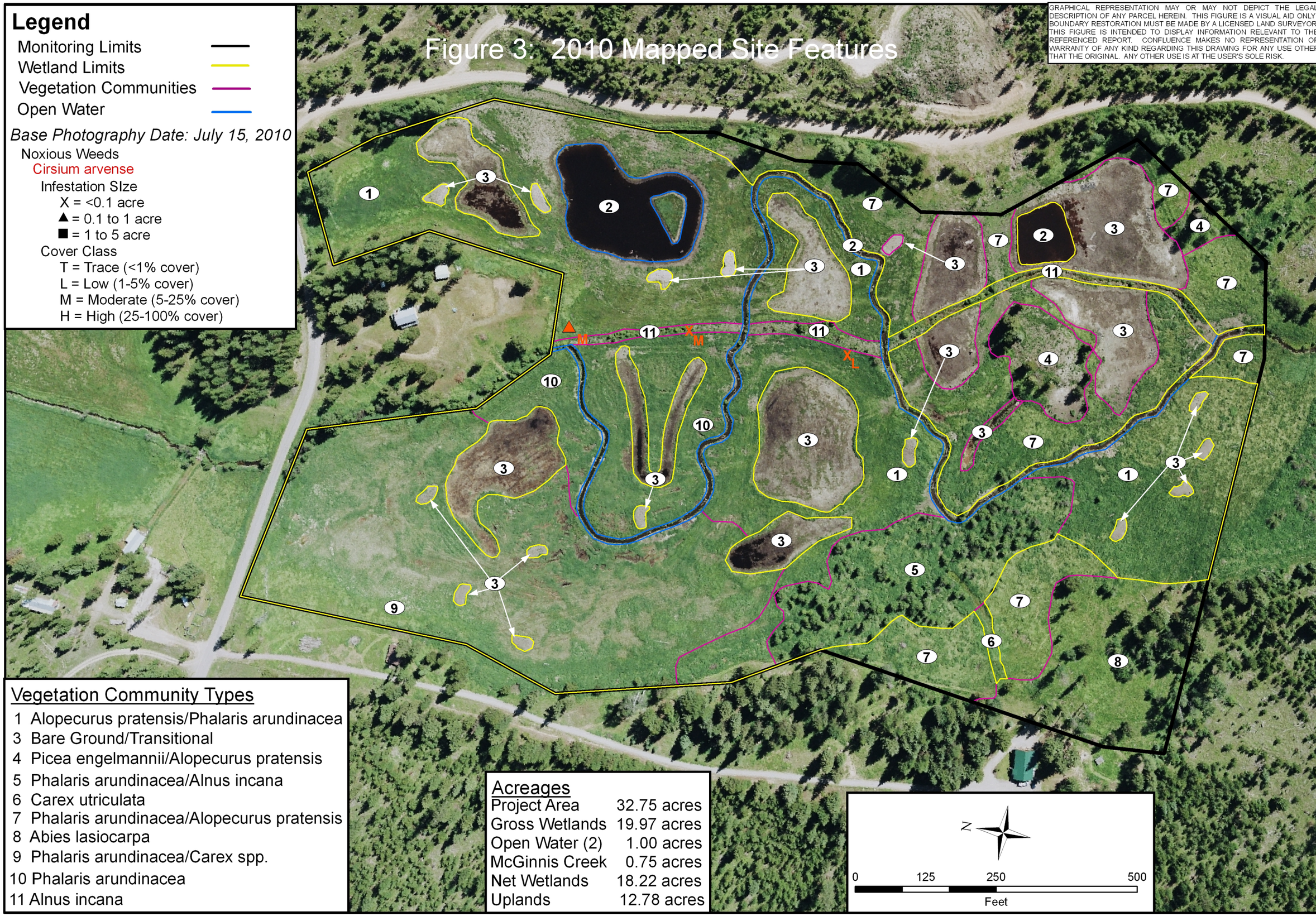
PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 2

REV -

Figure 3: 2010 Mapped Site Features



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 THAT THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities
- Open Water

Base Photography Date: July 15, 2010

Noxious Weeds

Cirsium arvense

Infestation SIze

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

Cover Class

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

Vegetation Community Types

1 Alopecurus pratensis/Phalaris arundinacea
3 Bare Ground/Transitional
4 Picea engelmannii/Alopecurus pratensis
5 Phalaris arundinacea/Alnus incana
6 Carex utriculata
7 Phalaris arundinacea/Alopecurus pratensis
8 Abies lasiocarpa
9 Phalaris arundinacea/Carex spp.
10 Phalaris arundinacea
11 Alnus incana

Acreages

Project Area	32.75 acres
Gross Wetlands	19.97 acres
Open Water (2)	1.00 acres
McGinnis Creek	0.75 acres
Net Wetlands	18.22 acres
Uplands	12.78 acres

LOCATION: Lincoln Co., MT

PROJECT NO: STPX-NH 27(17)

FILE: McGinnis/Veg2010.mxd

Project Name: McGinnis Meadows Mitigation Site

Drawing Title: 2010 Mapped Site Features

DRAWN: BCS

CHECKED: BV

APPROVED: JL

SCALE: Noted

Drawn: November 9, 2010

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 3

REV -

Appendix B

2010 Wetland Mitigation Site Monitoring Form
2010 USACE Wetland Determination Data Form
2010 MDT Functional Assessment Form

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: McGinnis Meadow Assessment Date/Time 7/16/2010

Person(s) conducting the assessment: J. Asebrook, B. Sandefur

Weather: sunny, warm, low 80s Location: 7 miles S of US2, Lincoln County

MDT District: Missoula Milepost: 0

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

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

Size of Evaluation Area: 32.75 (acres)

Land use surrounding wetland:

hay production and grazing, USFS property (forest)

HYDROLOGY

Surface Water Source: Groundwater & precipitation, flooding events from McGinnis Creek

Inundation: ☑ Average Depth: 0.8 **(ft)** Range of Depths: 0-2.5 **(ft)**

Percent of assessment area under inundation: 5 %

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

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

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

Groundwater Monitoring Wells

Record depth of water surface below ground

Well ID	Water Surface Depth
MW-1	1.8 **(ft)**
MW-2	3.3 **(ft)**
MW-3	3.7 **(ft)**

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 Meadow

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

* Indicates accepted spp name not on '88 list.

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

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agropyron repens	0
Agrostis stolonifera	0	Alopecurus pratensis	4
Arnica chamissonis	0	Aster spp.	0
Cardamine pensylvanica	0	Carex athrostachya	0
Carex bebbii	0	Carex nebrascensis	0
Carex pachystachya	1	Carex utriculata*	0
Cerastium fontanum	0	Cirsium arvense	1
Cirsium vulgare	0	Cynoglossum officinale	0
Descurainia sophia	0	Epilobium ciliatum	0
Equisetum arvense	0	Erysimum cheiranthoides	0
Erysimum cheiranthoides	0	Galium triflorum	0
Geum macrophyllum	0	Hordeum brachyantherum	0
Juncus bufonius	0	Medicago lupulina	0
Mentha arvensis	0	Mimulus guttatus	0
Montia linearis	0	Phalaris arundinacea	3
Phleum pratense	0	Pinus contorta	0
Plantago major	0	Poa palustris	1
Poa pratensis	0	Poa spp.	0
Polygonum amphibium	0	Populus tremuloides*	0
Potentilla gracilis	0	Potentilla norvegica	1
Potentilla recta	0	Rumex acetosella	0
Rumex crispus	0	Scutellaria galericulata	0
Senecio hydrophilus	0	Senecio hydrophilus	1
Sisymbrium altissimum	0	Stellaria longifolia	0
Symphyotrichum laeve	0	Taraxacum officinale	1
Thlaspi arvense	0	Trifolia aureum	0
Urtica dioica	0	Verbascum thapsus	0
Veronica americana	0	Veronica serpyllifolia	0
Viola spp.	0		

Comments:

Predominantly ALOPRA with a high diversity of many other species

Community # 2 Community Type: Open water /

Species	Cover class	Species	Cover class
Cardamine pensylvanica	0	Mimulus guttatus	0
Phalaris arundinacea	2		

Comments:

open water ponds and channels

Community # 3 Community Type: Bare Ground / Transitional

Species	Cover class	Species	Cover class
Agrostis interrupta	0	Alopecurus aequalis	0
Alopecurus pratensis	0	Bare Ground	5
Calamagrostis canadensis	1	Cardamine pensylvanica	1
Carex athrostachya	0	Carex nebrascensis	1
Carex pachystachya	0	Carex spp.	1
Carex utriculata*	0	Centaurea maculosa	0
Cerastium fontanum	0	Cirsium arvense	1
Convolvulus arvensis	0	Deschampsia cespitosa	2
Epilobium ciliatum	0	Erysimum cheiranthoides	0
Galium triflorum	0	Geum macrophyllum	0
Gnaphalium palustre	0	Juncus bufonius	0
Juncus effusus	0	Juncus ensifolius	0
Juncus tenuis	2	Mimulus guttatus	0
Phalaris arundinacea	1	Phleum pratense	0
Plantago major	0	Poa palustris	0
Poa pratensis	0	Poa spp.	0
Polygonum amphibium	0	Potentilla norvegica	1
Ranunculus aquatilis	0	Rorippa palustris	0
Senecio hydrophilus	0	Sisymbrium altissimum	0
Stellaria longifolia	0	Thlaspi arvense	0
Typha latifolia	0	Verbascum thapsus	0
Veronica americana	1	Veronica peregrina	0
Veronica serpyllifolia	0		

Comments:

This represents the revegetated mud flats on the property.

Community # 4 Community Type: Picea engelmannii / Alopecurus pratensis

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis interrupta	0
Agrostis stolonifera	0	Alopecurus pratensis	4
Amelanchier alnifolia	0	Antennaria rosea	0
Arctostaphylos uva-ursi	0	Carex petasata	0
Carex utriculata*	0	Cirsium arvense	1
Cirsium vulgare	0	Cynoglossum officinale	0
Elymus trachycaulus	1	Erysimum cheiranthoides	1
Fragaria virginiana	1	Mahonia repens	1
Maianthemum stellatum	0	Myosotis micrantha	0
Penstemon confertus	0	Phalaris arundinacea	2
Phleum pratense	1	Picea engelmannii	2
Pinus contorta	1	Pinus ponderosa	1
Populus tremuloides*	1	Potentilla gracilis	0
Potentilla norvegica	0	Rumex crispus	0
Silene menziesii	0	Symphyotrichum laeve	0
Urtica dioica	0	Verbascum thapsus	1
Viola adunca	0		

Comments:

This is small upland forest in the southeast corner of the property, that despite the presence of ALOPRA and PHAARU, has many upland shrubs and forbs. Also, weedy upland island in southern half of property. Very high cover of CIRARV here.

Community # 5 Community Type: Phalaris arundinacea / Alnus incana

Species	Cover class	Species	Cover class
Alnus incana	4	Alopecurus pratensis	2
Crataegus douglasii	2	Heracleum sphondylium	1
Mentha arvensis	0	Phalaris arundinacea	5
Senecio hydrophilus	1	Taraxacum officinale	0
Urtica dioica	0		

Comments:

Shrubby alder/hawthorn community along southeast boundary of property. Distinct on aerial photo.

Community # 6 Community Type: Carex utriculata /

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex utriculata*	5
Phalaris arundinacea	2		

Comments:

Vegetated ditch area that forms strip of almost solid CARUTR. Ditch runs into ALNINC/PHAARU type.

Community # 7 Community Type: Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Agropyron repens	0	Agrostis scabra	0
Alopecurus pratensis	4	Cardamine pensylvanica	1
Carex athrostachya	0	Carex spp.	0
Cerastium fontanum	0	Cirsium arvense	1
Cynoglossum officinale	0	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Geum macrophyllum	0
Mentha arvensis	0	Montia linearis	0
Phalaris arundinacea	5	Poa palustris	0
Poa pratensis	1	Potentilla norvegica	0
Scutellaria galericulata	0	Senecio hydrophilus	0
Sisymbrium altissimum	0	Taraxacum officinale	0
Trifolium repens	0	Urtica dioica	0
Verbascum thapsus	0	Veronica americana	0
Veronica serpyllifolia	0		

Comments:

Community dominated by PHAARU but still fair amount of ALOPRA.

Community # 8 Community Type: Abies lasiocarpa /

Species	Cover class	Species	Cover class
Abies lasiocarpa		Calamagrostis rubescens	
Larix occidentalis		Pinus contorta	
Pseudotsuga menziesii		Symphoricarpos albus	

Comments:

Upland forest (may be off property) along western edge of property. Did not do full species list or covers at this time.

Community # 9 Community Type: Phalaris arundinacea / Carex spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus pratensis	1
Aster spp.	0	Cardamine pensylvanica	0
Carex aquatilis	0	Carex utriculata*	2
Cirsium arvense	0	Deschampsia cespitosa	1
Juncus bufonius	0	Mentha arvensis	1
Mimulus guttatus	0	Phalaris arundinacea	5
Poa palustris	0	Poa pratensis	0
Poa spp.	0	Polygonum amphibium	0
Potentilla anserina	0	Potentilla norvegica	1
Potentilla palustris	0	Senecio hydrophilus	1
Senecio pseudaureus	0	Stellaria longifolia	0
Taraxacum officinale	1	Veronica americana	0
Veronica scutellata	0		

Comments:

PHAARU dominated community but with visible Carex component. Mixed with higher diveristy of wetland forbs.

Community # 10 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Cardamine pensylvanica	1
Carex athrostachya	0	Carex nebrascensis	0
Cerastium fontanum	0	Cirsium arvense	0
Cirsium vulgare	0	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Galium triflorum	0
Juncus bufonius	0	Mentha arvensis	0
Mimulus guttatus	0	Phalaris arundinacea	5
Poa palustris	0	Polygonum amphibium	0
Potentilla norvegica	0	Prunella vulgaris	0
Sisymbrium altissimum	0	Verbascum thapsus	0
Veronica americana	0		

Comments:

PHAARU community with little ALOPRA or carex species - almost monoculture of PHAARU. Occurs around revegetated ponds in northwest section of property.

Community # 11 Community Type: Alnus incana /

Species	Cover class	Species	Cover class
Alnus incana	4	Alopecurus pratensis	3
Arnica chamissonis	0	Carex stipata	1
Cirsium arvense	1	Epilobium ciliatum	0
Glyceria borealis	1	Mentha arvensis	0
Mimulus guttatus	0	Phalaris arundinacea	4
Phleum pratense	1	Scirpus microcarpus	0
Stellaria longifolia	0	Taraxacum officinale	0

Comments:

Weedy ditch community (former McGinnis Creed corridor) that runs north-south through the property. Dominated by ALNINC for much of ditch but other areas dominated by PHAAUR and ALOPRA.

VEGETATION TRANSECTS

Site: McGinnis Meadow **Date:** 7/16/2010

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

Interval Data:

Ending Station 29 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Cirsium arvense	1
Erysimum cheiranthoides	0	Phalaris arundinacea	2
Senecio hydrophilus	0	Urtica dioica	0

Ending Station 167 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Bare Ground	5
Cardamine pensylvanica	0	Carex nebrascensis	0
Carex spp.	0	Cirsium arvense	0
Deschampsia cespitosa	1	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Gnaphalium palustre	0
Juncus tenuis	1	Poa pratensis	1
Potentilla norvegica	0	Verbascum thapsus	0
Veronica americana	0	Veronica serpyllifolia	0

Ending Station 291 **Community Type:** Open water /

Species	Cover class	Species	Cover class

Ending Station 307 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Bare Ground	5
Cardamine pensylvanica	0	Carex nebrascensis	1
Carex spp.	2	Cirsium arvense	1
Erysimum cheiranthoides	0	Juncus bufonius	0
Juncus ensifolius	0	Juncus tenuis	1
Mimulus guttatus	0	Poa pratensis	0
Potentilla norvegica	1	Ranunculus aquatilis	0
Rorippa palustris	0	Veronica americana	1
Veronica peregrina	0		

Ending Station 350 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Achillea millefolium	0	Alopecurus pratensis	4
Arnica chamissonis	0	Bare Ground	4
Cardamine pensylvanica	1	Carex nebrascensis	0
Carex spp.	1	Chenopodium album	0
Cirsium arvense	2	Cirsium vulgare	0
Descurainia sophia	0	Erysimum cheiranthoides	1
Galium triflorum	0	Phalaris arundinacea	3
Poa pratensis	0	Polygonum amphibium	1
Potentilla gracilis	0	Potentilla norvegica	1
Rumex crispus	0	Scutellaria galericulata	0
Stellaria longifolia	0	Taraxacum officinale	0
Thlaspi arvense	0	Verbascum thapsus	0
Veronica americana	0	Veronica serpyllifolia	0

Ending Station 504 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bare Ground	5
Cardamine pensylvanica	1	Carex nebrascensis	1
Carex pachystachya	0	Carex utriculata*	1
Cerastium fontanum	0	Cirsium arvense	1
Deschampsia cespitosa	1	Epilobium ciliatum	0
Erysimum cheiranthoides	1	Gnaphalium palustre	0
Juncus bufonius	0	Juncus ensifolius	0
Juncus tenuis	1	Mimulus guttatus	0
Phalaris arundinacea	0	Phleum pratense	0
Plantago major	0	Poa palustris	0
Poa pratensis	0	Potentilla norvegica	1
Rorippa palustris	0	Verbascum thapsus	0
Veronica americana	1	Veronica peregrina	0
Veronica serpyllifolia	0		

Transect Notes:

16 degree declination on compass
500 foot transect

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

Interval Data:

Ending Station 77 **Community Type:** Alopecurus pratensis / Phalaris arundinacea

Species	Cover class	Species	Cover class
Agropyron repens	0	Alopecurus pratensis	4
Cardamine pensylvanica	1	Carex athrostachya	0
Cerastium fontanum	0	Geum macrophyllum	0
Phalaris arundinacea	5	Potentilla norvegica	0
Scutellaria galericulata	0	Taraxacum officinale	0
Trifolium repens	0	Veronica americana	0

Ending Station 161 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Calamagrostis canadensis	1	Cardamine pensylvanica	1
Carex athrostachya	1	Carex nebrascensis	1
Carex spp.	1	Convolvulus arvensis	0
Deschampsia cespitosa	1	Epilobium ciliatum	0
Galium triflorum	0	Gnaphalium palustre	0
Juncus effusus	0	Juncus ensifolius	0
Juncus tenuis	3	Phalaris arundinacea	0
Poa palustris	0	Poa pratensis	0
Potentilla norvegica	1	Sisymbrium altissimum	0
Typha latifolia	0	Veronica americana	0

Ending Station 265 **Community Type:** Alopecurus pratensis / Phalaris arundinacea

Species	Cover class	Species	Cover class
Agrostis scabra	0	Alopecurus pratensis	5
Cardamine pensylvanica	2	Carex athrostachya	0
Cerastium fontanum	0	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Mentha arvensis	0
Montia linearis	0	Phalaris arundinacea	5
Poa palustris	1	Potentilla norvegica	1
Sisymbrium altissimum	0	Trifolium repens	0
Verbascum thapsus	0	Veronica serpyllifolia	0

Ending Station 274 **Community Type:** open water /

Species	Cover class	Species	Cover class
Cardamine pensylvanica	0	Mimulus guttatus	0
Phalaris arundinacea	2		

Ending Station 318 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Bare Ground	1	Cardamine pensylvanica	1
Carex athrostachya	0	Cerastium fontanum	0
Erysimum cheiranthoides	0	Phalaris arundinacea	5
Potentilla norvegica	0	Sisymbrium altissimum	0
Verbascum thapsus	0		

Ending Station 339 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Bare Ground	5	Calamagrostis canadensis	1
Cardamine pensylvanica	0	Carex athrostachya	1
Cerastium fontanum	0	Deschampsia cespitosa	1
Epilobium ciliatum	0	Juncus tenuis	2
Poa pratensis	0	Polygonum amphibium	0
Potentilla norvegica	1	Veronica americana	0

Ending Station 366 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Bare Ground	1	Cardamine pensylvanica	1
Carex athrostachya	0	Cerastium fontanum	0
Phalaris arundinacea	5	Poa palustris	0
Potentilla norvegica	0		

Ending Station 377 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Bare Ground	5	Calamagrostis canadensis	2
Cardamine pensylvanica	0	Juncus effusus	0
Juncus tenuis	2	Phalaris arundinacea	1

Ending Station 383 **Community Type:** Open water /

Species	Cover class	Species	Cover class

Ending Station 408 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Bare Ground	5	Calamagrostis canadensis	1
Cardamine pensylvanica	1	Carex nebrascensis	0
Juncus effusus	1	Juncus tenuis	2
Phalaris arundinacea	1	Potentilla norvegica	0
Rorippa palustris	0		

Ending Station 448 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Bare Ground	1	Cardamine pensylvanica	0
Cerastium fontanum	0	Phalaris arundinacea	5
Potentilla norvegica	0		

Ending Station 452 **Community Type:** Open water /

Species	Cover class	Species	Cover class

Ending Station 511 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Bare Ground	1	Cardamine pensylvanica	1
Carex nebrascensis	0	Cirsium arvense	0
Cirsium vulgare	0	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Galium triflorum	0
Phalaris arundinacea	5	Potentilla norvegica	0

Ending Station 716 **Community Type:** Bare Ground / Transitional

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Bare Ground	5
Calamagrostis canadensis	1	Cardamine pensylvanica	1
Cerastium fontanum	0	Deschampsia cespitosa	0
Juncus effusus	0	Juncus ensifolius	0
Juncus tenuis	1	Phalaris arundinacea	1
Potentilla norvegica	0	Typha latifolia	0

Ending Station 1000 **Community Type:** Phalaris arundinacea / Carex spp.

Species	Cover class	Species	Cover class
Bare Ground	1	Cardamine pensylvanica	0
Carex aquatilis	1	Carex utriculata*	1
Cirsium arvense	0	Phalaris arundinacea	5
Poa palustris	0	Potentilla anserina	1
Potentilla norvegica	0	Potentilla palustris	0
Senecio hydrophilus	0		

Transect Notes:

16 degree declination on compass
1000 foot transect

PLANTED WOODY VEGETATION SURVIVAL

McGinnis Meadow

Planting Type	#Planted	#Alive	Notes
NA			

Comments

Many planted woody species observed across the mitigation site, particularly on upland islands in conjunction with landscape fabric. Very low survival of planted species due to herbivore grazing and trampling, also related to planting techniques employed. Initial survival appears less than 10% of planted.

McGinnis Meadow

WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure:_____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat

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		No	No	No	
Common Gartersnake	3	No	No	No	
Gray Wolf		Yes	No	No	
Moose		Yes	No	No	
Moose		Yes	No	No	
Northern Leopard Frog	5	No	No	No	
White-tailed Deer		Yes	Yes	No	
White-tailed Deer	2	Yes	Yes	No	

Wildlife Comments:

May have observed brook trout.

McGinnis Meadow

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
5089			180	M-1
5093			0	M-2
5094			330	Veg tran 1, start
5096			270	M-3
5099			270	PP1
5101			90	PP5, pano: 5101-03
5109			135	PP2, pano: 5109-12
5115			0	PP3, pano: 5115-5118
5122			0	XS1 dwnstream, pano: 5122-24
5125			180	XS1 upstream, pano:5125-27
5129			150	Veg tan 1, end
5135			0	PP4, pano: 5135-5139
5140			0	Veg tran 2, start
5141				well 2
5142			100	PP5, pano: 5142-45
5146			180	Veg tan 2
5149			180	XS2 upstream, pano: 5149-51
5152			0	XS2 dwnstream, pano: 5152-55
5165			210	PP7, pano: 5165-68
5169			270	PP8, pano: 5169-74
5175			90	XS3 dwnstream, pano: 5175-79
5180			270	XS3 upstream, pano: 5180-83
5189				M-4

Comments:

ADDITIONAL ITEMS CHECKLIST

Hydrology

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

Photos

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

Vegetation

☐ Map vegetation community boundaries

☐ Complete Vegetation Transects

Soils

☐ Assess soils

Wetland Delineations

☑ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
☑ Delineate wetland – upland boundary onto aerial photograph.

Wetland Delineation Comments

Functional Assessments

☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.

Functional Assessment Comments:

Maintenance

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

If yes, do they need to be repaired? 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 working properly and in good working order? No

If no, describe the problems below.

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

Project/Site: McGinnis City/County: Lincoln Sampling Date: 7/16/2010

Applicant/Owner: MDT State: MT Sampling Point: M-1

Investigator(s): B. Sandefur, J. Asebrook Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Fluvents NWI classification: ____

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 plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
	____ = Total Cover		

Herb Stratum (Plot size: t)			
1. Veronica americana	2	☐	OBL
2. Cirsium arvense	5	☐	FACU+
3. Cirsium vulgare	2	☐	FACU
4. Alopecurus pratensis	30	☑	FACW
5. Bromus inermis	15	☑	UPL
6. Potentilla norvegica	2	☐	FAC
7. Verbascum thapsus	3	☐	UPL
8. Erysimum cheiranthoides	5	☐	FACU
9. Juncus bufonius	1	☐	FACW
10. Carex athrostachya	2	☐	FACW
11.		☐	
	67 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.		☐	
2.		☐	
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	2	x 1 = 2
FACW species	33	x 2 = 66
FAC species	5	x 3 = 15
FACU species	12	x 4 = 48
UPL species	18	x 5 = 90
Column Totals:	70 (A)	221 (B)

Prevalence Index = B/A = 3.15714

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: M-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	95	10YR 3/4	5		M	Silt Loam	fine roots
12-20	10YR 4/3	100					Silt Loam	

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

Hydric Soil Indicators: (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:
non-hydrc

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:
Plot near excavayed pond, recent excavation

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

Project/Site: McGinnis City/County: Lincoln Sampling Date: 7/16/2010

Applicant/Owner: MDT State: MT Sampling Point: M-2

Investigator(s): B. Sandefur, J. Asebrook Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Fluvents NWI classification: ____

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:
veg com 2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	= Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
	= Total Cover		

Herb Stratum (Plot size: comm 2)			
1. Potentilla gracilis	5	☐	FAC
2. Alopecurus pratensis	80	☑	FACW
3. Carex pachystachya	5	☐	FAC
4. Galium trifidum	5	☐	FACW+
5. Epilobium clavatum	2	☐	FACU+
6. Populus tremula ssp. tremuloides	5	☐	UPL
7. Poa pratensis	10	☐	FAC
8. Veronica scutellata	1	☐	OBL
9. Stellaria longifolia	1	☐	FACW
10.	0	☐	
11.		☐	
	114 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.		☐	
2.		☐	
	= Total Cover		

% Bare Ground in Herb Stratum ____

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	1	x 1 = 1
FACW species	86	x 2 = 172
FAC species	20	x 3 = 60
FACU species	2	x 4 = 8
UPL species	5	x 5 = 25
Column Totals:	114 (A)	266 (B)

Prevalence Index = B/A = 2.33333

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: M-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	95					Sandy Clay Loam	
10-17	10YR 4/2	90	10YR 2/2	10	C	M		

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

Hydric Soil Indicators: (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 indicators

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

Project/Site: McGinnis City/County: Lincoln Sampling Date: 7/16/2010

Applicant/Owner: MDT State: MT Sampling Point: M-3

Investigator(s): B. Sandefur, J. Asebrook Section, Township, Range: **S** 33 **T** 26N **R** 28W

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

Subregion (LRR): LRR E Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Fluvents NWI classification: ____

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:
existing wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
	= Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus pratensis	95	☑	FACW
2. Phalaris arundinacea	0	☐	FACW
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.		☐	
	95 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.		☐	
2.		☐	
	= Total Cover		

% Bare Ground in Herb Stratum ____

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	95	x 2 = 190
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	95 (A)	190 (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[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

SOIL

Sampling Point: M-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	95					ry Fine Sandy Lo	abundant roots
5-12	10YR 3/1	90	10YR 4/4	5	C	M	Sandy Loam	mg conc -5%

[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 City/County: Lincoln Sampling Date: 7/16/2010

Applicant/Owner: MDT State: MT Sampling Point: M-4

Investigator(s): B. Sandefur, J. Asebrook Section, Township, Range: **S** 33 **T** 26N **R** 28W

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

Subregion (LRR): LRR E Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Fluvents NWI classification: ____

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:
newly excavated, unvegetated mud flat

VEGETATION – Use scientific names of plants.

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

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☑

Remarks:
see Vegetation Com 3 Bare ground/Transitional. Bare ground dominates within community. Many very small seedlings (low percent cover) observed within wetland cell, likely hydrophytic vegetation seeded in spring.

SOIL

Sampling Point: M-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	85	10YR 4/3	10	C	M	ry Fine Sandy Lo	abundant mn conc
6-12	10YR 4/3	85	10YR 2/1		C	M	ry Fine Loamy Sa	Fe concentrations

[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): 8

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 2

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:
fluctuating water table

MDT Montana Wetland Assessment Form (revised March 2008)

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

3. Evaluation Date 7/16/2010 **4. Evaluators** B. Sandefur **5. Wetland/Site# (s)** Creation

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

Approx Stationing or Mileposts

Watershed 1 – Kootenai River Basin **County** Lincoln, MT

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.2

How assessed: Measured e.g. by GPS

Purpose of Evaluation

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

9. Assesssment area (AA) size (acres) 0.2

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Unconsolidated Bottom	Excavated	Seasonal/Intermittant	100

11. Estimated Relative Abundance Unknown

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	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 includes the0.2 acres of wetland depressions excavated within uplands classified as aquatic habitat in 2010. Areas excavated in 2009, with less than one year growing season to establish veg.

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

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

AA includes depression created within uplands in 2009. Surrounding land use includes low density residential, moderate road density, and forested habitat. Anticipated that additional acreage will be included within AA in subsequent years as veg develops.

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: Areas dominated by bare substrate. Seeded species showing good germination, although to small to contribute to cover.

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, gray wolf, 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

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

Incidental habitat (list species) ○ D ● S Piliated woodpecker, 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
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 MTNHP

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

- [ ] observations of scattered wildlife groups or individuals or relatively few species during peak periods
- [x] 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 includes shallow water used by shore birds.

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 [x] **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

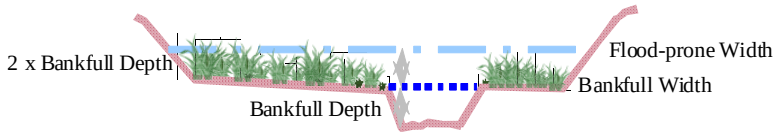
iii. Final Score and Rating: _____ **Comments:**

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



Floodrpone 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:

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: Depression located within floodplain of McGinnis Creek, AA does not include creek

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:

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	.4	.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** .3L

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: Wetland intercepts groundwater

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)

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	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:

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	0.06	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.02	☐
C. General Wildlife Habitat	L	.3	1	0.06	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	0.12	☑
F. Short and Long Term Surface Water Storage	L	.3	1	0.06	☑
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	0.14	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	L	.3	1	0.06	☐
J. Groundwater Discharge/Recharge	M	.7	1	0.14	☑
K. Uniqueness	L	.1	1	0.02	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.01	☐
Totals:		3.45	9	0.69	
Percent of Possible Score			**38.33** %		

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#**

3. Evaluation Date 7/16/2010 **4. Evaluators** B.Sandefur **5. Wetland/Site# (s)** Enhancement

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

Approx Stationing or Mileposts

Watershed 1 – Kootenai River Basin **County** Lincoln, MT

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 1.74

How assessed: Measured e.g. by GPS

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

How assessed: Measured e.g. by GPS

Purpose of Evaluation

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	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	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 and intermittent drainage that were recently planted with shrub species on irregularly-shaped mounds. Moderate disturbance in and around AA a result of construction activity in 2009.

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

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

AA includes existing emergent wetland upgradient of channel restoration with shrub plantings. Surrounding land use includes low-density residential, moderate road density, and forested habitat.

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:

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, gray wolf, 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

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

Incidental habitat (list species) ○ D ● S Piliated woodpecker, 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
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 MTNHP

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

- [ ] observations of scattered wildlife groups or individuals or relatively few species during peak periods
- [x] 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

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 [x] **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 _____

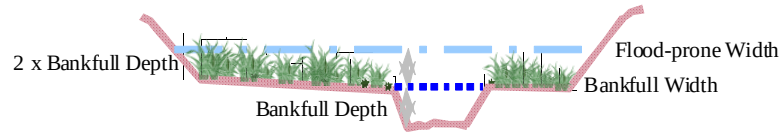
iii. Final Score and Rating: _____ **Comments:**

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



Floodrpone 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:

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:

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:

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	.4	.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** .4M

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)

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	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:

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	L	.1	1	0.174	☐
C. General Wildlife Habitat	M	.5	1	0.87	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	1.044	☑
F. Short and Long Term Surface Water Storage	L	.3	1	0.522	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	1.74	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	M	.4	1	0.696	☐
J. Groundwater Discharge/Recharge	M	.7	1	1.218	☑
K. Uniqueness	L	.3	1	0.522	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.087	☐
Totals:		4.25	9	7.395	
Percent of Possible Score			**47.22** %		

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#**

3. Evaluation Date 7/16/2010 **4. Evaluators** B. Sandefur **5. Wetland/Site# (s)** Preservation

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

Approx Stationing or Mileposts

Watershed 1 – Kootenai River Basin **County** Lincoln, MT

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.3

How assessed: Measured e.g. by GPS

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

How assessed: Measured e.g. by GPS

Purpose of Evaluation

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

10. Classification of Wetland and Aquatic Habitats in AA

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

Moderate disturbance result of recent excavation of wetlands surrounding AA and placement of ditch plugs within AA

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

Cirsium arvense

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

Weedy ditch community that runs north-south through the property. Dominated by ALNINC for much of ditch but other areas dominated by PHAAUR and ALOPRA.

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:

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, gray wolf, 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

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

Incidental habitat (list species) ○ D ● S Piliated woodpecker, 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
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 MTNHP

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

- [ ] observations of scattered wildlife groups or individuals or relatively few species during peak periods
- [x] 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

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 [x] **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 _____

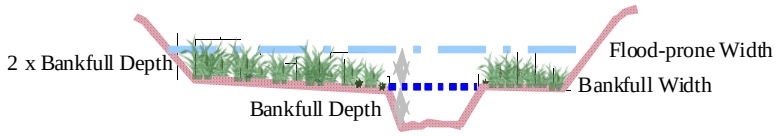
iii. Final Score and Rating: _____ **Comments:**

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



Floodrpone 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:

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:

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: Ponded areas behind ditch plugs relatively small, minimal effect from wave action

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	.4	.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)

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

Comments: Hydrology connected to the perennial 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:

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	L	.1	1	0.03	☐
C. General Wildlife Habitat	M	.7	1	0.21	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	H	.9	1	0.27	☑
F. Short and Long Term Surface Water Storage	M	.4	1	0.12	☐
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	.5	1	0.15	☐
J. Groundwater Discharge/Recharge	H	1	1	0.3	☑
K. Uniqueness	L	.3	1	0.09	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.015	☐
Totals:		6.25	10	1.875	
Percent of Possible Score			**62.5** %		

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#**

3. Evaluation Date 7/16/2010 **4. Evaluators** B. Sandefur **5. Wetland/Site# (s)** Rehabilitation

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

Approx Stationing or Mileposts

Watershed 1 – Kootenai River Basin **County** Lincoln, MT

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 16.57

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 16.57

How assessed: Measured e.g. by GPS

Purpose of Evaluation

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland		Permanent/Perennial	5
Depressional	Emergent Wetland		Seasonal/Intermittant	95

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	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)

Constuction of mitigation complex was completed in 2010. 2010 first growing season following excavation activity.

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

Cirsium arvnese

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

AA includes previously delineated wetland areas within easement boundary. Restoration includes 0.8 acres of riparian habitat and 17.3 acres of degraded wetlands. Adjacent land use to AA include low-density residential, moderate road densisty, and forested habitat.

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:

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, gray wolf, 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

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 Westslope cutthroat

Incidental habitat (list species) ○ D ● S Piliated woodpecker

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 MTNHP

14C. General Wildlife Habitat Rating:

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

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

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**

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

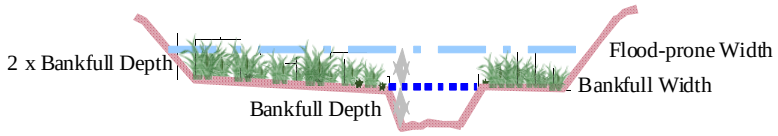
iii. Final Score and Rating: _____ **Comments:**

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



Floodrpone 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: Residential house located directly north of AA elevated above floodplain and not subject to flooding.

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:

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:

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	.4	.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** .9H

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)

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	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:

General Site Notes

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

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	4.971	☐
B. MT Natural Heritage Program Species Habitat	M	.6	1	9.942	☐
C. General Wildlife Habitat	M	.7	1	11.599	☐
D. General Fish Habitat	M	.7	1	11.599	☑
E. Flood Attenuation	M	.5	1	8.285	☐
F. Short and Long Term Surface Water Storage	H	1	1	16.57	☐
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	14.913	☑
H. Sediment/Shoreline Stabilization	L	.3	1	4.971	☐
I. Production Export/Food Chain Support	H	.9	1	14.913	☑
J. Groundwater Discharge/Recharge	H	1	1	16.57	☑
K. Uniqueness	L	.3	1	4.971	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.8285	☐
Totals:		7.25	11	120.1325	
Percent of Possible Score			**65.91** %		

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*
Bearing: 250 degrees
Location: PP1
Taken in 2010

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

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

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

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

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

Photo Point 2 – *Photo 4*
Bearing: 180 degrees

Location: PP2
Taken in 2010

Photo Point 3 – *Photo 1*
Bearing: 300-10 degrees

Location: PP3
Taken in 2010

Photo Point 4 – *Photo 1*
Bearing: 310-90 degrees

Location: PP4
Taken in 2010

Photo Point 5 – *Photo 1*
Bearing: 80-180 degrees

Location: PP5
Taken in 2010

Photo Point 6 – *Photo 1*
Bearing: 180-260 degrees

Location: PP6
Taken in 2010

Photo Point 7 – *Photo 1*
Bearing: 180-240 degrees

Location: PP7
Taken in 2010

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

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

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

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

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

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

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

Location: XS-1 upstream
Taken in 2010

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

Location: XS-2 upstream
Taken in 2010

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

Location: XS-2 downstream
Taken in 2010

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

Location: XS-3 upstream
Taken in 2010

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

Location: XS-3 downstream
Taken in 2010

Data Point M-1 – *Photo 1*
Bearing: 190 Degrees

Location: M-1
Taken in 2010

Data Point M-2 – *Photo 1*
Bearing: 340 Degrees

Location: M-2
Taken in 2010

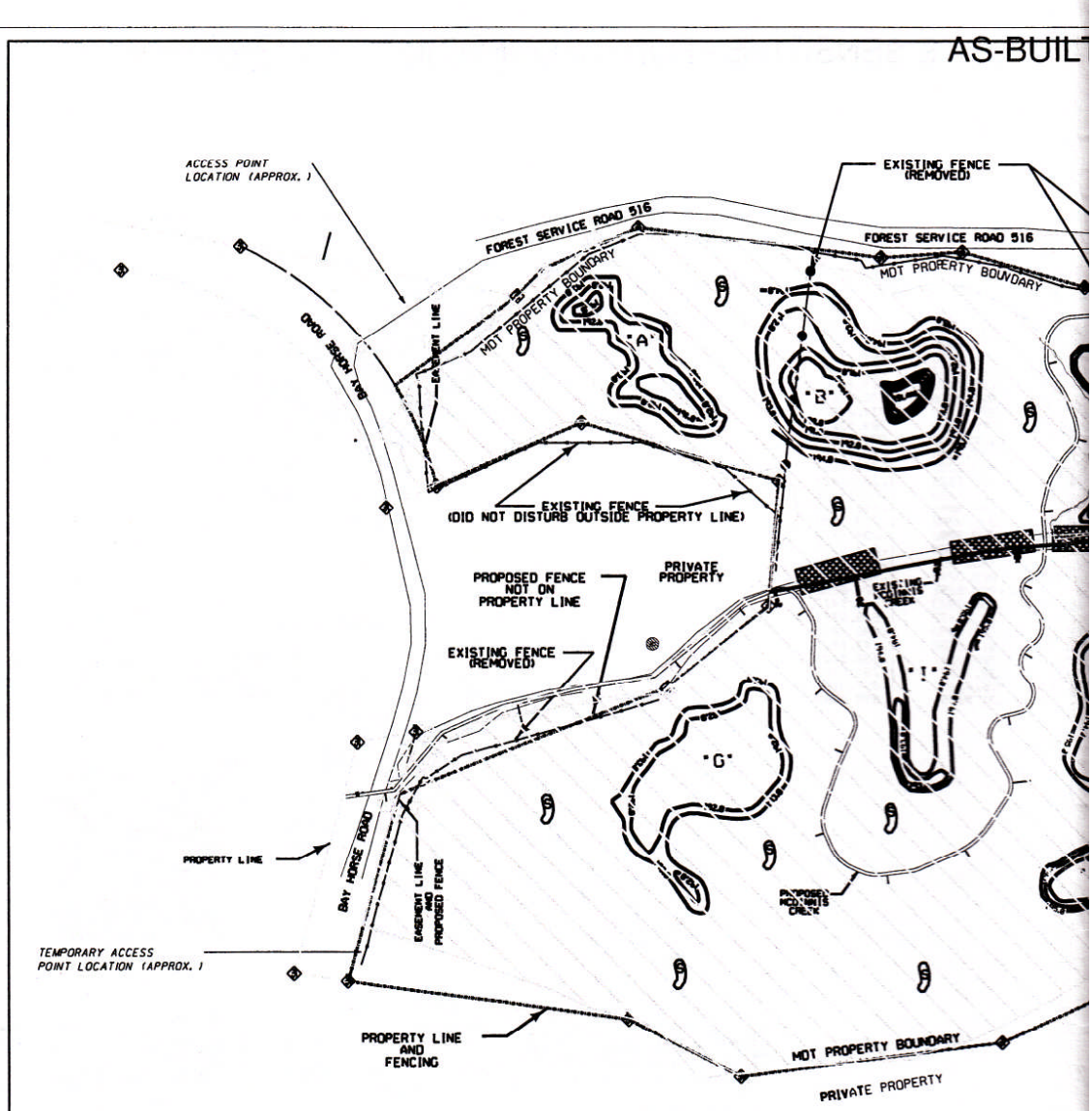
Data Point M-3 – *Photo 1*
Bearing: 150 Degrees
Location: M-3
Taken in 2010

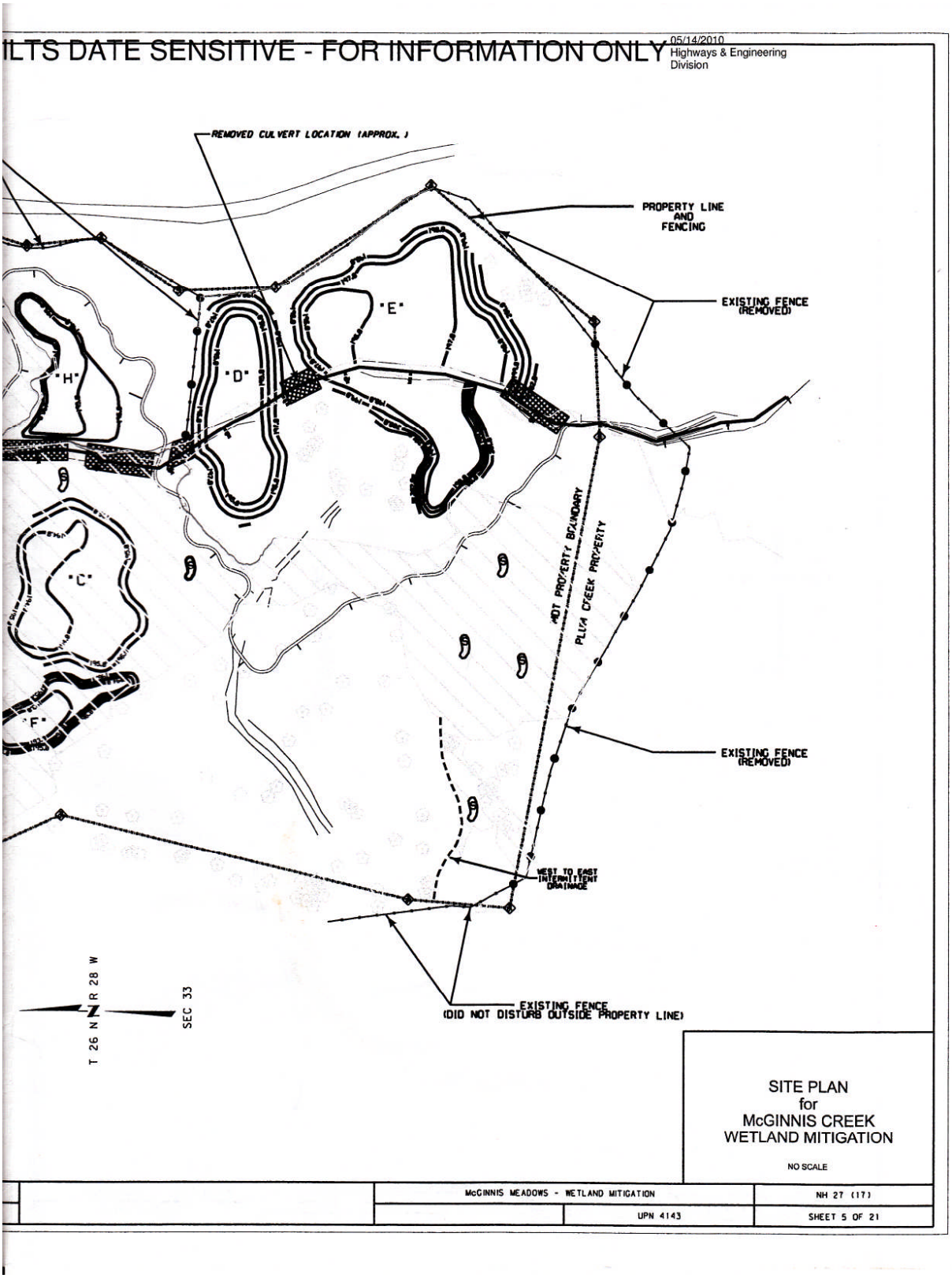
M-4 – *Photo 1*
Bearing: 350 degrees
Location:
Taken in 2010

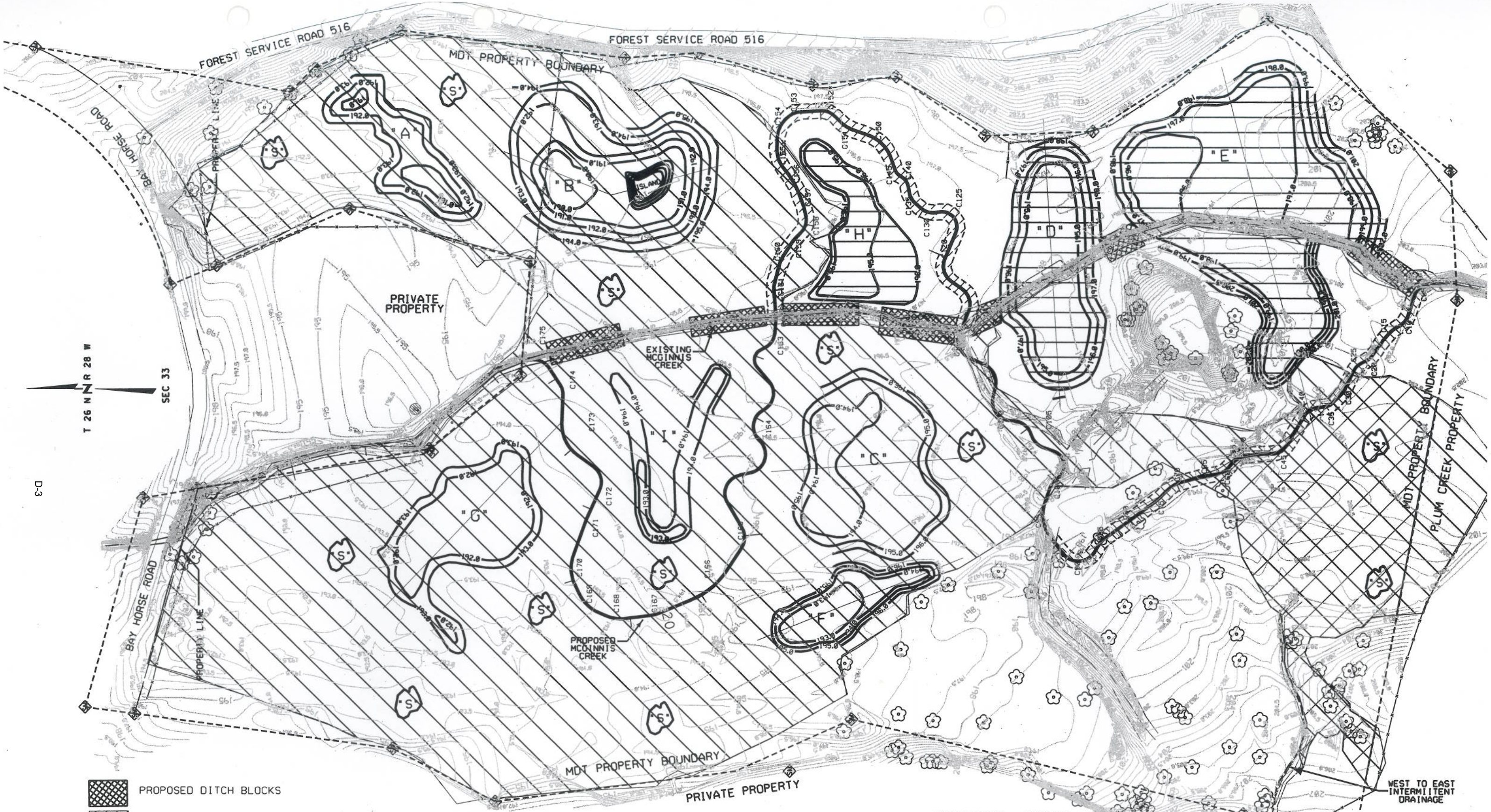
Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana


AS-BUIL
ACCESS POINT LOCATION (APPROX.)
EXISTING FENCE (REMOVED)
FOREST SERVICE ROAD 516
FOREST SERVICE ROAD 516
MDT PROPERTY BOUNDARY
MDT PROPERTY BOUNDARY
BAY HORSE ROAD
EASEMENT LINE
"A"
"B"
EXISTING FENCE (DID NOT DISTURB OUTSIDE PROPERTY LINE)
PROPOSED FENCE NOT ON PROPERTY LINE
PRIVATE PROPERTY
EXISTING FENCE (REMOVED)
"G"
PROPERTY LINE
BAY HORSE ROAD
EASEMENT LINE AND PROPOSED FENCE
TEMPORARY ACCESS POINT LOCATION (APPROX.)
PROPERTY LINE AND FENCING
MDT PROPERTY BOUNDARY
PRIVATE PROPERTY
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' +/-
MONTANA DEPARTMENT OF TRANSPORTATION
serving you with pride
c:\dgn\4143rddet002ab.dgn
5/14/2010
10:36:59 AM
CPS - U4853
DESIGNED BY MARK FRENCH
REVIEWED BY
CHECKED BY
10/25/2008
WETLAND MITIGATION
LINCOLN COUNTY


ILTS DATE SENSITIVE - FOR INFORMATION ONLY
05/14/2010
Highways & Engineering Division
REMOVED CULVERT LOCATION (APPROX.)
PROPERTY LINE AND FENCING
EXISTING FENCE (REMOVED)
"E"
"D"
"H"
"C"
"F"
ADT PROPERTY BOUNDARY
PLUM CREEK PROPERTY
EXISTING FENCE (REMOVED)
WEST TO EAST INTERMITTENT DRAINAGE
EXISTING FENCE (DID NOT DISTURB OUTSIDE PROPERTY LINE)
T 26 N R 28 W
SEC 33
SITE PLAN
for
McGINNIS CREEK
WETLAND MITIGATION
NO SCALE
McGINNIS MEADOWS - WETLAND MITIGATION
NH 27 (17)
UPN 4143
SHEET 5 OF 21



PROPOSED DITCH BLOCKS

EXISTING WETLAND BOUNDARY (17.3 ACRES)

PROPOSED ELEVATED SHRUB PLANTING AREAS

1,306.79' - LINEAR LENGTH OF - EXISTING STREAM
2,845.78' - LINEAR LENGTH OF - PROPOSED STREAM

PROPOSED WETLAND CREDITING ACRES

RESTORATION (REHABILITATION (1.5:1)) - 17.3 ACRES

WETLAND CREATION (1:1) - 2.90 ACRES (DEPRESSIONS D,E&H)

WETLAND/STREAM RESTORATION (RE-ESTABLISHMENT (1:1)) - 0.80 ACRES

WETLAND ENHANCEMENT (3:1) - 1.74 ACRES

DEPRESSION	SURFACE AREA
'A'	0.363 ACRES
'B'	0.941 ACRES
'C'	0.844 ACRES
'D'	0.861 ACRES
'E'	1.626 ACRES
'F'	0.276 ACRES
'G'	0.632 ACRES
'H'	0.413 ACRES
'I'	0.224 ACRES
TOTAL	6.18 ACRES

SCALE - 1' = 120'

0 60 120 240 360

FIGURE A: CONCEPTUAL PLAN