MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: 2001

Plentywood-North Wetland Mitigation Site
Sheridan County, Montana

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

Prepared by:
LAND & WATER CONSULTING, INC.
P.O. Box 8254
Missoula, MT 59807

July 2002

Project No: 130091.024

LAND & WATER

MONTANA DEPARTMENT OF TRANSPORTATION

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YEAR 2001

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1.0 INTRODUCTION

The Plentywood-North wetland mitigation site was constructed in 2000 to mitigate 2.7 acres of wetland impacts associated with the Montana Department of Transportation (MDT) Plentywood-North highway reconstruction project. Constructed in Watershed #12 (Lower Missouri) within the MDT Glendive District, the site is located approximately 5 miles north of Raymond, just west of Montana Highway 16 in Sheridan County (**Figure 1**). A proposed layout prepared by MDT is provided in **Appendix D**.

The intent of the project was to restore at least 2.7 acres of a prairie pothole that had been filled during construction of the original highway. To accomplish this, a section of original (existing) highway through the pothole was excavated to adjacent wetland elevations. A revegetation plan was not prepared for the site; no plantings were proposed. No wetlands were present in this restoration area prior to mitigation site construction as this area was beneath existing road fill.

The monitoring area is illustrated in **Figure 2** (**Appendix A**). This site was monitored in 2001 under this contract, and will subsequently be monitored in-house by MDT. No formal monitoring activities have been conducted by MDT since the site was constructed. No performance standards or success criteria were required by the U.S. Army Corps of Engineers (COE), MDT, or other agencies.

2.0 METHODS

2.1 Monitoring Dates and Activities

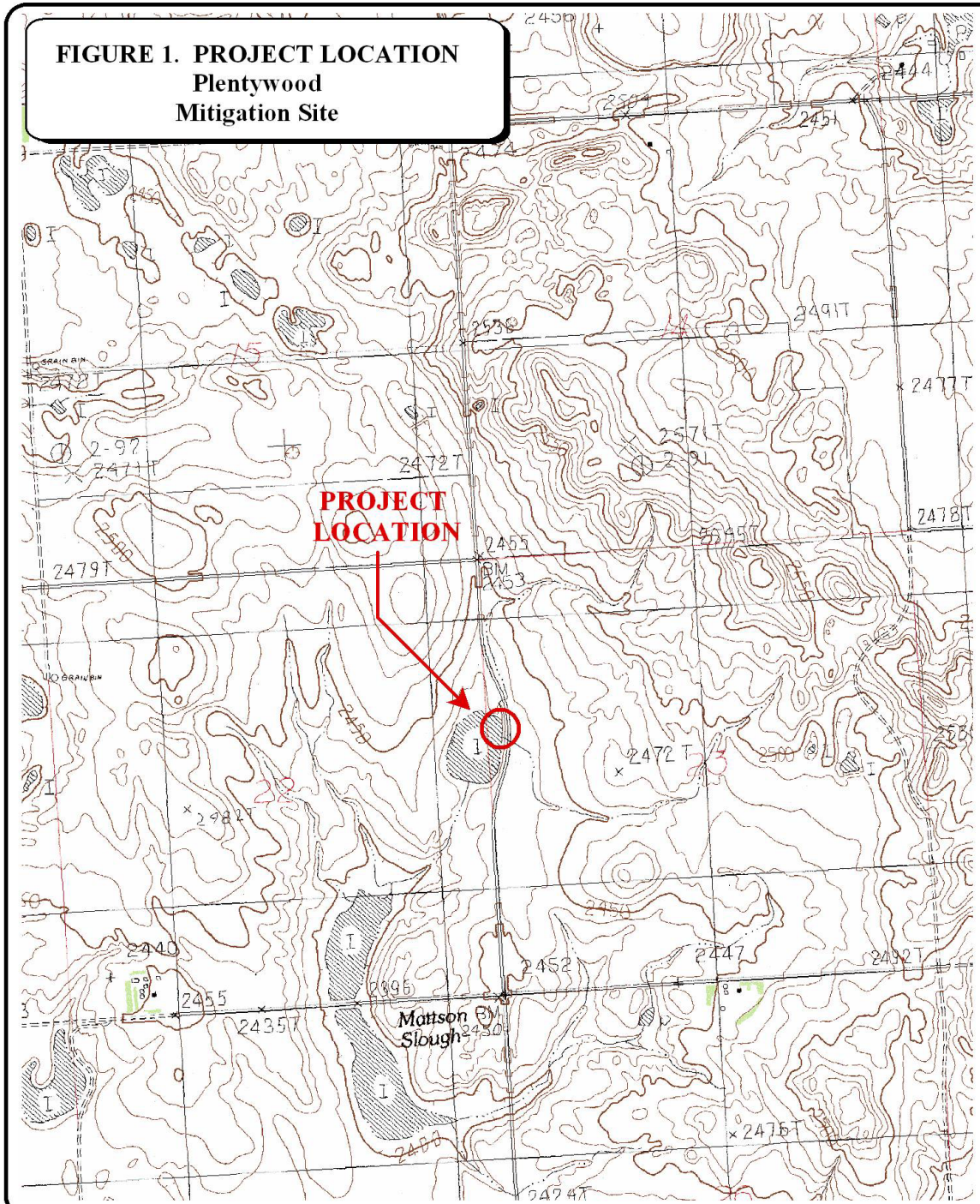
The site was visited on July 18, 2001. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water aquatic habitat boundary mapping; vegetation community mapping; vegetation transect; soils data; hydrology data; bird and general wildlife use; photograph points; GPS data points; functional assessment; and (non-engineering) examination of the culvert structure.

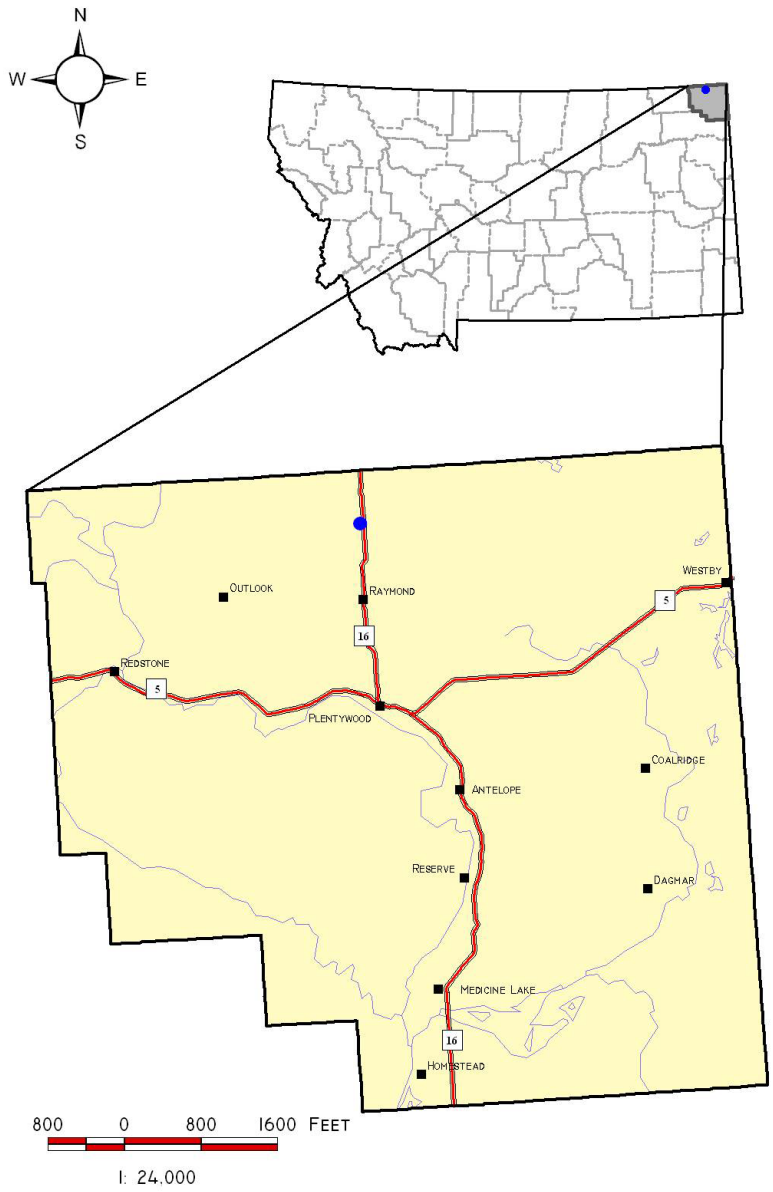
2.2 Hydrology

Hydrologic indicators were 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 was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). All additional hydrologic data was recorded on the mitigation site monitoring form (**Appendix B**).

There are no groundwater monitoring wells at the site. If located within 18 inches of the ground surface (soil pit depth for purposes of delineation), groundwater depths were documented on the routine wetland delineation data form.

FIGURE 1. PROJECT LOCATION
Plentywood
Mitigation Site





PROJECT #: 130091.024
DATE: APRIL 2001
LOCATION:
PROJECT MANAGER: B. DUTTON
DRAWN BY: B. NOECKER

LAND & WATER CONSULTING, INC.

1120 CEDAR PO BOX 8254 MISSOULA, MT 59807

2.3 Vegetation

General dominant species-based vegetation community types were delineated on an aerial photograph during the mid-season visit. 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 site monitoring form (**Appendix B**).

A single 10-foot wide belt transect was established 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" using the following values: + (<1%); 1 (1-5%); 2 (6-10%); 3 (11-20%); 4 (21-50%); and 5 (>50%).

The transect location, depicted on **Figure 2** (**Appendix A**), was marked on an aerial photograph and all data recorded on the mitigation site monitoring form. Transect endpoint locations were recorded with a GPS unit. Photos of the transect were taken from both ends during the mid-season visit. No woody species were planted at the site. Consequently, no monitoring relative to the survival of such species was conducted.

2.4 Soils

Soils were evaluated during the mid-season visit according to 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 Sheridan County soil survey was published by the Soil Conservation Service in 1977. Map units and associated properties listed in this published survey were used in describing project area soils.

2.5 Wetland Delineation

Wetland delineation was conducted during the mid-season visit according 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: North Plains Region 4 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary was delineated on the aerial photograph and recorded with a resource grade GPS unit, as was the boundary between "new" wetlands and pre-existing wetlands adjacent to the west.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during the site visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded.

These observations were recorded 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 wildlife species list for the entire site was compiled.

2.7 Birds

Bird observations were also recorded during the site visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. Bird observations were recorded incidental to other monitoring activities observations, using the bird survey protocol (**Appendix E**) as a general guideline. Observations were categorized by species, activity code, and general habitat association (see data forms in **Appendix B**). A comprehensive bird list was compiled using these observations.

2.9 Macroinvertebrates

Macroinvertebrate sampling was proposed at this site, but was not performed due to the lack of surface water at the mitigation area during the July 18, 2001 visit.

2.9 Functional Assessment

A functional assessment was completed using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected during the mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information (**Appendix B**). The remainder of the functional assessment was completed in the office.

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and the vegetation transect. Two photograph points were established and shot during 2001. Each photograph point location was recorded with a resource grade GPS unit. The approximate locations of these photo points are shown on **Figure 2** (**Appendix A**). All photographs were taken using a 50 mm lens. A description and compass direction for each photograph was recorded on the wetland monitoring form.

2.11 GPS Data

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at the vegetation transect beginning and ending locations and at all photograph locations. The "restored" wetland boundary was also surveyed with a resource grade GPS unit.

2.12 Maintenance Needs

Culvert structures were examined during the 2001 site visit for obvious signs of 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

No surface water was present in the mitigation area during the July 18th visit. No open water (water with no rooted vegetation) was observed. However, evidence of prior inundation was noted, including water marks, drift lines, sediment deposits, and cracked soils. Adjacent wetlands contained surface water within "pond" areas during the 2001 visit. Specific recorded values are provided on the attached data forms.

Soils were moist, but not saturated, approximately 12 inches below the surface. Adjacent wetlands appear to be groundwater-fed, at least in part, and are likely discharging to the mitigation area.

No problems were observed relative to the culvert through which surface water enters the site. The pipe appears to have been set high enough to facilitate prolonged inundation.

Drought conditions affected observed hydraulic conditions. According to the Western Regional Climate Center, Plentywood yearly precipitation totals for 2001 (9.78 inches) were 75 percent of the total annual mean precipitation (13.04 inches) in this area.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. One wetland community type, *Phalaris arundinacea* (Type 2), was identified and mapped on the mitigation area (**Figure 2**, **Appendix A**). Vegetation community Type 1 was comprised of upland species. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

The majority of the site was dominated by upland vegetation including smooth brome (*Bromus inermis*), field pennycress (*Thlaspi arvense*), sunflower (*Helianthus annuus*), and Lewis' blue flax (*Linum lewisii*). Reed canarygrass was another common species in upland areas. Vegetation transect results are detailed in the attached data form, and are summarized graphically below.

Transect Start (east)	***Upland (39')***	***Type 2 (28')***	**Total: 67'**	**Transect End (west)**

3.3 Soils

Soils at the site were mapped by the Sheridan County soil survey as "intermittent pond" within Bowbells silt loam. Bowbells silt loam is not included on the Sheridan County hydric soils list. B Horizon soils in the mid-wetland portion of the site consist of sandy clay loam with a matrix color of 2.5Y3/2 and strong, abundant mottles at 7.5YR5/8, indicating periodic inundation. Wetland soils were moist, but not saturated, within 12 inches of the ground surface during the July delineation.

Soils at the upper (north) margins of the site consist of fairly dark (2.5Y3/2) loams approximately five inches thick over a layer of gravels. These soils had not yet developed hydric characteristics.

Table 1: ***2001 Plentywood-North Mitigation Site Vegetation Species List***

Species	Region 4 (North Plains) Wetland Indicator
Agropyron intermedium	--
Agrostis alba	FACW
Agrostis scabra	FAC
Alisma plantago-aquatica	OBL
Avena fatua	--
Beckmannia syzigachne	OBL
Bromus inermis	--
Chenopodium album	FAC
Convolvulus arvensis	--
Elymus cinereus	NI
Glycyrrhiza lepidota	FACU
Gnaphalium palustre	OBL
Grindelia squarrosa	--
Helianthus annuus	FACU
Hordeum jubatum	FAC+
Kochia scoparia	FAC
Lactuca serriola	FACU
Linum lewisii	--
Matricaria matricarioides	--
Phalaris arundinacea	FACW+
Poa pratensis	FACU
Polygonum amphibium	OBL
Potentilla gracilis	FAC
Ratibida columnifera	--
Rumex crispus	FACW
Setaria glauca	FACU
Sisymbrium altissimum	UPL
Thlaspi arvense	--
Vicia sp.	--

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated on **Figure 2** (**Appendix A**). The completed wetland delineation form is included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Delineation results are as follows:

Plentywood North Mitigation Area: 0.32 wetland acre (emergent)
0.0 acre open water

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 monitoring effort are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. Evidence of one mammal and two bird species was noted on and adjacent to the mitigation site. No reptiles or amphibians were observed.

Table 2: ***Fish and Wildlife Species Observed on the Plentywood-North Mitigation Site during 2001***

FISH None
AMPHIBIANS None
REPTILES None
BIRDS Red-winged Blackbird (*Agelaius phoeniceus)* – adjacent wetlands Sora (*Porzana Carolina*) – adjacent wetlands
MAMMALS White-tailed Deer *(Odocoileus virginianus*) (tracks only)

3.6 Macroinvertebrates

Macroinvertebrate sampling was proposed at this site, but was not performed due to the lack of surface water at the mitigation area during the July 18, 2001 visit.

3.7 Functional Assessment

A completed functional assessment form is presented in **Appendix B**. Functional assessment results are summarized in **Table 3**. The wetland portion of the mitigation site rated as a Category III (moderate value) site. Prominent functions include sediment/nutrient/toxicant removal and groundwater discharge. Remaining evaluated functions were rated as "low" to "moderate". Based on functional assessment results (**Table 3)**, approximately 1.09 functional units are currently provided at the Plentywood-North mitigation site.

It should be noted that wetlands at the site were rated on their own merits; the assessment area did not include adjacent wetlands. As these mitigation wetlands blend with adjacent existing wetlands, it may become appropriate to include adjacent wetlands within the assessment area. Functional units, however, would still be calculated based upon acreage of mitigation wetlands.

3.8 Photographs

Representative photos taken from photo-points and transect ends are provided in **Appendix C**.

3.9 Maintenance Needs/Recommendations

No problems were observed relative to the culvert through which surface water enters the site. The pipe appears to have been set high enough to facilitate prolonged inundation, depending upon water availability. It remains to be seen whether the north and south ends of the mitigation areas, particularly the south end, were excavated low enough to retain water and develop wetland characteristics. No evidence of inundation was observed in these areas during the July 18th visit.

No recommendations are submitted at this time; however, these areas will be examined closely for signs of inundation during subsequent monitoring episodes.

Table 3: ***Summary of 2001 Wetland Function/Value Ratings and Functional Points [1] at the Plentywood – North Mitigation Project***

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	Wetland Site Mitigation Wetlands
Listed/Proposed T&E Species Habitat	Low (0)
MNHP Species Habitat	Low (0)
General Wildlife Habitat	Mod (0.5)
General Fish/Aquatic Habitat	NA
Flood Attenuation	NA
Short and Long Term Surface Water Storage	Low (0.3)
Sediment, Nutrient, Toxicant Removal	High (1)
Sediment/Shoreline Stabilization	NA
Production Export/Food Chain Support	Low (0.2)
Groundwater Discharge/Recharge	High (1)
Uniqueness	Low (0.3)
Recreation/Education Potential	Low (0.1)
Actual Points/Possible Points	3.4 / 9
% of Possible Score Achieved	38%
Overall Category	III
Total Acreage of Assessed Wetlands and Other Aquatic Habitats within Site Boundaries	0.32 ac
Functional Units (acreage x actual points)	1.09 fu
Net Acreage Gain	0.32 ac
Net Functional Unit Gain	1.09 fu

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

3.10 Current Credit Summary

No specific performance criteria were required to be met at this site in order to document its success. The overall intent of the project was to provide 2.7 wetland acres. The maximum assignable credit at this site as of 2001 is approximately 0.32 acre. Approximately 1.09 functional units currently are provided at the site.

4.0 REFERENCES

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* US Army Corps of Engineers. Washington, DC.

Ralph, C.J., Geupel, G.R., Pyle, P., Martin, T.E., and D.F. DeSante. 1993. *Handbook of field methods for monitoring landbirds*. Gen. Tech. Rep. PSW-GTR-144. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Dept. of Agriculture. 41 p.

Reed, P.B. 1988. National list of plant species that occur in wetlands: North Plains (Region 4). Biological Report 88(26.4), May 1988. U.S. Fish and Wildlife Service. Washington, D.C.

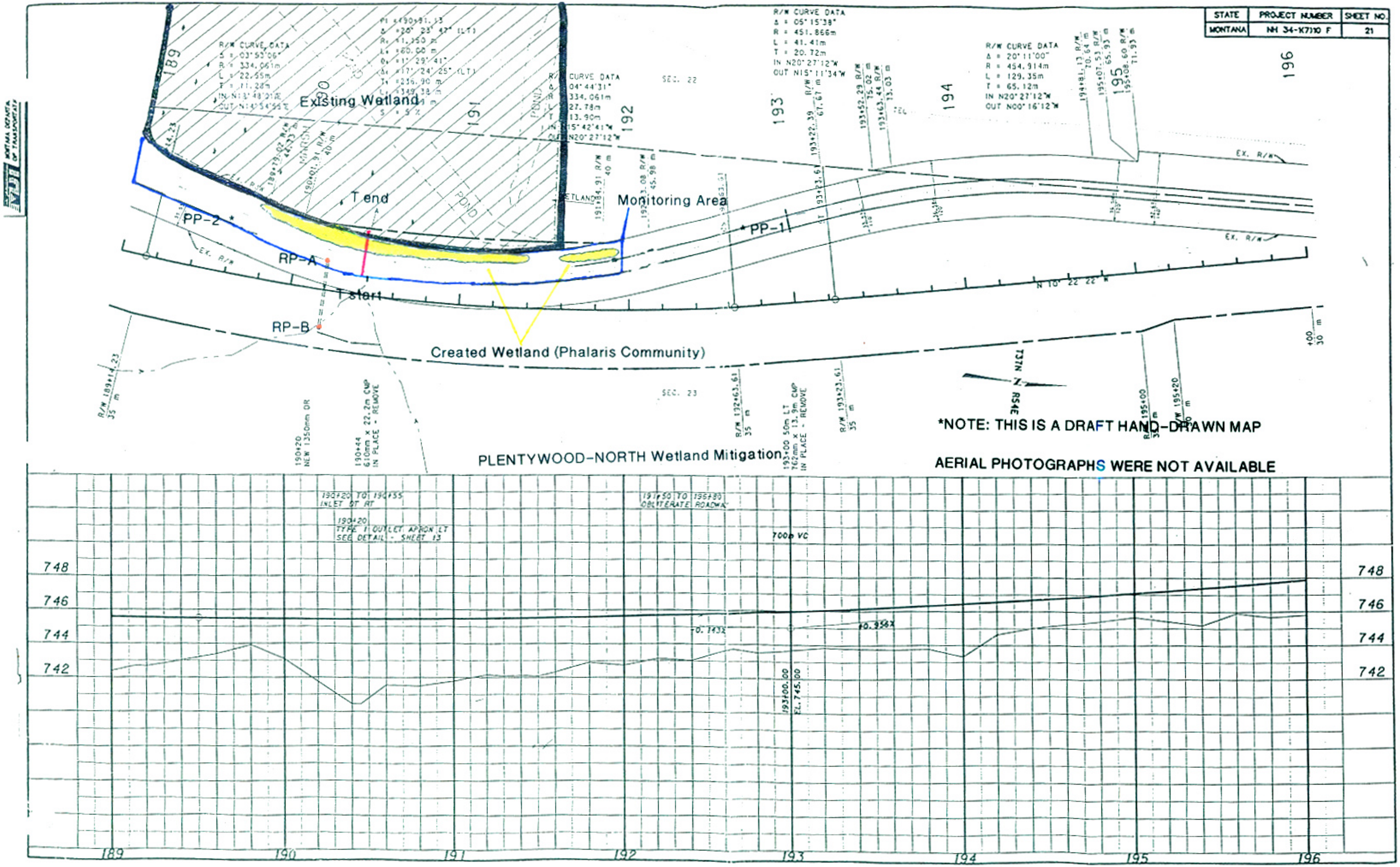
Urban, L. Wetland Mitigation Specialist, Montana Department of Transportation. Helena, MT. March 13, 2001 meeting.

USDA Natural Resources Conservation Service. 1998. *Field Indicators of Hydric Soils in the United States*, Version 4. G. Hurt, P. Whited and R. Pringle (eds.). USDA, NRCS Fort Worth, TX.

Appendix A

FIGURE 2

MDT Wetland Mitigation Monitoring
Plentywood-North
Sheridan County, Montana


STATE MONTANA
PROJECT NUMBER NH 34-X7)10 F
SHEET NO. 21
Existing Wetland
Monitoring Area
T end
T start
PP-1
PP-2
RP-A
RP-B
Created Wetland (Phalaris Community)
R/W CURVE DATA
SEC. 22
SEC. 23
EX. R/W
T37N
R54E
*NOTE: THIS IS A DRAFT HAND-DRAWN MAP
AERIAL PHOTOGRAPHS WERE NOT AVAILABLE
PLENTYWOOD-NORTH Wetland Mitigation
748
746
744
742
189
190
191
192
193
194
195
196

Appendix B

COMPLETED 2001 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2001 BIRD SURVEY FORM
COMPLETED 2001 WETLAND DELINEATION FORMS
COMPLETED 2001 FIELD AND FULL FUNCTIONAL ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring
Plentywood-North
Sheridan County, Montana

LAND & WATER

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Plentywood-North Project Number: NH34-1(7)10 F Assessment Date: 7/18/01
Location: Highway MDT District: Glendive Milepost: 12
Legal description: T 37N R 54E Section 22 Time of Day: 1:00-4:30 pm
Weather Conditions: Sunny, dry, calm Person(s) conducting the assessment: JB/RH
Initial Evaluation Date: 7/18/01 Visit #: 1 Monitoring Year: 1 (2001)
Size of evalusaiton area: 3-4 acres Land use surrounding wetland: Wetland and highway

HYDROLOGY

Surface Water
Inundation: Present ____ Absent X Average depths: 0 ft Range of depths: 0 - 0 ft
Assessment area under inundation: 0 %
Depth at emergent vegetation-open water boundary: 0 ft
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes ____ No X
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): Water marks, drift lines, Sediment deposits, Cracked soils

Groundwater
Monitoring wells: Present ____ Absent X
Record depth of water below ground surface

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:
NA Map emergent vegetation-open water boundary on air photo — NO PHOTO
X Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining etc..)
NA GPS survey groundwater monitoring wells locations if present

COMMENTS/PROBLEMS: Adjacent wetlands had surface water within "pond" portions.

COMPREHENSIVE VEGETATION LIST

LAND & WATER B-2

Species		Vegetation Community Number(s)	Species	Vegetation Community Number(s)
PHA ARU	reed canary grass	1,2		
HEL ANN	annual sunflower			
THL ARV	field pennycress	2,1		
RUM CRI	curly dock	2		
HOR JUB	foxtail barley	2		
GLY LEP	American licorice			
AGR INT	intermediate wheatgrass			
CHE ALB	White goosefoot	2		
KOC SCO	Kochia			
POL AMP	Water smartweed	2		
AGR ALB	redtop	2		
BEC SYZ	American sloughgrass	2		
GNA PAL	W. marsh cudweed	2		
LAC SER	prickly lettuce	2,1		
BRO INE	Smooth brome	1		
SIS ALT	Jim Hill mustard	1		
VIC sp.	vetch species	1		
AVE FAT	wild oats	1		
MAT MAT	Pineapple weed	1		
CON ARV	field bindweed	1		
GRI SQU	Curly-cup gumweed	1		
ALI PLA AQU	water plantain	2		
POT GRA	graceful cinquefoil	2		
SET VIR	green bristlegrass	1		
POA PRA	Kentucky bluegrass	1		
ELY CIN	Great Basin wild rye	1		
RAT COL	prairie coneflower	1		
LIN LEW	Lewis blue flax	1		
AGR SCA	Rough bentgrass			

COMMENTS/PROBLEMS: Linum lewisii

VEGETATION COMMUNITIES

LAND & WATER B-3

Community No.: 1 Community Title (main species): Upland

Dominant Species	% Cover	Dominant Species	% Cover
BRO INE	21-50		
PHA ARU	11-20		
THL ARV	11-20		
HEL ANN	11-20		
LIN LEW	11-20		

COMMENTS/PROBLEMS:

Community No.: 2 Community Title (main species): Phalaris arundinacea

Dominant Species	% Cover	Dominant Species	% Cover
PHA ARU	750	AGR ALB	11-20
RUM CRI	21-50	BEC SYZ	6-10
CHE ALB	6-10		
GNA PAL	6-10		
THL ARV	6-10		

COMMENTS/PROBLEMS:

Community No.:____ Community Title (main species):

Dominant Species	% Cover	Dominant Species	% Cover

COMMENTS/PROBLEMS:

Additional Activities Checklist:

X Record and map vegetative communities ~~on air photo~~ NO PHOTO

LAND & WATER B-4

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Plentywood - North Date: 7-18-01 Examiner: SB/RH Transect # 1

Approx. transect length: 67 feet Compass Direction from Start (Upland): 278° W

Vegetation type 1:	Upland		
Length of transect in this type:	39	feet	
PHA ARU	21-50	AVE FAT	<1
THL ARV	21-50	CON ARV	<1
HEL ANN	11-20		
LIN LEN	6-10		
VIC SP.	1-5		
RUM CRI	1-5		
CHE ALB	1-5		
SIS ALT	1-5		
HOR JUB	<1		
GLY LEP	<1		
AGR INT	<1		
KOC SCO	<1		
Total Vegetative Cover:	75%		

Vegetation type 2:	Phalaris arundinacea	
Length of transect in this type:	28	feet
PHA ARU	750	
RUM CRI	11-20	
THL ARV	11-20	
CHE ALB	6-10	
AGR ALB	6-10	
BEC SYZ	1-5	
KOC SCO	1-5	
POL AMP	<1	
LAC SER	<1	
GNA PAL	1-5	
Total Vegetative Cover:	80%	

Vegetation type 3:		
Length of transect in this type:		feet
Total Vegetative Cover:		

Vegetation type 4:		
Length of transect in this type:		feet
Total Vegetative Cover:		

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form) LAND & WATER B-5

Cover Estimate

+ = <1%
1 = 1-5%
2 = 6-10%
3 = 11-20%
4 = 21-50%
5 = >50%

Indicator Class:

+ = Obligate
- = Facultative/Wet
0 = Facultative

Source:

P = Planted
V = Volunteer

Percent of perimeter 40 % developing wetland vegetation – excluding dam/berm structures.

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 food depth (in open water), or at a point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 ft 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.

Notes:

3/01 rev

PLANTED WOODY VEGETATION SURVIVAL

LAND & WATER B-6

Species	Number Originally Planted	Number Observed	Mortality Causes
NA - None planted			

COMMENTS/PROBLEMS: _____

WETLAND DELINEATION

LAND & WATER B-7

At each site conduct the items on the checklist below:

X Delineate wetlands according to the 1987 Army Corps manual.

X Delineate wetland-upland boundary on the air photo

X Survey wetland-upland boundary with a resource grade GPS survey

COMMENTS/PROBLEMS: See attached form

FUNCTIONAL ASSESSMENT

Collect information to complete MDT Function and Values Assessment in the office.

Jeff is completing this section

COMMENTS/PROBLEMS: See attached form

MAINTENANCE

Were man-made nesting structures installed at this site? YES___ NO X

If yes, do they need to be repaired? YES___ NO NA

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

Were man-made structures build or installed to impound water or control water flow into or out of the wetland?

YES X NO___ (Road + culvert)

If yes, are the structures working properly and in good working order? YES X NO___

If no, describe the problems below.

COMMENTS/PROBLEMS: Pipe appears to be set high enough to back water.

WILDLIFE

LAND & WATER B-8

BIRDS

Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating	Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating
See bird form									

Were man made nesting structures installed? Yes____ No X Type: NA How many? NA Are the nesting structures being utilized? Yes NA No NA Do the nesting structures need repairs? Yes NA No NA

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
White-tailed deer		X			

Additional Activities Checklist:

NA Macroinvertebrate sampling (if required) Intended, but not conducted.

COMMENTS/PROBLEMS: No macroinvertebrate samples collected due to absence of surface water.

PHOTOGRAPHS

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.)
Checklist:

- X One photo for each of the 4 cardinal directions surrounding wetland
- X At least one photo showing upland use surrounding wetland – if more than one upland use exists take additional photos
- X At least one photo showing buffer surrounding wetland
- X One photo from each end of vegetation transect showing transect

Location	Photo Frame #	Photograph Description	Compass Reading
A	15	Photo pt #1	165° S/SE
B	16	photo pt #2	13° N
C	17	" " "	280° W
D	18	" " "	195° S/SW
E	19	Transect start (from)	278° W
F	20	Transect end (from)	98° E
G	21	Site overview taken from MP 11.9	S/SW
H			

COMMENTS/PROBLEMS: _____

GPS SURVEYING

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

Checklist:

- X Jurisdictional wetland boundary
- X ④6 landmarks recognizable on the air photo
- X Start and end points of vegetation transect(s)
- X Photo reference points
- NA Groundwater monitoring well locations

COMMENTS/PROBLEMS: _____

BIRD SUMMARY TABLE

Page 1 of 1
Date: 7/18/01
Survey Time: 1:00 – 4:30pm

Site: Plentywood - North

Scientific Name	Common Name	Total Density	Foraging	Nesting	Flyover	Breeding	Loafing
	sora	1	X				I
	red-wing blackbird	2	X				X

on adjacent wetland only.

Field Data Sheet for 1999 MDT Wetland Assessment Form Site: Plentywood - North Date: 7-18-01 By: SB/RH

Estimated AA Size (Circle Ac.): (<1) 1-5 >5 **Brief Description:** Roadside excavation

HGM Class (CIRCLE)	Cowardin Class	Est. % of AA	Predominant Water Regime (CIRCLE)
Mineral Soil Flats Organic Soil Flats Riverine (nonperennial) Riverine (upper perennial) Riverine (lower perennial) Lacustrine Fringe (Depression (closed)) Depression (open, groundwater) Depression (open, surface water) Slope Organic Soil Flats	Emergent	70%	Perm Flood Int Exp Sem Perm Flood (Seas Flood) Sat Tem Flood Int Flood
	Aquatic Bed		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Moss-Lichen		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Scrub-Shrub		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Forested		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Unconsolidated Bottom		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Other: Unvegetated	30%	Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
	Total Estimated **% Vegetated**	70%	

RELATIVE ABUNDANCE: rare (com.) abun. **DISTURBANCE** is: High (Moderate) Low _____

HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation: (<1) 1-5 >5 (if no flooding/ponding, go to groundwater* section)

Does AA contain surface or subsurface outlet? Y (N) If outlet present, is it restricted (subsurface will always be "yes")? Y (N)

Longest duration of surface water:		Surface Water Duration and other attributes (circle)		
at any wetlands within AA		Perm / Peren	(Seas / Intermit)	Temp / Ephem
in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...]		Perm / Peren	(Seas / Intermit)	Temp / Ephem
Where fish are or historically were present (circle **NA** if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% of waterbody containing cover objects	>25%	10-25%	<10%
	% bank or shore with riparian or wetland shrub or forested communities	>75%	50-74%	<50%
adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave action (circle **NA** if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% cover of wetland bank or shore by sp. with binding rootmasses	>65%	35-64%	<35%

Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow? Y (N) (if no, go to groundwater* section below)

Estimated wetland area subject to periodic flooding (acres):	≥10	2-10	<2
Estimated % of flooded wetland classified SS, FO or both:	≥75	25-74	<25

*Evidence of groundwater discharge or recharge? (Y) N List: Discharge from existing marsh to west

HABITAT

Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals:

AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions):

Primary or critical habitat (**list species**)	D S	T/E:	D S	MNHP:	
Secondary habitat (**list species**)	D S	T/E:	D S	MNHP:	
Incidental habitat (**list species**)	D S	T/E:	D S	MNHP:	
No usable habitat	D (S)	T/E: None	D (S)	MNHP: None	

Wildlife observations? deer tracks - Sora + rw blackbird at adjacent wetland.

Fish observations? None

OTHERS

Do wetlands have potential to receive excess sediments, nutrients, or toxicants? (Y) N From: Highway + Agricultural use

Potential to receive: (low to moderate levels) high levels On TMDL List? Y N

Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? Y (N)

List: _____

Is AA a known recreation / education site? Y (N) Type: _____

Does AA offer strong potential for use as recreation / education site? Y (N) Type: _____

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

1. Project Name: Plentywood-N Mitigation 2. Project #: NH 34-1(7)10 F Control #: ?

3. Evaluation Date: Mo. 7 Day 18 Yr. 01 4. Evaluator(s): SB/RH 5. Wetlands/Site #(s) Mitigation Site

6. Wetland Location(s): i. Legal: T 37 (N) or S; R 54 (E) or W; S 22 ; T ___ N or S; R ___ E or W; S ___ ;
ii. Approx. Stationing or Mileposts: Highway 16, Sta 189-192
iii. Watershed: 10060006 GPS Reference No. (if applies): /
Other Location Information: Sheridan County

7. a. Evaluating Agency: MDT ;
b. Purpose of Evaluation:
1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. XX Mitigation wetlands; post-construction
4. ___ Other

8. Wetland size: (total acres) / (visually estimated)
0.32 (measured, e.g. by GPS [if applies])

9. Assessment area: (AA, tot., ac., see instructions on determining AA) / (visually estimated)
0.32 (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA (HGM according to Brinson, first col.; USFWS according to Cowardin [1979], remaining cols.)

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depression (closed)	Palustrine	—	EM	SF	EX	70
"	"	—	Unveg.	SF?	EX	30

(Abbreviations: **System**: Palustrine(P)/ **Subsyst**.: none/ **Classes**: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)/ **System**: Lacustrine (**L**)/, **Subsyst.**: Limnetic (**2**)/ **Classes:** RB, UB, AB/ **Subsystem**: Littoral (**4**)/ **Classes:** RB, UB, AB, US, EM/ **System**: Riverine (**R**)/ **Subsyst.**: Lower Perennial (**2**)/ Classes: RB, UB, AB, US, EM/ **Subsystem**: Upper Perennial (**3**)/ Classes: RB, UB, AB, US/ **Water Regimes**: Permanently Flooded (**H**), Intermittently Exposed (**G**), Semipermanently Flooded (**F**), Seasonally Flooded (**C**), Saturated (**B**), Temporarily Flooded (**A**), Intermittently Flooded (**J**) **Modifiers**: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**) **HGM Classes**: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
(Circle one) Unknown Rare (Common) Abundant
Comments:

12. General condition of AA:
i. Regarding disturbance: (use matrix below to determine [circle] appropriate response)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) 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 natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings.	moderate disturbance	(moderate disturbance)	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Highway maint. + use
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list)
BRO INE, CON ARV
iii. Provide brief descriptive summary of AA and surrounding land use/habitat:
Small excavated depressions Adjacent to existing wetlands and highway. Upland = range.

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

# of "Cowardin" vegetated classes present in AA (see #10)	≥ 3 vegetated classes (or ≥ 2 if one is forested)	2 vegetated classes (or 1 if forested)	≤ 1 vegetated class
Rating (circle)	High	Moderate	(Low)

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

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

Primary or critical habitat (**list species**)	D S	
Secondary habitat (**list species**)	D S	
Incidental habitat (**list species**)	D S	
No usable habitat	D (S)	None

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

Highest Habitat Level	doc./primary	sus/primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	None
Functional Points and Rating	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	.3 (L)	(0 (L))

Sources for documented use (e.g. observations, records, etc):

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

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

Primary or critical habitat (**list species**)	D S	
Secondary habitat (**list species**)	D S	
Incidental habitat (**list species**)	D S	
No usable habitat	D (S)	None

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

Highest Habitat Level	doc./primary	sus/primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	None
Functional Points and Rating	1 (H)	.8 (H)	.7 (M)	.6 (M)	.2 (L)	.1 (L)	0 (L)

Sources for documented use (e.g. observations, records, etc.):

14C. General Wildlife Habitat Rating:

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

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

Low (based on any of the following [check]):
- __ few or no wildlife observations during peak use periods
- __ little to no wildlife sign
- __ sparse adjacent upland food sources
- __ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- XX observations of scattered wildlife groups or individuals or relatively few species during peak periods
- XX common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- __ adequate adjacent upland food sources
- __ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (working from top to bottom, circle appropriate AA attributes in matrix to arrive at 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 of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms].)

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

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

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

Comments: use higher in adjacent wetland; may spread to this site as it develops.

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

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

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

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

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

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

Comments: NA

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

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

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			<10, >2 acres			≤2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)
AA contains **unrestricted outlet**	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y N

Comments: NA

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

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			<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**	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond **< 5 out of 10 years**	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with 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, circle **NA** here and proceed with the evaluation.)

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with 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 with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains **unrestricted outlet**	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments: Highway + Ag. runoff

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] 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%	1 (H)	.9 (H)	.7 (M)
35-64%	.7 (M)	.6 (M)	.5 (M)
< 35%	.3 (L)	.2 (L)	.1 (L)

Comments: NA

14I. Production Export/Food Chain Support:

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

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

Comments:

14J. Groundwater Discharge/Recharge: (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
XSeeps are present at the wetland edge
___AA permanently flooded during drought periods
___Wetland contains an outlet, but no inlet
___Other

ii. Recharge Indicators

___Permeable substrate present without underlying impeding layer
___Wetland contains inlet but no outlet
___Other

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H = high, L = low] for this function.

Criteria	*Functional Points and Rating*
AA is known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments: Discharge from existing wetland to the west.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y N (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

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

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y N
(If yes, go to ii, then proceed to iv; if no, then rate as [circle] Low [0.1])

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

Ownership	*Disturbance at AA (#12i)*		
	low	moderate	high
public ownership	1 (H)	.5 (M)	.2 (L)
private ownership	.7 (M)	.3 (L)	.1 (L)

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0	1	
B. MT Natural Heritage Program Species Habitat	Low	0	1	
C. General Wildlife Habitat	MOD	0.5	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	NA	—	—	
F. Short and Long Term Surface Water Storage	Low	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	High	1	1	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	Low	0.2	1	
J. Groundwater Discharge/Recharge	High	1	1	
K. Uniqueness	Low	0.3	1	
L. Recreation/Education Potential	Low	0.1	1	
Totals:		3.4	9	

38%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below) I II (III) IV

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

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

✓

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

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

Site was rated on its own merits - is currently stark contrast between this site + adjacent marsh. As this site develops, adopting characteristics of adjacent marsh, the assessment area will likely change to include the existing marsh.

DATA FORM
ROUTINE WETLAND
(1987 COE Wetlands Delineation Manual)

Project/Site:	Plentywood - North Wetland Mitigation	**Project No:** Task 24	**Date:** 18-Jul-2001
Applicant/Owner:	Montana Department of Transportation		**County:** Sheridan
Investigators:	Berglund / Harris		**State:** Montana
			Plot ID: 1

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

VEGETATION (USFWS Region No. 4)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Phalaris arundinacea	Herb	FACW*	*Chenopodium album*	Herb	FAC
Grass,Reed Canary			Goosefoot,White		
Rumex crispus	Herb	FACW	*Lactuca serriola*	Herb	FACU
Dock,Curly			Lettuce,Prickly		
Helianthus annuus	Herb	FACU	*Beckmannia syzigachne*	Herb	OBL
Sunflower,Common			Sloughgrass,American		
Thlaspi arvense	Herb	NI	*Hordeum jubatum*	Herb	FACW
Penny-Cress,Field			Barley,Fox-Tail		
Agrostis alba	Herb	FACW	*Setaria glauca*	Herb	FACU
Redtop			Grass,Yellow Bristle		
Gnaphalium paluatre	Herb	OBL	*Sisymbrium altissimum*	Herb	UPL
Cudweed,Western Marsh			Mustard,Tall Tumble		
Polygonum amphibium	Herb	OBL	*Agrostis scabra*	Herb	FAC
Smartweed,Water			Bentgrass,Rough		
Kochia scoparia	Herb	FAC			
Summer-Cypress,Mexican					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 10/14 = 71.43%
FAC Neutral: 7/11 = 63.64%
Numeric Index: 37/14 = 2.64

Remarks:
Only about 70% vegetated; site developing; fairly weedy.

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:	> 18 *(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:
Soils moist, but not saturated, at 12". May sub-irrigate from adjacent wetland.

DATA FORM
ROUTINE WETLAND
(1987 COE Wetlands Delineation Manual)

Project/Site:	Plentywood - North Wetland Mitigation	**Project No:** Task 24	**Date:** 18-Jul-2001
Applicant/Owner:	Montana Department of Transportation		**County:** Sheridan
Investigators:	Berglund / Harris		**State:** Montana
			Plot ID: 1

SOILS

Map Unit Name (Series and Phase): Bowbells silt loam
Map Symbol: BoS **Drainage Class:** WD
Taxonomy (Subgroup): Unknown
Mapped Hydric Inclusion?
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
10	B	2.5Y3/2	7.5YR5/8	Common Distinct	Sandy clay loam

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:
Soils developing in other small wetland patches.

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:
Very weedy, somewhat marginal excavated wetland depressions adjacent to highway. Appear to be developing, although no surface water or saturation present.

Appendix C

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Plentywood-North
Sheridan County, Montana

Photo point 1, 165 degrees S/SE

Photo point 2, 13 degrees N

Photo point 2, 280 degrees W

Transect start, 278 degrees W

Transect end, 98 degrees E

Site overview, facing S/SW from MP 11.9. Mitigation site is at left of photo (crescent shape); pre-existing wetland is at right.

2001 Plentywood-North Mitigation Photo Sheet 1

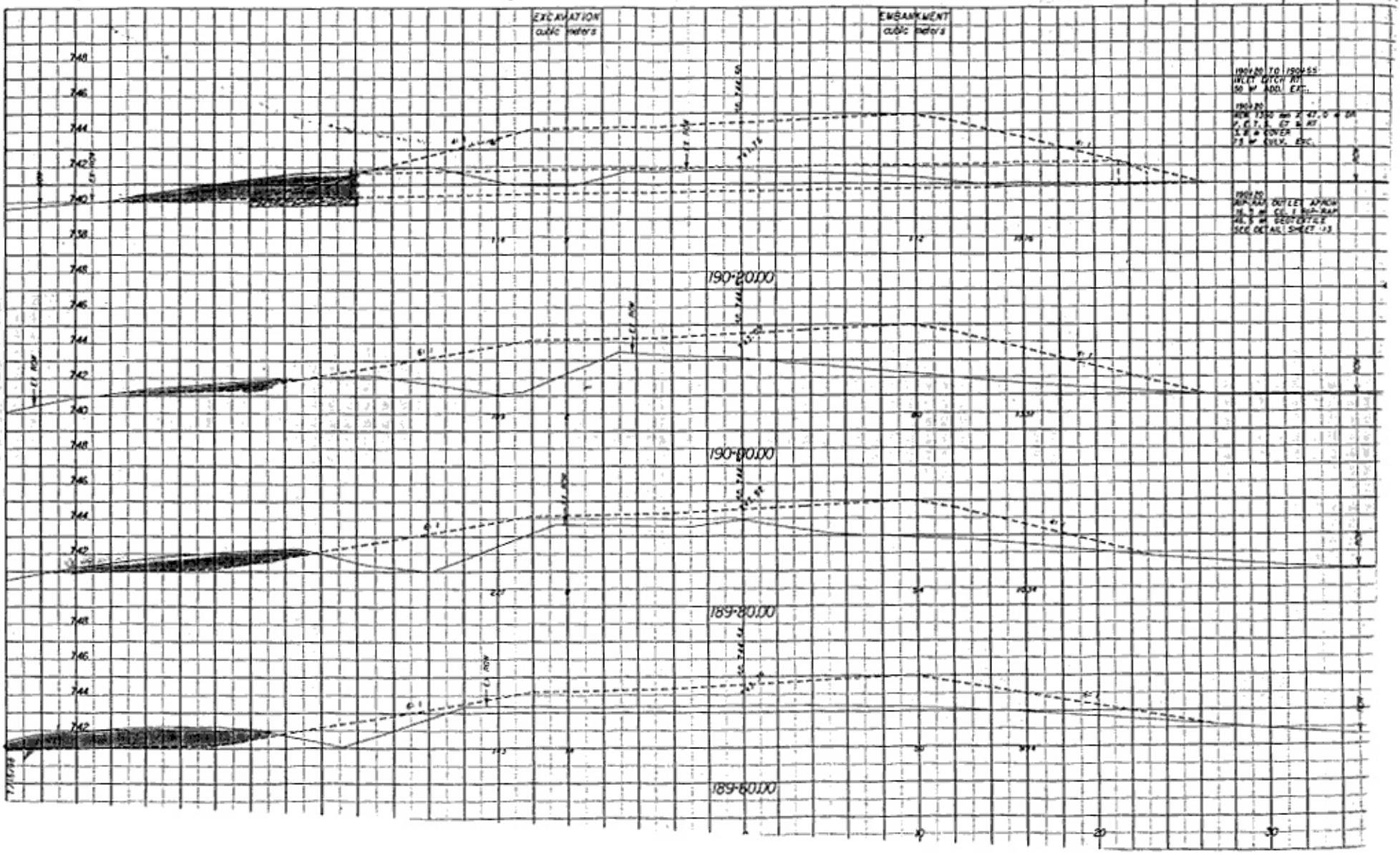
Appendix D

MDT PROPOSED SITE LAYOUT

MDT Wetland Mitigation Monitoring
Plentywood-North
Sheridan County, Montana

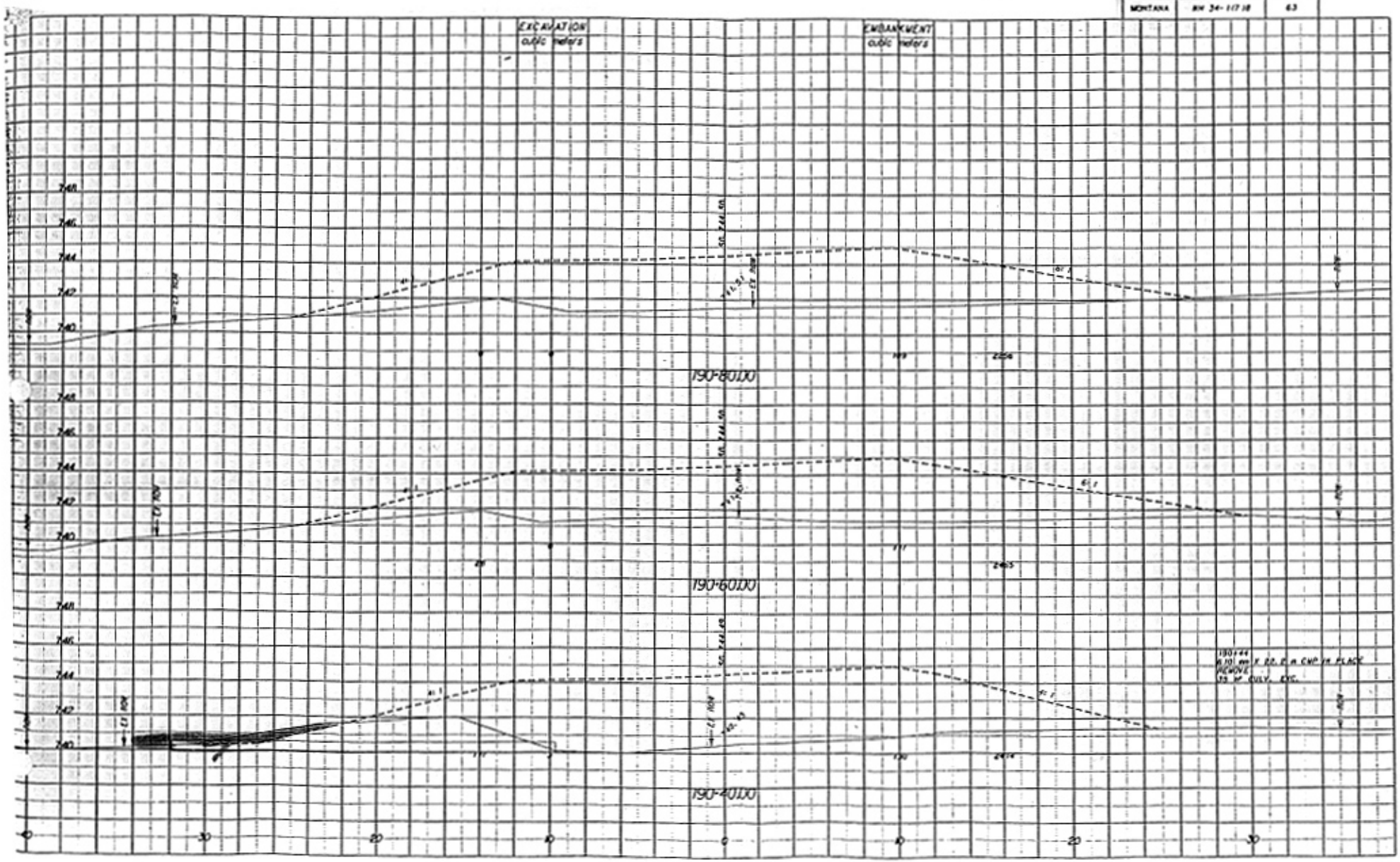
LAND & WATER

STATE	PROJECT NO.	SHEET NO.
MONTANA	RH 34-1(7)10	62



LAND & WATER D-2

STATE	PROJECT NO.	SHEET NO.
MONTANA	BW 34-1(7)18	63



Appendix E

BIRD SURVEY PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring
Plentywood-North
Sheridan County, Montana

LAND & WATER

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.

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.