

APPENDIX M

Wetland Resources and Assessments

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Acronyms and Abbreviations

GIS	geographic information system
GPS	geographic position system
HGM	hydrogeomorphic
L	lacustrine
MNHP	Montana Natural Heritage Program
NAIP	National Agriculture Imagery Program
NHD	National Hydrography Dataset
NWI	National Wetland Inventory
NRCS	Natural Resources Conservation Service
P	palustrine
PAB	palustrine aquatic bed
PEM	palustrine emergent
PSS	palustrine scrub-shrub
PUB	palustrine unconsolidated bottom
PUS	palustrine unconsolidated shore
QA/QC	quality assurance/quality control
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Appendix M

Wetland Resources and Assessments

This appendix provides more detailed technical discussions and information related to the wetland determination methods (Section M.1), wetland functions and values assessment (Section M.2), field results (Section M.3.), and wetland terminology (Section M.4). As stated in CEQ's *Forty Most Asked Questions concerning CEQ's NEPA Regulations*, the appendix contains "information that reviewers will be likely to want to examine."¹

M.1 Wetland Determination Methods

The wetland determination method was based on three phases.

- Preliminary mapping
- Reconnaissance-level field determination
- Final mapping, as supported by the field data

M.1.1 Phase I: Preliminary Mapping

Preliminary mapping was based on available geographic information system (GIS) data and color aerial imagery, and included data from the Montana Natural Heritage Program (MNHP) wetland and riparian framework (2012), the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (2012), U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils surveys, the U.S. Geological Survey (USGS) National Hydrography Dataset (2011), and color aerial imagery from the USDA-Farm Service Agency's National Agriculture Imagery Program (NAIP) (2004, 2005, 2006, 2009, 2010). These data sources are described below.

Using this information, OEA conducted a GIS desktop wetland assessment to determine potential wetland areas in the study area of each alternative, and then generated maps that identified wetland locations as documented by MNHP, NWI, and USGS data. Potential wetland and stream areas were identified based on specific wetland-, stream-, or surface water-like signatures observed on aerial photos, including vegetation, evidence of soil saturation, and potential channels exhibiting clear or potential bed and bank. OEA identified point locations of areas exhibiting these signatures and digitized them for each build alternative using GIS software. OEA used the results from the desktop assessment to focus

¹ This appendix provides supporting information for Section 9.5, *Wetlands*, of this *Draft Environmental Impact Statement for the Tongue River Railroad*. This information should not be interpreted as standalone information and must be read in combination with the associated wetlands section.

the reconnaissance-level field determination (Section M.1.2, *Phase II: Reconnaissance-Level Field Determination*).

M.1.1.1 Montana Natural Heritage Program Data

The MNHP Wetland and Riparian Framework GIS data map the extent, type, and approximate location of wetlands, riparian areas,² and deepwater habitats in Montana. These data delineate the extent of wetlands as defined by Cowardin et al. (1979) and riparian areas defined by USFWS (2009). The features were manually digitized at a scale of 1:4500 or 1:5000 from 1-meter orthorectified,³ digital, color-infrared aerial imagery collected during the summers of 2005, 2006, 2009, and 2011 by NAIP. MNHP image analysts develop photo signatures and interpret wetlands and riparian areas. This imagery serves as the base imagery from which wetland and riparian data are produced. Analysts also use ancillary data layers such as multiple imagery years, topographic maps, digital elevation models, and hydrography data to improve mapping accuracy.

MNHP conducts three rounds of internal quality assurance/quality control (QA/QC) procedures during the mapping process. The first round is conducted by an image analyst who did not complete the mapping. The image analyst who conducted the initial mapping makes any necessary corrections based on comments made during this round. The second round of QA/QC is completed by a third image analyst who reviews the comments and corrections resulting from the first round. A third round of QA/QC is completed by an MNHP project manager. Once final edits are complete, verification checks are completed a second time. The mapping is then field-verified during the summer where MNHP is able to gain access.

M.1.1.2 National Wetland Inventory

Only portions of the Colstrip Alternatives and Tongue River Alternatives (around Miles City) have been digitally mapped (GIS format) into the NWI. However, MNHP has mapped the remaining areas of these and other build alternatives (Section M.1.1.1, *Montana Natural Heritage Program Data*), and the MNHP data will eventually be incorporated into the NWI data once approved by USFWS.

M.1.1.3 National Hydrography Dataset

The USGS National Hydrography Dataset (NHD) is a GIS dataset that contains surface water features such as lakes, ponds, streams, rivers, and canals. The data are designed to be used in general mapping and in the analysis of surface water systems. The data also include

² Riparian areas mapped in this dataset are not considered wetlands, streams or any other type of surface water. The dataset relies on the definition set by USFWS in *A System for Mapping Riparian Areas in The Western United States* (2009), which states, "They are distinct from either wetland or upland. Riparian areas lack the amount or duration of water usually present in wetlands."

³ Orthorectification uses elevation data to correct terrain distortion in aerial or satellite imagery (ESRI, undated).

flowlines that indicate the flow direction of certain surface water features (e.g., streams, rivers, canals). The USGS map accuracy standard for a scale of 1:24,000 requires that 90% of well-defined features lie within 40 feet of their true geographic position. The source of the data is a combination of the USGS hydrologic digital line graph files and USEPA reach files (version 3.0).

M.1.1.4 Color Aerial Imagery

OEA used the USDA Farm Service Agency’s NAIP as the primary source of color aerial imagery. Table M-1 summarizes the years and resolutions of the imagery.

Table M-1. Color Aerial Imagery Information USDA Farm Service Agency, National Agriculture Imagery Program

Aerial Photo Year	Aerial Photo Resolution
2011	1 meter
2009	1 meter
2006	2 meters
2005	1 meter
2004	2 meters

Source: U.S. Department of Agriculture 2004, 2005, 2006, 2009, 2011

M.1.2 Phase II: Reconnaissance-Level Field Determination

OEA performed a reconnaissance-level field determination of the preliminary mapping assessment between May 19 and June 29, 2013. The objective of the fieldwork was to correlate potential signatures identified on aerial photographs to wetland, stream, or surface water areas observed in the field; to describe typical wetland vegetation and hydrology characteristics; to collect field data on individual wetlands to support a functional assessment; and to refine any GIS-mapped wetland, stream, or surface water boundary. In the field, OEA used handheld Trimble Yuma geographic position system (GPS) units to navigate to locations identified during the preliminary mapping assessment. GPS units were preloaded with all information generated during the preliminary mapping phase, as well as with a custom data dictionary that allowed for collecting information and attributes at each site.

OEA conducted fieldwork only where OEA was able to obtain land access permission from landowners (Appendix B, *Land Access*). For areas where access was denied, OEA could not conduct field determinations. OEA used field determination results from accessed areas to infer potential wetland, stream, and surface waters in those areas. For wetlands in these areas, OEA used aerial photo signatures, the preliminary mapping phase, reasonable assumptions, and best professional judgment to describe and map wetland and surface water areas.

M.1.2.1 Wetlands and Other Surface Waters

Based on the preliminary mapping assessment, OEA visited all MNHP-mapped wetlands where land access had been granted to confirm the presence of wetland features. If such features were different from the MNHP mapping, OEA adjusted wetland boundaries on the GPS unit touch screen and on paper field maps to reflect field conditions. OEA assigned each area a unique feature number and collected data with the GPS unit using a custom data dictionary that stored wetland data collected at each wetland. Such data included feature type (e.g., wetland, stream, ditch), wetland class and/or subclass under both the Cowardin and hydrogeomorphic (HGM) classification systems (e.g., palustrine, riverine, lacustrine), predominant hydrologic regime (temporary/ephemeral, seasonal/intermittent, or permanent/perennial), Cowardin land cover type (e.g., unconsolidated bottom/shore, emergent, aquatic bed), and dominant vegetation. OEA collected additional data such as the degree of disturbance, quality of wildlife habitat, and presence of invasive vegetation to support a later functional assessment.

In addition to wetlands mapped by MNHP, OEA visited and reviewed as many of the unmapped features identified as potential wetlands in the preliminary mapping as possible to collect a representative sample of wetlands in the area. Again, OEA limited this effort to parcels where site access had been granted. At each of these sites, OEA took general notes on vegetation and hydrology characteristics and made a determination on whether or not the area was wetland. If identified as wetland, OEA drew approximate boundaries on the GPS unit touch screen and on paper field maps, assigned each feature a feature number, and collected data using the GPS-based data dictionary.

M.1.2.2 Streams

OEA attempted to visit all of the NHD mapped streams on parcels where access had been granted to confirm the existence of an established channel (bed and bank) and evidence of water conveyance at some time during the year. If such indicators were present, OEA assigned the feature number and drew its approximate boundaries on the GPS unit touch screen and on paper field maps. OEA collected data at each of these features using the GPS-data dictionary and included such information as the average channel width, current hydrologic condition (flow present or not at time of survey), water regime, observations of flooding, and other physical characteristics. As with the unmapped wetlands, OEA also investigated features identified as potential streams in the preliminary mapping, but not mapped by NHD, using the same approach used for mapped streams.

M.1.3 Phase III: Final Mapping

OEA downloaded all data collected in the field with the GPS unit, including polygons and lines representing wetlands, streams, and other surface waters into a GIS database, along with the information collected in the data dictionary. OEA also incorporated hand drawn mapping from paper maps in the database via heads-up digitizing. This information was used to

calculate the approximate area for each wetland and stream within the study area and right-of-way. Linear features used in stream and drainage mapping were assigned an average width based on field observations in order to generate an area for the affected environment.

For areas where landowners denied access, OEA based the final wetland and stream mapping on aerial photo analysis, the preliminary mapping phase, reasonable assumptions, and best professional judgment. During this process, OEA accepted the location and extent of all features mapped by MNHP and NHD unless aerial photo evidence indicated otherwise (e.g., stream channel running through an agricultural field with no apparent channel). OEA also identified, mapped, and included the unmapped potential wetlands and streams noted on the aerials in the GIS database. OEA assigned each wetland and stream identified during this process a unique feature number similar to the format used during the fieldwork. OEA collected a limited suite of data for each feature based on its appearance on the aerial photograph and its general geographic location (Cowardin and HGM classification, hydrologic regime, and general vegetation type such as emergent, scrub-shrub, aquatic bed). OEA estimated the width of streams based on measurements of observable channels on high-resolution aerial photos using the Ruler tool in Google Earth Pro and on conditions observed in the field for streams with similar aerial photo signatures. OEA calculated areas for wetlands and streams in the study area and right-of-way using GIS software.

M.2 Functions and Values Assessment

To assess the functions and values of the wetlands identified in the study area, OEA used field data to develop representative composite wetland profiles. During this process, the data from wetlands of similar Cowardin class, HGM type, and hydrologic regime were grouped and similarities were noted. The resulting composite wetland profiles are described below, and the associated functional assessment forms for each composite wetland are included at the end of this appendix.

M.2.1 Composite Wetland Profiles

M.2.1.1 Palustrine Emergent-Depressional

The characteristics of the palustrine emergent (PEM)-depressional wetlands can be summarized as follows.

- Occur in depressions, meander scars, or former oxbows.
- Are dominated by seasonal/intermittent hydrologic regime.
- Have one Cowardin class of vegetation (emergent), with little to no shrub and/or trees (low structural diversity).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.

- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad).
- Are moderately used by terrestrial wildlife.
- Provide no fish habitat.
- Are not susceptible to instream flooding, overbank flooding, or wave action.
- Provide minimal short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Have no outlet or restricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide no recreation or education opportunities.

M.2.1.2 Palustrine Emergent-Riverine

The characteristics of the PEM-riverine wetlands can be summarized as follows.

- Are adjacent to active streams.
- Are dominated by seasonal/intermittent hydrologic regime.
- Have two Cowardin classes of vegetation (emergent and scrub-shrub), with occasional trees (moderate structural diversity).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad).
- Are moderately used by terrestrial wildlife.
- Provide no fish habitat.
- Are susceptible to instream and/or overbank flooding.
- Are associated with entrenched stream channels.
- Provide minimal short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Have an unrestricted outlet.

- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide no recreation/education opportunities.

M.2.1.3 Palustrine Aquatic Bed-Impounded

The characteristics of the palustrine aquatic bed (PAB)-impounded wetlands can be summarized as follows.

- Are behind earthen impoundments of intermittent and ephemeral streams.
- Are dominated by permanent/perennial hydrologic regime.
- Have a single Cowardin class of vegetation (aquatic bed), but relatively sparse (low structural diversity).
- Have a high level of disturbance from impoundment construction, subsequent livestock usage, and adjacent roads/infrastructure.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad).
- Are moderately used by terrestrial wildlife.
- Provide no fish habitat.
- Are potentially susceptible to wave action.
- Provide a high level of short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Provide no outlet or restricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide no recreation/education opportunities.

M.2.1.4 Palustrine Unconsolidated Bottom/Palustrine Unconsolidated Shore-Impounded

The characteristics of the palustrine unconsolidated bottom (PUB)/palustrine unconsolidated shore (PUS)-impounded wetlands can be summarized as follows.

- Are associated with PAB wetlands behind earthen impoundments of intermittent and ephemeral streams.
- Are dominated by seasonal/intermittent hydrologic regime.

- Have a single Cowardin class of vegetation (emergent) present (low structural diversity).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad).
- Are moderately used by terrestrial wildlife.
- Provide no fish habitat.
- Are not susceptible to instream flooding, overbank flooding, or wave action.
- Provide a moderate level of short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Provide no outlet or restricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide no recreation or education opportunities.

M.2.1.5 Riverine-Vegetated

The characteristics of the riverine (R)-vegetated wetlands can be summarized as follows.

- Are dominated by nonpersistent vegetation that occurs in the channels of larger streams (e.g., Moon Creek).
- Are dominated by seasonal/intermittent hydrologic regime.
- Have two Cowardin classes of vegetation (emergent and scrub-shrub) present, with occasional trees (moderate structural diversity).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad, snapping turtle).
- Moderately used by terrestrial wildlife.
- Provide fish habitat.
- Are susceptible to instream flooding and/or overbank flooding.

- Are associated with moderately entrenched stream channels.
- Provide a moderate level of short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Provide an unrestricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide no recreation or education opportunities.

M.2.1.6 Riverine-Unvegetated

The characteristics of the R-unvegetated wetlands can be summarized as follows.

- Are unvegetated stream channels.
- Dominated by temporary/ephemeral hydrologic regime.
- Have one Cowardin class of vegetation present at most (low structural diversity).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.
- Assumed to provide incidental habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad).
- Moderately used by terrestrial wildlife.
- Provide no fish habitat.
- Susceptible to instream flooding and/or overbank flooding.
- Are associated with entrenched stream channels.
- Provide little to no short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Provide an unrestricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively abundant in this region.
- Provide no recreation or education opportunities.

M.2.1.7 Tongue River and Adjacent Wetlands

The characteristics of Tongue River waters and adjacent wetlands can be summarized as follows.

- Are PEM and palustrine scrub-shrub (PSS) wetlands in and adjacent to the Tongue River.
- Dominated by permanent/perennial hydrologic regime.
- Have two Cowardin classes of vegetation (emergent and scrub-shrub) present, with occasional trees (moderate structural diversity).
- Have a moderately high level of disturbance from livestock grazing, agricultural uses, and/or roads/infrastructure.
- Assumed to provide secondary and incidental habitat for federally listed species (e.g., whooping crane).
- Assumed to provide secondary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad, snapping turtle, spiny softshell turtle).
- Substantially used by terrestrial wildlife.
- Provide habitat for native game fish.
- Are susceptible to instream flooding, overbank flooding or wave action.
- Are associated with a moderately entrenched stream channel.
- Provide high level of short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Provide an unrestricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively common in this region.
- Provide recreation and education opportunities.

M.2.1.8 Lacustrine

The characteristics of the lacustrine wetlands can be summarized as follows.

- Occur in association with large bodies of water (e.g., Spotted Eagle Lake, Tongue River Reservoir)
- Are dominated by permanent/perennial hydrologic regime.
- Have three or more Cowardin classes of vegetation (emergent, scrub-shrub, forested, aquatic bed).
- Have a moderate level of disturbance from livestock grazing, agricultural uses, roads/infrastructure, and recreation uses.
- Assumed not to provide primary, secondary, and incidental habitat for federally listed species.

- Assumed to provide primary habitat for MNHP S1, S2, and S3 species (e.g., Great Plains toad, Plains spadefoot toad, spiny softshell turtle).
- Are substantially used by terrestrial wildlife.
- Provide moderate fish habitat.
- Are susceptible wave action.
- Provide high short- and long-term surface water storage.
- Have opportunity to receive sediments, nutrients, and toxicants from adjacent areas.
- Have no outlet or restricted outlet.
- Do not significantly contribute to groundwater discharge or recharge.
- Are relatively uncommon in this region.
- Provide both recreation and education opportunities.

M.2.1.9 Functional Ratings

OEA assessed these composite wetland types using the Montana Department of Transportation Montana Wetland Assessment Method (Berglund and McEldowney 2008), which generated a set of ratings for the following 12 functions and values listed below, all of which generally fall into three broad functional areas: wildlife/fish habitat, water quality, and flood attenuation/water storage.

- Listed/Proposed Threatened and Endangered Species Habitat
- MNHP Species Habitat
- General Wildlife Habitat
- General Fish Habitat
- Flood Attenuation
- Short- and Long-Term Surface Water Storage
- Sediment/Nutrient/Toxicant Removal
- Sediment/Shoreline Stabilization
- Production Export/Food Chain Support
- Groundwater Discharge/Recharge
- Uniqueness
- Recreation/Education Potential

M.2.2 Wetland Categories in the Study Area

Based on the assessment of the composite wetlands, Table M-2 shows the categories assigned to each of the major wetland types in the study area.

Table M-2. Category Ratings of Wetlands in the Study Area

Wetland Type	Category
PEM-Depressional	III
PEM-Riverine	III
PAB-Impounded	III
PUB/PUS-Impounded	III
R-Vegetated	III
R-Unvegetated	IV
Tongue River and Adjacent Wetlands	II
Lacustrine	II

PEM = palustrine emergent, PAB = palustrine aquatic bed, PUB = palustrine unconsolidated bottom, PUS = palustrine unconsolidated shore, R = river, L = lacustrine

OEA applied these assigned categories to both the wetlands and streams identified during the field survey and to those features of inaccessible parcels that were mapped using aerial photos. From this, OEA calculated an approximate area of impact for each category, for each of the build alternatives.

M.3 Results

The results of the wetland reconnaissance-level determination and mapping effort are summarized in Table M-3 through Table M-8 and the results of the wetland functions and values analysis are summarized in Table M-9. Tables M-3 through M-8 are the detailed impact tables that support the wetland impact summaries in the text and tables presented in Chapter 9, Section 9.5.4.2 *Impacts by Build Alternative*. Table M-9 provides detailed information on the functions and values of wetlands in the overall study area.

Table M-3. Palustrine Emergent (PEM) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative.

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	6.9	3,783	0.2	47.6	8,244	0.6
Tongue River East	7.4	3,803	0.2	40.5	8,537	0.5
Colstrip	1.3	2,040	0.1	16.4	4,173	0.4
Colstrip East	4.5	2,094	0.2	13.2	4,518	0.3
Tongue River Road	8.6	4,234	0.2	48.5	8,235	0.6
Tongue River Road East	8.6	4,218	0.2	42.4	8,495	0.5
Moon Creek	3.8	4,026	0.1	22.8	8,091	0.3
Moon Creek East	4.3	4,047	0.1	15.7	8,384	0.2
Decker	0.0	2,826	0.0	0.1	5,147	0.0
Decker East	0.0	2,695	0.0	0.1	5,020	0.0

Note: Small wetland areas that account for less than 0.1% of the right-of-way or buffer are listed as 0.0%

Table M-4. Palustrine Scrub-Shrub (PSS) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	0.5	3,783	0.0	3.8	8,244	0.0
Tongue River East	0.7	3,803	0.0	1.8	8,537	0.0
Colstrip	0.0	2,240	0.0	1.3	4,173	0.0
Colstrip East	3.4	2,094	0.2	1.4	4,518	0.0
Tongue River Road	0.0	4,234	0.0	1.8	8,235	0.0
Tongue River Road East	0.0	4,218	0.0	0.5	8,495	0.0
Moon Creek	0.5	4,026	0.0	3.8	8,091	0.0
Moon Creek East	0.7	4,047	0.0	1.8	8,384	0.0
Decker	0.0	2,826	0.0	0.0	5,147	0.0
Decker East	0.0	2,695	0.0	0.0	5,020	0.0

Note: Small wetland areas that account for less than 0.1% of the right-of-way or buffer are listed as 0.0%

Table M-5. Palustrine Aquatic Bed (PAB) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	3.9	3,783	0.1	12.3	8,244	0.1
Tongue River East	3.7	3,803	0.1	12.4	8,537	0.1
Colstrip	0.5	2,040	0.0	2.3	4,173	0.1
Colstrip East	0.3	2,094	0.0	2.4	4,518	0.1
Tongue River Road	5.8	4,234	0.1	14.6	8,235	0.2
Tongue River Road East	5.6	4,218	0.1	14.7	8,495	0.2
Moon Creek	2.5	4,026	0.1	7.0	8,091	0.1
Moon Creek East	2.3	4,047	0.1	7.1	8,384	0.1
Decker	0.0	2,826	0.0	2.5	5,147	0.0
Decker	0.0	2,695	0.0	2.5	5,020	0.0

Note: Small wetland areas that account for less than 0.1% of the right-of-way or buffer are listed as 0.0%

Table M-6. Palustrine Unconsolidated Bottom/Palustrine Unconsolidated Shore (PUB/PUS) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	4.7	3,783	0.1	3.6	8,244	0.0
Tongue River East	4.5	3,803	0.1	3.5	8,537	0.0
Colstrip	0.3	2,040	0.0	0.1	4,173	0.0
Colstrip East	0.0	2,094	0.0	0.1	4,518	0.0
Tongue River Road	3.7	4,234	0.1	3.6	8,235	0.0
Tongue River Road East	3.4	4,218	0.1	3.6	8,495	0.0
Moon Creek	3.4	4,026	0.1	6.4	8,091	0.1
Moon Creek East	3.2	4,047	0.1	6.3	8,384	0.1
Decker	0.3	2,826	0.0	0.8	5,147	0.0
Decker East	0.0	2,695	0.0	0.8	5,020	0.0

Note: Small wetland areas that account for less than 0.1% of the right-of-way or buffer are listed as 0.0%

Table M-7. Riverine (R) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	12.7	3,783	0.3	85.4	8,244	1.0
Tongue River East	16.0	3,803	0.4	44.0	8,537	0.5
Colstrip	6.0	2,040	0.3	58.4	4,173	1.4
Colstrip East	10.2	2,094	0.5	29.4	4,518	0.6
Tongue River Road	13.3	4,234	0.3	82.2	8,235	1.0
Tongue River Road East	15.7	4,218	0.4	46.9	8,495	0.6
Moon Creek	16.0	4,026	0.4	88.5	8,091	1.1
Moon Creek East	19.3	4,047	0.5	47.0	8,384	0.6
Decker	9.2	2,826	0.3	17.6	5,147	0.3
Decker East	8.6	2,695	0.3	14.3	5,020	0.3

Table M-8. Lacustrine (L) Wetlands Mapped in Right-Of-Way and Buffer Area by Build Alternative

Build Alternative	Wetland Acres in Right-of-Way	Acres of Right-of-Way	% Wetland in Right-of-Way	Wetland Acres in Buffer Area	Acres of Buffer Area	% Wetland in Buffer area
Tongue River	0.0	3,783	0.0	0.5	8,244	0.0
Tongue River East	0.0	3,803	0.0	0.5	8,537	0.0
Colstrip	0.0	2,040	0.0	0.0	4,173	0.0
Colstrip East	0.0	2,094	0.0	0.0	4,518	0.0
Tongue River Road	0.0	4,234	0.0	0.5	8,235	0.0
Tongue River Road East	0.0	4,218	0.0	0.5	8,495	0.0
Moon Creek	0.0	4,026	0.0	0.0	8,091	0.0
Moon Creek East	0.0	4,047	0.0	0.0	8,384	0.0
Decker	0.0	2,826	0.0	0.1	5,147	0.0
Decker East	0.0	2,695	0.0	0.1	5,020	0.0

Note: Small wetland areas that account for less than 0.1% of the right-of-way or buffer are listed as 0.0%

Table M-9. Wetlands in the Overall Study Area by Category (Acres)

I	II	III	IV	Total
0	125.7	173.3	88.0	387

M.4 Wetland Terminology

Key terms used in wetland determination and the functions and values assessment are defined below.

- **Artificial impoundment:** A permeable or semi-permeable earthen dam constructed across a flowing water body to impound water artificially to create a pond-like reservoir. Such reservoirs are used for irrigation and livestock.
- **Ephemeral swales:** A sloped topographic depression that directs surface and subsurface flow downslope during and immediately after precipitation events. These features lack established flow channels with defined bed and bank.
- **Emergent:** A rooted herbaceous (nonwoody) plant that has parts extending above a water surface (Environmental Laboratory 1987).
- **Flood attenuation:** The capability of a wetland to slow in-channel or overbank flooding during high water or flood events (Berglund and McEldowney 2008).
- **Hydrogeomorphic (HGM) classification:** A system of classifying wetlands based on their landscape position (geomorphic setting), water source, and the way in which water moves through them (hydrodynamics) (Smith et al. 1995).
 - **Depressional wetland:** A wetland that occurs in topographic depressions (closed elevation contours) that allow the accumulation of surface water from precipitation, overland flow, streams, or groundwater/interflow from adjacent uplands, with the predominant direction of flow being vertical from the higher elevations toward the center of the depression (Smith et al. 1995).
 - **Slope wetland:** A wetland associated with the discharge of groundwater to the land surface that occurs on sloping land of variable gradients. Flow typically occurs in one direction (downslope) (Smith et al. 1995).
 - **Slope/mineral flats wetland:** A wetland that forms on mineral soils in a flat area characterized by poor vertical drainage. Their primary hydrologic source is precipitation, with virtually no inputs from groundwater. Direction of flow in these systems is primarily vertical with water losses occurring through evapotranspiration, saturation, overland flow, and seepage into the ground (Smith et al. 1995).
 - **Riverine wetland:** A wetland that occurs in a floodplain or riparian corridor in association with a stream or river channel. Dominant water sources are overbank flow from the channel or a subsurface hydraulic connection with the channel. Additional sources could be interflow, overland flow from adjacent uplands, tributary inflow, and precipitation. Direction of flow in such wetlands includes unidirectional flow within channels and horizontal flow from overbank flooding (Smith et al. 1995).
- **Hydrologic regime:** The sum total of water that occurs in an area on average during a given period (Environmental Laboratory 1987).
 - **Temporary/ephemeral:** Surface water is present during brief periods of the growing season, but the water table is well below the surface most of the year; or surface water flows briefly in direct response to precipitation in the immediate vicinity and the channel is above the water table (Berglund and McEldowney 2008).

- **Seasonal/intermittent:** Surface water is present for extended periods, especially early in the growing season, or could persist throughout the growing season, but could be absent at the end of the growing season; or surface water does not flow continuously, as when water losses from evaporation or seepage exceed the available stream flow (Berglund and McEldowney 2008).
- **Permanent/perennial:** Surface water is present throughout the year except during years of extreme drought (Berglund and McEldowney 2008).
- **Meander scar:** A geologic feature formed when a bend or loop (meander) in stream channel is cut off from the main channel. These features often develop into crescent-shaped ponds or wetlands.
- **Oxbow (or oxbow lake):** A crescent-shaped lake or pond in a river valley formed in an abandoned segment of a stream channel (Marsh 1991).

M.5 References

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ATTACHMENT M-1

Data Forms

PEMI-DEPRESSIONAL

10-22-2013

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRRR 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. MAY 19 Day 29 Yr. 2013 4. Evaluator(s): KUZIENSKY 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____ ; T _____ N or S; R _____ E or W; S _____ ;
ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____; 8. Wetland size: (total acres) _____ (visually estimated)
b. Purpose of Evaluation: _____ (measured, e.g. by GPS [if applies])
1. _____ Wetlands potentially affected by MDT project
2. _____ Mitigation wetlands; pre-construction
3. _____ Mitigation wetlands; post-construction
4. _____ Other _____

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	I	SI	46
D	EM	I	TE	47
D	EM	I	P	7

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA: 10-50% OF WETLANDS IN BASIN ARE SIMILAR

i. Disturbance: (use matrix below to determine [circle] appropriate response - see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted, does not contain roads or buildings, and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted, does not contain roads or occupied buildings, and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged, or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	high disturbance
AA cultivated or heavily grazed or logged, subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.):

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: KY BLUEGRASS, SMOOTH BROME, CATHARTIS

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AREA IS PRIMARILY PANGELAND

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	M	NA	NA
1 class, but not a monoculture	<u>(M)</u>	<u>NO</u>	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA

Comments: 1 CLASS PRESENT - HERBACEOUS - USU. MORE THAN ONE SPECIES PRESENT
NO MANAGEMENT PREVENTING ADDTL. VEG CLASSES FR DEVELOPING

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 S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A 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 GREAT PLAINS TOAD, PLAINS SPADEFOOT TOAD
 - Incidental habitat (list species) D S _____
 - No usable habitat S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	<u>.6M</u>	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	<u>.5M</u>	.2L	.1L	0L

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

MOST OF THESE TYPES OF WETLAND DOM. BY HERBS W/ OCCASIONAL SCATTERED SHRUBS

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
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	<u>S/I</u>	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	<u>M</u>	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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) ___ Warm Water (WW) ___ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

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

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

MOST ARE LOCATED IN OLD SIDE CHANNELS THAT ARE NO LONGER CONNECTED TO THE MAIN CHANNEL

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4	
C stream type	D stream type	E stream type	B stream type		A stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: _____

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		◯ < 70%		≥ 70%		◯ < 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	◯ .7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: *LIVESTOCK POTENTIAL SOURCE OF NUTRIENTS*

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: *THIS TYPE OF PERM TYPICALLY OCCURS IN DEPRESSIONS W/ RESTRICTED OUTLETS*

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	◯ M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
◯ N/A	H	◯ M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** N If yes, add 0.1 to the score in ii above and adjust rating accordingly: *0.1*

iv. **Final Score and Rating:** *0.4M* **Comments:** *≥ 30% PLANT COVER PRESENT NOW-NATIVES COMMON TO ABUNDANT BUT*

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) *NOXIOUS WEED/ANVS SPECIES TYPICALLY ≤ 15%*

i. **Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other: _____

ii. **Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: _____

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): PEM-DEPRESSANTAL

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	0.6	1		
C. General Wildlife Habitat	M	0.5	1		
D. General Fish Habitat	N/A	N/A	—		
E. Flood Attenuation	N/A	N/A	—		
F. Short and Long Term Surface Water Storage	L	0.3	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	N/A	N/A	—		
I. Production Export/Food Chain Support	M	0.4	1		
J. Groundwater Discharge/Recharge	N/A	N/A	—		
K. Uniqueness	L	0.3	1		
L. Recreation/Education Potential (bonus points)	N/A	N/A	NA		
Totals:		2.8	7		
Percent of Possible Score			40 %		

- Category I Wetland:** (must satisfy **one** of the following criteria; otherwise go to Category II)
- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or *NO*
 - Score of 1 functional point for Uniqueness; or *NO*
 - Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; or *NO*
 - Percent of possible score > 80% (round to nearest whole #). *NO*
- Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
- Score of 1 functional point for MT Natural Heritage Program Species Habitat; or *NO*
 - Score of .9 or 1 functional point for General Wildlife Habitat; or *NO*
 - Score of .9 or 1 functional point for General Fish Habitat; or *NO*
 - "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; or *NO*
 - Score of .9 functional point for Uniqueness; or *NO*
 - Percent of possible score > 65% (round to nearest whole #). *NO*
- Category III Wetland:** (Criteria for Categories I, II, or IV not satisfied)
- Category IV Wetland:** (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
- "Low" rating for Uniqueness; **and**
 - Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
 - Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRRR 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. MAY 19 Day - JUN 29 Yr. 2017 4. Evaluator(s): KUZIENSKY 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____; T _____ N or S; R _____ E or W; S _____;

ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____; 8. Wetland size: (total acres) _____ (visually estimated)
 b. Purpose of Evaluation: _____ (measured, e.g. by GPS [if applies])

1. _____ Wetlands potentially affected by MDT project
 2. _____ Mitigation wetlands; pre-construction
 3. _____ Mitigation wetlands; post-construction
 4. _____ Other _____
9. Assessment area (AA): (acres, _____ (visually estimated)
 see instructions on determining AA) _____ (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
RIVERINE	PEM	N/A	SI	60
RIVERINE	PEM	N/A	TE	40

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged, or has been subject to minor clearing, contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted, does not contain roads or occupied buildings, and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration, contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	high disturbance
AA cultivated or heavily grazed or logged, subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.):

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: SOME COCKLEBUR, SOFT RUSH, CORDGRASS

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

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	<u>M</u>	NA	NA
1 class, but not a monoculture	M	←NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA

Comments: MOSTLY HERBACEOUS W/ SOME SHRUBS

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 S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
- Primary or critical habitat (**list species**) D S _____
 - Secondary habitat (**list species**) D S _____
 - Incidental habitat (**list species**) D S _____
 - No usable habitat S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (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
- Minimal** (based on any of the following [check]):
- few or no wildlife observations during peak use periods
 - little to no wildlife sign
 - sparse adjacent upland food sources
 - interviews with local biologists with knowledge of the AA
- Moderate** (based on any of the following [check]):
- observations of scattered wildlife groups or individuals or relatively few species during peak periods
 - common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
 - adequate adjacent upland food sources
 - interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
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

MORE HERBACEOUS THAN SCRUB-SPRUB

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) ___ Warm Water (WW) ___ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

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

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: _____

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes		No		Yes		No	
Evidence of flooding / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	.9H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** N If yes, add 0.1 to the score in ii above and adjust rating accordingly: 0.1

iv. **Final Score and Rating:** 0.6M **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) N/A

- i. Discharge Indicators**
- The AA is a slope wetland
 - Springs or seeps are known or observed
 - Vegetation growing during dormant season/drought
 - Wetland occurs at the toe of a natural slope
 - Seeps are present at the wetland edge
 - AA permanently flooded during drought periods
 - Wetland contains an outlet, but no inlet
 - Shallow water table and the site is saturated to the surface
 - Other: _____

- ii. Recharge Indicators**
- Permeable substrate present without underlying impeding layer
 - Wetland contains inlet but no outlet
 - Stream is a known 'losing' stream; discharge volume decreases
 - Other: _____

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	0.6	1		
C. General Wildlife Habitat	M	0.5	1		
D. General Fish Habitat	N/A	—	—		
E. Flood Attenuation	L	0.1	1		
F. Short and Long Term Surface Water Storage	L	0.3	1		
G. Sediment/Nutrient/Toxicant Removal	H	0.9	1		
H. Sediment/Shoreline Stabilization	M	0.6	1		
I. Production Export/Food Chain Support	M	0.6	1		
J. Groundwater Discharge/Recharge	N/A	—	—		
K. Uniqueness	L	0.3	1		
L. Recreation/Education Potential (bonus points)	N/A	—	NA		
Totals:		3.3	9		
Percent of Possible Score			43 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- ___ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or **NO**
- ___ Score of 1 functional point for Uniqueness; or **NO**
- ___ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; or **NO**
- ___ Percent of possible score > 80% (round to nearest whole #). **NO**

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- ___ Score of 1 functional point for MT Natural Heritage Program Species Habitat; or **NO**
- ___ Score of .9 or 1 functional point for General Wildlife Habitat; or **NO**
- ___ Score of .9 or 1 functional point for General Fish Habitat; or **NO**
- ___ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; or **NO**
- ___ Score of .9 functional point for Uniqueness; or **NO**
- ___ Percent of possible score > 65% (round to nearest whole #). **NO**

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- ___ "Low" rating for Uniqueness; **and YES**
- ___ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and YES**
- ___ Percent of possible score < 35% (round to nearest whole #). **NO**

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

PAB

PERM. IMPOUNDMENTS

MDT Montana Wetland Assessment Form (revised March 2008)

1 Project Name: TRAP 2. MDT Project #: Control #:
3. Evaluation Date: Mo. MAY 19 - Day 29 - Yr. 2013 4. Evaluator(s): KUZHENIKY 5. Wetlands/Site #(s):
6. Wetland Location(s): i. Legal: T N or S; R E or W; S T N or S; R E or W; S
ii. Approx. Stationing or Mileposts:
iii. Watershed: Watershed Name, County:

7. a. Evaluating Agency: b. Purpose of Evaluation:
1. Wetlands potentially affected by MDT project
2. Mitigation wetlands; pre-construction
3. Mitigation wetlands; post-construction
4. Other
8. Wetland size: (total acres) (visually estimated) (measured, e.g. by GPS [if applies])
9. Assessment area (AA): (acres, (visually estimated) (measured, e.g. by GPS [if applies]) see instructions on determining AA)

10. Classification of Wetland and Aquatic Habitats in AA

Table with 5 columns: HGM Class (Brinson), Class (Cowardin), Modifier (Cowardin), Water Regime, % of AA. Row 1: D, PAB, I, PP, 40.

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response - see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Matrix table for disturbance assessment with columns for 'Conditions within AA' and 'Predominant conditions adjacent to (within 500 feet of) AA'. Includes categories like 'low disturbance', 'moderate disturbance', and 'high disturbance'.

Comments: (types of disturbance, intensity, season, etc.): STREAM IMPOUNDMENT, LIVESTOCK USAGE

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: KY BLUEGRASS, SPARTINA

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

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

Table for Structural Diversity with columns: Existing # of "Cowardin" Vegetated Classes in AA, Initial Rating, Is current management preventing (passive) existence of additional vegetated classes?, Modified Rating.

Comments: MOSTLY UNVEGETATED OR MONOCULTURE OF AQUATIC 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 _____
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<i>Functional Points and Rating</i>	1H	.9H	.8M	.7M	.3L	.1L	<u>0L</u>

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 in 14A 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 GREAT PLAINS TOAD, PLAINS SPADFOOT
 Incidental habitat (list species) D S _____
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: <i>Functional Points and Rating</i>	1H	.8H	.7M	<u>.6M</u>	.2L	.1L	0L
S2 and S3 Species: <i>Functional Points and Rating</i>	.9H	.7M	.6M	<u>.5M</u>	.2L	.1L	0L

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

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

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

<i>Structural diversity (see #13)</i>	High								Moderate								<u>Low</u>			
	Even				Uneven				Even				Uneven				<u>Even</u>			
<i>Class cover distribution (all vegetated classes)</i>	Even				Uneven				Even				Uneven				<u>Even</u>			
<i>Duration of surface water in ≥ 10% of AA</i>	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	<u>L</u>	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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. **Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. **Modified Rating (NOTE:** Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

iii. **Final Score and Rating:** _____ **Comments:** ONLY FISH PRESENT WOULD BE STOCKED - DOUBTFUL

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 14F.) **AREA IS AN IMPOUNDMENT**

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains no outlet or restricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L
AA contains unrestricted outlet									

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type		A stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

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

MIAMIPIKE STOCK POND - POSSIBLY SOME WAVE ACTION

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **(Y)** N If yes, add 0.1 to the score in ii above and adjust rating accordingly: +0.1

iv. **Final Score and Rating:** 0.3 **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. **Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other: _____

N/A

ii. **Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: _____

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	0.6	1		
C. General Wildlife Habitat	L	0.3	1		
D. General Fish Habitat	N/A	—	—		
E. Flood Attenuation	N/A	—	—		
F. Short and Long Term Surface Water Storage	H	1	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	L	0.3	1		
I. Production Export/Food Chain Support	L	0.3	1		
J. Groundwater Discharge/Recharge	N/A	—	—		
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	N/A	—	NA		
Totals:		3.4	8		
Percent of Possible Score			43 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- ___ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ___ Score of 1 functional point for Uniqueness; **or**
- ___ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ___ Percent of possible score > 80% (round to nearest whole #).

} NO

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- ___ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- ___ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ___ Score of .9 or 1 functional point for General Fish Habitat; **or**
- ___ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ___ Score of .9 functional point for Uniqueness; **or**
- ___ Percent of possible score > 65% (round to nearest whole #).

} NO

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- ___ "Low" rating for Uniqueness; **and**
- ___ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- ___ Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III IV

PUB/PUS WETLANDS

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRAP 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. _____ Day _____ Yr. MAY 19 - JUN 29, 2013 4. Evaluator(s): KUZIEWSKI 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____; T _____ N or S; R _____ E or W; S _____

ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____

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

b. Purpose of Evaluation:

1. Wetlands potentially affected by MDT project
2. Mitigation wetlands; pre-construction
3. Mitigation wetlands; post-construction
4. Other _____

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	PUB/S	I	SI	80
D	PUB/S	I	TE	20

Abbreviations: (see manual for definitions)

HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);

Cowardin 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)

Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)

Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

(Circle one) Unknown Rare Common Abundant

LIKELY ABUNDANT IN BASIN - LOTS OF STOLK

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.):

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: *MANY COMMON WEEDS BUT NO MAJOR INVASIVE SPECIES*

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

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	<u>L</u>	NA	NA	NA

Comments: *SOME FEATURES INCLUDE ADJACENT TREES + SHRUBS BUT THESE ARE NOT TYPICALLY ROOTED IN WETLAND. HERBACEOUS VEG. DOMINATES. USUALLY ONE SPECIES W/ SPARSE 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 S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A 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 GREAT PLAINS TOAD, PLAINS SPADEFOOT TOAD
 - Incidental habitat (list species) D S _____
 - No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	<u>.6M</u>	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	<u>.5M</u>	.2L	.1L	0L

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								<u>Low</u>			
	Even				Uneven				Even				Uneven				<u>Even</u>			
Class cover distribution (all vegetated classes)																				
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	<u>S/I</u>	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	<u>M</u>	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)

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

Comments:

MT FISH & WILDLIFE PARKS
 APPM ATTEND

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

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

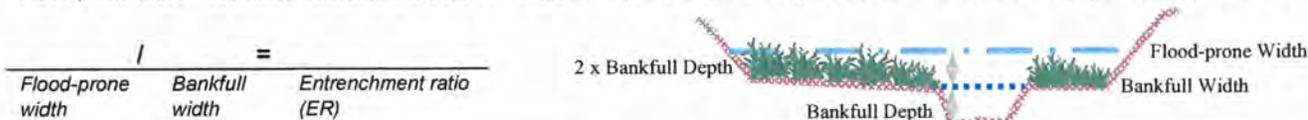
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: _____

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		◯ < 70%		≥ 70%		◯ < 70%	
Evidence of flooding / ponding in AA	Yes	No	◯ Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	◯ .7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

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

AA INCLUDE STANDING WATER BODIES W/NO WAVE ACTION

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	◯ M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
◯ N/A	H	◯ M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** **N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: 0.1

iv. **Final Score and Rating:** 0.4M **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

◯ N/A

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other: _____

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: _____

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	N/A	—	1		
B. MT Natural Heritage Program Species Habitat	M	0.6	1		
C. General Wildlife Habitat	M	0.5	1		
D. General Fish Habitat	N/A	—	N/A		
E. Flood Attenuation	N/A	—	N/A		
F. Short and Long Term Surface Water Storage	M	0.6	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	N/A	—	N/A		
I. Production Export/Food Chain Support	L	0.3	1		
J. Groundwater Discharge/Recharge	N/A	—	N/A		
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	N/A	—	NA		
Totals:		2.9	7		
Percent of Possible Score			41 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or** NO
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or** NO
- Score of .9 or 1 functional point for General Wildlife Habitat; **or** NO
- Score of .9 or 1 functional point for General Fish Habitat; **or** NO
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or** NO
- Score of .9 functional point for Uniqueness; **or** NO
- Percent of possible score > 65% (round to nearest whole #). NO

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #). NO

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

MOON CREEK, LAY CREEK
OTHER NAMED CREEKS

RIVERINE-VEGETATED
INTERMITTENT/EPHEMERAL

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TPRR 2. MDT Project #: _____ Control #: _____
 3. Evaluation Date: Mo. MAY 19 Day 29 Yr. 2013 4. Evaluator(s): KUZIENSKY 5. Wetlands/Site #(s): _____
 6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____; T _____ N or S; R _____ E or W; S _____;
 ii. Approx. Stationing or Mileposts: _____
 iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____ 8. Wetland size: (total acres) _____ (visually estimated)
 b. Purpose of Evaluation: _____ (measured, e.g. by GPS [if applies])
 1. _____ Wetlands potentially affected by MDT project
 2. _____ Mitigation wetlands; pre-construction
 3. _____ Mitigation wetlands; post-construction
 4. _____ Other _____
 9. Assessment area (AA): (acres) _____ (visually estimated)
 see instructions on determining AA _____ (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	R		SI	80
R	R		TE	20

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density, or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.):

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: KY BLUEGRASS MEADOW FOXTAIL, COCKLEBUR, SMOOTH BROME

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

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	<u>M</u>	NA	NA
1 class, but not a monoculture	M	←NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA

Comments: TYPICALLY DOMINATE BY HERBACEOUS VEG W/ SCATTERED SHRUBS AND TREES (NOT FORESTED) - MAINLY WILLOWS, COTONWOOD, ASH

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 S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A 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 GREAT PLAINS TOAD, PLAINS SPADEFOOT, SNAPPING TURTLE
 - Incidental habitat (list species) D S _____
 - No usable habitat S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	<u>.7M</u>	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	<u>.6M</u>	.5M	.2L	.1L	0L

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low							
	Even				Uneven				Even				Uneven				Even							
Class cover distribution (all vegetated classes)																								
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	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	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	<u>M</u>	M	L	H	M	L	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	M	L	L	L	M	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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover																		
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

iii. Final Score and Rating: 0.4 **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 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub									
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4		
C stream type	D stream type	E stream type	B stream type		A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L
AA contains unrestricted outlet								

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** N If yes, add 0.1 to the score in ii above and adjust rating accordingly: + 0.1

iv. **Final Score and Rating:** 0.7M **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) N/A

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other: _____

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: _____

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	0.7	1		
C. General Wildlife Habitat	M	0.5	1		
D. General Fish Habitat	M	0.4	1		
E. Flood Attenuation	M	0.4	1		
F. Short and Long Term Surface Water Storage	M	0.6	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.6	1		
H. Sediment/Shoreline Stabilization	L	0.2	1		
I. Production Export/Food Chain Support	M	0.7	1		
J. Groundwater Discharge/Recharge	N/A	-	-		
K. Uniqueness	L	0.3	1		
L. Recreation/Education Potential (bonus points)	N/A	-	NA		
Totals:		4.4	10		
Percent of Possible Score			44 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

NO

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

NO

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

RIVERINE-UNVEG
TE

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRRR 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. MAY 19 Day 21 Yr. 2017 4. Evaluator(s): KUZIENSKI 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____ ; T _____ N or S; R _____ E or W, S _____
ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____; 8. Wetland size: (total acres) _____ (visually estimated)
b. Purpose of Evaluation: _____ (measured, e.g. by GPS [if applies])
1. _____ Wetlands potentially affected by MDT project
2. _____ Mitigation wetlands; pre-construction
3. _____ Mitigation wetlands; post-construction
4. _____ Other _____
9. Assessment area (AA): (acres, _____ (visually estimated)
see instructions on determining AA) _____ (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	R	N/A	TE	100

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:
i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%	Land not cultivated, but may be moderately grazed or hayed or selectively logged, or has been subject to minor clearing, contains few roads or buildings; noxious weed or ANVS cover is ≤30%	Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density, or noxious weed or ANVS cover is >30%
AA occurs and is managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged, or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%	moderate 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, or noxious weed or ANVS cover is >30%	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): OFTEN ADJACENT TO OR CROSSED BY ROADS,

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: TRAILS, FENCES, GRAZING AND ADD AREAS

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

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	M	NA	NA
1 class, but not a monoculture	M	←NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	<u>(L)</u>	NA	NA

Comments: SPARSELY VEG. w/ HERBS IF AT ALL

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	<u>S</u>		_____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A 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	<u>S</u>	_____
No usable habitat	S		_____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	<u>.1L</u>	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	<u>.1L</u>	0L

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								<u>Low</u>			
	Even				Uneven				Even				Uneven				<u>Even</u>			
Class cover distribution (all vegetated classes)																				
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	<u>T/E</u>	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	<u>L</u>	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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) ___ Warm Water (WW) ___ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

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

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4		
C stream type	D stream type	E stream type	B stream type		A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: _____

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks 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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: +0.1

iv. **Final Score and Rating:** 0.3 **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. **Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other: _____

ii. **Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: _____

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0.1	1		
C. General Wildlife Habitat	L	0.3	1		
D. General Fish Habitat	N/A	—	—		
E. Flood Attenuation	L	0.1	1		
F. Short and Long Term Surface Water Storage	L	0.2	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.6	1		
H. Sediment/Shoreline Stabilization	L	0.1	1		
I. Production Export/Food Chain Support	L	0.2	1		
J. Groundwater Discharge/Recharge	N/A	—	—		
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	N/A	—	NA		
Totals:		1.8	9		
Percent of Possible Score			20 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

} NO

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

} NO

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III **IV**

TONGUE RIVER + ADD
WETLANDS

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRRR 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. _____ Day _____ Yr. MAY 19 - JUN 21, 2013 4. Evaluator(s): _____ 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____; T _____ N or S; R _____ E or W; S _____;
ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

7. a. Evaluating Agency: _____; 8. Wetland size: (total acres) _____ (visually estimated)
b. Purpose of Evaluation: _____ (measured, e.g. by GPS [if applies])
1. _____ Wetlands potentially affected by MDT project
2. _____ Mitigation wetlands; pre-construction
3. _____ Mitigation wetlands; post-construction
4. _____ Other _____

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	R	-	PP	80
R	P	EM	SI	15
R	P	SS	SI	5

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing, contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density, or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted, does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u> ←	<u>high disturbance</u>
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density, or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): LOTS OF CULTIVATED LAND + PANGELAND, ROADS, RESIDENTIAL AREAS

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
 iii. Provide brief descriptive summary of AA and surrounding land use/habitat:

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	<u>M</u>	NA	NA
1 class, but not a monoculture	M	←NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA

Comments: HERBACEOUS VEG, SCRUB-SHRUB, SOME TREES BUT NOT FORESTED

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 S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<i>Functional Points and Rating</i>	1H	.9H	.8M	<u>.7M</u>	.3L	.1L	0L

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 in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
- Primary or critical habitat (**list species**) D S _____
 - Secondary habitat (**list species**) D S _____
 - Incidental habitat (**list species**) D S _____
 - No usable habitat S _____

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: <i>Functional Points and Rating</i>	1H	.8H	<u>.7M</u>	.6M	.2L	.1L	0L
S2 and S3 Species: <i>Functional Points and Rating</i>	.9H	.7M	<u>.6M</u>	.5M	.2L	.1L	0L

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

<i>Structural diversity (see #13)</i>	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
<i>Class cover distribution (all vegetated classes)</i>																				
<i>Duration of surface water in ≥ 10% of AA</i>	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	<u>H</u>	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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover																		
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: 7.0

iii. Final Score and Rating: 0.7M **Comments:**

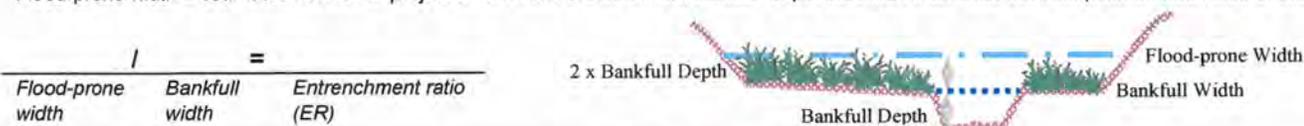
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type		A stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L
AA contains unrestricted outlet								

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: _____

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

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- _____ The AA is a slope wetland
- _____ Springs or seeps are known or observed
- _____ Vegetation growing during dormant season/drought
- _____ Wetland occurs at the toe of a natural slope
- _____ Seeps are present at the wetland edge
- _____ AA permanently flooded during drought periods
- _____ Wetland contains an outlet, but no inlet
- _____ Shallow water table and the site is saturated to the surface
- _____ Other: _____

ii. Recharge Indicators

- _____ Permeable substrate present without underlying impeding layer
- _____ Wetland contains inlet but no outlet
- _____ Stream is a known 'losing' stream; discharge volume decreases
- _____ Other: _____

N/A

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	M	0.7	1		
B. MT Natural Heritage Program Species Habitat	M	0.7	1		
C. General Wildlife Habitat	H	0.8	1		
D. General Fish Habitat	M	0.7	1		
E. Flood Attenuation	M	0.7	1		
F. Short and Long Term Surface Water Storage	H	0.8	1		
G. Sediment/Nutrient/Toxicant Removal	H	0.9	1		
H. Sediment/Shoreline Stabilization	M	0.7	1		
I. Production Export/Food Chain Support	H	0.9	1		
J. Groundwater Discharge/Recharge	N/A	—	—		
K. Uniqueness	M	0.7	1		
L. Recreation/Education Potential (bonus points)	H	0.15	NA		
Totals:		7.75	10		
Percent of Possible Score			77.5 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I **II** III IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: TRRR 2. MDT Project #: _____ Control #: _____

3. Evaluation Date: Mo. _____ Day _____ Yr. _____ 4. Evaluator(s): KUZIENSKY 5. Wetlands/Site #(s): _____

6. Wetland Location(s): i. Legal: T _____ N or S; R _____ E or W; S _____ ; T _____ N or S; R _____ E or W; S _____ ;
ii. Approx. Stationing or Mileposts: _____

iii. Watershed: _____ Watershed Name, County: _____

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

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

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

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>LF</u>	<u>L</u>	<u>I</u>	<u>P/P</u>	
<u>LF</u>	<u>L</u>	<u>E</u>	<u>P/P</u>	

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin 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)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): _____

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: _____

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

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	<u>(H)</u>	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

Comments: _____

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

- i. AA is Documented (D) or Suspected (S) to contain (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 **S**

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
- Primary or critical habitat (list species) D S _____
 - Secondary habitat (list species) D S _____
 - Incidental habitat (list species) D S _____
 - No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc.): *GREAT PLAINS TOAD, PLAINS SPADEFOOT, SPINY SOFTSHELL TURTLE.*

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

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

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)																				
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)

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

Comments:

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. **Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: _____

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: _____

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

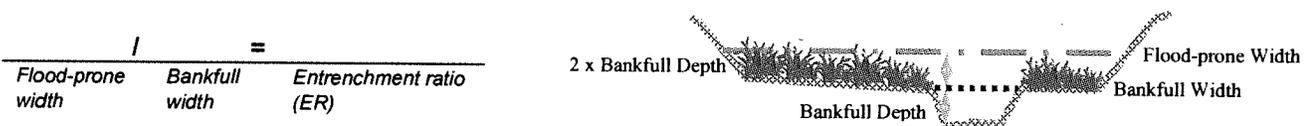
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle **NA** here and proceed to 14F.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2	Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (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 to 14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: _____

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle **NA** here and proceed to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	.5M	.4M	.3L	.2L	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.4M	.3L	.2L	.1L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.3L	.2L	.1L	

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** N If yes, add 0.1 to the score in ii above and adjust rating accordingly: $0.9 + 0.1 = 1.0$

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

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) **N/A**

- | | |
|--|---|
| <p>i. Discharge Indicators</p> <p>_____ The AA is a slope wetland</p> <p>_____ Springs or seeps are known or observed</p> <p>_____ Vegetation growing during dormant season/drought</p> <p>_____ Wetland occurs at the toe of a natural slope</p> <p>_____ Seeps are present at the wetland edge</p> <p>_____ AA permanently flooded during drought periods</p> <p>_____ Wetland contains an outlet, but no inlet</p> <p>_____ Shallow water table and the site is saturated to the surface</p> <p>_____ Other: _____</p> | <p>ii. Recharge Indicators</p> <p>_____ Permeable substrate present without underlying impeding layer</p> <p>_____ Wetland contains inlet but no outlet</p> <p>_____ Stream is a known 'losing' stream; discharge volume decreases</p> <p>_____ Other: _____</p> |
|--|---|

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	H	0.8	1		
C. General Wildlife Habitat	H	0.9	1		
D. General Fish Habitat	M	0.5	1		
E. Flood Attenuation	N/A	—	—		
F. Short and Long Term Surface Water Storage	H	0.9	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	M	0.7	1		
I. Production Export/Food Chain Support	H	0.9	1		
J. Groundwater Discharge/Recharge	N/A	—	—		
K. Uniqueness	M	0.7	1		
L. Recreation/Education Potential (bonus points)	H	0.2	NA		
Totals:		6.3	9		
Percent of Possible Score			70 %		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I **II** III IV