MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2002

Hoskins Landing
Dixon, Montana

Prepared for:

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

Prepared by:

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

February 2003

Project No: 130091.038

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1.0 INTRODUCTION

The Hoskins Landing Wetland Mitigation Site was developed to mitigate wetland impacts associated with Montana Department of Transportation (MDT) proposed Dixon-West and Paradise-East highway reconstruction projects along Highway 200. Hoskins Landing is located in Sanders County, MDT Watershed # 3, in the Lower Clark Fork region. The mitigation site is located approximately quarter mile north of Dixon, adjacent to the Flathead River (**Figure 1**). Elevation is approximately 2,500 feet with slight topographic variation throughout the project site. Western EcoTech conducted the original wetland delineation for Hoskins Landing proposed mitigation site in 1999. Land & Water Consulting conducted a biological assessment for the Hoskins Landing Mitigation Project during fall 2001.

The approximate site boundary is illustrated on **Figure 2** (**Appendix A**), and the original site plans are included in **Appendix D**. The project is located adjacent to the Flathead River in an area of historic floodplain, heavily impacted from past agriculture activities. Seasonal flooding provides the primary wetland hydrology with inundation of backwater channels. Local groundwater systems moving though alluvium also provide a secondary source of hydrology for this site. The site is located on the Flathead Indian Reservation and is managed by the Confederated Salish & Kootenai Tribes. The wetland easement area is mostly fenced with several exclusions on the east and west ends near the river banks. Livestock are still able to enter the project site and potentially could damage revegetation efforts.

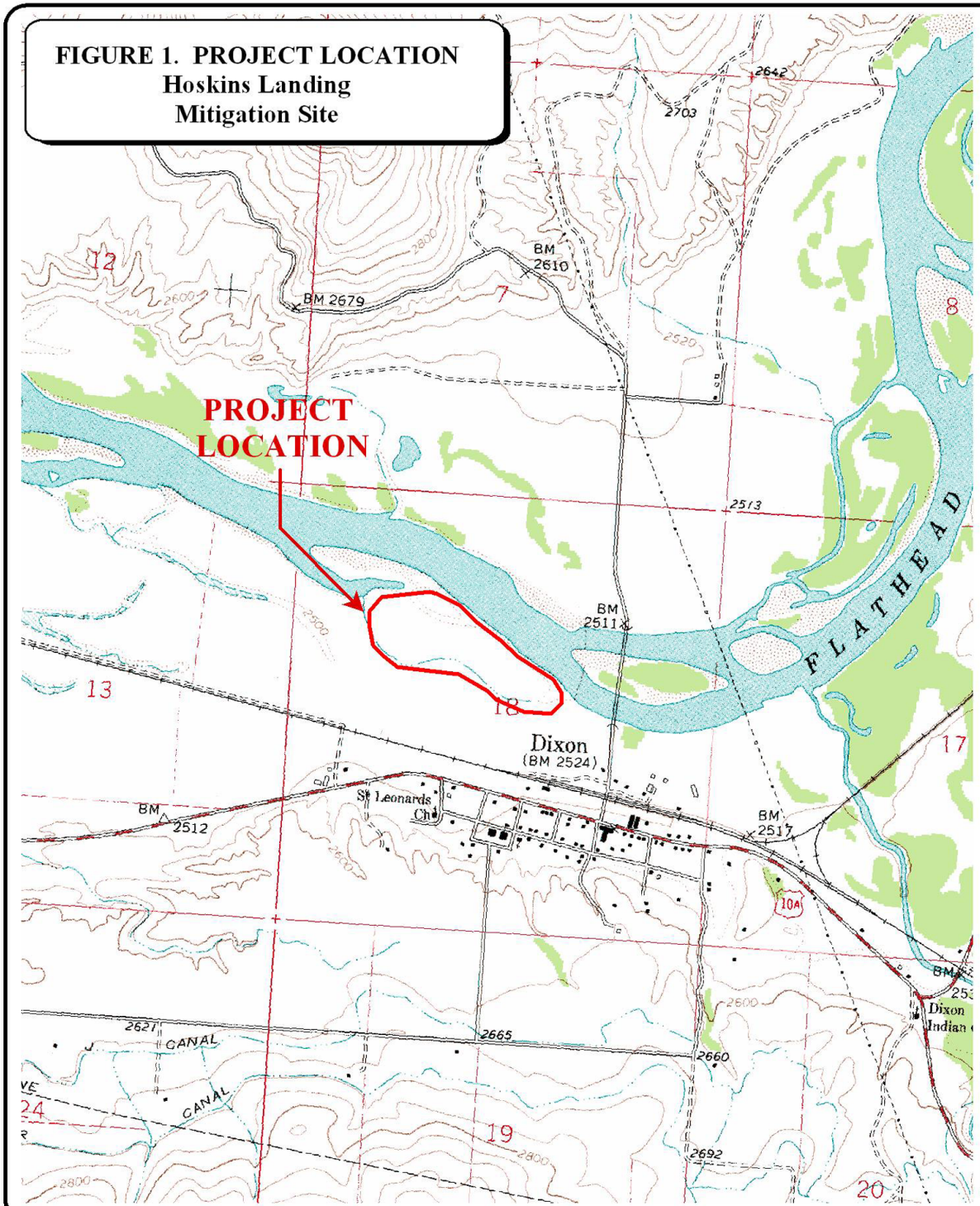
Most construction was completed in fall 2002 with the goal of restoring/creating 8.1 acres of wetlands and enhancing vegetation on 5.2 acres of heavily grazed and cleared lands. Construction diagrams are presented in **Appendix D**. Revegetation work is scheduled for spring of 2003. The primary components of construction include:

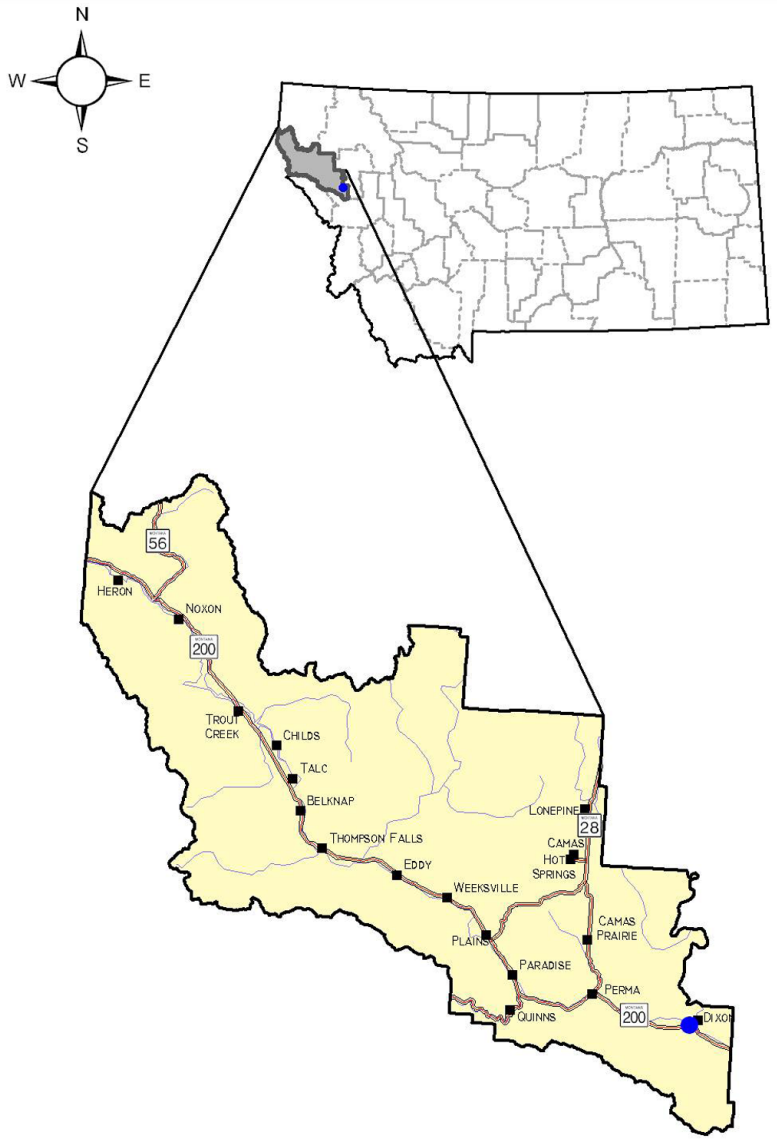
- Excavation and grading of 8.1 acres to facilitate wetland development.
- Enhancement of 5.2 acres of native vegetation characteristics in the lower Flathead River riparian corridor.
- Filling of inlet channel and removal of headgate in the northeast corner of the site.
- Removal of outlet dam along the remnant channel bordering the south portion of the site.
- Removal of man-made flood control berm along the Flathead River and grading of excavated ground to 10:1 slopes.
- Removal of a man-made berm along the remnant backwater channel.

The site was designed to mitigate for specific wetland functions impacted by MDT roadway projects, including: storm water retention, roadway runoff filtration, sediment and nutrient retention, water quality, groundwater recharge, waterfowl/wildlife habitats and riparian vegetation.

Pre-construction wetland delineation documented 6.67 acres of wetlands at the site (Western EcoTech, 1999). The Hoskins Landing site will be monitored once per year over the 3-year contract period to document wetland and other biological attributes. The monitoring area is illustrated in **Figure 2** (**Appendix A**).

FIGURE 1. PROJECT LOCATION
Hoskins Landing
Mitigation Site





800 0 800 1600 FEET

1: 24,000

PROJECT #: 130091.039
DATE: Nov 2002
LOCATION: DIXON
PROJECT MANAGER: J. BERGLUND
DRAWN BY: B. STEINEBACH

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

2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on September 9 (mid-season) and November 21, 2002 (late season). The mid-season visit was conducted 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; photograph points; macroinvertebrate sampling; GPS data points; functional assessment; and (non-engineering) examination of topographic features. The late-season visit was of a reconnaissance nature.

The 2002 site visits were conducted later than they will be conducted in the future, as construction was not completed in time to conduct a spring birding visit or earlier mid-season visit. During subsequent monitoring years, a spring visit will be conducted in May/early June, with the mid-season visit conducted in July/August.

2.2 Hydrology

Wetland hydrology indicators were recorded during the mid-season visit 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**). Additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). No groundwater monitoring wells were installed at the site

2.3 Vegetation

General dominant species-based vegetation community types (e.g., *Eleocharis/Phalaris*) 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 and do not reflect yearly changes. Estimated percent cover of the dominant species in each community type was listed on the site monitoring form (**Appendix B**).

A 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: T (few plants); P (1-5%), 1 (5-15%); 2 (15-25%); 3 (25-35%); 4 (35-45%); 5 (45-55%) and so on to 9 (85-95). Wetland indicator status was recorded for each species. Percent cover was estimated for each vegetative species encountered. The transect location is illustrated on **Figure 2** (**Appendix A**). The transect will be used to evaluate changes over time, especially the establishment and increase of hydrophytic vegetation. The transect location was marked on the air photo and all data were recorded on the mitigation site monitoring form. Transect endpoint locations were recorded with the GPS unit. A photo was taken from both ends of the transect looking along the transect path.

A comprehensive plant species list for the site was compiled and will be updated as new species are encountered. Ultimately, observations from past years will be compared with new data to document vegetation changes over time. Woody species were not planted at the time of monitoring. Revegetation implementation was scheduled to begin in spring 2003.

2.4 Soils

Soils were evaluated during the mid-season site visit using the hydric soils determination 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 Forms (**Appendix B**). The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

2.5 Wetland Delineation

Wetland delineation was conducted during the mid-season visit according to 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 information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary was delineated on the air photo and recorded with a resource grade GPS unit using the procedures outlined in **Appendix E**. The wetland/upland boundary in combination with the wetland/open water boundary was used to calculate the final wetland acreage. Pre-construction wetland delineation documented 6.7 acres of wetlands at the site (Western EcoTech 1999).

2.6 Mammals and Herptiles

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

2.7 Birds

Bird observations were primarily recorded during the mid-season visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. Observations were recorded incidental to other monitoring activities and were categorized by species, activity code, and general habitat association.

2.8 Macroinvertebrates

Macroinvertebrate samples were collected during the mid-season site visit at two separate locations (**Figure 2**). Samples were preserved as outlined in the sampling procedure **(Appendix E)** and sent to a laboratory for analysis.

2.9 Functional Assessment

A functional assessment form was completed using the 1999 MDT Montana Wetland Assessment Method (**Appendix B**). Field data necessary for this assessment was collected during the mid-season visit. Western Eco Tech completed baseline functional assessment during the initial wetland delineation using the 1996 MDT Montana Wetland Field Evaluation Form.

2.10 Photographs

Photographs were taken illustrating current land uses surrounding the site, the upland buffer, the monitored area and the vegetation transect. Each photograph point location was recorded with a resource grade GPS. The location of photo points is shown on **Figure 2**, **Appendix A**. All photographs were taken using a 50 mm lens.

2.11 GPS Data

During the 2002 monitoring season, point data were collected with a resource grade GPS unit at the vegetation transect beginning and ending locations and at all photograph locations. Wetland boundaries were also recorded with a resource grade GPS unit. The method used to collect these points is described in the GPS protocol in **Appendix E**.

2.12 Maintenance Needs

Observations were made of existing structures and of erosion/sediment problems to identify maintenance needs. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented on the monitoring form.

3.0 RESULTS

3.1 Hydrology

The main source of hydrology is seasonal flooding by the Flathead River. This mitigation site occurs in Flathead River floodplain consisting of back channels and ponds. The eastern end of the site once held a headgate that controlled the flow of water into the remnant channel running along the southern boundary. This has been removed, allowing water to flow through channel during seasonally high flows. A secondary source of hydrology is the persistent upwelling and lateral movement of groundwater through the alluvium materials.

During the spring of 2002, seasonal flooding crested at approximately 18 inches above the highest point in the floodplain. The water regime at Hoskins Landing is ultimately controlled by water release from Kerr Dam over 42 miles upriver. The high water event occurring on the site during 2002 can be attributed to above average water release from Kerr Dam in anticipation of spring flooding due to heavy late spring snowfalls.

Open water occurred across approximately 1.14 acres or 9% of the 48-acre parcel (**Figure 3**) during the mid-season visit. Water depth at the open water/rooted vegetation boundary was approximately 0.5 feet. Inundation was observed at this time across another 60% of the wetland area. Inundation was present throughout all of community types 1, 2, 3 and 11 (**Figure 3**).

3.2 Vegetation

Sixty plant species were identified at the site and are listed in **Table 1**. The majority of these species are herbaceous. A few small remnant shrub patches exist, found mostly along the active backwater channel. Several small stands of black cottonwood (*Populus trichocarpa*) and box elder (*Acer negundo*) were also found on higher terraces located along the river and backwater channels. Five wetland and four upland community types were identified and mapped at the mitigation site (**Figure 3**, **Appendix A**). The five wetland community types include Type 2: *Eleocharis/Phalaris*, Type 3: *Potamogeton/Elodea*, Type 5: *Phalaris/Salix*, Type 7: *Phalaris* and Type 11: *Ceratophyllum.* Plant species observed within each of these communities are listed on the attached data form (**Appendix B**). The four upland community types include Type 4: *Plantago/Cirsium*, Type 6: *Festuca/Phleum*, Type 9 *Centaurea/Sisymbrium* and Type 10 *Populus/Crataegus.* Plant species observed within each of these communities are listed on the attached data form (**Appendix B**).

Types 3 & 11 are the wettest community types and occurred as aquatic bed/emergent wetland communities in the shallow waters of the created wetlands ponds and remnant backwater channel (**Figure 3**). Type 3 is dominated by largeleaf pondweed (*Potamogeton amplifolius*), curly pondweed (*Potamogeton crispus*), broad water-weed (*Elodea canadensis*) and least spike-rush (*Eleocharis acicularis*). Type 11 is mostly dominated by common hornwort (*Ceratophyllum demersum*). Type 2 is the next wettest area, consisting of emergent vegetation occurring in an undisturbed wetland, delineated during the initial evaluation. Type 2 is located on the west side, surrounded by the newly constructed wetland ponds, dominated by least spike rush (*Eleocharis acicularis*), reed canarygrass (*Phalaris arundinacea*) and bulrush (*Scirpus acutus*). Type 5 is the next wettest wetland type and occurs throughout the backwater channel located on the south side of the project border. Type 7 is the last wetland, dominated by *Phalaris arundinacea*, located within the seasonally flooded depression adjacent to river.

Adjacent upland vegetation communities are mainly dominated by rangeland and/or aggressive weedy species. Type 6 upland areas were historically grazed and still continue to be affected by livestock grazing. Type 6 upland areas are dominated with pasture grasses such as *Festuca/Phleum.* The created uplands have a low overall percent cover, dominated by weedy species associated with disturbance. Type 4 mostly consists of created upland topography dominated by *Plantago/Cirsium*. Type 10 is located along the higher terraces of the river and backwater channel, consisting of mature cottonwoods and box elder. A minor shrub layer is present, consisting of hawthorne (*Crataegus douglasii*) and American plum (*Prunus americana*).

Several noxious weeds were observed throughout the Hoskins Landing site. Type 4 and 6 had small amounts and Type 9 was mapped exclusively as being dominated by only weedy species. These plants include spotted knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*), hounds tongue (*Cynoglossum officinale*) and oxeye daisy (*Chrysanthemum leucanthemum*).

Other weedy species include curly dock (*Rumex crispus*), common dandelion (*Taraxicum officinalis*), lambs quarters (*Chenopodium album*), pepper-grass (*Lepidium perfoliatum*), tumbleweed (*Sisymbrium altissimum*) and quackgrass (*Agropyron repens*).

Vegetation transect results are detailed in the attached data forms and are graphically summarized below.

Transect 1:

Start	*Type 1 Upland (18')*	*Type 2 Upland (24')*	*Type 3 Wetland (108')*	*Type 4 Wetland (84')*	*Type 5 Wetland (90')*	*Type 6 Upland (66')*	Total: 390'	End

Table 1: ***2002 Hoskins Landing Vegetation Species List***

Scientific Name	Common Name	Region 9 (Northwest) Wetland Indicator
Acer negundo	Box elder	FAC+
Agropyron repens	Quackgrass	FACU
Agrostis stolonifera	Redtop	FAC+
Alopecurus pratensis	Meadow foxtail	FACW
Amaranthus retroflexus	Red-root pigweed	FACU+
Artemisia ludoviciana	White sagebrush	FACU-
Bromus japonicus	Japanese brome	UPL
Carex lanuginosa	Wooly sedge	OBL
Carex retrorsa	Retrorsa sedge	FAC
Centaurea maculosa	Spotted knapweed	--
Ceratophyllum demersum	Common hornwort	OBL
Chenopodium album	White goosefoot	FAC
Chrysanthemum leucanthemum	Oxeye daisy	--
Cirsium arvense	Canadian thistle	FACU+
Cirsium vulgare	Bull thistle	FACU
Coreopsis atkinsoniana	tickseed	FACU
Cornus stolonifera	Red-osier dogwood	FACW
Crataegus douglasii	Douglas Hawthorn	FAC
Cynoglossum officinale	Hound's toungue	FACU
Dactylis glomerata	Orchard grass	--
Eleocharis acicularis	Least spike rush	OBL
Eleocharis palustris	Creeping spike rush	OBL
Elodea canadensis	Broad water-weed	OBL
Equisetum arvense	Field horsetail	FAC
Equisetum hyemale	Scouring rush	FACW
Festuca pratensis	Meadow fescue	FACU+
Eroduim cicutarium	Red-stem filaree	NI
Gnaphalium palustre	Cudweed	FAC+
Hippuris vulgaris	Common mare's-tail	OBL
Iris pseudacorus	Yellow iris	OBL
Juncus balticus	Baltic rush	FACW
Juncus ensifolius	Three-stamen rush	FACW
Lepidium perfoliatum	Clasping pepper-grass	FACU+
Malva neglecta	Mallow	--
Melilotus officinalis	Yellow sweetclover	FACU
Mentha arvensis	Field mint	FAC
Myosotis scorpioides	True forget me not	FACW
Panicum capillare	Old witchgrass	FACU+
Phalaris arundinacea	Canary reed grass	FACW
Phleum pratense	Timothy	FACU
Plantago lanceolata	English plantain	FAC
Plantago major	Plantain	FACU+
Poa pratensis	Kentucky bluegrass	FACU+
Polygonum amphibium	Water smartweed	OBL
Polygonum aviculare	Prostrate Knotweed	FACW+
Populus trichocarpa	Cottonwood	FAC
Potamogeton amplifolius	Largeleaf pondweed	OBL

Table 1*: (continued)*

Scientific Name	Common Name	Region 9 (Northwest) Wetland Indicator
Potamogeton crispus	Curly Pondweed	OBL
Potamogeton natans	Floating-leaf Pondweed	OBL
Prunus americana	American plum	FACU
Rosa woodsii	Woods rose	FACU
Rumex crispus	Curly Dock	FACW
Sagittaria latifolia	Arrow-head	OBL
Salix exigua	Sandbar Willow	OBL
Scirpus acutus	Hard stem Bulrush	OBL
Scirpus validus	Soft-Stem Bulrush	OBL
Sisymbrium altissimum	Tall Tumble mustard	FACU-
Solidago missouriensis	Missouri goldenrod	--
Symphoricarpos albus	Snowberry	FACU
Taraxicum officinalis	Common dandelion	FACU
Verbascum thapsus	Common mullien	--
Veronica americana	American speedwell	OBL

3.3 Soils

Soils at the site are mapped in the Sanders County Soil Survey as Horseplains-riverwash and Revais silt loam. Horseplains-riverwash is described as a fine sandy loam, 60 inches deep with a lighter surface layer, and slopes of 0-2%. Revais silt loam has a depth of 60 inches with lighter colored surface and slopes of 0-2% (NRCS 2002). Horseplains and Revais soils are not listed on the Montana NRCS Hydric Soil list. Soil characteristics at each wetland determination point were compared with those of the Horseplains and Revais soil. The soils observed across most of the site did not generally match the Horseplains and Revais soil descriptions, as textures were slightly different.

Wetland soils observed during monitoring and documented on the Routine Wetland Determination form were mostly loams, silt loams or clays with very low chromas (1 or 2) within 2 inches of the surface. Mottles (redoximorphic features) were present in two profiles, both having surface inundation. The two remaining soil profiles described on the Routine Wetland Determination forms were mapped as upland sampling points, having no soil moisture or distinct hydric characteristics within 18 inches of the surface.

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated on **Figure 3**. Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Monitoring in 2002 identified the following conditions:

	Monitoring Area
Gross Aquatic Area	12.13
Open Water Area	1.14
Net Wetland Area	**10.99**

Approximately 10.99 wetland acres and 1.14 open water acres are currently within the monitoring area (**Figure 3**). The pre-construction wetland delineation reported 6.67 wetland and no open water acres. A pre-project delineation map is provided in **Appendix D**. The net increase in aquatic habitat acres is 12.13 – 6.67 = 5.46 acres. Additional area may form with time and more normal precipitation around the low gradient portions of the current wetland area.

Some changes in wetland acres between the pre-project delineation and the post-project delineation were observed in areas where there was no construction. Pre-project delineation mapped wetlands 8, 10, 11 and 13 during 1999 delineation, but these wetlands were not mapped or observed during the 2002 delineation.

Wetlands 11 and 13 were located within the backwater channel that receives seasonally high flows. During 2002 delineation these areas were mapped as Waters of the U.S. due to the hydrologic connection to the Flathead River, but were not considered wetlands due to the lack of vegetation and soils characteristics. Vegetative cover was dominated by mostly weedy species, classifying this area as upland vegetation. The backwater channels substrate consists of mostly cobbles and gravels with no evidence of hydric soils. Due to the location and topography of the backwater channel, being adjacent to the river, seasonally high flows can aggressively scour the channel surface and alter vegetation located within the channel.

Wetland 10 was located along the banks of Flathead River and was also subject to intense seasonal flows. During pre-project delineation, Wetland 8 was mapped as a small fringe of wetland along the banks of the Flathead; this area was not observed during 2002 delineation.

Wetlands 9A and 9B were mapped as two separate areas, depressions adjacent to Flathead River, connected during seasonal flows. Post-project delineation in 2002 mapped these areas as one wetland. The dominant species, reed canarygrass, is located on a slightly higher topography than the adjacent backwater channel. As a result, these areas were not subject to the intense scouring effects observed within other wetland areas located along the backwater channels. This avoidance of intense scour has created a more optimal condition for the aggressive reed canarygrass to increase in cover. These wetlands have expanded and grown into one area between pre and post delineations. Heavy grazing within this area has formed a dense layer of sod dominated by reed canarygrass.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2002 monitoring efforts is listed in **Table 2**. Species observed include great blue heron, osprey, mallards, red tail hawk, and killdeer. Specific evidence observed, as well as activity codes pertaining to birds, is provided on the completed monitoring form in **Appendix B**. This site provides habitat for a variety of wildlife species. Two mammal and six bird species were noted at the mitigation site during the 2002 site visits. Many other wildlife species use the site but were not observed during the monitoring visits, presumably due to the relatively late timing (beyond the primary breeding/nesting season) of these visits.

3.6 Macroinvertebrates

Complete results from the macro invertebrate sampling locations (**Figure 2**) are presented in **Appendix B.** Sampling points for Hoskins Landing were located along the western side of the created wetland pond. Conditions at Hoskins Landing were poor, indicated by scores calculated for the bio-assessment. Taxa richness was low, and the midge fauna was limited to a single

individual; these findings suggested monotonous benthic substrates. Macrophytes apparently contributed to the water column habitat complexity, however. The biotic index value (7.71) was elevated compared to the other monitored wetland sites, suggesting moderate impairment of water quality due to warm temperatures and/or nutrient enrichment.

Table 2: ***Wildlife Species Observed at the Hoskins Landing Mitigation Site During 2002 Monitoring***

FISH None (no fish surveys implemented)	
AMPHIBIANS None	
REPTILES None	
BIRDS American Crow (*Corvus brachyrhynchos*) Great Blue Heron (*Ardea herodias*) Killdeer (*Charadrius vociferous*)	Mallard (*Anas platyrhynchos*) Osprey (*Pandoin haliaetus*) Red-tail Hawk (*Buteo jamaicensis*)
MAMMALS Coyote (*Canis latrans*)	Deer (*Odocoileus sp.*)

3.7 Functional Assessment

Completed 2002 functional assessment forms are included in **Appendix B**. The vast majority of wetlands on the Hoskins Landing mitigation site are currently rated as Category III (moderate value), primarily due to moderate ratings for wildlife/fish habitat, TE species habitat, and flood attenuation variables. Other factors contributing to this score were low rating for MNHP species habitat, sediment/nutrient removal, sediment/shoreline stabilization and recreation/education ratings. The site received a high rating for surface water storage due to the acre-feet of water contained in wetlands. The variable for production export/food chain support rated high due to the overall vegetated acres, high structural diversity and perennial water regime. The site received a moderate fish rating due to surface water duration and some habitat deficiencies. The site received a moderate flood attenuation rating due to the presence of an inflow channel into the wetland and restricted nature of outlet. The site received a low recreation/education rating since it has moderate disturbance level and is in private ownership. The site received a low rating for sediment/shoreline stability due to a lack of plants with deep binding roots.

It is significant to note that the wildlife habitat rating would likely increase at wetlands as an indirect result of vegetation enhancement in adjacent uplands. Vegetation community Type 4 (**Figure 3**), in particular, provides little cover or vertical diversity. Eliminating or reducing grazing, planting taller herbaceous species and planting woody species are examples of methods for enhancing both wetlands and upland habitats at the site.

Based on functional assessment results (**Table 3)**, approximately 80.13 functional units occur at the Hoskins Landing mitigation site. Baseline functional assessment results are also provided in **Table 3** for general comparative purposes. However, it should be noted that direct comparison between the baseline and 2002 functional assessments is not possible as they were completed using different versions of the MDT functional assessment method. The baseline assessment was completed using the 1996 version, while the 2002 assessment was conducted using the most current (1999) version.

Table 3: ***Summary of Baseline and 2002 Wetland Function/Value Ratings and Functional Points [1] at the Hoskins Landing Mitigation Project***

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Me thod	Wetland Numbers							
	Baseline 1A (1996 Method)	**Baseline 1B (1996 Method)**	**Baseline 3 (1996 Method)**	**Baseline 8 (1996 Method)**	**Baseline 2, 9A, 9B, 10, 11, 12, 13 (1996 Method)**	**Baseline 5, 6, 7, 14A, 14B (1996 Method)**	**2002 Site 5 (1999 Method)**	**2002 Remainder of Wetlands (1999 Method)**
Listed/Proposed T&E Species Habitat	Low (0.3)	Mod (0.7)	None (0.0)	Mod (0.7)	None (0.0)	None (0.0)	Low (0.0)	Mod (0.7)
MNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)	Mod (0.7)	None (0.0)	None (0.0)	Low (0.0)	Low (0.1)
General Wildlife Habitat	High (0.9)	Mod (0.5)	Mod (0.5)	High (0.9)	Low (0.1)	Low (0.1)	Low (0.2)	Moderate (0.5)
General Fish/Aquatic Habitat	Low (0.2)	Mod (0.7)	NA	High (1)	NA	NA	NA	Moderate (0.6)
Flood Attenuation	Mod (0.5)	Low (0.2)	Low (0.2)	Low (0.1)	Low (0.2)	NA	Low (0.2)	Moderate (0.7)
Short and Long Term Surface Water Storage	High (0.8)	NA	Low (0.3)	NA	NA	Low (0.3)	Low (0.3)	High (0.9)
Sediment, Nutrient, Toxicant Removal	High (1)	High (1)	High (1)	Mod (0.5)	High (1)	Mod (0.5)	Mod (0.5)	Low (0.3)
Sediment/Shoreline Stabilization	Mod (0.7)	Mod (0.7)	NA	Mod (0.4)	High (0.9)	NA	NA	Low (0.2)
Production Export/ Food Chain Support	High (0.8)	Mod (0.6)	Mod (0.6)	Mod (0.7)	Low (0.2)	Low (0.1)	Low (0.2)	High (0.9)
Groundwater Discharge/ Recharge	High (1)	High (1)	High (1)	Low (0.1)	Low (0.1)	High (1)	High (1)	High (1.0)
Uniqueness	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.3)	Moderate (0.5)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	High (1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.3)
Actual Points/ Possible Points	6.6 / 12	5.8 / 11	4.0 / 9	6.3 / 11	2.8 / 10	2.3 / 9	2.8 / 10	6.7 / 12
% of Possible Score Achieved	55%	53%	44%	57%	28%	26%	28%	55%
Overall Category	III	III	III	II*	IV	IV	IV	III
Total Acreage of Assessed Wetlands and Open Water within Easement	2.58 ac	0.86 ac	0.68 ac	0.06 ac	0.75 ac	1.74 ac	0.29 ac	11.84 ac
Functional Units (acreage x actual points)	17.03	4.99 fu	2.73 fu	0.37 fu	2.10 fu	4.00 fu	0.81 fu	79.32 fu
Total Acreage at Site	6.67 ac						12.13 ac	
Total Functional Units at Site	31.22 fu						80.13 fu	
Net Acreage Gain	NA						5.46 ac	
Net Functional Unit Gain	NA						48.91 fu	

[1] See completed MDT baseline functional assessment forms in Appendix D and 2002 forms in Appendix B for further detail. [2]The baseline assessment was performed using the 1996 MDT assessment method, several parameters which were substantially revised during development of the 1999 MDT assessment method, which was applied during 2002 monitoring. Thus, direct comparison of pre- and post-project functions is not possible, although some general trends can be noted. * Did not achieve Category II rating based on functional points, but did achieve Category II rating based on score for fish and wildlife habitat; this narrow fringe wetland was absent during 2002 delineation.

3.8 Photographs

Representative photographs taken from photo-points and transect ends are presented in **Appendix C**.

3.9 Revegetation Efforts

Revegetation efforts are scheduled for fall 2002 and spring 2003. These efforts include drill seeding of an upland seed mix into the areas of high topography and planting of native seedlings. Wetland areas surrounding or adjacent top the pond will be broadcast seeded with a custom wetland seed mix. Created upland slopes were drill seeded with a specific mix detailed in **Appendix F**. **Appendix F** presents the different planting specification for each seed mix and seedling plantings.

3.10 Maintenance Needs/Recommendations

Weed control and revegetation of disturbed sites is needed to prevent further weed spread, reduce the risk of new weeds invading, reduce wind and water erosion and reduce sediment input to surface waters. Several noxious weeds are present including Canada thistle, hound's-tongue and spotted knapweed that must be controlled under the Montana County Noxious Weed Control Act [7-22-2151].

Recent weed control activities were observed during the mid-season visit. Herbicides had been applied to the mostly barren upland slopes, dominated by *Cirsium arvense*. Leafs/stems were burned and curled indicating recent application. This application was used as a weed control measure before topsoil was added to the site.

Livestock grazing on this site still presents a problem. The site is fenced around the entire boundary except for two exclusions where the fence line runs down the riverbank. During low water, cattle can easily access the site by walking down the dry cobble bank of the river and entering the area. The appropriate fencing will need to be added to those areas to reduce the livestock access. It will be most crucial to limit cattle grazing after the revegetation enhancements are implemented.

3.11 Current Credit Summary

At this time approximately 10.99 acres of wetland and 1.14 acres of open water occur on the mitigation site. Subtracting the original 6.67 acres of pre-project wetlands from this total yields a current net of approximately 5.46 wetland/open water acres. It is likely that additional acreage will form with additional time and more normal precipitation. Additionally, approximately 49 functional units have been gained at the site, although pre- and post-construction functional assessment methods slightly differed.

4.0 REFERENCES

Carlson, J. Program Zoologist, Montana Natural Heritage Program. Helena, MT. April 2001 conversation.

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

Hackley, Pam. 1997. Pre-Project Wetland Delineation – Beaverhead Gateway Wetland Mitigation Site. Helena, MT.

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.

Urban, L. Wetland Mitigation Specialist, Montana Department of Transportation. Helena, MT. March 2001 meeting; January 2002 meeting.

U.S. Army Corps of Engineers. 2001. December 6, 2001 letter from Allan Steinle to Jeff Stutzman (Musgrave Lake Ranch LLC) regarding Milk River Wetland Mitigation Project – Corps File # 2000-90-331. Helena, MT.

USDA Natural Resource Conservation Service. 1989. *Soil Survey of Madison County Area, Montana.*

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

FIGURES 2 - 3

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, Montana

LAND & WATER

Figure 2-Monitoring Activities Locations

PROJECT NAME
MDT Hoskin's Landing Wetland Mitigation
DRAWING TITLE
Monitoring Activity Locations

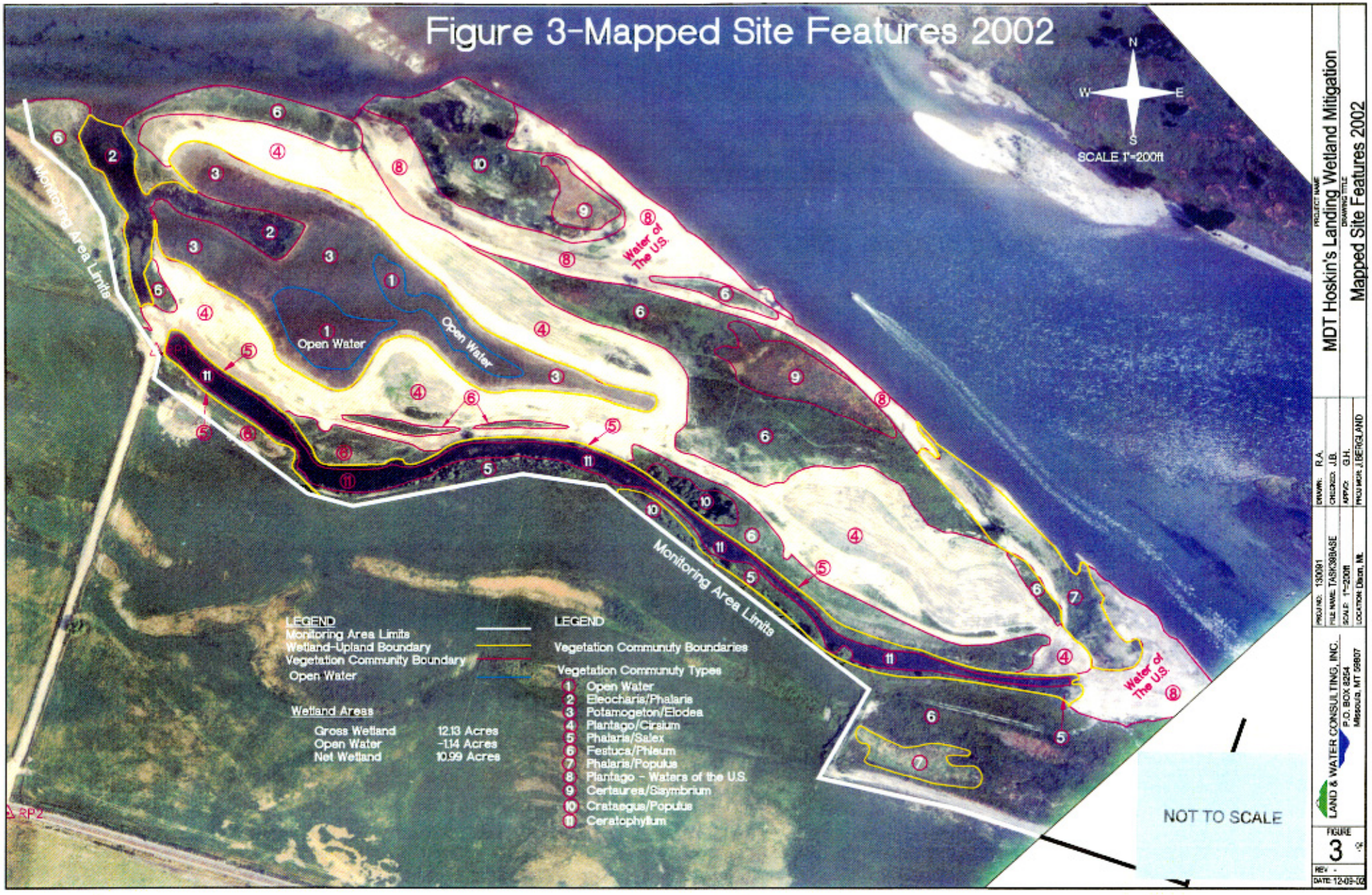
PROJ NO: 130091
FILE NAME: TASK3BBASE
SCALE: 1"=200ft
LOCATION: Dixon, MT.

DRAWN: R.A.
CHECKED: J.B.
APPVD: J.B.
PROJ MGR: J.BERGLAND

LAND & WATER CONSULTING, INC.
P.O. BOX 8254
Missoula, MT 59807

FIGURE 2
REV -
DATE: 9-10-02

Figure 3-Mapped Site Features 2002



PROJECT NAME: MDT Hoskin's Landing Wetland Mitigation

DRAWING TITLE: Mapped Site Features 2002

PROJ NO: 130091 | DWGNR: R.A.
FILE NAME: TASK99BASE | CHECKED: J.B.
SCALE: 1"=200ft | APP'D: G.H.
LOCATION: Dillon, Mt. | PROJ MGR: J.BERGLAND

LAND & WATER CONSULTING, INC.
P.O. BOX 8254
Missoula, MT 59807

FIGURE 3

REV: -

DATE: 12-09-02

Appendix B

COMPLETED 2002 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2002 BIRD SURVEY FORM
COMPLETED 2002 WETLAND DELINEATION FORMS
COMPLETED 2002 FUNCTIONAL ASSESSMENT FORM
MACROINVERTEBRATE SAMPLE ANALYSES

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, Montana

LAND & WATER

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Hoskins Landing Project Number: 130091.038 Assessment Date: 09 / 04 / 02
Location: N. of Dixon, MT MDT District: Missoula Milepost:
Legal description: T: 18 R: 21 Section: 18 Time of Day: Afternoon to early evening
Weather Conditions: Clear & sunny Person(s) conducting the assessment: Greg Howard
Initial Evaluation Date: 09 / 04 / 02 Visit #: 1 Monitoring Year: 2002
Size of evaluation area: 48 acres Land use surrounding wetland: Agriculture; alfalfa & cattle grazing

HYDROLOGY

Surface Water Source: Flathead River
Inundation: Present X Absent Average depths: 1.5 ft Range of depths: 0 – 2 ft
Assessment area under inundation: 40 %
Depth at emergent vegetation-open water boundary: 0.5 ft
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes - No -
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): Sediment deposition from seasonal flow, spring 2002. Drift lines present around constructed pond.

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

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:
X Map emergent vegetation-open water boundary on air 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.)
- GPS survey groundwater monitoring wells locations if present

COMMENTS/PROBLEMS: Persistent drift marks at approximately 2 – 3ft above current water level. Road access/crossing on SW end of channel was disturbed during last high water event (spring 2002). Another disturbance also happened about half way along the southern channel. High water flow breached side channel and entered into the constructed pond.

Mary Price, project coordinator for the Confederated Salish & Kootenai Tribes was onsite during visit. According to Ms. Price, high water levels were 18 inches above the highest ground (upland). This explains the several breaches,& sediment deposits observed onsite. She states she is unhappy w/excavation work, claims slopes are beyond 10:1. Site might have further dirt work, topsoil added and slopes re-contoured. Planting scheduled for this fall.

VEGETATION COMMUNITIES

Community No.: 2 Community Title (main species): Eleocharis / Phalaris

Dominant Species	% Cover	Dominant Species	% Cover
Scirpus acutus	1	*Sagittaria latifolia*	2
Scirpus validus	P	*Carex retrorsa*	p
Phalaris arundinacea	3		
Eleocharis palustris	5		
Potamogeton natans	1		

COMMENTS/PROBLEMS: Undisturbed emergent wetlands located on W. side of site. Connects to outlet of southern channel. Area is surrounded by pond and newly constructed wetlands. Wetland inundated during visit.

Community No.: 3 Community Title (main species): Potamogeton / Elodea

Dominant Species	% Cover	Dominant Species	% Cover
Potamogeton amplifolius	6		
Elodea canadensis	1		
Potamogeton crispus	1		
Potamogeton natans	T		

COMMENTS/PROBLEMS: Areas of aquatic vegetation, pond observed to mostly be vegetated w/aquatic species during this monitoring. Emergent vegetation found in outer fringes within lower water depths.

Community No.: 4 Community Title (main species): Plantago / Cirsium

Dominant Species	% Cover	Dominant Species	% Cover
Plantago lanceolata	2		
Plantago major	1		
Cirsium arvense	2		
Verbascum thapsus	1		
Grasses-sprouts, no id	P		

COMMENTS/PROBLEMS: Constructed upland slopes w/ low % vegetation cover. Mostly weedy and disturbance related species. Several Montana state listed noxious weeds (Cirsium arvense & Cynoglossum officinale). Evidence of recent herbicide application, plants with burned and curled leaves.

Additional Activities Checklist:

X Record and map vegetative communities on air photo

COMMENTS: Community # 1 is open water.

VEGETATION COMMUNITIES

Community No.: 5 Community Title (main species): Phalaris / Salix

Dominant Species	% Cover	Dominant Species	% Cover
Phalaris arundinacea	6	*Juncus ensifolius*	T
Salix exigua	3	*Eleocharis acicularis*	P
Juncus balticus	P	*Salix bebbiana*	T
Scirpus acutus	T		
Cornus stolonifera	T		

COMMENTS/PROBLEMS: Undisturbed side channel running along S. end of project site. Channel w/ stagnate water, no flowing inlet or outlet, except during seasonally high flows. Channel vegetation consisting mostly of aquatic bed, emergent and scrub-shrub types.

Community No.: 6 Community Title (main species): Festuca / Phleum

Dominant Species	% Cover	Dominant Species	% Cover
Phleum pratense	2	*Rosa woodsii*	T
Agropyron repens	2	*Symphoricarpos albus*	T
Taraxacum officinale	P	*Agrostis alba*	1
Cirsium arvense	P	*Festuca pratensis*	3
Rumex crispus	T	*Centaurea maculosa*	1

COMMENTS/PROBLEMS: Pockets of pre-existing upland pasture still used for cattle grazing. Area w/ stated listed noxious weeds (Centaurea maculosa & Cirsium arvense).

Community No.: 7 Community Title (main species): Phalaris / Populus

Dominant Species	% Cover	Dominant Species	% Cover
Populus trichocarpa	1	*Taraxacum officinale*	P
Salix exigua	P		
Rumex crispus	1		
Agrostis alba	P		
Phalaris arundinacea	6		

COMMENTS/PROBLEMS: Heavy grazing within this vegetation community, cattle inside site boundaries, grass species clipped to several inches tall. This area receives seasonal flooding and is adjacent to main river.

Additional Activities Checklist:
X Record and map vegetative communities on air photo

COMMENTS:

VEGETATION COMMUNITIES

Community No.: 8 Community Title (main species): Plantago

Dominant Species	% Cover	Dominant Species	% Cover
Plantago major	1	*Panicum capillare*	T
Plantago lanceolata	P	*Chrysanthemum leucanthemum*	T
Verbascum thapsus	P		
Populus trichocarpa	P		
Sisymbrium altissimum	T		

COMMENTS/PROBLEMS: Area adjacent to Flathead River, cobble and gravel substrate/banks. Low vegetation cover, mostly weedy or disturbance species. Large quantities of cottonwood sprouts found throughout the cobble area. Community type #8 considered Waters of the U.S.

Community No.: 9 Community Title (main species): Centaurea/Sisymbrium

Dominant Species	% Cover	Dominant Species	% Cover
Centaurea maculosa	2	*Chenopodium album*	P
Sisymbrium altissimum	P		
Lepidium perfoliatum	P		
Malva neglecta	T		
Symphoricarpos albus	P		

COMMENTS/PROBLEMS: Area dominated by spotted knapweed & other weedy species

Community No.: 10 Community Title (main species): Populus/Crataegus

Dominant Species	% Cover	Dominant Species	% Cover
Crataegus douglasii	2	*Festuca pratensis*	P
Prunus americana	1	*Phleum pratense*	P
Rosa woodsii	P	*Agropyron repens*	2
Cornus stolonifera	P	*Symphoricarpos albus*	P
Populus trichocarpa	3	*Centaurea maculosa*	P

COMMENTS/PROBLEMS: Mature cottonwood& hawthorne found along higher terrace, adjacent to river & backwater channel. Herbaceous layer consisting of pasture grasses and weeds. A few small shrubs patches present.

Additional Activities Checklist:

X Record and map vegetative communities on air photo

COMMENTS:

VEGETATION COMMUNITIES

Community No.: _11__ Community Title (main species): Ceratophyllum

Dominant Species	% Cover	Dominant Species	% Cover
Ceratophyllum demersum	4		T
Equisetum hyemale	P		P
Eleocharis acicularis	P		T
Juncus balticus	P		
Phalaris arundinacea	T		

COMMENTS/PROBLEMS: Aquatic bed habitat dominated by common hornwort, standing water in channel. Some evidence of flowing water through channel during seasonal high water: scour marks, drift lines and sediment depositions.

Community No.: ___ Community Title (main species):_____

Dominant Species	% Cover	Dominant Species	% Cover

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

COMMENTS:

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
Acer negundo	10	*Mentha arvensis*	2
Agropyron repens	6,10	*Myosotis scorpioides*	2
Agrostis stolonifera	6	*Panicum capillare*	8
Alopecurus pratensis	6	*Phalaris arundinacea*	2,5,7,11
Amaranthus retroflexus	6	*Phleum pratense*	6,10
Artemisia ludoviciana	4,8	*Plantago lanceolata*	4,8
Bromus japonicus	6	*Plantago major*	4,8
Carex lanuginosa	2	*Poa pratensis*	6
Carex retrorsa	2	*Polygonum amphibium*	2,11
Centaurea maculosa	4,6,10	*Polygonum aviculare*	4
Ceratophyllum demersum	11	*Populus trichocarpa*	7,8,10
Chenopodium album	4,6	*Potamogeton amplifolius*	3
Chrysanthemum leucanthemum	8	*Potamogeton crispus*	3
Cirsium arvense	4,6	*Potamogeton natans*	3
Cirsium vulgare	4,6	*Prunus americana*	10
Coreopsis atkinsoniana	8	*Rosa woodsii*	10
Cornus stolonifera	5,10	*Rumex crispus*	2,4,6
Crataegus douglasii	10	*Sagittaria latifolia*	2
Cynoglossum officinale	4,6	*Salix bebbiana*	5
Dactylis glomerata	6	*Salix exigua*	5,7
Eleocharis acicularis	2	*Scirpus acutus*	2
Eleocharis palustris	4	*Scirpus validus*	2
Elodea canadensis	3	*Sisymbrium altissimum*	4
Equisetum arvense	2,4,8	*Solidago missouriensis*	6,8
Equisetum hyemale	2,11	*Symphoricarpos albus*	10
Festuca pratensis	6	*Taraxacum officinalis*	6
Eroduim cicutarium	4,8,10	*Verbascum thapsus*	4
Gnaphalium palustre	4,8	*Veronica americana*	2
Hippuris vulgaris	2		
Iris pseudacorus	2		
Juncus balticus	5		
Juncus ensifolius	5		
Lepidium perfoliatum	4		
Malva neglecta	4		
Melilotus officinalis	4,6,10		

COMMENTS/PROBLEMS: _____

PLANTED WOODY VEGETATION SURVIVAL

Species	Number Originally Planted	Number Observed	Mortality Causes
None planted			

COMMENTS/PROBLEMS: No plantings observed during visit. According to Mary Price, later this fall or spring 2003, tribal crews will be implementing revegetation efforts. Community Type # 4 to have topsoil added to surface, seeded with native grass mix and shrub plantings.

WILDLIFE

BIRDS

See attached Bird Survey – Field Data Sheet

Were man-made nesting structures installed? Yes____ No _X_ Type:_____ How many?_____ Are the nesting structures being utilized? Yes____ No____ Do the nesting structures need repairs? Yes____ No____

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
Deer		X			
Coyote			X		

Additional Activities Checklist:
__X_ Macro invertebrate sampling (if required)

COMMENTS/PROBLEMS: Macro invertebrate samples collected and location marked on map.

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
1	R1 1-5	Panoramic looking S. of emergent vegetation, pond and upland.	270° – 90°
2	R1 6	Picture looking N. at the transect end and upland vegetation.	180°
3	R1 7-9	Picture looking W. at emergent vegetation that existed before construction.	45° – 135°
4	R1 10-15	Panoramic running W. to E., transect start, side channel, pond & upland.	315° – 135°
5	R1 16-17	Picture looking E., side channel & disturbed RD. crossing.	135°
6	R1 18-24	Panoramic running W. to E., emergent wetlands, pond & upland.	315° – 90°
7	R2 1	Picture looking E., side channel & area where berm was removed.	90°
8	R2 2-3	Picture looking E., side channel & area of high water disturbance.	90°
9	R2 4	Picture looking W., emergent wetlands & created ponds.	315°
9	R2 5	Picture looking N., created uplands & pasture.	0°
9	R2 6	Picture looking W., created uplands & pasture.	180°
9	R2 7	Picture looking SW., riparian vegetation along side channel.	180°
10	R2 8-12	Panoramic of W. end, side channel, upland& flood channel.	270° –135°
11	R2 13	Picture looking W., along N. side of project & Flathead River.	315°
12	R2 14	Picture looking W., along N. side, areas where berm was removed.	315°
13	R2 15	Picture looking W., empty floodplain channel near river.	315°

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__ 4-6 landmarks recognizable on the air photo
__X__ Start and end points of vegetation transect(s)
__X__ Photo reference points
_____ Groundwater monitoring well locations

COMMENTS/PROBLEMS: _____

WETLAND DELINEATION

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

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

COMMENTS/PROBLEMS: _____

FUNCTIONAL ASSESSMENT

See attached completed MDT Montana Wetland Assessment Method forms.

MAINTENANCE

Were man-made nesting structures installed at this site? YES ___ NO __X__

If yes, do they need to be repaired? YES____ NO____

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____ NO _X_

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

If no, describe the problems below.

COMMENTS/PROBLEMS: _____

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Hoskins Landing Date: 09/04/02 Examiner: Greg Howard Transect # 1

Approx. transect length: 390 ft Compass Direction from Start (Upland): 45°

Vegetation type 1:	Upland Pasture	
Length of transect in this type:	18	feet
Species:	Cover:	
Plantago lanceolata	2	
Plantago major	1	
Cirsium arvense	2	
Amaranthus retroflexus	P	
Phleum pratense	1	
Agrostis alba	1	
Festuca pratensis	T	
Agropyron repens	P	
Populus trichocarpa	T	
Chenopodium album	T	
Panicum capillare	T	
Total Vegetative Cover:	75%	

Vegetation type 2:	Created Upland	
Length of transect in this type:	24	feet
Species:	Cover:	
Equisetum arvense	2	
Eleocharis acicularis	T	
Plantago major	1	
Cirsium arvense	2	
Populus trichocarpa (sprouts)	T	
Verbascum thapsus	P	
Total Vegetative Cover:	50%	

Vegetation type 3:	Emergent wetlands/Aquatic	
Length of transect in this type:	108	feet
Species:	Cover:	
Eleocharis acicularis	T	
Elodea canadensis	1	
Potamogeton amplifolius	6	
Eleocharis palustris	T	
Potamogeton crispus	1	
Potamogeton natans	P	
Total Vegetative Cover:	85%	

Vegetation type 4:	Emergent wetland (undisturbed)	
Length of transect in this type:	84	feet
Species:	Cover:	
Phalaris arundinacea	2	
Eleocharis palustris	4	
Hippuris vulgaris	P	
Scirpus acutus	1	
Sagittaria latifolia	T	
Veronica americana	P	
Potamogeton natans	2	
Rumex crispus	T	
Myosotis scorpioides	T	
Equisetum arvense	T	
Carex retrorsa	P	
Total Vegetative Cover:	95%	

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Hoskins Landing Date: 09/04/02 Examiner: Greg Howard Transect # 1

Approx. transect length: 390 ft Compass Direction from Start (Upland): 45°

Vegetation type 5:	Emergent/aquatic wetlands	
Length of transect in this type:	90	feet
Species:	Cover:	
Eleocharis acicularis	P	
Juncus ensifolius	T	
Sagittaria latifolia	T	
Potamogeton amplifolius	5	
Potamogeton natans	T	
Potamogeton crispus	1	
Elodea canadensis	P	
Eleocharis palustris	T	
Phalaris arundinacea	T	
Carex spp.	T	
Total Vegetative Cover:	65%	

Vegetation type 6:	Upland (created))	
Length of transect in this type:	66	feet
Species:	Cover:	
Cirsium arvense	P	
Plantago lanceolata	P	
Panicum capillare	T	
Verbascum thapsus	P	
Plantago major	P	
Centaurea maculosa	T	
Gnaphalium palustre	T	
Eleocharis palustris	T	
Polygonum amphibium	T	
Clover	T	
Grasses; sprouts no ID	P	
Total Vegetative Cover:	20%	

Vegetation type 7:		
Length of transect in this type:		feet
Species:	Cover:	
Total Vegetative Cover:	80%	

Vegetation type 8:		
Length of transect in this type:		feet
Species:	Cover:	
Total Vegetative Cover:		

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

Cover Estimate		**Indicator Class:**	**Source:**
+ = <1%	3 = 11-20%	+ = 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.

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:

BIRD SURVEY – FIELD DATA SHEET

Page_1__of_1__
Date:9/04/02
Survey Time:0800-1200

SITE: Hoskins Landing

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Osprey	1	FO	-				
Red tailed hawk	1	FO	-				
Great blue heron	1	FO	-				
Mallard	3	F,L	OW				
Killdeer	2	F,L	US				

Notes:

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: 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 shoreline

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Hoskins landing	Date: 9/4/02
Applicant/Owner: MDT	County: Sanders
Investigator: Greg Howard	State: MT

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

Community ID: -
Transect ID: T1
Plot ID: 1

VEGETATION

	Dominant Plant Species	Stratum	Indicator
1	*Plantago lanceolata*	H	FAC
2	*Cirsium arvense*	H	FACU+
3	*Phleum pratense*	H	FACU
4	*Agropyron repens*	H	FACU+
5	*Agrostis alba*	H	FACU
6		H	FAC+
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 2/6 = 33%

Upland pasture along the outer fringes of created wetland slopes.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:
No evidence of hydrology. Soil pit was dry and crumbly. Seasonal flooding does occur, soils were not saturated or moist at the time of inspection.

SOILS

Map Unit Name (Series and Phase):	Horseplains-riverwash complex	Drainage Class:	--
	--	Field Observations	
Taxonomy (Subgroup):	--	Confirm Mapped Type?	X Yes ____ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 2	A	10 YR 3/2	-	-	Loam
2 – 12	B1	10 YR 4/2	-	-	Silty Loam
12+	B2	10 YR 5/2	-	-	Silty Loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Marginal hydric indicators, slight evidence of hydric conditions with low-chroma colors.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	____	Yes	X	No
Wetland Hydrology Present?	____	Yes	X	No
Hydric Soils Present?	x	Yes	____	No

Is this Sampling Point Within a Wetland? ____ Yes X No

Remarks:
Upland sampling plot, close to the start of vegetation transect. Area of intensive livestock grazing, dominated by upland species.

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Applicant/Owner: MDT			County: Sanders
Investigator: Greg Howard			State: MT
Do Normal Circumstances exist on the site:	x Yes	___ No	Community ID: -
Is the site significantly disturbed (Atypical Situation)?	___ Yes	___ No	Transect ID: T1
Is the area a potential Problem Area?:	___ Yes	___ No	Plot ID: 2
(If needed, explain on reverse.)			

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Eleocharis palustris*	H	OBL	9			
2	*Phalaris arundinacea*	H	FACW	10			
3	*Scirpus acutus*	H	OBL	11			
4	*Potamogeton natans*	H	OBL	12			
5	*Carex retrorsa*	H	FAC	13			
6	*Sagittaria latifolia*	H	OBL	14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 6/6 = 100%

Hydrophytic vegetation present, area of mostly inundated with several inches of surface water, dominated by wetland species.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

x No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- x Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:
Soil pit inundated, water at surface, depth of 0 inches.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): NA Field Observations Confirm Mapped Type? ____ Yes __x__ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 2	O	10 YR 3/2	-	-	Organics
2 – 10	A	10 YR 3/1	10 YR 2/6	Medium, 25%	Clay
10+	B	10 YR 4/1	10 YR 2/6	Large, 75%	Clay

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Hydric soils observed, indicators being mottles, low-chroma colors and inundate soil pit.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? X Yes ____ No

Wetland Hydrology Present? X Yes ____ No

Hydric Soils Present? X Yes ____ No

Is this Sampling Point Within a Wetland? x Yes ____ No

Remarks:

Sampling plot is an emergent wetland type.

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

Project/Site:	Hoskins Landing	Date:	9/4/02
Applicant/Owner:	MDT	County:	Sanders
Investigator:	Greg Howard	State:	MT

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

Community ID: -
Transect ID: T1
Plot ID: 3

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Potamogeton crispus*	H	OBL	9			
2	*Ceratophyllum demersum*	H	OBL	10			
3	*Elodea canadensis*	H	OBL	11			
4	*Eleocharis acicularis*	H	OBL	12			
5	*Juncus ensifolius*	H	FACW	13			
6				14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 5/5 = 100%

Aquatic habitat dominated by obligate wetland species. Sampling plot located along outer fringes of wetland pond.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
x No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)
Depth to Free Water in Pit: - (in.)
Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
x Saturated in Upper 12 Inches
___ Water Marks
x Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:
Soil pit located along outer fringe of created wetland pond. Soils saturated through profile. Evidence of receding water level, sampling plot would be inundated earlier in the season.

SOILS

Map Unit Name (Series and Phase): _____
Taxonomy (Subgroup): NA
Drainage Class: _____
Field Observations
Confirm Mapped Type? ____ Yes __x__ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 - 1	A	10 YR 3/1	-	-	Organics w/clay loam
1 – 12	B1	10 YR 5/1	10 YR 4/6	Medium, 15%	Clay
12+	B2	2.5 YR 4/1	10 YR 4/6	Small, 10%	Clay

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
__x__	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
__x__	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Hydric soils present, low-chroma colors & mottles.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? __x__ Yes ____ No
Wetland Hydrology Present? __x__ Yes ____ No
Hydric Soils Present? __x__ Yes ____ No

Is this Sampling Point Within a Wetland? __x__ Yes ____ No

Remarks:
Created wetland pond; open water, aquatic bed and emergent wetland types.

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

Project/Site:	Hoskins Landing	Date:	9/4/02
Applicant/Owner:	MDT	County:	Sanders
Investigator:	Greg Howard	State:	MT

Do Normal Circumstances exist on the site:	x Yes	___ No	Community ID:	-
Is the site significantly disturbed (Atypical Situation)?	___ Yes	___ No	Transect ID:	T1
Is the area a potential Problem Area?:	___ Yes	___ No	Plot ID:	4
(If needed, explain on reverse.)				

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Cirsium arvense*	H	FACU÷	9			
2	*Plantago lanceolata*	H	FAC	10			
3	*Panicum capillare*	H	FACU+	11			
4	*Verbascum thapsus*	H	-	12			
5	*Plantago major*	H	FACU	13			
6	*Centaurea maculosa*	H	-	14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 1/6 = 16%

Low vegetation cover, area dominated by weedy/disturbance species,, upland vegetation.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

x No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:
No hydrology present, soil pit was dry and crumbly.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): NA Field Observations Confirm Mapped Type? ____ Yes x No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 1	B1	10 YR 4/2	-	-	Roots w/silty clay
1 – 12+	B2	10 YR 4/2	-	-	Silty loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Soil profile observed to have low-chroma colors, no other hydric soils indicators found.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ____ Yes X No

Wetland Hydrology Present? ____ Yes X No

Hydric Soils Present? ____ Yes X No

Is this Sampling Point Within a Wetland? ____ Yes x No

Remarks:
Upland sampling plot.

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

1. Project Name: Hoskins Landing 2. Project #: 13009.038 Control #:

3. Evaluation Date: Mo. 9 Day 4 Yr. 02 4. Evaluator(s): Greg Howard 5. Wetlands/Site #(s) Hoskins Landing

6. Wetland Location(s): i. Legal: T 18 (N) or S; R 21 E or (W) S 18 ; T ___ N or S; R ___ E or W; S ___ :
ii. Approx. Stationing or Mileposts:
iii. Watershed: L7010212 GPS Reference No. (if applies):
Other Location Information:

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

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

9. Assessment area: (AA, tot., ac., see instructions on determining AA) ___ (visually estimated)
8.1 (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
Riverine	Palustrine	—	AB	H	E	50 %
Riverine	Palustrine	—	EM	C	E	15 %
Riverine	Palustrine	—	UB	H	E	20 %
Riverine	Palustrine	—	SS	C	—	5 %
Riverine	Palustrine	—	RB	C	—	10 %

(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.): Historic Livestock grazing, cattle have been removed.
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Spotted Knapweed, Canadian Thistle, hounds tongue, Common dandelion & Quack grass
iii. Provide brief descriptive summary of AA and surrounding land use/habitat:
Area of heavy alteration from Livestock grazing. AA had several small wetlands and active back water channels. Surrounding lands are used for Crops & Livestock.

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:

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)	Bald Eagle
Incidental habitat (list species)	D (S)	Gray Wolf, Bull trout
No usable habitat	D (S)	Spalding's Campion, Grizzly Bear, Canada Lynx,

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)	Boreal toad & Peregrine Falcon
No usable habitat	D S	

II. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for 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]):
- __ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- X 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:

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: AA has in past been altered by man-made berms, head gates & grading. These features were Removed to Restore connection.

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: AA is historic Flood plain of Flathead River.

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:

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:

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
- ___Seeps are present at the wetland edge
- X AA permanently flooded during drought periods
- ___Wetland contains an outlet, but no inlet
- ___Other

II. Recharge Indicators

- X 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:

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: X 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: Parcel managed by Confederated Salish & Kootenai tribes

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	M	0.7	1	
B. MT Natural Heritage Program Species Habitat	L	0.1	1	
C. General Wildlife Habitat	M	0.5	1	
D. General Fish/Aquatic Habitat	M	0.6	1	
E. Flood Attenuation	M	0.7	1	
F. Short and Long Term Surface Water Storage	H	0.9	1	
G. Sediment/Nutrient/Toxicant Removal	L	0.3	1	
H. Sediment/Shoreline Stabilization	L	0.2	1	
I. Production Export/Food Chain Support	H	0.9	1	
J. Groundwater Discharge/Recharge	H	1.0	1	
K. Uniqueness	M	0.5	1	
L. Recreation/Education Potential	L	0.3	1	
Totals:		6.7	12	

55%

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

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

1. Project Name: Hoskins Landing 2. Project #: 130091.038 Control #:

3. Evaluation Date: Mo. 9 Day 4 Yr. 02 4. Evaluator(s): LWC 5. Wetlands/Site #(s) "Wetland #5" in SE corner of site

6. Wetland Location(s): i. Legal: T 16 (N or S; R 21 E or W; S 18 ; T ___ N or S; R ___ E or W; S ___ :
ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 17010212 GPS Reference No. (if applies): —
Other Location Information: Small depression in SE corner of site - isolated -

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

8. Wetland size: (total acres) 0.3 (visually estimated)
___ (measured, e.g. by GPS [if applies])

9. Assessment area: (AA, tot., ac., see instructions on determining AA) 0.3 (visually estimated)
___ (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
Riverine	Palustrine	—	EM	C	—	100

(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.): Historic grazing
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) PHL PRA

iii. Provide brief descriptive summary of AA and surrounding land use/habitat:
Small isolated emergent depression within larger mitigation site. This site is essentially at baseline conditions currently.

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

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

ii. Wildlife habitat features (working from top to bottom, circle appropriate AA attributes in matrix to arrive at 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:

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: Rarely floods, but does likely occur on occasion.

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:

14H Sediment/Shoreline Stabilization: (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 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
- XX Seeps are present at the wetland edge
- ___AA permanently flooded during drought periods
- ___Wetland contains an outlet, but no inlet
- XX 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: Likely discharges groundwater through alluvium.

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	Low	0.2	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	Low	0.2	1	
F. Short and Long Term Surface Water Storage	Low	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	MOD	0.5	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:		2.8	10	

28%

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)
- X "Low" rating for Uniqueness; and
- X "Low" rating for Production Export/Food Chain Support; and
- X Total actual functional points < 30% (round to nearest whole #) of total possible functional points

√

Montana Department of Transportation
Wetland Mitigation Monitoring Project
for Land & Water Consulting
2002

		Project Name	**Hoskins Landing**
		Date	**9/4/2002**
Coelenterata		*Hydra*	1
Oligochaeta	Naididae	*Nais variabilis*	5
		Ophidonais serpentina	2
Gastropoda	Lymnaeidae	*Fossaria*	9
	Physidae	*Physa*	51
	Planorbidae	*Gyraulus*	42
Crustacea	Cladocera	Cladocera	1
	Ostracoda	Ostracoda	1
	Amphipoda	*Hyalella azteca*	9
Ephemeroptera	Baetidae	*Callibaetis*	1
	Caenidae	*Caenis*	1
Homoptera	Corixidae	Corixidae - immature	5
		Sigara	2
	Notonectidae	*Notonecta*	2
Trichoptera	Leptoceridae	*Nectopsyche*	1
Coleoptera	Dytiscidae	*Laccophilus*	5
		Rhantus	1
Diptera	Chironomidae	*Parachironomus*	1
		Total	140
		Total taxa	18
		POET	3
		Chironomidae taxa	1
		Crustacea taxa + Mollusca taxa	6
		% Chironomidae	0.71%
		Orthocladiinae/Chironomidae	0.00
		%Amphipoda	6.43%
		%Crustacea + %Mollusca	80.71%
		HBI	7.71
		%Dominant taxon	36.43%
		%Collector-Gatherers	57.14%
		%Filterers	0.71%
		Scores (2002 criteria)	
		Total taxa	3
		POET	3
		Chironomidae taxa	1
		Crustacea taxa + Mollusca taxa	5
		% Chironomidae	5
		Orthocladiinae/Chironomidae	1
		%Amphipoda	3
		%Crustacea + %Mollusca	1
		HBI	1
		%Dominant taxon	3
		%Collector-Gatherers	3
		%Filterers	1
		Total score	30

Hoskins Landing, conditions were poor, indicated by scores calculated for the bio-assessment. Taxa richness was low, and the midge fauna was limited to a single individual; these findings suggested monotonous benthic substrates. Macrophytes apparently contributed to the water column habitat complexity, however. The biotic index value (7.71) was elevated compared to the other sites, suggesting moderate impairment of water quality due to warm temperatures and/or nutrient enrichment.

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Hoskins Landing Project Number: 130091.038 Assessment Date: 09 / 04 / 02
Location: N. of Dixon, MT MDT District: Missoula Milepost:
Legal description: T: 18 R: 21 Section: 18 Time of Day: Afternoon to early evening
Weather Conditions: Clear & sunny Person(s) conducting the assessment: Greg Howard
Initial Evaluation Date: 09 / 04 / 02 Visit #: 1 Monitoring Year: 2002
Size of evaluation area: 48 acres Land use surrounding wetland: Agriculture; alfalfa & cattle grazing

HYDROLOGY

Surface Water Source: Flathead River
Inundation**:** Present X Absent Average depths: 1.5 ft Range of depths: 0 – 2 ft
Assessment area under inundation: 40 %
Depth at emergent vegetation-open water boundary: 0.5 ft
If assessment area is not inundated are the soils saturated w/in 12" of surface**:** Yes - No -
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): Sediment deposition from seasonal flow, spring 2002. Drift lines present around constructed pond.

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

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:
X Map emergent vegetation-open water boundary on air 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.)
- GPS survey groundwater monitoring wells locations if present

COMMENTS/PROBLEMS: Persistent drift marks at approximately 2 – 3ft above current water level. Road access/crossing on SW end of channel was disturbed during last high water event (spring 2002). Another disturbance also happened about half way along the southern channel. High water flow breached side channel and entered into the constructed pond.

Mary Price, project coordinator for the Confederated Salish & Kootenai Tribes was onsite during visit. According to Ms. Price, high water levels were 18 inches above the highest ground (upland). This explains the several breaches,& sediment deposits observed onsite. She states she is unhappy w/excavation work, claims slopes are beyond 10:1. Site might have further dirt work, topsoil added and slopes re-contoured. Planting scheduled for this fall.

VEGETATION COMMUNITIES

Community No.: _2__ Community Title (main species): Eleocharis / Phalaris_____

Dominant Species	% Cover	Dominant Species	% Cover
Scirpus acutus	1	*Sagittaria latifolia*	2
Scirpus validus	P	*Carex retrorsa*	p
Phalaris arundinacea	3		
Eleocharis palustris	5		
Potamogeton natans	1		

COMMENTS/PROBLEMS: Undisturbed emergent wetlands located on W. side of site. Connects to outlet of southern channel. Area is surrounded by pond and newly constructed wetlands. Wetland inundated during visit.

Community No.: _3__ Community Title (main species): Potamogeton / Elodea_____

Dominant Species	% Cover	Dominant Species	% Cover
Potamogeton amplifolius	6		
Elodea canadensis	1		
Potamogeton crispus	1		
Potamogeton natans	T		

COMMENTS/PROBLEMS: Areas of aquatic vegetation, pond observed to mostly be vegetated w/aquatic species during this monitoring. Emergent vegetation found in outer fringes within lower water depths.

Community No.: _4__ Community Title (main species): Plantago / Cirsium _____

Dominant Species	% Cover	Dominant Species	% Cover
Plantago lanceolata	2		
Plantago major	1		
Cirsium arvense	2		
Verbascum thapsus	1		
Grasses-sprouts, no id	P		

COMMENTS/PROBLEMS: Constructed upland slopes w/ low % vegetation cover. Mostly weedy and disturbance related species. Several Montana state listed noxious weeds (Cirsium arvense & Cynoglossum officinale). Evidence of recent herbicide application, plants with burned and curled leaves.

Additional Activities Checklist:
_X_ Record and map vegetative communities on air photo

COMMENTS: Community # 1 is open water.

VEGETATION COMMUNITIES

Community No.: _5__ Community Title (main species): Phalaris / Salix

Dominant Species	% Cover	Dominant Species	% Cover
Phalaris arundinacea	6	*Juncus ensifolius*	T
Salix exigua	3	*Eleocharis acicularis*	P
Juncus balticus	P	*Salix bebbiana*	T
Scirpus acutus	T		
Cornus stolonifera	T		

COMMENTS/PROBLEMS: Undisturbed side channel running along S. end of project site. Channel w/ stagnate water, no flowing inlet or outlet, except during seasonally high flows. Channel vegetation consisting mostly of aquatic bed, emergent and scrub-shrub types.

Community No.: _6__ Community Title (main species): Festuca / Phleum _____

Dominant Species	% Cover	Dominant Species	% Cover
Phleum pratense	2	*Rosa woodsii*	T
Agropyron repens	2	*Symphoricarpos albus*	T
Taraxacum officinale	P	*Agrostis alba*	1
Cirsium arvense	P	*Festuca pratensis*	3
Rumex crispus	T	*Centaurea maculosa*	1

COMMENTS/PROBLEMS: Pockets of pre-existing upland pasture still used for cattle grazing. Area w/ stated listed noxious weeds (Centaurea maculosa & Cirsium arvense).

Community No.: _7__ Community Title (main species): Phalaris / Populus _____

Dominant Species	% Cover	Dominant Species	% Cover
Populus trichocarpa	1	*Taraxacum officinale*	P
Salix exigua	P		
Rumex crispus	1		
Agrostis alba	P		
Phalaris arundinacea	6		

COMMENTS/PROBLEMS: Heavy grazing within this vegetation community, cattle inside site boundaries, grass species clipped to several inches tall. This area receives seasonal flooding and is adjacent to main river.

Additional Activities Checklist:
_X_ Record and map vegetative communities on air photo

COMMENTS:

VEGETATION COMMUNITIES

Community No.: _8__ Community Title (main species): Plantago

Dominant Species	% Cover	Dominant Species	% Cover
Plantago major	1	*Panicum capillare*	T
Plantago lanceolata	P	*Chrysanthemum leucanthemum*	T
Verbascum thapsus	P		
Populus trichocarpa	P		
Sisymbrium altissimum	T		

COMMENTS/PROBLEMS: Area adjacent to Flathead River, cobble and gravel substrate/banks. Low vegetation cover, mostly weedy or disturbance species. Large quantities of cottonwood sprouts found throughout the cobble area. Community type #8 considered Waters of the U.S.

Community No.: _9__ Community Title (main species): Centaurea/Sisymbrium

Dominant Species	% Cover	Dominant Species	% Cover
Centaurea maculosa	2	*Chenopodium album*	P
Sisymbrium altissimum	P		
Lepidium perfoliatum	P		
Malva neglecta	T		
Symphoricarpos albus	P		

COMMENTS/PROBLEMS: Area dominated by spotted knapweed & other weedy species

Community No.: _10__ Community Title (main species): Populus/Crataegus

Dominant Species	% Cover	Dominant Species	% Cover
Crataegus douglasii	2	*Festuca pratensis*	P
Prunus americana	1	*Phleum pratense*	P
Rosa woodsii	P	*Agropyron repens*	2
Cornus stolonifera	P	*Symphoricarpos albus*	P
Populus trichocarpa	3	*Centaurea maculosa*	P

COMMENTS/PROBLEMS: Mature cottonwood& hawthorne found along higher terrace, adjacent to river & backwater channel. Herbaceous layer consisting of pasture grasses and weeds. A few small shrubs patches present.

Additional Activities Checklist:
_X_ Record and map vegetative communities on air photo

COMMENTS:

VEGETATION COMMUNITIES

Community No.: _11__ Community Title (main species): Ceratophyllum

Dominant Species	% Cover	Dominant Species	% Cover
Ceratophyllum demersum	4		T
Equisetum hyemale	P		P
Eleocharis acicularis	P		T
Juncus balticus	P		
Phalaris arundinacea	T		

COMMENTS/PROBLEMS: Aquatic bed habitat dominated by common hornwort, standing water in channel. Some evidence of flowing water through channel during seasonal high water: scour marks, drift lines and sediment depositions.

Community No.: ___ Community Title (main species):_____

Dominant Species	% Cover	Dominant Species	% Cover

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

COMMENTS:

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
Acer negundo	10	*Mentha arvensis*	2
Agropyron repens	6,10	*Myosotis scorpioides*	2
Agrostis stolonifera	6	*Panicum capillare*	8
Alopecurus pratensis	6	*Phalaris arundinacea*	2,5,7,11
Amaranthus retroflexus	6	*Phleum pratense*	6,10
Artemisia ludoviciana	4,8	*Plantago lanceolata*	4,8
Bromus japonicus	6	*Plantago major*	4,8
Carex lanuginosa	2	*Poa pratensis*	6
Carex retrorsa	2	*Polygonum amphibium*	2,11
Centaurea maculosa	4,6,10	*Polygonum aviculare*	4
Ceratophyllum demersum	11	*Populus trichocarpa*	7,8,10
Chenopodium album	4,6	*Potamogeton amplifolius*	3
Chrysanthemum leucanthemum	8	*Potamogeton crispus*	3
Cirsium arvense	4,6	*Potamogeton natans*	3
Cirsium vulgare	4,6	*Prunus americana*	10
Coreopsis atkinsoniana	8	*Rosa woodsii*	10
Cornus stolonifera	5,10	*Rumex crispus*	2,4,6
Crataegus douglasii	10	*Sagittaria latifolia*	2
Cynoglossum officinale	4,6	*Salix bebbiana*	5
Dactylis glomerata	6	*Salix exigua*	5,7
Eleocharis acicularis	2	*Scirpus acutus*	2
Eleocharis palustris	4	*Scirpus validus*	2
Elodea canadensis	3	*Sisymbrium altissimum*	4
Equisetum arvense	2,4,8	*Solidago missouriensis*	6,8
Equisetum hyemale	2,11	*Symphoricarpos albus*	10
Festuca pratensis	6	*Taraxacum officinalis*	6
Eroduim cicutarium	4,8,10	*Verbascum thapsus*	4
Gnaphalium palustre	4,8	*Veronica americana*	2
Hippuris vulgaris	2		
Iris pseudacorus	2		
Juncus balticus	5		
Juncus ensifolius	5		
Lepidium perfoliatum	4		
Malva neglecta	4		
Melilotus officinalis	4,6,10		

COMMENTS/PROBLEMS: _____

_____

_____

_____

_____

_____

PLANTED WOODY VEGETATION SURVIVAL

Species	Number Originally Planted	Number Observed	Mortality Causes
None planted			

COMMENTS/PROBLEMS: No plantings observed during visit. According to Mary Price, later this fall or spring 2003, tribal crews will be implementing revegetation efforts. Community Type # 4 to have topsoil added to surface, seeded with native grass mix and shrub plantings.

WILDLIFE

BIRDS

See attached Bird Survey – Field Data Sheet

Were man-made nesting structures installed? Yes____ No _X_ Type:_____ How many?_____ Are the nesting structures being utilized? Yes____ No____ Do the nesting structures need repairs? Yes____ No____

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
Deer		X			
Coyote			X		

Additional Activities Checklist:
__X_ Macro invertebrate sampling (if required)

COMMENTS/PROBLEMS: Macro invertebrate samples collected and location marked on map.

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
1	R1 1-5	Panoramic looking S. of emergent vegetation, pond and upland.	270^o – 90^o
2	R1 6	Picture looking N. at the transect end and upland vegetation.	180^o
3	R1 7-9	Picture looking W. at emergent vegetation that existed before construction.	45^o – 135^o
4	R1 10-15	Panoramic running W. to E., transect start, side channel, pond & upland.	315^o – 135^o
5	R1 16-17	Picture looking E., side channel & disturbed RD. crossing.	135^o
6	R1 18-24	Panoramic running W. to E., emergent wetlands, pond & upland.	315^o – 90^o
7	R2 1	Picture looking E., side channel & area where berm was removed.	90^o
8	R2 2-3	Picture looking E., side channel & area of high water disturbance.	90^o
9	R2 4	Picture looking W., emergent wetlands & created ponds.	315^o
9	R2 5	Picture looking N., created uplands & pasture.	0^o
9	R2 6	Picture looking W., created uplands & pasture.	180^o
9	R2 7	Picture looking SW., riparian vegetation along side channel.	180^o
10	R2 8-12	Panoramic of W. end, side channel, upland& flood channel.	270^o –135^o
11	R2 13	Picture looking W., along N. side of project & Flathead River.	315^o
12	R2 14	Picture looking W., along N. side, areas where berm was removed.	315^o
13	R2 15	Picture looking W., empty floodplain channel near river.	315^o

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__ 4-6 landmarks recognizable on the air photo
__X__ Start and end points of vegetation transect(s)
__X__ Photo reference points
_____ Groundwater monitoring well locations

COMMENTS/PROBLEMS: _____
_____
_____

WETLAND DELINEATION

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

COMMENTS/PROBLEMS: _____

FUNCTIONAL ASSESSMENT

See attached completed MDT Montana Wetland Assessment Method forms.

MAINTENANCE

Were man-made nesting structures installed at this site? YES ___ NO __X__
If yes, do they need to be repaired? YES____ NO____
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____ NO _X_
If yes, are the structures working properly and in good working order? YES____ NO___
If no, describe the problems below.

COMMENTS/PROBLEMS: _____

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Hoskins Landing Date: 09/04/02 Examiner: Greg Howard Transect # 1

Approx. transect length: 390 ft Compass Direction from Start (Upland): 45°

Vegetation type 1:	Upland Pasture	
Length of transect in this type:	18	feet

Species:	Cover:
Plantago lanceolata	2
Plantago major	1
Cirsium arvense	2
Amaranthus retroflexus	P
Phleum pratense	1
Agrostis alba	1
Festuca pratensis	T
Agropyron repens	P
Populus trichocarpa	T
Chenopodium album	T
Panicum capillare	T
Total Vegetative Cover:	75%

Vegetation type 2:	Created Upland	
Length of transect in this type:	24	feet

Species:	Cover:
Equisetum arvense	2
Eleocharis acicularis	T
Plantago major	1
Cirsium arvense	2
Populus trichocarpa (sprouts)	T
Verbascum thapsus	P
Total Vegetative Cover:	50%

Vegetation type 3:	Emergent wetlands/Aquatic	
Length of transect in this type:	108	feet

Species:	Cover:
Eleocharis acicularis	T
Elodea canadensis	1
Potamogeton amplifolius	6
Eleocharis palustris	T
Potamogeton crispus	1
Potamogeton natans	P
Total Vegetative Cover:	85%

Vegetation type 4:	Emergent wetland (undisturbed)	
Length of transect in this type:	84	feet

Species:	Cover:
Phalaris arundinacea	2
Eleocharis palustris	4
Hippuris vulgaris	P
Scirpus acutus	1
Sagittaria latifolia	T
Veronica americana	P
Potamogeton natans	2
Rumex crispus	T
Myosotis scorpioides	T
Equisetum arvense	T
Carex retrorsa	P
Total Vegetative Cover:	95%

LAND & WATER

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Hoskins Landing Date: 09/04/02 Examiner: Greg Howard Transect # 1

Approx. transect length: 390 ft Compass Direction from Start (Upland): 45°

Vegetation type 5:	Emergent/aquatic wetlands	
Length of transect in this type:	90	feet
Species:		Cover:
Eleocharis acicularis		P
Juncus ensifolius		T
Sagittaria latifolia		T
Potamogeton amplifolius		5
Potamogeton natans		T
Potamogeton crispus		1
Elodea canadensis		P
Eleocharis palustris		T
Phalaris arundinacea		T
Carex spp.		T
Total Vegetative Cover:		65%

Vegetation type 6:	Upland (created))	
Length of transect in this type:	66	feet
Species:		Cover:
Cirsium arvense		P
Plantago lanceolata		P
Panicum capillare		T
Verbascum thapsus		P
Plantago major		P
Centaurea maculosa		T
Gnaphalium palustre		T
Eleocharis palustris		T
Polygonum amphibium		T
Clover		T
Grasses; sprouts no ID		P
Total Vegetative Cover:		20%

Vegetation type 7:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		80%

Vegetation type 8:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

LAND & WATER

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

Cover Estimate		**Indicator Class:**	**Source:**
+ = <1%	3 = 11-20%	+ = 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.

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

BIRD SURVEY – FIELD DATA SHEET

Page_1__of_1__
Date:9/04/02
Survey Time:0800-1200

SITE: Hoskins Landing

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Osprey	1	FO	-				
Red tailed hawk	1	FO	-				
Great blue heron	1	FO	-				
Mallard	3	F,L	OW				
Killdeer	2	F,L	US				

Notes:

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: 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 shoreline

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Hoskins landing				Date: 9/4/02	
Applicant/Owner: MDT				County: Sanders	
Investigator: Greg Howard				State: MT	
Do Normal Circumstances exist on the site:	X	Yes	___ No	Community ID: -	
Is the site significantly disturbed (Atypical Situation)?	___	Yes	___ No	Transect ID: T1	
Is the area a potential Problem Area?:	___	Yes	___ No	Plot ID: 1	
(If needed, explain on reverse.)					

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Plantago lanceolata*	H	FAC	9			
2	*Cirsium arvense*	H	FACU+	10			
3	*Phleum pratense*	H	FACU	11			
4	*Agropyron repens*	H	FACU+	12			
5	*Agrostis alba*	H	FACU	13			
6		H	FAC+	14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 2/6 = 33%

Upland pasture along the outer fringes of created wetland slopes.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:
No evidence of hydrology. Soil pit was dry and crumbly. Seasonal flooding does occur, soils were not saturated or moist at the time of inspection.

SOILS

Map Unit Name (Series and Phase):	Horseplains-riverwash complex	Drainage Class:	--
Taxonomy (Subgroup):	--	Field Observations Confirm Mapped Type?	X Yes ____ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 2	A	10 YR 3/2	-	-	Loam
2 – 12	B1	10 YR 4/2	-	-	Silty Loam
12+	B2	10 YR 5/2	-	-	Silty Loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric So ils List
x	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Marginal hydric indicators, slight evidence of hydric conditions with low-chroma colors.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	____	Yes	X	No
Wetland Hydrology Present?	____	Yes	X	No
Hydric Soils Present?	x	Yes	____	No

Is this Sampling Point Within a Wetland? ____ Yes X No

Remarks:
Upland sampling plot, close to the start of vegetation transect. Area of intensive livestock grazing, dominated by upland species.

Approved by HQUSACE 2/92

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

Project/Site:	Hoskins Landing			Date:	9/4/02
Applicant/Owner:	MDT			County:	Sanders
Investigator:	Greg Howard			State:	MT
Do Normal Circumstances exist on the site:	x	Yes	No	Community ID:	-
Is the site significantly disturbed (Atypical Situation)?		Yes	No	Transect ID:	T1
Is the area a potential Problem Area?:		Yes	No	Plot ID:	2
(If needed, explain on reverse.)					

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Eleocharis palustris*	H	OBL	9			
2	*Phalaris arundinacea*	H	FACW	10			
3	*Scirpus acutus*	H	OBL	11			
4	*Potamogeton natans*	H	OBL	12			
5	*Carex retrorsa*	H	FAC	13			
6	*Sagittaria latifolia*	H	OBL	14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 6/6 = 100%

Hydrophytic vegetation present, area of mostly inundated with several inches of surface water, dominated by wetland species.

HYDROLOGY

Recorded Data (Describe in Remarks):
- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- x No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- x Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks:
Soil pit inundated, water at surface, depth of 0 inches.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): NA Field Observations Confirm Mapped Type? ____ Yes __x__ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 2	O	10 YR 3/2	-	-	Organics
2 – 10	A	10 YR 3/1	10 YR 2/6	Medium, 25%	Clay
10+	B	10 YR 4/1	10 YR 2/6	Large, 75%	Clay

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
__x__	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
__x__	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Hydric soils observed, indicators being mottles, low-chroma colors and inundate soil pit.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? __X__ Yes ____ No

Wetland Hydrology Present? __X__ Yes ____ No

Hydric Soils Present? __X__ Yes ____ No

Is this Sampling Point Within a Wetland? __x__ Yes ____ No

Remarks:

Sampling plot is an emergent wetland type.

Approved by HQUSACE 2/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Hoskins Landing				Date: 9/4/02	
Applicant/Owner: MDT				County: Sanders	
Investigator: Greg Howard				State: MT	
Do Normal Circumstances exist on the site:	x	Yes	No	Community ID:	-
Is the site significantly disturbed (Atypical Situation)?		Yes	No	Transect ID:	T1
Is the area a potential Problem Area?:		Yes	No	Plot ID:	3
(If needed, explain on reverse.)					

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Potamogeton crispus*	H	OBL	9			
2	*Ceratophyllum demersum*	H	OBL	10			
3	*Elodea canadensis*	H	OBL	11			
4	*Eleocharis acicularis*	H	OBL	12			
5	*Juncus ensifolius*	H	FACW	13			
6				14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 5/5 = 100%

Aquatic habitat dominated by obligate wetland species. Sampling plot located along outer fringes of wetland pond.

HYDROLOGY

Recorded Data (Describe in Remarks):
- Stream, Lake, or Tide Gauge
- Aerial Photographs
- Other
- x No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- Inundated
- x Saturated in Upper 12 Inches
- Water Marks
- x Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- Oxidized Root Channels in Upper 12 Inches
- Water-Stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other (Explain in Remarks)

Remarks:
Soil pit located along outer fringe of created wetland pond. Soils saturated through profile. Evidence of receding water level, sampling plot would be inundated earlier in the season.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): NA Field Observations Confirm Mapped Type? ____ Yes __x__ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 - 1	A	10 YR 3/1	-	-	Organics w/clay loam
1 – 12	B1	10 YR 5/1	10 YR 4/6	Medium, 15%	Clay
12+	B2	2.5 YR 4/1	10 YR 4/6	Small, 10%	Clay

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
__x__	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
__x__	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Hydric soils present, low-chroma colors & mottles.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? __x__ Yes ____ No

Wetland Hydrology Present? __x__ Yes ____ No

Hydric Soils Present? __x__ Yes ____ No

Is this Sampling Point Within a Wetland? __x__ Yes ____ No

Remarks:

Created wetland pond; open water, aquatic bed and emergent wetland types.

Approved by HQUSACE 2/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Hoskins Landing	Date: 9/4/02
Applicant/Owner: MDT	County: Sanders
Investigator: Greg Howard	State: MT

Do Normal Circumstances exist on the site:	x	Yes		No	Community ID: -
Is the site significantly disturbed (Atypical Situation)?		Yes		No	Transect ID: T1
Is the area a potential Problem Area?:		Yes		No	Plot ID: 4
(If needed, explain on reverse.)					

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	*Cirsium arvense*	H	FACU+	9			
2	*Plantago lanceolata*	H	FAC	10			
3	*Panicum capillare*	H	FACU+	11			
4	*Verbascum thapsus*	H	-	12			
5	*Plantago major*	H	FACU	13			
6	*Centaurea maculosa*	H	-	14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 1/6 = 16%

Low vegetation cover, area dominated by weedy/disturbance species,, upland vegetation.

HYDROLOGY

Recorded Data (Describe in Remarks):
- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- x No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks:
No hydrology present, soil pit was dry and crumbly.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): NA Field Observations Confirm Mapped Type? ____ Yes __x__ No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 – 1	B1	10 YR 4/2	-	-	Roots w/silty clay
1 – 12+	B2	10 YR 4/2	-	-	Silty loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	____	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Other (Explain in Remarks)

Soil profile observed to have low-chroma colors, no other hydric soils indicators found.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ____ Yes __X__ No

Wetland Hydrology Present? ____ Yes __X__ No

Hydric Soils Present? ____ Yes __X__ No

Is this Sampling Point Within a Wetland? ____ Yes __x__ No

Remarks:
Upland sampling plot.

Approved by HQUSACE 2/92

Montana Department of Transportation
Wetland Mitigation Monitoring Project
for Land & Water Consulting
2002

		Project Name	**Hoskins Landing**
		Date	**9/4/2002**
Coelenterata		*Hydra*	1
Oligochaeta	Naididae	*Nais variabilis*	5
		Ophidonais serpentina	2
Gastropoda	Lymnaeidae	*Fossaria*	9
	Physidae	*Physa*	51
	Planorbidae	*Gyraulus*	42
Crustacea	Cladocera	Cladocera	1
	Ostracoda	Ostracoda	1
	Amphipoda	*Hyalella azteca*	9
Ephemeroptera	Baetidae	*Callibaetis*	1
	Caenidae	*Caenis*	1
Homoptera	Corixidae	Corixidae - immature	5
		Sigara	2
	Notonectidae	*Notonecta*	2
Trichoptera	Leptoceridae	*Nectopsyche*	1
Coleoptera	Dytiscidae	*Laccophilus*	5
		Rhantus	1
Diptera	Chironomidae	*Parachironomus*	1
		Total	140
		Total taxa	18
		POET	3
		Chironomidae taxa	1
		Crustacea taxa + Mollusca taxa	6
		% Chironomidae	0.71%
		Orthocladiinae/Chironomidae	0.00
		%Amphipoda	6.43%
		%Crustacea + %Mollusca	80.71%
		HBI	7.71
		%Dominant taxon	36.43%
		%Collector-Gatherers	57.14%
		%Filterers	0.71%
		Scores (2002 criteria)	
		Total taxa	3
		POET	3
		Chironomidae taxa	1
		Crustacea taxa + Mollusca taxa	5
		% Chironomidae	5
		Orthocladiinae/Chironomidae	1
		%Amphipoda	3
		%Crustacea + %Mollusca	1
		HBI	1
		%Dominant taxon	3
		%Collector-Gatherers	3
		%Filterers	1
		Total score	30

Hoskins Landing, conditions were poor, indicated by scores calculated for the bio-assessment. Taxa richness was low, and the midge fauna was limited to a single individual; these findings suggested monotonous benthic substrates. Macrophytes apparently contributed to the water column habitat complexity, however. The biotic index value (7.71) was elevated compared to the other sites, suggesting moderate impairment of water quality due to warm temperatures and/or nutrient enrichment.

Appendix C

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, Montana

LAND & WATER

	
Photo Point No. 1: View looking south along vegetation transect, upland slopes, pond & emergent wetlands in background.	Photo Point No. 2: View looking north toward Flathead River; transect end located in upland community type.
	
Photo Point No. 3: View looking east, created wetland pond, adjacent to undisturbed emergent wetlands. Upland slopes running along north side of pond.	Photo Point No. 4: View looking north across the mitigation site. Western side of pond with aquatic bed and emergent wetland types, undisturbed wetland located in center.
	
Photo Point No. 5: View looking east, remnant backwater channel along southern edge of site. Road access disturbed during seasonal high water event. Restricted outlet to channel.	Photo Point No. 6: View looking north; upland community with weedy vegetation and created wetland pond. Deeper areas of pond with sections of open water.

Photo Point No. 7: View looking east; areas of excavation and grading along backwater channel, removal of berm along north edge.

Photo Point No. 8: View looking east, backwater channel; scouring & sediment deposition from high water flows.

Photo Point No. 9: View looking west, toward created wetland pond. Upland community in foreground, low vegetation cover, mostly weedy species.

Photo Point No. 9: View looking north across remnant pasture. Undisturbed upland consisting of mostly upland pasture grasses and weedy species. Heavy grazing alteration in the past.

Photo Point No. 9: View looking south, upland shrub community type consisting of hawthorne, American plum and cottonwood. Located on higher terrace along backwater channel.

Photo Point No. 10: View looking west; inlet to backwater channel. Channel consisting of aquatic bed, emergent wetlands and scrub-shrub classifications.

	
Photo Point No. 11: View looking northwest along the Flathead river banks. Vegetation dominated by Reed Canary Grass. Heavy grazing along shoreline, vegetation clipped to within several inches of ground surface.	Photo Point No. 12: View looking northwest along Flathead River. Area of excavation and grading work to remove historic berm along north boundary of site.
	
Photo Point No. 13: View looking west along backwater flood channel. Substrate of cobbles and gravels with low vegetation cover. Vegetation consisting of mostly weedy species, but also including thousands of cottonwood sprouts. Channel mapped as a Waters of the US jurisdiction.	

Hoskins Landing: 2002

Photo Point No. 1: Panoramic looking south across mitigation site. Transect end in foreground, located in upland community type. Created wetland pond in background, aquatic bed and emergent wetland types.

Photo Point No. 4: Panoramic looking north across the mitigation site. Western side of pond, aquatic bed and emergent wetland types, undisturbed wetland located in center. Outlet to remnant backwater channel located on left side of photo.

Photo Point No. 10: View looking west; inlet to backwater channel. Area of excavation and grading work, removal of headgate historically controlling the flow of water into remnant backwater channel. Substrate consisting of cobles and gravels, low vegetation cover, mapped as Waters of the US jurisdiction.

Appendix D

ORIGINAL SITE PLAN
SOIL SURVEY MAP AND DESCRIPTION

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, Montana

LAND & WATER

MONTANA DEPARTMENT OF TRANSPORTATION

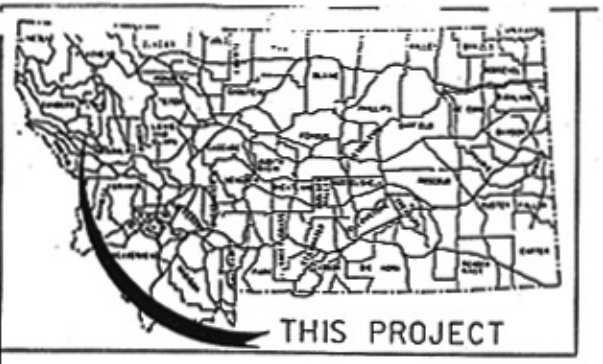
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	STPP 45(29)	1

FEDERAL AID PROJECT NO. STPP 45(29)

WETLAND

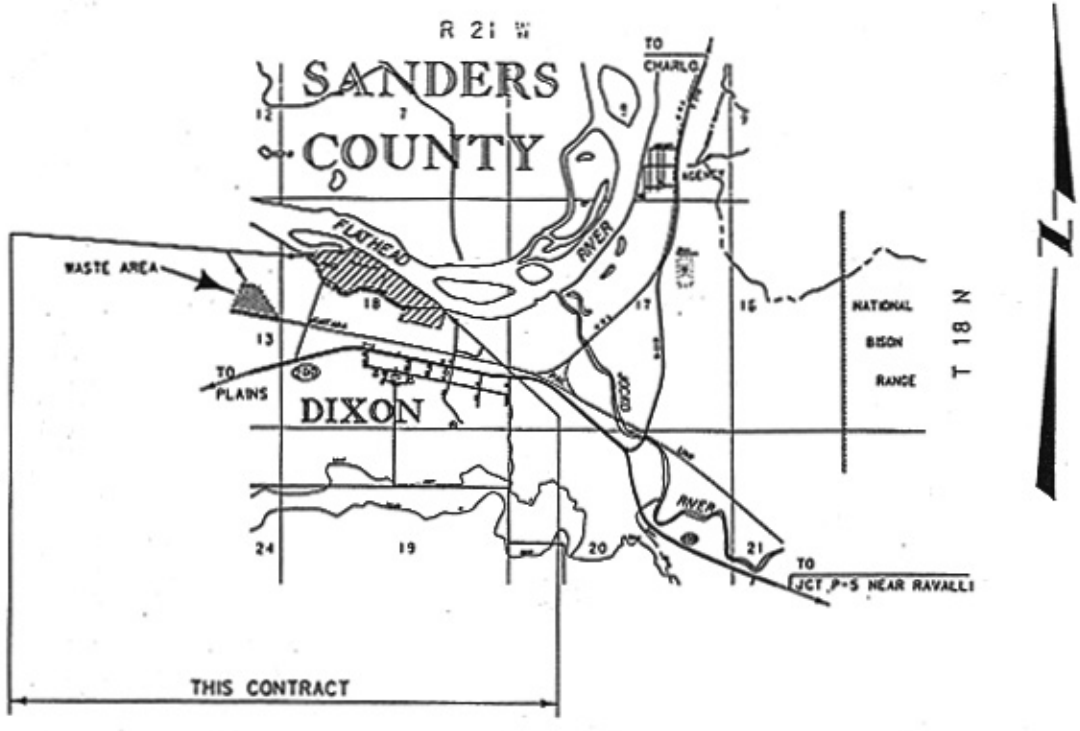
DIXON WETLAND MITIGATION

SANDERS COUNTY



SCALES AS NOTED ON PLANS

REDUCED PRINTS 1 /2 ORIGINAL SCALE



PRELIMINARY

FOR PLAN IN HAND ONLY

MONTANA DEPARTMENT OF TRANSPORTATION

APPROVED :

DAVID A. GALT
DIRECTOR OF TRANSPORTATION

BY

RECONSTRUCTION ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED :

DIVISION ADMINISTRATOR — DATE

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS

R/W & UC	
P.E.	STPP 45(29)

CONTROL NO. 0000

LAND & WATER D-1

STATE	PROJECT NUMBER	SHEET
MONTANA	STPP 45(29)1	2

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FENCING	6
IRRIGATION STRUCTURE	6
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SITE PLAN	9
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BERM REMOVAL	11
BERM REMOVAL AND INLET CHANNEL	12
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GRADING PLAN UPLAND AREAS	14

CROSS SECTIONS	
WASTE AREA	1-6
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WETLAND POND	7-11
UPLAND AREAS	12-14
LINE G1N	15-21
BERM REMOVAL	15-20
INLET CHANNEL	20-21
LINE G1S	22-26
EXISTING CHANNEL	22-26

NOTES

CONSTRUCTION ACCESS

THE CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED ACCESS AND STAGING AREAS.

WETLAND TOPSOIL

EXCAVATE WETLAND TOPSOIL FROM WITHIN CONSTRUCTION LIMIT AREAS AND STOCKPILE TOPSOIL IN THE AREAS DESIGNATED ON THE PLANS. PLACE TOPSOIL TO A MINIMUM DEPTH OF 100mm ON ALL DISTURBED AREAS.
FINISHED GRADE ELEVATIONS DO NOT INCLUDE TOPSOIL.

GRADING

PERFORM ALL EXCAVATION AND EMBANKMENTS BY METHODS DESCRIBED IN SECTION 203 OF THE STANDARD SPECIFICATIONS. ALL EXCAVATION INCLUDING MUCK EXCAVATION AND DISPOSAL OF EXCESS MATERIAL WILL BE PAID FOR AS "UNCLASSIFIED EXCAVATION". EXCAVATION OF SATURATED MATERIAL IS ANTICIPATED IN SOME AREAS, HOWEVER NO PAYMENT WILL BE MADE FOR MUCK EXCAVATION. DISPOSE OF EXCESS MATERIAL OFF SITE IN AREA SPECIFIED SOUTHWEST OF THE WETLAND SITE.
ROUND ALL SLOPES 10:1 AND STEEPER

SEEDING

SEED AREAS SHOWN ON THE PLANS AND OTHER AREAS DISTURBED DURING CONSTRUCTION. SEE SPECIAL PROVISIONS FOR SEED MIX TO BE USED ON EACH AREA.

FENCING

PERIMETER FENCING IS STANDARD HOT BARBED 5-WIRE FENCE WITH WOODEN POSTS (TYPE FSW1. PLACE PERIMETER FENCING 0.2 m OUTSIDE THE BOUNDARY DEFINED BY THE CERTIFICATE OF SURVEY (C.O.S. 20701. DO NOT FENCE THE NORTH BOUNDARY ADJACENT TO THE RIVER.

PRELIMINAR

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	STPP 45(29)	3

LINEAR AND LEVEL DATA

CENTERLINE COORDINATE TABLE				
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	23,419.1288	66,607.6208	LINE • C1
9+72.97	POT	23,049.3802	67,507.5916	LINE • C1
[illegible]	PCT	23,335.3275	[illegible]	LINE • C1N
[illegible]	PCT	23,437.8[illegible]	[illegible]	LINE • C1N
[illegible]	PCT	23,417.6[illegible]	66,843.9[illegible]	LINE • C1N
[illegible]	PCT	23,355.8[illegible]	66,907.[illegible]	LINE • C1N
3+[illegible]	POT	23,319.[illegible]	66,957.3[illegible]	LINE • C1N
4+04.95	POT	23,[illegible].9620	67,186.0414	LINE • C1N
4+85.10	POT	23,247.9162	67,242.3900	LINE • C1N
4+[illegible].62	POT	23,164.0067	67,321.6507	LINE • C1N
8+51.33	POT	23,144.2415	67,355.9310	LINE • C1N
9+51.[illegible]	POT	23,055.7045	67,398.1406	LINE • C1N
10+54.05	PCT	23,049.3802	67,507.5916	LINE • C1N
1+00.00	POT	23,381.1264	66,700.1185	LINE • C1S
2+13.45	PCT	23,271.4[illegible]	66,716.1085	LINE • C1S
3+28.15	PCT	23,212.4[illegible]	66,817.7645	LINE • C1S
4+14.01	PCT	23,202.8054	65,902.0227	LINE • C1S
5+24.13	PCT	23,215.7634	6[illegible],012.1944	LINE • C1S
6+74.57	PCT	23,165.5146	67,149.7328	LINE • C1S
0+00.50	POT	23,041.2000	66,127.1600	WASTE AREA
2+40.50	PCT	22,997.7[illegible]	66,402.[illegible]	WASTE AREA

BEARING SOURCE

THE BASIS OF BEARING N 69°10'00" E BETWEEN MDOH CONTROL CAPS STAMPED 108B AND 108C ESTABLISHED FOR THE DIXON – WEST PROJECT STPP 6-1(86)99.

LEVEL DATUM SOURCE

U.S.C.&G.S. BRONZE DISK (L373) ELEV. 782.48 ESTABLISHED THE ELEVATIONS FOR THE CONTROL TRAVERSE ON THE DIXON – WEST PROJECT STPP 6-1(86)99. CONTROL POINT 108B ON DIXON – WEST = CONTROL POINT 2 ON THIS PROJECT. ELEVATION – 784.253

BENCH MARKS ✱		
LOCATION	DESCRIPTION	ELEVATION
9.0 m S. OF CL.	BRONZE DISK 1.6 km	
	S.E. OF PERMA (USC&GS L373)	782.48

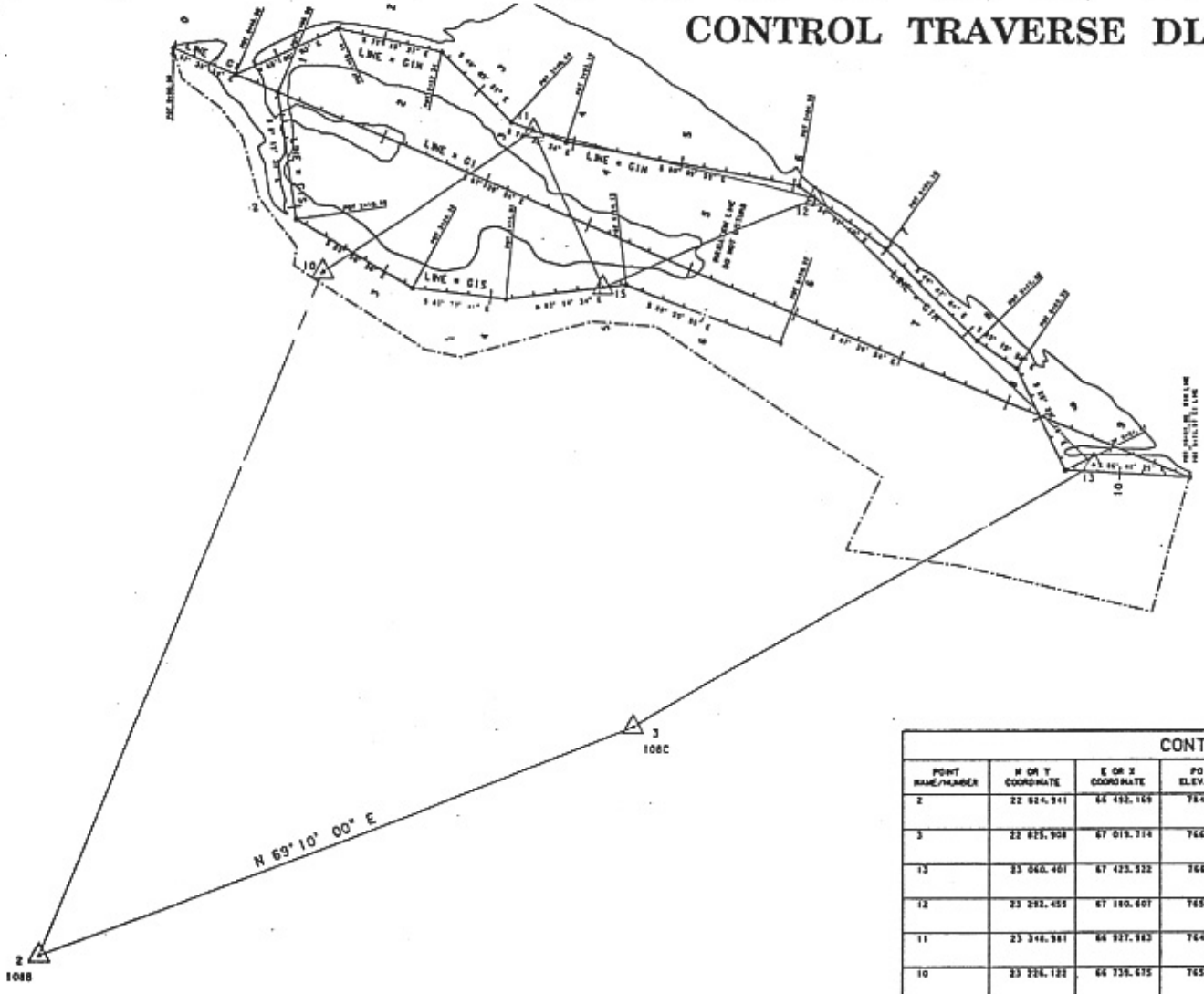
LEVEL DATUM SOURCE ✱

LEVEL DATUM IS BASED ON U.S.C. & G.S. BENCH MARKS WHICH ARE BASED ON THE SEA-LEVEL DATUM OF 1929 THROUGH THE PACIFIC NORTHWEST SUPPLEMENTARY ADJUSTMENT OF 1947.

PRELIMINARY

CONTROL TRAVERSE DIAGRAM

STATE	PROJECT NUMBER	SHEET
MONTANA	STPP 4512(9)	4

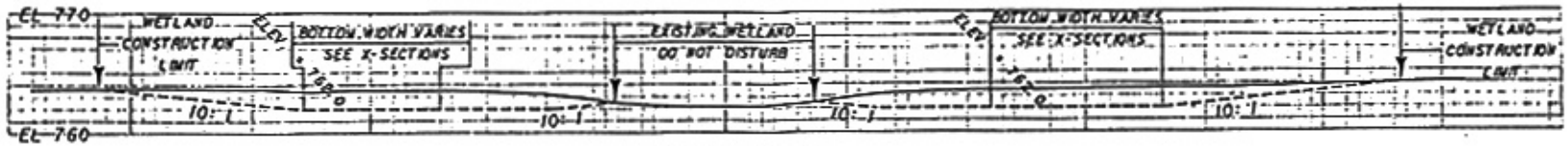


CONTROL TRAVERSE ABSTRACT

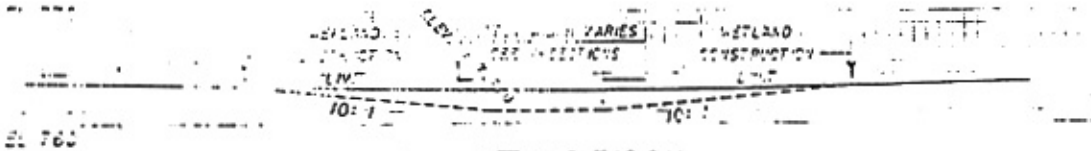
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
2	22 824.941	66 432.169	764.253	16 mm X 762 mm L.P. w/ALUM CAP + 50 mm 1088 ON BLUFF 15.2 m + ABOVE ROAD, 1.9 m N.W. OF F2 LINE, 21 m N.E. OF F2 COR.
3	22 825.908	67 019.114	766.218	16 mm X 762 mm L.P. w/ALUM CAP + 50 mm 108C 2 m S.W. OF R/R F2, 10.8 m N.E. OF TEL. POLE, 11.6 m S.W. CENTERLINE B.N. RAILROAD
13	23 060.401	67 423.522	766.551	16 mm X 762 mm L.P. w/25mm YELLOW PLASTIC CAP
12	23 292.455	67 180.607	765.266	16 mm X 762 mm L.P. w/25mm YELLOW PLASTIC CAP
11	23 348.981	66 927.983	764.725	16 mm X 762 mm L.P. w/25mm YELLOW PLASTIC CAP
10	23 226.122	66 735.675	765.846	16 mm X 762 mm L.P. w/25mm YELLOW PLASTIC CAP
15	23 213.133	66 991.185	764.752	16 mm X 762 mm L.P. w/25mm YELLOW PLASTIC CAP
139	22 908.475	67 430.571	765.850	SET 600 MAIL BETWEEN GRAVEL ACCESS ROAD FENCE AROUND STORM WATER LAGOON 25m NORTH OF THE SE FENCE CORNER

PRELIMINARY

TYPICAL SECTIONS

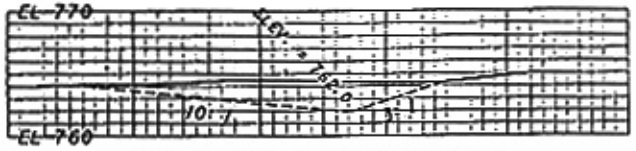


WETLAND TYPICAL
STATION 1+20 TO 2+70
LINE = G1

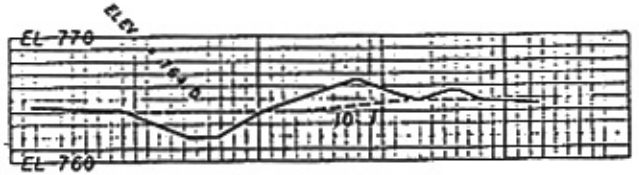


WETLAND TYPICAL
STATION 2+40 TO 5+00
LINE = G1

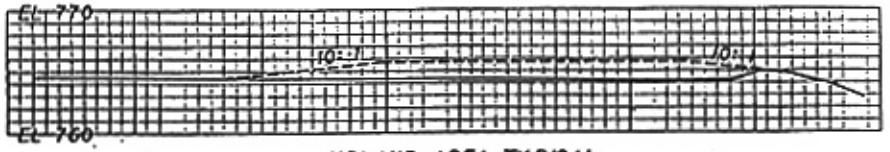
INLET CHANNEL DAM REMOVAL TYPICAL
STATION 9+35
LINE = G1N



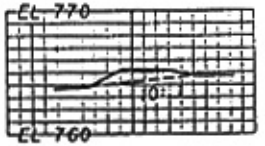
OUTLET DAM REMOVAL TYPICAL
STATION 2+15
LINE = G1S



INLET CHANNEL FILL AND BERM REMOVAL TYPICAL
STATION 9+60 TO 10+40
LINE = G1N



UPLAND AREA TYPICAL
STATION 6+20 TO 7+10
STATION 7+20 TO 8+00
LINE = G1



BERM REMOVAL TYPICAL
STATION 2+50 TO 9+25 LINE = G1N
STATION 1+60 TO 5+90 LINE = G1S

PRELIMINAR

SUMMARY

GRADING

STATION		cubic meters					REMARKS
FROM	TO	* EXCAVATION	EMB. *	TOPSOIL	EXCESS	WASTE AREA	
1+00.00	8+10.00	33 358	6 017	3 765	23 576		C1 LINE
1+75.00	10+[illegible]	3 2[illegible]3	879	933	1 [illegible]		C1H LINE
[illegible]	[illegible]	3 725	0	562	[illegible]		C15 LINE
[illegible]	[illegible]	2,[illegible]	[illegible]	[illegible]	[illegible]		TOPSOIL SALVAGE WASTE AREA
2+13.00	2+60.00					30 091	WASTE AREA
* TOTAL		44 631	* 6 896	* 7 543	* 30 192	* 30 091	

* FOR INFORMATION ONLY

IRRIGATION STRUCTURES

STATION	each			REMARKS
		REMOVE IRRIGATION STRUCTURE		
9+17.00		1		C1H LEFT
TOTAL		1		

TOPSOIL & SEEDING

STATION		cubic meters	hectares							REMARKS
		TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED		
FROM	TO		NO. 1			NO. 1				
1+00.00	8+10.00	2 765	3.68			3.68		3.68		C1 LINE
1+75.00	10+90.00	933	0.99			0.99		0.99		C1H LINE
1+60.00	3+99.00	560	0.55			0.55		0.55		C15 LINE
0+00.00	2+90.00	2 285	2.29			2.29		2.29		WASTE AREA
TOTAL		7 543	7.5			7.5		7.5		

ADD 2; 3 ↑ URUD ~ WASTE AREA

PLUG WATER WELL

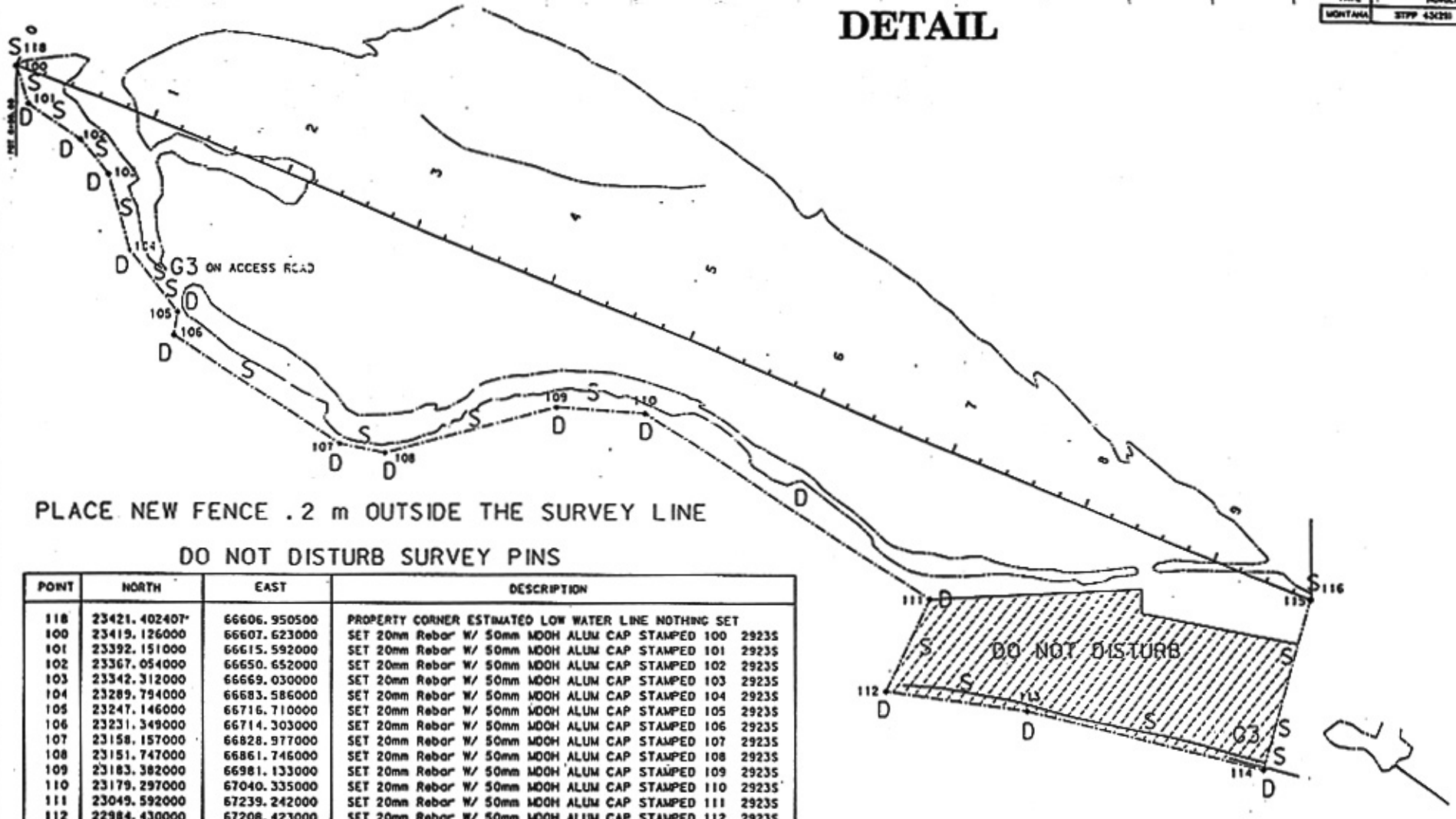
STATION	lump sum			REMARKS
		PLUG WATER WELLS		
2+54		0.5		5m RIGHT OF LINE C1
4+45		0.5		7m RIGHT OF LINE C1
TOTAL		1.0		

FENCING

STATION		meters				each			meters		REMARKS
		REMOVE FENCE	FARM FENCE			FARM FENCE PANEL			FARM GATE		
FROM	TO			TYPE F5b		SINGLE	DOUBLE			TYPE G3	
0+00	3+73			1297.06		16	15			9.76	RIGHT OF C1 LINE
1+78	3+73	1059.44									RIGHT OF C1 LINE
TOTAL		1059.44		1297.06		16	15			9.76	

PRELIMINARY

DETAIL



PLACE NEW FENCE .2 m OUTSIDE THE SURVEY LINE

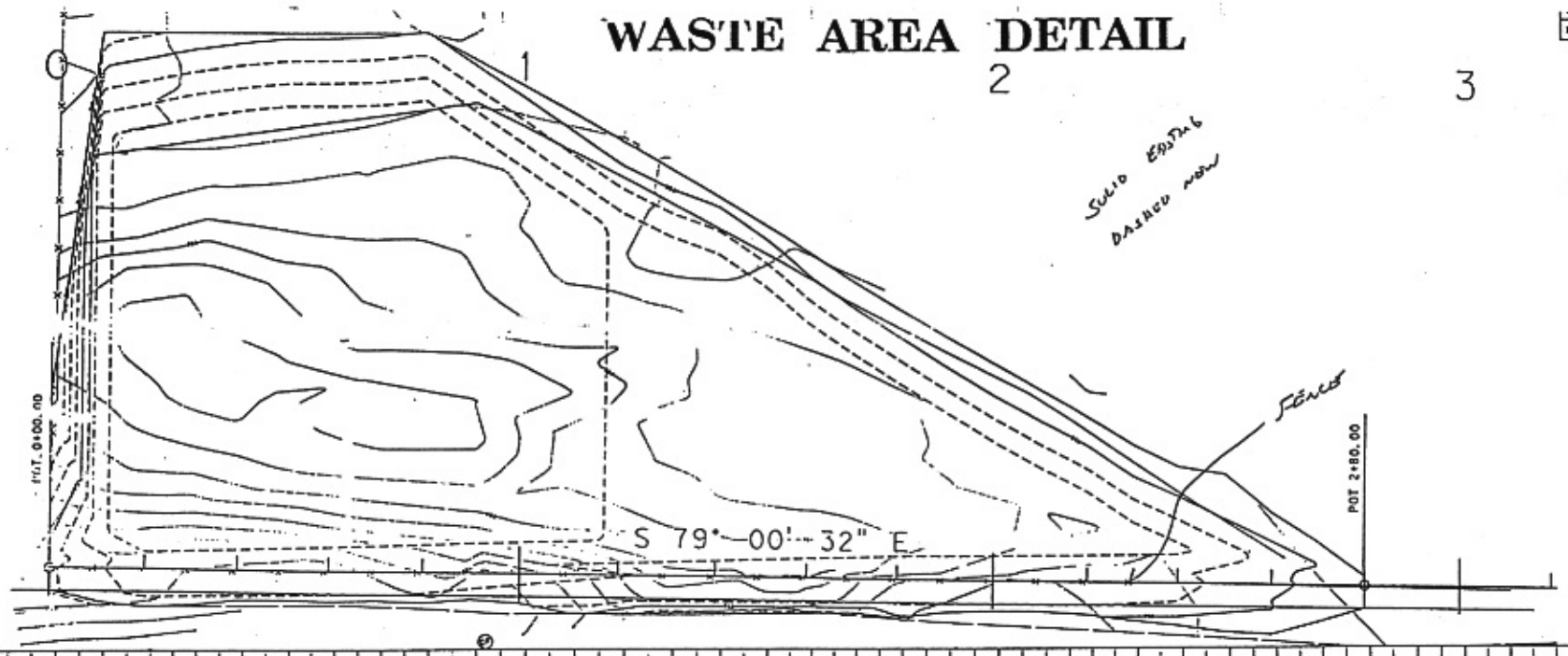
DO NOT DISTURB SURVEY PINS

POINT	NORTH	EAST	DESCRIPTION
118	23421.402407	66606.950500	PROPERTY CORNER ESTIMATED LOW WATER LINE NOTHING SET
100	23419.126000	66607.623000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 100 2923S
101	23392.151000	66615.592000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 101 2923S
102	23367.054000	66650.652000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 102 2923S
103	23342.312000	66669.030000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 103 2923S
104	23289.794000	66683.586000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 104 2923S
105	23247.146000	66716.710000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 105 2923S
106	23231.349000	66714.303000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 106 2923S
107	23158.157000	66828.977000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 107 2923S
108	23151.747000	66861.746000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 108 2923S
109	23183.382000	66981.133000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 109 2923S
110	23179.297000	67040.335000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 110 2923S
111	23049.592000	67239.242000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 111 2923S
112	22984.430000	67208.423000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 112 2923S
113	22970.254000	67306.505000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 113 2923S
114	22928.750000	67475.036000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 114 2923S
115	23049.382000	67507.593000	SET 20mm Rebar W/ 50mm MDOH ALUM CAP STAMPED 115 2923S
116	23053.606339	67508.733094	PROPERTY CORNER ESTIMATED LOW WATER LINE NOTHING SET

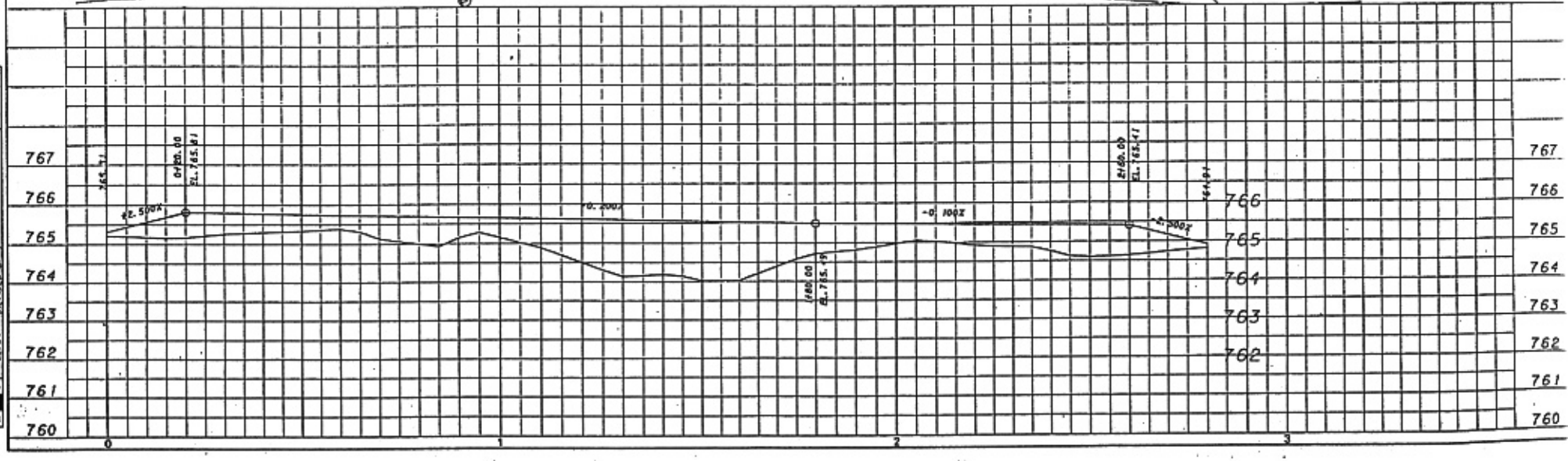
FENCING

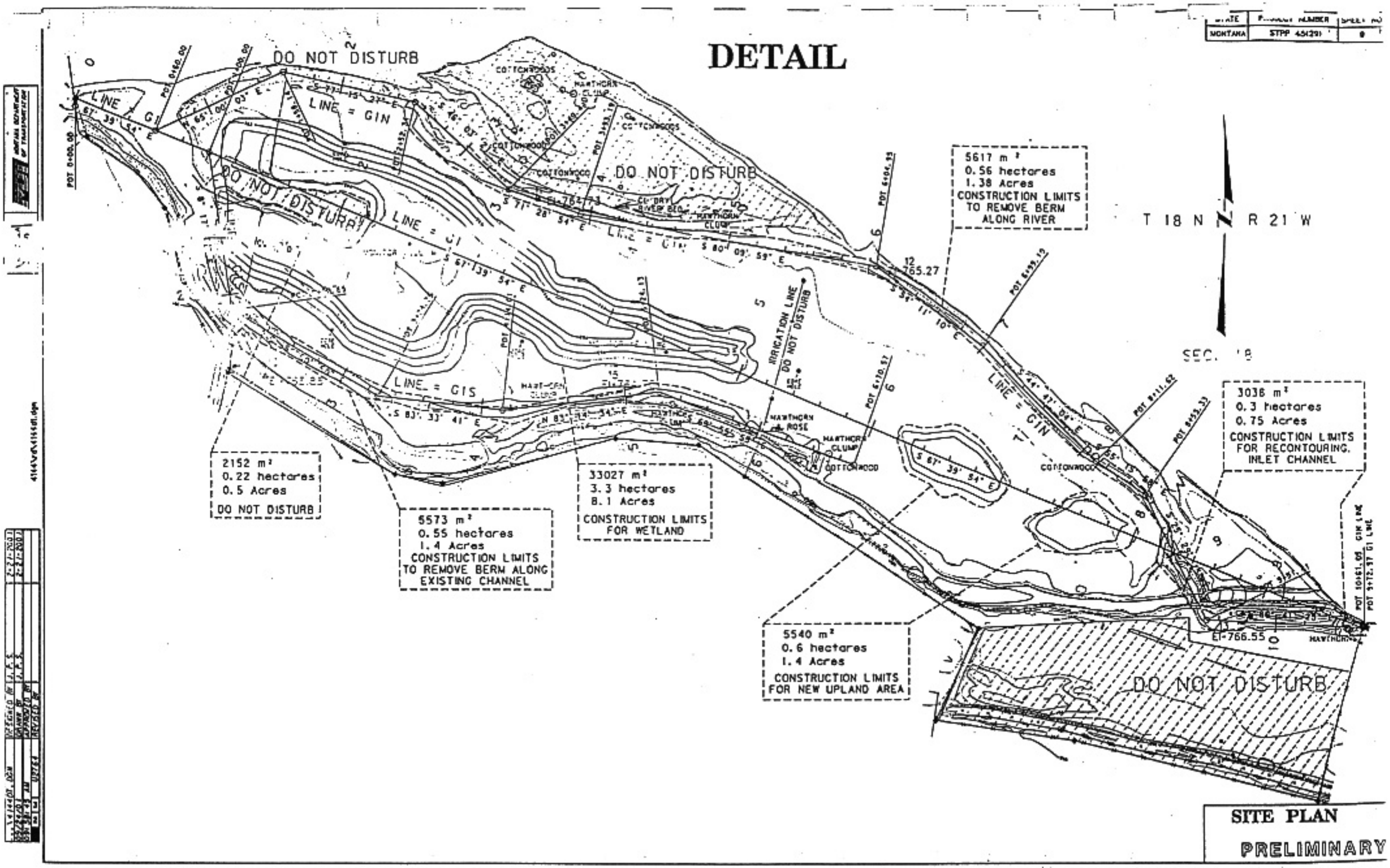
PRELIMINARY

WASTE AREA DETAIL

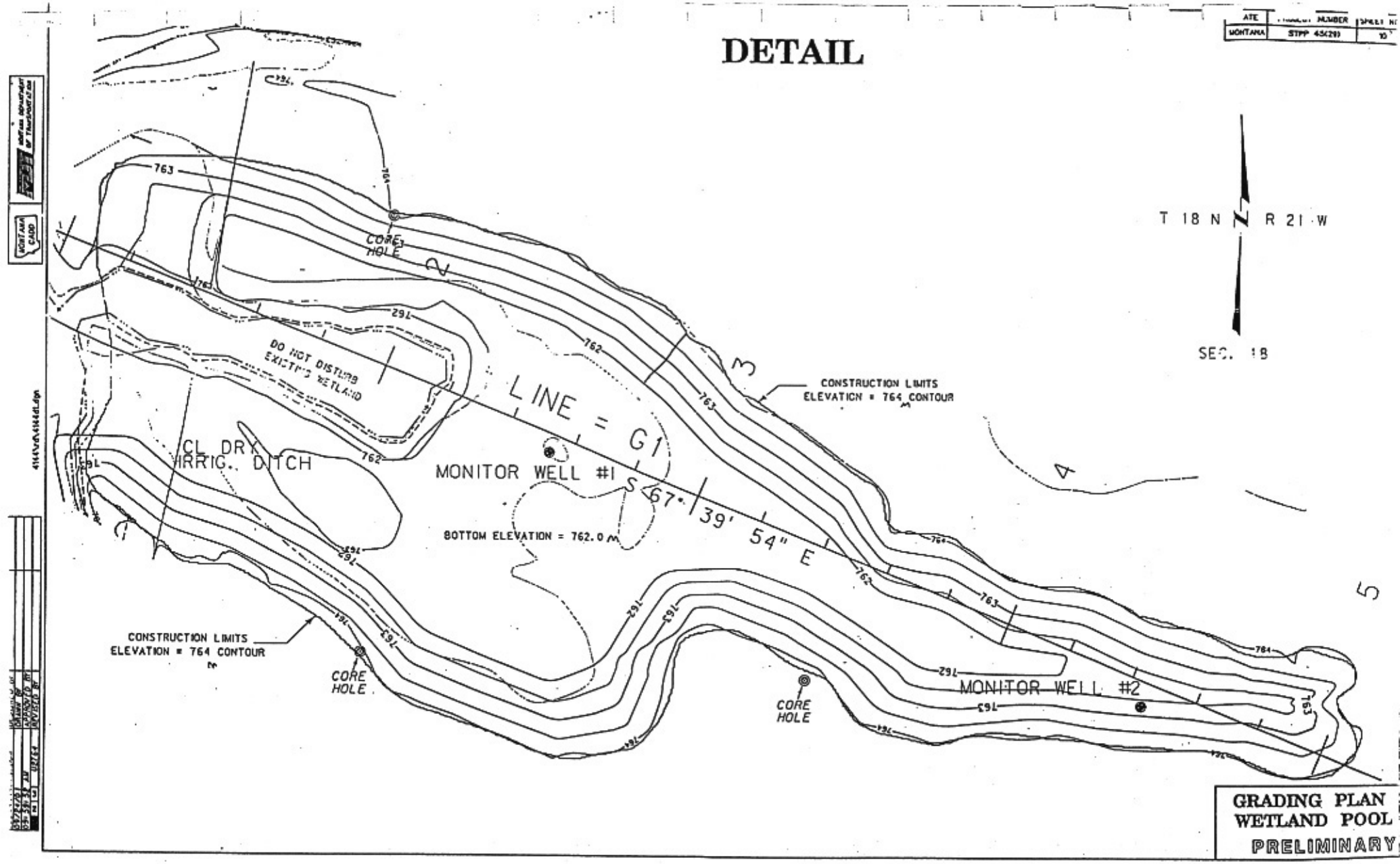


PRELIMINARY

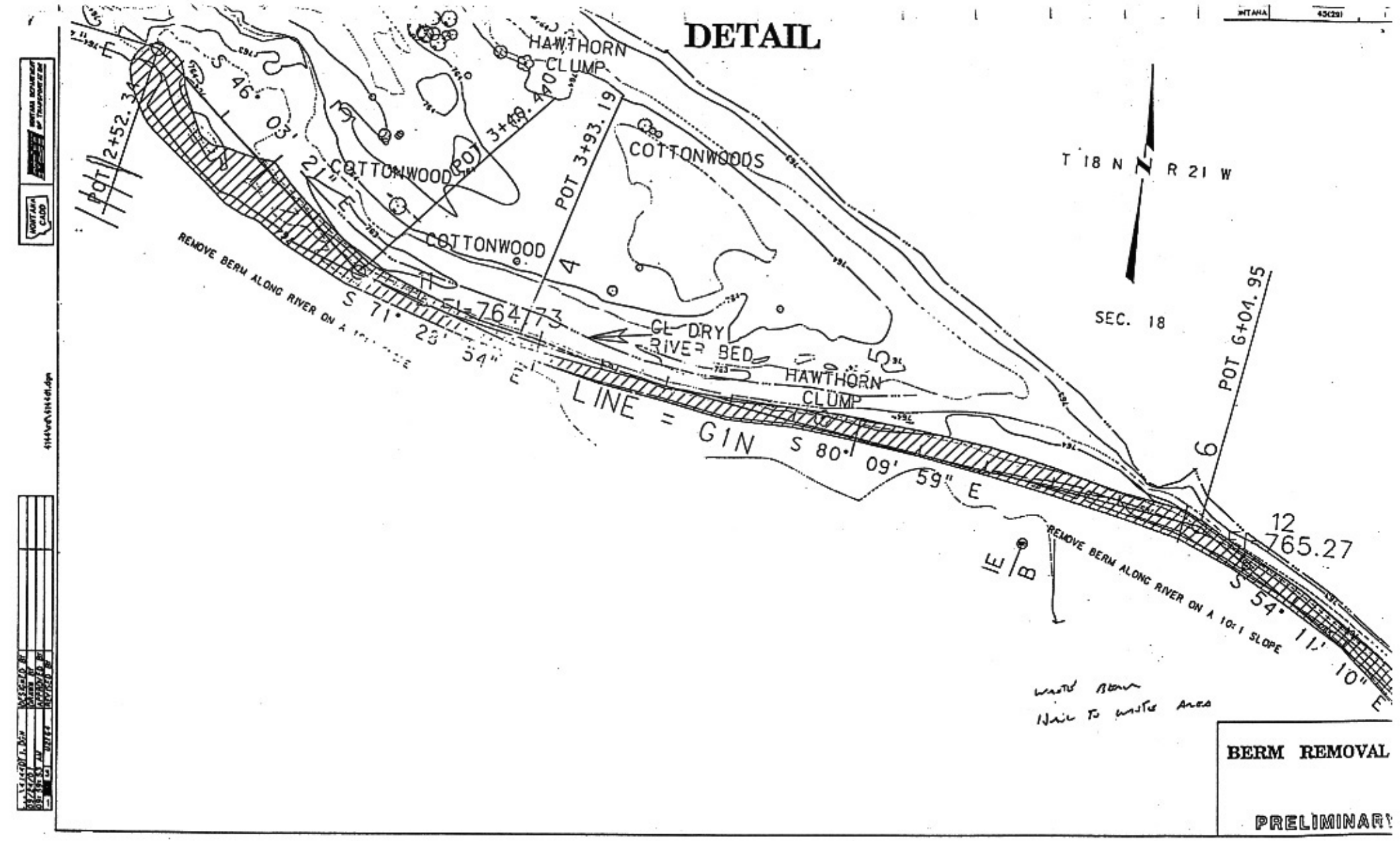



DETAIL
MONTANA
STPP 45(29)
DO NOT DISTURB
LINE = GIN
LINE = GI
LINE = GIS
COTTONWOOD
HAWTHORN CLUMP
T 18 N R 21 W
SEC. 18
5617 m²
0.56 hectares
1.38 Acres
CONSTRUCTION LIMITS TO REMOVE BERM ALONG RIVER
3036 m²
0.3 hectares
0.75 Acres
CONSTRUCTION LIMITS FOR RECONTOURING, INLET CHANNEL
2152 m²
0.22 hectares
0.5 Acres
DO NOT DISTURB
5573 m²
0.55 hectares
1.4 Acres
CONSTRUCTION LIMITS TO REMOVE BERM ALONG EXISTING CHANNEL
33027 m²
3.3 hectares
8.1 Acres
CONSTRUCTION LIMITS FOR WETLAND
5540 m²
0.6 hectares
1.4 Acres
CONSTRUCTION LIMITS FOR NEW UPLAND AREA
IRRIGATION LINE DO NOT DISTURB
El-766.55
SITE PLAN
PRELIMINARY

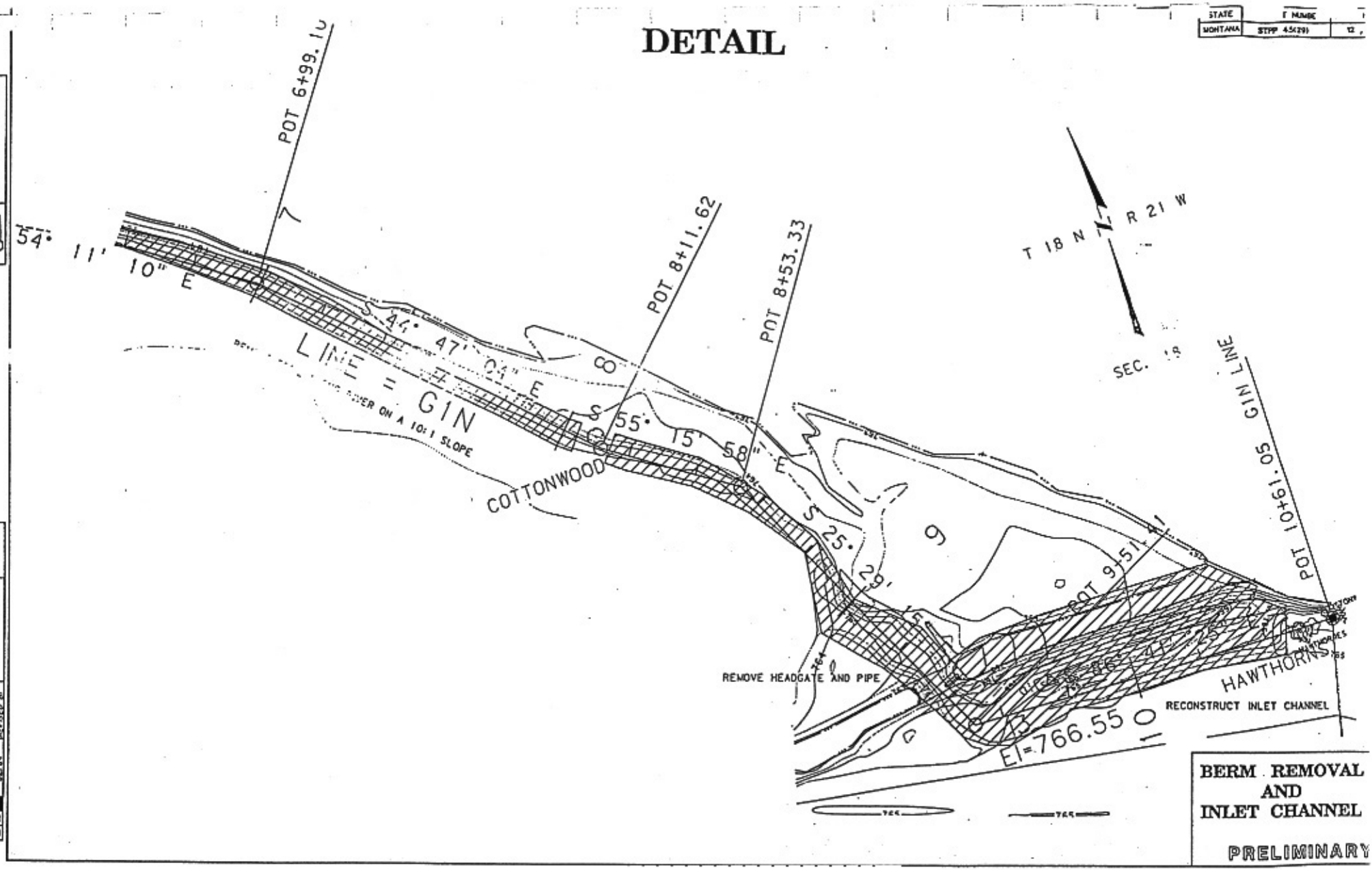
DETAIL



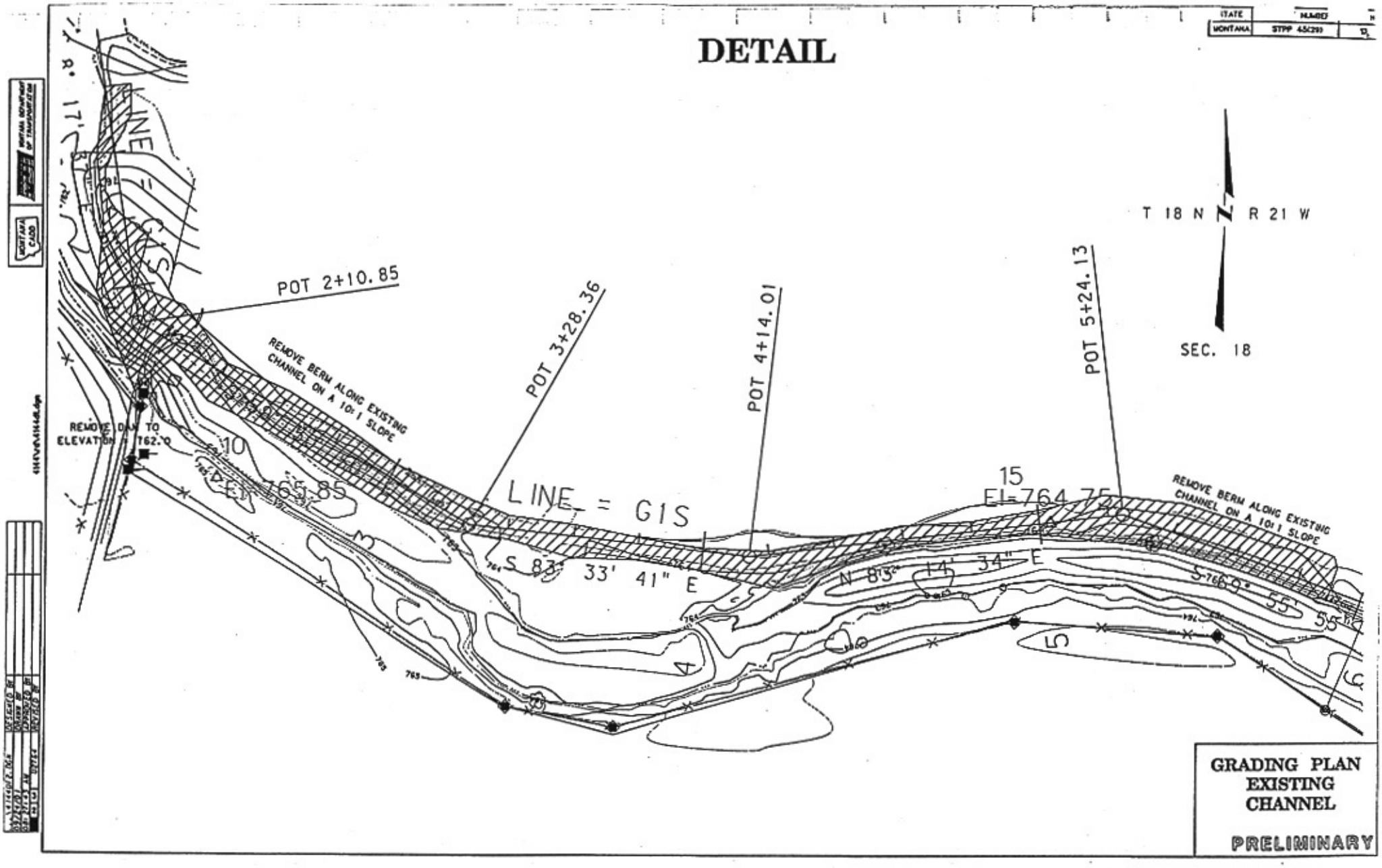
GRADING PLAN
WETLAND POOL
PRELIMINARY


DETAIL
HAWTHORN CLUMP
COTTONWOODS
COTTONWOOD
COTTONWOOD POT
POT 2+52.34
POT 3+49.40
POT 3+93.19
POT 6+04.95
S 46° 03' 21" E
T 18 N R 21 W
SEC. 18
REMOVE BERM ALONG RIVER ON A 10:1 SLOPE
S 71° 23' 54" E
EL 764.73
DRY RIVER BED
HAWTHORN CLUMP
LINE = G1N S 80° 09' 59" E
765.27
S 54° 11' 10" E
REMOVE BERM ALONG RIVER ON A 10:1 SLOPE
BERM REMOVAL
PRELIMINARY
LAND & WATER D-11

DETAIL


POT 6+99.10
POT 8+11.62
POT 8+53.33
POT 10+91.05
GIN LINE
T 18 N, R 21 W
SEC. 18
S 41° 47' 24" E
S 55° 15' 58" E
S 25° 29'
11' 10" E
LINE = GIN
COTTONWOOD
POT 9+51
REMOVE HEADGATE AND PIPE
HAWTHORNS
RECONSTRUCT INLET CHANNEL
El=766.55
BERM REMOVAL AND INLET CHANNEL
PRELIMINARY
LAND & WATER D-12

DETAIL

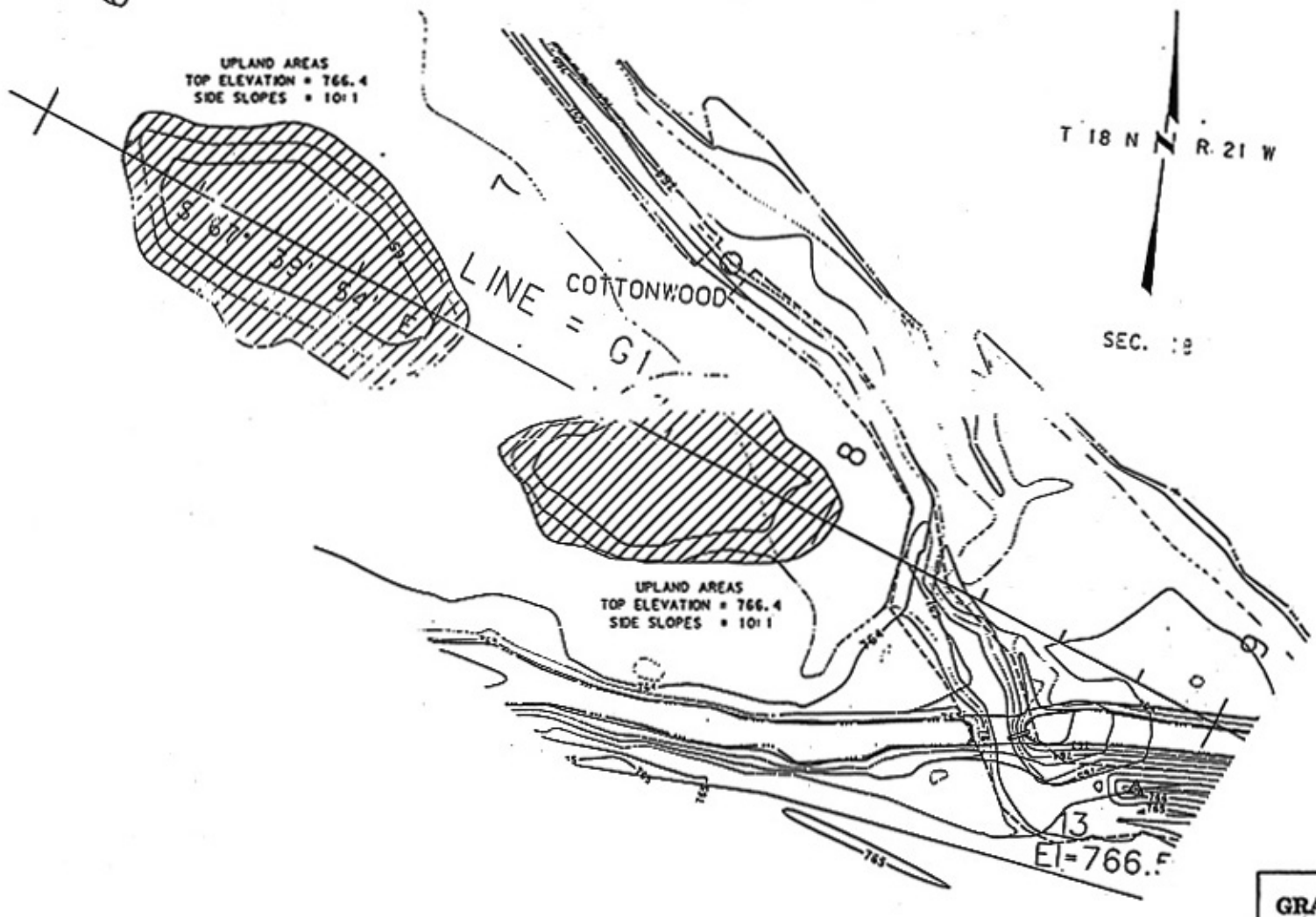


GRADING PLAN
EXISTING CHANNEL

PRELIMINARY

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	STPP 6342(9)	14

DETAIL



GRADING PLAN
UPLAND AREAS

PRELIMINARY

LAND & WATER D.14

Soils Map

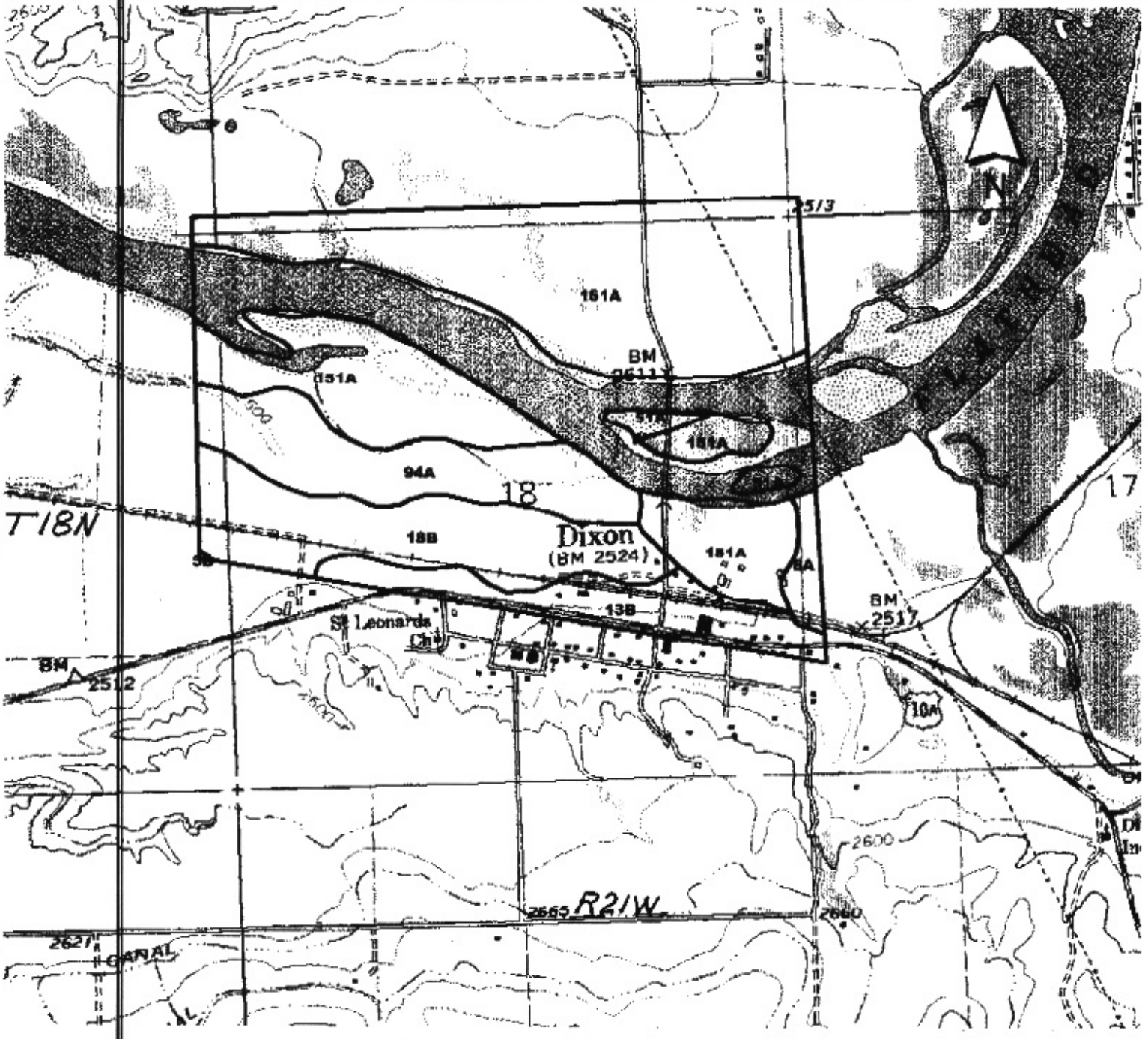
To: Greg Howard
From: Don Feist

Land and Water Consulting

ESCD

Date: 11/27/2002

Plains Service Center
NRCS
Don J. Feist



Legend

2000 0 2000 4000 Feet

Scale 1:15840 (4" = 1 mile)

USDA

LAND & WATER D-15

Non-Technical Descriptions

Sanders And Parts Of Lincoln And Flathead Counties, Montana

Only those map units that have entries for the selected non-technical description categories are included in this report.

Map Unit: 8A - Hewolf gravelly loam, 0 to 2 percent slopes

Description Category: SOI

HEWOLF GRAVELLY LOAM IS MORE THAN 60 INCHES DEEP WITH A DARK COLORED SURFACE LAYER AND SLOPES OF 0-2 PERCENT. LANDFORM: STREAM TERRACES; FROST FREE DAYS: 90-110; AVAILABLE WATER CAPACITY IN INCHES: 2.1-3.4; MAJOR CONSIDERATIONS: FLOODING, WATER TABLE; LANDUSE MAY INCLUDE: RANGELAND.

Map Unit: 13B - Round butte silty clay loam, 2 to 8 percent slopes

Description Category: SOI

ROUND BUTTE SILTY CLAY LOAM IS MORE THAN 60 INCHES DEEP WITH A LIGHTER COLORED SURFACE LAYER AND SLOPES OF 2-8 PERCENT. LANDFORM: LAKE PLAINS OR TERRACES; FROST FREE DAYS: 105-125; AVAILABLE WATER CAPACITY IN INCHES: 4.8-6.7; MAJOR CONSIDERATIONS: SODICITY; LANDUSE MAY INCLUDE: RANGELAND.

Map Unit: 18B - Dryfork silt loam, 0 to 4 percent slopes

Description Category: SOI

DRYFORK SILT LOAM IS MORE THAN 60 INCHES DEEP WITH A LIGHTER COLORED SURFACE LAYER AND SLOPES OF 0-4 PERCENT. LANDFORM: LAKE PLAINS OR TERRACES; FROST FREE DAYS: 105-125; AVAILABLE WATER CAPACITY IN INCHES: 9.1-11.5; MAJOR CONSIDERATIONS: SODICITY; LANDUSE MAY INCLUDE: CROPLAND, RANGELAND.

Map Unit: 51A - Horseplains-riverwash complex, 0 to 2 percent slopes

Description Category: SOI

RIVERWASH (NO DATA)

Description Category: SOI

HORSEPLAINS FINE SANDY LOAM IS MORE THAN 60 INCHES DEEP WITH A LIGHTER COLORED SURFACE LAYER AND SLOPES OF 0-2 PERCENT. LANDFORM: FLOOD PLAINS; FROST FREE DAYS: 105-120; AVAILABLE WATER CAPACITY IN INCHES: 4.0-5.7; MAJOR CONSIDERATIONS: FLOODING; LANDUSE MAY INCLUDE: CROPLAND, WOODLAND.

Map Unit: 94A - Revais silt loam, 0 to 2 percent slopes

Description Category: SOI

REVAIS SILT LOAM IS MORE THAN 60 INCHES DEEP WITH A LIGHTER COLORED SURFACE LAYER AND SLOPES OF 0-2 PERCENT. LANDFORM: FLOOD PLAINS; FROST FREE DAYS: 105-125; AVAILABLE WATER CAPACITY IN INCHES: 9.1-11.5; MAJOR CONSIDERATIONS: FLOODING; LANDUSE MAY INCLUDE: CROPLAND, WOODLAND.

Non-Technical Descriptions - Continued

Sanders And Parts Of Lincoln And Flathead Counties, Montana

Map Unit: 151A - Revais silt loam, gravelly substratum, 0 to 2 percent slopes

Description Category: SOI

REVAIS SILT LOAM IS MORE THAN 60 INCHES DEEP WITH A LIGHTER COLORED SURFACE LAYER AND SLOPES OF 0-2 PERCENT. LANDFORM: FLOOD PLAINS; FROST FREE DAYS: 95-115; AVAILABLE WATER CAPACITY IN INCHES: 6.7-9.8; MAJOR CONSIDERATIONS: FLOODING; LANDUSE MAY INCLUDE: CROPLAND, WOODLAND.

Appendix E

BIRD SURVEY PROTOCOL
GPS PROTOCOL
MACROINVERTEBRATE PROTOCOL

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, 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.

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 see 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.

Appendix F

REVEGETATION

MDT Wetland Mitigation Monitoring
Hoskins Landing
Dixon, Montana

LAND & WATER

1. **Wetland Species**

Trees – 100/acre = 600 total	Need:
Populus trichocarpa (black cottonwood)	350
Populus tremuloides (quaking aspen)	150
Shrubs – 1000/acre = 6000	
Alnus incana (mountain alder)	250
Betula occidentalis (water birch)	250
Cornus stolonifera (red-osier dogwood)	2000
Salix bebbiana (Bebb willow)	1000
Salix exigua (sandbar/coyote willow)	1425

2. **Upland Species**

Trees – 100/acre = 200		
Juniperus scopulorum (Rocky Mountain juniper)	50	
Pinus ponderosa (ponderosa pine)	250	
Shrubs – 1000/acre = 2000		
Clematis ligusticifolia (western virgins-bower)	50	
Crataegus douglasii (black hawthorn)	350	
Amelanchier alnifolia (western serviceberry)	375	
Lonicera involucrata (twinberry)	350	
Prunus americana (American plum)	600	
Prunus virginiana (chokecherry)	350	
Rosa spp. (*woodsii/acicularis*) (prickly and woods rose)		500
Symporicarpos spp. (*albus/occidentalis*) (snowberry)		500

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To Bob Johnson	From Mary Price
Co.	Co.
Dept.	Phone # 675-2700 ext 7242
Fax # 523-5877 523-5879	Fax #

CSKT-Preservation Office
8/21/02

Mary;

Here are the mixes for Hoskin's Landing:

MIX 5 Joyce Lapp/Phil J, Hoskins Landing Uplands

1 ELYTRA	1.00	159,000	3.7	159,000	2.1%
2 FESOVI	1.00	680,000	15.6	680,000	8.9%
3 FESSCA	4.00	200,000	18.4	800,000	10.5%
4 ELYGLA	5.00	110,000	12.8	550,000	7.2%
5 ELYLAN	4.00	154,000	14.1	616,000	8.1%
6 POAAMP	0.50	882,000	10.1	441,000	5.8%
7 CALCAN	0.10	2,270,000	5.2	227,000	3.0%
8 CLESER	1.00	65,900	1.5	65,900	0.9%
9 ACHMIL	0.50	2,770,000	31.8	1,385,000	18.2%
10 ASTCHI	1.00	2,668,000	61.2	2,668,000	35.1%
11 LUPARG	1.00	18,300	0.4	18,300	0.2%
		DRILL SEED RATE			175

MIX 7 Joyce Lapp/Phil Johnson, Hoskins Landing Wetlands
w/ SKloetzel modifications, version 2, 8/21/02

ELYTRA					
1 pryor	3.00	159,000	11.0	477,000	2.7%
2 DESCAE	0.50	2,500,000	28.7	1,250,000	7.0%
3 CALCAN	0.50	2,270,000	26.1	1,135,000	6.3%
4 CARUTR	3.00	440,000	30.3	1,320,000	7.4%
5 CARNEB	3.00	543,100	37.4	1,629,300	9.1%
6 CARAQU	2.00	485,000	22.3	970,000	5.4%
7 JUNBAL	0.25	10,900,000	62.6	2,725,000	15.2%
8 JUNTOR	0.25	12,300,000	70.6	3,075,000	17.1%
9 ELEPAL	3.00	620,000	42.7	1,860,000	10.4%
10 SCIACU	3.00	377,600	26.0	1,132,800	6.3%
11 SCIVAL	2.00	550,000	25.3	1,100,000	6.1%
12 GLYGRA	1.00	1,280,000	29.4	1,280,000	7.1%
		Broadcast seed rate, Wetland Seed should NOT be drilled! Order seed as pre-mixed.			.412

The wetland seed will probably be somewhat subject to availability. I would suggest contacting Bill Agnew, Granite Seed, 801/768-4422. Of course all seed should be blue-

SEEDING SPECIAL PROVISIONS

Project No. STPX 45(29)
Project length NA km (miles)

Project Name Dixon – West Wetland Mitigation
CN 4144

AREA DESCRIPTIONS

Area 1	All disturbed upland areas (non-wetland) as indicated on the plan sheets. Order sufficient amount of seed to drill seed 2.1 hectares (5.2 acres). Use the seed mix specified below.
Area 2	All disturbed areas designated within the "Construction Limits for Wetland" on the plan sheets – Total area to be seeded equals 3.3 hectares (8.1 acres). Seed mix will be provided by the CS&K Tribe.
Area 3	Waste Area - 2.3 hectares (5.7 acres).

SEEDBED PREPARATION REQUIREMENTS

Condition all drill seeded areas immediately prior to seeding.

SEEDBED APPLICATION

	Method	Seeding Depth	Season of Seeding
Area 1	Drill seed	0.5-1.2 cm (0.25-0.5 in)	10/15 - 5/1
Area 2	Drill seed * Areas too wet to operate the seeding equipment may be broadcast seeded. Attempt to incorporate the seed by scarifying immediately following seeding.	0.5-1.2 cm (0.25-0.5 in)	10/15 - 5/1
Area 3	Drill seed	0.5-1.2 cm (0.25-0.5 in)	10/15 - 5/1

Small, inaccessible [upland] areas may also be broadcast seeded. Scarify (roughen) these areas immediately prior to and following broadcast seeding to incorporate the seed into the soil.

Seeding outside the designated seeding period is allowed only with prior approval from MDT's Botanist.

MULCH REQUIREMENTS

Area 1	None
Area 2	None
Area 3	None

FERTILIZER APPLICATION

Areas 1, 2 & 3. Apply "Osmocote" 17-7-12 fertilizer at a rate of 110 kg per hectare (100 lbs per acre). Apply and incorporate (disk or harrow) immediately prior to seeding. Contact Scotts Company 1-800-492-8255.

SEED MIXTURE

	Species	Seeding rate*
Area 1	Pryor slender wheatgrass	1.0 (1.0)
	Critana thickspike wheatgrass	4.5 (4.0)
	Rough fescue	4.5 (4.0)
	Blue wildrye	5.5 (5.0)
	Sheep fescue	1.0 (1.0)
	Big bluegrass	0.5 (0.5)
	Blucjoint reedgrass	0.1 (0.1)
	Rocky Mountain beeplant	1.0 (1.0)
	Western (white) yarrow	0.5 (0.5)
	Pacific aster	1.0 (1.0)
	Silverleaf lupine	1.0 (1.0)
Area 2	Seed mix will be provided by the CSKT. Seed at a rate of 11 kgs per hectare, bulk rate. This is equivalent to 10 lbs per acre, bulk rate.	
Area 3	Cimarron VR Alfalfa at 16 kg per ha (15 lbs per Acre) plus supplier-recommended inoculant.	

← Area 1 upland seed

* Kilograms of pure live seed per Hectare (and equivalent pounds per acre)

** Contact the MDT Botanist for substitute if the recommended species are not available.