MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2006

Perry Ranch
Glacier County, Montana

Prepared for:

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

Prepared by:

POST, BUCKLEY, SCHUH, AND JERNIGAN
P.O. Box 239
Helena, MT 59624

December 2006

Project No: B43054.00 - 0306

PBS&J

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TABLE OF CONTENTS

TABLES

FIGURES

CHARTS

APPENDICES

1.0 INTRODUCTION

The Perry Ranch wetland mitigation site was constructed during early summer 2001 to mitigate for wetland impacts associated with the Montana Department of Transportation (MDT) projects NH 1-3(12)225F (Browning-Meriwether) and F BRF 1-3(11)219 (Browning East & West). These two projects resulted in a combined projected wetland loss of approximately 14.7 acres. Constructed in Watershed #8 (Marias) within the MDT Great Falls District, the mitigation site is located approximately 13 miles west of Browning and four miles north of U.S. Highway 2 in Glacier County (**Figure 1**). The entire site occurs within the confines of the Tribally-owned Perry Ranch on the Blackfeet Indian Reservation.

The intent of the project was to create, via dike placement and shallow excavation, two wetland impoundments within historic oxbows located in the Cut Bank Creek floodplain (**Appendix D**). The inner oxbow impoundment, located adjacent to Cut Bank Creek, was designed to provide approximately 6.1 wetland acres with a maximum depth of 2.6 feet. The outer oxbow impoundment, located immediately north of the inner oxbow, was designed to provide approximately 21.5 wetland acres with a maximum three-foot depth.

Wetland hydrology at the inner oxbow would be provided via overbank flood flows, alluvial flow, and precipitation; flood flows and precipitation will source the outer oxbow. The site was designed to provide ephemeral surface water. It is anticipated that, over time, vegetation at the inner oxbow will be comprised of scrub/shrub and emergent communities with occasional cottonwoods scattered throughout. The outer oxbow would likely be dominated by emergent communities.

Approximately 2.3 acres of wetland occurred at the inner oxbow prior to construction, while approximately 1.1 acres occurred at the outer oxbow. The 27.6-acre target mitigation figure is inclusive of these 3.4 acres of existing wetlands.

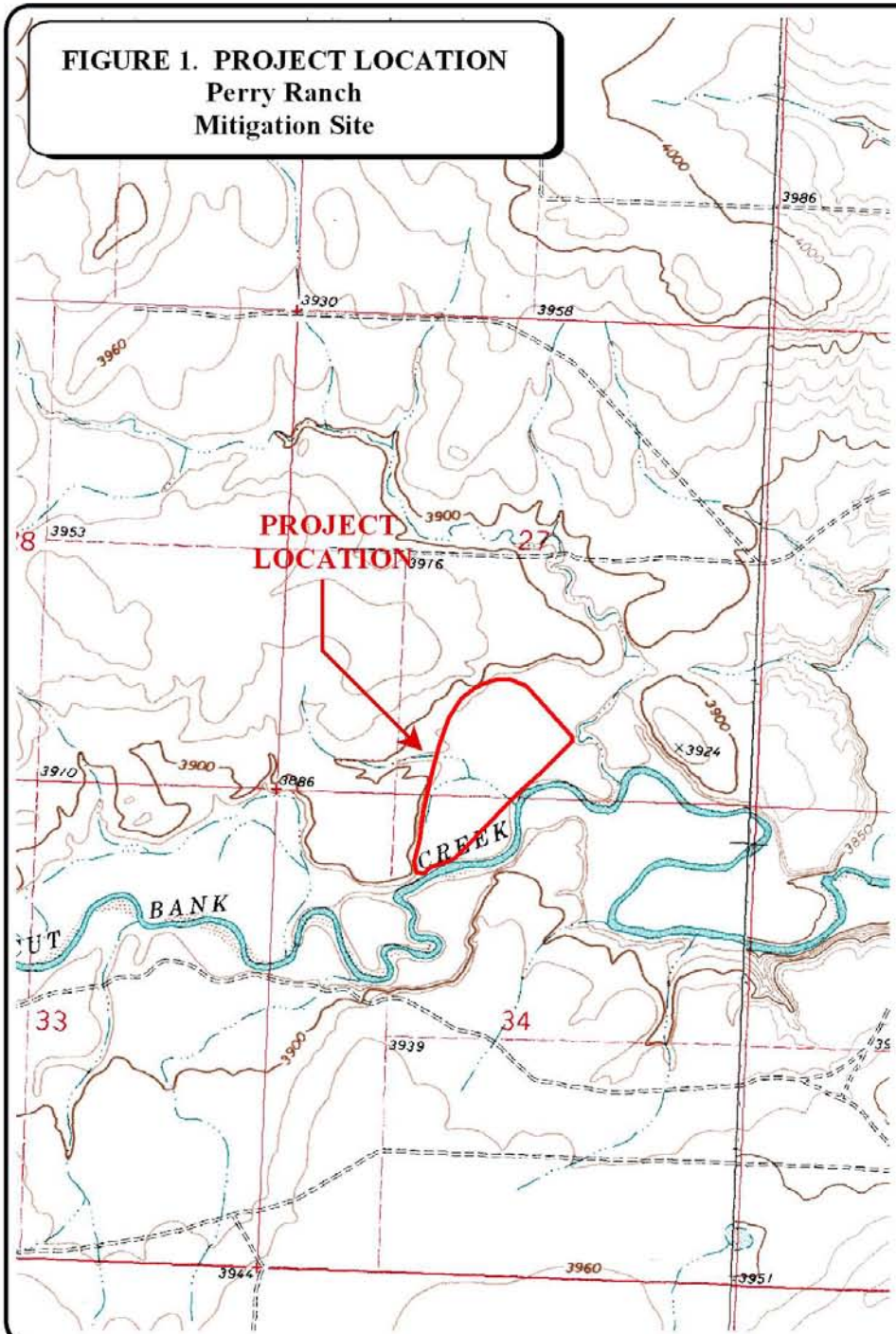
Since its construction in 2001, 2006 represented the fifth year of monitoring at the Perry Ranch Wetland Mitigation Site. This site has been monitored twice per year to document wetland and other biological attributes. No performance standards or success criteria were required by the U.S. Army Corps of Engineers (COE), MDT, Blackfeet Tribe, or other agencies. The monitoring area is illustrated in **Figure 2** (**Appendix A**)

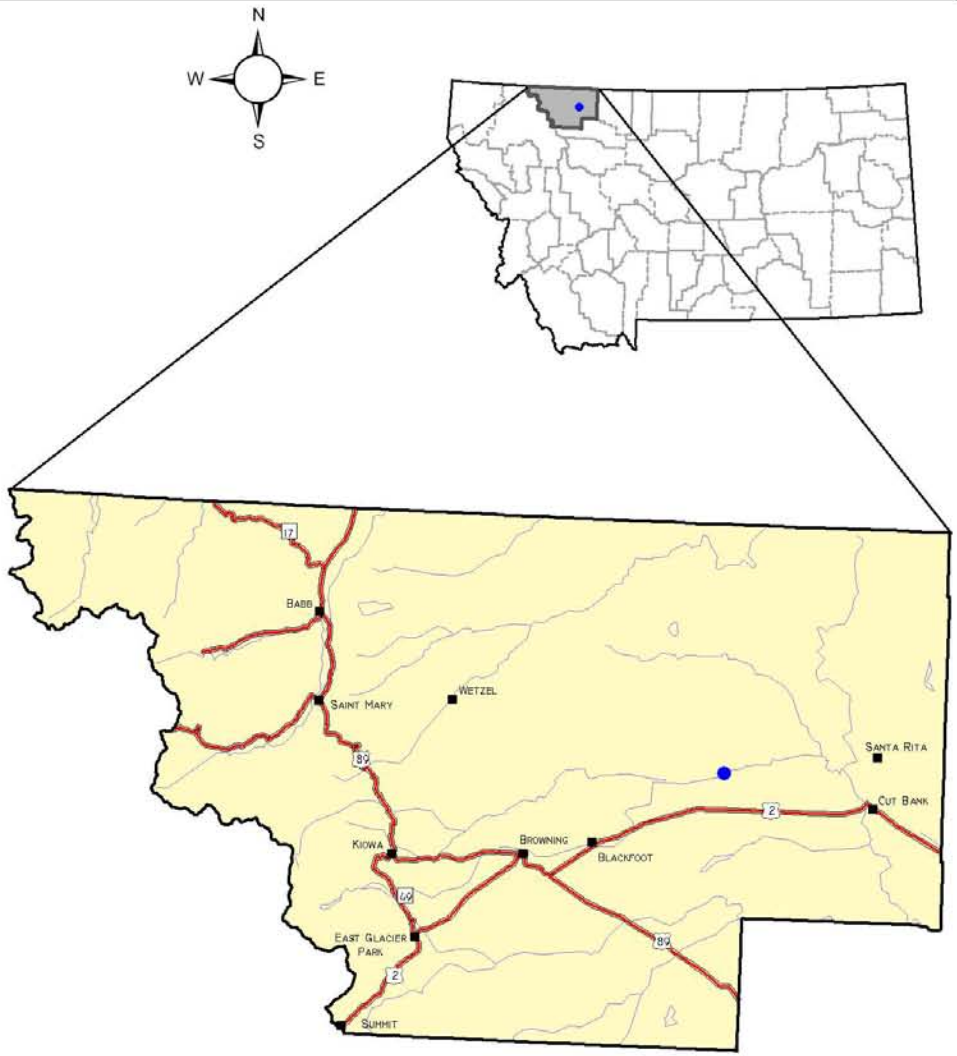
2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on May 4th (spring) and July 13th (mid-season) of 2006. The primary purpose of the spring visit was to conduct a survey for birds and general wildlife.

FIGURE 1. PROJECT LOCATION
Perry Ranch
Mitigation Site





PROJECT #: 130091.020
DATE: DEC 2002
LOCATION:
PROJECT MANAGER: J. BERGLUND
DRAWN BY: B. NOECKER

LAND & WATER CONSULTING, INC.
1120 CEDAR PO BOX 8254 MISSOULA, MT 59807

The mid-season visit was conducted in July to document vegetation, soil, and hydrologic conditions used to map jurisdictional wetlands. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water aquatic habitat boundary mapping; vegetation community mapping; vegetation transect; soils data; hydrology data; bird and general wildlife use; macro-invertebrate sampling; photograph points; functional assessment; and/or a non-engineering examination of dike structures.

2.2 Hydrology

Wetland hydrology at the inner oxbow (2.6-foot maximum depth) was to be provided via overbank flood flows, alluvial flow, and precipitation. Wetland hydrology at the outer oxbow (3-foot maximum depth) was to be provided via flood flows and precipitation. Impoundment areas are indicated on the proposed project plan sheets (**Appendix D**).

Hydrologic indicators were primarily evaluated during the mid-season visit. Wetland hydrology indicators were recorded using procedures outlined in the COE 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data were recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data were recorded on the Wetland Mitigation Site Monitoring Form (**Appendix B**). The boundary between wetlands and open water aquatic habitats (no rooted vegetation) was mapped on an aerial photograph and an estimate of the average water depth at this boundary was recorded.

There are no groundwater monitoring wells at the site. Groundwater depths were only documented if they were located within 12 inches of the ground surface, which is depth at which soil pits are dug for purposes of delineating wetlands. Groundwater depths within soils pits were recorded onto COE Routine Wetland Delineation Data Forms (**Appendix B**).

2.3 Vegetation

General dominant species-based vegetation community types were delineated on to the 2006 aerial photograph. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation. Estimated percent cover of the dominant species in each community type was recorded on the Wetland Mitigation Site Monitoring Form (**Appendix B**).

A single 10-foot wide belt transect was sampled during the mid-season monitoring event to represent the range of current vegetation conditions. Percent cover was estimated for each vegetative species encountered within the “belt” within each community type using the following values: + (<1%); 1 (1-5%); 2 (6-10%); 3 (11-20%); 4 (21-50%); and 5 (>50%).

The transect location is depicted on **Figure 2 (Appendix A**). All data were recorded on the mitigation site monitoring form. Photographs of the transect were taken from both ends during

the mid-season visit. No monitoring of planted species was conducted as no woody species were planted at the site.

2.4 Soils

Soils were evaluated during the mid-season visit in accordance with procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current NRCS terminology was used to describe hydric soils (USDA 1998). The 1980 Glacier Area soil survey was consulted relative to mapped soil units at the site.

2.5 Wetland Delineation

Wetland delineation was conducted during the mid-season visit in accordance with the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation, and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). In 2002, the wetland/upland boundary was delineated using a GPS unit in conjunction with hand-mapping onto an aerial photograph. In 2006, wetland mapping revisions were accomplished using a combination of GPS coordinates and hand-mapping onto the 2006 aerial photograph. The wetland/upland boundary in combination with any wetland/open water habitat boundary was used to calculate the wetland area developed on the site.

Wetland delineation data collected during 2006 was compared to this pre-construction estimate in an effort to calculate additional wetland development since project construction.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded onto the Wetland Mitigation Site Monitoring Form during each site visit (**Appendix B**). Indicators of indirect use, such as tracks, scat, burrows, eggshells, skins, and bones were also recorded. Observations were recorded during all visits as the observer traversed the site while conducting other required activities. Direct sampling methods such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive list of wildlife species observed was compiled.

2.7 Birds

Bird observations were recorded during both site visits. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the spring visit, observations were recorded in compliance with the Bird Survey Protocols (**Appendix E**). During the mid-season visit, bird observations were recorded incidental to other monitoring activities. During all visits, observations were categorized by species, activity code, and general habitat association on the

Bird Survey Field Data Sheet (**Appendix B**). A comprehensive bird list was compiled using these observations. No birdhouses are currently located on the site.

2.8 Macroinvertebrates

A macroinvertebrate sample was collected during the mid-season visit in years when surface water was present (**Figure 2** in **Appendix A**). The sample was collected and preserved according to the Macroinvertebrate Sampling Protocol (**Appendix E**). Laboratory analysis of the sample and reporting were conducted by Rithron Associates, Inc. in Missoula, Montana. One macroinverte-brate sample was collected during the mid-season site visit at the outer oxbow in 2002 and 2005. However, surface water was absent during the mid-season visits in 2003, 2004, and 2006 and no macroinvertebrate samples were collected.

2.9 Functional Assessment

A functional assessment was completed using the 1999 MDT Montana Wetland Assessment Method (Berglund 1999). Field data necessary for this assessment were primarily collected during the mid-season site visit. The remainder of the functional assessment was completed in the office. For each wetland or group of wetlands a Functional Assessment Form was completed (**Appendix B**).

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and the vegetation transect (**Appendix C**). Three photograph points were established and shot each year from 2002 to 2006 (**Figure 2** in **Appendix A**). Panoramic type photographs were taken at these three photograph points (**Appendix C**). A five year comparison of aerial photographs taken of the Perry Ranch Mitigation Site was compiled (**Appendix C**).

2.11 GPS Data

During the 2002 monitoring season, a variety of survey points were collected with a resource grade GPS unit: vegetation transect beginning and ending locations, photograph points, and the wetland boundary. Limited GPS data was collected during the 2006 monitoring season. Procedures used for GPS mapping and aerial photography referencing are included in **Appendix E**.

2.12 Maintenance Needs

The dike along the east edge of the site was examined during the 2006 site visits for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.

3.0 RESULTS

3.1 Hydrology

Hydrology at the Perry Ranch Mitigation Site is determined by flow in Cut Bank Creek and by direct precipitation. These water sources interact with groundwater, which ultimately will drive wetland development. Inferences regarding hydrology at the site were made from a gauging station on Cut Bank Creek near Browning and at a weather station in Cut Bank.

Based on the period of record between December 1903 and July 2006, the mean annual precipitation at the Cut Bank weather station (#242173) was 11.45 inches (in) (WRCC 2006). The total precipitation received from January through July of 2006 was 2.70 in. (WRCC 2006). The 2006 year was substantially drier during this seven month period than it was in 2005 (9.21 in), 2004 (4.57 in), and 2003 (3.63 in) (WRCC 2006). This seven month period in 2006 was also drier than the long-term January to July average of 7.94 in, which has been calculated since 1903 (WRCC 2006).

Flow in Cut Bank Creek near Browning peaked from 600 to 900 cubic feet per second (cfs) from late May to mid-June in 2006 (USGS 2006). In comparison, peak flows in Cut Bank Creek near Browning ranged from 450 to 700 cfs from late May to early June 2005 and ranged from 400 to 550 cfs from early May to early June in 2004 (USGS 2006). Given a higher peak streamflow in 2006, it is possible that the site was inundated between the spring and mid-season visits of this year.

Significant inundation at the site had been observed in July 2002 and July 2005. During July 2006, inundation was limited to a few small pools in the delivery ditch of the inner oxbow. However, saturated or very moist soils were found in wetland community types 1, 2, 4, and 5. Soil moisture levels were driest in the southern portion of community type 1 and wettest in the inner oxbow of community type 2. For the second year in a row, the outer oxbow had saturated or nearly saturated soils. Likewise, the northern excavated area (with the designed island) had a mosaic of saturated surface soils and dry surface soils over deeper moist soils (**COE Forms** in **Appendix B**; **Photo 9** in **Appendix C**). As discussed in the following section, wetland vegetation continues to develop at those locations where soils retain adequate moisture.

3.2 Vegetation

Vegetation community types are based on topography, hydrology, and plant composition. At Perry Ranch, shifts in plant composition have been observed annually in many communities. During 2005 six vegetation community types were identified and mapped in the mitigation area: Type 1 - *Juncus balticus/Carex praegracilis*, Type 2 - *Eleocharis palustris/Polygonum amphibium*, Type 3 – *Upland Floodplain*, Type 3A – *Transitional Upland Floodplain*, Type 4- *Hordeum jubatum*/*Equisetum*, and Type 6 - *Upland*. In addition, Type 7 - *Open Water/Mudflat* was mapped. As discussed in the previous sections, available soil moisture in 2006 led to shifts in the development of upland and wetland habitats and resulted in some community name changes and associated acreages. A comprehensive plant species list has been maintained over

the past five years for the Perry Ranch Mitigation Site (**Table 1; Monitoring Form** in **Appendix B**).

Vegetation Community Type 1 has occurred primarily as a fringe along the deeper wetland areas of the inner oxbow (**Figure 3** in **Appendix A**). The southern portion of Type 1 has been drying out. The July 2006 soil pit contained moist soil and the plant community showed a strong presence of upland plants [e.g., snowberry (*Symphoricarpos albus*), rose (*Rosa arkansas*), and leafy spurge (*Euphorbia esula*)] presumably invading the wetland plant community (**Photos 4** and **5** in **Appendix C**). As a result the size of Type 1 decreased in 2006. The northern portion of Type 1 appears to receive either more surface water via flooding or groundwater, such that a facultative wetland plant community (FACW) has been maintained.

Table 1: ***2002-2006 Perry Ranch vegetation species list.***

Scientific Name	Region 9 (Northwest) Wetland Indicator
Achillea millefolium	FACU
Agropyron intermedium	--
Agropyron repens	FACU
Agropyron smithii	--
Agropyon trachycaulum	FAC
Agrostis alba	FACW
Alopecurus pratensis	FACW
Amaranthus retroflexus	FACU+
Artemisia frigida	--
Aster spp.	--
Atriplex spp.	--
Bouteloua gracilis	--
Brassica kaber	--
Bromus inermis	--
Cardaria draba	--
Carex lanuginosa	OBL
Carex praegracilis	FACW
Chenopodium album	FAC
Cirsium arvense	FAC-
Dactylis glomerata	FACU
Descurainia pinnata	--
Distichlis spicata	FAC+
Eleocharis palustris	OBL
Epilobium ciliatum	FACW-
Equisetum arvense	FAC
Equisetum hyemale	FACW
Euphorbia esula	--
Gaillardia aristata	---
Glyceria elata	FACW+
Glycyrrhiza lepidota	FAC+
Grindelia squarrosa	--
Hordeum jubatum	FAC+
Juncus balticus	OBL
Kochia scoparia	FAC
Koeleria pyramidata	--
Medicago sativa	--
Melilotus alba	FACU

Table 1 (continued): ***2002-2006 Perry Ranch vegetation species list***

Scientific Name	Region 9 (Northwest) Wetland Indicator
Melilotus officinalis	FACU
Mentha arvensis	FAC
Opuntia spp.	--
Phalaris arundinacea	FACW
Phleum pretense	FAC-
Plantago hirtella	FACW
Poa annua	FAC-
Poa pratensis	FACU+
Polygonum amphibium	OBL
Potentilla anserina	OBL
Rosa arkansana	NI
Rumex crispus	FACW
Rumex maritimus	OBL
Salix amygdaloides	FACW
Salix exigua	OBL
Salix lutea	OBL
Sisymbrium altissimum	--
Solidago canadensis	FACU
Spartina pectinata	OBL
Stipa viridula	--
Symphoricarpos occidentalis	--
Taraxacum officinale	FACU
Thlaspi arvense	--
Triglochin maritimum	OBL
Typha latifolia	OBL

Bolded species indicate those documented in the analysis area for the first time in 2006.

Vegetation Community Type 2 occupies deeper wetland areas that hold surface water for longer durations (**Photo 6** in **Appendix C**; **Figure 3** in **Appendix A**). Groundwater may also be influencing vegetation development in this community. Type 2 has consistently occurred within the inundated portion of the inner oxbow and has only occurred in the outer oxbow during wetter years. In July 2005, both the inner and outer oxbows were inundated. In July 2006 there was no inundation except for a few small pools in the inner oxbow; however, soil moisture ranged from saturated to very moist throughout both oxbows (**COE Forms** in **Appendix B**). Type 2 in the inner oxbow has remained a strong-hold for obligate wetland plants such as water smartweed (*Polygonum amphibium*). Type 2 in the outer oxbow continued to be dominated by a mosaic of obligate wetland plants [e.g., silverweed (*Potentilla anserina*), least spikerush (*Eleocharis palustris*), and water smartweed], but mixed with a diversity of facultative wetland plants [e.g., curly dock (*Rumex crispus*) and meadow foxtail (*Alopecurus pratensis*)]. In addition, barley fox-tail (*Hordeum jubatum*) was the only significant facultative plant species present in the outer oxbow. Approximately 100 feet of the ditch connecting the inner and outer oxbows also met wetland criteria for soils, plants, and hydrology for the first time in five years.

Vegetation Community Type 3 is upland floodplain habitat (**Figure 3** in **Appendix A**). It is dominated by snowberry, rose, smooth brome (*Bromus inermis*), quackgrass (*Agropyron repens*), timothy (*Phleum pratense*), intermediate wheatgrass (*Agropyron intermedium*), yellow sweet clover (*Melilotus officinalis*), kochia (*Kochia scoparia*), leafy spurge (*Euphorbia esula*), and

others (**Photo 5** in **Appendix C**). A subset of this community is Type 3A – *Transitional Upland Floodplain*. In 2006 Type 3A continued to show both facultative plants and facultative wetland plants, but with very dry soils (**Figure 3** in **Appendix A**).

Vegetation Community Type 4 occurs primarily within excavated portions of the inner oxbow, and is characterized by mudflat colonized by wetland plants (**Photo 7** in **Appendix C; Figure 3** in **Appendix A**). Since 2003, the Type 4 community has demonstrated significant growth in sandbar willow (*Salix exigua*) whips, field horsetail (*Equisetum arvense*), silverweed (*Potentilla anserina*), creeping spikerush, reed canary grass (*Phalaris arundinacea*), and others. In 2006, broad-leaf cattail (*Typha latifolia*) was documented for the first time in the eastern most excavated area of Type 4 (**Photo 7** in **Appendix C; Figure 3** in **Appendix A**). Facultative wetland and obligate plant species have become fairly dense in Type 4. In 2006 the community was renamed as Type 4 – *Salix*/*Hordeum*/*Equisetum* to more accurately reflect its components. In addition, leafy spurge was found in several more localities of Type 4 then was observed in 2005.

The extreme northern portion of the project area (which contains the designed island) also fluctuates in community development based on the presence of water. In 2005 this area was mapped as Type 7 - Open Water/Mudflat and was inundated such that the foxtail barley community had died. In July 2006, the community reverted back to Type 5 – *Hordeum jubatum* (as it also did in 2003) (**Photo 8** in **Appendix C; Figure 3** in **Appendix A**). As observed in 2005, the Type 5 community is ringed by actively growing yellow and sandbar willow whips (**Photo 15** in **Appendix C**). Although soils were not inundated in July 2006, a mosaic of dry and wet surface soils was observed (**Photo 9** in **Appendix C**). Soil pits revealed that from 3 to 12 inches deep soil moisture ranged from very moist to saturated.

Vegetation Community Type 6 is upland habitat that occupies the slopes north and west of the project area. These adjacent slopes are primarily colonized by native species, such as phlox (*Phlox* spp.), prickly pear (*Opuntia* spp.), blanket flower (*Gaillardia aristata*), lupine (*Lupinus* spp.), and blue grama (*Bouteloua gracilis*).

Two noxious weed species have been found on the Perry Ranch Wetland Mitigation site: Canada thistle (*Cirsium arvense*) and leafy spurge. Both species are rated as Category 1 noxious weeds. Leafy spurge was first documented last year at the site in Community Type 4. In 2006 it was commonly found in Community Types 1, 3, and 4 within the southern half of the project area (**Photo 5** in **Appendix C**). Canada thistle is common throughout the site, but scattered.

From 2002 to 2006 vegetation data has been recorded from the same transect (**Monitoring Data Forms** in **Appendix B**), summarized in tabular format (**Table 2**), and graphically illustrated (**Charts 1** and **2)**. Photographs were taken at the start and end of the transect (**Photos 10** and **11** in **Appendix C**). Inundation along the transect was not observed in 2006. However, nearly saturated soils along with a dominance of wetland plants were observed in the Type 2 community, thereby maintaining this area as *Eleocharis palustris*/*Polygonum amphibium* wetland (**Photo 10** in **Appendix C; Table 2**; **Chart 1**). The area of Type 2 slightly increased from 2005 (**Table 2**; **Chart 2**). In 2006 the line between Type 3 - *Upland Floodplain* and Type 3A – *Transitional Upland Floodplain* seemed more apparent and was based on plant cover, but

not soils. Type 3 – *Upland Floodplain* increased in area, while the Type 3A - *Transitional Upland Floodplain* area decreased (**Table 2**; **Charts 1** and **2**). Observations suggest that hydrology in the ditch will drive the development of wetland or upland in this transitional upland.

Table 2: ***Transect 1 data summary for each year monitored.***

Monitoring Year	2002	2003	2004	2005	2006
Transect Length (feet)	532	532	532	532	532
# Vegetation Community Transitions along Transect	4	5	5	4	4
# Vegetation Communities along Transect	3	3	3	4	4
# Hydrophytic Vegetation Communities along Transect	0	0	0	1	1
Total Vegetative Species	18	25	20	26	28
Total Hydrophytic Species	6	14	10	13	15
Total Upland Species	12	11	10	13	13
Estimated % Total Vegetative Cover	35	45	90	80	90
% Transect Length Comprised of Hydrophytic Vegetation Communities	0	0	0	22	23
% Transect Length Comprised of Upland Vegetation Communities	40	50	100	78	77
% Transect Length Comprised of Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprised of Bare Substrate	60	50	0	0	0

Chart 1: ***Transect map showing vegetation types of Transect 1 from start (0 feet) to end (532 feet) for each year monitored.***

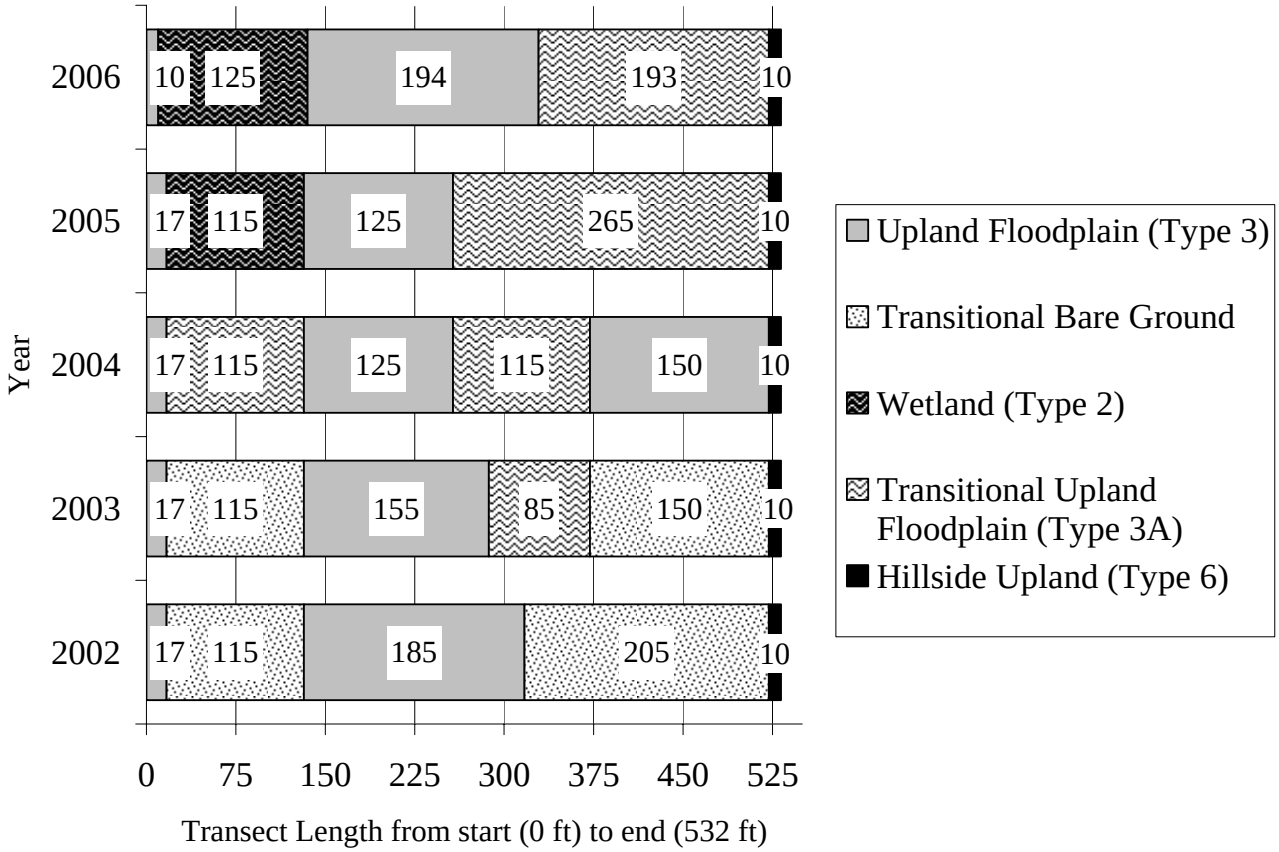
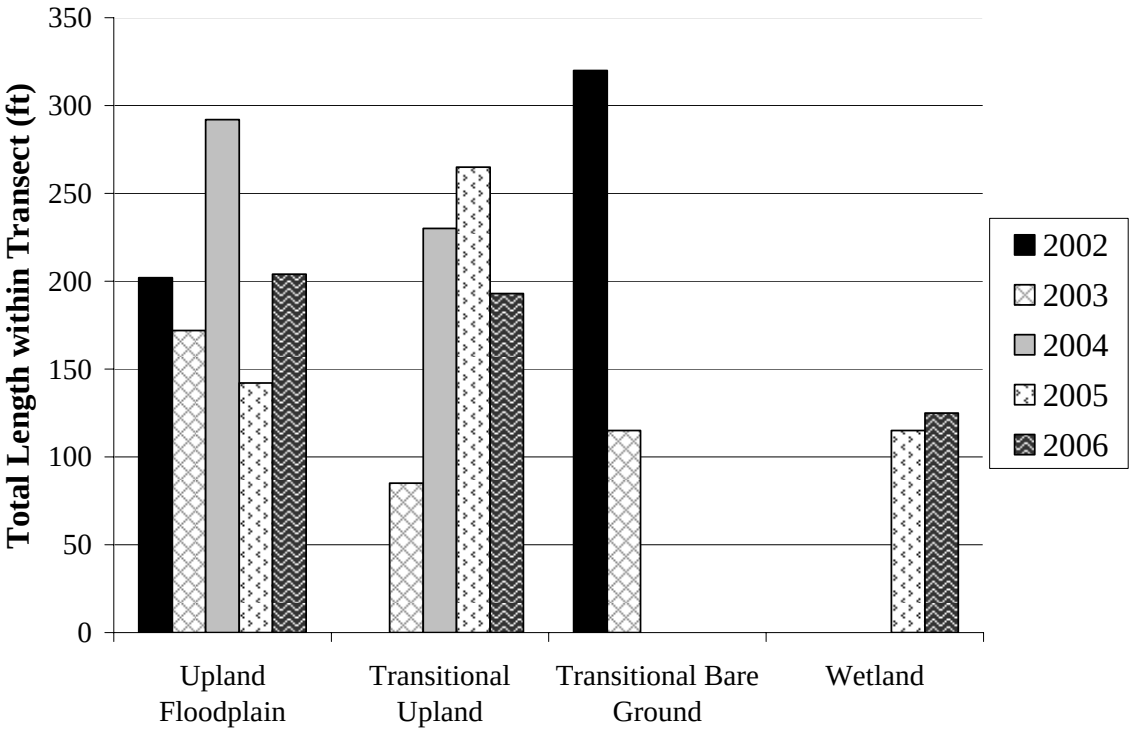


Chart 2: ***Total length of each vegetation community within Transect 1 for 2002 to 2006.***



3.3 Soils

Soils on the vast majority of the site were mapped as Kiwanis fine sandy loam, 0-2 percent slopes (NRCS 1980). This well drained soil typically occurs on terraces and is subject to flooding as a result of winter ice jams (NRCS 1980). The Kiwanis soil type is generally considered non-hydric by the NRCS (NRCS 2006).

Matrix soil colors and textures have remained fairly stable during the five years of monitoring. The B Horizon soils in wetland portions of the project area ranged from silty clay loam to sandy clay loam with a matrix color ranging from 2.5Y3/2 to 10YR3/2 (**COE Forms** in **Appendix B**). Mottles in the matrix soil indicate a fluctuating water table. Mottles were present in vegetation communities Type 2, Type 4, and Type 5, and ranged in colors from 10YR3/4 to 7.5YR4/6 (**COE Forms** in **Appendix B**). Within the Type 2 wetland community two of the three soil pits showed mottles. Mottles were observed for the first time in the northern excavated area (Type 5) and were present in one of the two soil pits.

Along Transect 1, soil matrix colors in the Type 2 community have remained the same since 2004; mottles have not yet developed, though oxidized rhizospheres have been abundantly observed in 2005 and 2006 (**COE Forms** in **Appendix B**). Oxidized rhizospheres indicate that the soil had been flooded with water long enough that the plants transported oxygen from the leaves to the roots. Soils within the Type 3 – *Transitional Upland* lacked mottles, though a few oxidized rhizospheres were present in one of the two soil pits (**COE Forms** in **Appendix B**).

3.4 Wetland Delineation

Wetland boundaries were re-delineated in 2006, based upon vegetation, soil, and hydrological data taken from at least 12 soil pit locations (**Figure 3** in **Appendix A**; **COE Forms** in **Appendix B)**. For each year from 2002 to 2006, the aerial extent of all aquatic and wetland habitats have been mapped and summarized (**Table 3**).

Table 3. ***Aerial coverage of aquatic habitats from 2002 to 2006 at Perry Ranch.***

Aquatic Habitat	Pre-Construction (acres)	2002 (acres)	2003 (acres)	2004 (acres)	2005 (acres)	2006 (acres)
Wetland	3.40	10.09	12.41	12.33	13.65	18.97
Open Water / Mudflat	0.00	7.83	6.20	0.00	6.39	0.00
TOTAL	**3.40**	**17.92**	**18.61**	**12.33**	**20.04**	**18.97**

Approximately 18.97 acres of wetlands presently occur on the site (**Table 3**; **Figure 3** in **Appendix A**). This has resulted in an increase in wetland habitat and a gain of more than eight wetland acres since 2002. Although Type 1 decreased slightly in acreage, an overall increase in wetland area occurred. This increase is attributable to the excavated northern portion of the project area, which satisfied all three wetland parameters for the first time in 2006.

Approximately 3.4 acres of wetland occurred at the site prior to construction (**Table 3**). The 27.6-acre mitigation goal is inclusive of these 3.4 acres of pre-existing wetlands. Consequently, the net goal for this project is to create 24.2 wetland acres. As of 2006 the site has netted 15.57 wetland acres, or 64% of the project target.

3.5 Wildlife

A comprehensive list of wildlife species (or their sign) observed at the project site has been maintained from 2002 to 2006 (**Table 4**). For each bird species observed, information on their activity and habitat use was also recorded (**Bird Survey Form** in **Appendix B)**. The site provides habitat for many types of wildlife such as deer, waterfowl, and amphibians.

Three mammal, one amphibian, and 14 bird species were noted at the mitigation site during the course of the 2006 monitoring season. No birdhouses were installed at this site.

The northern leopard frog (*Rana pipiens*) is globally ranked as a G5 indicating it is globally common, widespread, and abundant. In Montana, this species has been assigned the rank of S1 (critically imperiled) in the intermountain valleys and S3 (rare occurrence and/or restricted range and/or vulnerable to extinction) in the Great Plains region by the MTNHP (MTNHP 2006). In 2006, one northern leopard frog was observed on the north side of the inlet channel (**Photo 12** in **Appendix C**). During 2002 and 2005, northern leopard frogs were observed in the outer oxbow while in 2003 and 2004 no frogs were observed. The inner and outer oxbow is considered documented secondary habitat for this species because the area has intermittent surface water and a few individuals have been observed during 2002, 2005, and 2006.

Table 4: ***Fish and wildlife species observed on the Perry Ranch Mitigation Site from 2002 to 2006.***

FISH	
None	
AMPHIBIANS	
Northern Leopard Frog (*Rana pipiens*) Western Chorus Frog (*Pseudacris triseriata*)	
REPTILES	
None	
BIRDS	
American Avocet (*Recurvirostra americana*) American Robin (*Turdus migratorius*) American White Pelican (*Pelecanus erythrorhynchos*) Bank Swallow (*Riparia riparia*) **Barn Swallow (*Hirundo rustica*)** Blue-winged Teal (*Anas discors*) **Brewer's Blackbird (*Euphagus cyanocephalus*)** Canada Goose (*Branta Canadensis*) Chukar (*Alectoris chukar*) Cinnamon Teal (*Anas cyanoptera*) Cliff Swallow (*Petrochelidon pyrrhonota*) **Common Nighthawk (*Chordeiles minor*)** **Common Snipe (*Gallinago gallinago*)** **Double-crested Cormorant (*Phalacrocorax auritus*)** **Eastern Kingbird (*Tyrannus tyrannus*)** Franklin's Gull (*Larus pipixcan*) Great Blue Heron (*Ardea herodias*) **Gray Partridge (*Perdix perdix*)** **Horned Lark (*Eremophila alpestris*)** **Killdeer (*Charadrius vociferous*)** Lesser Scaup (*Aythya affinis*) Long-billed Dowitcher (*Limnodromus scolopaceus*)	Mallard (*Anas platyrhynchos*) **Northern Harrier (*Circus cyaneus*)** Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) Northern Shoveler (*Anas clypeata*) **Red-winged Blackbird (*Agelaius phoeniceus)*** Red-tailed Hawk (*Buteo jamaicensis)* **Savannah Sparrow (*Passerculus sandwichensis*)** Semipalmated Plover (*Charadrius semipalmatus*) Solitary Sandpiper (*Tringa solitaria*) Spotted Sandpiper (*Actitis macularia*) Vesper Sparrow (*Pooecetes gramineus*) **Western Meadowlark (*Sturnella neglecta*)** Western Sandpiper (*Calidris mauri*) **Willet (*Catoptrophorus semipalmatus*)** Wilson's Phalarope (*Phalaropus tricolor*) Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)
MAMMALS	
American Badger (*Taxidea taxus*) **Coyote (*Canis latrans*)** Deer (*Odocoileus* spp.) Raccoon *(Procyon lotor)* Richardson's Ground Squirrel (*Spermophilus richardsonii*) **White-tailed Deer (*Odocoileus virginianus*)**	

Bolded species were observed during 2006. All other species were observed during one or more of the previous monitoring years, but not during 2006.

3.6 Macroinvertebrates

No macroinvertebrate sample was collected during the July 2006 site visit because there was no surface inundation present. Over the 5-year monitoring period, macroinvertebrates were sampled in 2002 and 2005 when surface waters were present in the outer oxbow. Conversely, no macroinvertebrate sample was taken in 2003, 2004, or 2006.

3.7 Functional Assessment

Functional assessment forms were completed for the inner oxbow, outer oxbow, and the northern excavated area (**Appendix B)** and the results were summarized (**Table 5**). As wetlands have developed within the oxbows and northern excavated area, so have their associated functions and values. In 2006, the inner oxbow rating went from Category III to Category II (**Table 5**). This was in large part to the increasing percentage of scrub-shrub (willow) and emergent plant development within Type 4 (**Appendix B**). In 2006, the outer oxbow maintained its Category II status of 2005 (**Table 5**). In 2006 the northern excavated area achieved wetland status and rated as a Category III (**Table 5**). It rated lower primarily because of its lower value associated with rare and general wildlife species and production export/food chain support. It is assumed that if soils continue to saturate that the wetland vegetation component will continue to develop.

Table 5: ***Summary of baseline and 2006 wetland function/ value ratings and functional points at the Perry Ranch Mitigation Project.***

Function and Value Parameters from the 1999 MDT Montana Wetland Assessment Method[1]	**Pre-Construction (1997 method)**		**Post-construction (1999 method)**		
	Inner Oxbow	**Outer Oxbow**	**2006 Inner Oxbow**	**2006 Outer Oxbow**	**2006 Northern Excavated Area**
Listed/Proposed TE Species Habitat	Low (0.1)	Low (0.1)	Low (0.3)	Low (0.3)	Low (0.3)
MTNHP Species Habitat	None (0.0)	None (0.0)	Mod (0.7)	Mod (0.7)	Mod (0.6)
General Wildlife Habitat	Mod (0.4)	Low (0.1)	Mod (0.7)	Mod (0.7)	Mod (0.4)
General Fish/Aquatic Habitat	NA	NA	NA	NA	NA
Flood Attenuation	Mod (0.5)	Low (0.2)	Mod (0.5)	Mod (0.5)	Mod (0.5)
Short and Long Term Surface Water Storage	--	--	High (0.9)	High (0.9)	High (0.9)
Sediment, Nutrient, Toxicant Removal	Mod (0.5)	Mod (0.5)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	NA	NA	NA	NA	NA
Production Export/Food Chain Support	Mod (0.7)	Mod (0.6)	Mod (0.7)	Mod (0.6)	Mod (0.6)
Groundwater Discharge/Recharge	High (1.0)	Low (0.1)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.3)	Low (0.2)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Actual Points/Possible Points	4.4 / 10	2.7 /10	6.9 / 10	6.8 / 10	6.4 / 10
% of Possible Score Achieved	44%	27%	69%	68%	64%
Overall Category	III	IV	II	II	III
Total Acreage of Assessed Wetlands and Other Aquatic Habitats within Site Boundaries (ac)	**2.30**	**1.10**	**5.92**	**7.40**	**5.65**
Functional Units (acreage x actual points)	**10.12**	**2.97**	**40.85**	**50.32**	**36.16**
Net Acreage Gain (ac)	**NA**	**NA**	5.92 – 2.30 = **3.62**	7.40 – 1.10 = **6.30**	5.65 - 0.00 = **5.65**
Net Functional Unit Gain (fu)	**NA**	**NA**	40.85-10.12 = **30.73**	50.32 – 2.97 = **47.32**	36.16 – 0.00 = **36.16**
Total Functional Unit Gain	**114.21**				

[1] See completed MDT functional assessment forms in **Appendix B** for further detail.

The functional assessment completed prior to construction is not directly comparable with that completed in 2006 as two different renditions of the MDT Functional Assessment Method were used (**Table 5**). However, a general comparison provides a general sense of where functions have improved. Since pre-construction, the inner oxbow has gained of 30.73 functional units in the following functions and values: MTNHP and general wildlife habitat; sediment/nutrient/toxicant removal; uniqueness; and recreation/education potential (**Table 5**). Since pre-construction, the outer oxbow has gained 47.32 functional units in the following functions and values: MTNHP and general wildlife habitat; flood attenuation; sediment/nutrient/toxicant removal; groundwater discharge/recharge; uniqueness; and recreation/education potential (**Table 5**). Since pre-construction the northern excavated area has gained 36.16 functional units in all the value and function parameters (**Table 5**). In 2006, a total of 114.21 functional units have been gained at the Perry Ranch Wetland Mitigation Site (**Table 5**).

3.8 Photographs

A 2006 aerial photograph was taken by MDT and used as the base photograph for **Figures 2** and **3** (**Appendix A**). A five-year comparison of aerial photographs taken of the Perry Ranch site was compiled (**Appendix C**). Representative panoramic and single frame photographs were taken from established photo-points (**Appendix C)**.

3.9 Maintenance Needs/Recommendations

Several dike problems were noted during the 2002 summer visit, repaired during 2003, and have been stable into 2006. No problems with the dike were found in 2006.

It is recommended that an integrated weed plan be developed and implemented for the Perry Ranch site. An integrated weed plan would use a combination of chemical, mechanical, and biological controls to contain the leafy spurge and Canada thistle infestations. In 2006, leafy spurge was found to be prevalent in portions of the inner oxbow and upland floodplain adjacent to Cut Bank Creek (**Photo 5** in **Appendix C**). Leafy spurge occurs at the site as small patches of developing monocultures and in conjunction with snowberry shrub patches. Comparison of field notes and hard copies of the 2005 and 2006 aerial photographs implies that 2006 was a good year for leafy spurge growth. On the 2006 aerial photograph, the distribution of leafy spurge can readily be seen as bright yellow-green patches.

3.10 Current Credit Summary

No specific performance criteria were required to be met at this site in order to document its success. In general, the site appears to be developing as designed, subject to the limitations of dry and wet years.

Approximately 18.97 acres of wetlands presently occur on the site (**Table 3**; **Figure 3** in **Appendix A**). Approximately 3.4 acres of wetland occurred at the site prior to construction (**Table 3**). The 27.6-acre mitigation goal is inclusive of these 3.4 acres of pre-existing wetlands. Consequently, the net goal for this project is to create 24.2 acres. As of 2006 the site has netted 15.57 wetland acres, or 64% of the project target.

4.0 REFERENCES

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Appendix A

FIGURES 2 & 3

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

Figure 2 - 2006 Monitoring Activity Locations

LEGEND

Monitoring Area Limits
Vegetation Transect
Photo Point
Macro-Invertebrate Sample Point (2002 and 2005)
Base Photograph Date: July 07, 2006

Scale 1"= 200ft

MONITORING AREA LIMITS
PP-2
PP-1
End
Vegetation Transect
Begin
PP3
INNER OXBOW
Leafy spurge
MONITORING AREA LIMITS
NORTHERN EXCAVATED AREA
OUTER OXBOW
MS-1
MONITORING AREA LIMITS

PROJECT NAME
MDT Perry Ranch Wetland Mitigation
DRAWING TITLE
2006 Monitoring Activity Locations

PROJ NO: B43054.305	DRAWN: LLL		
LOCATION: Perry Ranch	PROJ MGR: A. Pipp		
SCALE: 1"= 200'	CHECKED:	APPVD:	
FILE NAME: L:\B43054.305\PerryRanch\dwg\Perry2006Points.dwg			

PBSJ
1120 Cedar
Missoula, MT 59802

FIGURE 2 OF 3
REV -
Dec/05/2006

Figure 3 - 2006 Mapped Site Features

Vegetation Community Types

1. Juncus balticus/ Carex praegracilis wetland
2. Eleocharis palustris/Polygonum amphibium wetland
3. Upland Floodplain
3A. Transitional Upland Floodplain
4. Salix/Hordeum/Equisetum wetland
5. Hordeum wetland
6. Hillside Upland

LEGEND

- Monitoring Area Limits
- Wetland Limits
- Vegetation Community Boundary
- Upland Island

Base Photograph Date: July 07, 2006

Wetland Area 2006

Gross Wetland Area	19.55 Acres
Upland Islands	-0.58 Acres
Net Wetland Area	18.97 Acres

N, S, E, W

Scale 1"= 200ft

MONITORING AREA LIMITS

INNER OXBOW

Leafy spurge

MONITORING AREA LIMITS

OUTER OXBOW

NORTHERN EXCAVATED AREA

MONITORING AREA LIMITS

PROJECT NAME: MDT Perry Ranch Wetland Mitigation

DRAWING TITLE: 2006 Mapped Site Features

DRAWN: LL

PROJ MGR: J.Berglund

CHECKED: APPVD:

PROJ NO: B43054.305

LOCATION: Perry Ranch

SCALE: 1"=200'

FILE NAME: L:\B43054.305PerryRanch\dwg\Perry2006Points.dwg

PBSJ

1120 Cedar
Missoula, MT 59802

FIGURE 3 OF

REV -

Dec/05/2006

Appendix B

2006 WETLAND MITIGATION SITE MONITORING FORM
2006 BIRD SURVEY FORM
2006 COE WETLAND DELINEATION FORMS
2006 FUNCTIONAL ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: **Perry Ranch** Project Number: **B43054.00-0306**
Assessment Date: **July 13, 2006** Person(s) conducting the assessment: **A. Pipp**
Location: **Cut Bank Creek** MDT District: **Great Falls** Milepost: _____
Legal Description: T **34N** R **8W** Section **27, 34**
Weather Conditions: **overcast, dry, warm** Time of Day: **0800-1600**
Initial Evaluation Date: **May 15, 2002** Monitoring Year: **5: 2006** # Visits in Year: **2**
Size of evaluation area: **30 acres** Land use surrounding wetland: **rangeland and Cut Bank Creek**

HYDROLOGY

Surface Water Source: **seasonal flooding via Cut Bank Creek**
Inundation: **Absent** Average Depth: **0.0 feet** Range of Depths: **0 inch**
Percent of assessment area under inundation: **0%**
Depth at emergent vegetation-open water boundary: **0.0 feet**
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: **Absent**
Record depth of water below ground surface (in feet):

Well Number	Depth	Well Number	Depth	Well Number	Depth

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.

COMMENTS / PROBLEMS:
During the May visit the Inlet Channel was dry. During the July visit the Inlet Channel had a few places of ponded water. In July, the rest of the site was dry, though soils were saturated to the surface in the Inner Oxbow and eastern end of Outer Oxbow. The northern end had a mosaic of soil moisture: dry, cracked surface soil to 3 inches with moist soil from 3 to 12 inches deep AND saturated soil to the surface. It appears that the site must have been inundated between these visits and in addition, may be receiving more ground water.

VEGETATION COMMUNITIES

Community Number: **1** Community Title (main spp): **Juncus balticus / Carex praegracilis**

Dominant Species	% Cover	Dominant Species	% Cover
Juncus balticus	5 = > 50%	Spartina pectinata	+ = < 1%
Carex praegracilis	5 = > 50%	Agropyron repens	1 = 1-5%
Potentilla anserina	4 = 21-50%	Carex lanuginosa	1 = 1-5%
Triglochin maritimum	+ = < 1%	Eleocharis palustris	1 = 1-5%
Equisetum arvense	3 = 11-20%	Plantago hirtella	+ = < 1%
Glycyrrhiza lepidota	1 = 1-5%	Hordeum jubatum	1 = 1-5%

Comments / Problems: **This wetland community is slowly drying out, colonizing with Symphoricarpos albus, Rosa arkansana, & Euphorbia esula. Area mapped in 2005 is smaller than previous years.**

Community Number: **2** Community Title (main spp): **Eleocharis palustris / Polygonum amphibium**

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	4 = 21-50%	Hordeum jubatum	4 = 21-50%
Polygonum amphibium	4 = 21-50%	Carex lanuginosa	1 = 1-5%
Alopecurus pratensis	2 = 6-10%	Rumex crispus	2 = 6-10%
Spartina pectinata	+ = < 1%	Juncus balticus	1 = 1-5%
Phalaris arundinacea	1 = 1-5%	Agropryon trachycaulum	2 = 6-10%
Equisteum arvense	2 = 6-10%	Potentilla anserina	4 = 21-50%

Comments / Problems: **In the outer oxbow, dense Hordeum jubatum was dead in 2005, but is live and vibrant in 2006. Where soil is saturated near surface, Hordeum gives way to wetter plant species.**

Community Number: **3A** Community Title (main spp): **Upland Floodplain / Transitional**

Dominant Species	% Cover	Dominant Species	% Cover
Agropyron trachycaulum	1 = 1-5%	Rosa arkansana	1 = 1-5%
Agropyron intermedium	2 = 6-10%	Hordeum jubatum	5 = > 50%
Agropyron repens	1 = 1-5%	Alopecurus pratensis	3 = 11-20%
Amaranthus retroflexus	+ = < 1%	Aster (pansus)	1 = 1-5%
Symphoricarpos occidentalis	1 = 1-5%	Salix exigua	+ = < 1%
Rumex crispus	1 = 1-5%	Rumex maritimus	1 = 1-5%

Comments / Problems: **This is a transitional upland/wetland. In 2006 this area was not inundated and appears to have lost Eleocharis. Hordeum dominated more in 2006 than 2005. Alopecurus was also more abundant than in 2005. Salix is encroaching, especially along the canal.**

Community Number: **4** Community Title (main spp): **Hordeum/Equisteum/Salix**

Dominant Species	% Cover	Dominant Species	% Cover
Equisetum arvense	5 = > 50%	Salix amygdaloides (whips)	3 = 11-20%
Hordeum jubatum	5 = > 50%	Agropyon intermedium	1 = 1-5%
Alopecurus pratensis	2 = 6-10%	Carex praegracilis	1 = 1-5%
Rumex crispus	1 = 1-5%	Eleocharus palustris	1 = 1-5%
Potentilla anserina	4 = 21-50%	Phalaris arundinacea	2 = 6-10%
Salix exigua (whips)	4 = 21-50%	Typha latifolia	+ = < 1%

Comments / Problems: **Salix, Equisetum, Potentilla, and Hordeum were prevalent throughout the southeastern lobe. Alopecurus, Phalaris, and S. exigua were prevalent along the inlet channel. Cattail was observed for the 1st time in one of the excavated ponds. Well developed wetland.**

VEGETATION COMMUNITIES (continued)

Community Number: **3** Community Title (main spp): **Upland Floodplain**

Dominant Species	% Cover	Dominant Species	% Cover
Agropyron trachycaulum	3 = 11-20%	Euphorbia esula	4 = 21-50%
Agropyron smithii	3 = 11-20%	Cirsium arvense	3 = 11-20%
Agropyron intermedium	3 = 11-20%	Bromus inermis	2 = 6-10%
Hordeum jubatum	4 = 21-50%	Aster	3 = 11-20%
Rosa arkansas	4 = 21-50%		
Symphoricarpos occidentalis	5 = > 50%		

Comments / Problems: _____

Community Number: **6** Community Title (main spp): **Hillside Upland**

Dominant Species	% Cover	Dominant Species	% Cover
Stipa viridula	5 = > 50%	Koeleria macranta (K. cristata)	2 = 6-10%
Agropyron smithii	4 = 21-50%	Symphoricarpos occidentale	3 = 11-20%
Agropyron intermedia	4 = 21-50%	Rosa arkansana	3 = 11-20%
Artemisia frigida	3 = 11-20%	Bromus inermis	1 = 1-5%
Grindelia squarrosa	3 = 11-20%	Bouteloua gracilis	2 = 6-10%
Opuntia spp.	2 = 6-10%		

Comments / Problems: **Consists of upland areas on hillsides outside of the floodplain. See Transect data for additional species found in this Community Type 6.**

Community Number: **5** Community Title (main spp): **Hordeum jubatum**

Dominant Species	% Cover	Dominant Species	% Cover
Hordeum jubatum	5 = > 50%	Salix lutea	2 = 6-10%
Salix exigua	4 = 21-50%	Cirsium arvense	1 = 1-5%
Rumex maritimus	+ = < 1%	Alopecurus pratensis	+ = < 1%
Rumex crispus	+ = < 1%		
Lactuca serriola	+ = < 1%		
Thlaspi arvense	+ = < 1%		

Comments / Problems: **Community may have been saturated prior to July visit. In July more than half of the soil surface was dry and cracked and less than half of the soil surface was saturated; thereby, creating a mosaic pattern of wet and dry areas. Wetland quality present, but marginal.**

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

VEGETATION COMMUNITIES (continued)

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Additional Activities Checklist:

☐ Record and map vegetative communities on aerial photograph.

COMPREHENSIVE VEGETATION LIST

Plant Species	Vegetation Community Number (s)	Plant Species	Vegetation Community Number (s)
Achillea millefolium	3, 6	Melilotus alba	3, 6
Agropyron intermedium	1, 3, 4, 5, 6	Melilotus officinalis	3, 6
Agropyron smithii	3, 6	Opuntia spp.	6
Agropyron trachycaulum	1, 2, 3, 3A	Phalaris arundinacea	1, 2, 4, 6
Agrostis alba	2, 3	Phleum pratense	3, 6
Alopecurus pratensis	2, 3, 4, 5	Poa annua	(2), 3, (3A), (4)
Amaranthus retroflexus	3, 6	Poa pratensis	3, 6
Artemisia frigida	6	Polygonum amphibium	1, 2
Aster (pansus)	3, 6	Potentilla (gracilis)	1, 3
Bouteloua gracilis	6	Potentilla anserina	1, 2, 3, 4
Brassica kaber	6	Rosa arkansana	1, 3, 6
Bromus inermis	3, 6	Rumex crispus	2, 3, 4, 5
Cardaria draba	6	Rumex maritimus	2, 3, 3A, 5
Carex lanuginosa	1, 2	Salix amygdaloides	3, 4
Carex praegracilis	1, 3, 4	Salix exigua	2, 3, 3A, 4, 5
Chenopodium album	3, 6	Salix lutea	2, 3, 3A, 4, 5
Cirsium arvense (N)	3, 4, 6	Smilacina stellata	1
Dactylis glomerata	3	Solidago canadensis	1, 3
Descurainia pinnata	3, 6	Spartina pectinata	1, 2
Distichlis spicata	1	Stipa viridula	6
Eleocharis palustris	1, 2, 3, 4	Symphoricarpos occidentalis	1, 3, 6
Epilobium ciliatum	1	Taraxacum officinale	3, 6
Equisetum arvense	1, 2, 3, 4	Thlaspi arvense	3, 5, 6
Equisetum hyemale	2	Triglochin maritimum	1, 2
Glyceria elata	2	Typha latifolia	2, 4
Glycyrrhiza lepidota	1, 3	Sisymbium altissimum	3
Grindelia squarrosa	3, 6	Plantago hirtella	1
Hordeum jubatum	1, 2, 3, 4, 5	Mentha arvensis	3
Juncus balticus	1	Euphorbia esula (N)	1, 3, 4
Kochia scoparia	3	Atriplex spp.	3, 6
Koeleria macrantha	6		
Medicago sativa	3, 6		

Comments / Problems: <u>Parenthesis are placed around communities in which plant identification in that community has uncertainty. (N) indicates a Montana State Noxious plant.</u>

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes
N/A			

Comments / Problems: **No species were planted.**

WILDLIFE

Birds

Were man-made nesting structures installed? **No**
If yes, type of structure: _____ How many? _____
Are the nesting structures being used? **NA**
Do the nesting structures need repairs? _____

Mammals and Herptiles

Mammal and Herptile Species	Number Observed	Indirect Indication of Use			
		Tracks	Scat	Burrows	Other
Coyote	1	☐	☐	☐	
Northern Leopard Frog	1	☐	☐	☐	
White-tailed Deer	3	☐	☐	☐	
Badger		☐	☐	☒	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

Additional Activities Checklist:
No Macroinvertebrate Sampling (if required)

Comments / Problems: May visit: horses and cows have been in the site, possibly during winter, as evidenced by their dung which was scattered through the site.

PHOTOGRAPHS

Using a camera with a 50mm lens and color film 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.

Location	Photograph Frame #	Photograph Description	Compass Reading (°)

Comments / Problems: **<u>See Photograph Sheets in Appendix C of 2006 report.</u>**

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist:

- ☐ Jurisdictional wetland boundary.
- ☐ 4-6 landmarks that are recognizable on the aerial photograph.
- ☐ Start and End points of vegetation transect(s).
- ☐ Photograph reference points.
- ☐ Groundwater monitoring well locations.

Comments / Problems: **GPS unit was used to delineate some wetland boundaries and locate some soil pits and photo points. Hand-mapping was also used to delineate wetland boundaries.**

WETLAND DELINEATION

(attach COE delineation forms)

At each site conduct these checklist items:

- ☒ Delineate wetlands according to the 1987 Army COE manual.
- ☒ Delineate wetland – upland boundary onto aerial photograph.
- **NA** Survey wetland – upland boundary with a resource grade GPS survey.

Comments / Problems: **GPS unit was used to delineate some wetland boundaries and locate some soil pits and photo points. Hand-mapping was also used to delineate wetland boundaries.**

FUNCTIONAL ASSESSMENT

(Complete and attach full MDT Montana Wetland Assessment Method field forms.)
(Also attach any completed abbreviated field forms, if used)

Comments / Problems: _____

MAINTENANCE

Were man-made nesting structure installed at this site? **No**
If yes, do they need to be repaired? **NA**
If yes, describe the problems below and indicate if any actions were taken to remedy the problems.

Were man-made structures built or installed to impound water or control water flow into or out of the wetland? **Yes**
If yes, are the structures working properly and in good working order? **Yes**
If no, describe the problems below.

Comments / Problems: _____

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: **Perry Ranch** Date: **July 13, 2006** Examiner: **A. Pipp**
Transect Number: **1** Approximate Transect Length: **532 feet** Compass Direction from Start: **288˚** Note: _____

Vegetation Type A: **Type 3 - Upland Floodplain**	
Length of transect in this type: 0-10 feet	
Plant Species	**Cover**
Hordeum jubatum	+ = < 1%
Poa pratensis	2 = 6-10%
Alopecurus pratensis	3 = 11-20%
Medicago sativa	+ = < 1%
Agropyron intermedium	1 = 1-5%
Agrostis alba	+ = < 1%
Aster (pansus)	4 = 21-50%
Agropyron trachycaulum	2 = 6-10%
Rumex maritimus	+ = < 1%
Bromus inermis	3 = 11-20%
Thlaspi arvense	+ = < 1%
Total Vegetative Cover:	100%

Vegetation Type B: **Type 2 - Eleocharis palustris / Polygonum amphibium**	
Length of transect in this type: 10-135 feet	
Plant Species	**Cover**
Agrostis alba	+ = < 1%
Hordeum jubatum	5 = > 50%
Alopecurus pratensis	2 = 6-10%
Potentilla anserina	3 = 11-20%
Rumex maritimus	+ = < 1%
Carex praegracilis	+ = < 1%
Equisetum arvense	+ = < 1%
Agropyron trachycaulum	3 = 11-20%
Carex lanuginosa	+ = < 1%
Total Vegetative Cover:	100%

Vegetation Type C: **Type 3 - Upland Floodplain**	
Length of transect in this type: 135 - 329 feet	
Plant Species	**Cover**
Agropyron trachycaulum & A. intermedium together	5 = > 50%
Bromus inermis	3 = 11-20%
Hordeum jubatum	3 = 11-20%
Thlaspi arvense	+ = < 1%
Descurainia pinnata	+ = < 1%
Chenopodium album	+ = < 1%
Rumex crispus	+ = < 1%
Agrostis alba	4 = 21-50%
Cirsium arvense	1 = 1-5%
Aster (pansus)	1 = 1-5%
Alopecurus pratensis & Agropyron smithii EACH	1 = 1-5%
Rumex maritimus & Equisetum arvense EACH	+ = < 1%
Total Vegetative Cover:	100%

Vegetation Type D: **Type 3A-Transitional Upland Floodplain**	
Length of transect in this type: 329 - 522 feet	
Plant Species	**Cover**
Hordeum jubatum	5 = > 50%
Agropyron trachycaulum	5 = > 50%
Rumex maritimus	1 = 1-5%
Alopecurus pratensis	4 = 21-50%
Sisymbrium altissimum	1 = 1-5%
Salix exigua	+ = < 1%
Salix lutea	+ = < 1%
Alopecurus pratensis	1 = 1-5%
Atriplex spp.	+ = < 1%
Unknown forb (non-flowering)	1 = 1-5%
Total Vegetative Cover:	100%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: **Perry Ranch** Date: **July 13, 2005** Examiner: **A. Pipp**
Transect Number: **1** Approximate Transect Length: **532 feet** Compass Direction from Start: **288˚** Note: _____

Vegetation Type E: **Type 6 - Hillside Upland**	
Length of transect in this type: 522-532 feet	
Plant Species	**Cover**
Kochia scoparia (NOT PRESENT)	
Rumex maritimus	1 = 1-5%
Thlaspi arvense	+ = < 1%
Hordeum jubatum	4 = 21-50%
Salix lutea	1 = 1-5%
Mentha arvensis	+ = < 1%
Aster (pansus)	+ = < 1%
Grass (leaves only; no inflorescence)	4 = 21-50%
Family Onagraceae	+ = < 1%
Phalaris arundinacea	+ = < 1%
Potentilla anserina	+ = < 1%
Total Vegetative Cover:	100%

Vegetation Type F:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

Vegetation Type G:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

Vegetation Type H:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: _____ Date: _____ Examiner: _____
Transect Number: _____ Approximate Transect Length: _____**feet** Compass Direction from Start: ___˚ Note: _____

Vegetation Type I:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

Vegetation Type J:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

Vegetation Type K:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

Vegetation Type L:	
Length of transect in this type: feet	
Plant Species	**Cover**
Total Vegetative Cover:	%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Cover Estimate		**Indicator Class**	**Source**
+ = < 1%	3 = 11-10%	+ = Obligate	P = Planted
1 = 1-5%	4 = 21-50%	- = Facultative/Wet	V = Volunteer
2 = 6-10%	5 = > 50%	0 = Facultative	

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): **80%**

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: **Growing conditions were conducive to wetland development in 2006, but the site was inundated much less in 2006 than in 2005. As a result of yearly variations in soil saturation, different plant species dominated in 2006 than in 2005 for several community types. Along the transect in Type 2 Hordeum jubatum returned, but was mixed with larger populations of Potentilla anserina and new occurances of several 'wetter' plant species. Along the transect in Type 3A Hordeum jubatum returned in dominance; it was mixed with larger populations of Alopecurus pratensis and Salix though upland plants are still present throughout the community. In the middle of the transect Type 3 which is upland has actually expanded as it was more clear in 2006 that some of the transitional 3A is tending towards upland.**

BIRD SURVEY – FIELD DATA SHEET

Site: **Perry Ranch** Date: **5/4/05**
Survey Time: **10:45 pm** to **12:45 pm**

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Brewer's Blackbird	3	FO	UP	July 13, 2006			
Horned Lark	1	F	MF	Eastern Kingbird	2	FO	UP
Western Meadowlark	8	BD F FO	UP MA	Common Nighthawk	1	FO	UP MA
Cormorant	1	FO	MA UP	Killdeer	3	F N	MA MF
Savannah Sparrow	6	F BD N	UP	Willet	1	F BD	MA
Gray Partridge	4	L	UP	Brewer's Blackbird	4	FO	UP MA
Northern Harrier	3	F FO	UP MA	Western Meadowlark	1	N	MA
Common Snipe (heard)	2	BD	UP	Savannah Sparrow	3	FO F	MA UP
				Barn Swallow	4	FO F	UP MA

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

HABITAT CODES
AB = Aquatic bed
FO = Forested
I = Island
MA = Marsh
MF = Mud Flat
OW = Open Water
SS = Scrub/Shrub
UP = Upland buffer
WM = Wet meadow
US = Unconsolidated shore

Weather: **May 4th: Blue sky, calm, and 53 degrees. July 13th: Blue sky, mild wind, and 84 degrees.**

Notes: **May 4th: Inlet Channel to Inner Oxbow, Outer Oxbow, & Northern Excavated Area were dry, though soil surface was moist. On Cut Bank Creek saw 6-Canada Geese and 4 mallards (2 pairs). Saw 1-Red-tailed Hawk south of project. July 13th: Inlet Channel had water outside the project area. Inside the project area, Inlet Channel and Inner Oxbow had saturated with a few scattered, small puddles. Outer Oxbow had moist soils with no inundation. The Northern Excavated Area had a mosaic of dry and saturated soils at the surface.**

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site **Project No:** Task 0306 **Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation- **County:** Glacier
Investigators: Pipp **State:** Montana
Plot ID: 1 & 4 - 2006

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation:)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on the reverse side)

Community ID: Emergent - Scrub/Shrub
Transect ID:
Field Location:
In Comm. 2-inlet channel & inner oxbow

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Alopecurus pratensis	Herb	FACW	*Polygonum amphibium*	Herb	OBL
Foxtail,Meadow			Smartweed,Water		
Eleocharis acicularis	Herb	OBL	*Juncus balticus*	Herb	OBL
Spikerush,Least			Rush,Baltic		
Phalaris arundinacea	Herb	FACW	*Alisma gramineum*	Herb	OBL
Grass,Reed Canary			Water-Plantain,Narrow-Leaf		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 6/6 = 100.00%
FAC Neutral: 6/6 = 100.00%
Numeric Index: 8/6 = 1.33

Remarks:
Also dominant in the southern portion of Inlet Channel: Salix exigua and Typha latifolia.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
N/A **Stream, Lake or Tide Gauge**
N/A **Aerial Photographs**
N/A **Other**
YES **No Recorded Data**

Field Observations

Depth of Surface Water: = 0.0 *(in.)*
Depth to Free Water in Pit: N/A *(in.)*
Depth to Saturated Soil: N/A *(in.)*

Wetland Hydrology Indicators
Primary Indicators
NO **Inundated**
NO **Saturated in Upper 12 Inches**
NO **Water Marks**
NO **Drift Lines**
NO **Sediment Deposits**
YES **Drainage Patterns in Wetlands**
Secondary Indicators
NO **Oxidized Root Channels in Upper 12 Inches**
NO **Water-Stained Leaves**
NO **Local Soil Survey Data**
YES **FAC-Neutral Test**
NO **Other(Explain in Remarks)**

Remarks:
Pit 1 had no free water. Pit 2 had free water at 8 inches. Inlet Channel had a few places where water ponded to about 6 inches depth or less.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site **Project No:** Task 0306 **Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation- **County:** Glacier
Investigators: Pipp **State:** Montana
Plot ID: 1 & 4 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-2	A	10YR2/1	N/A	N/A	N/A	Sandy loam
2+	A/B	N/A	N/A	N/A	N/A	Sandy loam, gravels
0-6	A	2.5Y4/2	10YR4/6	Few	Distinct	Clay loam
6-12	B	10YR3/1	10YR3/4 10YR2/1	Common	Distinct	Clay loam, Decomposed leaves

Hydric Soil Indicators:
NO **Histosol**
NO **Histic Epipedon**
NO **Sulfidic Odor**
NO **Aquic Moisture Regime**
NO **Reducing Conditions**
YES **Gleyed or Low Chroma Colors**
NO **Concretions**
NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Organic Streaking in Sandy Soils**
NO **Listed on Local Hydric Soils List**
NO **Listed on National Hydric Soils List**
NO **Other (Explain in Remarks)**

Remarks:
Pit 1 was in Inlet Channel and Pit 2 was in Inner Oxbow.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is the Sampling Point within the Wetland? (Yes) No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 2 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** In Comm. Type 1 near South end of inlet.

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Potentilla anserina	Herb	OBL	*Salix lutea*	Shrub	OBL
Silverweed			Willow,Yellow		
Juncus balticus	Herb	OBL	*Calamagrostis canadensis*	Herb	FACW+
Rush,Baltic			Reedgrass,Blue-Joint		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 4/4 = 100.00%	**FAC Neutral:** 4/4 = 100.00% **Numeric Index:** 5/4 = 1.25

Remarks:
There was one Salix shrub present at plot. Snowberry is invading the community greatly. Also sulphur cinquefoil has become abundant. A robust species of Astragalus with white flowers was also common.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- YES **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Soil in pit was moist, but not saturated. No free water in pit nor oxidized rhizospheres. Topography and plants suggest that area gets flooded for long enough to saturate soils earlier in the season.

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 2 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-4	A	2.5Y4/2	N/A	N/A	N/A	Sandy loam
4-4.5	A/B	10YR2/1	N/A	N/A	N/A	Loam
4.5-12	B	2.5Y4/2	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 3 - 2006

Do Normal Circumstances exist on the site? (Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)? Yes (No)	**Transect ID:**
Is the area a potential Problem Area? Yes (No)	**Field Location:**
(If needed, explain on the reverse side)	In Type 4; south of excavated ponds.

VEGETATION **(USFWS Region No. 9)**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Equisetum arvense	Herb	FAC	*Salix exigua*	Shrub	OBL
Horsetail,Field			Willow,Sandbar		
Hordeum jubatum	Herb	FAC+			
Barley,Fox-Tail					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/3 = 100.00%

FAC Neutral: 1/1 = 100.00%
Numeric Index: 7/3 = 2.33

Remarks:

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 10 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
No water in pit.

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 3 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
0-10	A/B	2.5YR4/2	7.5YR4/6	Common Distinct	Sandy clay loam, gravels

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
I hit gravels at 10 inches and could not dig deeper.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No	Is the Sampling Point within the Wetland? (Yes) No	
Wetland Hydrology Present? (Yes) No		
Hydric Soils Present? (Yes) No		

Remarks:

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 5 - 2006

Do Normal Circumstances exist on the site? (Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)? Yes (No)	**Transect ID:**
Is the area a potential Problem Area? Yes (No)	**Field Location:**
(If needed, explain on the reverse side)	In Type 2; About 40 feet from T-1 start.

VEGETATION **(USFWS Region No. 9)**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Carex lanuginosa	Herb	OBL	*Phalaris arundinacea*	Herb	FACW
Sedge,Wooly			Grass,Reed Canary		
Potentilla anserina	Herb	OBL	*Alopecurus pratensis*	Herb	FACW
Silverweed			Foxtail,Meadow		
Hordeum jubatum	Herb	FAC+			
Barley,Fox-Tail					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 5/5 = 100.00%

FAC Neutral: 4/4 = 100.00%
Numeric Index: 9/5 = 1.80

Remarks:

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 12 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Very high number of oxidized rhizospheres.

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 5 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	10YR3/2	N/A	N/A	N/A	Clay loam

Hydric Soil Indicators:
- NO **Histosol**
- NO **Histic Epipedon**
- NO **Sulfidic Odor**
- NO **Aquic Moisture Regime**
- NO **Reducing Conditions**
- NO **Gleyed or Low Chroma Colors**
- NO **Concretions**
- NO **High Organic Content in Surface Layer in Sandy Soils**
- NO **Organic Streaking in Sandy Soils**
- NO **Listed on Local Hydric Soils List**
- NO **Listed on National Hydric Soils List**
- YES **Other (Explain in Remarks)**

Remarks:
Meets Hydric Soils Criteria #4, "soils that are frequently flooded for long duration or very long duration during the growing season."

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present? (Yes) No	
Hydric Soils Present? Yes (No)	

Remarks:

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 6 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** On T-1 in Type 3 microsite

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Agrostis alba	Herb	FACW	*Hordeum jubatum*	Herb	FAC+
Redtop			Barley,Fox-Tail		
Cirsium arvense	Herb	FACU+			
Thistle,Creeping					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/3 = 66.67%

FAC Neutral: 1/2 = 50.00%
Numeric Index: 9/3 = 3.00

Remarks:
Microsite of what appeared to be "wetter" type vegetation within the Type 3 community.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Soil was moist near to surface and sandy, dry, and crumbly at 12 inches.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 6 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	10YR3/2	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:
- NO **Histosol**
- NO **Histic Epipedon**
- NO **Sulfidic Odor**
- NO **Aquic Moisture Regime**
- NO **Reducing Conditions**
- NO **Gleyed or Low Chroma Colors**
- NO **Concretions**
- NO **High Organic Content in Surface Layer in Sandy Soils**
- NO **Organic Streaking in Sandy Soils**
- NO **Listed on Local Hydric Soils List**
- NO **Listed on National Hydric Soils List**
- NO **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 7 and 8 - 2006

Do Normal Circumstances exist on the site? (Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)? Yes (No)	**Transect ID:**
Is the area a potential Problem Area? Yes (No)	**Field Location:**
(If needed, explain on the reverse side)	In Type 3A; On T-1 east & west of canal.

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Hordeum jubatum	Herb	FAC+	*Agropyron trachycaulum*	Herb	FAC
Barley,Fox-Tail			Wheatgrass,Slender		
Rumex maritimus	Herb	FACW+	*Alopecurus pratensis*	Herb	FACW
Dock,Golden			Foxtail,Meadow		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 4/4 = 100.00%

FAC Neutral: 2/2 = 100.00%
Numeric Index: 10/4 = 2.50

Remarks:

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Pit 1 ,east of the canal, had very dry soil from 0-2 inches and moist, but crumbly soil from 2-12 inches. A few oxidized rhizospheres were present. Pit 2, west of the canal, was very dry from 0-12 inches.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 7 and 8 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	2.5Y4/2	N/A	N/A	N/A	Sandy loam
0-12	A	2.5Y4/2	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:
- NO **Histosol**
- NO **Histic Epipedon**
- NO **Sulfidic Odor**
- NO **Aquic Moisture Regime**
- NO **Reducing Conditions**
- NO **Gleyed or Low Chroma Colors**
- NO **Concretions**
- NO **High Organic Content in Surface Layer in Sandy Soils**
- NO **Organic Streaking in Sandy Soils**
- NO **Listed on Local Hydric Soils List**
- NO **Listed on National Hydric Soils List**
- NO **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No		Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present? (Yes) No		
Hydric Soils Present? Yes (No)		

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 9 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** In Type 2; West end of Outer Oxbow.

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Eleocharis palustris	Herb	OBL	*Hordeum jubatum*	Herb	FAC+
Spikerush,Creeping			Barley,Fox-Tail		
Triglochin maritimum	Herb	OBL	*Alopecurus pratensis*	Herb	FACW
Arrow-Grass,Seaside			Foxtail,Meadow		
Rumex crispus	Herb	FACW			
Dock,Curly					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 5/5 = 100.00%

FAC Neutral: 4/4 = 100.00%
Numeric Index: 9/5 = 1.80

Remarks:

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
At 10-12 inches the soil was very moist and pliable, but not quite saturated.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 9 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
0-12	A	2.5Y4/2	7.5YR4/6	Common Distinct	Clay

Hydric Soil Indicators:
- NO **Histosol**
- NO **Histic Epipedon**
- NO **Sulfidic Odor**
- NO **Aquic Moisture Regime**
- NO **Reducing Conditions**
- YES **Gleyed or Low Chroma Colors**
- NO **Concretions**
- NO **High Organic Content in Surface Layer in Sandy Soils**
- NO **Organic Streaking in Sandy Soils**
- NO **Listed on Local Hydric Soils List**
- NO **Listed on National Hydric Soils List**
- NO **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	(Yes) No	

Remarks:

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 10 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent - Scrub/Shrub
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** In Type 5: Rim of N. Excavated Area

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Salix exigua	Shrub	OBL	*Hordeum jubatum*	Herb	FAC+
Willow,Sandbar			Barley,Fox-Tail		
Cirsium arvense	Herb	FACU+	*Salix lutea*	Shrub	OBL
Thistle,Creeping			Willow,Yellow		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/4 = 75.00%

FAC Neutral: 2/3 = 66.67%
Numeric Index: 9/4 = 2.25

Remarks:

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Soil with some moisture, but crumbly.

WetForm™

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 10 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	2.5Y4/2	N/A	N/A	N/A	Clay loam

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	YES **Other (Explain in Remarks)**

Remarks:
Pit was dug on the rim of the northern excavated area. On the rim are dense willow whips. The Northern Excavated Area meets Hydric Soils Criteria #4, "Soils that are frequently flooded for long duration or very long duration during the growing season.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
Site meets all three wetland criteria for the first time in 2006, though the quality of this wetland would be considered marginal.

WetForm™

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 11 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		In Type 5; In N. Excavated Area.

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Hordeum jubatum	Herb	FAC+			
Barley,Fox-Tail					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/1 = 100.00%

FAC Neutral: 0/0 = 0.00%
Numeric Index: 3/1 = 3.00

Remarks:
Hordeum grows densely; occasional plants of Alopecurus pratensis (FACW), Thlaspi arvense (NI), Rumex crispus (FACW), and Lactuca serriola (FAC-) grow.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 13 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- YES **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- YES **Other(Explain in Remarks)**

Remarks:
Soil at surface has 0.5 inch cracks; Soil from 0-3 inches is dry; Soil from 3-12 inches is very moist, but not saturated. Saturation was a mosaic within this excavated area (Compare hydrology section of this Plot 11 with 12 for 2006). Patches of moist soil and saturated soil were often only a few feet apart = mosaic.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 11 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained
Mapped Hydric Inclusion?
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents
Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
0-12	A	2.5Y3/2	7.5YR4/4	Few Distinct	Clay

Hydric Soil Indicators:
- NO **Histosol**
- NO **Histic Epipedon**
- NO **Sulfidic Odor**
- NO **Aquic Moisture Regime**
- NO **Reducing Conditions**
- YES **Gleyed or Low Chroma Colors**
- NO **Concretions**
- NO **High Organic Content in Surface Layer in Sandy Soils**
- NO **Organic Streaking in Sandy Soils**
- NO **Listed on Local Hydric Soils List**
- NO **Listed on National Hydric Soils List**
- NO **Other (Explain in Remarks)**

Remarks:
Mottles were very few and sparse, but when seen were distinct.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
Site meets all three wetland criteria for the first time, but with marginal quality.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 12 - 2006

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** In Type 5; In N. Excavated Area

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Hordeum jubatum	Herb	FAC+	*Rumex maritimus*	Herb	FACW+
Barley,Fox-Tail			Dock,Golden		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/2 = 100.00%

FAC Neutral: 1/1 = 100.00%
Numeric Index: 5/2 = 2.50

Remarks:
Hordeum is dense. Rumex is scattered throughout area and of young plants (5 inches tall).

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 0.0 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
The excavated area has a mosaic of wet and dry soils at the surface. In this pit, soil was saturated to the surface.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 0306	**Date:** 13-Jul-2006
Applicant/Owner: -Montana Department of Transportation-		**County:** Glacier
Investigators: Pipp		**State:** Montana
		Plot ID: 12 - 2006

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-10	A	2.5YR3/2	N/A	N/A	N/A	Sandy clay loam

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	YES **Other (Explain in Remarks)**

Remarks:
At 10 inches I hit gravels of 0.5 to 2.0 inches in diameter and could not dig deeper. Meets NRCS Hydric Soils Criteria #4, "Soils that are frequently flooded for long duration or very long duration during the growing season."

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
This site met all three wetland criteria for the first time in 2006, though quality of this wetland is considered marginal.

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: Perry Ranch Wetland Mitigation **2. Project #:** NH 0002(232) **Control #:** 0703

3. Evaluation Date: 7/13/2006 **4. Evaluator(s):** A. Pipp **5. Wetland / Site #(s):** Inner Oxbow

6. Wetland Location(s) i. T: 34 N **R:** 8 W **S:** 27, 34 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: NA

iii. Watershed: --- **GPS Reference No. (if applies):** NA

Other Location Information: Immediately west of Cut Bank Creek ; Between Browning, and Cut Bank, Montana, on the Blackfeet Indian Reservation.

7. A. Evaluating Agency MDT

B. Purpose of Evaluation:

- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

8. Wetland Size (total acres): _____ (visually estimated)
5.92 (measured, e.g. GPS)

9. Assessment Area (total acres): _____ (visually estimated)
5.92 (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	MODIFIER [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Seasonally Flooded	Excavated/Impounded	80
Riverine	Palustrine	None	Unconsolidated Bottom	Seasonally Flooded	Excavated/Impounded	10
Riverine	Palustrine	None	Scrub-Shrub Wetland	Seasonally Flooded	Excavated/Impounded	10
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[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

Conditions Within AA	Predominant Conditions Adjacent (within 500 Feet) To AA		
	Land managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings.	Land not cultivated, but moderately grazed or hayed or selectively logged or has been subject to minor clearing; contains few roads or buildings.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.
AA occurs and is managed in predominantly a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) Adjacent land to the east is cultivated and grazed, but not substantially. Adjacent land to the west is not cultivated.

ii. Prominent weedy, alien, & introduced species: Cirsium arvense, Kochia scoparia, Bromus inermis, Melilotus officinale, M. alba, and Euphorbia esula.

iii. Briefly describe AA and surrounding land use / habitat: Wetland area is restored oxbow of and within Cut Bank Creek floodplain;. Adjacent to rangeland and cropland.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	≤ 1 Vegetated Class
Select Rating	---	Moderate	---

Comments: _____

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☐ D	☐ S	_____
Incidental habitat **(list species)**	☐ D	☒ S	Bald Eagle, Piping Plover
No usable habitat	☐ D	☐ S	_____

ii. Rating (Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	---	---	---	.3 (L)	---

If documented, list the source (e.g., observations, records, etc.)**:** _____

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.
Do not include species listed in 14A(i).

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☒ D	☐ S	Northern Leopard Frog
Incidental habitat **(list species)**	☐ D	☐ S	_____
No usable habitat	☐ D	☐ S	_____

ii. Rating: Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	.7 (M)	---	---	---	---

If documented, list the source (e.g., observations, records, etc.)**:** A Northern Leopard Frog was observed in 'inner oxbow' in 2006 only.

14C. GENERAL WILDLIFE HABITAT RATING

i. Evidence of overall wildlife use in the AA: Check either substantial, moderate, or low.

☐ **Substantial** (based on any of the following)
- ☐ 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

☐ **Low** (based on any of the following)
- ☐ 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 AA

☒ **Moderate** (based on any of the following)
- ☒ 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, select the AA attribute to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from 13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see 10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

Structural Diversity (from 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 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	H	--	--	--	--	--	--
Moderate disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. Rating: Use 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☐ **Exceptional**	☒ **High**	☐ **Moderate**	☐ **Low**
Substantial	--	--	--	--
Moderate	--	.7 (M)	--	--
Low	--	--	--	--

Comments: Scattered waterfowl, upland birds, and mammals, and 1 amphibian observed in 2006.

14D. GENERAL FISH / AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

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

i. Habitat Quality: Pick the appropriate AA attributes in matrix to determine the quality rating of exceptional (E), high (H), moderate (M), or low (L).

Duration of Surface Water in AA	☐ **Permanent/Perennial**			☐ **Seasonal / Intermittent**			☐ **Temporary / Ephemeral**		
Cover - % of waterbody in AA containing cover objects (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. Modified Habitat Quality: Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☐ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. Rating: Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).

Types of Fish Known or Suspected within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ **Exceptional**	☐ **High**	☐ **Moderate**	☐ **Low**
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)

Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA do not flood from in-channel or overbank flow, then check NA.

i. Rating: Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Estimated wetland area in AA subject to periodic flooding	☐ **≥ 10 acres**			☒ **<10, >2 acres**			☐ **≤2 acres**		
% of flooded wetland classified as forested, scrub/shrub, or both	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**
AA contains **no outlet or restricted outlet**	--	--	--	--	--	.5 (M)	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA? (check)
☐**Y** ☒**N** **Comments:** Floods from Cut Bank Creek.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

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, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding**.**	☒ **>5 acre feet**			☐ **<5, >1 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**	--	.9 (H)	--	--	--	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: Although the entire inner oxbow may not flood each year, there have been puddles present each July.

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

Applies to wetlands with the potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.
If no wetlands in the AA are subject to such input, check NA above.

i. Rating Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds 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 has 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 or ponding in AA	☒ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**
AA contains **no or restricted outlet**	1 (H)	--	--	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: Sediment and nutrient inflow from Cut Bank Creek.

14H. SEDIMENT/SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body that is subject to wave action. If this does not apply, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) for this function.

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	☐ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral
≥ 65 %	--	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Not applicable at this stage.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function. **A** = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet. **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

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	☐Y	☐N	☐Y	☒N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	.7M	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: _____

14J. GROUNDWATER DISCHARGE / RECHARGE (DR) (Check the indicators in i & ii below that apply to the AA.)

i. ☒ **Discharge Indicators**

- ☐ Springs 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.
- ☒ Other Some alluvial flow likely.

ii. ☐ **Recharge Indicators**

- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☐ Other _____

iii. Rating: Use information from 14J(i) and 14J(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: _____

14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

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 from 11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (12i)	--	--	--	--	--	--	--	--	--

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes** [**Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

☒ **Yes** [Proceed to 14L (ii) and then 14L(iv)] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from 12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	--	--	--
Private ownership	.7(M)	--	--

Comments: Tribal ownership restricts access.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	low	0.30	1	
B. MT Natural Heritage Program Species Habitat	moderate	0.70	1	
C. General Wildlife Habitat	moderate	0.70	1	
D. General Fish/Aquatic Habitat	N/A		--	
E. Flood Attenuation	moderate	0.50	1	
F. Short and Long Term Surface Water Storage	high	0.90	1	
G. Sediment/Nutrient/Toxicant Removal	high	1.00	1	
H. Sediment/Shoreline Stabilization	N/A		--	
I. Production Export/Food Chain Support	moderate	0.70	1	
J. Groundwater Discharge/Recharge	high	1.00	1	
K. Uniqueness	moderate	0.40	1	
L. Recreation/Education Potential	moderate	0.70	1	
	Total:	**6.90**	**10.00**	____
		Percent of Total Possible Points:	**69%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not satisfied, proceed 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 total Possible Points is > 80%.

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

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied **and** all of the following criteria are met; If not satisfied, return to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☒ **II** ☐ **III** ☐ **IV**

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: Perry Ranch Wetland Mitigation **2. Project #:** NH 0002(232) **Control #:** 0703

3. Evaluation Date: 7/13/2006 **4. Evaluator(s):** A. Pipp **5. Wetland / Site #(s):** Northern Excavated Area

6. Wetland Location(s) i. T: 34 N **R:** 8 W **S:** 27 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: NA

iii. Watershed: --- **GPS Reference No. (if applies):** NA

Other Location Information: Immediately west of Cut Bank Creek ; Between Browning and Cut Bank, Montana, on the Blackfeet Indian Reservation.

7. A. Evaluating Agency MDT

B. Purpose of Evaluation:

- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

8. Wetland Size (total acres): _____ (visually estimated)
5.65 (measured, e.g. GPS)

9. Assessment Area (total acres): _____ (visually estimated)
5.65 (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	MODIFIER [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Seasonally Flooded	Excavated/Impounded	95
Riverine	Palustrine	None	Scrub-Shrub Wetland	Seasonally Flooded	Excavated/Impounded	5
---	---	---	---	---	---	
---	---	---	---	---	---	

[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

Conditions Within AA	Predominant Conditions Adjacent (within 500 Feet) To AA		
	Land managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings.	Land not cultivated, but moderately grazed or hayed or selectively logged or has been subject to minor clearing; contains few roads or buildings.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.
AA occurs and is managed in predominantly a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) Adjacent land to the west is not cultivated. Adjacent land to the east is cultivated and grazed, but not substantially.

ii. Prominent weedy, alien, & introduced species: Cirsium arvense, Kochia scoparia, Melilotus officinale, M. alba, and Thlaspi arvense.

iii. Briefly describe AA and surrounding land use / habitat: Wetland area is within Cut Bank Creek floodplain. Adjacent to rangeland and cropland.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	≤ 1 Vegetated Class
Select Rating	---	Moderate	---

Comments: _____

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☐ D ☐ S	_____
Incidental habitat **(list species)**	☐ D ☒ S	Bald Eagle, Piping Plover
No usable habitat	☐ D ☐ S	_____

ii. Rating (Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	---	---	---	.3 (L)	---

If documented, list the source (e.g., observations, records, etc.)**:** _____

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.
Do not include species listed in 14A(i).

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☐ D ☒ S	Northern Leopard Frog
Incidental habitat **(list species)**	☐ D ☐ S	_____
No usable habitat	☐ D ☐ S	_____

ii. Rating: Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	---	.6 (M)	---	---	---

If documented, list the source (e.g., observations, records, etc.)**:** Suspected to provide habitat for Northern Leopard Frogs as they have been found in the adjacent outer and inner oxbows during 2002, 2005, and 2006.

14C. GENERAL WILDLIFE HABITAT RATING

i. Evidence of overall wildlife use in the AA: Check either substantial, moderate, or low.

☐ **Substantial** (based on any of the following)
- ☐ 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

☐ **Moderate** (based on any of the following)
- ☐ 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

☒ **Low** (based on any of the following)
- ☒ 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 AA

ii. Wildlife Habitat Features: Working from top to bottom, select the AA attribute to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from 13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see 10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

Structural Diversity (from 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 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	H	--	--
Moderate disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. Rating: Use 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☐ **Exceptional**	☒ **High**	☐ **Moderate**	☐ **Low**
Substantial	--	--	--	--
Moderate	--	--	--	--
Low	--	.4 (M)	--	--

Comments: A few upland birds are always present, but most wildlife observations occur outside this AA and occur closer to Cutbank Creek.

14D. GENERAL FISH / AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

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

i. Habitat Quality: Pick the appropriate AA attributes in matrix to determine the quality rating of exceptional (E), high (H), moderate (M), or low (L).

Duration of Surface Water in AA	☐ **Permanent/Perennial**			☐ **Seasonal / Intermittent**			☐ **Temporary / Ephemeral**		
Cover - % of waterbody in AA containing cover objects (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. Modified Habitat Quality: Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☐ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. Rating: Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).

Types of Fish Known or Suspected within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ **Exceptional**	☐ **High**	☐ **Moderate**	☐ **Low**
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)

Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA do not flood from in-channel or overbank flow, then check NA.

i. Rating: Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Estimated wetland area in AA subject to periodic flooding	☐ **≥ 10 acres**			☒ **<10, >2 acres**			☐ **≤2 acres**		
% of flooded wetland classified as forested, scrub/shrub, or both	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**
AA contains **no outlet or restricted outlet**	--	--	--	--	--	.5 (M)	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA? (check)
☐**Y** ☒**N** **Comments:** Floods from Cut Bank Creek.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

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, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding**.**	☒ **>5 acre feet**			☐ **<5, >1 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**	--	.9 (H)	--	--	--	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: _____

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

Applies to wetlands with the potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.
If no wetlands in the AA are subject to such input, check NA above.

i. Rating Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds 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 has 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 or ponding in AA	☒ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**
AA contains **no or restricted outlet**	1 (H)	--	--	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: Sediment and nutrient inflow from Cut Bank Creek.

14H. SEDIMENT/SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body that is subject to wave action. If this does not apply, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) for this function.

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	☐ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral
≥ 65 %	--	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Not applicable at this stage.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function. **A** = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet. **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

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	☐Y	☐N	☐Y	☐N	☐Y	☒N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	.6M	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: _____

14J. GROUNDWATER DISCHARGE / RECHARGE (DR) (Check the indicators in i & ii below that apply to the AA.)

i. ☒ **Discharge Indicators**

- ☐ Springs 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.
- ☒ Other Some alluvial flow likely.

ii. ☐ **Recharge Indicators**

- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☐ Other _____

iii. Rating: Use information from 14J(i) and 14J(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: _____

14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

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 from 11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (12i)	--	--	--	--	--	--	--	--	--

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes** [**Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

☒ **Yes** [Proceed to 14L (ii) and then 14L(iv)] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from 12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	--	--	--
Private ownership	.7(M)	--	--

Comments: Tribal ownership restricts access.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	low	0.30	1	
B. MT Natural Heritage Program Species Habitat	moderate	0.60	1	
C. General Wildlife Habitat	moderate	0.40	1	
D. General Fish/Aquatic Habitat	N/A		--	
E. Flood Attenuation	moderate	0.50	1	
F. Short and Long Term Surface Water Storage	high	0.90	1	
G. Sediment/Nutrient/Toxicant Removal	high	1.00	1	
H. Sediment/Shoreline Stabilization	N/A		--	
I. Production Export/Food Chain Support	moderate	0.60	1	
J. Groundwater Discharge/Recharge	high	1.00	1	
K. Uniqueness	moderate	0.40	1	
L. Recreation/Education Potential	moderate	0.70	1	
	Total:	**6.40**	**10.00**	____
		Percent of Total Possible Points:	**64%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not satisfied, proceed 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 total Possible Points is > 80%.

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

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied **and** all of the following criteria are met; If not satisfied, return to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☐ **II** ☒ **III** ☐ **IV**

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: Perry Ranch Wetland Mitigation **2. Project #:** NH 0002(232) **Control #:** 0703

3. Evaluation Date: 7/13/2006 **4. Evaluator(s):** A. Pipp **5. Wetland / Site #(s):** Outer Oxbow

6. Wetland Location(s) i. T: 34 N **R:** 8 W **S:** 27, 34 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: NA

iii. Watershed: --- **GPS Reference No. (if applies):** NA

Other Location Information: Immediately west of Cut Bank Creek ; Between Browning and Cut Bank, Montana, on the Blackfeet Indian Reservation.

7. A. Evaluating Agency MDT

B. Purpose of Evaluation:

- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

8. Wetland Size (total acres): _____ (visually estimated)
7.4 (measured, e.g. GPS)

9. Assessment Area (total acres): _____ (visually estimated)
7.4 (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	MODIFIER [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Seasonally Flooded	Excavated/Impounded	100
---	---	---	---	---	---	
---	---	---	---	---	---	
---	---	---	---	---	---	

[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

Conditions Within AA	Predominant Conditions Adjacent (within 500 Feet) To AA		
	Land managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings.	Land not cultivated, but moderately grazed or hayed or selectively logged or has been subject to minor clearing; contains few roads or buildings.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.
AA occurs and is managed in predominantly a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) Adjacent land to the west is not cultivated. Adjacent land to the east is cultivated and grazed, but not substantially.

ii. Prominent weedy, alien, & introduced species: Cirsium arvense, Kochia scoparia, Bromus inermis, Melilotus officinale, and M. alba.

iii. Briefly describe AA and surrounding land use / habitat: Wetland area is a restored oxbow of and within Cut Bank Creek floodplain. Adjacent to rangeland and cropland.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	≤ 1 Vegetated Class
Select Rating	---	---	Low

Comments: _____

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☐ D	☐ S	_____
Incidental habitat **(list species)**	☐ D	☒ S	Bald Eagle, Piping Plover
No usable habitat	☐ D	☐ S	_____

ii. Rating (Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	---	---	---	.3 (L)	---

If documented, list the source (e.g., observations, records, etc.)**:** _____

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.
Do not include species listed in 14A(i).

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☒ D	☐ S	Northern Leopard Frog
Incidental habitat **(list species)**	☐ D	☐ S	_____
No usable habitat	☐ D	☐ S	_____

ii. Rating: Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point & Rating	---	---	.7 (M)	---	---	---	---

If documented, list the source (e.g., observations, records, etc.)**:** A few individual Northern Leopard Frogs have been observed in 'outer oxbow' in 2002 and 2005, but not in 2003, 2004, or 2006 in the 'outer oxbow'.

14C. GENERAL WILDLIFE HABITAT RATING

i. Evidence of overall wildlife use in the AA: Check either substantial, moderate, or low.

☐ **Substantial** (based on any of the following)
- ☐ 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

☐ **Low** (based on any of the following)
- ☐ 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 AA

☒ **Moderate** (based on any of the following)
- ☒ 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, select the AA attribute to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from 13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see 10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

Structural Diversity (from 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 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	H	--	--
Moderate disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see 12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. Rating: Use 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☐ **Exceptional**	☒ **High**	☐ **Moderate**	☐ **Low**
Substantial	--	--	--	--
Moderate	--	.7 (M)	--	--
Low	--	--	--	--

Comments: Scattered mammal and upland and killdeer birds observed in 2006.

14D. GENERAL FISH / AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

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

i. Habitat Quality: Pick the appropriate AA attributes in matrix to determine the quality rating of exceptional (E), high (H), moderate (M), or low (L).

Duration of Surface Water in AA	☐ **Permanent/Perennial**			☐ **Seasonal / Intermittent**			☐ **Temporary / Ephemeral**		
Cover - % of waterbody in AA containing cover objects (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**	**>25%**	**10-25%**	**<10%**
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. Modified Habitat Quality: Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☐ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. Rating: Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).

Types of Fish Known or Suspected within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ **Exceptional**	☐ **High**	☐ **Moderate**	☐ **Low**
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)

Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA do not flood from in-channel or overbank flow, then check NA.

i. Rating: Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Estimated wetland area in AA subject to periodic flooding	☐ **≥ 10 acres**			☒ **<10, >2 acres**			☐ **≤2 acres**		
% of flooded wetland classified as forested, scrub/shrub, or both	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**	**75%**	**25-75%**	**<25%**
AA contains **no outlet or restricted outlet**	--	--	--	--	--	.5 (M)	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA? (check)
☐**Y** ☒**N** **Comments:** Floods from Cut Bank Creek.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

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, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding**.**	☒ **>5 acre feet**			☐ **<5, >1 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**	--	.9 (H)	--	--	--	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: _____

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

Applies to wetlands with the potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.
If no wetlands in the AA are subject to such input, check NA above.

i. Rating Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds 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 has 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 or ponding in AA	☒ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**	☐ **Yes**	☐ **No**
AA contains **no or restricted outlet**	1 (H)	--	--	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: Sediment and nutrient inflow from Cut Bank Creek.

14H. SEDIMENT/SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body that is subject to wave action. If this does not apply, then check NA above.

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) for this function.

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	☐ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral
≥ 65 %	--	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Not applicable at this stage.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function. **A** = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet. **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

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	☐Y	☐N	☐Y	☐N	☐Y	☒N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	.6M	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: 'Outlet' is exit over dike spillway.

14J. GROUNDWATER DISCHARGE / RECHARGE (DR) (Check the indicators in i & ii below that apply to the AA.)

i. ☒ **Discharge Indicators**

- ☐ Springs 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.
- ☒ Other Some alluvial flow likely.

ii. ☐ **Recharge Indicators**

- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☐ Other _____

iii. Rating: Use information from 14J(i) and 14J(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: _____

14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

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 from 11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (12i)	--	--	--	--	--	--	--	--	--

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes** [**Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

☒ **Yes** [Proceed to 14L (ii) and then 14L(iv)] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from 12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	--	--	--
Private ownership	.7(M)	--	--

Comments: Tribal ownership restricts access.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	low	0.30	1	
B. MT Natural Heritage Program Species Habitat	moderate	0.70	1	
C. General Wildlife Habitat	moderate	0.70	1	
D. General Fish/Aquatic Habitat	N/A		--	
E. Flood Attenuation	moderate	0.50	1	
F. Short and Long Term Surface Water Storage	high	0.90	1	
G. Sediment/Nutrient/Toxicant Removal	high	1.00	1	
H. Sediment/Shoreline Stabilization	N/A		--	
I. Production Export/Food Chain Support	moderate	0.60	1	
J. Groundwater Discharge/Recharge	high	1.00	1	
K. Uniqueness	moderate	0.40	1	
L. Recreation/Education Potential	moderate	0.70	1	
	Total:	**6.80**	**10.00**	____
		Percent of Total Possible Points:	**68%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not satisfied, proceed 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 total Possible Points is > 80%.

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

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied **and** all of the following criteria are met; If not satisfied, return to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☒ **II** ☐ **III** ☐ **IV**

Appendix C

2006 REPRESENTATIVE AND AERIAL PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

2006 PERRY RANCH WETLAND MITIGATION SITE

Photo Point 1: Panoramic view of northern-most excavated area on July 13, 2006. Photo was taken looking south from the adjacent hillside on the north.

Photo Point 2: Panoramic view of "outer" (photo left) and "inner" (photo right) oxbows on July 13, 2006. Photo was taken looking northeast to southeast from the adjacent hillside on the west.

Photo Point 3: Panoramic view of the southwestern end of the site on July 13, 2006. Delivery ditch is in the foreground. Cut Bank Creek is on photo right. Photo was taken looking northeast from the adjacent hillside on the southwest. Light yellow-green patches are leafy spurge plants.

PERRY RANCH WETLAND MITIGATION SITE - 2006

Photo 4: Invasion of snowberry and other upland plants into the southern end of Type 1. View is southeast.

Photo 5: Veg. Type 3 showing infestations of leafy spurge (foreground) and native snowberry shrub (background).

Photo 6: At east end of dike looking into inner oxbow (Veg. Type 2). View is west.

Photo 7: Broad-leaf cattail in excavated area of Veg. Type 4. View is south.

Photo 8: Veg. Type 5 in the northern end of site. View is north.

Photo 9: Mosaic pattern of dry and saturated surface soils in Veg. Type 5.

PERRY RANCH WETLAND MITIGATION SITE - 2006

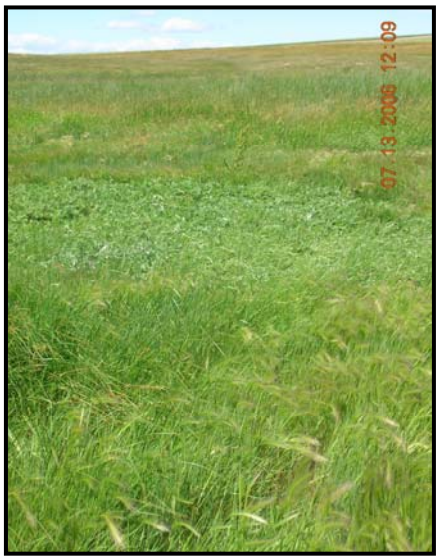


Photo 10: From start of Transect 1 at 288˚.

Photo 11: From end of Transect 1 at 100˚.

Photo 12: Northern leopard frog observed in former Veg. Type 1.

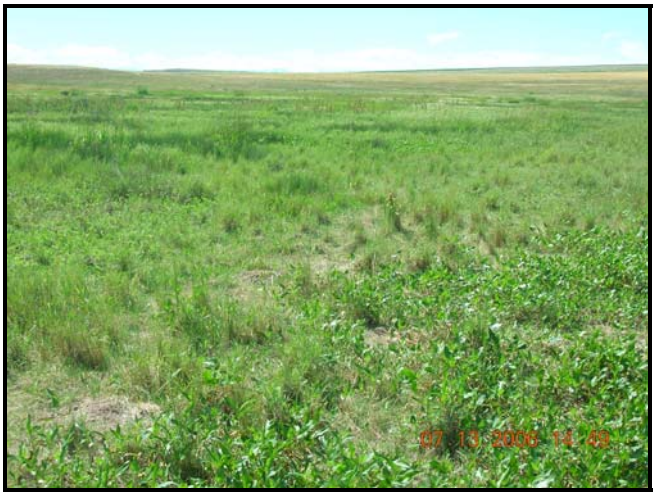


Photo 13: Veg. Type 2 in Outer Oxbow. View is west. Water smartweed, curly dock, and silverweed dominate.

Photo 14: Veg. Type 2 in Outer Oxbow. View is east. Fox-tail barley and curly dock dominate in photo.

Photo 15: Willow whips on perimeter of Veg. Type 5. View is east.

FIVE YEAR AERIAL PHOTOGRAPH COMPARISON – PERRY RANCH WETLAND MITIGATION SITE

July 23, 2002

July 27, 2003

July 24, 2004

July 5, 2005

July 7, 2006

Appendix D

MDT Proposed Project Layout

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER D-1

~ FT. PECK

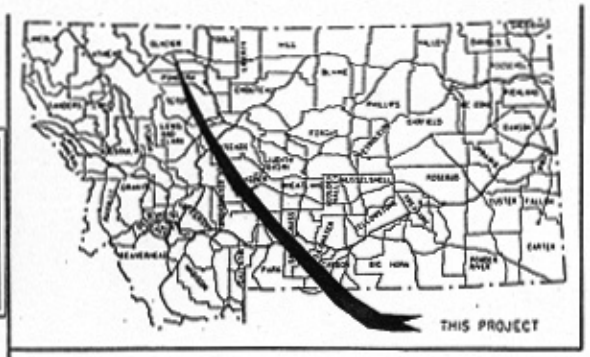
MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. NH 0002(232)

WETLAND MITIGATION

PERRY RANCH

GLACIER COUNTY



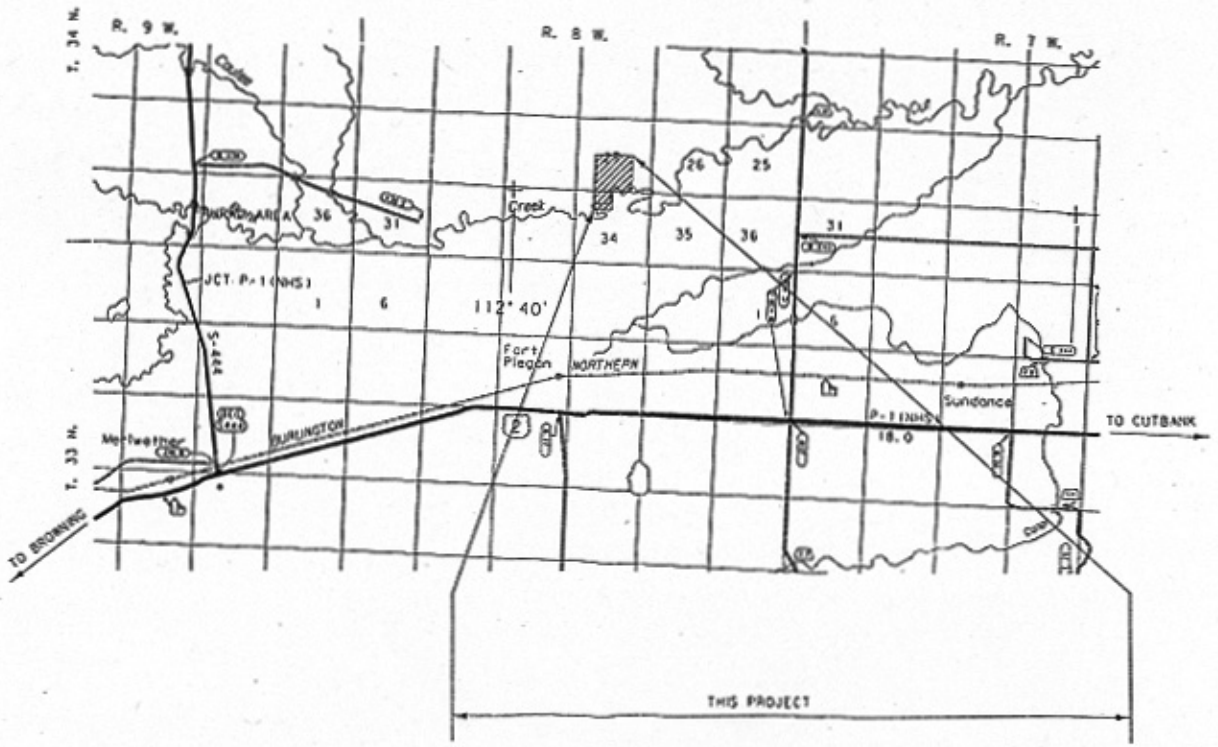
DESIGN DATA

A.D.T. =
A.D.T. =
D.H.V. =
D. =
T. =
V. =
ALL TRUCKS =
ESAL'S =
GROWTH RATE =

LETTING DATE = _____

LENGTH **kilometers**

SCALES
VERTICAL: 1 :
HORIZONTAL: 1 :
CROSS SECTION – HORIZONTAL & VERTICAL: 1 :
REDUCED PRINTS APPROXIMATELY 1/2 ORIGINAL SCALE



PRELIMINARY
FOR PLAN IN HAND ONLY

MONTANA DEPARTMENT OF TRANSPORTATION
APPROVED :
DIRECTOR OF TRANSPORTATION
BY _____
ADMINISTRATOR HIGHWAY DIVISION – ENGINEERING
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED :
DIVISION ADMINISTRATOR — DATE

RELATED PROJECTS

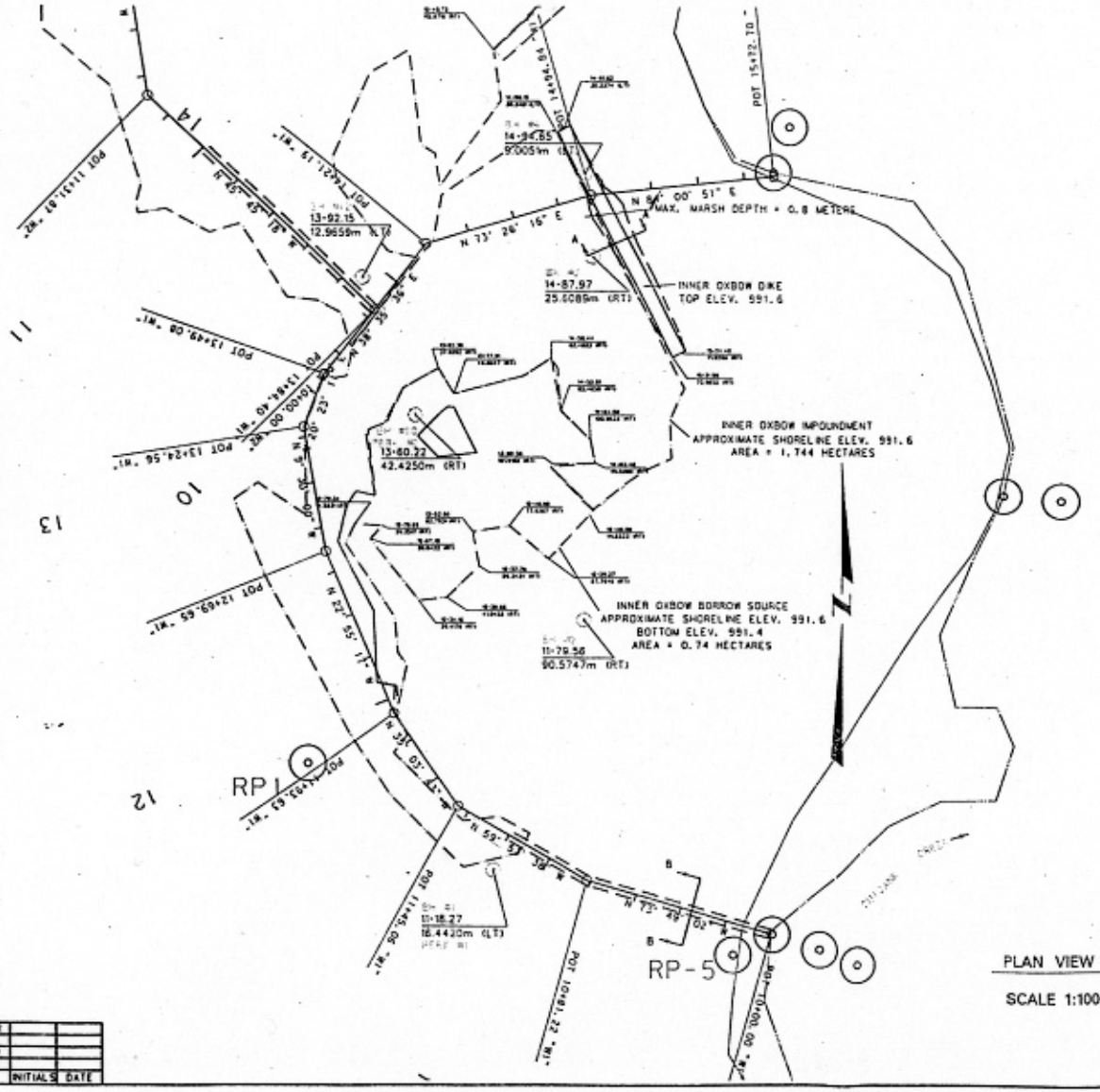
ASSOCIATED PROJECT AGREEMENT NUMBERS

R/W & UC	
P.E.	

CONTROL NO.

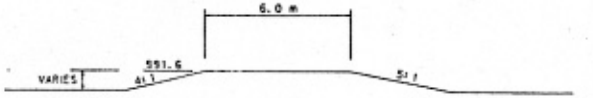
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 0002(232)	6

INNER OXBOW LAYOUT



PLAN VIEW

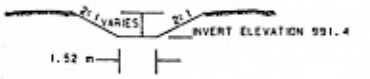
SCALE 1:100



SECTION A–A–SPREDER DIKE TYPICAL SECTION

SCALE 1:10

STA. 10+00 TO STA. 11+20



SECTION B–B–INTAKE WEIR TYPICAL SECTION

SCALE 1:10

DESIGNED		
DRAWN		
CHECKED		
REVISED		
	INITIALS	DATE

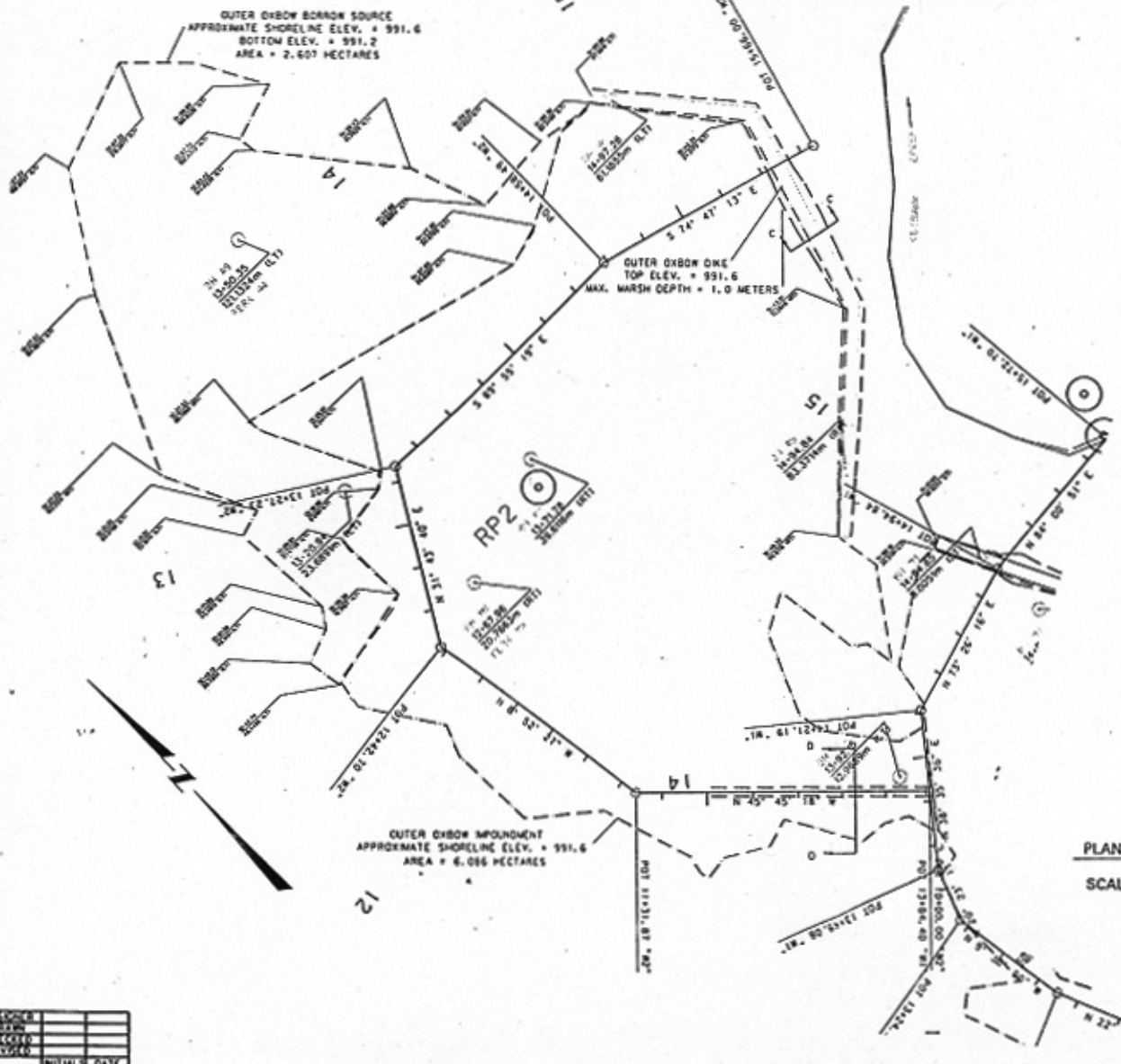
INNER OXBOW
LAYOUT DETAIL
ALIGNMENT "W1"

PRELIMINARY

LAND & WATER D-3

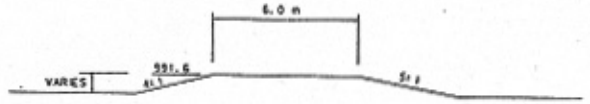
OUTER OXBOW LAYOUT

STATE	PROJECT NUMBER	SHEET
MONTANA	NH 0002(232)	7



PLAN VIEW

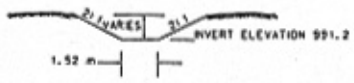
SCALE 1:100



SECTION C-C-SPREDER DIKE TYPICAL SECTION

SCALE 1:10

STA. 10+00 TO STA. 11+00



SECTION D-D-INTAKE WEIR TYPICAL SECTION

SCALE 1:10

DESIGNED		
DRAWN		
CHECKED		
RECOMMD		
	INITIALS	DATE

OUTER OXBOW
LAYOUT DETAIL
ALIGNMENT "W2"

PRELIMINARY

Appendix E

BIRD SURVEY PROTOCOL
MACROINVERTEBRATE SAMPLING PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

BIRD SURVEY PROTOCOL

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

Species Use within the Mitigation Wetland: Survey Method

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several "meandering" transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.

As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as "migrating" or "living on site" are unknown behaviors.

4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrub-shrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.

AQUATIC INVERTEBRATE SAMPLING PROTOCOL

Equipment List

- D-frame sampling net with 1 mm mesh. Wildco is a good source of these.
- Spare net.
- 1-liter plastic sample jars, wide-mouth. VWR has these: catalog #36319-707.
- 95% ethanol: Northwest Scientific in Billings carries this.

All these other things are generally available at hardware or sporting goods stores. Make the labels on an ink jet printer preferably.

- hip waders.
- pre-printed sample labels (printed on Rite-in-the-Rain or other coated paper, two labels per sample).
- pencil.
- plastic pail (3 or 5 gallon).
- large tea strainer or framed screen.
- towel.
- tape for affixing label to jar.
- cooler with ice for sample storage.

Site Selection

Select the sampling site with these considerations in mind:

- Select a site accessible with hip waders. If substrates are too soft, lay a wide board down to walk on.
- Determine a location that is representative of the overall condition of the wetland.

Sampling

Wetland invertebrates inhabit the substrate, the water column, the stems and leaves of aquatic vegetation, and the water surface. Your goal is to sweep the collecting net through each of these habitat types, and then to combine the resulting samples into the 1-liter sample jar.

Dip out about a gallon of water into the pail. Pour about a cup of ethanol into the sample jar. Fill out the top half of the sample labels, using pencil, since ink will dissolve in the ethanol.

Ideally, you can sample a swath of water column from near-shore outward to a depth of approximately 3 feet with a long sweep of the net, keeping the net at about half the depth of the water throughout the sweep. Sweep the water surface as well. Pull the net through a vegetated area, beneath the water surface, for at least a meter of distance.

Sample the substrate by pulling the net along the bottom, bumping it against the substrate several times as you pull.

This step is optional, but it gives you a chance to <u>see</u> that you've collected some invertebrates. Rinse the net out into the bucket, and look for insects, crustaceans, etc. If necessary, repeat the sampling process in a nearby location, and add the net contents to the bucket. Remember to sample all four environments.

Sieve the contents of the bucket through the straining device and pour or carefully scrape the contents of the strainer into the sample jar.

If you skip the bucket-and-sieve steps, simply lift handfuls of material out of the sampling net into the jars. In either case, please include some muck or mud and some vegetation in the jar. Often, you will have collected a large amount of vegetable material. If this is the case, lift out handfuls of material from the sieve into the jar, until the jar is about half full. Please limit material you include in the sample, so that there is only a single jar for each sample.

Top off the sample jar with enough ethanol to cover all the material in the jar. Leave as little headroom as possible.

It is not necessary to sample habitats in any specified order. Keep in mind that disturbing the habitats prior to sampling will chase off the animals you are trying to capture.

Complete the sample labels. Place one label inside the sample jar and tape the other label securely to the outside of the jar. Dry the jar before attaching the outer label if necessary. In some situations, it may be necessary to collect more than one sample at a site. If you take multiple samples from the same site, clearly indicate this by using individual sample numbers, along with the total number of samples collected at the site (e.g. Sample #3 of 5 total samples).

Photograph the sampled site.

Sample Handling/Shipping

- In the field, keep collected samples cool by storing them in a cooler. Only a small amount of ice is necessary.
- Inventory all samples, preparing a list of all sites and enumerating all samples, before shipping or delivering to the laboratory.
- Deliver samples to Rhithron.

GPS Mapping and Aerial Photo Referencing Procedure

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.