MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: 2001

Johnson-Valier
Valier, Montana

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

Prepared by:
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P.O. Box 8254
Missoula, MT 59807

July 2002

Project No: 130091.018

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 METHODS 1

2.1 Monitoring Dates and Activities 1

2.2 Hydrology 3

2.3 Vegetation 3

2.4 Soils 4

2.5 Wetland Delineation 4

2.6 Mammals, Reptiles and Amphibians 4

2.7 Birds 5

2.8 Macroinvertebrates 5

2.9 Functional Assessment 5

2.10 Photographs 5

2.11 GPS Data 5

2.12 Maintenance Needs 6

3.0 RESULTS 6

3.1 Hydrology 6

3.2 Vegetation 6

3.3 Soils 8

3.4 Wetland Delineation 8

3.5 Wildlife 9

3.6 Macroinvertebrates 9

3.7 Functional Assessment 10

3.8 Photographs 11

3.9 Maintenance Needs/Recommendations 11

3.10 Current Credit Summary 11

4.0 REFERENCES 13

TABLES

Table 1 *2001 Johnson-Valier Vegetation Species List*

Table 2 *Fish and Wildlife Species Observed on the Johnson-Valier Mitigation Site, 2001*

Table 3 *Summary of 2001 Wetlands Function/Value Ratings and Functional Points at the Johnson-Valier Mitigation Project*

FIGURES

Figure 1 *Project Site Location Map*

APPENDICES

Appendix A: *Figures 2 and 3*

Appendix B: *Completed 2001 Wetland Mitigation Site Monitoring Form*
Completed 2001 Bird Survey Forms
Completed 2001 Wetland Delineation Forms
Completed 2001 Field and Full Functional Assessment Forms
Macroinvertebrate Data

Appendix C: *Representative Photographs*

Appendix D: *Map of Proposed Impoundment Areas from Van Hook (1994)*
List of Plants Used or Proposed for Use in the Design Specifications from Van Hook (1994)

Appendix E: *Bird Survey Protocol*
Macroinvertebrate Sampling Protocol
GPS Protocol

1.0 INTRODUCTION

The Johnson-Valier wetland mitigation site was constructed in 1994 to mitigate wetland impacts associated with Montana Department of Transportation (MDT) projects F 44-1(3)14 (Valier-East), F 44-1(7)0 (Valier-West), and other projects in Watershed #8 (Marias). The Valier-East and Valier-West projects resulted in a combined wetland loss of approximately 17 acres. Constructed within the MDT Great Falls District, the mitigation site is located approximately 2 miles northwest of Valier (**Figure 1**). The entire site occurs in Pondera County.

The intent of the project was to create three impoundments: a main impoundment, which would hold approximately 19.9 acres of surface water at capacity (3-foot depth), and two smaller impoundments ranging in size between 4.1 and 4.8 acres at maximum capacity (2-foot depth) (Van Hook 1994; Diagram 1 in **Appendix D**). The total projected surface water area at the site was 28.8 acres. Exact area of wetlands to be created was left to be determined during future monitoring, although "approximately 28 acres" of created wetlands were specified in the 1994 Wetland Development Agreement.

An approximate 2.5-acre remnant wetland pothole occurred in the area of the main impoundment prior to project construction. This area was to be subtracted from total wetland acreage credit unless determined that its wetland functions have been improved.

Generally, the project was designed to support waterfowl and wetland communities while also focusing on providing habitat for upland game birds, ungulates, furbearers, predators, amphibians, songbirds, and small mammals. It was also expected that an increasing diversity of invertebrates would benefit from shallow impoundments over time.

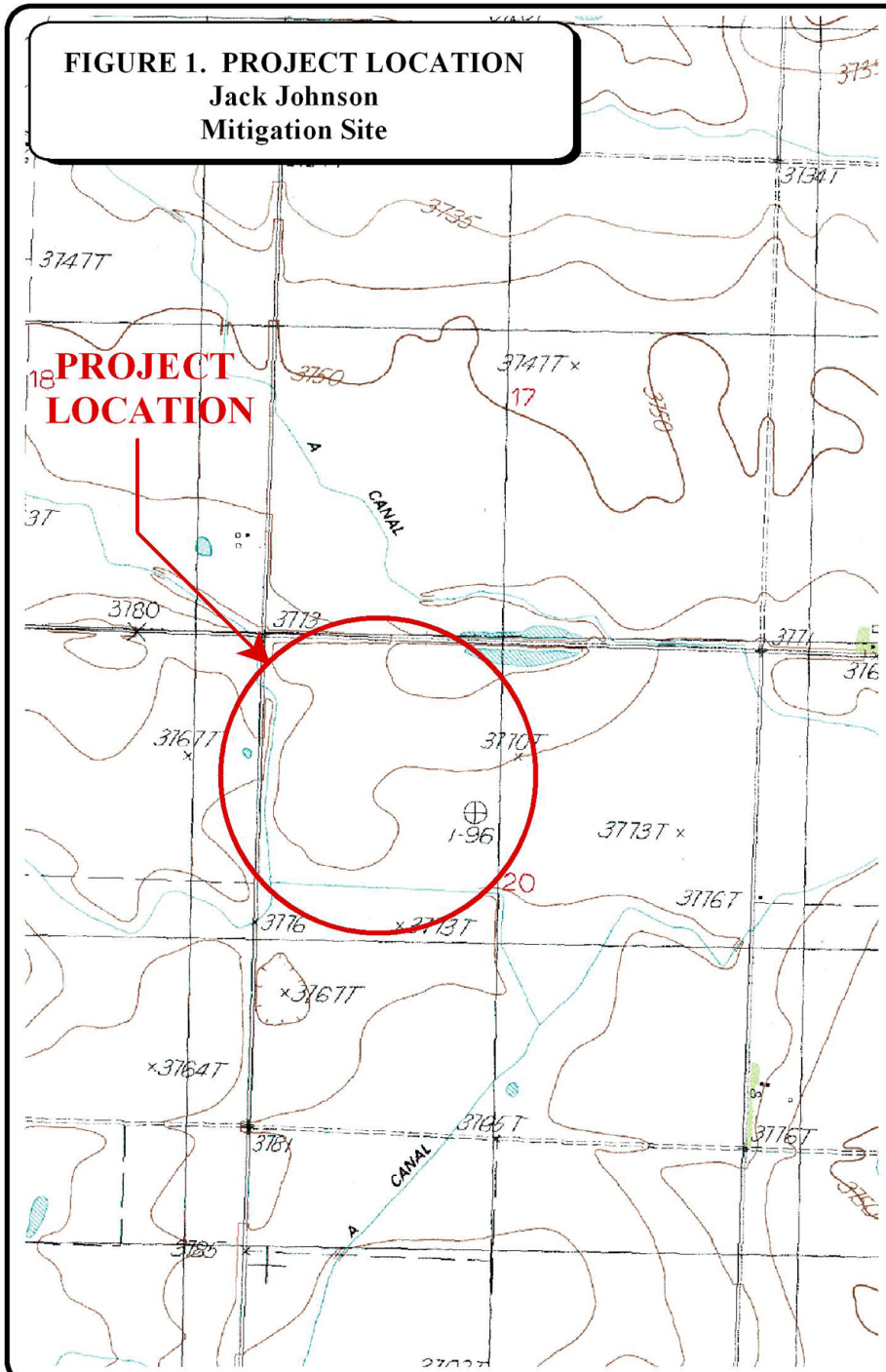
MDT personnel visited the site intermittently over the past several years. Photographs were taken during several visits and vegetation species were recorded. These materials were not incorporated into a report format, but are available in the MDT project files. This site required a one-time (one year) final monitoring effort to document wetland attributes. No performance standards or success criteria were required by the U.S. Army Corps of Engineers (COE), MDT, or other agencies. The monitoring area is illustrated in **Figure 2, Appendix A**.

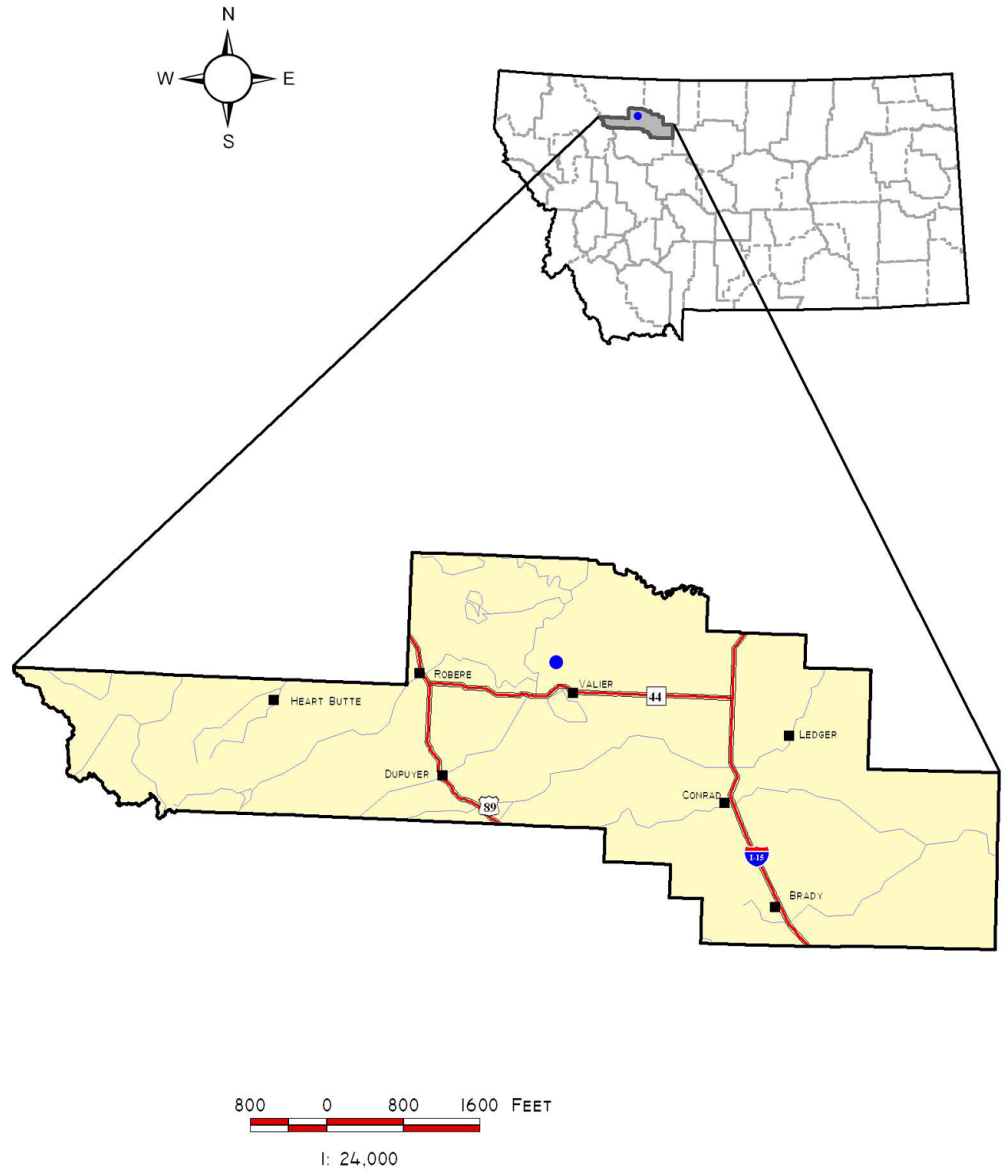
2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on June 3 (spring) and August 26–27 (mid-season), 2001. A fall birding visit was also originally proposed, but was cancelled by MDT due to drought conditions. The primary purpose of the spring visit was to conduct a bird/general wildlife reconnaissance. The early June period was selected for the spring visit because monitoring between mid-May and early June is likely to detect migrant as well as early nesting activities for a variety of avian species (Carlson pers. comm.), as well as maximizing the potential for amphibian detection. In Montana, most amphibian larval stages are present by early June (Werner pers. comm.).

FIGURE 1. PROJECT LOCATION
Jack Johnson
Mitigation Site





PROJECT #: 130091.018
DATE: MAY 2001
LOCATION:
PROJECT MANAGER: J. BERGLUND
DRAWN BY: B. NOECKER

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The mid-season visit was conducted in late August 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; birdhouse mapping, photograph points; macroinvertebrate sampling; GPS data points; functional assessment; and (non-engineering) examination of dike structures.

2.2 Hydrology

According to the mitigation plan, spring refill is not normally accomplished until June 15th or until completion of the waterfowl nesting season in order to avoid nest flooding (Van Hook 1994). Primary flooding to capacity is accomplished during September-October.

Impoundment areas are indicated on Diagram 1 in **Appendix B**. Hydrologic indicators were primarily evaluated during the mid-season visit. Wetland hydrology indicators were recorded using procedures outlined in the COE 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data was recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water aquatic habitats (no rooted vegetation) was mapped on an aerial photograph and an estimate of the average water depth at this boundary was recorded.

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

2.3 Vegetation

General dominant species-based vegetation community types were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation. Estimated percent cover of the dominant species in each community type was recorded on the site monitoring form (**Appendix B**).

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

The transect location, depicted on **Figure 2** (**Appendix A**), was marked on an aerial photograph and all data recorded on the mitigation site monitoring form. Transect endpoint locations were

recorded with a GPS unit. Photos of the transect were taken from both ends during the mid-season visit.

A few woody species were planted at the site over time; however, the location of these plantings was not mapped or otherwise documented. A list of plants used or proposed for use in the design specifications (Van Hook 1994) is provided in **Appendix D**. Shrubs, primarily snowberry (*Symphoricarpos occidentalis*) and rose (*Rosa* sp.), were generally planted over the years in the vicinity of current birdhouse locations (Urban pers. comm.). The site was searched for evidence of planted woody species during the spring and mid-season visits.

2.4 Soils

Soils were evaluated during the mid-season visit according to procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current NRCS terminology was used to describe hydric soils (USDA 1998).

A published soil survey does not exist for Pondera County. However, the soils mapping is complete, and the local Natural Resources Conservation Service (NRCS) office was consulted relative to unpublished mapped soil units at the site.

2.5 Wetland Delineation

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

It was estimated by MDT that approximately 2.5 acres of wetland originally existed at the site. Wetland delineation data collected during 2001 was compared to this pre-construction estimate in an effort to calculate additional wetland development since project construction.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each site visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. These observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive list of wildlife species observed during 2001 monitoring was compiled.

2.7 Birds

Bird observations were recorded during both visits. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the spring visit, observations were recorded in compliance with the bird survey protocol in **Appendix E**. During the mid-season visit, bird observations were recorded incidental to other monitoring activities. During both visits, observations were categorized by species, activity code, and general habitat association (see field and office data forms in **Appendix B**). A comprehensive 2001 bird list was compiled using these observations.

Nine birdhouses are currently located on the site (Urban pers. comm.). These structures were examined for bird use and their locations surveyed with a resource grade GPS unit.

2.8 Macroinvertebrates

Two separate macroinvertebrate samples were planned to be collected during the mid-season site visit. However, due to the lack of surface water at the main impoundment, only one sample was taken (from the southwest impoundment). Data were recorded on the wetland mitigation monitoring form. Macroinvertebrate sampling procedures are provided in **Appendix E**. The sampling location is shown on **Figure 2** (**Appendix A**). The sample was preserved as outlined in the sampling procedure and sent to a laboratory for analysis.

2.9 Functional Assessment

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

2.10 Photographs

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

2.11 GPS Data

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

2.12 Maintenance Needs

The dikes at each impoundment were examined during the 2001 site visit for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented. Birdhouses were examined for signs of wear and structural integrity.

3.0 RESULTS

3.1 Hydrology

Minor inundation was present only at the southwest impoundment. In general, the site was severely dewatered during both the spring and mid-season visits. No open water/rooted vegetation interfaces were mapped (**Figure 3** in **Appendix A**). Specific recorded water values are provided on the attached data forms.

During the spring visit, the site as a whole was estimated to be approximately 10 percent inundated (southwest impoundment only), with an average depth of 0.5 feet and a range of depths from zero to an estimated one foot. During the mid-season visit, the site was estimated to be less than one percent inundated (southwest impoundment only), with an average depth of 0.5 feet and a range of depths from zero to an estimated one foot. No groundwater component appears to contribute to this site, which is charged by irrigation water, precipitation, and runoff.

Saturation was generally lacking at much of the site during the mid-season visit, with most soils ranging from moist to dry/crumbly conditions within 12 inches of the surface. Much of this lack of saturation/inundation was due to the extremely poor precipitation year, which resulted in an apparent general lack of irrigation water application. According to the Western Regional Climate Center, Valier yearly precipitation totals for 2000 (6.6 inches) and 2001 (8.16 inches) were 53 and 65 percent, respectively, of the total annual mean precipitation (12.48 inches) in this area.

Also, it is unknown whether water was actually turned into the site by the landowner.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Seven wetland community types were identified and mapped on the mitigation area (**Figure 3**, **Appendix A**). These included Type 1: *Typha latifolia/Scirpus acutus*, Type 2: *Alopecurus pratensis/Carex lanuginosa*, Type 3: *Typha latifolia/Hordeum jubatum*, Type 4: *Polygonum/Alisma gramineum*, Type 5: *Hordeum jubatum/Chenopodium*, Type 6: exposed mudflats, and Type 7: *Chenopodium*. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

Table 1: ***2001 Johnson - Valier Vegetation Species List***

Species	Region 9 (Northwest) Wetland Indicator
Agropyron cristatum	--
Agropyron intermedium	--
Agropyron repens	FACU
Agrostis alba	FACW
Alisma gramineum	OBL
Alopecurus pratensis	FACW
Avena fatua	--
Beckmannia syzigachne	OBL
Bromus inermis	--
Carex lanuginosa	OBL
Chenopodium album	FAC
Chenopodium berlandieri	--
Chenopodium chenopodiodes	--
Cirsium arvense	FAC-
Eleocharis acicularis	OBL
Eleocharis palustris	OBL
Glyceria grandis	OBL
Helianthus annuus	FACU+
Hordeum jubatum	FAC-
Juncus balticus	OBL
Juncus torreyi	FACW
Lactuca serriola	FACU
Medicago sativa	--
Melilotus officinalis	FACU
Phleum pratense	FAC-
Poa palustris	FAC
Polygonum amphibium	OBL
Polygonum hydropiperoides	OBL
Ranunculus aquatilis	OBL
Rosa woodsii	FACU
Rumex crispus	FACW
Salsola iberica	--
Scirpus acutus	OBL
Scirpus microcarpus	OBL
Scirpus validus	OBL
Solidago canadensis	FACU
Sonchus arvensis	FACU+
Taraxacum officinale	FACU
Thlaspi arvense	--
Typha angustifolia	OBL
Typha latifolia	OBL

Type 1 occurs primarily along the west portion of the main impoundment and in the deepest portion of the southwest impoundment. Type 2 occurs mainly as an interface between wetland and upland areas. Type 3 occurs largely along the dike face and north-central portion of the main impoundment, and comprises the majority of the northeast impoundment. Type 4 occurs mainly as small pockets within the center of the main impoundments, apparently within the pre-existing pothole. Type 5 occurs within the central portion of the main impoundment, within the areas likely inundated during normal water years. Type 6 also occurs within the small, central portion of the main impoundment that is likely inundated in normal years. Type 7 occurs as a small monotype in the west-central portion of the main impoundment.

Adjacent upland communities are comprised of rangeland habitats. Common species include smooth brome (*Bromus inermis*), quackgrass (*Agropyron repens*), timothy (*Phleum pratense*), crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron intermedium*), yellow sweet clover (*Melilotus officinalis*), Russian thistle (*Salsola iberica*), prickly lettuce (*Lactuca serriola*), and goosefoot (*Chenopodium* sp.).

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

Start (nw)	***Up. (50')***	***Type 2 (42')***	***Type 1 (111')***	***Type 5 (495')***	***Type 1 (84')***	***Type 2 (40')***	***Up. (110')***	**Total: 932'**	**End (se)**

A few woody species were planted at the site over time; however, the locations of these plantings were not mapped or otherwise documented. According to MDT, some shrubs were planted in the vicinity of current birdhouse locations (Urban pers. comm.). The site was searched for evidence of planted woody species during the spring and mid-season visits. However, no evidence of such plantings was observed. Consequently, 100% mortality of such plantings was assumed, likely due to drought conditions.

3.3 Soils

A published soil survey does not exist for Pondera County. However, the soils mapping is complete, and the local Natural Resources Conservation Service (NRCS) office was consulted relative to unpublished mapped soil units at the site. Soils on the vast majority of the site are mapped as Nunemaker silty clay loam, 0-4 percent slopes. This well drained soil typically occurs on glaciated till plains between 3,300 and 4,000 feet elevation. This soil is generally considered as non-hydric by the NRCS.

B Horizon soils in wetland portions of the site consisted of silty clay loam with a matrix color ranging from 2.5Y4/2 to 2.5Y4/1. Faint mottles ranging in color between 2.5Y6/8 and 2.5Y4/4, as well as oxidized rhizospheres, were observed in the main and southwest impoundment areas, indicating periodic inundation. Generally, hydric soils appear to be developing within proposed wetland areas, but this development has been impeded by extremely dry conditions over the past few years. This is particularly evident at the two depressions located along the site's north border.

With the exception of two small 200 square foot pools in the southwest impoundment, which were inundated to approximately 18 inches in depth, soils on the site were not saturated within 18 inches of the surface at the time of the mid-season survey. Other evidence of past inundation, such as sediment deposits, was observed, although the duration of such inundation is unknown.

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated on **Figure 3** (**Appendix A**). Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Delineation results are as follows:

Johnson-Valier Mitigation Area: 22.49 wetland acres (emergent, aquatic bed)
0.0 acres open water

Approximately 22.49 acres of "wetlands" presently occur on the site, inclusive of a sparsely vegetated mudflat area in the center of the main impoundment (**Figure 2**, **Appendix A**). The

mudflat is interspersed with vegetated wetland, and is likely inundated and productive during "normal" precipitation years. Mudflats are considered "special aquatic sites" under COE regulations. As defined in 40 CFR (230.3[q-1]), "special aquatic sites" are areas possessing special characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle/pool complexes.

An approximate 2.5-acre remnant wetland pothole occurred in the area of the main impoundment prior to project construction. This area was to be subtracted from total wetland acreage credit unless determined that its wetland functions have been improved. Although no baseline functional assessment was performed, it is assumed that because this impoundment now achieves a Category II rating due to wildlife habitat (and is now protected by a conservation easement), functions at this pre-existing site have likely improved at least somewhat over baseline conditions, despite the lack of water availability in 2001. Therefore, the pre-existing 2.5 acres was not subtracted from the post-project 22.49 acres.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. The site, even in its de-watered state, provides habitat for several wildlife species. Three mammal, one amphibian, and 29 bird species were noted using the mitigation site during the course of 2001 monitoring activities.

Of special interest were observations of northern leopard frogs (*Rana pipiens*) at the site (Urban pers. comm.). Leopard frogs are considered "species of special concern" by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned a rank of S1 west of the Continental Divide and S3 east of the Divide by the MNHP. The southwest impoundment is considered documented secondary habitat for this species due to the few individuals observed and intermittent nature of surface water.

3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix B** and summarized by Rhithron Associates in the italicized section below. Twenty taxa were represented in the sample, with over 87% comprised of "collecter – gatherers". Abundant collectors suggest more positive functional conditions and well-developed wetland morphology. These organisms graze periphyton growing on stable surfaces such as macrophytes.

The high total assessment score suggests near-optimal biologic conditions as measured by this analysis. High overall taxa richness, as well as high Chironomid taxa richness imply plentiful available habitats, both benthic and associated with macrophytes or other features.

Table 2: ***Fish and Wildlife Species Observed on the Johnson - Valier Mitigation Site, 2001***

FISH None
AMPHIBIANS Northern Leopard Frog (*Rana pipiens*)-Su
REPTILES None
BIRDS American Avocet (*Recurvirostra americana*) - Sp American Kestrel (*Falco sparverius*) – Sp American Wigeon (*Anas americana*) - Sp Barn Swallow (*Hirundo rustica*) - Sp Brewer's Blackbird (*Euphagus cyanocephalus*) – Sp, Su Brown-headed Cowbird (*Molothrus ater*) – Sp Cliff Swallow (*Petrochelidon pyrrhonota*) - Sp Common Snipe (*Gallinago gallinago*) – Sp, Su Gadwall (*Anas strepera*) - Sp Killdeer (*Charadrius vociferous*) – Sp, Su Mallard (*Anas platyrhynchos*)-Sp Marbled Godwit (*Limosa fedoa*) - Sp Marsh Wren (*Cistothorus palustris*) - Sp Mourning Dove (*Zenaida macroura*) - Su Northern Harrier (*Circus cyaneus*) – Su Northern Shoveler (*Anas clypeata*) – Sp Red-winged Blackbird (*Agelaius phoeniceus*) -Sp, Su Ring-billed Gull (*Larus delawarensis*) – Sp Ring-necked Pheasant (*Phasianus colchicus*) – Sp, Su Rock Dove (*Columba livia*) - Sp Sandhill Crane (*Grus Canadensis*) – Su Savannah Sparrow (*Passerculus sandwichensis*) – Sp, Su Sharp-tailed Grouse (*Tympanuchus phasianellus*) - Su Tree Swallow (*Tachycineta bicolor*) - Sp Vesper Sparrow (*Pooecetes gramineus*) - Sp Western Meadowlark (*Sturnella neglecta*) – Sp, Su Willet (*Catoptrophorus semipalmatus*) - Sp Wilson's Phalarope (*Phalaropus tricolor*) - Sp Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) – Sp
MAMMALS Richardson's Ground Squirrel (*Spermophilus richardsonii*) - Su Striped Skunk (*Mephitis mephitis*) – Sp, Su White-tailed Deer (*Odocoileus virginianus*) – Su

3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 3**.

The main impoundment of the mitigation site rated as a Category II site, primarily due to high ratings for wildlife habitat, surface water storage, and food chain support. The southwest and northeast impoundments rated as Category III sites, although the score at the southwest impoundment was nearly double of that achieved at the northeast impoundment. The small depressions outside of the main cells rated as Category IV (low value) sites. This was primarily due to low vegetative diversity and low acreage of actual wetlands present.

Based on functional assessment results (**Table 3)**, approximately 106 functional units have been gained thus far at the Johnson-Valier mitigation site.

3.8 Photographs

Representative photographs taken from photo-points are provided in **Appendix C**.

3.9 Maintenance Needs/Recommendations

The dikes and all nine birdhouses were in good condition during the mid-season visit. No significant problems were observed.

Due to the extreme drought conditions evident during 2001 monitoring, it is recommended that MDT postpone "final" site characterization until a "normal" precipitation year (or perhaps following a succession of normal years) in order to accurately document the functional attributes and vegetative establishment at the site. Increased MDT monitoring of water delivery to the site should also be undertaken.

3.10 Current Credit Summary

No specific performance criteria were required to be met at this site in order to document its success. However, the project was designed to support waterfowl and wetland communities while also focusing on providing habitat for upland game birds, ungulates, furbearers, predators, amphibians, songbirds, and small mammals. It was also expected that an increasing diversity of invertebrates would benefit from shallow impoundments over time. Based on 2001 monitoring results, some of these goals have been achieved, but drought conditions have apparently prevented this site from realizing its full potential from a habitat standpoint.

As the project stands, approximately 22.49 acres of "wetlands" presently occur on the site, inclusive of a sparsely vegetated mudflat area in the center of the main impoundment (**Figure 2**, **Appendix A**). This is presently the maximum assignable credit at this site as of 2001. Approximately 106 functional units have been gained at this site.

Table 3: ***Summary of 2001 Wetland Function/Value Ratings and Functional Points [1] at the Johnson - Valier Mitigation Project***

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	Wetland Sites			
	Main Impoundment	**Southwest Impoundment**	**2 Small Depressions Outside of Main and Southwest Impoundments**	**Northeast Depression**
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.0)	Low (0.0)	Low (0.3)
MNHP Species Habitat	Mod (0.6)	Mod (0.7)	Low (0.1)	Low (0.1)
General Wildlife Habitat	High (0.9)	Mod (0.7)	Mod (0.5)	Mod (0.5)
General Fish/Aquatic Habitat	NA	NA	NA	NA
Flood Attenuation	Mod (0.5)	Low (0.2)	Low (0.1)	NA
Short and Long Term Surface Water Storage	High (1.0)	Mod (0.4)	Low (0.1)	Low (0.3)
Sediment, Nutrient, Toxicant Removal	Mod (0.7)	High (1.0)	NA	NA
Sediment/Shoreline Stabilization	Mod (0.6)	NA	NA	NA
Production Export/Food Chain Support	High (0.9)	Mod (0.7)	Low (0.3)	Mod (0.6)
Groundwater Discharge/ Recharge	NA	NA	NA	NA
Uniqueness	Mod (0.4)	Low (0.3)	Low (0.3)	Low (0.3)
Recreation/Education Potential	Low (0.3)	Low (0.3)	Low (0.1)	Low (0.1)
Actual Points/Possible Points	6.2 / 10	4.3 / 9	1.5 / 8	2.2 / 7
% of Possible Score Achieved	62%	48%	19%	31%
Overall Category	II	III	IV	III
Total Acreage of Assessed Wetlands and Other Aquatic Habitats within Site Boundaries	16.92 ac	2.47 ac	0.59 ac	2.44 ac
Functional Units (acreage x actual points)	105 fu	11 fu	1 fu	5 fu
Net Acreage Gain	16.92 – 2.5 = 14.42 ac	2.47 ac	0.59 ac	2.44 ac
Net Functional Unit Gain	89 fu	11 fu	1 fu	5 fu
Total Functional Unit "Gain"	**106** Total Functional Units			

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

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Appendix A

FIGURES 2 - 3

MDT Wetland Mitigation Monitoring
Johnson-Valier
Valier, Montana

Figure 2 - Monitoring Activity Locations

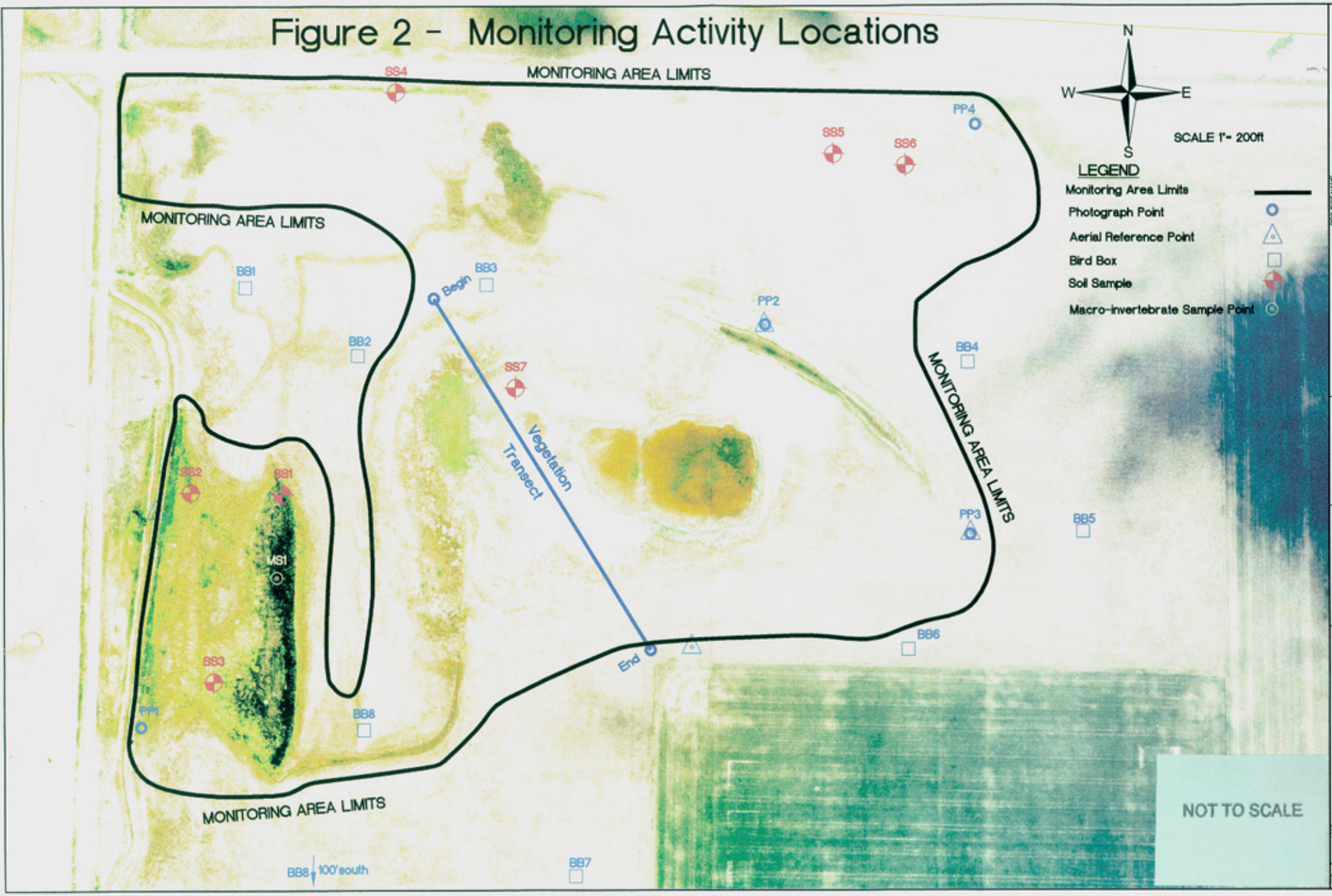
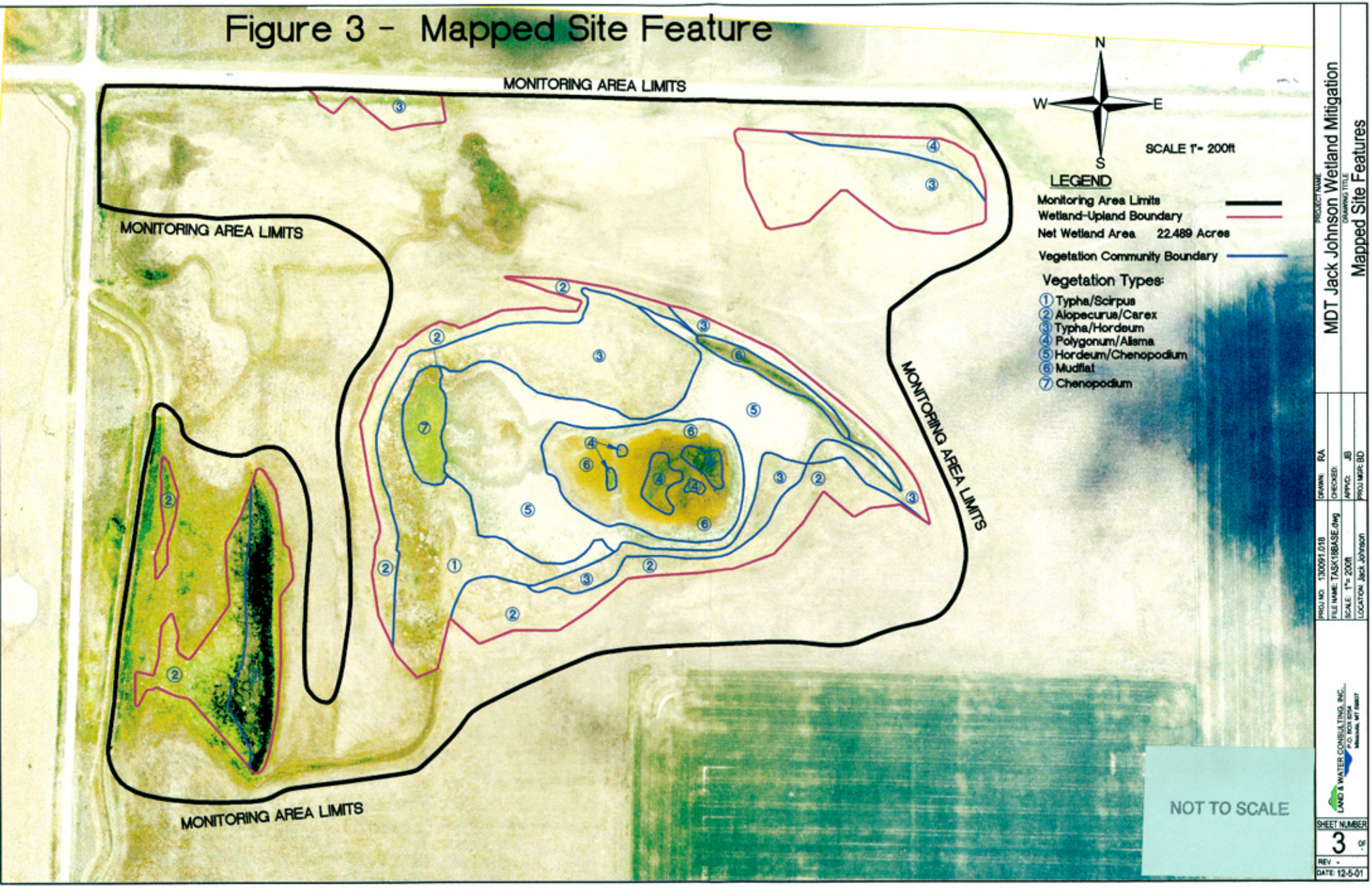


Figure 3 - Mapped Site Feature



Appendix B

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

MDT Wetland Mitigation Monitoring
Johnson-Valier
Valier, Montana

LAND & WATER

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

LAND & WATER B-1

Project Name: Valier - Jack Johnson Project Number: F 44-1(3)14 Assessment Date: 8 /26-27/ 01
Location: 4 mi. north of Valier, MT. MDT District: Great Falls Milepost: 5 of Hwy. 358
Legal description: T 30N R 5W Section 20 Time of Day: dawn to dusk
Weather Conditions: clear, 90°+ F. Person(s) conducting the assessment: R. Harris
Initial Evaluation Date: 6 / 03 /01 Visit #: 02 Monitoring Year: 2001
Size of evalusaiton area: 80+ acres Land use surrounding wetland: agric. wheat/alfalfa, etc.
Bird Survey only

HYDROLOGY

Surface Water

Inundation: Present X Absent ____ Average depths: .5 ft Range of depths: 0 - 1.0 ft
Assessment area under inundation: <1 %
Depth at emergent vegetation-open water boundary: .5 ft
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes ____ No x - not presently
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): in most locations

Groundwater

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

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:

✓ Map emergent vegetation-open water boundary on air photo
✓ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining etc..)
NA GPS survey groundwater monitoring wells locations if present

COMMENTS/PROBLEMS: Yr. 2001 is an exceptionally dry one - the lowest depressions show some minor inundation (1 foot only) and pockets of saturation, but for the most part the wetland soils range from a moist to crumbly texture (clay.).

COMPREHENSIVE VEGETATION LIST

*- abundant, C- common, R- represented
T- trace

LAND & WATER B-2

Species Hydrophytes	Vegetation Community Number(s)	Species UPL types	Vegetation Community Number(s)
Typha latifolia	1,3,6	Cirsium arvense - C	
Typha angustifolia	3	Lactuca serriola - R	
Scirpus acutus	1,3	Salsola iberica - C	
Scirpus microcarpus	1	Chenopodium album - R	
Scirpus validus	1	Chenopodium berlandieri - R	
Alisma gramineum	4	Thlaspi arvense - R	
Beckmannia syzigachne	1,2,3	Taraxacum officinale - *	
Agrostis alba	2,3	Phleum pratense - C	
Alopecurus pratensis	2,3	Bromus inermis - *	
Carex lanuginosa	2,3	Medicago sativa - C	
Glyceria grandis	1,3	Agropyron intermedium - R	
Juncus balticus	2,3	Melilotus officinalis - R	
Juncus torreyi	1,2	Sonchus arvense - R	
Eleocharis palustris	1,3,4	Melianthus annuus - R	
Rumex crispus	2,3,4,5	Solidago canadensis - R	
Hordeum jubatum	2,3,5	Agropyron cristatum - R	
Poa palustris	2	Avena Fatua - R	
Agropyron repens	2,3,5		
Ranunculus aquatilis	6		
Polygonum hydropiperoides	1,3,4,6		
Polygonum amphibium	6		
Chenopodium chenopodioides	4,5,7		
Eleocharis acicularis	4,6		

* REPRESENTATIVE PLANT

COMMENTS/PROBLEMS: _____

VEGETATION COMMUNITIES

LAND & WATER B-3

Community No.: I Community Title (main species): Typha latifolia / Scirpus acutus

Dominant Species	% Cover	Dominant Species	% Cover
Typha latifolia	70%	Beckmannia syzigachne	< 3
Scirpus acutus	15		
Alopecurus pratensis	5		
Scirpus microcarpus	5		
Eleocharis palustris	5		

COMMENTS/PROBLEMS: These form some of the denser/taller pockets of hiding cover on the parcel. white-tail deer were routed out of this community type on both days of monitoring.

Community No.: II Community Title (main species): Alopecurus pratensis/Carex lanuginosa

Dominant Species	% Cover	Dominant Species	% Cover
Alopecurus pratensis	40	Juncus balticus	5
Carex lanuginosa	25	Poa palustris	< 5
Agrostis alba	15		
Hordeum jubatum	5		
Rumex crispus	5		

COMMENTS/PROBLEMS:

Community No.: III Community Title (main species): Typha latifolia / Hordeum jubatum

Dominant Species	% Cover	Dominant Species	% Cover
Typha latifolia }	30	Agropyron repens	1-2
Typha angustifolia }	10	Beckmannia syzigachne	1-2
Hordeum jubatum	45		
Rumex crispus	2-3		
Eleocharis palustris	10		

COMMENTS/PROBLEMS: Subsites vary considerably in their make-up of these dominant species – no real uniformity to speak of.

Additional Activities Checklist:

✓ Record and map vegetative communities on air photo

VEGETATION COMMUNITIES

LAND & WATER B-4

Community No.: IV Community Title (main species): Polygonum(s) / Alisma gramineum

Dominant Species	% Cover	Dominant Species	% Cover
Polygonum hydropiperoides	40		
Polygonum amphibium	35		
Alisma gramineum	15		
Ranunculus aquatilis	5		
Chenopodium chenopodioides	< 5		

COMMENTS/PROBLEMS: Vegetative (ground) cover within this community type does not likely exceed 60% - the remainder being exposed mud flats more fully described under Type VI below.

Community No.: V Community Title (main species): Hordeum jubatum/Chenopodium che.

Dominant Species	% Cover	Dominant Species	% Cover
Hordeum jubatum	90		
Chenopodium chenopodioides	5%		
Rumex crispus	1-3		
Lactuca serriola	1-3		

COMMENTS/PROBLEMS: Largely a monotype of Hordeum. Chenopodium tends to appear along fringes of the Hordeum where exposed ground exists.

Community No.: VI Community Title (main species): Exposed mud flats - trace amounts of veg.

Dominant Species	% Cover	Dominant Species	% Cover
Alisma gramineum	< 2		
Ranunculus aquatilis	"		
Typha latifolia starts of	"		
this year.			

COMMENTS/PROBLEMS: With more time, this community type will likely transition to that of Type IV - with its dominant Polygonums.

Community Type VII is a small monotype of Chenopodium chenopodioides that exists within sub-site 1801c. Also contains trace of HORJUB & LACSER.

Additional Activities Checklist:

✓ Record and map vegetative communities on air photo

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Valier - Jack Johnson Date: 8/26-27/01 Examiner: R. Harris Transect # 1

Approx. transect length: 932 ft. Compass Direction from Start (Upland): 153° (to ind. correct declination)

Vegetation type 1:	Upland	
Length of transect in this type:	50	feet
✓ Cirsium arvense	21-50%	
✓ Bromus inermis	11-20	
✓ Agropyron repens	1-5	
✓ Taraxacum officinale	6-10	
✓ Medicago sativa	11-20	
Total Vegetative Cover:	80%	

Vegetation type 2:	Alopecuris pratensis (C.T. II)	
Length of transect in this type:	42	feet
✓ Alopecuris pratensis	> 90%	(-)
a virtual monotype		
Total Vegetative Cover:	100%	

Vegetation type 3:	Typha / Scirpus (C.T. I.)	
Length of transect in this type:	111	feet
✓ Typha latifolia / Typha angustifolia	(+)	>50
✓ Scirpus acutus	(+)	11-20
✓ Beckmannia syzigachne	(+)	6-10
✓ Polygonum hydropiperoides	(+)	11-20
✓ Lactuca serriola		<1
Total Vegetative Cover:	100%	

Vegetation type 4:	Hordeum jubatum (C.T. V).	
Length of transect in this type:	495	feet
✓ Hordeum jubatum	(0)	> 50%
✓ Chenopodium chenopodioides	(0)	21-50
✓ Beckmannia syzigachne	(+)	1-5
✓ Lactuca serriola		<1
✓ Polygonum hydropiperoides	(+)	6-10
✓ Cirsium arvense		<1
✓ Eleocharis palustris	(+)	<1
Total Vegetative Cover:	70-80%	

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Valier - Jack Johnson Date: 8/26-27/01 Examiner: R. Harris Transect # 1 continued

Approx. transect length: 932' Compass Direction from Start (Upland): 153°

Vegetation type #: 5 Typha / Scirpus (C.T. I & III)

Length of transect in this type: 84 feet

✓	Typha latifolia (+)	21-50
	angustifolia (+)	
✓	Hordeum jubatum (0)	< 1
✓	Eleocharis palustris (+)	6-10
✓	Beckmannia syzigachne (+)	1-5
✓	Agrostis alba (-)	1-5
✓	Scirpus acutus (+)	21-50

Total Vegetative Cover: 100%

Vegetation type #: 6 Alopecurus pratensis (C.T. II)

Length of transect in this type: 40 feet

✓	Alopecurus pratensis (-)	>50
✓	Agrostis alba (-)	21-50
✓	Typha latifolia (+)	1-5

Total Vegetative Cover: 100%

Vegetation type #: 7 Upland

Length of transect in this type: 110 feet

✓	Cirsium arvense	21-50
"	Bromus inermis	6-10
"	Agropyron repens	21-50
"	Taraxacum officinale	6-10
"	Agrostis alba	<5

Total Vegetative Cover: 90%

Vegetation type #:

Length of transect in this type: feet

Total Vegetative Cover:

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

Cover Estimate

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

Indicator Class:

+ = Obligate
- = Facultative/Wet
0 = Facultative

Source:

P = Planted
V = Volunteer

Percent of perimeter 90+ % 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:

The site's hydrophytic vegetation has pretty well established already. It simply needs ample water over enough years to foster a more vibrant condition. Due to the continuing drought, many of the emergent communities were dessicated at the time of August's monitoring – which is one to two months premature in this portion of Montana.

PLANTED WOODY VEGETATION SURVIVAL

LAND & WATER B-8

Species	Number Originally Planted	Number Observed	Mortality Causes
No signs of such work appear on site - living or dead.			

COMMENTS/PROBLEMS:

WETLAND DELINEATION

LAND & WATER B-9

At each site conduct the items on the checklist below:

✓ Delineate wetlands according to the 1987 Army Corps manual.

✓ Delineate wetland-upland boundary on the air photo

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

COMMENTS/PROBLEMS: _____

FUNCTIONAL ASSESSMENT

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

None ✓

Jeff is completing this section

COMMENTS/PROBLEMS: _____

MAINTENANCE

Were man-made nesting structures installed at this site? YES ✓ NO____

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.

N/A

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

YES ✓ NO____

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

If no, describe the problems below.

COMMENTS/PROBLEMS: Only problem is the water deficiency —

too late in season to confirm nesting / breeding activities —

WILDLIFE

LAND & WATER B-10

BIRDS

Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating	Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating
W. meadowlark	2	not observed	yes						
Killdeer	3	" "	yes						
sandhill cranes	3	" "	yes						
savannah sparrow	5-7	" "	yes						
r.w. blackbirds	8-10	" "	yes						
harrier (hawk)	1	" "	yes						
Brewer's blackbird	2	" "	yes						
R.N. pheasant	11-12	yes	yes						
sharptail grouse	7	yes	yes						
common snipes	1	not observed	yes						
mourning dove	3	no	yes - for general area.						

bluebird / swallow, kestrel, martin, bat

Were man made nesting structures installed? Yes ✓ No____ Type: ^ How many? 9 Are the nesting structures being utilized? Yes ✓ No____ Do the nesting structures need repairs? Yes____ No ✓
(sporadically) but

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
white-tailed deer	4	✓	✓		
ground squirrels				✓	
striped skunk		✓			
N. Leopard Frog	2				

Additional Activities Checklist:

✓ Macroinvertebrate sampling (if required) one sample obtained from 1801(b). Taken from two, small inundated depressions 10' x 20' in size.

COMMENTS/PROBLEMS: _____

LAND & WATER B-11

BIRD SURVEY - FIELD DATA SHEET

Page - of -
Date: 8/26-27/01
Survey Time: two days - dawn to dusk

SITE: Johnson/Valier

Bird Species	Behavior	Habitat Type
w. meadowlark	L	UP
Killdeer	FO	MA
sandhill cranes	FO	MA
savannah sparrow	L, F	UP
r. w. blackbird	FO, F, L	UP / MA
harrier	F	UP/MA
brewer's blackbird	FO, L	UP/MA
R. N. pheasant	F	MA
sharptail grouse	F	UP
common snipe	FO	MA
mourning dove	FO	MA

Bird Species	Behavior	Habitat Type

NOTES:
(Three) Killdeer behavior suggested one breeding pair w/ offspring.

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

F:/clients/215/data/birddatasheets

BIRD SUMMARY TABLE

Page — of —
Date: 8/26-27/01
Survey Time: dawn to dusk

Site: Johnson-Valier

Scientific Name	Common Name	Total Density	Foraging	Nesting	Flyover	Breeding	Loafing
Sturnella neglecta	W. meadowlark	2					2
Charadrius vocif	Killdeer	3			FO 3		
Grus canadensis	sandhill cranes	3			3		
Passerculus sand.	savannah sparrow	5-7	4				3
Agelaius phoeni.	r.w. blackbirds	8-10	2		2		6
Circus cyaneus	harrier	1	1				
Euphagus cyano.	Brewers blackbird	2			1		1
Phasianus colchicus	R.N. pheasant	11-12	11				
Pedioecetes phas.	sharptail grouse	7	7				
Capella gallinago	common snipe	1			1		
Zenaidura macroura	mourning dove	3			3		

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:

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

Location	Photo Frame #	Photograph Description	Compass Reading
A		Refer to key on WL map for all	
B		photo work.	
C			
D			
E			
F			
G			
H			

COMMENTS/PROBLEMS: _____

GPS SURVEYING

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

Checklist:

- ✓ Jurisdictional wetland boundary
- ✓ 4-6 landmarks recognizable on the air photo
- ✓ Start and end points of vegetation transect(s)
- ✓ Photo reference points
- N/A Groundwater monitoring well locations

COMMENTS/PROBLEMS: _____

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Jack Johnson-Valier Project Number: F 44-1(3) 14 Assessment Date: 6 /03 /01
Location: 4 mi. north of Valier MDT District: Great Falls Milepost: 5 of Hwy. 358
Legal description: T 30N R 5W Section 20 Time of Day: 0830 - 1330
Weather Conditions: windy - overcast Person(s) conducting the assessment: R. Harris
Initial Evaluation Date: 6 /03 / 01 Visit #: 1 Monitoring Year: 2001
Size of evaluaiton area: 80+ acres Land use surrounding wetland: agriculture - wheat/alfalfa

HYDROLOGY

Surface Water

Inundation: Present X Absent____ Average depths: .5 ft Range of depths: 0 - 1.0 ft
Assessment area under inundation: > 10 %
Depth at ~~emergent~~ Knotted vegetation-open water boundary: 1.0 ft - polygonum community in bottom of depression
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.): _____
current water level is roughly 2.0 ft below the units discharge pipe.
a circular inundation of some 60-80 meters across, no deeper than 1.0 ft.

Groundwater

Monitoring wells: Present_____ Absent X
Record depth of water below ground surface

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:

_____Map emergent vegetation-open water boundary on air photo
_____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: Site seems severely dewatered for this season of the year; and may remain so during this period of drought.

WILDLIFE

LAND & WATER B-15

BIRDS

Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating		Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating

See bird form

Were man made nesting structures installed? Yes X No____ Type:_____ How many? 8-9 Are the nesting structures being utilized? Yes X No____ Do the nesting structures need repairs? Yes____ No X

partially - perhaps 50% of them.

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
Striped skunk	—	✓			

Additional Activities Checklist:

_____Macroinvertebrate sampling (if required)

COMMENTS/PROBLEMS: No observed mammals. Scattered tracks, to include small rodents/mice/etc. No herptiles observed at this time.

BIRD SURVEY - FIELD DATA SHEET

Date: 6/03/01

Survey Time: 0830 - 1330

SITE:

Max. # of individuals observed at one time	Bird Species	Behavior	Habitat Type
(7)	Mallard ♂	FO	MA/OW
(+15) *	Red-winged b.b.	N/BP/BD	MA
(2pr)	Mallard ♂ & ♀	L	AB/OW
(2pr.)	Am. shoveler	L/F	AB/OW
(5)	Am. coot	F	AB/MF
(3) *	Brewer's b.b.	F / FO	MA
(2pr.)	Am. wigeon	../L/F	AB
(3) *	cliff swallow	FO	MA
(2)	c. snipe	F	MF
(2)	barn swallow	mud gather	MF
(3)	killdeer	F	MF
(1)	Am. kestrel	FO	UP
(1)	r.n. pheasant	flush	MA
(3) *	ring-billed gull	FO	MA/all
(1)	tree swallow	FO	MA
(2pr.)	gadwall	L	OW
(3)	w. meadowlark	L	UP
(4)	Wilson's phalarope ♀	F	MF
(1)	willet	F	MF
(1)	marbled godwit	F	MF
(1)	long-billed marsh wren	fleeing	MA
(3)	yellow-headed b.b.	BD, B	MA
(2)	brown-headed cowbird	F	MA
	feral pigeons	FO	MA
(2)	Savannah sparrow	F	UPL
(1)	Vesper sparrow	F	MA

Bird Species	Behavior	Habitat Type

NOTES:

Approx. 8-9 houses w/ varying hole sizes, on perimeter of UPL buffer. Perhaps half of these in use. One by tree swallows, two by brewer's b.b.. Extremely windy. Open water no more than 60 x 80 m. in width. Polygonum community is the only rooted emergent currently here. Couple rooted submerged species also. No large bulkes of any sort observed during the four+ hours on site. Low water even w/ 12" discharge gate fully closed. water is about 2' below the discharge pipe.

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

BIRD SUMMARY TABLE

Date: 6/03/01

Site: Jack Johnson - Valier wmitigation

Survey Time: 0830 - 1330

Scientific Name	Common Name	Total Density	Foraging	Nesting	Flyover	Breeding	Loafing
Anas platyrhynchos	Mallard duck	9	1		2		6
Agelaius phoeniceus	Red wing blackbird	15+	12	3-4	3		
Spatula clypeata	American shoveler	4	4				
Recurvirostra amer.	American avocet	5	4				1
Euphagus cyanc.	Brewer's blackbird	3	1	2			
Mareca americana	American wigeon	4	2				2
Petrochelidon fulva	cliff swallow	3	3				
Capella gallinago	common snipe	2			2		
Hirundo rustica	barn swallow	2			X &	mud gathering	
Charadrius vocif.	killdeer	3	3				
Falco sparverius	American kestrel	1	1				
Phasianus colchicus	ring neck pheasant	1	♂	Flushed	from	cattails	
Larus delawarensis	ring-billed gull	8			8		
Indoprocne bicolor	tree swallow	1	1				
Anas strepera	gadwall duck	4					4
Sturnella neglecta	w. meadowlark	3	3				
Steganopus tricolor	Wilsons phalarope	4	4				
Catop. semipalmatus	willet	1	1				
Limosa fedoa	marbled godwit	1	1				
Telmatodytes pal.	long-billed marshwren	1	1				
Xanthocephalus x.	yellow-headed b.b.	3	1	2			
Molothrus ater	brown-hd. cowbird	2	2				
Columba livia	feral pigeon	5			5		
Passerculus sandw.	savannah sparrow	2	2				
Pooecetes gramineus	vesper sparrow	1	1				

* The above numbers represent the maximum no. of individuals observed at any one moment of time during the survey. This is done to eliminate any repeated censusing of the same individuals that leave - and then return to the site.

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

LAND & WATER B-18

Project/Site: Johnson-Valier **Applicant/Owner:** MDT **Investigators:** R. Harris	**Project No:** F44-1(3)14	**Date:** 27-Aug-2001 **County:** Pondera **State:** Montana **Plot ID:** Subsites b,e

Do Normal Circumstances exist on the site?	Yes (No)	**Community ID:** palustrine depressions
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** NA
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** 4 mi. due north of Valier, MT.

VEGETATION **(USFWS Region No. 4)**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Polygonum hydropiperoides Smartweed,Swamp	Herb	OBL	*Alopecurus pratensis* Foxtail,Meadow	Herb	FACW
Polygonum amphibium Smartweed,Water	Herb	OBL	*Agrostis alba* Redtop	Herb	FACW
Alisma gramineum Water-Plantain,Narrow-Leaf	Herb	OBL	*Rumex crispus* Dock,Curly	Herb	FACW
Ranunculus aquatilis Butter-Cup,White Water	Herb	OBL	*Eleocharis palustris* Spikerush,Creeping	Herb	OBL
Typha latifolia Cattail,Broad-Leaf	Herb	OBL	*Beckmannia syzigachne* Sloughgrass,American	Herb	OBL
Typha angustifolia Cattail,Narrow-Leaf	Herb	OBL	*Glyceria maxima* Meadowgrass,Reed	Herb	OBL
Scirpus acutus Bulrush,Hard-Stem	Herb	OBL	*Carex lanuginosa* Sedge,Wooly	Herb	OBL
Hordeum jubatum Barley,Fox-Tail	Herb	FACW	*Agropyron repens* Quackgrass	Herb	FAC

Percent of Dominant Species that are OBL, FACW or FAC: **(excluding FAC-)** 16/16 = 100.00%	**FAC Neutral:** 15/15 = 100.00% **Numeric Index:** 22/16 = 1.38

Remarks:
Good diversity of hydrophytic species on site, but not in the best of vigor due to 'droughty' conditions in 2001.

HYDROLOGY

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

NO **No Recorded Data**

Field Observations

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

Wetland Hydrology Indicators

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

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

Remarks:
Site is well below its potential due to lack of water. Only inundation occurs in subsite 1801(b) where two small (10'x20') pools of less than 18 inches depth occur. These comprise less than one percent of the monitored wetland area. The larger impoundment (1801e) is without water at this time.

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

LAND & WATER B-19

Project/Site: Johnson-Valier **Applicant/Owner:** MDT **Investigators:** R. Harris	**Project No:** F44-1(3)14	**Date:** 27-Aug-2001 **County:** Pondera **State:** Montana **Plot ID:** Subsites b,e

SOILS

Map Unit Name (Series and Phase): Nunemaker silty clay loam 0-4 percent
Map Symbol: 250b **Drainage Class:** well drained **Mapped Hydric Inclusion?** NA
Taxonomy (Subgroup): Fine montmorillontic, Ustochrepts **Field Observations Confirm Mapped Type?** Yes (No)

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	2.5Y4/2	2.5Y6/8	Few	Faint	Silty clay loam, Oxidized rhizospheres
10	B	2.5Y4/2	2.5Y6/8	Few	Faint	Silty clay loam, Oxidized rhizospheres
10	B	2.5Y4/2	2.5Y4/4	Few	Faint	Silty clay loam, Oxidized rhizospheres
10	B	2.5Y4/1	N/A	N/A	N/A	Silty clay loam, Oxidized rhizospheres

Hydric Soil Indicators:

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

Remarks:
Marginally hydric but moving in the right direction with the faintest formation of mottles. Any pre-existing hydric soils can be considered as hydric inclusions within the above map unit.

WETLAND DETERMINATION

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

Remarks:

Explanation for response to: Normal Circumstances? Atypical Situation ? Potential Problem Area ?
This is a constructed mitigation that is healing well following its disturbance several years ago. Not significantly disturbed at this point in time, and it is not a potential problem area.

WetForm™

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

LAND & WATER B-20

Project/Site: Johnson-Valier **Applicant/Owner:** MDT **Investigators:** R. Harris	**Project No:** F44-1(3)14	**Date:** 27-Aug-2001 **County:** Pondera **State:** Montana **Plot ID:** Subsites a,c,d,f

Do Normal Circumstances exist on the site?	Yes (No)	**Community ID:** palustrine depressions
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** NA
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	**Field Location:** 4 mi. due north of Valier, MT.

VEGETATION **(USFWS Region No. 4)**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Typha latifolia Cattail,Broad-Leaf	Herb	OBL	*Hordeum jubatum* Barley,Fox-Tail	Herb	FACW
Typha angustifolia Cattail,Narrow-Leaf	Herb	OBL	*Beckmannia syzigachne* Sloughgrass,American	Herb	OBL
Alopecurus pratensis Foxtail,Meadow	Herb	FACW	*Eleocharis palustris* Spikerush,Creeping	Herb	OBL
Scirpus acutus Bulrush,Hard-Stem	Herb	OBL	*Carex lanuginosa* Sedge,Wooly	Herb	OBL
Agrostis alba Redtop	Herb	FACW	*Juncus balticus* Rush,Baltic	Herb	OBL
Rumex crispus Dock,Curly	Herb	FACW	*Agropyron repens* Quackgrass	Herb	FAC

Percent of Dominant Species that are OBL, FACW or FAC: **(excluding FAC-)** 12/12 = 100.00%	**FAC Neutral:** 11/11 = 100.00% **Numeric Index:** 18/12 = 1.50

Remarks:
These more peripheral wetland locations are less diverse andless capable of providing functional cover.

HYDROLOGY

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

NO **No Recorded Data**

Field Observations

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

Wetland Hydrology Indicators

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

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

Remarks:
Most wetland soils are barely moist let alone saturated at this time, with no inundations in these subsites either. Lack of water is a great limiting factor presently.

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

LAND & WATER B-21

Project/Site: Johnson-Valier **Applicant/Owner:** MDT **Investigators:** R. Harris	**Project No:** F44-1(3)14	**Date:** 27-Aug-2001 **County:** Pondera **State:** Montana **Plot ID:** Subsites a,c,d,f

SOILS

Map Unit Name (Series and Phase): Nunemaker silty clay loam 0-4 percent
Map Symbol: 250b **Drainage Class:** well drained **Mapped Hydric Inclusion?** NA
Taxonomy (Subgroup): Fine montmorillontic, Ustochrepts **Field Observations Confirm Mapped Type?** Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	2.5Y4/1	5YR4/6	Common	Distinct	Silty clay loam, Oxidized rhizospheres
10	B	2.5Y4/2	N/A	N/A	N/A	Silty clay loam
10	B	2.5Y4/2	N/A	N/A	N/A	Silty clay
10	B	2.5Y4/2	N/A	N/A	N/A	Silty clay loam

Hydric Soil Indicators:

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

Remarks:
Many areas have still not developed hydric soil criteria at this time, which is being further impeded by the dry conditions of the last several years. Site is not getting the water that was anticipatedby MDT, I would expect. The above map unit is a non-hydric soil that possesses hydric inclusions, such as in subsite (a). Other inclusions are in the process of developing due to the manipulation of the hydrology for mitigation purposes.

WETLAND DETERMINATION

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

Remarks:
Technically yes, but it will take some time before hydric soil conditions are more readily apparent.

Explanation for response to: Normal Circumstances? Atypical Situation ? Potential Problem Area ?
This is a constructed mitigation that is healing in well following its disturbance several years ago. Not significantly disturbed at this time, however, and not a potential problem area either.

1801 b & e – These two subsites comprise the larger emergent wetlands

Field Data Sheet for 1999 MDT Wetland Assessment Form Site: Johnson - Valier Date: 8/26-27/01 By: R Harris

Estimated AA Size (Circle Ac.): <1 1-5 >5 Brief Description: palustrine emergent depressions

HGM Class (CIRCLE)	Cowardin Class	Est. % of AA	Predominant Water Regime (CIRCLE)						
Mineral Soil Flats Organic Soil Flats	Emergent	75	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Riverine (nonperennial)	Aquatic Bed	15	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Riverine (upper perennial) Riverine (lower perennial)	Moss-Lichen		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Lacustrine Fringe	Scrub-Shrub		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Depression (closed) Depression (open, groundwater)	Forested		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Depression (open, surface water)	Unconsolidated Bottom	10	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Slope	Other:		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Organic Soil Flats	Total Estimated % Vegetated	90							

RELATIVE ABUNDANCE rare to com. abun. **DISTURBANCE** is: High Moderate Low under conservation easement

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

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

Longest duration of surface water:		Surface Water Duration and other attributes (circle)		
at any wetlands within AA		Perm / Peren	Seas / Intermit	Temp / Ephem
in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...]		Perm / Peren	Seas / Intermit	Temp / Ephem
Where fish are or historically were present (circle NA if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% of waterbody containing cover objects none	>25%	10-25%	<10%
	% bank or shore with riparian or wetland shrub or forested communities none	>75%	50-74%	<50%
adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave action (circle NA if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% cover of wetland bank or shore by sp. with binding rootmasses	>65%	35-64%	<35%

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

Estimated wetland area subject to periodic flooding (acres): ≥10 2-10 <2

Estimated % of flooded wetland classified SS, FO or both: ≥75 25-74 <25 – none actually

*Evidence of groundwater discharge or recharge? Y N List:

HABITAT

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

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

Primary or critical habitat (list species) D S T/E: D S MNHP:

Secondary habitat (list species) D S T/E: D S MNHP:

Incidental habitat (list species) D S T/E: migrant b. eagle D S MNHP: various avian species

No usable habitat D S T/E: D S MNHP:

Wildlife observations? w.t., deer, numerous birds, refer bird section.

Fish observations? NA

OTHERS

Do wetlands have potential to receive excess sediments, nutrients, or toxicants? Y N From:

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

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

List:

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

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

primarily educational, if so desired –

Subsites 1801 a,c,d,&f - peripheral wl depressions surrounding the two main impoundments

Field Data Sheet for 1999 MDT Wetland Assessment Form Site: Johnson - Valier Date: 8/26-27/01 By: R. Harris

Estimated AA Size (Circle Ac.): <1 1-5 >5 Brief Description: palustrine emergent depressions - man made

HGM Class (CIRCLE)	Cowardin Class	Est. % of AA	Predominant Water Regime (CIRCLE) LAND & WATER B-23
Mineral Soil Flats	Emergent	95	Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Organic Soil Flats	Aquatic Bed	5	Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Riverine (nonperennial)	Moss-Lichen		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Riverine (upper perennial)	Scrub-Shrub		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Riverine (lower perennial)	Forested		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Lacustrine Fringe	Unconsolidated Bottom		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Depression (closed)	Other:		Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood
Depression (open, groundwater)	Total Estimated % Vegetated	100	
Depression (open, surface water)			
Slope			
Organic Soil Flats			

RELATIVE ABUNDANCE: rare to com. abun. **DISTURBANCE** is: High Moderate Low under conservation easement

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

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

Longest duration of surface water:		Surface Water Duration and other attributes (circle)		
at any wetlands within AA - no sign of perennial inundation		Perm / Peren	Seas / Intermit	Temp / Ephem
in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...]		Perm / Peren	Seas / Intermit	Temp / Ephem
Where fish are or historically were present (circle NA if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% of waterbody containing cover objects none	>25%	10-25%	<10%
	% bank or shore with riparian or wetland shrub or forested communities none	>75%	50-74%	<50%
adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave action (circle NA if not applicable)		Perm / Peren	Seas / Intermit	Temp / Ephem
	% cover of wetland bank or shore by sp. with binding rootmasses	>65%	35-64%	<35%

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

Estimated wetland area subject to periodic flooding (acres):	≥10	2-10	<2
Estimated % of flooded wetland classified SS, FO or both:	≥75	25-74	<25, none actually

*Evidence of groundwater discharge or recharge? Y N List:

HABITAT

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

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

Primary or critical habitat (list species)	D S	T/E:	D S	MNHP:
Secondary habitat (list species)	D S	T/E:	D S	MNHP:
Incidental habitat (list species)	D S	T/E: migrant b. eagle	D S	MNHP: various avian species
No usable habitat	D S	T/E:	D S	MNHP:

Wildlife observations? none, other than birds listed herein.

Fish observations? NA

OTHERS

Do wetlands have potential to receive excess sediments, nutrients, or toxicants? Y N From:

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

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

List:

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

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

In contrast to the larger sub-sites (b) & (e), these small wetlands lack the diversity of cover to be of much interest educationally.

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

1. Project Name: Jack Johnson - Valier 2. Project #: F 44 - 1(3) 14 Control #: NA

3. Evaluation Date: Mo. 8 Day 26 Yr. 01 4. Evaluator(s): R. Harris 5. Wetlands/Site #(s) 1801 (e)

6. Wetland Location(s): i. Legal: T 30 (N) or S; R 5 E or (W) S 20 ; T ___ N or S; R ___ E or W; S ___
ii. Approx. Stationing or Mileposts: mp 5 of Hwy. 358 (immed. south of hwy.).
iii. Watershed: ___ 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)
16.92 ac. (measured, e.g. (by GPS) [if applies])

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

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depression (Open, Surface)	Palustrine	none	EM	C/B	D	60%
"	"	"	AB	F/C	D	25
"	"	"	UB	F/C	D	15

(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: wetlands of this size can be considered 'rare' throughout the greater Valier area.

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.): Only disturbance is surrounding agricultural - mostly wheat & pasturage
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Cirsium arvense, Lactuca serriola, Salsola iberica, Thlaspi arvense, Taraxacum officinale, Chenopodium album & Chenopodium berlandieri
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: A sizeable wl basin w/ good cover diversity created by diking along its northern perimeter. Would benefit greatly from more water than experienced in recent years. All under conservation easement, the site has a definite ed/rec. potential - noncompetitive

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)	migrant b. eagle due to open water habitat
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)	.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)	n. leopard frog
Incidental habitat (**list species**)	D (S)	various avian species of concern
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.): no. northern leopard frogs actually observed during visits.

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

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

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

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: This is likely a fair rating. What little open water remained at time of late August visit harbored a good diversity of waterfowl and shorebirds. Many species are being drawn to this inundated basin during such 'drought' times.

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:

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.) Excess flows within irrigation canal would likely be diverted into this mitigation site. It also receives yearly irrig. flows in moderation.

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: Dike. contains a discharge pipe (controlled) that is seeing little use during this dry period. An attempt is being made to contain all water within the unit.

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: The ponding signature is greatly reduced by late summer of each year - but is believed to be persistent from year to year regardless of drought conditions -

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.)

irrigation

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: slightly down from 1801(b) because of % of veg. cover

4H 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: Annual draw-down from transpiration/evaporation often has the water's edge well away from the more effective plant cover – Area then reveals sizeable mud flats.

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: Maybe a 'tad' high for present (dry) conditions – but left to stand...

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
___AA permanently flooded during drought periods
___Wetland contains an outlet, but no inlet
___Other

ii. Recharge Indicators

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

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

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

Comments: No discharge indicators; and not enough water in recent years to accurately assess the recharge capability.

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: This may be considered on the 'low' side in my opinion – when considering how few large wetland complexes occur in the general area.

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.; X 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: Education opportunities to be had here, with owner consent.

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	.3	1	
B. MT Natural Heritage Program Species Habitat	mod	.6	1	
C. General Wildlife Habitat	high	.9	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	mod	.5	1	
F. Short and Long Term Surface Water Storage	high	1.0	1	
G. Sediment/Nutrient/Toxicant Removal	mod	.7	1	
H. Sediment/Shoreline Stabilization	mod	.6	1	
I. Production Export/Food Chain Support	high	.9	1	
J. Groundwater Discharge/Recharge	NA	—	—	
K. Uniqueness	mod	.4	1	
L. Recreation/Education Potential	low	.3	1	
Totals:		6.2	10	

6.2 ÷ 10 = 62%

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: Jack Johnson - Valier 2. Project #: F 44 - 1(3) 14 Control #: NA

3. Evaluation Date: Mo. 8 Day 26 Yr. 01 4. Evaluator(s): R. Harris 5. Wetlands/Site #(s) 1BD1 (b)

6. Wetland Location(s): i. Legal: T 30 (N) or S; R 5 E or (W) S 20 ; T ___ N or S; R ___ E or W; S ___
ii. Approx. Stationing or Mileposts: mp 5 of Hwy. 358 (immed. south of hwy.)
iii. Watershed: _____ 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~~)
2.47 ac. (measured, e.g. by GPS [if applies])

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

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depression (Open, Surface)	Palustrine	none	EM	F/C	D	95%
"	"	"	AB	F/C	D	5%

(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: Almost verges on 'rare', except for its smaller size

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.): only disturbance is surrounding agricultural - mostly wheat & pasturag
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Cirsium arvense, Lactuca serriola, Sisyrinchium iberica, Thlaspi arvense, Taraxacum officinale, Chenopodium album, Chenopodium berlandieri.
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: A 2 1/2 ac. largely emergent WL dominated by Typha & Scirpus. Shorter emergent grasses & sedges along the more typically saturated periphery. Aquatic Bed consists of two very small open-water potholes with the taller emergent cover.

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)	not even for b. eagles - with virtual lack of open water

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	observed 02 northern leopard frogs
Incidental habitat (**list species**)	D (S)	for various avian species of concern during migration
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.): Evaluator observation

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
- ✓ 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: Less cover diversity here - mostly emergents w < 5% aquatic plant species occurring in two small open water areas roughly 15' x 25' each.

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:

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: Ditch connects 1801(b) to 1801(c).

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: Seems a bit high for this site, but allowed to stand.

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: Evaluator adjusted to the M.7 level, as the sub-site receives insufficient water to actually be carrying much off the site. Maybe otherwise in wetter years.

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
___AA permanently flooded during drought periods
___Wetland contains an outlet, but no inlet
___Other

ii. Recharge Indicators

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

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

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

Comments: No 'discharge' indicators; and not enough water in recent years to accurately assess 'recharge' function.

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 as a sub-site
(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	0	none	1	
B. MT Natural Heritage Program Species Habitat	mod	.7	1	
C. General Wildlife Habitat	mod	.7	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	low	.2	1	
F. Short and Long Term Surface Water Storage	mod	.4	1	
G. Sediment/Nutrient/Toxicant Removal	high	1.0	1	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	mod	.7	1	
J. Groundwater Discharge/Recharge	NA	—	—	
K. Uniqueness	low	.3	1	
L. Recreation/Education Potential	low	.3	1	
Totals:		4.3	9	

4.3 ÷ 9 = 48%

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: Jack Johnson / Valier 2. Project #: F 44 - 1(3) 14 Control #: N/A

3. Evaluation Date: Mo. 8 Day 26 Yr. 01 4. Evaluator(s): R. Harris 5. Wetlands/Site #(s) 1801 a/c.

6. Wetland Location(s): i. Legal: T 30 (N) or S; R 5 E or (W) S 20 ; T ___ N or S; R ___ E or W; S ___ ;
ii. Approx. Stationing or Mileposts: MP 5 of Hwy 358 (immed. south of hwy.)
iii. Watershed: _____ 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) a - 0.17 ac (~~visually estimated~~)
0.59 ac. c - 0.42 (measured, e.g. by (GPS) if applies])

9. Assessment area: (AA tot., ac., see instructions on determining AA) a - 0.17 (~~visually estimated~~)
c - 0.42 (measured, e.g. by (GPS) if applies])
Total 0.59 ac.

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depression (Open, surface)	Palustrine	none	EM	C/B	A	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: 'subby' emergent depressions, small in size, limited in function

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.): Grain farming / posturing surrounds this (conservation ease.) site.
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Cirsium arvense, Lactuca serriola, Salsola iberica, Thlaspi arvense, Taraxacum officinale, Chenopodium album, Chenopodium berlandieri
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA comprised of two very small wetland areas, emergent in nature, with the 80+ acre conservation easement. These two are some of the less effective wl habitats in comparison to the other wl subsites. Surrounded by agric. use.

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: only low-growing emergent cover

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

I. AA is Documented (D) or Suspected (S) to contain (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) due to very limited sizes

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) For variously listed avian species of Concern
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
✓ 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: Smallness of these two sub-sites and their monotypic cover tend to be less attractive to area species. Limited forage/cover functions.

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 in 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)*			
	Excectional	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:

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.) 1801 a only – and marginally so, at that.

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: A small ditch coming off from the main canal, at the very north end of 1801a, appears to 'flood', i.e. 'sheet flow' through the subsite from north to south (but very infrequently).

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.) 1801(c) only

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: Due to the slope throughout 1801(a), even a Low .1 rating is excessive. Evaluator adjusted to 'None' or 0 for this subsite

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: Even though 1801(a) receives very infrequent discharge from the adjacent irrigation canal, its small wetland size of 0.17 acre precludes any meaningful function in this regard.

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:

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

1801 (a)

1801 (c)

Comments: Modest gradient of 1801a allows some production export to wetlands along its east perimeter. 1801(c) is more of a 'sulky' closed surface depression with little connectivity to anything.

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
___AA permanently flooded during drought periods
___Wetland contains an outlet, but no inlet
___Other

ii. Recharge Indicators

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

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

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

Comments: No discharge indicators; & not enough water in recent years to establish an accurate recharge function.

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: A fair rating for 1801(c), but possibly too generous for the 0.17 ac 1801(a). – Left to stand at .3 L for both –

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: Taken alone, these two small subsites afford little due to their small size and lack of diversity. When combined with the surrounding WL sub-sites, the area affords much educational/recreational opportunities

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	.1	1	
C. General Wildlife Habitat	mod	.5	1	
D. General Fish/Aquatic Habitat	NA	-	—	
E. Flood Attenuation for 1B01(a) only	low	.1	1	
F. Short and Long Term Surface Water Storage	evaluator adjusted	.1	1	
G. Sediment/Nutrient/Toxicant Removal	NA	—	—	
H. Sediment/Shoreline Stabilization	NA	NA	—	
I. Production Export/Food Chain Support	low	.3	1	
J. Groundwater Discharge/Recharge	NA	—	—	
K. Uniqueness	low	.3	1	
L. Recreation/Education Potential	low	.1	1	
Totals:		1.5	8	

1.5 ÷ 8.0 = 19%

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: Fock Johnson - Valier 2. Project #: F 44 - 1 (3) 14 Control #: N/A

3. Evaluation Date: Mo. 8 Day 26 Yr. 01 4. Evaluator(s): R. Harris 5. Wetlands/Site #(s) 1801 d

6. Wetland Location(s): i. Legal: T 30 (N) or S; R 5 E or (W) S 20 ; T ___ N or S; R ___ E or W; S ___
ii. Approx. Stationing or Mileposts: mp 5 of Hwy. 358 (immed. south of hwy. 358)

iii. Watershed: ___ 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) 2.44 (measured, e.g. (by GPS) if applies])

9. Assessment area: (AA, tot., ac., see instructions on determining AA) — (visually estimated) 2.44 (measured, e.g. (by GPS) if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depression (Open, surface)	Palustrine	none	EM	C/B	D	85
"	"	"	AB	F/C	D	15

(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: Diking along its north perimeter has created a small sliver of 'Aquatic Bed' in addition to 'Emergent'

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.): Farming/pasturing surrounds the 80+ acres under easement
ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Cirsium arvense, Lactuca serriola, Salsola iberica, Thlaspi arvense, Taraxacum officinale, Chenopodium album, Chenopodium berlandieri.
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: A 'subby' depression enhanced by placement of berm along its north end. Other wetland subsites on the parcel combine to create a 22.5 ac wetland complex under easement. Surrounding land use is entirely agricultural in nature

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: Low-growing emergents, and a lesser area of 'Aquatic Bed' species.

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) migrant bald eagle – when subsite is inundated & harboring fo
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)	.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) for variously listed avian species of Concern
No usable habitat D S _____

Sub-site does not appear sufficiently inundated in recent years to benefit N. Leopard frogs, etc.

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
✓ 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: Much the same usage as was found in sister subsites 1801 a & c. Does not appear to stay inundated long enough to substantially benefit such avian species as waterfowl / shorebirds

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:

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:

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: Aquatic bed portion (15%) likely ponds every year - if only for short duration - as evidenced by persistent, if dessicated, aquatic bed plant species.

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: Seems too isolated within the greater 80+ acre conservation easement to suggest a good function here. No surficial connections really, other than surface run-off

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: Not large enough, nor inundated frequently enough to sustain even wave action.

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: .6 M at best, and left to stand by the Evaluator.

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
___AA permanently flooded during drought periods
___Wetland contains an outlet, but no inlet
___Other

II. Recharge Indicators

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

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

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

Comments: No discharge indicators; and not enough surface water in recent years to establish an accurate recharge function.

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: Contributes still to the overall function of the larger 80+ acre property —

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	.3	1	
B. MT Natural Heritage Program Species Habitat	low	.1	1	
C. General Wildlife Habitat	mod	.5	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	NA	—	—	
F. Short and Long Term Surface Water Storage	low	.3	1	
G. Sediment/Nutrient/Toxicant Removal	NA	—	—	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	mod	.6	1	
J. Groundwater Discharge/Recharge	NA	—	—	
K. Uniqueness	low	.3	1	
L. Recreation/Education Potential	low	.1	1	
Totals:		2.2	7	

2.2 ÷ 7 = 31%

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

Montana Department of Transportation	Project Name	Johnson-Vali
Wetland Mitigation Monitoring Project	Project/task number	18-South Imp
for	Date	8/1/2001
Land and Water Consulting	Field Personnel	RH
	Note	

2001		Rhithron Sample Identification	9
Coelenterata		*Hydra*	
Oligochaeta	Enchytraeidae	Enchytraeidae	
	Naididae	*Chaetogaster*	
		Nais elinguis	
		Nais variabilis	
		Ophidonais serpentina	
	Tubificidae	Tubificidae - immature	
		Limnodrilus hoffmeisteri	63
Hirudinea	Erpobdellidae	*Mooreobdella microstoma*	
		Nephelopsis	
	Glossiphoniidae	*Helobdella stagnalis*	
		Helobdella	2
		Glossiphonia	
Bivalvia	Sphaeriidae	*Sphaerium*	
Gastropoda	Lymnaeidae	*Fossaria*	
	Physidae	*Physa*	31
	Planorbidae	*Gyraulus*	
		Helisoma	
Crustacea	Cladocera	Cladocera	3
	Copepoda	Calanoida	
		Cyclopoida	
	Ostracoda	Ostracoda	17
	Amphipoda	*Gammarus*	
		Hyalella azteca	2
	Decapoda	*Orconectes*	
Acarina		Acari	1
Odonata	Aeshnidae	*Anax*	
	Libellulidae	Libellulidae-early instar	
		Sympetrum	1
	Coenagrionidae	Coenagrionidae-early instar	1
		Enallagma	
	Lestidae	*Lestes*	
Ephemeroptera	Baetidae	*Callibaetis*	2
	Caenidae	*Caenis*	
Hemiptera	Corixidae	Corixidae - immature	2
		Hesperocorixa	
		Sigara	
		Trichocorixa	
	Nepidae	*Ranatra*	
	Notonectidae	*Notonecta*	
Trichoptera	Hydroptilidae	Hydroptilidae - pupa	
	Leptoceridae	Leptoceridae - early instar	
		Mystacides	
		Ylodes	
Coleoptera	Chrysomelidae	Chrysomelidae	
	Curculionidae	*Bagous*	
	Dytiscidae	*Acilius*	
		Hydroporinae - early instar larvae	
		Hygrotus	
		Liodessus	
		Laccophilus	
		Neoporus	
	Elmidae	*Heterlimnius*	
	Haliplidae	*Haliplus*	5
		Peltodytes	
	Hydrophilidae	*Berosus*	
		Helophorus	
		Hydrobius	
		Hydrochara	
		Laccobius	
		Tropisternus	
Diptera	Ceratopogoninae	*Bezzia/Palpomyia*	4
		Dasyhelea	3

Chaoboridae	*Chaoborus*	1
Culicidae	*Anopheles*	
	Culex	
Ephydridae	Ephydridae	
Simuliidae	*Simulium*	
Sciomyzidae	Sciomyzidae	
Stratiomyidae	*Odontomyia*	
Chironomidae	*Acricotopus*	10
	Chironomus	11
	Cladotanytarsus	
	Corynoneura	
	Cryptotendipes	
	Dicrotendipes	
	Einfeldia	
	Endochironomus	
	Labrundinia	
	Microtendipes	
	Orthocladius annectens	2
	Parachironomus	
	Paramerina	
	Paratanytarsus	37
	Phaenopsectra	
	Polypedilum	
	Procladius	
	Psectrocladius	
	Psectrotanypus	6
	Pseudochironomus	
	Tanypus	
	Tanytarsus	
	TOTAL	204
	grids	26

Total taxa	20
POET	3
Chironomidae taxa	5
Crustacea taxa + Mollusca taxa	2
% Chironomidae	32.3529412
Orthocladiinae/Chironomidae	18.1818182
%Amphipoda	0.98039216
%Crustacea + %Mollusca	16.1764706
HBI	7.95588235
%Dominant taxon	30.8823529
%Collector-Gatherers	87.254902
%Filterers	1.47058824

Total taxa	3
POET	3
Chironomidae taxa	3
Crustacea taxa + Mollusca taxa	3
% Chironomidae	1
Orthocladiinae/Chironomidae	3
%Amphipoda	3
%Crustacea + %Mollusca	3
HBI	1
%Dominant taxon	3
%Collector-Gatherers	5
%Filterers	3
site score	34

Appendix C

REPRESENTATIVE PHOTOGRAPHS

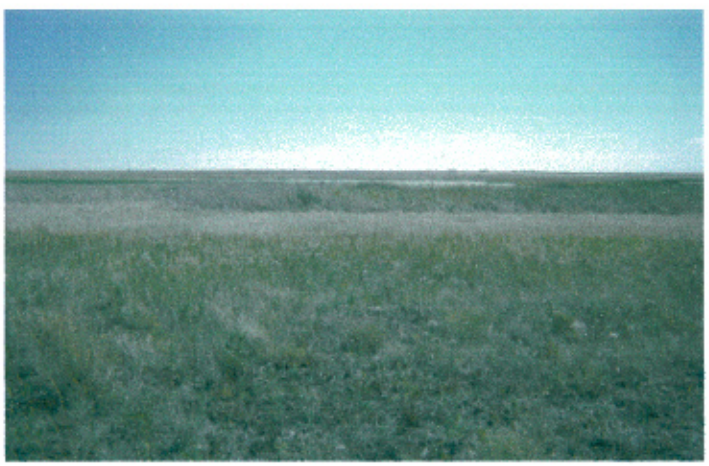
MDT Wetland Mitigation Monitoring
Johnson-Valier
Valier, Montana

Photo point 1, SW impoundment, facing 22 degrees N/NE.

Photo point 2, main impoundment, facing 130 degrees SE.

Photo point 3, main impoundment, facing 286 degrees W/NW.

Photo point 4, northeast impoundment, facing 242 degrees SW.



Transect Start, facing down-transect 153 degrees SE.

Transect End, facing up-transect 333 degrees NW.

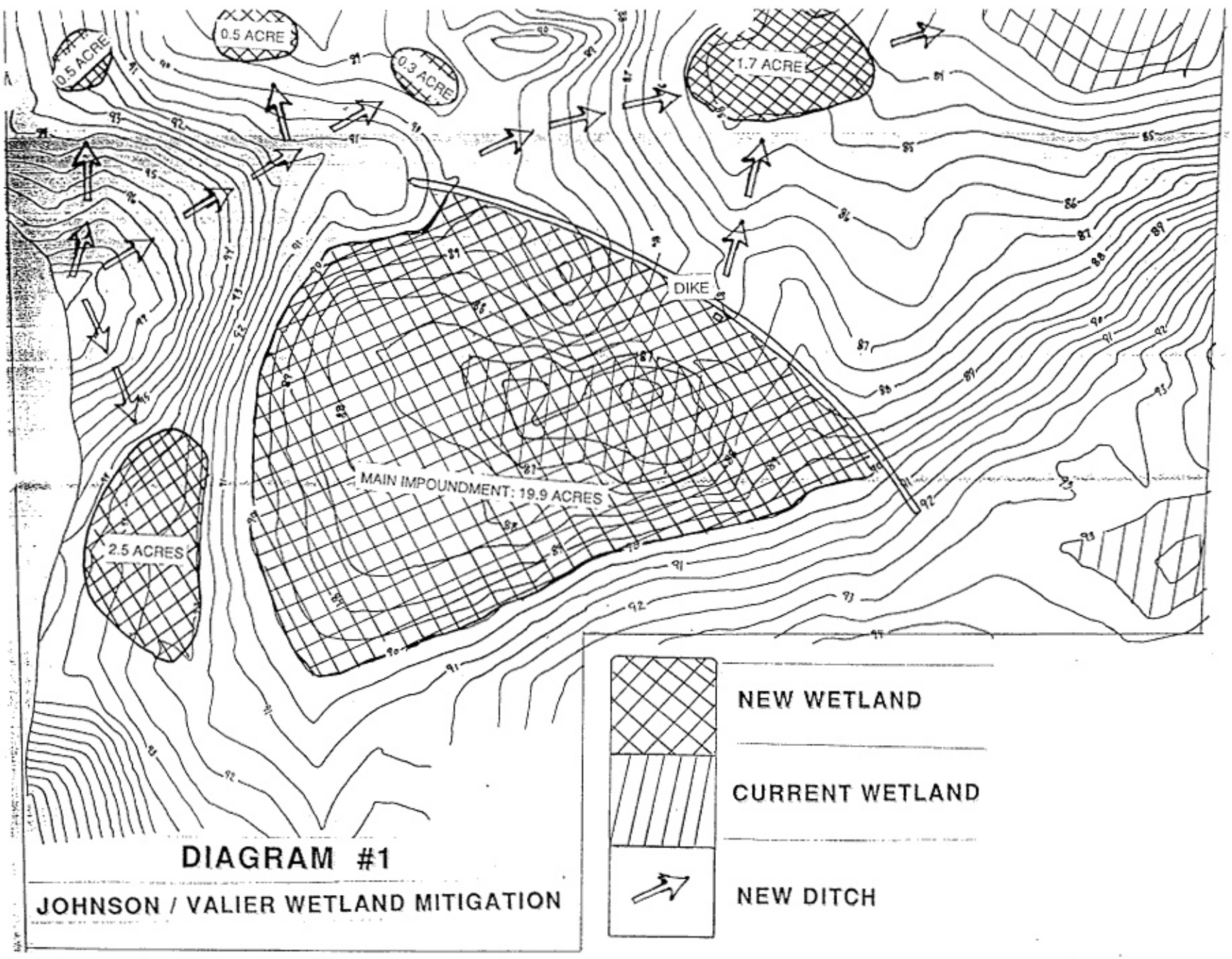
Johnson-Valier 2001 – Photo Sheet 1

Appendix D

MAP OF PROPOSED IMPOUNDMENT AREAS FROM VAN HOOK (1994)
LIST OF PLANTS USED OR PROPOSED FOR USE IN THE DESIGN SPECIFICATIONS FROM VAN HOOK (1994)

MDT Wetland Mitigation Monitoring
Johnson-Valier
Valier, Montana

LAND & WATER


LAND & WATER D-1
0.5 ACRE
0.5 ACRE
0.3 ACRE
1.7 ACRE
DIKE
MAIN IMPOUNDMENT: 19.9 ACRES
2.5 ACRES
NEW WETLAND
CURRENT WETLAND
NEW DITCH
DIAGRAM #1
JOHNSON / VALIER WETLAND MITIGATION

GRASSES

Agropyron smithii	Western wheatgrass
Stipa viridula	Green needlegrass
Agropyron dasystachyum	Thickspike wheatgrass
Elymus cinereus	Great Basin wildrye
Agropyron trachycaulum	Slender wheatgrass
Festuca idahoensis	Idaho Fescue
Koeleria pyramidata	Prairie Junegrass

FORBS AND SHRUBS

Petalostemum purpureum	Purple prairie clover	(seed)
Ceratoides lanata	Winter fat	(seed)
Rosa woodsii	Woods rose	(seed)
Symphoricarpus albus	Common snowberry	(plant material)
Atriplex nutallii	Nattall's saltbush	(seed)
Achillea millefolium	Common yarrow	(seed)
Linum lewisii	Wild blue flax	(seed)
Ratibida columnifera	Prairie coneflower	(seed)
Sheperdia argentea	Silver buffaloberry	(plant material)
Rhubus ideaus	Western raspberry	(plant material)
Cornus stilonifera	Redosier dogwood	(plant material)

TREES

Elaeagnus commutata	Silver Berry	(plant material)
Salix lutea	Yellow willow	(supplied by landowner)
Prunus virginiana	Choke Cherry	(plant material)
Prunus americana	American Plum	(plant material)

Small trees will be planted in groups throughout the project and the willows will be clustered around the impoundments. Species selection at each planting site will be arranged according to expected moisture conditions. Where possible, some surplus materials excavated from impoundments will be shaped into small hills or low ridges on the upwind sides of shrub planting areas to serve as windbreaks and/or natural snowfence moisture collectors. These sites will offer some cover and protection from winter weather in an effort to make the area more attractive as deer and upland fowl winter range.

Appendix E

BIRD SURVEY PROTOCOL
MACROINVERTEBRATE SAMPLING PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring
Johnson-Valier
Valier, 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.