Wetlands/Floodplain Statement of Findings for the Rehabilitation of the Many Glacier Road: MT Glacier 14(1), (Outside Park, within NPS ROW) and MT NPS 14(4), (Inside Park)

National Park Service
Glacier National Park

Recommended:

4/22/2019

Superintendent, Glacier National Park — Date

Certification of Technical Adequacy and Servicewide Consistency:

5/2/2019

Chief of NPS Water Resources Division — Date

Approved:

NPS Intermountain Regional Director — Date

WETLAND/FLOODPLAIN STATEMENT OF FINDINGS

MT GLACIER 14(1), MANY GLACIER ROAD (OUTSIDE PARK)

AND

MT NPS 14(4), REHABILITATION MANY GLACIER ROAD (INSIDE PARK)

GLACIER COUNTY, MONTANA

Prepared for
US Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division
Through
Robert Peccia and Associates, Inc.

Prepared by
Herrera Environmental Consultants, Inc.

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Note:
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Prepared for
US Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division
610 East Fifth Street
Vancouver, Washington 98661

Prepared by
Herrera Environmental Consultants, Inc.
101 East Broadway, Suite 610
Missoula, Montana 59802
Telephone: 406-721-4204

Through
Robert Peccia and Associates
3147 Saddle Drive
Helena, Montana 59601
Telephone: 406-447-5000

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ABBREVIATIONS

BMP	best management practice
DO	Directors Order
EO	Executive Order
FAC	Facultative
FACU	facultative upland
FACW	facultative wetland
FGDC	Federal Geographic Data Committee
FHWA	Federal Highway Administration
GIS	geographic information system
GPS	global positioning system
ILF	in-lieu fee
MARS	Montana Aquatic Resource Services
MDT	Montana Department of Transportation
MWAM	Montana Wetland Assessment Method
MTNHP	Montana Natural Heritage Program
NEPA	National Environmental Policy
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OBL	obligate wetland
SPCC	Spill Prevention, Control, and Countermeasures
TP	test plot
UPL	upland
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
WETS	Climate Analysis for Wetlands
WFLHD	Western Federal Lands Highway Division

HERRERA QUALIFICATIONS

Established in 1980, Herrera Environmental Consultants, Inc. (Herrera) is an innovative, employee-owned, consulting firm focused on water resources, ecosystem restoration, and sustainable development. Herrera's interdisciplinary teams of scientists, engineers, and planners provide scientifically defensible and realistic solutions to complex resource challenges facing municipalities, utilities, government agencies, tribes, nonprofits, and businesses. Herrera's philosophy is to integrate protection of environmental, cultural, and economic values into all of our projects.

The following staff authored this report and conducted field work in support of it. A summary of their qualifications is provided.

Susan Wall, PWS

Sue Wall has over 20 years of experience in natural resource protection and sustainable agriculture. Her experience includes field surveys, technical reports and permit applications. She has conducted numerous wetland delineations and has prepared permit applications for the Federal Highway Administration and several jurisdictions in Washington in support of Clean Water Act Section 401 Water Quality Certifications, Section 402 National Pollutant Discharge Elimination System permits, Section 404 Dredge and Fill permits; and Rivers and Harbors Act Section 10 permits. Sue has prepared biological assessments for energy infrastructure projects in support of Endangered Species Act compliance. She has written conservation plans for private developers and telecommunications companies in support of Migratory Bird Treaty Act permits and has authored State Environmental Policy Act checklists for numerous projects in Washington.

Credentials

- BS, Botany, Duke University, 1981
- MS, Forestry, University of Montana School of Forestry and Conservation, 2011
- PWS, Professional Wetland Scientist, Society of Wetland Scientists, #2271, 2012

Shelby Petro, PWS

Shelby Petro is a wetland scientist and permitting specialist with 10 years of professional experience in environmental consulting, specializing in natural resources management, wetland science, and regulatory compliance for public and private development projects. Shelby delineates wetlands and ordinary high water marks of streams and shorelines; conducts habitat assessments and surveys for special-status plant and wildlife species; prepares technical reports and documentation for Endangered Species Act (ESA) and National and State Environmental Policy Act (NEPA and SEPA) compliance; and prepares wetland and stream delineation reports, critical area reports, and mitigation plans for impacts to wetlands, streams, and buffers. Shelby

coordinates with local, state, and federal agencies, completes applications, and obtains permits and approvals for project compliance with regulations including local critical area ordinances, shoreline master programs, the State Hydraulic Code, SEPA, NEPA, ESA, and Clean Water Act Sections 401 and 404.

Credentials

- BS, Biology, Indiana Wesleyan University, 2007
- MESM, Master of Environmental Science and Management, University of California, Santa Barbara, 2014
- Certificate in Wetland Science and Management, University of Washington, 2015
- PWS, Professional Wetland Scientist #2837, Society of Wetland Scientists, 2017

INTRODUCTION

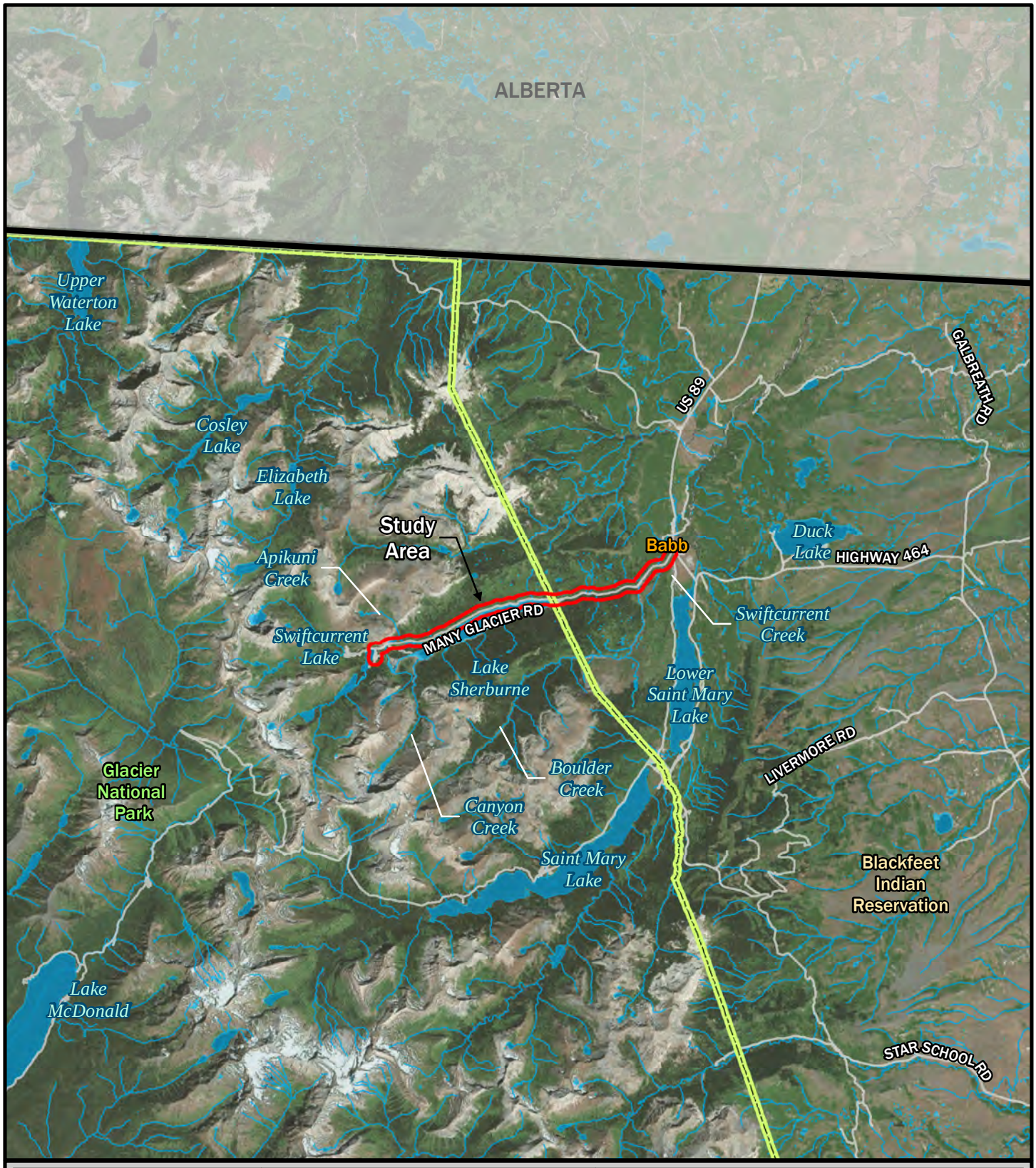
The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA), in cooperation with the National Park Service (NPS) Glacier National Park and the Blackfeet Nation, is proposing to rehabilitate the Many Glacier Road from just west of Babb Montana to the Many Glacier Hotel Loop Road intersection. The roadway was originally built between 1927 and 1931 and according to the 2007 NPS Cycle 3 Road Inventory Program, is in a "fair to poor" condition. This "fair to poor" condition dates back to its rating from the 1984 Road Rehabilitation Planning Study prepared by the WFLHD.

Herrera Environmental Consultants, Inc. (Herrera) delineated wetlands, streams, and other waters of the U.S. within the study area. The study area on the Blackfeet Reservation includes only the area within the NPS road easement; the study area within the park includes the area within the proposed construction limits plus 10 feet on either side.

For floodplains, the potential floodplain impacts (negative) from a project are evaluated as impacts to human health and life, federal capital investment, and natural and beneficial floodplain values (including flood level). The only consideration of these three is natural and beneficial floodplain values. For this project these will only be improved; therefore, this assessment has dismissed the need for a Floodplain Statement of Findings.

PROJECT LOCATION AND SETTING

Many Glacier Road is located in Glacier National Park (the park) and the Blackfeet Reservation (the reservation), on the east side of the Continental Divide in Glacier County, Montana (Figure 1). Many Glacier Road starts in Babb, Montana, and is the only road leading to the Many Glacier Hotel, Swiftcurrent Motor Inn, Many Glacier Valley campgrounds, and numerous trail access points. The road from Babb to the park boundary is within the reservation and is maintained by the park via easement held by the National Park Service. The Bureau of Public Roads (Federal Highway Administration) originally constructed this road and reconstructed it in the late 1950s. Most of the route parallels Swiftcurrent Creek within the reservation and Lake Sherburne within the park.



Legend

- Study area
- Park boundary
- U.S. - Canada Border
- Road
- Waterbody

Figure 1.
Vicinity Map for the Many Glacier Road Rehabilitation Project.

N

0 12,500 25,000 50,000 Feet

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Digital Globe, Aerial (2014)

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Project Purpose

The purpose of the project is to rehabilitate Many Glacier Road from just west of Babb to the Many Glacier Hotel and to make related improvements to the Many Glacier Hotel parking area. The roadway was originally built between 1927 and 1931 and, according to the 2007 NPS Cycle 3 Road Inventory Program, is in a "fair to poor" condition. This "fair to poor" condition dates back to its rating from the 1984 Road Rehabilitation Planning Study prepared by the WFLHD of the FHWA. The roadway surface and parking infrastructure at the Many Glacier Hotel have significant asphalt cracking, rutting, potholes, and some slumping—all of which indicate inferior road base material. In addition, the FHWA has identified numerous active slide areas that intersect with the road. NPS traffic counts showed more than 130,000 vehicles entered the park via Many Glacier Road during the 2017 season. Visitation statistics show the Many Glacier area had 375,028 visitors in 2017. The numbers of annual visits to Glacier National Park continue to break records. The park recorded more than 3.3 million visitors in 2017, an increase of nearly 40 percent since 2015. If the long-needed road and related improvements are not made, conditions will continue to deteriorate, affecting the visitor experience in Glacier National Park and on adjoining lands within the Blackfeet Indian Reservation.

Project Description

The 12.4-mile-long Many Glacier Road is the sole artery into the Many Glacier and Swiftcurrent areas of Glacier National Park (park). The Many Glacier Valley is the second most visited area of the park, following the Going-to-the-Sun Road corridor. The first 4.8 miles of the road lie within the Blackfeet Indian Reservation, where it joins Highway 89 at Babb, Montana (Figure 1). The remaining 7.6 miles of the road are within Glacier National Park. The built environment within the Many Glacier Valley includes the historic Swiftcurrent Inn and the Many Glacier Hotel, cabins, employee housing, concession housing, restaurants, horse and tour boat concession operations, trails, and campgrounds. The valley is a popular destination for visitors to Glacier National Park.

The project consists of two distinct segments. Segment 1 is identified as the portion of Many Glacier Road within the park, and Segment 2 is the portion of Many Glacier Road outside the park—between the eastern park boundary and Highway 89 near Babb. Both segments will be combined and advertised as one reconstruction contract. Construction is tentatively proposed for Fiscal Year 2020 and is expected to last two or three construction seasons. Project features associated with each segment are described below.

Segment 1: Many Glacier Road (Inside the Park)

Reconstruction of the 7.6 miles of Many Glacier Road within Glacier National Park is currently programmed under the Federal Lands Transportation Program. The proposed project will address issues of pavement distress, culvert replacements, Many Glacier Hotel parking lot reconstruction, Many Glacier Road park entrance bypass lane and trailhead reconfiguration, select pullout enhancements or obliterations, and enlargement of selected culverts to provide

wildlife passage. The roadway surface will match the existing pavement width and vertical and horizontal alignments.

Work on Many Glacier Road inside the park will occur in four distinct sections:

- Park boundary to park entrance station: This section is plagued with active landslides. The proposed roadway will be reconstructed to improve the alignment and profile across the landslides and will be returned to an aggregate surface to facilitate maintenance. Drainage improvements (culverts and roadside ditching) will be incorporated.

- Park entrance station: The project will construct a bypass lane for park employees, reconfigure an existing trailhead and its associated parking area, add a vault toilet, realign a stream/culvert, and resurface the area around the entrance station.

- Park entrance station to Many Glacier Hotel Loop Road intersection: All culverts will be replaced in this segment, including several that will be upsized to promote wildlife passage. Surfacing improvements include crack sealing and asphalt concrete pavement overlay with some areas of subexcavation. Minor maintenance repairs will be made to the bridges at Windy Creek and Apikuni Creek. At the box culvert at Project Station 98+67, the south masonry headwall will be replaced; and the north masonry headwall will be repointed and repaired.

- Many Glacier Hotel Loop Road: This section of road begins at the recently completed Swiftcurrent Bridge replacement project and extends to the Many Glacier Hotel, circles back through the hotel's upper parking lot and down the hill, completing the one-way circuit. The hotel parking lot will be completely reconstructed and reconfigured to provide approximately 50 additional parking spaces. The loop road will be excavated and will receive new surfacing.

Segment 2: Many Glacier Road (Outside the Park)

The WFLHD of the FHWA, in cooperation with the NPS and the Blackfeet Nation, proposes to rehabilitate 4.8 miles of Many Glacier Road, beginning near the intersection of Highway 89 (milepost [MP] 0.05 of Many Glacier Road) and ending at the Glacier National Park boundary (MP 4.9). The Blackfeet Nation has title for all lands within its reservation, through which this 4.8-mile section of the road passes. The NPS is obligated to maintain, improve, and regulate the Many Glacier Road as part of its Trust responsibilities to the Blackfeet Nation under a 1921 right-of-way agreement (Bureau of Indian Affairs record No. 201-15508). No new right-of-way will be allowed for the project.

The project will reconstruct the existing roadway to alleviate distressed pavement conditions, including asphalt cracking, rutting, potholes, and some slumping caused by inferior road base material and poor roadside drainage. The project is intended to improve the overall safety of the roadway with new pavement structure, improved subgrade, improved drainage, new signage, and possible pullouts where the existing right-of-way allows. All repairs and ground-disturbing

activities, both temporary and permanent, will be within the right-of-way easement held by the NPS under the NPS-Blackfeet Nation Trust right-of-way agreement.

In general, the proposed project will closely follow the existing horizontal and vertical alignments of Many Glacier Road and reconstruction will provide a roadway with a consistent 22-foot-wide paved surface. Other construction activities planned for the project include:

- Providing improved base material beneath the roadway and installing new asphalt surfacing.
- Replacing failed, undersized, or otherwise deficient culverts.
- Reshaping and grading roadside ditches to improve surface drainage.
- Installing and replacing traffic control devices as needed.
- Revegetating disturbed slopes with native plant materials.

Minimization Measures

Measures will be implemented during project construction and operation to minimize potential impacts of the proposed project on wetlands and waters of the U.S.

- Vegetation clearing will be minimized to the extent possible while meeting project objectives.
- Exposed soils will be seeded with suitable native plants as soon as the work is completed to facilitate rapid vegetative recovery of disturbed areas and prevent invasion by noxious weeds.
- Vehicles and equipment will not be permitted outside the construction limits or staging sites.
- Except as authorized by project permit conditions, the contractor will not operate mechanized equipment, or discharge or place material, within the boundaries of any water of the U.S. and/or Tribal water as identified by the ordinary high water mark, or edge of the wetland.
- Motorized equipment will not enter Swiftcurrent Creek or Swiftcurrent Lake. Motorized equipment operating below the full-pool elevation of Lake Sherburne will work when the lake level is low. Lake Sherburne is very active for water management and it is common for the water elevation to rise and fall over 50 feet multiple times a year. When the water is low, the project will access the lake shore to install bank erosion protection and perform work on culvert outfalls. All stationary equipment operating adjacent to these water bodies will be equipped with absorbent spill diapers.

- Work areas, including stockpiles of imported and excavated materials, will be separated by the use of a suitable barrier that prevents sediment, petroleum products, chemicals, and other liquids or solid materials from entering waters of the U.S. Barriers shall be constructed and removed to avoid discharge of material into waters of the U.S. and/or Tribal waters. All sediment or other material collected by the barrier will be removed and disposed of properly.

- The contractor will prepare a Spill Prevention, Control, and Countermeasures (SPCC) plan at least 2 days before beginning work. The plan will describe what actions will be taken in case of a spill and will incorporate preventive measures to be implemented (such as the placement of refueling facilities, storage and handling of hazardous materials, etc.).

- A double-walled container structure or a lined containment dike fueling station with 110 percent capacity will be used for all refueling. If a pre-loaded fuel truck is used, the contractor will provide a double-walled fuel truck.

- Fuel tanks and fuel trucks will be stored at least 300 feet from a water body. Two people will be used during all fueling operations: one to operate the fuel nozzle and one on standby at the fuel truck ready to take any necessary actions to prevent any spills. Absorbent spill diapers will be used at all times during fueling to ensure no fuel droplets hit the ground.

- Equipment that is leaking fluids will not be used. Equipment will be checked daily for leaks, and leaks will be repaired immediately. A supply of absorbent materials will be kept at the job site in the event of spills. Acceptable absorbent materials are those manufactured specifically for the containment and cleanup of hazardous materials.

- If a hazardous spill occurs within or adjacent to a water body, water samples will be obtained immediately and 24 hours later at locations upstream and downstream from the spill location. The samples will be tested for hydrocarbons and total suspended solids using methods approved by the US Environmental Protection Agency.

- Equipment will be decontaminated before entering project areas to eliminate the risk of transporting exotic species, unless the equipment has been used only within Glacier National Park since it was last decontaminated. All vehicles and equipment will be inspected before their entry into the project area for mud, plant matter, and other unwanted substances. All earth-moving equipment (including hauling vehicles) will be steam cleaned of mud and weeds before entering the project area.

- Perennial streams will be diverted or pumped around the construction zone during culvert replacement. Temporary diversion structures will be non-erosive, and temporary bypass systems will utilize non-erosive techniques, such as pipe or a plastic-lined channel that will accommodate the predicted peak flow rate during construction. Temporary bypass structures will have energy dissipaters at the outflow to prevent erosion. Upon completion of in-water work, all stream diversion devices, equipment, pipe, and conduits

will be removed, and disturbed soil will be restored after diversions are removed. Streambank plantings may occur at a later date during the planting season.

Alternatives

Only one action alternative and the no action alternative were considered for this project. The action alternative is the proposed project described above. Under the no action alternative, WFLHD would not implement the plan to rehabilitate Many Glacier Road, and the deficiencies mentioned above would continue and worsen over time.

Regulatory Framework

The two segments of the project, Segment 1 inside the park and Segment 2 outside the park, are subject to different regulations regarding wetland surveys and reporting requirements as described below.

Inside Glacier National Park

This wetland statement of findings is written in compliance with Executive Order (EO) 11990, "Protection of Wetlands" and National Park Service (NPS) Wetland Protection Guidelines, Director's Order #77-1 (DO #77-1; NPS 2016). EO 11990 directs the NPS to minimize the loss or degradation of wetlands, preserve and enhance the beneficial values of wetlands, and avoid direct or indirect construction in wetlands unless there are no practicable alternatives to such construction and the preferred alternative includes all practicable measures to minimize harm to wetlands.

In addition to the requirements of DO #77-1, NPS activities that involve the discharge of dredged or fill material into wetlands or other waters of the U.S. must also comply with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act (regulations and permit process are described in 33 CFR 320-331), which the US Army Corps of Engineers (USACE) oversees.

Portions of the USACE's Section 404 permit procedures (33 CFR 320-332) are similar to some of the requirements found in DO #77-1 and these implementing procedures, however there are differences in the scope of actions regulated, the definitions of wetlands and wetlands protected. First, the Section 404 permit program regulates only the discharge of dredged or fill material, while EO 11990 covers a much broader range of actions that can have adverse impacts on wetlands, including groundwater withdrawals, water diversions, and nutrient enrichment. Second, the wetland definition for the Section 404 permit program (33 CFR 328.3) is narrower than the NPS wetland definition. As a result, a broader range of shallow aquatic habitat types fall under NPS procedures. Third, the USACE has "general permit" provisions that allow many projects affecting wetlands to proceed with only limited review. Therefore, in many cases, the

Section 404 permit program does not meet the wetland protection directives of EO 11990 for resources managed by the NPS (NPS 2016).

All NPS actions with the potential to have adverse impacts on wetlands must comply with DO #77-1, and those actions that involve placing dredged or fill material in wetlands or other "waters of the U.S." (as defined in 33 CFR 320-332) must also comply with Section 404 of the Clean Water Act.

On the Blackfeet Reservation

Wetlands on the Blackfeet Reservation are regulated under Tribal authority (Aquatic Lands Protection Ordinance 90A) and the authority of the Clean Water Act. The Blackfeet Environmental Office issues permits to entities wishing to conduct work in all water bodies, aquatic and riparian lands, and wetlands on the Blackfeet Reservation, defined in Ordinance 90A as:

All naturally occurring bodies of water within the exterior boundaries of the Reservation regardless of alteration by man, including but not limited to lakes, rivers, streams (including intermittent streams), mudflats, wetlands, springs, sloughs, potholes and ponds, and any bodies of water classifiable as "waters of the U.S." under federal law;

Tributaries of waters identified in subpart (1) above; and

Wetlands.

In addition to the requirements of Ordinance 90A, activities that involve the discharge of dredged or fill material into wetlands or other "waters of the U.S." must also comply with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The USACE determines jurisdiction of individual wetlands on a case-by-case basis as described in USACE regulations, supplemented by informal guidance.

METHODS

BACKGROUND INFORMATION REVIEW

Prior to conducting field investigations, Herrera biologists reviewed existing data sources for information related to wetlands in the study area and vicinity. Data reviewed for the wetland delineation included:

- National Wetland Inventory (NWI) mapping (USFWS 2018a)
- Soil survey data (NRCS 2018a)
- Precipitation data (NRCS 2018b)
- Aerial photographs (NAIP 2018)

WETLAND DETERMINATION

Herrera biologists Sue Wall and Shelby Petro visited the sites in the study area on August 27 through September 7, and September 17 through September 21, 2018. They delineated wetlands using the three-parameter approach in accordance with the USACE standards and the Federal Geographic Data Committee (FGDC) Wetlands Classification Standard FGDC-STD-004-2013 (FGDC 2013).

The 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2; Environmental Laboratory 2010) use a three-parameter approach that relies on the presence of field indicators for hydrophytic vegetation, hydric soils, and hydrology, as described in the sections below. All three of these attributes must be confirmed for an area to be called a wetland (with some exceptions for "atypical situations" and "problem areas").

Under the FGDC Wetlands Classification Standard, a wetland must have one or more of the following three attributes:

1. At least periodically, the land supports predominantly hydrophytes (wetland vegetation);

The substrate is predominantly undrained hydric soil; or

The substrate is non-soil and is saturated with water or covered by shallow water during the growing season of each year.

DO #77-1 (NPS 2016) further states that the FGDC definition is not intended to be applied as a simple "one parameter approach." Confirmation of any one of the three attributes (parameters) listed above does not automatically qualify a site as a wetland. Although most wetlands have all three attributes, the definition was intended to also include wetland types that lack vegetation or soil due to physical or chemical factors such as wave action or high salinity, but they are still saturated or shallow inundated environments that support aquatic life. Therefore, all of the attributes present at a particular site must be used to identify wetlands, as follows:

- If plants and soil are present (e.g., swamps, marshes or wet meadows), then all three attributes (wetland hydrology, hydrophytic vegetation and hydric soil) are required for positive wetland identification.
- If plants are present but soil is absent (e.g., vegetated rock substrates), then a predominance of hydrophytic vegetation and presence of wetland hydrology are required for positive wetland identification.
- If plants are absent but soil is present (e.g., playas or mudflats), then a predominance of undrained hydric soil and wetland hydrology are required for positive wetland identification.
- If neither plants nor soil are present (e.g., rocky shorelines or unvegetated shallow stream bottoms), then wetland identification must be made solely on the basis of hydrology.

In these examples, three attributes (hydrophytic vegetation, hydric soil, and wetland hydrology), two attributes (hydrophytic vegetation and wetland hydrology, or hydric soil and wetland hydrology) or one attribute (wetland hydrology), respectively, would be used to make the wetland identifications based on the characteristics of each site (NPS 2016).

Herrera scientists evaluated wetland conditions based on data collected on the three parameters described below. Based on the collected data, a wetland/non-wetland determination was made for each area examined using USACE and FGDC standards. Photos were taken of each sampling point and the location indicated on field maps.

Vegetation

Herrera biologists recorded vegetation information on data forms provided with this report in Appendix C. For each test plot in the study area, the following data were recorded: dominant plant species, size of the test plot, absolute percentage of cover for each plant species, and the species' corresponding wetland indicator status. The indicator status was determined using the Great Plains 2014 Regional Wetland Plant List (Lichvar et al. 2014), which categorizes plant species according to their tolerance for growing in wetland conditions. The categories (from most tolerant to least) are obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and upland (UPL). Species dominance was established according to overall percent cover. The dominance of species that are considered FAC or wetter indicated the presence of hydrophytic vegetation. Plant nomenclature is based on the US Department of

Agriculture (USDA) database (USDA 2018). Plant species identification is based on the Manual of Montana Vascular Plants (Lesica 2012) and A Flora of Glacier National Park (Lesica 2002).

Soils

For onsite soil characterization, data were obtained by digging test pits at least 20 inches deep (unless prevented by a restrictive layer) and 4 inches wide. Hydric soil conditions were evaluated using indicators outlined in Field Indicators of Hydric Soils in the United States (NRCS 2017) and adopted by the Regional Supplement (Environmental Laboratory 2010). The color (hue, value, and chroma) and texture for the soil matrix and redoximorphic features were determined by comparison to a Munsell Soil Color Chart (Munsell Color 2000). In cases where there were multiple wetlands in the same landscape position (roadside swales and ditches), Herrera biologists chose representative wetlands to characterize soils in these types of wetlands rather than digging pits in every wetland.

Hydrology

Presence or absence of wetland hydrology was determined using hydrologic indicators, as defined in the Regional Supplement (Environmental Laboratory 2010), at each sampling point. For this assessment, onsite hydrologic indicators were examined at the test plots. Hydrologic indicators included the presence of surface water, standing water in the test pit at a depth of 12 inches or less, saturation in the root zone, drainage patterns within wetlands, oxidized rhizospheres surrounding living roots, and hydrogen sulfide odor. As described above, Herrera biologists did not examine hydrology in test pits at every roadside swale wetland. For wetlands without test pits the hydrology determination was based on surface conditions.

Antecedent Precipitation Analysis

The Natural Resources Conservation Service (NRCS 1997) provides a method for analyzing normal environmental conditions using antecedent rainfall measurements. For this method, "normal precipitation" is defined as ranges of normal precipitation or values falling within defined thresholds, in this case, the 30th and 70th percentile thresholds (Sprecher and Warne 2000). These ranges for a site are provided by Climate Analysis for Wetlands tables, also known as WETS tables, which can be accessed through the NRCS National Water and Climate Center (NRCS 2018b) and are calculated using long-term data (30 years) recorded at National Weather Service meteorological stations. NRCS WETS tables display monthly average rainfall data (50th percentile) in addition to the upper and lower limits at which there is a 30 percent chance that rainfall will be more or less than the average (30th and 70th percentiles). USDA NRCS WETS tables use climatological probabilities and are calculated based on the most recent three decades of data, as factors such as climate change and different recording technologies may alter probabilities (Sprecher and Warne 2000). Currently, the 30-year range from 1981 to 2010 is used.

Stream Delineation

Herrera biologists identified and mapped the ordinary high water mark (OHWM) of streams within the study area. The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas [33 CFR 328.3(e)].

Similarly, Aquatic Ordinance 90A uses the term Mean Annual High Water Mark, defined as "that line on the shore of Reservation waters established by the fluctuations of water and indicated by physical characteristics such as a clear, naturally occurring line impressed on the bank; shelving changes in the character of soil, paucity or lack of terrestrial vegetation; or the presence of water borne litter or debris."

Under the FGDC Wetland Classification Standard, stream channels are classified as riverine wetlands. Dry washes are considered to be wetlands if the substrate is saturated or flooded at some time during the growing season of each year. A channel is "an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water" (Langbein and Iseri 1960). Riverine wetlands are bound on the landward side by upland; by the channel bank (including natural and manmade levees); or by wetlands dominated by trees, shrubs, persistent emergent vegetation, emergent mosses, or lichens. In braided streams, the riverine wetland includes the outer limits of the depression within which the braiding occurs (NPS 2016).

Wetland Classification and Functional Assessment

Wetlands observed in the study area were classified according to the hydrogeomorphic (HGM) system, which is based on an evaluation of attributes such as the position of the wetland within the surrounding landscape, the source and location of water just before it enters the wetland, and the pattern of water movement in the wetland (Brinson 1993). The wetlands were also classified according to the US Fish and Wildlife Service (USFWS) classification system (FGDC. 2013), which is based on an evaluation of attributes such as vegetation class, hydrologic regime, salinity, and substrate type.

Wetland functions were assessed using the Montana Department of Transportation (MDT) Montana Wetland Assessment Method (MWAM; Berglund and McEldowney 2008). This method is designed to evaluate wetland functions and values for linear transportation projects in Montana, such as highways, railroads, pipelines, and transmission lines. According to this method, wetland functions and values are divided into 12 categories:

1. Habitat for federally listed or proposed threatened or endangered plants or animals
2. Habitat for state-listed plants or animals rated S1, S2, or S3 (which represent the results of an assessment of risk due to declining range or habitat) by the Montana Natural Heritage Program
3. General wildlife habitat
4. General fish/aquatic habitat
5. Flood attenuation
6. Long- and short-term surface water storage
7. Sediment/nutrient/toxicant retention and removal
8. Sediment/shoreline stabilization
9. Production export/food chain support
10. Ground water discharge/recharge
11. Uniqueness
12. Recreation/education potential.

Each of the 12 categories is rated by assigning functional points ranging from 0 (no function and value) to 1.0 (highest function and value). After each category has been rated, the functional points for the 12 categories are totaled, and the total is expressed as a percentage of the total number of points that would be possible. Functions that do not apply to a particular wetland receive a rating of "not applicable" (NA); therefore, these functions are excluded from the total possible functional points. Based primarily on the percentage of total possible points and the functional points for individual categories, the wetland is assigned an overall rating of Category I, II, III, or IV. Category I is the highest overall ranking a wetland can receive, and Category IV is the lowest.

This method uses the USACE three-parameter definition of wetlands. Streams, which are classified as riverine wetlands under DO #77-1 and documented as such in this report, are not given a functional rating.

Wetland and Stream Mapping

Where wetlands and streams were identified, a handheld global positioning system (GPS) instrument (Trimble 6000 GeoXH) was used to map wetland boundaries, test plot (TP) locations, and streams. For narrow roadside wetlands and small stream channels, Herrera recorded GPS points for the centerline and measured the width of the feature. Then those features were mapped in the office using geographic information system (GIS) tools. If mapped features continued beyond the study area, it was noted that they continued off site and were not fully delineated. Herrera's wetland and stream mapping is shown in the figures in Appendix A.

RESULTS

The results of the background information review are provided below, followed by the results of the onsite wetland and stream delineations.

BACKGROUND INFORMATION REVIEW

The following sections contain the results of the review of existing data on soils, wetlands and precipitation in the study area.

Wetland Inventories

NWI mapping (USFWS 2018a) shows lacustrine, riverine, and palustrine wetland types in the study area (Figure 2). The USFWS mapped these wetlands based on aerial photography analysis.

Lacustrine Wetlands and Deepwater Habitats

The lacustrine system includes wetlands and deepwater habitats with all of the following characteristics: 1) situated in a topographic depression or a dammed river channel; 2) lacking trees, shrubs, persistent emergents, and emergent mosses or lichens with 30 percent or greater areal coverage; and 3) total area of at least 20 acres. On the NWI map (Figure 2) these are shown as lakes. Within the project area, wetlands along Lake Sherburne are described as littoral systems (wetland habitats extending from the shore to a depth of 8.2 feet below low water) with unconsolidated substrates containing less than 75 percent areal cover of stones, boulders, or bedrock, and less than 30 percent areal cover of vegetation.

Riverine Wetlands

The riverine system includes all wetlands and deepwater habitats contained within a channel, with two exceptions: 1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and 2) habitats with water containing ocean-derived salts of 0.5 part per thousand (ppt) or greater. Within the project area, Swiftcurrent Creek, Apikuni Creek, Windy Creek, Swiftcurrent Creek, and several unnamed tributaries to Swiftcurrent Creek and Lake Sherburne are mapped as riverine wetlands. The upper reach of Swiftcurrent Creek above Lake Sherburne, and the reach between the Lake Sherburne dam and Boulder Creek confluence are upper perennial systems with an unconsolidated bottom, characterized by a high gradient with little to no floodplain development. The reach below the Boulder Creek confluence is an upper perennial system with an unconsolidated shore containing gravel bars that are seasonally

flooded. The unnamed tributaries include perennial channels as well as channels that contain flowing water only part of the year.

Palustrine Wetlands

The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: 1) area less than 20 acres; 2) active wave-formed or bedrock shoreline features lacking; 3) water depth in the deepest part of basin less than 8.2 feet at low water; and 4) salinity due to ocean-derived salts less than 0.5 ppt. On the NWI map (Figure 2) these are shown as freshwater emergent wetlands, freshwater forested/shrub wetlands, and freshwater ponds. Within the study area mapped palustrine forested, scrub-shrub, and palustrine emergent wetlands are associated with Apikuni Creek and Swiftcurrent Creek, and a beaver pond wetland is mapped near the east end of the study area.

A 40-acre forested/shrub wetland is mapped at Apikuni Flats (see Figure 2). It is a temporarily flooded wetland (i.e., surface water is present for brief periods [from a few days to a few weeks] during the growing season, but the water table usually lies well below the ground surface for most of the season) dominated by woody vegetation less than 20 feet tall.

Emergent wetlands are mapped along the shores of Lake Sherburne. They are characterized by erect, rooted, herbaceous vegetation that is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants and are seasonally flooded.

The beaver pond is mapped as a freshwater pond with aquatic bed vegetation dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. The substrate is intermittently exposed during periods of extreme drought. The pond is surrounded by emergent wetlands that are semi-permanently flooded (i.e., surface water persists throughout the growing season in most years). When surface water is absent, the water table is usually at or very near the land surface.)

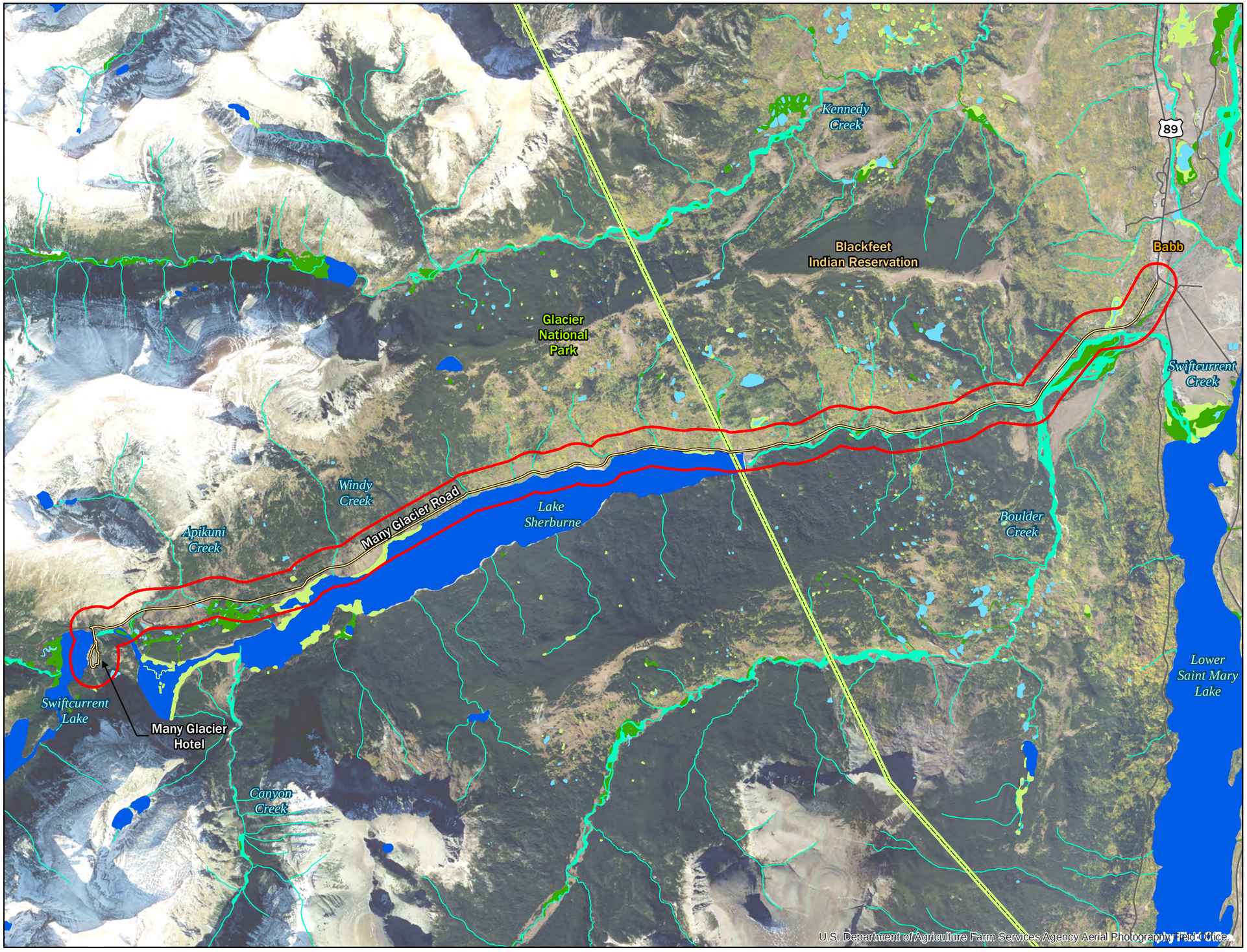

Figure 2.
National Wetland Inventory Mapping for the Many Glacier Road Rehabilitation Project.

Legend

- Study area
- Project extents
- Road
- Park boundary

Wetland type (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

N

0 2,500 5,000 10,000 Feet

HERRERA

USDA, Aerial (2017)

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Soils

The soil along Many Glacier Road is mostly clay-rich, conifer forest soil. This type of soil is deep, well-drained, and formed in glacial drift of landslide deposits. The surface soils along Lake Sherburne contain volcanic ash-rich wind deposits, while subsoil is gravelly or very gravelly clay loam or silty clay loam with rock content increasing with depth. Soil at Apikuni Flats is composed of rocky sand and alluvial soils. Soils along streams and near the confluences of streams include grassland soils on glacial outwash terraces, and forest soils on alluvial fans and stream terraces (Dutton 2001).

Maps produced by the NRCS (2018a) show several soil types within the study area (Figure 3). Table 1 includes a description of these soils; soil map units shown in bold include at least one soil series that is classified by the NRCS as hydric.

Table 1. Mapped Soils for the Many Glacier Road Improvement Project.

Soil Map Unit Symbol	Soil Map Unit Name	Percent Hydric	Typical Soil Profile
550F	Nooney family, very bouldery-Rubble land-Rock outcrop complex, 60 to 80 percent slopes	0	0 to 2 inches: slightly decomposed plant material; 2 to 20 inches: very gravelly sandy loam. Occurs on cirque headwalls.
410E	Mohaggin, stony, dry-Worock-Kegsprings, stony families, complex, 15 to 35 percent slopes	0	0 to 2 inches: slightly decomposed plant material; 2 to 5 inches: gravelly ashy loam; 5 to 15 inches: very gravelly ashy loam; 15 to 29 inches: extremely gravelly sandy loam. Occurs on moraines on glacial-valley walls.
282D	**Ericson family, very stony-Leighcan family-Ipasha, occasionally flooded complex, 0 to 15 percent slopes**	**15**	**0 to 2 inches: slightly decomposed plant material; 2 to 7 inches: loam; 7 to 28 inches: gravelly clay loam. Occurs on ground moraines.**
120D	Pippin family, gravelly loam, 4 to 15 percent slopes	0	0 to 1 inch: slightly decomposed plant material; 1 to 5 inches: gravelly loam; 5 to 14 inches: very gravelly sandy loam; 14 to 60 inches: extremely gravelly coarse sand. Occurs on alluvial fans.
TN	Tinsley soils	0	0 to 4 inches: gravelly sandy loam; 4 to 60 inches: extremely gravelly sand. Occurs on terraces.
262E	Vulture-Worock-Apikuni complex, 4 to 35 percent slopes	0	0 to 7 inches: loam; 7 to 11 inches: gravelly loam; 11 to 22 inches: gravelly loam. Occurs on lateral moraines.
263E	**Vulture-Worock, stony-Ipasha, occasionally flooded complex, 4 to 35 percent slopes**	**20**	**0 to 7 inches: loam; 7 to 11 inches: gravelly loam; 11 to 22 inches: gravelly loam. Occurs on lateral moraines.**
Bg	Bearmouth gravelly loam, 0 to 4 percent slopes	0	0 to 5 inches: gravelly loam; 5 to 13 inches: very gravelly loam; 13 to 60 inches: extremely gravelly sand. Occurs on terraces.
AB	**Adel-Babb complex, hilly**	**10**	**0 to 7 inches: cobbly loam; 7 to 21 inches: gravelly loam. Occurs on hills.**
BF	**Babb-Hanson complex, hilly**	**1**	**0 to 7 inches: cobbly loam; 7 to 21 inches: gravelly loam. Occurs on hills.**

Precipitation Data

Precipitation for the days preceding the start of the wetland delineation, August 1 through August 26, was 0.81 inch. Average precipitation for the month of August is 1.33 inches at WETS station East Glacier, Montana (NRCS 2018b). Data for the period 1981 through 2010 (Table 2) show that precipitation was drier than normal for the 3 months preceding the delineation.

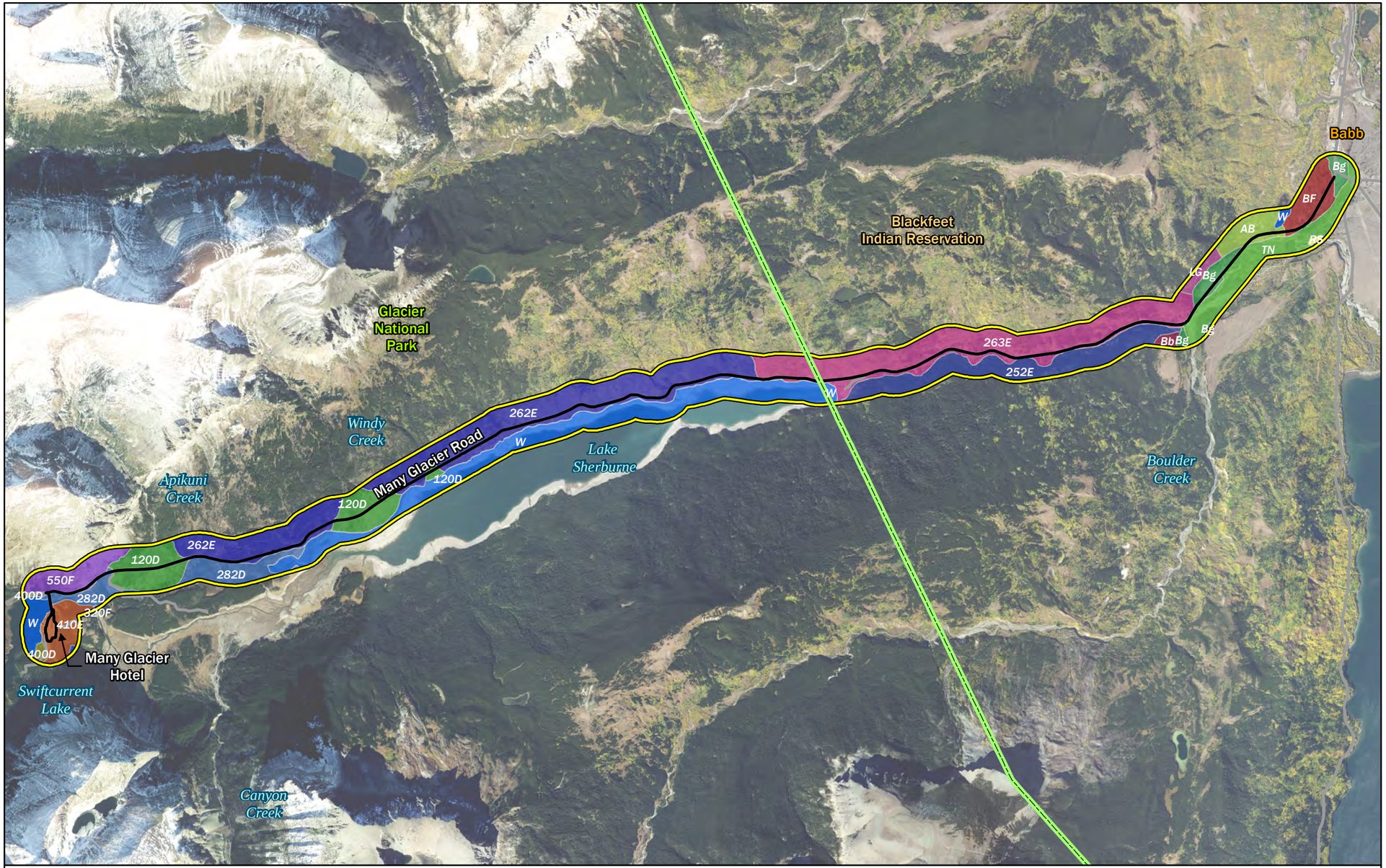
Table 2. Long-Term Rainfall Statistics for WETS Station East Glacier Montana.

	Month	30 Percent Chance Less Than	30 Percent Chance Greater Than	Precip. (inches)	Condition (dry, wet, normal)	Condition Value	Month Weight Value	Product of Previous Two Columns
1st Prior Month[a]	July	0.67	20.2	0.47	Dry	1	3	3
2nd Prior Month[a]	June	1.78	3.68	3.14	Normal	2	2	4
3rd Prior Month[a]	May	1.83	3.14	2.00	Normal	2	1	2
							Sum	9
Conclusion: Prior period has been Drier than Normal.								

[a] If sum is 6 through 9, prior period has been drier than normal; 10 through 14, prior period has been normal; 15 through 18, prior period has been wetter than normal. Condition value: Dry = 1, Normal = 2, Wet = 3.

Field Survey Results

Herrera biologists delineated 51 streams (S1 through S51) streams, 54 wetlands (A through EEE) and the boundary of Lake Sherburne within the project corridor. These features are described below and in the figures in Appendix A and tables in Appendix B. Wetland delineation data sheets are provided in Appendix C; wetland functional assessment data sheets are provided in Appendix D; and representative photographs are provided in Appendix E.



Soil types

- 120D - Pippin family, gravelly loam, 4 to 15 percent slopes
- 252E - Watsondraw, dry-Hollandlake families, complex, 15 to 35 percent slopes
- 262E - Vulture-Worock-Apikuni complex, 4 to 35 percent slopes
- 263E - Vulture-Worock, stony-Ipasha, occasionally flooded complex, 4 to 35 percent slopes
- 282D - Ericson family, very stony-Leighcan family-Ipasha, occasionally flooded complex, 0 to 15 percent slopes
- 320F - Risingwolf, very stony, moist-Garlet family, extremely stony-Kaina family, complex, 35 to 60 percent slopes
- 400D - Mohaggin family, moist-Risingwolf, stony, moist-Pippin family, complex, 4 to 15 percent slopes
- 410E - Mohaggin, stony,dry-Worock-Kegs... stony families, complex, 15 to 35 percent slopes
- 550F - Nooney family, very bouldery-Rubble land-Rock outcrop complex, 60 to 80 percent slopes
- AB - Adel-Babb complex, hilly
- BF - Babb-Hanson complex, hilly
- Bb - Babb cobbly loam, gently rolling
- Bg - Bearmouth gravelly loam, 0 to 4 percent slopes
- LG - Libeg stony loam, very steep
- RS - Riverwash
- TN - Tinsley soils
- W - Lakes and Streams

Figure 3.
Mapped Soils for the Many Glacier Road Rehabilitation Project.

Legend

- Study area
- Project extents
- Road
- Park boundary

N

0 2,300 4,600 9,200 Feet

HERRERA

USDA, Aerial (2017)

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Riverine Wetlands (Streams)

Named streams in the project corridor include Swiftcurrent Creek, Apikuni Creek, Windy Creek, and Boulder Creek. The road also crosses numerous small, unnamed, tributary streams.

Swiftcurrent Creek

Swiftcurrent Creek is a perennial, high-gradient. mountain stream that flows from Swiftcurrent Lake through a short, narrow ravine and enters Lake Sherburne, where it is impounded by Sherburne Dam. Downstream of the dam, the stream flows roughly parallel to Many Glacier Road, then joins the St. Mary River. Sherburne Dam affects the hydrology and runoff patterns of Swiftcurrent Creek. The magnitude of spring flood flows is reduced, while late summer flows are much higher than would be expected to occur naturally. This change in hydrology has affected sediment transport, channel stability, and fish habitat and movements (Dowl/HKM 2012). The riparian zone along Swiftcurrent Creek is dominated by black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), Douglas-fir (*Pseudotsuga menziesii*), Engelmann spruce (*Picea engelmannii*), and lodgepole pine (*Pinus contorta*). Common shrubs include willows (*Salix* sp.), red-osier dogwood (*Cornus sericea*) and, Sitka alder (*Alnus sitchensis*), along with a diverse assemblage of herbaceous species.

Apikuni Creek

Apikuni Creek is a seasonal stream with headwaters near Altyn Peak. It flows over a cliff face at Apikuni Falls, then splits into two channels as it enters an open grassy slope at the base of the mountain. The western channel flows through a box culvert under Many Glacier Road and enters Swiftcurrent Creek just upstream of Lake Sherburne; the eastern channel flows under a stone bridge at Many Glacier Road, then winds through Apikuni Flats before joining Lake Sherburne. Substrate is primarily cobble, gravel, and sand, with a few large bounders. Riparian vegetation is dominated by black cottonwood, Drummond willow (*Salix drummondiana*), Douglas-fir and shrubby cinquefoil (*Dasiphora fruiticosa*). The stream does not appear to support resident fisheries because it dries up each summer.

Windy Creek

Windy Creek originates in the mountains north of Lake Sherburne and enters the lake after flowing under a stone bridge at Many Glacier Road. It is a perennial stream, with a small amount of flow during the summer, as observed during the site visit. Substrate is dominated by boulders, cobble, and gravel. The surrounding landscape is open grassland with patches of cottonwood and scattered willows. This is a well-known wildlife crossing area (NPS 2010) but is not known to support resident fisheries (J. Mogen, personal communication, Fish Biologist USFWS, Montana Fish and Wildlife Conservation Office, November 2, 2018).

Boulder Creek

Boulder Creek is a perennial, high-gradient, mountain stream that flows from Boulder Ridge within Glacier National Park and joins Swiftcurrent Creek near the east end of the study area on the Blackfeet Reservation. There are multiple intertwining channels and gravel bars at the confluence of Boulder Creek and Swiftcurrent Creek. Substrate is dominated by cobbles and gravel, and riparian vegetation is primarily black cottonwood and willows. Bull trout (*Salvelinus confluentus*) are present in Boulder Creek, and Boulder Creek is designated critical habitat for bull trout (USFWS 2018b).

Tributary Streams

There are 36 tributaries to Apikuni Creek, Swiftcurrent Creek, and Lake Sherburne within Glacier National Park, and 15 tributaries to Swiftcurrent Creek on the Blackfeet Reservation. Many of the tributaries are unnamed and are seasonal, snow-melt-driven streams. Some of them (for example, S2, S23, S25, and S36) appear to carry quite large volumes of seasonal runoff based on channel dimensions. Substrate and riparian vegetation in and along these streams are variable (see Appendix B).

Palustrine Wetlands

Palustrine wetlands occur on stream floodplains; in roadside swales and ditches; on hillside seeps; and in ponded areas. Two of the ponded wetlands in the project corridor were created by beaver dams. These wetland types are described below.

Floodplain Wetlands

Herrera biologists mapped wetlands at Apikuni Flats, associated with side channels of Apikuni Creek, along Swiftcurrent Creek where willow flats occupy meander bends, and along some of the unnamed tributaries in the project corridor.

Wetlands A and D are part of the large wetland complex at Apikuni Flats. Vegetation in Wetland A is dominated by willows (*Salix drummondiana, S. boothii,* and *S. bebbiana*) and a variety of herbaceous hydrophytes. Wetland D is dominated by quaking aspen (*Populus tremuloides*) and Engelman spruce, with willows in the understory.

Wetlands EE, GG, HH, MM, SS, and BBB are floodplain wetlands along Swiftcurrent Creek. Wetlands EE and HH, MM, and SS are willow-dominated wetlands on depositional flats in the Swiftcurrent Creek floodplain. Herrera biologists did not delineate the boundaries of Wetlands EE and MM because they are mostly outside the right-of-way of Many Glacier Road. The boundaries were estimated based on aerial photography and onsite observations.

Wetland BBB is dominated by black cottonwood and quaking aspen. It receives water from Wetland AAA via a culvert under Many Glacier Road and from overbank flow from Swiftcurrent Creek. Wetland GG is a small sedge-dominated wetland connected to Swiftcurrent Creek by a narrow channel outside the road right-of-way.

A small fringe wetland (Wetland PP) is present along one of the unnamed tributaries (S47). A large wetland complex (Wetlands AAA and BBB) feeds into S50. Wetland LL is dominated by willow and red-osier dogwood, and it feeds into a seasonal stream (S45).

Roadside Wetlands

Most of the wetlands delineated in the project corridor are linear features in the swales and ditches along the north side of the road, where water from precipitation and snowmelt collects during spring runoff and summer storms due to inadequate road drainage. These wetlands are adjacent to uplands and are not connected to naturally occurring wetlands. They are generally dominated by sedges, rushes, and patches of willows. Some of these wetlands flow to streams that flow through culverts under Many Glacier Road and join Apikuni Creek, Swiftcurrent Creek, and Lake Sherburne. Others are not connected by visible surface channels to any downslope water bodies; it appears that water infiltrates into the ground in those wetlands (see tables in Appendix B). Many of the roadside wetlands are heavily trampled by cattle, and evidence of grazing was observed in roadside wetlands on the reservation and extending well into the park.

Hillslope Seep Wetlands

Several of the wetlands in the project corridor are associated with seeps from hillslopes to the north. At Wetlands B, C, E, and F, there was active seepage north of the road, with mosses and sedges on the adjacent hillslope. Wetland E is fed by seepage from an upslope fen outside the project corridor. The fen is dominated by beaked sedge (*Carex utriculata*) and bog birch (*Betula nana*) growing in a mat of saturated moss. Wetlands Z and FF are partially fed by seepage from slumps that appear to be some of the many landslide features along Many Glacier Road. Wetland DDD is fed by seepage from the adjacent forested hillslope.

Ponded Wetlands

Wetland RR is a ponded wetland adjacent to the road. It is connected via culvert to Wetland SS, which is across the road in the Swiftcurrent Creek floodplain. A channel enters Wetland RR from the northeast, outside the right-of-way. The channel was dry at the time of the site visit.

Wetland AAA is a beaver-influenced complex bisected by Many Glacier Road. Water is impounded by a beaver dam north of the road, and areas of ponding are also present in Wetland BBB across the road.

There is a large beaver pond wetland (Wetland EEE) at the east end of the study area near Babb (Appendix A, Figure W). The pond is surrounded by emergent wetlands that are semi-permanently flooded (surface water persists throughout the growing season in most years). Water from the beaver pond flows via culvert to a flat area south of the road (Wetland EEE South) where soil was saturated, and vegetation was dominated by quaking aspen and willows. Water in this Wetland EEE flows to Swiftcurrent Creek.

Lacustrine Wetlands (Lake Sherburne)

Lake Sherburne is nearly 6 miles long and 0.8 mile wide when full; its surface elevation is approximately 4,788 feet. The lake shore supports little vegetation because of fluctuating water levels and is marginally important aquatic habitat. There are emergent wetlands along the shoreline outside of the project corridor, but most of the vegetation along the shoreline is upland riparian habitat dominated by quaking aspen and cottonwood without characteristic wetland soils and hydrology.

Abundance of Wetland Types in the Watershed

The project area is within the St. Mary River watershed. The St. Mary River has its headwaters in Glacier National Park and flows northeast through the Blackfeet Reservation into Canada on its way to Hudson Bay.

Wetlands within the St. Mary River watershed, along with wetlands in the Milk and Marias River watersheds, were assessed during a Montana Natural Heritage Program (MTNHP) pilot project (McIntyre et al. 2011). Using an assessment method developed by the US Environmental Protection Agency, the researchers found that 81 percent of the wetlands within the three watersheds were palustrine emergent wetlands with either temporary or seasonal water regimes. Approximately 101,400 acres of depressional wetlands occur within the basins. Depressional wetlands are highly susceptible to human disturbances. Riparian systems within the three watersheds were also ranked as severely altered. Most of the wetlands assessed during the MTNHP project were dominated by species that can tolerate moderate disturbance and by plants that are frequently found in disturbed sites. The dominant human disturbances observed to be affecting wetland condition in the watersheds included roads, conversion of temporary and seasonal wetlands to dryland farming and stock ponds, and soil and vegetation disturbance associated with heavy livestock grazing (McIntyre et al. 2011).

At the local scale, the most abundant wetland types in the Swiftcurrent Creek subbasin are palustrine emergent wetlands along the shores of Lake Sherburne, followed by forested, shrub and riverine wetland complexes at Apikuni Flats and below the Boulder Creek/Swiftcurrent Creek confluence. Scattered freshwater ponds are mapped at Apikuni Flats and on the north and south slopes above Lake Sherburne and Swiftcurrent Creek (Figure 2). Within the project corridor, depressional wetlands, primarily roadside ditches and swales, are the most common type (see Appendix B, Table B-2).

IMPACTS

Project impacts on wetlands and Waters of the U.S. would occur from road surface rehabilitation, culvert replacements, and construction of revetments along Lake Sherburne.

INSIDE GLACIER NATIONAL PARK

As stated above, all NPS actions with the potential to have adverse impacts on wetlands must comply with DO #77-1, and those actions that involve placing dredged or fill material in wetlands or other "waters of the U.S." (as defined in 33 CFR 320-332) must also comply with USACE regulations under Section 404 of the Clean Water Act. DO #77-1 makes a distinction between "artificial" wetlands and other naturally occurring wetlands. The roadside wetlands in the project area meet the definition of "artificial wetlands," which are those that have been created on former uplands as a result of inadequate road drainage (NPS 2016).

Coordination with the USACE has established that Lake Sherburne is considered a Water of the U.S. so impacts associated with the construction of revetments do not need to be considered in the tabulation of wetland impacts (personal communication, Dylan Hickey, USACE Regulatory Project Manager, February 12, 2019).

Permanent project impacts on wetlands and streams inside Glacier National Park are summarized in Table 3. Those impacts encompass all areas within the clearing limits for the project. During construction, no disturbance would occur outside the clearing limits; thus, there would be no temporary impacts. Figures showing impacts for each area are provided in Appendix A. Tables showing impacts for each area are provided in Appendix B.

Table 3. Wetland and Stream Impacts in Glacier National Park

Wetland Classification[a,b]	Number of Sites	Total Permanent Impact (square feet/acre)	Permanent Impact (linear feet)
Artificial Palustrine Emergent Wetlands	6	534/0.013	Not applicable (NA)
Artificial Palustrine Scrub-shrub Wetlands	6	1,848/0.042	NA
Palustrine Emergent Wetlands	1	793/0.018	NA
Palustrine Scrub-Shrub Wetlands	0	0	NA
Palustrine Forested Wetlands	0	0	NA
Total Palustrine Wetlands Impacted	**13**	**3,175/0.073**	NA
Riverine Wetlands (streams)	**18**	**295/0.007[b]**	**116**

[a] Sources: National Park Service Procedural Manual #77-1: Wetland Protection (NPS 2016); Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second (FGDC 2013).

[b] This value accounts for new impacts associated with the proposed project. (New culvert length minus old culvert length.)

On the Blackfeet Reservation

All actions with the potential to have adverse impacts on wetlands must comply with Blackfeet Aquatic Lands Protection Ordinance 90A and Section 404 of the Clean Water Act. Permanent impacts on wetlands and streams on the Blackfeet Reservation are summarized in Table 4. Those impacts encompass all areas within the clearing limits for the project. During construction, no disturbance would occur outside the clearing limits; thus, there would be no temporary impacts. The functions of three of the wetlands that will be impacted are rated Category I. They include ponded wetlands and a floodplain wetland along Swiftcurrent Creek. The remaining wetlands that will be impacted are primarily roadside ditches and swales, rated Category III. Figures showing impacts for each area are provided in Appendix A. Tables showing impacts for each area are provided in Appendix B.

Table 4. Wetland and Stream Impacts on the Blackfeet Reservation.

Wetland Classification[a]	Number of Sites	Total Permanent Impact (square feet/acre)	Permanent Impact (linear feet)
Palustrine Emergent	10	3,918/0.090	Not applicable (NA)
Palustrine Scrub-Shrub	5	4,207/0.097	NA
Palustrine Emergent/Scrub-Shrub	1	81/0.002	NA
Palustrine Emergent, Scrub-Shrub, Aquatic Bed, and Open Water	0	0	NA
Palustrine with Forested Component	3	529/0.012	NA
Total Palustrine Wetlands	**19**	**8,735/0.201**	NA
Riverine Wetlands (streams)	**9**	**224/0.005[b]**	**110**

[a] Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second (FGDC 2013).

[b] This value accounts for new impacts associated with the proposed project. (New culvert length minus old culvert length.)

WETLAND FUNCTIONS AND VALUES

In addition to the biotic, hydrologic, scientific, and recreational functions assessed under the MWAM method (Berglund and McEldowney 2008), NPS Procedural Manual #77-1 (NPS 2016) also requires an analysis of cultural and economic values. Because the MWAM method does not evaluate those values, they were evaluated subjectively, using a descriptive approach. Wetland functions and values and impacts on functions and values are summarized in Table 5. Wetland functional assessment data sheets are provided in Appendix D.

Table 5. Impacts on Wetland Functions and Values for the Many Glacier Road Rehabilitation Project.

Wetland Function or Value per MWAM Rating System	Description	Summary of Impacts
Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals	This rating assesses habitat for species receiving protection under the Endangered Species Act, that is listed or proposed threatened or endangered species.	Grizzly bears and Canada lynx could occur in any of the wetlands in GNP and on the Blackfeet Reservation. Bull trout are present in Swiftcurrent Creek and Lake Sherburne. Permanent loss of wetlands would only affect roadside habitat which does not contain high quality habitat elements for these species. The project would have a minor impact on this function.
Habitat for plants or animals rated S1, S2, or S3 by the Montana Natural Heritage Program	This rating assesses the use of the assessment area (AA) by species rated S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable) by the Montana Natural Heritage Program.	The project could affect golden eagles, migratory birds, and western toads. Permanent loss of wetlands would affect roadside habitats in songbird and raptor nest territories and amphibian habitat. The project would have a minor impact on this function.
General Wildlife Habitat	This rating assesses general wildlife habitat potential of the AA base upon evidence of wildlife use and habitat features.	Permanent loss of wetlands would only affect only roadside habitat which does not contain high quality habitat elements for wildlife. the project would have a minor impact on this function.
General Fish Habitat	This rating assesses general fish habitat within the context of fishery type (i.e., cold-water or warm-water)	Most impacts would occur on wetlands that do not provide fish habitat.
Flood Attenuation	This rating assesses the capability of the wetland in the AA to slow in-channel or overbank flow during high water or flood events. This parameter only applies if the AA occurs within or contains a discernable floodplain.	Most impacts would occur on wetlands located outside of floodplains. Wetlands along Swiftcurrent Creek provide this function. The project will only impact narrow strips of these wetlands along the road so impacts would be minor.

Table 5 (continued). Impacts on Wetland Functions and Values for the Many Glacier Road Rehabilitation Project.		
Wetland Function or Value per MWAM Rating System	**Description**	**Summary of Impacts**
Short- and Long-Term Surface Water Storage	This rating assesses the potential of the AA to capture, retain, and make available surface water originating from flooding, precipitation, upland surface flow or subsurface flow.	The wetlands that best provide this function are the larger wetlands. The project will only impact narrow strips of these wetlands along the road so impacts would be minor.
Sediment/Nutrient/Toxicant Retention and Removal	This rating assesses the ability of the AA to retain sediments and retain and remove excess nutrients and toxicants.	The project would temporarily reduce the ability of the wetlands to perform this function due to vegetation clearing. This function would be regained once cleared areas are revegetated.
Sediment/Shoreline Stabilization	This rating assesses the ability of the AA to dissipate flow or wave energy, reducing erosion.	Most impacts would occur on wetlands not located on a waterbody subject to erosion. Revetments proposed on the Lake Sherburne shoreline would stabilize those areas, however compared to the extensive eroding shorelines, the impact would be very minor.
Production Export/Food Chain Support	This rating assesses the potential of the AA to produce and export food or nutrients for terrestrial and aquatic organisms.	Impacts due to vegetation clearing would reduce biomass production but this function would be regained once cleared areas are revegetated. The project would not affect downstream connections to other waterbodies, so export of food and nutrients would not be affected.
Groundwater Discharge/Recharge	This rating assesses the groundwater discharge and recharge potential at the site.	The project would not affect this function.
Uniqueness	This rating expresses the general uniqueness of the AA in terms of its replacement potential and habitat diversity, relative abundance in the same major Montana watershed basin, and degree of human disturbance.	The majority of the impacted wetlands are not unique or rare. Minor impacts will occur on forested and beaver pond wetlands, which are rare in the watershed.
Recreation/Education Potential	This field allows the evaluator to assign bonus points based on the potential of the AA to support recreation or education activities.	Impacts on wetlands within GNP are limited to the roadside. No impacts to wetlands outside the narrow road corridor will occur, therefore the project will not affect this value. The wetlands on the Blackfeet Reservation are not accessible to the general public without a permit, so recreation and education potential is limited.

Cultural Values

Wetlands with high cultural and archeological value include those associated with beaver ponds and river floodplains. The Babb beaver pond (Wetland EEE North) is a locally well-known place for wildlife viewing and is a breeding ground for common loons (*Gavia immer*). Swiftcurrent Creek is a popular fishing stream, and the shores of Lake Sherburne are popular for wildlife viewing. Further discussion of the cultural and archeological values of wetlands and the proposed project effects on those values is provided in the cultural and archeological resources report being prepared for the project.

Economic Values

Tourism is an important source of economic activity for the park and the Blackfeet Tribe. Wetlands are valuable wildlife habitat, providing year-round food sources, shelter, and hiding cover for many of the species that draw visitors to the Many Glacier area.

MITIGATION

Mitigation for impacts on wetlands and Waters of the U.S. includes measures to avoid and minimize impacts to the greatest extent possible, and to compensate, where required, for unavoidable impacts. These steps are described below.

AVOIDANCE

Avoidance of all wetlands would not be possible because wetlands are present in the project corridor. Impacts on wetlands were avoided during project design to the extent practicable. Impacts on existing wetlands outside of the construction area would be avoided by staking or fencing construction limits and by restricting ground disturbance outside of construction limits. No construction materials would be stockpiled in wetland areas. For the segment on the Blackfeet Reservation, all repairs and ground-disturbing activities, both temporary and permanent, will be within the right-of-way easement held by the NPS under the NPS-Blackfeet Nation Trust right-of-way agreement.

MINIMIZATION

The proposed design minimizes impacts on wetlands and aquatic resources by using the minimization measures listed in the project description. Construction activities will be confined to the smallest area necessary to complete the work. All disturbed upland areas will be restored with native vegetation to prevent erosion and to minimize indirect impacts on downslope wetlands. In addition, Glacier National Park and Blackfeet Tribe policies require additional protection measures to protect wetlands.

Glacier National Park

The following measures from DO #77 serve as best management practices (BMPs) for project actions that may have adverse impacts on wetlands. Additional BMPs may be appropriate depending on local conditions or special circumstances.

- Effects on hydrology and fluvial processes: Action must have only negligible to minor, new adverse effects on site hydrology and fluvial processes, including flow, circulation, velocities, hydroperiods, water level fluctuations, sediment transport, channel morphology, and so on. Care must be taken to avoid any rutting caused by vehicles or equipment.

- Effects on fauna: Action must have only negligible to minor, new adverse effects on normal movement, migration, reproduction, or health of aquatic or terrestrial fauna, including at low flow conditions.

- Water quality protection and certification: Action is conducted so as to avoid degrading water quality to the maximum extent practicable. Measures must be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway or wetland. Action is consistent with state water quality standards and Clean Water Act Section 401 certification requirements.

- Erosion and siltation controls: Appropriate erosion and siltation controls must be maintained during construction, and all exposed soil or fill material must be permanently stabilized at the earliest practicable date.

- Proper maintenance: Structure or fill must be properly maintained so as to avoid adverse impacts on aquatic environments or public safety.

- Heavy equipment use: Heavy equipment use in wetlands must be avoided if at all possible. Heavy equipment used in wetlands must be placed on mats, or other measures must be taken to minimize soil and plant root disturbance and to preserve preconstruction elevations.

- Stockpiling material: Whenever possible, excavated material must be placed on an upland site. However, when this is not feasible, temporary stockpiling of excavated material in wetlands must be placed on filter cloth, mats, or some other semipermeable surface, or comparable measures must be taken to ensure that underlying wetland habitat is protected. Runoff from stockpiled material must be controlled with silt fencing, filter cloth, coir wattles or other appropriate means to prevent reentry into the waterway or wetland.

- Removal of stockpiles and other temporary disturbances during construction: Temporary stockpiles in wetlands must be removed in their entirety as soon as practicable. Wetland areas temporarily disturbed by stockpiling or other activities during construction must be returned to their pre-existing elevations, and soil, hydrology, and native vegetation communities must be restored as soon as practicable.

- Topsoil storage and reuse: Revegetation of disturbed soil areas should be facilitated by salvaging and storing existing topsoil and reusing it in restoration efforts in accordance with NPS policies and guidance. Topsoil storage must be for as short a time as possible to prevent loss of seed and root viability, loss of organic matter, and degradation of the soil microbial community.

- Native plants: Where plantings or seeding are required, native plant material must be obtained and used in accordance with NPS policies and guidance. Management techniques must be implemented to foster rapid development of target native plant communities and to eliminate invasion by exotic or other undesirable species.

- Endangered species: Action must not jeopardize the continued existence of a threatened or endangered species, or a species proposed for such designation, including degradation of critical habitat.

Blackfeet Tribe

Construction requirements specified in Aquatic Ordinance 90A apply to work on the Blackfeet Reservation. The following requirements will minimize effects on aquatic environments for this project:

- All technically feasible steps shall be taken to minimize or preclude removal, relocation, siltation, or other adverse impacts to aquatic lands and riparian land. Heavy equipment used in construction of projects when occurring in or on wetlands, shall not cause any permanent damage, and all measures necessary for reclamation measures shall be utilized.

- Construction of roads, bridges, culverts, and similar methods of crossing or channeling Reservation waters and aquatic lands, shall be designed and constructed in such a manner as to allow free and unrestricted passage of flowing waters and to accommodate and interfere the least with any current or bed load patterns or erosional and depositional characteristics of Reservation waters at or near the project location. Such structures will be designed and constructed so as to cause the least change in sediment load and turbidity of Reservation waters and to minimize or preclude adverse impacts to aquatic lands and riparian lands.

- Riprap of banks and shorelines will be allowed upon a showing of no or minimal impact to riparian lands, aquatic lands, and Reservation waters due to changes in velocity, sediment load, current and wave pattern or channel readjustment, and then only as a last alternative solution to resolve the matter the proposed project has been formulated to address.

In addition to these requirements, the project will be designed to maintain the current water level in the beaver pond on the Blackfeet Reservation to preserve habitat for beaver, waterfowl, and other aquatic species.

Wetland Compensation

Proposed compensation for impacts in Glacier National Park and on the Blackfeet Reservation is discussed below.

Glacier National Park

Wetland compensation within Glacier National Park is governed both by NPS and USACE requirements, depending on the types of wetlands impacted. Despite efforts to avoid impacts, approximately 3,175 square feet (0.073 acre) of palustrine wetlands will be impacted by the rehabilitation of Many Glacier Road within Glacier National Park. USACE guidance calls for compensation to be provided by the following means, in order of preference (33 CFR Part II 19673):

- Mitigation bank credits
- In-lieu fee (ILF) program credits
- Permittee-responsible mitigation under a watershed approach
- Permittee-responsible mitigation through onsite and in-kind mitigation
- Permittee-responsible mitigation through offsite and/or out-of-kind mitigation

At present there are no active mitigation banks within the St. Mary River watershed and the FHWA does not consider permittee-responsible mitigation to be a viable alternative. Therefore, FHWA is proposing in-lieu-fee (ILF) mitigation for the unavoidable wetland impacts associated with the rehabilitation work on Many Glacier Road inside Glacier National Park.

Montana Aquatic Resource Services (MARS) is the certified sponsor of the Montana statewide ILF program (MARS 2018). MARS has the ability to sell mitigation credits in the St. Mary River watershed. As the ILF program sponsor, MARS accepts all mitigation responsibility on behalf of the permittee after mitigation credits are purchased. Determination of credits for the purpose of providing compensatory mitigation under the ILF program will be conducted using the USACE Montana Regulatory Program compensatory mitigation ratios (USACE 2005). MARS will be responsible for working with the Blackfeet Nation (or other landowner) to implement a mitigation project within the watershed.

The planned revetment work in Lake Sherburne (a Water of the U.S.) will impact an estimated 30,941 square feet (0.710 acres) of shoreline. For the riprap revetment work along Lake Sherburne, disturbed slopes above the full-pool elevation will be revegetated with native species. The USACE will consider the impacts of the revetments and determine if any mitigation is needed (personal communication, Dylan Hickey, USACE Regulatory Project Manager, February 12, 2019). No compensatory mitigation is proposed for stream impacts due to culvert

replacements, which are viewed as maintenance activities by the USACE (Todd Tillinger, Montana Program Manager during January 23, 2019 meeting).

Total impacts to wetlands in Glacier National Park are less than 0.1 acre. In accordance with NPS policy, as described in NPS Procedural Manual 77-1, Section 5.2.3, compensation for wetland impacts is not required. The USACE however does require compensation for the wetlands impacted in Glacier National Park. Therefore, compensation will be done for 0.073 acres. The Water Resources Division has been consulted and are in agreement. (Personal communication between Mary Riddle, Chief of Planning and Environmental Compliance, Glacier National Park and Joel Wagner, Wetlands Program Lead, National Park Service, Water Resources Division April 26, 2019).

Impacts and compensatory mitigation requirements are summarized in Table 6.

Table 6. Compensatory Mitigation Requirements for Impacts on Wetlands and Waters of the U.S. in Glacier National Park

Resource Impacted	Permanent Impact (square feet/acre)	Requirements
Palustrine Wetlands	3,175/0.073	COE: Compensation to be provided by payment to the MARS ILF program. NPS: Compensation requirement waived in accordance with Section 5.2.3.1 of NPS Procedural Manual #77-1.
Riverine Wetlands (streams)	295/0.007 (116 linear feet)	COE: Maintenance action—No compensatory mitigation required. NPS: Compensation requirement waived in accordance with Section 5.2.3.1 of NPS Procedural Manual #77-1.

Blackfeet Reservation

Based on preliminary discussions, the USACE and Blackfeet Tribe will not require compensatory mitigation for stream impacts due to culvert replacements, which are viewed as maintenance activities. The Blackfeet Environmental Office follows USACE guidelines for compensation for unavoidable wetland impacts on the Blackfeet Reservation (personal communication Todd Tillinger, USACE, Montana Program Manager, and Gerald Wagner, Director of the Blackfeet Environmental Office, January 31, 2019). As with Segment 1 inside the park, FHWA is proposing in-lieu-fee (ILF) mitigation for the estimated 8,735 square feet (0.201 acres) of unavoidable impacts to palustrine wetlands associated with the rehabilitation work on Many Glacier Road on the Blackfeet Reservation.

Impacts and compensatory mitigation requirements are summarized in Table 7.

Table 7. Compensatory Mitigation Requirements for Impacts on Wetlands and Waters of the U.S. on the Blackfeet Reservation		
Resource Impacted	**Permanent Impact (square feet/acre)**	**Requirements**
Palustrine Wetlands	8,735/0.201	Compensation to be provided by payment to the MARS ILF program.
Riverine Wetlands (streams)	224/0.005 (110 linear feet)	Maintenance action—No compensatory mitigation required

JUSTIFICATION FOR THE USE OF WETLANDS

The WFLHD finds that there are no practicable alternatives to disturbing some wetlands within the project corridor, including:

- Within Glacier National Park
  - 3,175 square feet (0.073 acre) of palustrine wetlands at 13 delineated sites
  - 295 square feet (0.007 acre)/116 linear feet of riverine wetlands (streams) at 18 delineated sites
- On the Blackfeet Reservation
  - 8,735 square feet (0.201 acre) of palustrine wetlands at 19 delineated sites
  - 224 square feet (0.005 acre)/110 linear feet of riverine wetlands (streams) at 9 delineated sites

Because the project is associated with the existing road, and wetlands exist on both sides of the roadway in many areas, there are no practical alternatives to entirely avoid impacts to wetlands. Wetlands have been avoided to the maximum practicable extent, and the project includes measures to minimize wetland impacts.

CONCLUSION

This wetland statement of findings for Segments 1 and 2 of the Many Glacier Road Rehabilitation Project documents the presence of and potential impacts of the project on wetlands and waters of the U.S. in the project corridor. Herrera biologists identified riverine, palustrine, and lacustrine wetlands within Glacier National Park and the Blackfeet Reservation. Wetlands were mapped, and their functions were evaluated.

Impacts on wetlands and waters of the U.S. were avoided to the extent practical during project design, and the project includes measures to minimize unavoidable impacts. Compliance with Clean Water Act, NPS DO #77-1, Blackfeet Tribe Aquatic Ordinance 90A, and other permit terms, and the use of BMPs and minimization measures will avoid or mitigate adverse impacts on wetlands and water quality during and after construction. Unavoidable impacts will be mitigated in compliance with USACE regulations, NPS DO #77-1, and Blackfeet Tribe Aquatic Ordinance 90A.

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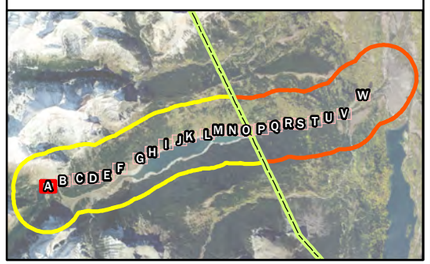
APPENDIX A

Wetland Delineation Figures

Figure A.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Culvert



N

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HERRERA

USDA, Aerial (2017)

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Figure B.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream

N

0 15 30 60 Feet

HERRERA

USDA, Aerial (2017)

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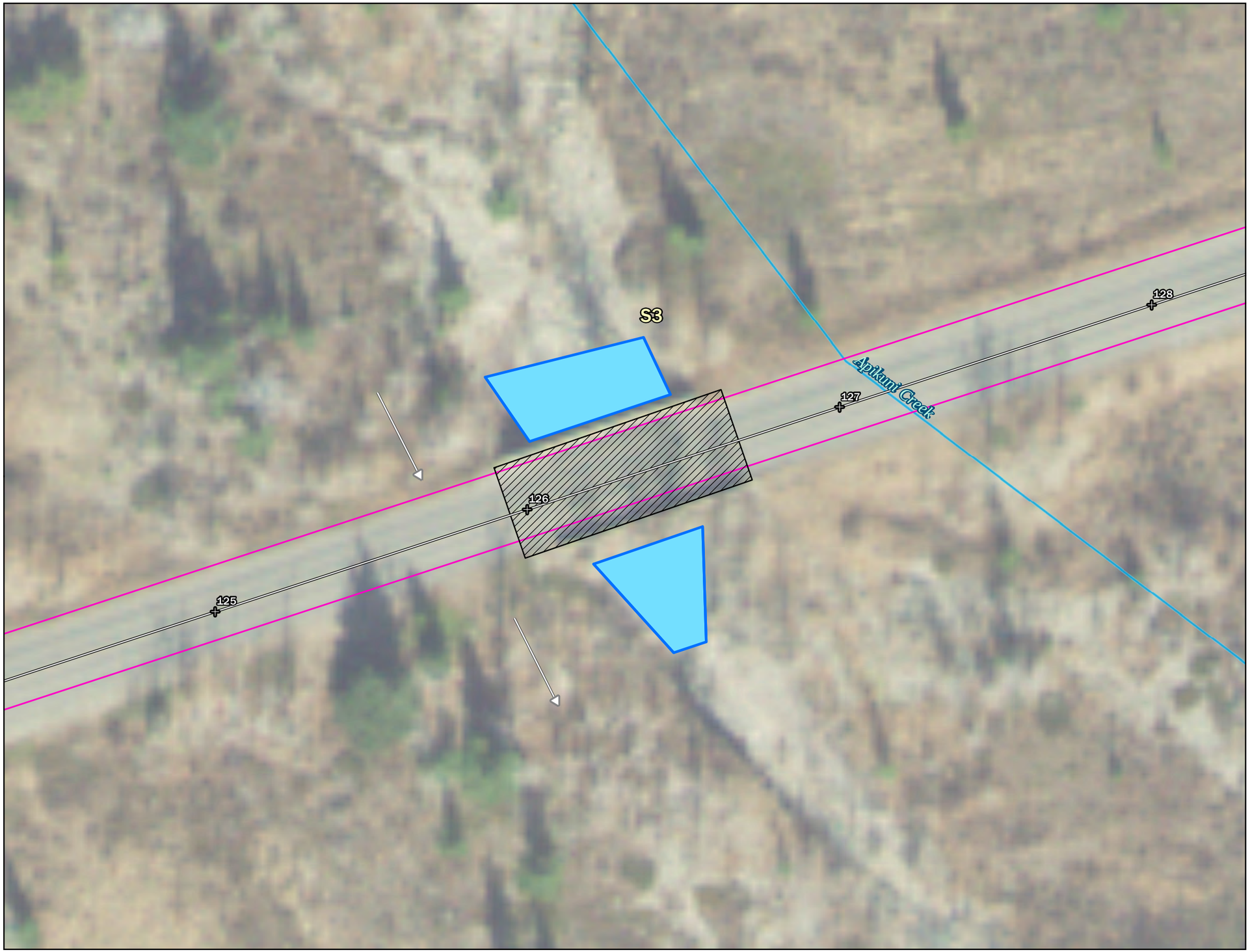
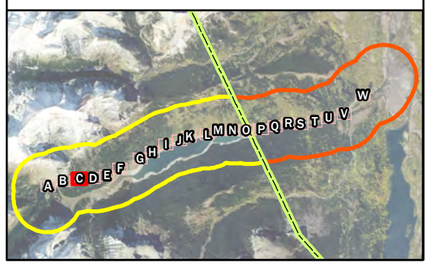


Figure C.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Bridge
- Previously mapped stream



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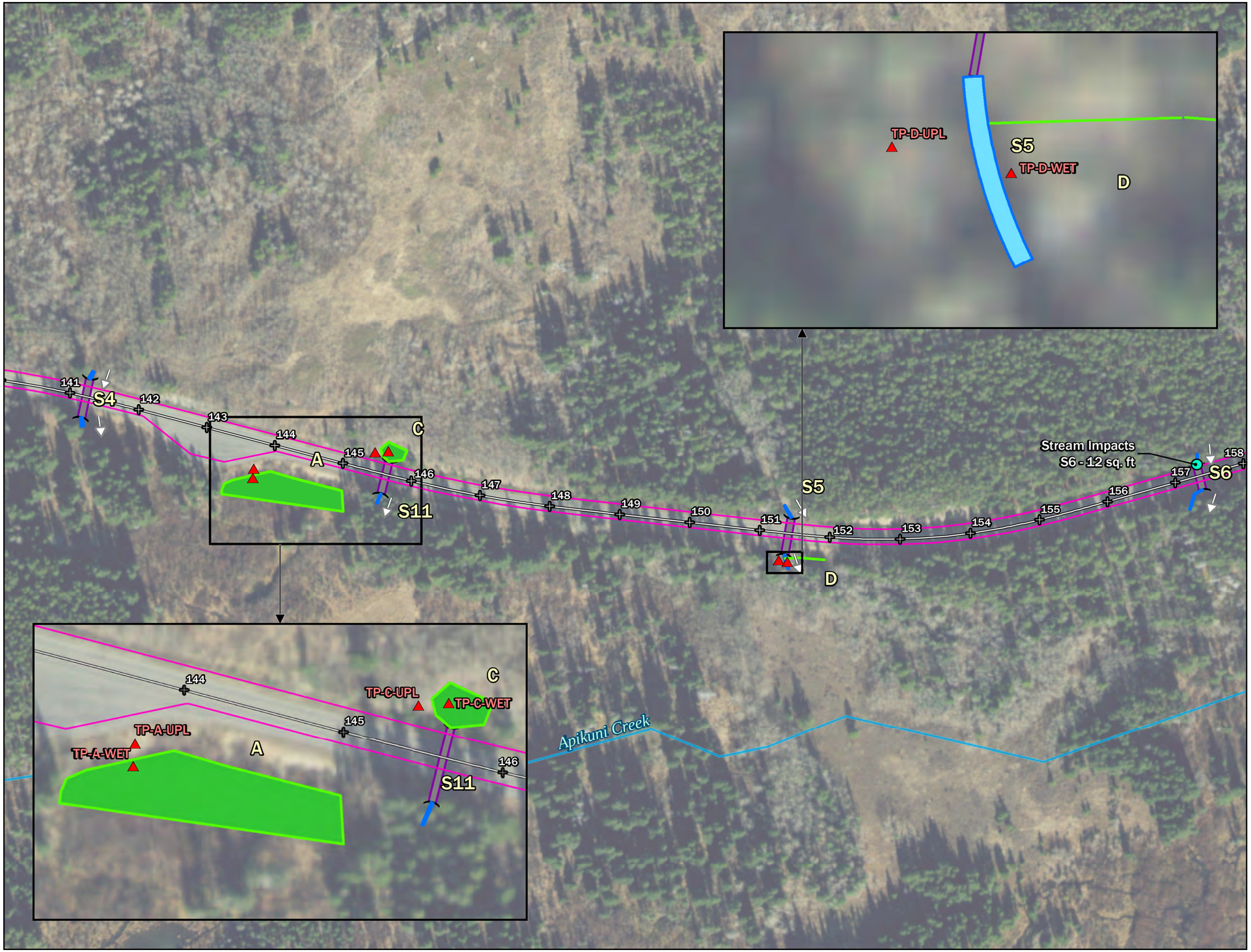

Figure D.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 70 140 280 Feet

HERRERA

USDA, Aerial (2017)

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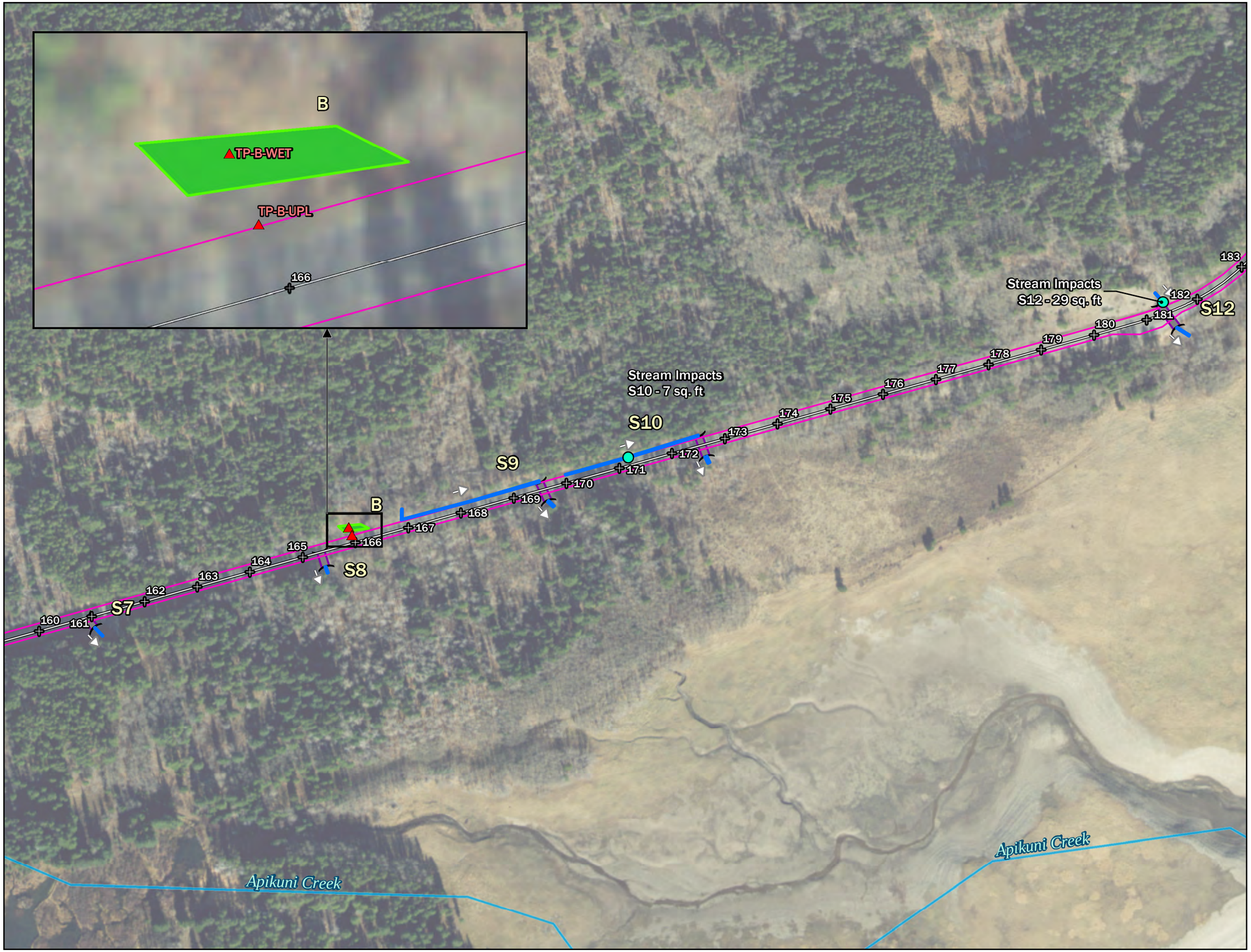

Figure E.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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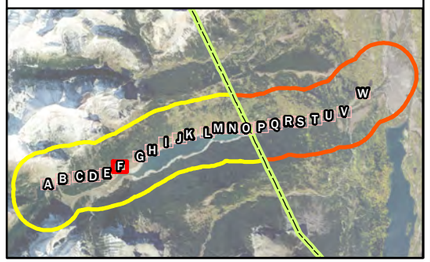
Figure F.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Bridge
- Previously mapped stream



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USDA, Aerial (2017)

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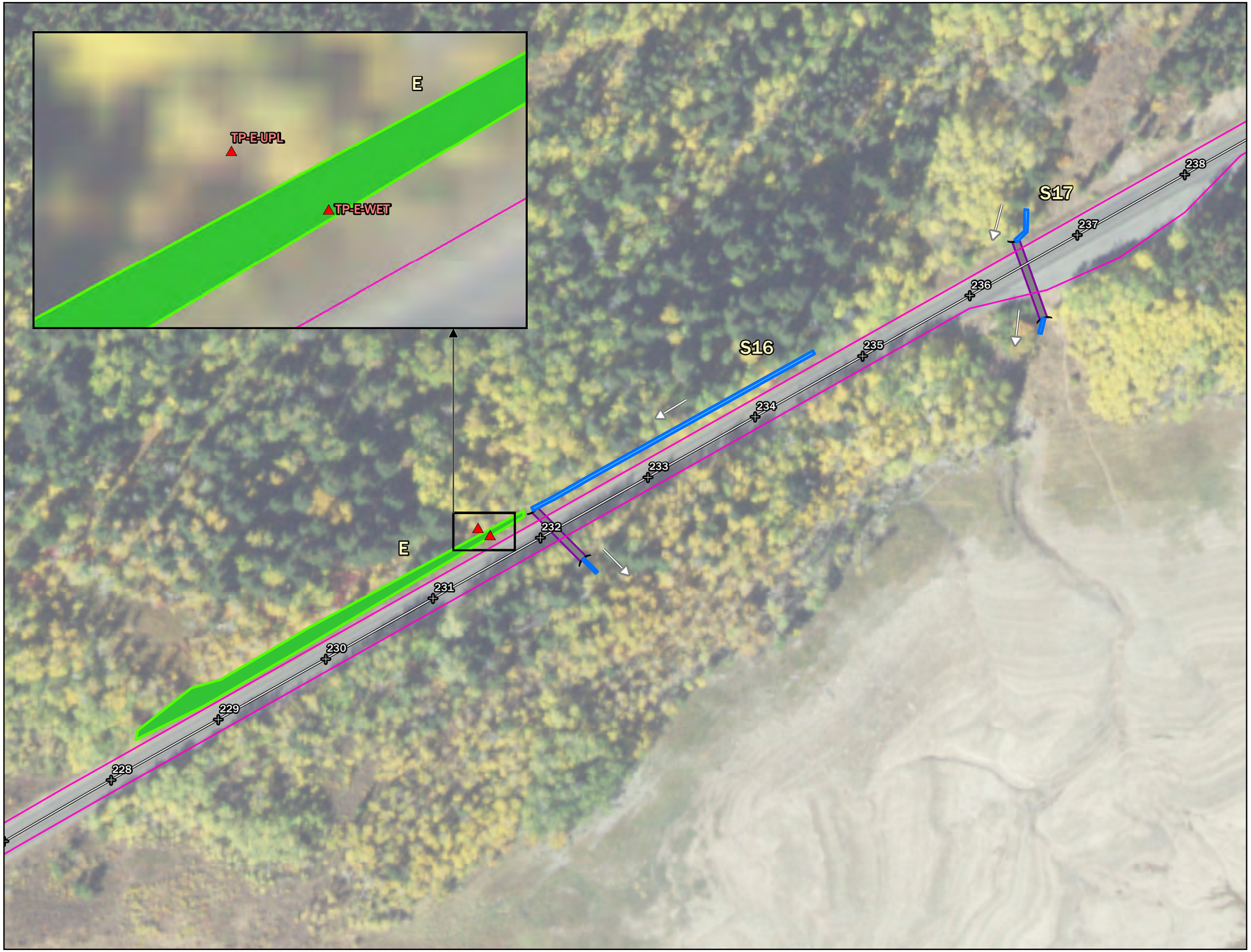
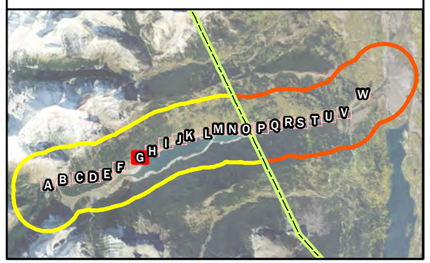


Figure G.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Culvert
- Test pit



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USDA, Aerial (2017)

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Figure H.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert

N

0 50 100 200 Feet

HERRERA

USDA, Aerial (2017)

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Figure I.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert

N

0 15 30 60 Feet

HERRERA

USDA, Aerial (2017)

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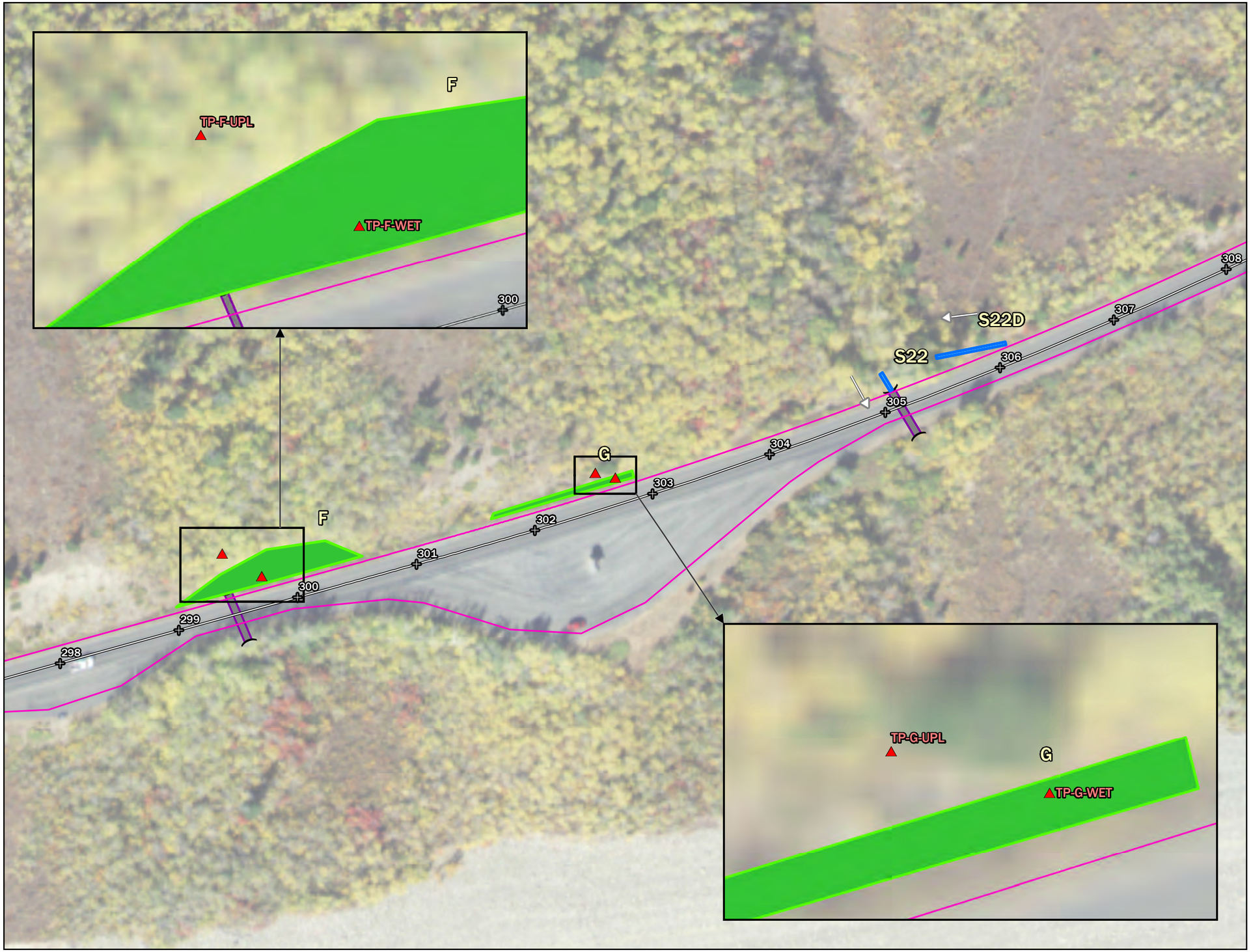
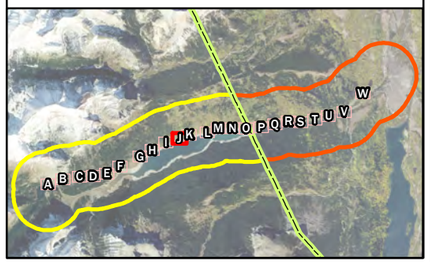


Figure J.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Culvert
- Test pit



N

0 40 80 160 Feet

HERRERA

USDA, Aerial (2017)

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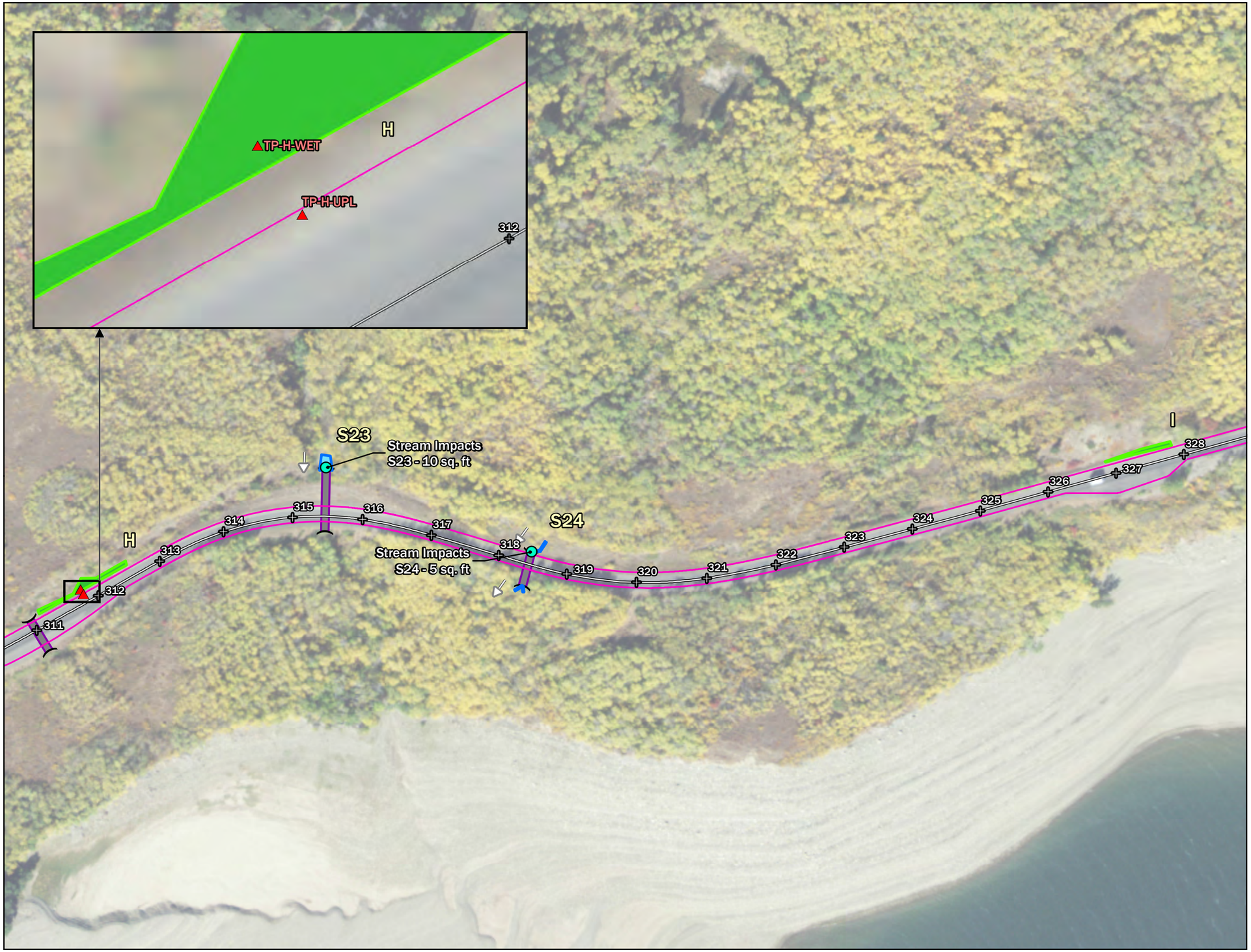
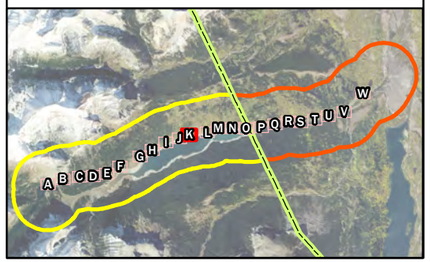


Figure K.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Test pit



N

0 70 140 280 Feet

HERRERA

USDA, Aerial (2017)

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Figure L.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert

N

0 80 160 320 Feet

HERRERA

USDA, Aerial (2017)

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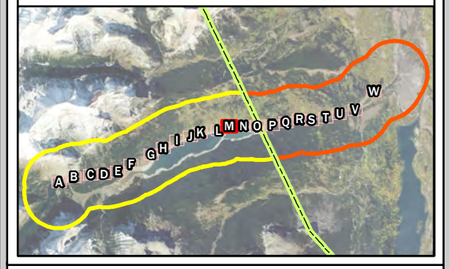
Figure M.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream



N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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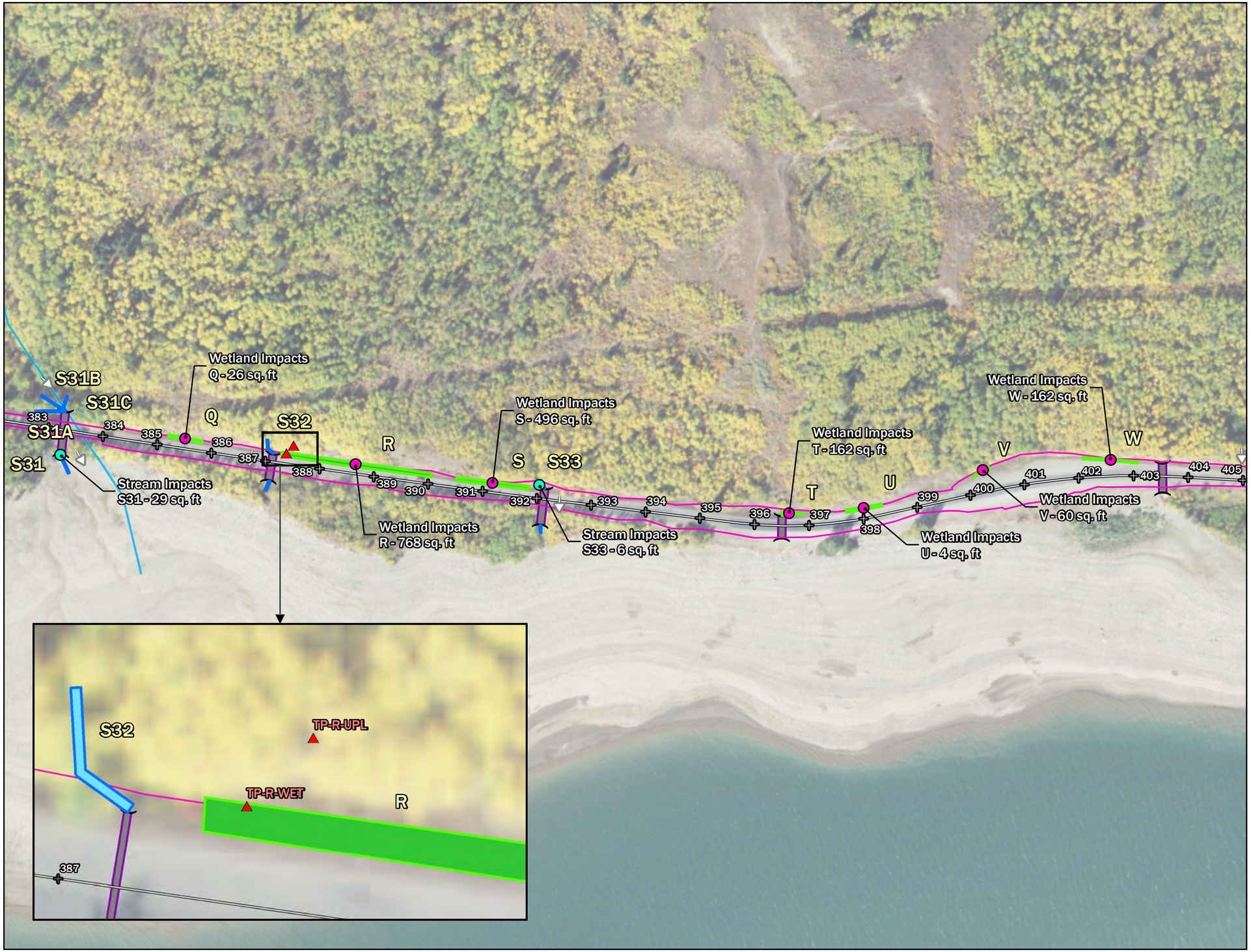

Figure N.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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Figure O.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Park boundary
- Previously mapped stream
- Test pit

N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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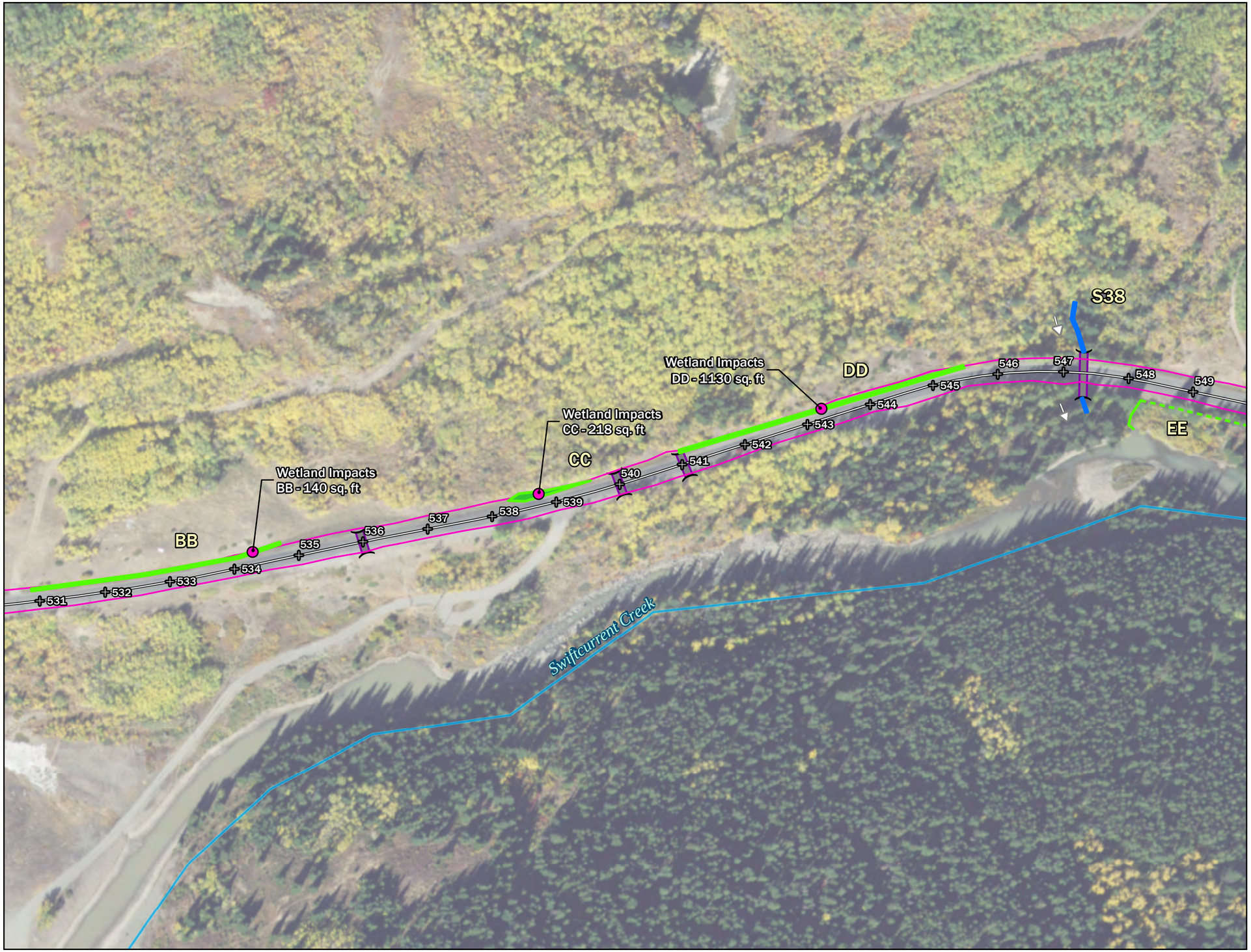
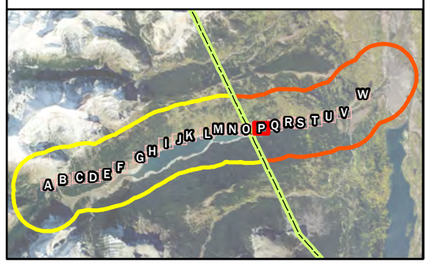


Figure P.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream



N

0 75 150 300 Feet

HERRERA

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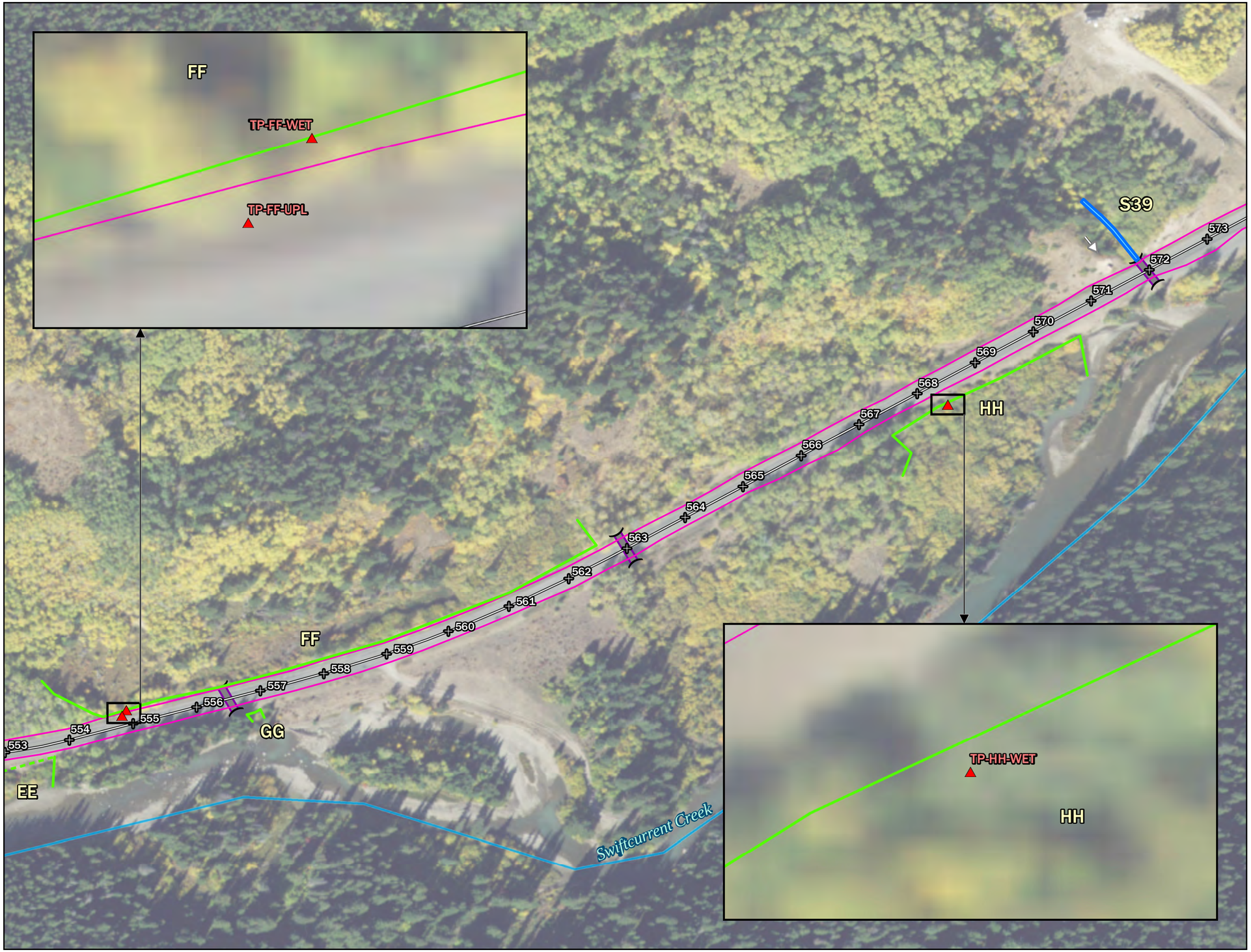

Figure Q.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 75 150 300 Feet

HERRERA

USDA, Aerial (2017)

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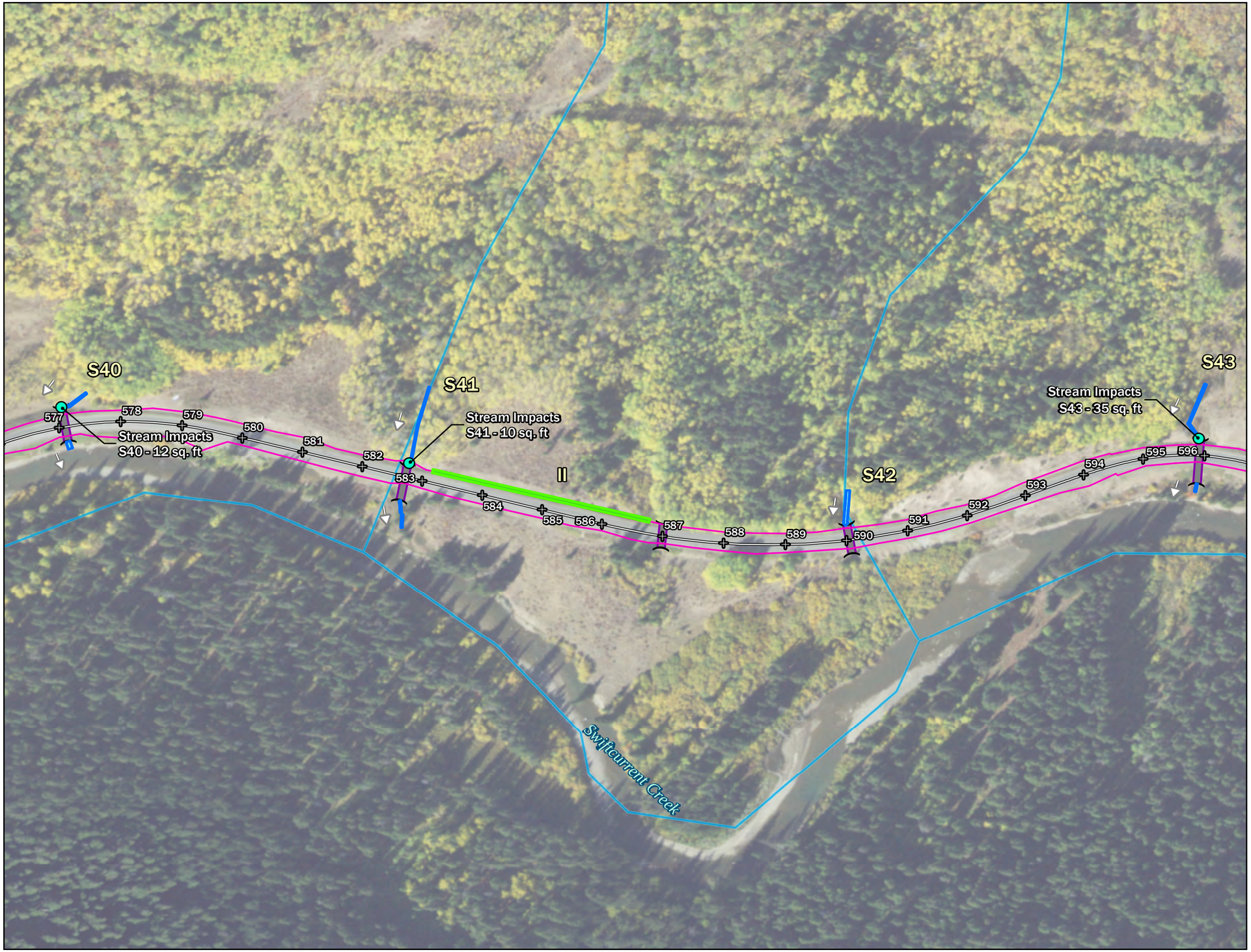

Figure R.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream

N

0 80 160 320 Feet

HERRERA

USDA, Aerial (2017)

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Figure S.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream

N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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Figure T.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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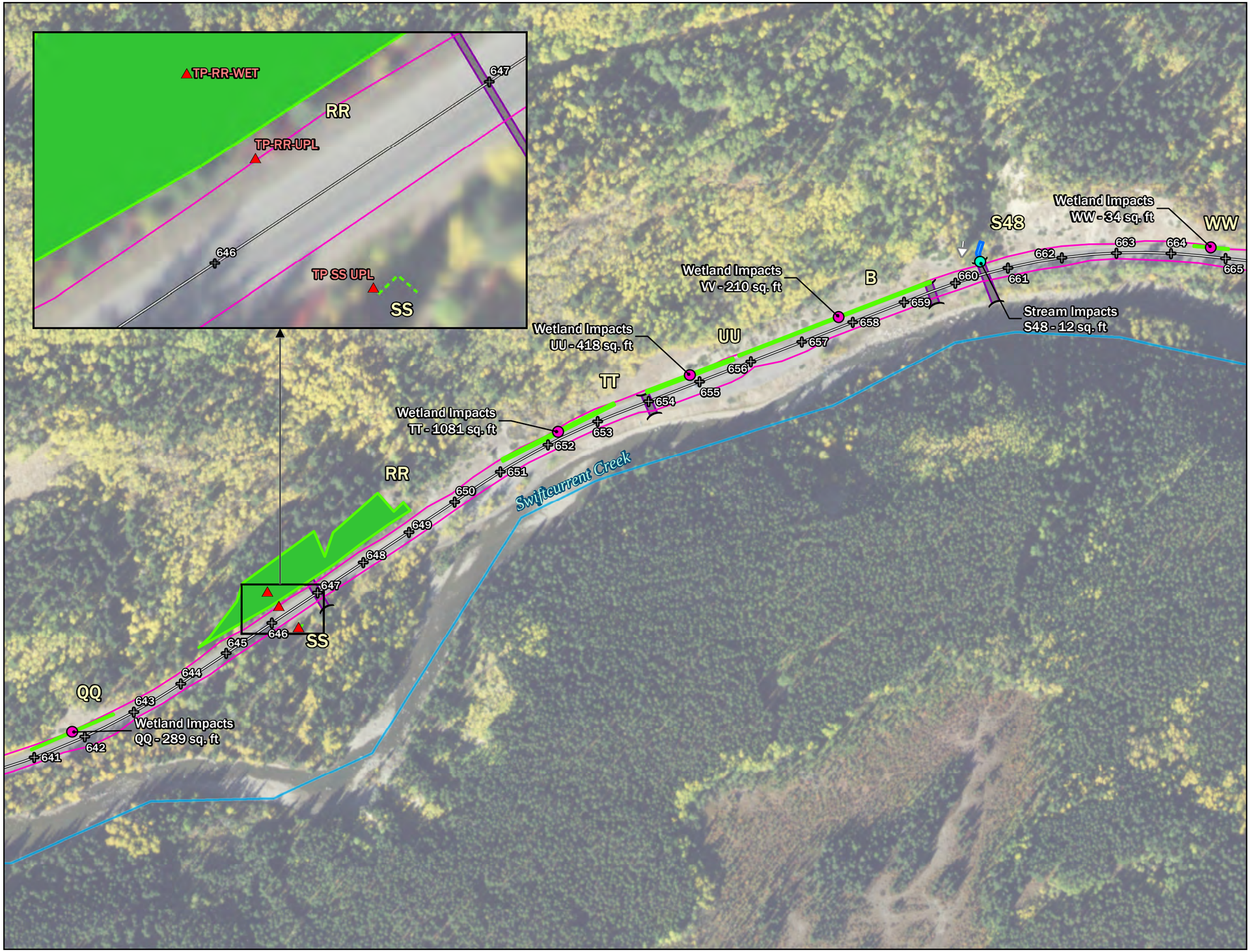
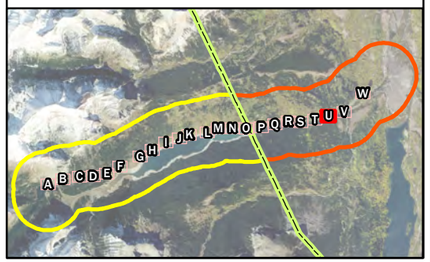
Figure U.
Many Glacier Road Wetland Delineation.



Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit



N

0 90 180 360 Feet

HERRERA

USDA, Aerial (2017)

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Figure V.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Estimated wetland boundary
- Flow direction
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream

N

0 75 150 300 Feet

HERRERA

USDA, Aerial (2017)

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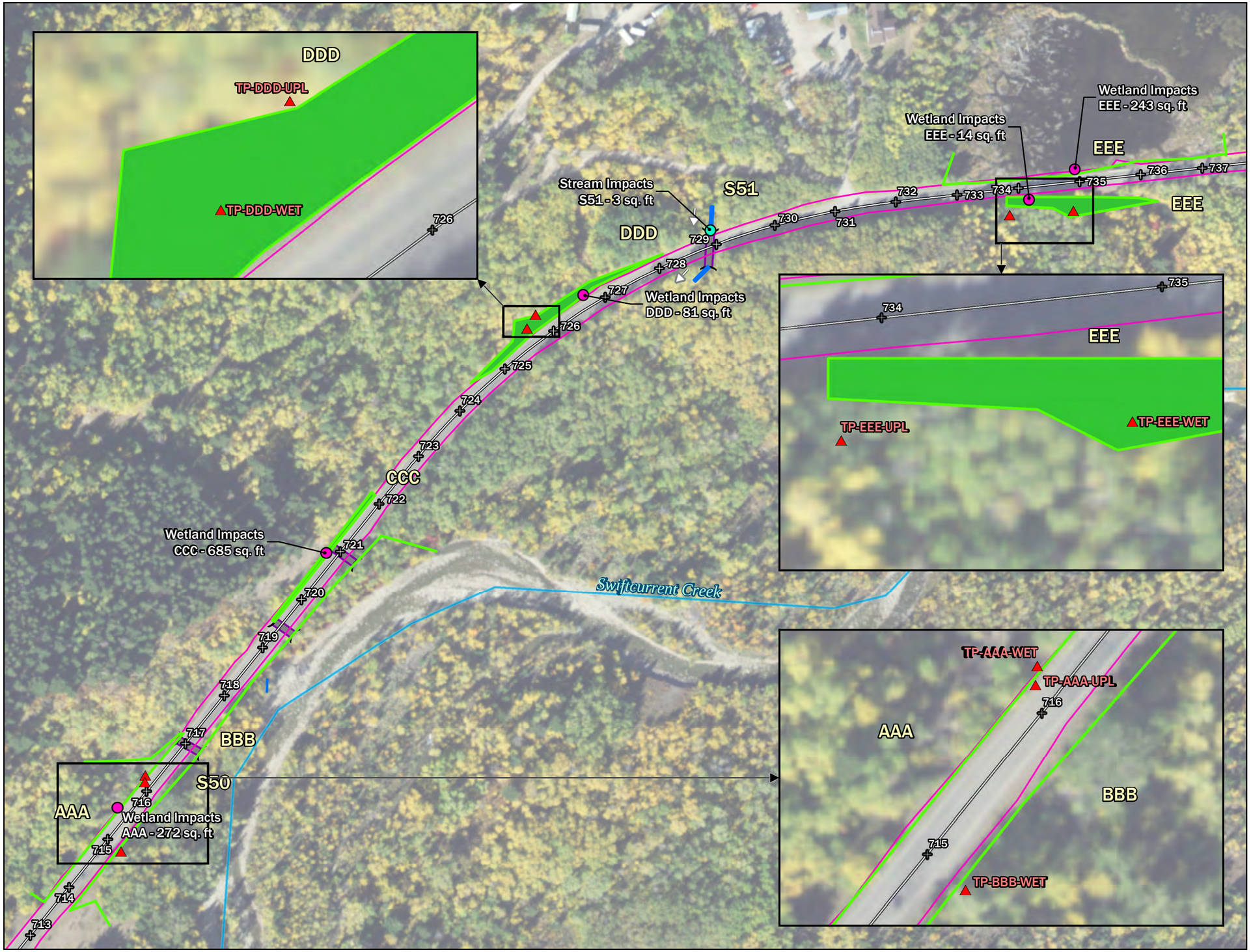

Figure W.
Many Glacier Road Wetland Delineation.

Legend

- Delineated stream area
- Delineated wetland area
- Delineated stream boundary
- Delineated wetland boundary
- Flow direction
- Stream Impacts
- Wetland Impacts
- Road centerline
- Road station
- Clearing limits
- Culvert
- Previously mapped stream
- Test pit

N

0 80 160 320 Feet

HERRERA

USDA, Aerial (2017)

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APPENDIX B

Wetland and Stream Tables

Table B-1. Riverine Wetlands (Streams) in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Stream Name/ Number	Station (Approx.)	OHWM at Culvert (inches unless otherwise noted)		Impact Area (sq. ft.)	Linear Impact (feet)	Riparian Vegetation	Flow From	Flow To	Culvert Size (inches unless otherwise noted)	Culvert Condition	Substrate	Flow Regime	Notes
		Inlet	Outlet										
Inside Glacier National Park													
S1	73	16	16	0	0	Aspen, willows, cow parsnip, snowberry, thimbleberry	hillslope	Swiftcurrent Creek	24	CMP with wingwall, sediment-filled outlet	fines, riprap, road fill	perennial	
S2	99	81	96	0	0	Red-osier dogwood, aspen, stinging nettle, angelica, black cottonwood	hillslope	Swiftcurrent Creek	72 x 48	Concrete with cracked stone headwall	cobble, gravel, fines	seasonal	
S3 Apikuni Creek	126	46 feet	37 feet	0	0	Black cottonwood, Drummond willow, Douglas-fir, Potentilla sp.	hillslope	Swiftcurrent Creek	Three openings: 9 feet, 14 feet, and 9 feet	Middle opening is half-blocked with alluvium.	cobble, gravel, sand, a few boulders	seasonal	Vegetation is growing in the middle of the active channel on gravel bars. Downstream of the culvert the channel is incised, most of the flow goes through the east channel.
S4	141	48	52	0	0	Drummond willow, Booth's willow, Douglas-fir, aspen, lodgepole pine, senecio, fireweed, cow parsnip, Canada goldenrod, field horsetail	hillslope	Apikuni Creek	42	CMP somewhat crushed in the middle, with stone headwall	riffle/pool complexes with fines/cobble substrate and standing water in pools	perennial	
S5	151	24	24	0	0	False hellebore, arrowleaf ragwort, angelica, *Ribes* sp., field horsetail	hillslope	Apikuni Creek	24	CMP with stone headwall	gravel, fines	perennial	Stream is along west boundary of Wetland D.
S6	157	18	16	12	8	Lodgepole pine, aspen, Douglas-fir, Canada goldenrod, leafy aster, field horsetail	forested flat	Apikuni Creek	18	CMP with stone headwall	gravel, fines	perennial	
S7	161	drainage basin	18	0	0	Black cottonwood, Douglas-fir, Engelmann spruce, Canada goldenrod, false lily-of-the-valley, valerian, meadow rue, elephant head, leafy aster	roadside ditch	Apikuni Creek	18	CMP with metal wingwall	gravel, fines	seasonal	3 inches of sediment in the culvert at inlet, only 5 inches of clearance at the culvert outlet
S8	165	drainage basin	32	0	0	Black cottonwood, willows, red-osier dogwood, lodgepole pine, Douglas-fir	roadside runoff	Apikuni Creek	30	CMP with stone headwall	cobble, gravel, fines	seasonal	
S9	169	36	48	0	0	Aspen, Sitka alder, willows, red-osier dogwood, lodgepole pine, Douglas-fir	forested flat	Lake Sherburne	18	CMP with metal wingwall	gravel, fines	perennial	2 inches of clearance at the culvert outlet
S10	172	25	30	7	4	Black cottonwood, aspen, lodgepole pine, buffaloberry, serviceberry	roadside runoff	Lake Sherburne	18	CMP with stone headwall	gravel, fines	seasonal	50 percent blocked
S11	146	10	18	0	0	Engelmann spruce, lodgepole pine, aspen, serviceberry	Wetland C	Lake Sherburne	24	blocked culvert	fines, organic matter	perennial	25 percent blocked
S12	182	24	30	29	11	Black cottonwood, aspen, willow, Engelmann spruce	hillslope	Lake Sherburne	30	CMP	cobble, fines	seasonal	60 percent blocked, edges of culvert are bent

Table B-1 (continued). Riverine Wetlands (Streams) in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Stream Name/ Number	Station (Approx.)	OHWM at Culvert (inches unless otherwise noted)		Impact Area (sq. ft.)	Linear Impact (feet)	Riparian Vegetation	Flow From	Flow To	Culvert Size (inches unless otherwise noted)	Culvert Condition	Substrate	Flow Regime	Notes
		Inlet	Outlet										
S13	189	68	78	5	1	Black cottonwood, aspen, lodgepole pine, serviceberry, fireweed, timothy, redtop	forested flat	Lake Sherburne	buried	buried culvert	cobble, gravel, fines	seasonal	
S14	191	7	18	4	3	Aspen, lodgepole pine, thimbleberry, serviceberry, meadowrue	roadside drainage from the east and west	Lake Sherburne	18	CMP with wingwalls	fines	seasonal	Culvert is rusting at the bottom
S15 Windy Creek	201	39 feet	32 feet	0	0	Black cottonwood, smooth brome, timothy, willows	hillslope	Lake Sherburne	Three openings: 9 feet, 14 feet, and 9 feet	East opening is partially blocked	boulders, cobble, gravel	perennial	East channel carries high flow
S16	232	32	24	0	0	Black cottonwood, Douglas-fir, red-osier dogwood, willows	Wetland E	Lake Sherburne	18	CMP	fines	perennial	12-inch drop at culvert outlet. The stream dissipated into a wetland downstream and outside the study area.
S17	236	30	30	0	0	Aspen, lodgepole pine, fireweed, goldenrod, smooth brome	hillslope	Lake Sherburne	24	CMP with stone headwall	cobble, gravel	seasonal	10-inch drop at culvert outlet
S18	249	48	24	0	0	Red-osier dogwood, black cottonwood, lodgepole pine, willows	hillslope	Lake Sherburne	18	CMP with stone headwall	cobble, fines	perennial	
S19	251	54	36	31	11	Aspen, lodgepole pine, black cottonwood, red-osier dogwood, serviceberry	hillslope	Lake Sherburne	24	CMP with stone headwall	cobble, step-pool complex	perennial	20-inch drop at culvert outlet
S20	261	drainage basin	28	0	0	Black cottonwood, aspen	hillslope	Lake Sherburne	18	CMP with stone headwall	gravel, leaf debris	seasonal	Roadside swales drain from the east and west
S21	280	43	55	63	21	Black cottonwood, Engelmann spruce, willows, red-osier dogwood, goldenrod, Virginia strawberry	hillslope	Lake Sherburne	24	CMP	cobble, gravel, step pools	perennial	Stream is at the GNP entrance station. 14-inch drop at culvert outlet.
S22	305	32	outside study area	0	0	Black cottonwood, red-osier dogwood, snowberry	hillslope	Lake Sherburne	24	CMP	gravel, fines	seasonal	Multiple braided channels in floodplain, extensive trampling by cattle
S23	315	16 feet	outside study area	10	2	Black cottonwood, aspen, snowberry, Wood's rose	hillslope	Lake Sherburne	buried	buried on upstream side	gravel, fines	seasonal	Cattle prints and manure in channel.
S24	318	24	outside study area	5	5	Aspen, Wood's rose, snowberry, serviceberry	hillslope	Lake Sherburne	18	CMP with stone headwall	cobble, gravel	seasonal	The channel splits in two downstream of the culvert.
S25	358	7 feet	48	28	6	Douglas-fir, lodgepole pine, black cottonwood, aspen, snowberry, hawthorn, Wood's rose, meadowrue, aster, baneberry	hillslope	Lake Sherburne	36	CMP with stone headwall	boulders, cobble, gravel, fines in pools	perennial	Stream is in a deep gully incised 15 to 20 feet on both sides of the road. There is 14 inches of clearance at the culvert outlet. Culvert is rusting at the bottom.
S26	362	36	outside study area	4	2	Aspen, willows, snowberry, meadowrue	hillslope	Lake Sherburne	36	CMP with stone headwall	cobble, gravel, step pools	seasonal	

Table B-1 (continued). Riverine Wetlands (Streams) in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Stream Name/ Number	Station (Approx.)	OHWM at Culvert (inches unless otherwise noted)		Impact Area (sq. ft.)	Linear Impact (feet)	Riparian Vegetation	Flow From	Flow To	Culvert Size (inches unless otherwise noted)	Culvert Condition	Substrate	Flow Regime	Notes
		Inlet	Outlet										
S27	365	24	36	7	4	Aspen, black cottonwood, serviceberry, angelica	hillslope	Lake Sherburne	18	CMP with stone headwall	cobble, gravel, boulders	seasonal	Headwall is crumbling.
S28	366	54	48	0	0	Black cottonwood, aspen, serviceberry, snowberry	hillslope	Lake Sherburne	24	CMP with stone headwall	boulders, cobble	seasonal	Large boulders at the culvert outlet.
S29	378	45	36	14	7	Alder buckthorn, red-osier dogwood, aspen, grasses, hounds' tongue	hillslope	Lake Sherburne	18	CMP with stone headwall	cobble, gravel, scattered boulders	seasonal	Downstream side is incised with a 31-inch drop at the outlet. Riparian vegetation is heavily grazed and trampled.
S30	382	45	36	5	3	Black cottonwood, aspen, snowberry, baneberry, grasses	hillslope	Lake Sherburne	24	CMP with stone headwall	cobble, gravel, fines	seasonal/ ephemeral	Culvert is half full of sediment on downstream side, culvert is rusted, stone headwall is crumbling.
S31	383	36	36	29	13	Black cottonwood, aspen, grasses, yarrow, snowberry	hillslope	Lake Sherburne	not able to measure	CMP with stone headwall	cobble, gravel, fines	seasonal/ ephemeral	Three channels converge at the culvert inlet, well-travelled cattle paths present, culvert is buried, top of rock wall is visible.
S32	387	25	32	0	0	Aspen, willows, snowberry, rose, meadow rue, goldenrod, angelica	hillslope	Lake Sherburne	18	CMP with wing wall	cobble, boulders	seasonal	Stream is incised about 4 feet on downstream side.
S33	392	24	24	6	6	Aspen, snowberry, serviceberry	hillslope	Lake Sherburne	18	CMP with cement headwall	cobble, gravel	seasonal	Narrow incised channel.
S34	405	30	no channel at outlet	7	3	Black cottonwood, willow, Wood's rose, snowberry, yarrow	hillslope	Lake Sherburne	18	CMP with stone headwall	cobble, gravel	seasonal	Steep eroded banks, much bare soil upstream of culvert. Outlet drains to a basin with no channel.
S35	408	drainage basin	24	0	0	Aspen, rose, snowberry	hillslope	Lake Sherburne	18	CMP	fines	seasonal	Riparian area is grazed and trampled.
S36	410	7 feet	6 feet	29	6	Aspen, snowberry, smooth brome, timothy, serviceberry	hillslope	Lake Sherburne	42	CMP	boulders, cobble, gravel	seasonal	Downstream side is a bare, eroded gully through lake sediment. Upstream banks are steep and eroded, incised approximately 10 feet. The culvert is rusted and bent with debris racked at the inlet.
Total Impacts in Glacier National Park				**295**	**116**								

CMP = corrugated metal pipe

Table B-1 (continued). Riverine Wetlands (Streams) in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Stream Name/ Number	Station (Approx.)	OHWM at Culvert (inches unless otherwise noted)		Impact Area (sq. ft.)	Linear Impact (feet)	Riparian Vegetation	Flow From	Flow To	Culvert Size (inches unless otherwise noted)	Culvert Condition	Substrate	Flow Regime	Notes
		Inlet	Outlet										
On Blackfeet Reservation													
S37	521	outside right-of-way; not GPSed		0	0	Aspen, black cottonwood, snowberry, rose, chokecherry	parallel with the road, from the east	Lake Sherburne		no culvert found	fines	seasonal	
S38	547	46	39	0	0	Engelmann spruce, black cottonwood, rose, willow, snowberry, serviceberry	hillslope	Swiftcurrent Creek	24	CMP with stone headwall	gravel, fines	seasonal	
S39	572	66	outlets at Swiftcurrent Creek	0	0	Booth's willow, snowberry	hillslope	Swiftcurrent Creek	31	CMP with stone headwall	cobble, gravel	seasonal	
S40	577	55	86	12	7	Aspen, snowberry	hillslope	Swiftcurrent Creek	18	CMP with cement headwall	gravel, fines, partly vegetated	seasonal	Culvert outlet overhangs Swiftcurrent Creek.
S41	583	24	32	10	5	Aspen, Engelmann spruce, snowberry	hillslope	Swiftcurrent Creek	18	CMP	cobble, gravel, fines, partly vegetated	seasonal	
S42	590	70	10 feet	0	0	Engelmann spruce, aspen, willows	hillslope	Swiftcurrent Creek	18	CMP with stone headwall	gravel, fines	seasonal	2-foot-deep incised channel. Culvert outlet is at the right-of-way boundary.
S43	596	53	32	35	8	Willows, snowberry, silverberry, serviceberry	hillslope	Swiftcurrent Creek	18	CMP with concrete headwall	cobble, gravel, fines	seasonal	Culvert is half blocked, with a 45-inch drop at the outlet. Channel is incised 3 feet.
S44	600	15	24	4	40	Aspen, spreading juniper	hillslope	Swiftcurrent Creek	18	CMP	cobble, gravel, fines	seasonal	Culvert is 1/4 filled with sediment. The channel is incised upstream of the culvert, the outlet it at the right-of-way boundary.
S45	619	32	24	0	0	Aspen, buffaloberry, rose, snowberry	vegetated swales along the roadside	Swiftcurrent Creek	18	CMP with wingwall	gravel, fines	seasonal	Culvert is half full of sediment.
S46	633	24	40	132	66	Black cottonwood, Engelmann spruce, rose	hillslope	Swiftcurrent Creek	18	CMP with concrete headwall	gravel, fines	seasonal	Culvert is 3/4 full of sediment.
S47	638	18	outlet is perched over Swiftcurrent Creek	15	10	Aspen, cottonwood, silverberry, juniper	hillslope	Swiftcurrent Creek	18	CMP	cobble, gravel	perennial	Wetland PP is alongside the stream.
S48	660	44	outlet is at Swiftcurrent Creek	12	6	Black cottonwood, Engelmann spruce, snowberry, willow, silverberry	hillslope	Swiftcurrent Creek	24	CMP with stone headwall	boulders, cobbles	perennial	
S49	671	no channel on upstream side	24	1	2	Snowberry, silverberry	roadside drainage from north of road	Swiftcurrent Creek	18	CMP with stone headwall	cobble, gravel	seasonal	Culvert outlet is at the right-of-way boundary, did not GPS.

Table B-1 (continued). Riverine Wetlands (Streams) in the Project Corridor for the Many Glacier Road Rehabilitation Project.													
Stream Name/ Number	**Station (Approx.)**	**OHWM at Culvert (inches unless otherwise noted)**		**Impact Area (sq. ft.)**	**Linear Impact (feet)**	**Riparian Vegetation**	**Flow From**	**Flow To**	**Culvert Size (inches unless otherwise noted)**	**Culvert Condition**	**Substrate**	**Flow Regime**	**Notes**
		Inlet	**Outlet**										
S50	716	no channel on upstream side	24	0	0	Willows, black cottonwood	beaver pond	beaver pond, then Swiftcurrent Creek	18	CMP	fines	perennial	
S51	729	36	40	3	2	Lodgepole pine, aspen, serviceberry, snowberry, rose	hillslope	Swiftcurrent Creek	18	CMP with stone headwall	fines	perennial	
Total Impacts on Blackfeet Reservation				**224**	**110**								

CMP = corrugated metal pipe

Table B-2. Palustrine Wetlands in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Wetland Name	Approximate Station	Impact Area (sq. ft.)	Cowardin Class	HGM Class	Rating	Description	Connection to Waters of the United States
Inside Glacier National Park							
A	144	0	PSS/PEM	slope/riverine	I	Part of large wetland complex at Apikuni Flats	Connected to Apikuni Creek
B	166	0	PEM/PSS	depressional	I	Hillslope seep	Lake Sherburne via culvert under Many Glacier Road
C	145	0	PSS/PEM	slope/riverine	I	Hillslope seep	Wetland A and Apikuni Creek via culvert under Many Glacier Road
D	151	0	PSS/PEM	slope/riverine	I	Part of large wetland complex at Apikuni Flats	Unnamed tributary to Apikuni Creek (S5)
E	229	0	PEM/PFO	slope	I	Hillslope seep	Unnamed tributary to Lake Sherburne via culvert under Many Glacier Road (S16)
F	299	0	PSS	slope	III	Hillslope seep	Drains to upland vegetation along Lake Sherburne via culvert under Many Glacier Road. No channel was evident on the downslope side.
G	302	0	PSS	depressional	III	Roadside ditch/swale	Connected to Wetland F via vegetated swale
H	311	0	PSS	depressional	III	Roadside ditch/swale	Connected to unnamed tributary to Lake Sherburne (S22) via vegetated swale and culvert under Many Glacier Road
I	320	0	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east, no visible surface connection to Lake Sherburne
J	342	20	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culverts to the east and west, no visible surface connection to Lake Sherburne
K	351	181	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culverts to the east and west, no visible surface connection to Lake Sherburne
L	362	0	PSS	depressional	III	Roadside ditch/swale	Connected to unnamed tributary to Lake Sherburne (S26) via culvert under Many Glacier Road; culvert outlet is outside the right-of-way
M	364	0	PSS	depressional	III	Roadside ditch/swale	Connected to unnamed tributary to Lake Sherburne (S26) via culvert under Many Glacier Road; culvert outlet is outside the right-of-way
N	369	0	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east, no visible surface connection to Lake Sherburne
O	372	1	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east, no visible surface connection to Lake Sherburne
P	375	0	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east, no visible surface connection to Lake Sherburne
Q	385	26	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to unnamed tributary to Lake Sherburne (S31)
R	388	768	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to unnamed tributary to Lake Sherburne (S32)
S	391	496	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to unnamed tributary to Lake Sherburne (S33)
T	396	162	PSS	depressional	III	Roadside ditch/swale	Drains via culvert to Lake Sherburne
U	398	4	PEM	depressional	III	Roadside ditch/swale	Drains to Lake Sherburne in a vegetated swale and culvert to the west
V	400	60	PEM	depressional	III	Roadside ditch/swale	Drains to Lake Sherburne in a vegetated swale and culvert to the west
W	402	162	PEM	depressional	III	Roadside ditch/swale	Drains to Lake Sherburne in a vegetated swale and culvert to the west
X	407	262	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to unnamed tributary to Lake Sherburne (S34)
Y	412	240	PSS	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
Z	418	793	PEM	slope	III	Hillslope seep from active slump	No visible surface connection to a culvert, but wetland contains seeps, possible subsurface connection with Lake Sherburne
Total Impacts Inside Park		**3,175**					

Table B-2 (continued). Palustrine Wetlands in the Project Corridor for the Many Glacier Road Rehabilitation Project.

Wetland Name	Approximate Station	Impact Area (sq. ft.)	Cowardin Class	HGM Class	Rating	Description	Connection to Waters of the United States
On Blackfeet Reservation							
AA	526	0	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the west; no visible surface connection to Lake Sherburne
BB	533	140	PEM	depressional	III	Roadside ditch/swale	Drains to the east to a vertical culvert connected to Swiftcurrent Creek
CC	539	218	PEM	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east; no visible surface connection to Swiftcurrent Creek
DD	543	1,130	PEM	depressional	III	Roadside ditch/swale	Drains to culvert to the west; no visible surface connection to Swiftcurrent Creek
EE	555	0	PSS	riverine	not rated	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
FF	558	0	PEM/PSS/PAB/POW	slope/riverine	I	Hillslope seep from active slump	Connected to Wetland GG and Swiftcurrent Creek via culvert
GG	557	0	PEM/PSS/PAB/POW	slope/riverine	I	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
HH	569	0	PSS	riverine	I	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
II	585	0	PSS	depressional	III	Roadside ditch/swale	Drains in a vegetated swale to culvert to the east; possible surface connection to Swiftcurrent Creek outside right-of-way
JJ	600	19	PSS	depressional	III	Roadside ditch/swale	Drains to unnamed tributary to Swiftcurrent Creek (S44)
KK	610	3,211	PSS	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
LL	616	0	PSS	depressional	III	Depressional area at the toe of the slope	Drains to unnamed tributary to Swiftcurrent Creek (S45)
MM	616	0	PSS	depressional	III	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
NN	626	100	PEM	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
OO	628	216	PEM	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
PP	638	25	PEM	riverine	III	Fringe wetland	Unnamed tributary to Swiftcurrent Creek (S47)
QQ	642	289	PEM	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
RR	647	0	PFO/PSS/PEM/POW	slope/depressional	I	Ponded wetland	Connected via culvert to Swiftcurrent Creek floodplain
SS	647	0	PFO/PSS/PEM/POW	slope/depressional	I	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
TT	652	1,081	PEM	depressional	III	Roadside ditch/swale	Drains to culvert to the east, culvert outlet is on the bank of Swiftcurrent Creek
UU	656	418	PSS	depressional	III	Roadside ditch/swale	Drains to culvert to the east, culvert outlet is on the bank of Swiftcurrent Creek
VV	658	210	PSS	depressional	III	Roadside ditch/swale	Drains to culverts to the west and east, connected to Swiftcurrent Creek via culvert and unnamed tributary (S48)
WW	665	34	PEM	depressional	III	Roadside ditch/swale	No visible surface connection to a culvert
XX	679	0	PEM	riverine	not rated	Depressional area at the toe of the road shoulder	In the Swiftcurrent Creek floodplain, outside the right-of-way
YY	682	0	PEM	depressional	III	Roadside ditch/swale	Drains via vegetated swale to culvert to the west, no visible surface connection to Swiftcurrent Creek
ZZ	688	349	PSS	depressional	III	Roadside ditch/swale	Drains in both directions to culverts with outlets on the bank of Swiftcurrent Creek
AAA	715	272	PFO/PSS/PAB	riverine/depressional	I	Beaver dam complex with areas of ponding	Drains via culvert to Wetland BBB
BBB	715	0	PFO/PSS/PAB	riverine/depressional	I	Floodplain wetland along Swiftcurrent Creek	Swiftcurrent Creek
CCC	721	685	PEM	depressional	III	Roadside ditch/swale	Drains to Wetland BBB via culvert
DDD	726	81	PSS/PEM	slope	III	Hillslope seep	Drains in a vegetated swale to unnamed tributary to Swiftcurrent Creek (S51)
EEE North	735	243	PFO/PSS/PEM/PAB/ POW	depressional	I	Beaver pond	Drains to unnamed tributary to Swiftcurrent Creek outside right-of-way
EEE South	735	14	PFO/PSS/PEM/PAB/ POW	slope	I	Across Many Glacier Road from beaver pond	Across the road from Wetland EEE North; flows to unnamed tributary to Swiftcurrent Creek
Total Impacts on Reservation		**8,735**					

APPENDIX C

Wetland Data Sheets

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 30-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-A-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 12 **T** 35N **R** 16W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR E **Lat.:** 48.805636 **Long.:** -113.628764 **Datum:** NAD 1983

Soil Map Unit Name: Ericson family, very stony-Leighcan family-Ipasha **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30ft^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30ft^2)			
1. Ribes inerme	20	☑ 33.3%	FAC
2. Symphoricarpos albus	30	☑ 50.0%	FACU
3. Salix boothii	10	☐ 16.7%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	60	= Total Cover	
Herb Stratum (Plot size: 10ft^2)			
1. Cirsium arvense	5	☐ 5.6%	FAC
2. Bromus inermis	40	☑ 44.4%	UPL
3. Urtica dioica	5	☐ 5.6%	FAC
4. Equisetum arvense	35	☑ 38.9%	FAC
5. Solidago canadensis	5	☐ 5.6%	FACU
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	
Woody Vine Stratum (Plot size: 10'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 5

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	65	x 3 =	195
FACU species	35	x 4 =	140
UPL species	40	x 5 =	200
Column Totals:	150 (A)		555 (B)

Prevalence Index = B/A = 3.700

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-A-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Loam	
4+										gravel/cobble road fill

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: road fill

Depth (inches): 4"

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 30-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-A-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 12 **T** 35N **R** 16W

Landform (hillslope, terrace, etc.): Toeslope **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.805636 **Long.:** -113.628764 **Datum:** NAD 1983

Soil Map Unit Name: Ericson family, very stony-Leighcan family-Ipasha **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Salix drummondiana	80	☑	80.0%	FACW
2. Salix boothii	20	☑	20.0%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	100	= Total Cover		

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	5	☐	10.0%	FAC
2. Senecio triangularis	20	☑	40.0%	FACW
3. Maianthemum racemosum ssp. amplexicaule	20	☑	40.0%	FAC
4. Angelica arguta	5	☐	10.0%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	50	= Total Cover		

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 50

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	125	x 2 =	250
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		325 (B)

Prevalence Index = B/A = 2.167

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Hydrophytic vegetation is dominant.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-A-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100						Clay Loam	
4-12	10YR	2/1	95	10YR	4/4	5	C	M	Clay Loam	
12-13	10YR	2/1	50	10YR	4/6	50			Clay	
13 +									Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard packed clay

Depth (inches): 13

Hydric Soil Present? Yes ◉ No ○

Remarks:

F6 Redox Dark Surface

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators B9, D2, and D5 are met.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 30-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-B-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** convex **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR E **Lat.:** 48.80659 **Long.:** -113.61983 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 10'x30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	10	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Symphoricarpos albus	10	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	= Total Cover	

Herb Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Taraxacum officinale	2	☐ 2.1%	FACU
2. Equisetum arvense	50	☑ 53.2%	FAC
3. Phleum pratense	20	☑ 21.3%	FAC
4. Thalictrum occidentale	2	☐ 2.1%	FACU
5. Bromus inermis	20	☑ 21.3%	UPL
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	94	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 2

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	24	x 4 =	96
UPL species	20	x 5 =	100
Column Totals:	114 (A)		406 (B)

Prevalence Index = B/A = 3.561

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-B-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/3	100						angular rock	
12+									cobble	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 30-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-B-WET**

Investigator(s): Shelby Petro, Sue Wall **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): Toeslope **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.80663 **Long.:** -113.61986 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	50	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix drummondiana	30	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Calamagrostis canadensis	80	☑ 80.0%	FACW
2. Aster engelmannii	10	☐ 10.0%	UPL
3. Solidago canadensis	10	☐ 10.0%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	0	x 3 =	0
FACU species	60	x 4 =	240
UPL species	10	x 5 =	50
Column Totals:	180 (A)		510 (B)

Prevalence Index = B/A = 2.833

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-B-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/1	100						Loam	
6-20	10YR	4/2	70	7.5YR	4/6	30	C	M	Loamy Sand	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator A11.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicator B5 is present. Secondary indicators B9, B10, and D5 are also present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-C-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR E **Lat.:** 48.80572 **Long.:** -113.62806 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	60	☑ 75.0%	FACU
2. Populus balsamifera ssp. trichocarpa	20	☑ 25.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Shepherdia canadensis	50	☑ 100.0%	UPL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	50	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Fragaria virginiana	30	☑ 60.0%	FACU
2. Equisetum arvense	10	☑ 20.0%	FAC
3. Maianthemum racemosum	10	☑ 20.0%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	90	x 4 =	360
UPL species	50	x 5 =	250
Column Totals:	180 (A)		730 (B)

Prevalence Index = B/A = 4.056

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-C-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-C-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.80573 **Long.:** -113.62798 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

Seep wetland; appears to be a slump. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	20	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	10	☑ 33.3%	FACU
2. Salix drummondiana	20	☑ 66.7%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	80	☑ 80.8%	FAC
2. Senecio triangularis	5	☐ 5.1%	FACW
3. Piperia dilatata	10	☐ 10.1%	FACW
4. Angelica arguta	2	☐ 2.0%	FACW
5. Aster engelmannii	2	☐ 2.0%	UPL
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	99	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	37	x 2 =	74
FAC species	80	x 3 =	240
FACU species	30	x 4 =	120
UPL species	2	x 5 =	10
Column Totals:	149 (A)		444 (B)

Prevalence Index = B/A = 2.980

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

mossy, vegetation meets prevalence index

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-C-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR	2/1	100						Muck	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☑ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 9

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A2 is present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	0.5
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A1, A2, and A3 present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-D-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** convex **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR E **Lat.:** 48.80539 **Long.:** -113.62565 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
None of the three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	40	☑ 50.0%	FACU
2. Picea engelmannii	30	☑ 37.5%	FAC
3. Pinus contorta	10	☐ 12.5%	FAC
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Amelanchier alnifolia	5	☑ 33.3%	FACU
2. Picea engelmannii	5	☑ 33.3%	FAC
3. Sorbus scopulina	5	☑ 33.3%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Thalictrum occidentale	30	☑ 30.0%	FACU
2. Streptopus amplexifolius	5	☐ 5.0%	FAC
3. Heracleum sphondylium	5	☐ 5.0%	FAC
4. Equisetum arvense	5	☐ 5.0%	FAC
5. Calamagrostis canadensis	30	☑ 30.0%	FACW
6. Galium boreale	5	☐ 5.0%	FACU
7. Solidago canadensis	20	☑ 20.0%	FACU
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	

Woody Vine Stratum (Plot size: 10m'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	37.5%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	60	x 3 =	180
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	195 (A)		660 (B)

Prevalence Index = B/A = 3.385

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation does not meet any hydrophytic vegetation criteria.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-D-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	100						Sandy Clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 12

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-D-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 7 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): terrace/slope **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.80538 **Long.:** -113.62560 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	50	☑ 71.4%	FACU
2. Picea engelmannii	20	☑ 28.6%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix drummondiana	30	☑ 85.7%	FACW
2. Salix bebbiana	5	☐ 14.3%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	35	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Senecio triangularis	20	☑ 20.6%	FACW
2. Equisetum arvense	20	☑ 20.6%	FAC
3. Angelica arguta	5	☐ 5.2%	FACW
4. Calamagrostis canadensis	45	☑ 46.4%	FACW
5. Epilobium saximontanum	2	☐ 2.1%	FACW
6. Glyceria elata	5	☐ 5.2%	FACW
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	97	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 3

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	112	x 2 =	224
FAC species	40	x 3 =	120
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	202 (A)		544 (B)

Prevalence Index = B/A = 2.693

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-D-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/1	100						Muck	
6-12	10YR	2/1	90	7.5YR	5/8	10			Silt Loam	
12-20	10YR	2/2	80	10YR	5/6	20			Silt Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F6.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	20
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A2 and A3 are met. Secondary indicator D5 is also met.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-E-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 5 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR E **Lat.:** 48.81514 **Long.:** -113.59653 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
Only one of the three wetland parameters present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	50	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Lonicera involucrata	20	☑ 57.1%	FAC
2. Symphoricarpos albus	5	☐ 14.3%	FACU
3. Salix scouleriana	10	☑ 28.6%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	35	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	10	☐ 11.1%	FAC
2. Solidago canadensis	60	☑ 66.7%	FACU
3. Calamagrostis canadensis	10	☐ 11.1%	FACW
4. Osmorhiza berteroi	10	☐ 11.1%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	175 (A)		590 (B)

Prevalence Index = B/A = 3.371

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation meets the dominance test.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-E-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 31-Aug-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-E-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 5 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): roadside depression **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.81512 **Long.:** -113.59649 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'x10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	20	☑ 66.7%	FAC
2. Picea engelmannii	10	☑ 33.3%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix boothii	25	☑ 41.7%	FACW
2. Alnus viridis	5	☐ 8.3%	FACW
3. Salix drummondiana	20	☑ 33.3%	FACW
4. Salix bebbiana	10	☐ 16.7%	FACW
5.	0	☐ 0.0%	
	60	= Total Cover	

Herb Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	40	☑ 80.0%	OBL
2. Juncus balticus	10	☑ 20.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	= Total Cover	

Woody Vine Stratum (Plot size: 30'x10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	140 (A)		270 (B)

Prevalence Index = B/A = 1.929

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-E-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	2/1	100						Muck	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☑ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator A2.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology meets indicators A1, A2, and A3. Secondary indicator D5 is also present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-F-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB43 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR E **Lat.:** 48.82407 **Long.:** -113.57192 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	90	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Amelanchier alnifolia	75	☑ 93.8%	FACU
2. Ribes inerme	5	☐ 6.3%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	80	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cirsium arvense	10	☑ 28.6%	FAC
2. Fragaria vesca	5	☐ 14.3%	FACU
3. Thalictrum occidentale	15	☑ 42.9%	FACU
4. Symphyotrichum foliaceum	5	☐ 14.3%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	35	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	190	x 4 =	760
UPL species	0	x 5 =	0
Column Totals:	205 (A)		805 (B)

Prevalence Index = B/A = 3.927

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Vegetation does not meet any hydrophytic vegetation criteria.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-F-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR	3/3	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-F-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB43 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR E **Lat.:** 48.82403 **Long.:** -113.57179 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix boothii	10	☑ 33.3%	FACW
2. Vaccinium membranaceum	10	☑ 33.3%	FACU
3. Salix bebbiana	10	☑ 33.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	50	☑ 55.6%	OBL
2. Juncus longistylis	10	☐ 11.1%	FACW
3. Agrostis stolonifera	10	☐ 11.1%	FAC
4. Juncus tenuis	10	☐ 11.1%	FAC
5. Equisetum arvense	10	☐ 11.1%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	30	x 2 =	60
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	120 (A)		240 (B)

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

mossy, vegetation meets dominance test and prevalence index

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-F-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/1	100						mucky mineral	
6-12	10YR	2/1	95	10YR	6/8	5			Clay Loam	gravel and cobble

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

hillslope covered with cobble and boulders, hydric soil indicators A4 and F3 are present

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

standing water in hoof prints adjacent to pit. Hydrology indicator A3 and C1 are met. Secondary indicator D5 is also met.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** TP-G-UPL

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** S PB43 T 35N R 15w

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 30.0 % / 16.7 °

Subregion (LRR): LRR E **Lat.:** 48.82429 **Long.:** -113.57068 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	10	☑ 20.0%	FAC
2. Pinus contorta	10	☑ 20.0%	FAC
3. Populus balsamifera	20	☑ 40.0%	FAC
4. Populus tremuloides	10	☑ 20.0%	FACU
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Shepherdia canadensis	20	☑ 22.2%	UPL
2. Juniperus horizontalis	20	☑ 22.2%	FACU
3. Arctostaphylos uva-ursi	20	☑ 22.2%	FACU
4. Amelanchier alnifolia	20	☑ 22.2%	FACU
5. Symphoricarpos albus	10	☐ 11.1%	FACU
	90	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Achillea millefolium	10	☑ 25.0%	FACU
2. Symphyotrichum foliaceum	10	☑ 25.0%	FACU
3. Solidago canadensis	10	☑ 25.0%	FACU
4. Fragaria virginiana	10	☑ 25.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	

Woody Vine Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	120	x 4 =	480
UPL species	20	x 5 =	100
Column Totals:	180 (A)		700 (B)

Prevalence Index = B/A = 3.889

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation does not meet any hydrophytic vegetation criteria.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-G-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 6

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-G-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB43 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): roadside swale **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.82429 **Long.:** -113.57061 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met. Soils are naturally problematic and seasonally ponded.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix pseudomonticola	20	☑ 36.4%	FACW
2. Salix bebbiana	5	☐ 9.1%	FACW
3. Populus balsamifera	20	☑ 36.4%	FAC
4. Populus tremuloides	10	☐ 18.2%	FACU
5.	0	☐ 0.0%	
	55	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus balticus	90	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	155 (A)		360 (B)

Prevalence Index = B/A = 2.323

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-G-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	3/2	100						Sandy Loam	many roots

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel/cobble

Depth (inches): 3

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil is naturally problematic and meets criteria for seasonally ponded soils. Four secondary indicators for hydrology are present and vegetation is hydrophytic.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators B9, B10, D2, and D5 are met.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-H-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB43 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** convex **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR E **Lat.:** 48.82538 **Long.:** -113.56725 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 10'^2)			
1. Phleum pratense	10	☑ 25.0%	FAC
2. Bromus inermis	10	☑ 25.0%	UPL
3. Taraxacum officinale	10	☑ 25.0%	FACU
4. Symphyotrichum laeve	10	☑ 25.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	
Woody Vine Stratum (Plot size: 10'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	25.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	20	x 4 =	80
UPL species	10	x 5 =	50
Column Totals:	40 (A)		160 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Vegetation does not meet any hydrophytic vegetation criteria.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-H-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No soil pit, substrate is road fill

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 04-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-H-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB43 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): roadside swale **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.82540 **Long.:** -113.56727 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

cattle prints and hummocking present. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Dasiphora fruticosa	20	☑ 40.0%	FAC
2. Populus balsamifera	10	☑ 20.0%	FAC
3. Salix babylonica	20	☑ 40.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	50	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus balticus	70	☑ 73.7%	FACW
2. Solidago canadensis	10	☐ 10.5%	FACU
3. Agrostis stolonifera	10	☐ 10.5%	FAC
4. Galium boreale	5	☐ 5.3%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	95	= Total Cover	

Woody Vine Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 5

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	50	x 3 =	150
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	155 (A)		390 (B)

Prevalence Index = B/A = 2.516

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-H-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	4/1	95	10YR	5/6	5	C	M	Clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 7

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators B10, D2, and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 05-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-R-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB46 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR E **Lat.:** 48.83000 **Long.:** -113.53796 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	80	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30'^2)			
1. Symphoricarpos albus	20	☑ 28.6%	FACU
2. Crataegus douglasii	10	☐ 14.3%	FAC
3. Amelanchier alnifolia	20	☑ 28.6%	FACU
4. Rosa woodsii	20	☑ 28.6%	FACU
5.	0	☐ 0.0%	
	70	= Total Cover	
Herb Stratum (Plot size: 10'^2)			
1. Thalictrum occidentale	30	☑ 42.9%	FACU
2. Symphyotrichum foliaceum	5	☐ 7.1%	FACU
3. Achillea millefolium	5	☐ 7.1%	FACU
4. Phleum pratense	30	☑ 42.9%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	70	= Total Cover	
Woody Vine Stratum (Plot size: 10'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 30

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	16.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	180	x 4 =	720
UPL species	0	x 5 =	0
Column Totals:	220 (A)		840 (B)

Prevalence Index = B/A = 3.818

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-R-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard packed clay

Depth (inches): 12

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 05-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-R-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB46 **T** 35N **R** 15W

Landform (hillslope, terrace, etc.): roadside swale **Local relief (concave, convex, none):** concave **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR E **Lat.:** 48.82996 **Long.:** -113.53801 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock-Apikuni complex, 4 to 35 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

Heavily trampled by cattle. Oil spills. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	10	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Dasiphora fruticosa	10	☑ 50.0%	FAC
2. Salix bebbiana	5	☑ 25.0%	FACW
3. Amelanchier alnifolia	5	☑ 25.0%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	20	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis stolonifera	30	☑ 50.0%	FAC
2. Juncus balticus	30	☑ 50.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	60	= Total Cover	

Woody Vine Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	40	x 3 =	120
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	90 (A)		250 (B)

Prevalence Index = B/A = 2.778

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.Vegetation is heavily trampled by cattle.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-R-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/1	95	10YR	5/6	5	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compact clay

Depth (inches): 16

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F6.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicator C3 is present. Hydrology indicators B10 and D2 are also present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 06-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-Z-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB46 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83003 **Long.:** -113.52567 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Elaeagnus commutata	65	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	65	= Total Cover	

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Bromus inermis	3	☑ 60.0%	UPL
2. Melilotus officinalis	2	☑ 40.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	5	= Total Cover	

Woody Vine Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	2	x 4 =	8
UPL species	3	x 5 =	15
Column Totals:	70 (A)		218 (B)

Prevalence Index = B/A = 3.114

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-Z-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
1-12	2.5Y	4/2	100						gravelly	
12-16	5Y	5/4	99	5Y	6/6	1	C	M	gravelly	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 06-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-Z-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** PB46 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.82998 **Long.:** -113.52574 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

seep from hillslope. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 10'^2)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Carex nebrascensis	20	☑	20.0%	OBL
2. Carex aquatilis	10	☑	10.0%	OBL
3. Juncus balticus	10	☑	10.0%	FACW
4. Eleocharis palustris	10	☑	10.0%	OBL
5. Agrostis stolonifera	10	☑	10.0%	FAC
6. Alopecurus aequalis	30	☑	30.0%	OBL
7. Equisetum arvense	10	☑	10.0%	FAC
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	100	= Total Cover		

Woody Vine Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	7	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	70	x 1 =	70
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		150 (B)

Prevalence Index = B/A = 1.500

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-Z-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100						Clay Loam	many roots in matrix
2-9	10YR	3/1	50	10YR	5/6	50	C	M	Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble/gravel

Depth (inches): 9

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F6 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators B10, D2, and D5 are present. Seep upslope. Standing water in hoof prints observed 3 feet from pit.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 18-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-FF-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 36 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): road fill on hillslope **Local relief (concave, convex, none):** convex **Slope:** 30.0 % / 16.7 °

Subregion (LRR): LRR E **Lat.:** 48.83157 **Long.:** -113.51041 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	0	☐ 0.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30'^2)			
1. Populus tremuloides	0	☐ 0.0%	FACU
2. Salix bebbiana	0	☐ 0.0%	FACW
3. Rosa woodsii	0	☐ 0.0%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 10'^2)			
1. Taraxacum officinale	0	☐ 0.0%	FACU
2. Symphyotrichum foliaceum	20	☑ 26.7%	FACU
3. Galium boreale	20	☑ 26.7%	FACU
4. Medicago lupulina	20	☑ 26.7%	FACU
5. Vicia americana	5	☐ 6.7%	FAC
6. Geranium viscosissimum	10	☐ 13.3%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	= Total Cover	
Woody Vine Stratum (Plot size: 10'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 25

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	75 (A)		295 (B)

Prevalence Index = B/A = 3.933

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-FF-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	2/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 18-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-FF-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 36 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83160 **Long.:** -113.51039 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	10	☑ 66.7%	FACU
2. Populus balsamifera	5	☑ 33.3%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	15	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix bebbiana	10	☑ 25.0%	FACW
2. Salix drummondiana	30	☑ 75.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	80	☑ 80.0%	OBL
2. Equisetum arvense	20	☑ 20.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	

Woody Vine Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	40	x 2 =	80
FAC species	25	x 3 =	75
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	155 (A)		275 (B)

Prevalence Index = B/A = 1.774

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-FF-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/1	100						mucky mineral	many roots
7-9	10YR	3/1	100						sandy silt	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A4 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A1, A2, A3, B5, C1 and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 18-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-HH-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 36 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): slope - roadfill **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83304 **Long.:** -113.50531 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30'^2)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 10'^2)			
1. Cynoglossum officinale	20	☑ 28.6%	FACU
2. Taraxacum officinale	20	☑ 28.6%	FACU
3. Cirsium arvense	20	☑ 28.6%	FAC
4. Medicago lupulina	10	☐ 14.3%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30'^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 30

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	33.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	70 (A)		260 (B)

Prevalence Index = B/A = 3.714

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-HH-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	4/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel road bed

Depth (inches): 3

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 18-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-HH-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 36 **T** 36N **R** 15W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83304 **Long.:** -113.50531 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Salix boothii	70	☑	73.7%	FACW
2. Salix drummondiana	20	☑	21.1%	FACW
3. Ribes inerme	5	☐	5.3%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	95	= Total Cover		

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Geum macrophyllum	15	☑	25.0%	FAC
2. Maianthemum stellatum	15	☑	25.0%	FAC
3. Mentha arvensis	15	☑	25.0%	FACW
4. Equisetum arvense	15	☑	25.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	60	= Total Cover		

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	155 (A)		360 (B)

Prevalence Index = B/A = 2.323

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-HH-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/1	100						Peaty Muck	Partly decomposed
3-8	10YR	4/1	70	10YR	5/8	30			Loam	
8-20	10YR	4/1	50	10YR	5/8	50			Clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A11 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Secondary hydrology indicators B9, B10 ,D2, and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 19-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** TP-PP-UPL

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** S 31 T 36N R 14W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR E **Lat.:** 48.83572 **Long.:** -113.47745 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
hydric soil, vegetation and wetland hydrology are not present

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	20	☑ 50.0%	FAC
2. Picea engelmannii	10	☑ 25.0%	FAC
3. Juniperus communis	10	☑ 25.0%	UPL
4.	0	☐ 0.0%	
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	30	☑ 40.0%	FACU
2. Elaeagnus commutata	30	☑ 40.0%	FAC
3. Dasiphora fruticosa	10	☐ 13.3%	FAC
4. Picea engelmannii	5	☐ 6.7%	FAC
5.	0	☐ 0.0%	
	75	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Symphyotrichum foliaceum	10	☑ 25.0%	FACU
2. Taraxacum officinale	10	☑ 25.0%	FACU
3. Phleum pratense	10	☑ 25.0%	FAC
4. Galium boreale	10	☑ 25.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 44.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	60	x 4 =	240
UPL species	10	x 5 =	50
Column Totals:	155 (A)		545 (B)

Prevalence Index = B/A = 3.516

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Hydrophytic vegetation is absent.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-PP-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR	2/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel- Compacted

Depth (inches): 9

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydic soil indicators met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 19-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-PP-Wet**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 31 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): Stream Fringe **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83570 **Long.:** -113.47745 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	10	☑ 33.3%	FAC
2. Populus tremuloides	10	☑ 33.3%	FACU
3. Populus balsamifera	10	☑ 33.3%	FAC
4.	0	☐ 0.0%	
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Elaeagnus commutata	10	☑ 33.3%	FAC
2. Populus tremuloides	10	☑ 33.3%	FACU
3. Salix boothii	10	☑ 33.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	80	☑ 78.4%	OBL
2. Sium suave	10	☐ 9.8%	OBL
3. Epilobium saximontanum	10	☐ 9.8%	FACW
4. Agrostis stolonifera	2	☐ 2.0%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	102	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	20	x 2 =	40
FAC species	32	x 3 =	96
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	162 (A)		306 (B)

Prevalence Index = B/A = 1.889

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Hydrophytic vegetation is present

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-PP-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1									sand	
1-3	10YR	3/1	100						silt	
3-9	10YR	2/1	100						silty sand	
9-20	2.5Y	5/2	100						sandy silt	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A4 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	13
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

wetland hydrology indicated

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 19-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-RR-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 32 **T** 36N **R** 24W

Landform (hillslope, terrace, etc.): Hillslope Road **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83666 **Long.:** -113.47464 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
Only the parameter for dominant hydrophytic vegetation is met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 10'x30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	50	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cornus alba var. occidentalis	30	☑ 75.0%	FACW
2. Shepherdia canadensis	10	☑ 25.0%	UPL
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Phleum pratense	20	☑ 40.0%	FAC
2. Equisetum hyemale	10	☑ 20.0%	FACW
3. Medicago lupulina	20	☑ 40.0%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	= Total Cover	

Woody Vine Stratum (Plot size: 10'x30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 50

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	70	x 3 =	210
FACU species	20	x 4 =	80
UPL species	10	x 5 =	50
Column Totals:	140 (A)		420 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Hydrophytic vegetation is dominant.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-RR-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR	4/2	100						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard packed gravel

Depth (inches): 9

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology not present

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 19-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-RR-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 32 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): Hilslope **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83673 **Long.:** -113.47473 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix boothii	10	☑ 25.0%	FACW
2. Salix planifolia	20	☑ 50.0%	OBL
3. Alnus viridis	10	☑ 25.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	100	☑ 100.0%	OBL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		190 (B)

Prevalence Index = B/A = 1.267

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Hippuris and Sparganium in standing water in wetland. Wetand meets dominance test and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-RR-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	3/1	100						Loam	many roots
5-14	10YR	6/2	100						Loamy Sand	Decomposed rocks
14-20	2.5Y	4/1	100						Loamy Sand	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicators A4 and A11.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	13
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicatorsA1, A2, A3, B5, C1, and D5 are present

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-AAA-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): roadside **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.84672 **Long.:** -113.45287 **Datum:** NAD 1983

Soil Map Unit Name: Tinsley soils **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
Hydric soil is present, but vegetation and hydrology indicators are lacking.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 30' x 10')				
1. Cornus alba var. occidentalis	10	☑	50.0%	FACW
2. Populus deltoides	10	☑	50.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	20	**= Total Cover**		
Herb Stratum (Plot size: 10'x10')				
1. Equisetum arvense	30	☑	30.0%	FAC
2. Taraxacum officinale	20	☑	20.0%	FACU
3. Dactylis glomerata	30	☑	30.0%	FACU
4. Agrostis stolonifera	20	☑	20.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	100	**= Total Cover**		
Woody Vine Stratum (Plot size: 30' x 10')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	60	x 3 =	180
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	120 (A)		400 (B)

Prevalence Index = B/A = 3.333

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation meets the dominance test.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-AAA-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2						Loam	
6-12	10YR 3/2						Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted gravel

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F6 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No evidence of wetland hydrology

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-AAA-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): beaver pond **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.84675 **Long.:** -113.45286 **Datum:** NAD 1983

Soil Map Unit Name: Tinsley soils **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:
All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30 ft. radius)			
1. Populus balsamifera ssp. trichocarpa	30	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft. radius)			
1. Cornus alba var. alba	10	☑ 20.0%	FACW
2. Populus tremuloides	10	☑ 20.0%	FACU
3. Salix drummondiana	30	☑ 60.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	50	= Total Cover	
Herb Stratum (Plot size: 10 ft. radius)			
1. Agrostis gigantea	30	☑ 37.5%	FAC
2. Epilobium saximontanum	10	☐ 12.5%	FACW
3. Veronica americana	20	☑ 25.0%	OBL
4. Equisetum arvense	20	☑ 25.0%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	80	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft. radius)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 20

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	85.7%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	20	x 1 =	20
FACW species	50	x 2 =	100
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	160 (A)		400 (B)

Prevalence Index = B/A = 2.500

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Hydrophytic vegetation is dominant.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-AAA-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR	2/1	100						Muck	
11-12	10YR	3/1	50	10YR	5/6	20	C	M	Loam	
11-12				10YR	5/1	30	D	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☑ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A2 is present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	0.5
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A1, A2, A3 and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-BBB-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.846402 **Long.:** -113.453001 **Datum:** NAD 1983

Soil Map Unit Name: Tinsley soils **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	80	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cornus alba var. occidentalis	10	☑ 50.0%	FACW
2. Salix bebbiana	10	☑ 50.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	20	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	20	☑ 22.2%	FAC
2. Agrostis stolonifera	20	☑ 22.2%	FAC
3. Phleum alpinum	10	☐ 11.1%	FAC
4. Epilobium saximontanum	20	☑ 22.2%	FACW
5. Canadanthus modestus	20	☑ 22.2%	FACW
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	7	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	130	x 3 =	390
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	190 (A)		510 (B)

Prevalence Index = B/A = 2.684

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Vegetation meets the dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-BBB-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	3/1	100						Sandy Loam	
3-11	10YR	3/1	80	10YR	4/6	20			Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

F6 Redox Dark Surface

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A3 and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** TP-DDD-UPL

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** S 28 T 36N R 14W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.84888 **Long.:** -113.45039 **Datum:** NAD 1981

Soil Map Unit Name: Adel-Babb complex, hilly **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
None of the wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	50	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	20	☑ 33.3%	FACU
2. Cornus alba var. occidentalis	10	☐ 16.7%	FACW
3. Salix boothii	10	☐ 16.7%	FACW
4. Amelanchier alnifolia	20	☑ 33.3%	FACU
5.	0	☐ 0.0%	
	60	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Medicago lupulina	10	☐ 11.1%	FACU
2. Centaurea scabiosa	20	☑ 22.2%	UPL
3. Juncus balticus	20	☑ 22.2%	FACW
4. Equisetum arvense	20	☑ 22.2%	FAC
5. Agrostis stolonifera	20	☑ 22.2%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	40	x 3 =	120
FACU species	100	x 4 =	400
UPL species	20	x 5 =	100
Column Totals:	200 (A)		700 (B)

Prevalence Index = B/A = 3.500

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Hydrophytic vegetation is absent.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-DDD-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	2/2	100						Loam	
14+	10YR	5/3	90	10YR	5/6	10	C	M	clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No evidence of wetland hydrology

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-DDD-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): seep **Local relief (concave, convex, none):** concave **Slope:** 30.0 % / 16.7 °

Subregion (LRR): LRR E **Lat.:** 48.84882 **Long.:** -113.45045 **Datum:** NAD 1981

Soil Map Unit Name: Adel-Babb complex, hilly **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:
All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 30 ft. radius)				
1. Populus balsamifera	10	☐	14.3%	FAC
2. Salix drummondiana	30	☑	42.9%	FACW
3. Salix boothii	30	☑	42.9%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	70	**= Total Cover**		
Herb Stratum (Plot size: 10 ft. radius)				
1. Equisetum arvense	0	☐	0.0%	FAC
2. Juncus tenuis	0	☐	0.0%	FAC
3. Platanthera dilatata	0	☐	0.0%	FACW
4. Carex aquatilis	0	☐	0.0%	OBL
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	0	**= Total Cover**		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		150 (B)

Prevalence Index = B/A = 2.143

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-DDD-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/1	100						Clay Loam	many roots
4-20	N	4/N	100						Clay	
									Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F2.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A3 and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** TP-SS-UPL

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** S 32 T 36N R 14W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83656 **Long.:** -113.47448 **Datum:** NAD 1981

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
Hydrophytic vegetatation present, but hydrology and soil indicators are not.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	20	☑ 50.0%	FAC
2. Populus balsamifera	20	☑ 50.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Symphoricarpos albus	80	☑ 80.0%	FACU
2. Cornus alba var. occidentalis	20	☑ 20.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	= Total Cover	

Herb Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	30	☑ 75.0%	FAC
2. Cirsium arvense	10	☑ 25.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	

Woody Vine Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 50

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	180 (A)		600 (B)

Prevalence Index = B/A = 3.333

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation meets dominance test.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-SS-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR	4/1	95	10YR	5/6	5	C	M	gravelly loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology not present

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 20-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-SS-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 32 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): terrrace **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.83656 **Long.:** -113.47448 **Datum:** NAD 1983

Soil Map Unit Name: Vulture-Worock, stony-Ipasha, occasionally flooded, 4 to 35 percent slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea engelmannii	20	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cornus alba var. occidentalis	15	☑ 25.0%	FACW
2. Salix boothii	15	☑ 25.0%	FACW
3. Symphoricarpos albus	15	☑ 25.0%	FACU
4. Populus balsamifera	15	☑ 25.0%	FAC
5.	0	☐ 0.0%	
	60	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Carex utriculata	80	☑ 78.4%	OBL
2. Sium suave	10	☐ 9.8%	OBL
3. Geum macrophyllum	5	☐ 4.9%	FAC
4. Epilobium saximontanum	5	☐ 4.9%	FACW
5. Cirsium arvense	2	☐ 2.0%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	102	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	35	x 2 =	70
FAC species	42	x 3 =	126
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	182 (A)		346 (B)

Prevalence Index = B/A = 1.901

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Hydrophytic vegetation present

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-SS-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100						mucky mineral	
4-8	10YR	4/1	100						silt	
8-20	10YR	3/1	100						silt	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator A11 is present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

wetland hydology indicators A1, A2, A3, C3 and D5 are present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 21-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-EEE-UPL**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR E **Lat.:** 48.84943 **Long.:** -113.44724 **Datum:** NAD 1983

Soil Map Unit Name: Adel-Babb complex, hilly **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
No wetland indicators present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	70	☑ 87.5%	FACU
2. Picea engelmannii	10	☐ 12.5%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Symphoricarpos albus	60	☑ 75.0%	FACU
2. Cornus alba var. occidentalis	20	☑ 25.0%	FACW
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	80	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Thalictrum occidentale	30	☑ 60.0%	FACU
2. Equisetum arvense	10	☑ 20.0%	FAC
3. Veratrum viride	10	☑ 20.0%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 50

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	30	x 3 =	90
FACU species	160	x 4 =	640
UPL species	0	x 5 =	0
Column Totals:	210 (A)		770 (B)

Prevalence Index = B/A = 3.667

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-EEE-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/1	100						Loam	
4-12	10YR	4/1	100						Clay Loam	
12-18	10YR	4/1	50	10YR	6/2	50	C	M	Silt Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydic soil indicators present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

No evidence of wetland hydrology

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Many Glacier Road **City/County:** Glacier **Sampling Date:** 21-Sep-18

Applicant/Owner: Federal Highway Administration **State:** MT **Sampling Point:** **TP-EEE-WET**

Investigator(s): S. Wall, S. Petro **Section, Township, Range:** **S** 28 **T** 36N **R** 14W

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.84946 **Long.:** -113.44681 **Datum:** NAD 1983

Soil Map Unit Name: Adel-Babb complex, hilly **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus tremuloides	80	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix bebbiana	40	☑ 66.7%	FACW
2. Symphoricarpos albus	20	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	60	= Total Cover	

Herb Stratum (Plot size: 10 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum arvense	5	☐ 6.3%	FAC
2. Agrostis stolonifera	10	☐ 12.5%	FAC
3. Equisetum hyemale	10	☐ 12.5%	FACW
4. Veronica americana	20	☑ 25.0%	OBL
5. Carex aquatilis	25	☑ 31.3%	OBL
6. Geum macrophyllum	10	☐ 12.5%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	80	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 20

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	60.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	50	x 2 =	100
FAC species	25	x 3 =	75
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	220 (A)		620 (B)

Prevalence Index = B/A = 2.818

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: TP-EEE-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
1-5	2.5Y	5/1	100						Clay Loam	
5-8	5Y	3/1	100						Clay	
8-20	gley	5 gy	100						Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F2 is met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	12
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators A2, A3 and D5 are present.

APPENDIX D

Wetland Functional Assessments

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetlands A, C and D

6. **Wetland Location(s): i**. **Legal:** T35N, R15W, 07;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 50 acres (measured)

9. **Assessment area (AA):** 50 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	RB	NA	PP	10
S	SS	NA	SI	50
S	FO	NA	SI	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)
RARE

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	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.): Road adjacent to wetland, large knapweed infestation present in the AA.
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Wetland is in a flat spot south of Many Glacier Road

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)	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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): Observations, Park Service staff, MNHP data

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

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

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.): MNHP, observations nearby

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]):
X observations of abundant wildlife #s or high species diversity (during any period)
X abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
_ presence of extremely limiting habitat features not available in the surrounding area
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	**E**	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Black bear observed near the AA, wildlife paths through the AA

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_X__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: Montana Natural Heritage Program - Swiftcurrent Creek, Apikuni Creek Westslope cutthroat, trout perch

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? ___ 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? ___ If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: 1.0E Comments:

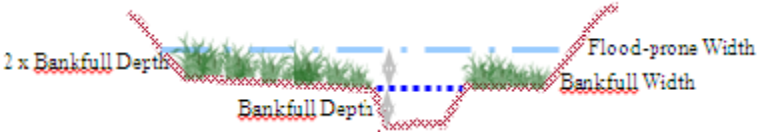
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark _X_ **NA** and proceed to 14F.)

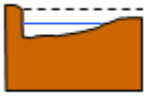
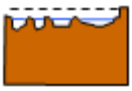
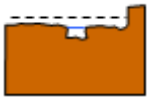
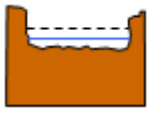
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: Ponds visible on aerial photo

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, mark ___ **NA** 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: Small ponds are present in the AA, visible on aerial imagery.

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, mark ___ **NA** 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: Apikuni Creek is along the south boundary of the wetland, banks are vegetated with shrubs.

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? __X__ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 1.0H **Comments:** Apikuni Creek is a permanent stream, and it appears from aerial imagery that the ponds within the AA are perennial.

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

i. Discharge Indicators

- X The AA is a slope wetland
- ___ Springs or seeps are known or observed
- X Vegetation growing during dormant season/drought
- X 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
- X 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	**.2H**	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: AA is within Glacier National Park

General Site Notes
Wetlands A and D are south of the road, Wetland C is north of the road, connected by a culvert to Wetland s A and D. There are few wetlands of this size in the watershed. AA contains multiple vegetated classes, including forested, and is along the edge of a perennial stream.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetlands A, C and D

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	H	1.0	1	50.00	*
B. MT Natural Heritage Program Species Habitat	M	0.6	1	30.00	
C. General Wildlife Habitat	E	1.0	1	50.00	*
D. General Fish Habitat	E	1.0	1.0	50.00	
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	0.8	1.0	40.00	
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	50.00	
H. Sediment/Shoreline Stabilization	H	1.0	1.0	50.00	
I. Production Export/Food Chain Support	H	1.0	1	50.00	*
J. Groundwater Discharge/Recharge	H	1.0	1.0	50.00	
K. Uniqueness	H	0.8	1	40.00	*
L. Recreation/Education Potential (bonus points)	H	0.20	NA	10.00	
Totals:		9.40	10.0	470.00	
Percent of Possible Score			94%		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
_X_ 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**
_X_ 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**
_X_ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
_X_ Score of .9 or 1 functional point for General Fish Habitat; **or**
_X_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
_X_ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland B

6. **Wetland Location(s): i**. **Legal:** T35N, R15W, 07;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.22 acres (estimated)

9. **Assessment area (AA):** 0.22 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	I	SI	80
D	SS	I	SI	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)
COMMON

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	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.): Road adjacent to AA impounds water.
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: None
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is a small depressional area next to the road.

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)	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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): MNHP data, observations by Herrera and Park Service staff

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

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

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.): MNHP, observations by Herrera staff near the wetland

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]):
X observations of abundant wildlife #s or high species diversity (during any period)
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	**H**	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Moose observed near the AA, moose tracks in the AA

14**D**. **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 mark **_X_ NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

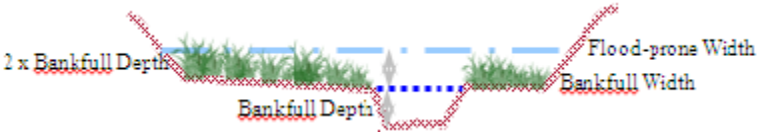
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **_X_ NA** and proceed to 14F.)

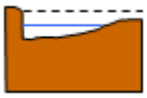
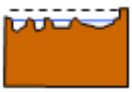
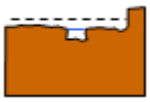
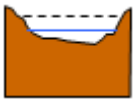
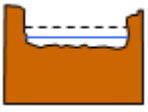
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	**=**	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: Culvert at the AA outlet is partly blocked.

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, mark ___ **NA** 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: Small area with evidence of ponding and iron deposits.

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, mark _X_ **NA** 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? _X_ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.8H **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
_X_ 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
_X_ 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	**.7M**	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	**.2H**	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: Wetland is in Glacier National Park

General Site Notes

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

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	H	1.0	1	0.22	*
B. MT Natural Heritage Program Species Habitat	M	0.6	1	0.13	
C. General Wildlife Habitat	H	0.9	1	0.20	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	M	0.6	1.0	0.13	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.22	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.8	1	0.18	*
J. Groundwater Discharge/Recharge	M	0.7	1.0	0.15	
K. Uniqueness	M	0.4	1	0.09	
L. Recreation/Education Potential (bonus points)	H	0.20	NA	0.04	
Totals:		6.20	8.0	1.36	
Percent of Possible Score			78%		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland E

6. **Wetland Location(s): i**. **Legal:** T35N, R15W, 05;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.1 acres (estimated)

9. **Assessment area (AA):** 0.1 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
S	EM	NA	PP	70
S	EM	NA	PP	20
S	FO	NA	PP	10

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)
RARE

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	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.): Road is adjacent to AA
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: None
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Upslope of the road the AA is a fen dominated by sedges, with water table at the surface.

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)	L	NA	NA	NA

Comments: Emergent veg surrounded by forested and scrub-shrub vegetation

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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): MNHP, observations by Herrera and Park staff

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

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

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.): MNHP and sightings near the AA

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)
X abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
_ presence of extremely limiting habitat features not available in the surrounding area
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	**E**	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Tracks and browse damage on vegetation

14**D**. **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 mark **_X_ NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

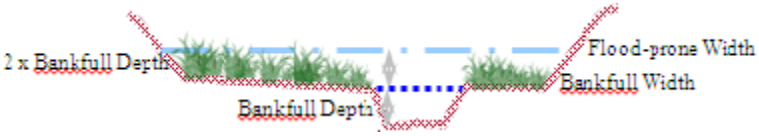
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **_X_ NA** and proceed to 14F.)

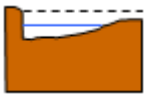
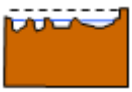
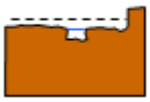
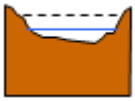
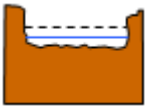
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	**=**	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: shallow surface water was present in the AA

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, mark ___ **NA** 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: Flow out of the wetland is restricted by the road and culvert.

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, mark **X** **NA** 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? **X** *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.9H **Comments:**

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

i. Discharge Indicators

- X The AA is a slope wetland
- X Springs or seeps are known or observed
- ___ Vegetation growing during dormant season/drought
- ___ Wetland occurs at the toe of a natural slope
- X Seeps are present at the wetland edge
- X AA permanently flooded during drought periods
- ___ Wetland contains an outlet, but no inlet
- X 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Seeps were observed at the slope adjacent to the road and surface water was present

14K. Uniqueness:

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

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

Comments: Wetland E is a sedge-dominated fen.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	**.2H**	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: AA is in a national park.

General Site Notes
There is seepage at the road cut from the upslope fen wetland.

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

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	H	1.0	1	0.10	*
B. MT Natural Heritage Program Species Habitat	M	0.6	1	0.06	
C. General Wildlife Habitat	E	1.0	1	0.10	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	0.8	1.0	0.08	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.10	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.9	1	0.09	
J. Groundwater Discharge/Recharge	H	1.0	1.0	0.10	
K. Uniqueness	H	1.0	1	0.10	*
L. Recreation/Education Potential (bonus points)	H	0.20	NA	0.02	
Totals:		7.50	8.0	0.75	
Percent of Possible Score			94%		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
_X_ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
_X_ 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**
_X_ 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**
_X_ 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**
_X_ 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**
_X_ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland F

6. **Wetland Location(s): i**. **Legal:** T35N, R15W, 04;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.01 acres (estimated)

9. **Assessment area (AA):** 0.01 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
S	SS	I	PP	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)
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	**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.): road, evidence of cattle (hoof prints)
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is in a depression next to the road, water is held back by the road fill. A dry channel enters the wetland from the north.

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)	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**)
Secondary habitat (**list species**) Grizzly, Canada lynx (D);
Incidental habitat (**list species**)
No usable habitat

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): Observations by park and Herrera staff of grizzlies near the AA, but AA does not provide good habitat, it is within the road right of way. .

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

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

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.): MNHP

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

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

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: wildlife tracks and wildlife path through the AA

14**D**. **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 mark **_x_ NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

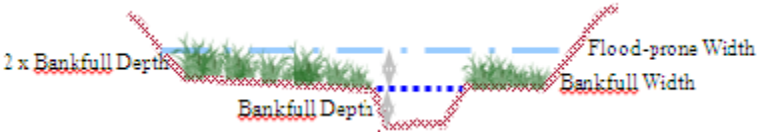
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **_x_ NA** and proceed to 14F.)

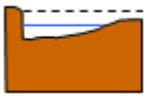
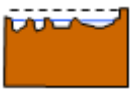
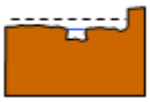
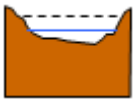
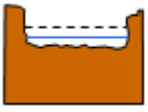
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: Standing water was present in hoof prints

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, mark ___ **NA** 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, mark _X_ **NA** 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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.4M **Comments:** Vegetated upland buffer surrounds less than 75% of the circumference due to the road

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
_X_ Wetland occurs at the toe of a natural slope
_X_ 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
_X_ Wetland contains inlet but no outlet
_____ Stream is a known 'losing' stream; discharge volume decreases
_____ Other:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Seeps are present on the hillslope, There is a seasonal channel coming in to the AA but no outlet

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

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

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	0.8	1	0.01	
B. MT Natural Heritage Program Species Habitat	M	0.6	1	0.01	
C. General Wildlife Habitat	M	0.7	1	0.01	
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	M	0.4	1.0	0.00	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.01	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.4	1	0.00	*
J. Groundwater Discharge/Recharge	H	1.0	1.0	0.01	*
K. Uniqueness	L	0.2	1	0.00	
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		5.10	8.0	0.05	
Percent of Possible Score			64%		

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)
__X__ "Low" rating for Uniqueness; **and**
__X__ 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: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetlands FF and GG

6. **Wetland Location(s): i**. **Legal:** T36N, R15W, 36;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.5 acres (estimated)

9. **Assessment area (AA):** 0.5 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	NA	PP	20
R	SS	NA	PP	30
R	FO	NA	PP	30
R	AB	NA	PP	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)
RARE

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	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.): Cattle, road runoff
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA is on both sides of the road, connected by a culvert. There is bi-directional flow between the AA and Swiftcurrent Creek.

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)	L	NA	NA	NA

Comments: Divers plant communities.

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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): Tribal and Herrera staff, MNHP data

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

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

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.): MNHP data

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

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

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: Wildlife wallow was observed.

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_**X**__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: MNHP data, tribal staff

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?* ___ *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? ___ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

iii. Final Score and Rating: 1.0E **Comments:** Tribal staff documented bull trout in Swiftcurrent Creek.

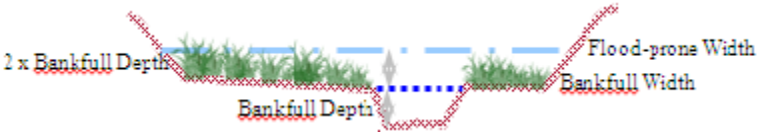
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark _**X**_ **NA** and proceed to 14F.)

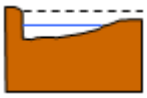
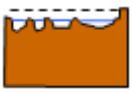
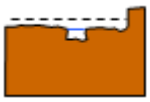
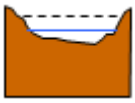
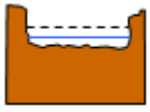
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: Swiftcurrent Creek could flow into the wetland through the culvert during high water.

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, mark ___ **NA** 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, mark _X_ **NA** 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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.9H **Comments:** Roadway interrupts the buffer.

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
_X_ 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: Most of the wetland is on Tribal land - access requires a permit.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetlands FF and GG

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	H	1.0	1	0.50	*
B. MT Natural Heritage Program Species Habitat	M	0.6	1	0.30	
C. General Wildlife Habitat	E	1.0	1	0.50	
D. General Fish Habitat	E	1.0	1.0	0.50	
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	0.8	1.0	0.40	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.50	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.9	1	0.45	*
J. Groundwater Discharge/Recharge	H	1.0	1.0	0.50	
K. Uniqueness	H	0.8	1	0.40	*
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		8.10	9.0	4.05	
Percent of Possible Score			90%		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
_X_ 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**
_X_ 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**
_X_ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
_X_ Score of .9 or 1 functional point for General Fish Habitat; **or**
_X_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
_X_ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland HH

6. **Wetland Location(s): i**. **Legal:** T36N, R15W, 36;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 1.1 acres (estimated)

9. **Assessment area (AA):** 1.1 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	SS	NA	PP	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)
COMMON

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	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.): Road runoff
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is a willow flat in the floodplain of Swiftcurrent Creek

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)	L	NA	NA	NA

Comments: Several species of willows present.

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**)
Secondary habitat (**list species**) Bull trout (D);
Incidental habitat (**list species**)
No usable habitat

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): Tribal staff observed bull trout in Swiftcurrent Creek.

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

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

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.): MNHP data

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

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

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: wildlife tracks observed

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_X__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: MNHP data

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? ___ 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? ___ If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: 1.0E Comments:

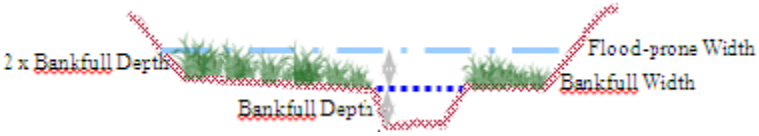
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark ___ **NA** and proceed to 14F.)

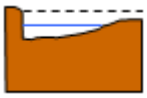
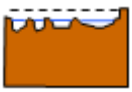
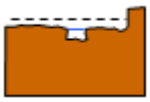
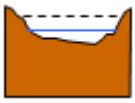
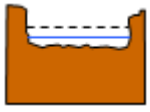
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

200 feet /	65 feet =	**3.08**
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ___ **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, mark ___ **NA** 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		
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: Seasonal flooding into the wetland.

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, mark ___ **NA** 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: Roadside runoff

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

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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.8H **Comments:** The roadway interrupts the buffer

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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	**N/A**			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: Wetland is on tribal land

General Site Notes
Willows provide bank stability and wildlife habitat for birds and mammals.

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

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	0.8	1	0.88	*
B. MT Natural Heritage Program Species Habitat	H	0.9	1	0.99	
C. General Wildlife Habitat	H	0.9	1	0.99	
D. General Fish Habitat	E	1.0	1.0	1.10	
E. Flood Attenuation	H	0.9	1.0	0.99	
F. Short and Long Term Surface Water Storage	M	0.6	1.0	0.66	
G. Sediment/Nutrient/Toxicant Removal	H	0.9	1.0	0.99	*
H. Sediment/Shoreline Stabilization	H	1.0	1.0	1.10	*
I. Production Export/Food Chain Support	H	0.8	1	0.88	*
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	M	0.4	1	0.44	
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		8.20	10.0	9.02	
Percent of Possible Score			82%		

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**
__X__ 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**
__X__ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
__X__ Score of .9 or 1 functional point for General Fish Habitat; **or**
__X__ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
_____ Score of .9 functional point for Uniqueness; **or**
__X__ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland PP

6. **Wetland Location(s): i**. **Legal:** T36N, R14W, 31;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.01 acres (estimated)

9. **Assessment area (AA):** 0.01 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	NA	PP	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)
COMMON

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	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.): Cattle, road runoff
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is a small wetland bench adjacent to Stream 47

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)	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**)
Secondary habitat (**list species**) Grizzly, Canada lynx (D);
Incidental habitat (**list species**)
No usable habitat

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): Tribal staff observations, MNHP. Habitat is secondary because it is directly adjacent to the road.

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

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

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.): MNHP data

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
X little to no wildlife sign
_ sparse adjacent upland food sources
_ interviews with local biologists with knowledge of the AA

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

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	**E**	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: No wildlife evidence observed

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_**X**__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: MNHP data

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?* ***X*** *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? ___ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

iii. Final Score and Rating: 0.5M **Comments:** The culvert is perched over Swiftcurrent Creek

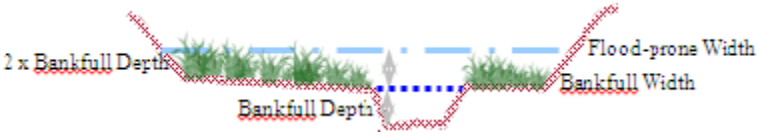
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark ___ **NA** and proceed to 14F.)

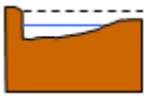
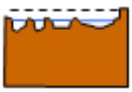
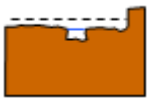
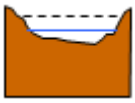
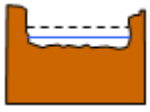
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

10 feet /	1 foot =	**10**
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ___ **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, mark ___ **NA** 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		
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, mark ___ **NA** 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: Road runoff

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark ___ **NA** 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: AA is dominated by sedges which have high stability rating

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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.6M **Comments:** Roadway interrupts the buffer

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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	**N/A**			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: AA is on tribal land

General Site Notes
The AA is a small fringe wetland with limited potential to provide wetland functions, but does provide bank stability and sediment removal.

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

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	0.8	1	0.01	
B. MT Natural Heritage Program Species Habitat	M	0.6	1	0.01	
C. General Wildlife Habitat	M	0.6	1	0.01	*
D. General Fish Habitat	M	0.5	1.0	0.00	
E. Flood Attenuation	M	0.6	1.0	0.01	
F. Short and Long Term Surface Water Storage	L	0.3	1.0	0.00	
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.01	*
H. Sediment/Shoreline Stabilization	H	1.0	1.0	0.01	*
I. Production Export/Food Chain Support	M	0.6	1	0.01	*
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	M	0.4	1	0.00	
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		6.40	10.0	0.06	
Percent of Possible Score			64%		

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**
__X__ 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: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetlands RR and SS

6. **Wetland Location(s): i**. **Legal:** T36N, R14W,31 ;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.2 acres (estimated)

9. **Assessment area (AA):** 0.2 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
S	AB	I	PP	30
D	FO	I	PP	20
D	EM	I	PP	30
D	SS	I	PP	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)
RARE

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	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.): Road runoff, cattle, minor tree removal
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Wetland on both sides of the road, connected by a culvert

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)	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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): Tribal and Herrera staff, MNHP data

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

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

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.): MNHP data

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)
X abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	**E**	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Amphibian egg sacks, multiple habitat features

14**D**. **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 mark **_x_ NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

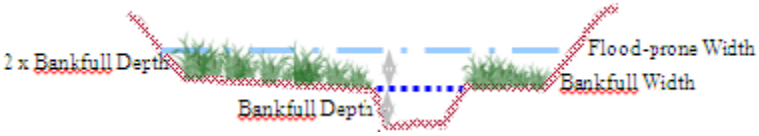
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **_x_ NA** and proceed to 14F.)

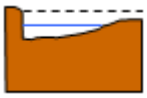
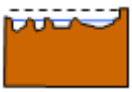
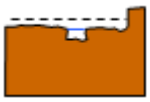
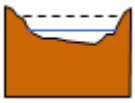
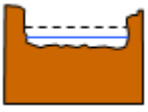
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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, mark ___ **NA** 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: Road runoff

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark _X_ **NA** 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? _X_ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.9H **Comments:** Wetland extends out of right of way with undisturbed buffer

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
_X_ Seeps are present at the wetland edge
_X_ 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Seeps on hillside

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	**.05L**

Comments: AA is a rare type on tribal land - requires permit

General Site Notes
AA contains aquatic bed and forested wetland habitat that is rare in the watershed.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetlands RR and SS

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	H	1.0	1	0.20	*
B. MT Natural Heritage Program Species Habitat	H	0.9	1	0.18	
C. General Wildlife Habitat	E	1.0	1	0.20	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	M	0.4	1.0	0.08	
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.20	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.9	1	0.18	
J. Groundwater Discharge/Recharge	H	1.0	1.0	0.20	*
K. Uniqueness	H	0.8	1	0.16	*
L. Recreation/Education Potential (bonus points)	L	0.05	NA	0.01	
Totals:		7.05	8.0	1.41	
Percent of Possible Score			88%		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetlands AAA and BBB

6. **Wetland Location(s): i**. **Legal:** T36N, R14W, 28;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 1.3 acres (estimated)

9. **Assessment area (AA):** 1.3 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	FO	NA	PP	80
R	AB	NA	PP	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)
RARE

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	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.): Road runoff, cattle grazing
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Wetlands on both sides of the road associated with unnamed tributary to Swiftcurrent Creek

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)	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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): Tribal staff, MNHP data

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

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

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.): MNHP data shows AA is within nest territory

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)
X abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	**E**	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Beaver sign, bird tracks

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_X__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: MNHP

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?* __X__ *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? ___ *If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: 0.9H **Comments:** culvert under road is blocked with sediment. Culvert status to SC creek unknown outside of right of way, may not be fish passable. Swiftcurrent Creek downstream of the AA is bull trout critical habitat.

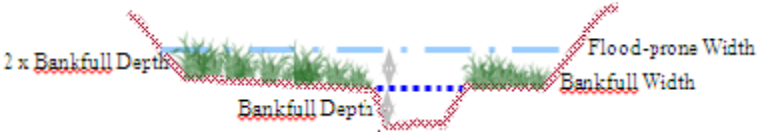
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark ___ **NA** and proceed to 14F.)

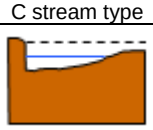
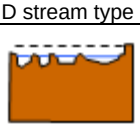
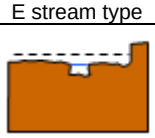
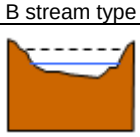
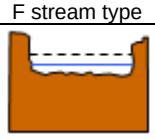
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

5 feet /	2 feet =	**2.5**
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ___ **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, mark ___ **NA** 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		
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, mark ___ **NA** 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: Road runoff

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

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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.9H **Comments:** Road interrupts the buffer

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

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

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments: Forested wetlands are rare in the watershed

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	**.05L**

Comments: Tribal permit required

General Site Notes
forested wetland along unnamed tributary to Swiftcurrent Creek provides food chain support in bull trout critical habitat.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetlands AAA and BBB

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	H	1.0	1	1.30	*
B. MT Natural Heritage Program Species Habitat	H	0.9	1	1.17	
C. General Wildlife Habitat	E	1.0	1	1.30	
D. General Fish Habitat	H	0.9	1.0	1.17	*
E. Flood Attenuation	H	1.0	1.0	1.30	
F. Short and Long Term Surface Water Storage	H	0.8	1.0	1.04	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	1.30	
H. Sediment/Shoreline Stabilization	H	1.0	1.0	1.30	
I. Production Export/Food Chain Support	H	0.9	1	1.17	*
J. Groundwater Discharge/Recharge	H	1.0	1.0	1.30	
K. Uniqueness	H	0.8	1	1.04	
L. Recreation/Education Potential (bonus points)	L	0.05	NA	0.06	
Totals:		10.35	11.0	13.46	
Percent of Possible Score			94%		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
_X_ 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**
_X_ 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**
_X_ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
_X_ Score of .9 or 1 functional point for General Fish Habitat; **or**
_X_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
_X_ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland DDD

6. **Wetland Location(s): i**. **Legal:** T36N, R14W, 28;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 0.01 acres (estimated)

9. **Assessment area (AA):** 0.01 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
S	SS	I	PP	50
S	EM	I	PP	40
S	AB	I	PP	10

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)
COMMON

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	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.): Cattle, road runoff
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Small slope wetland fed by seeps from hillside, impounded by the road.

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)	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**)
Secondary habitat (**list species**) Grizzly, Canada lynx (D);
Incidental habitat (**list species**)
No usable habitat

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): Not primary habitat because AA is in road right of way.

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

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

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.): Documented nest - MNHP

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.
X adequate adjacent upland food sources
_ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	**E**	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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:

14**D**. **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 mark **_x_ NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

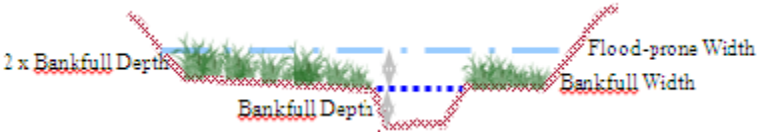
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **_x_ NA** and proceed to 14F.)

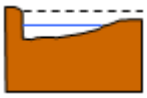
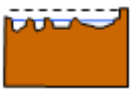
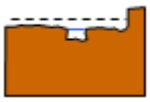
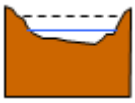
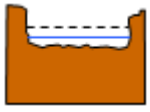
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	**=**	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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, mark ___ **NA** 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: Roadside runoff, culvert restricts the outlet

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, mark _X_ **NA** 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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.8H **Comments:** Road interrupts the buffer

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

i. Discharge Indicators

_X_ The AA is a slope wetland
_X_ 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: Wetland is small and a fairly common type within the watershed.

General Site Notes
Small slope wetland fed by seeps on the adjacent hillside, within the road right of way.

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

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	0.8	1	0.01	
B. MT Natural Heritage Program Species Habitat	H	0.9	1	0.01	*
C. General Wildlife Habitat	H	0.9	1	0.01	
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	M	0.4	1.0	0.00	*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0	0.01	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	0.8	1	0.01	
J. Groundwater Discharge/Recharge	H	1.0	1.0	0.01	*
K. Uniqueness	M	0.6	1	0.01	
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		6.40	8.0	0.06	
Percent of Possible Score			80%		

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**
__X__ 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**
__X__ 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**
__X__ 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: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** Wetland EEE

6. **Wetland Location(s): i**. **Legal:** T36N, R14W, 28;
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** 26 acres (estimated)

9. **Assessment area (AA):** 26 acres (estimated)

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	AB	I	PP	20
D	EM	I	PP	40
D	SS	I	PP	20
D	FO	I	PP	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)
RARE

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	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.): Low disturbance around most of the wetland
ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:
iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Beaver pond connected to wetland and stream across the road, flowing to Swiftcurrent Creek.

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)	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**) Grizzly, Canada lynx (D);
Secondary habitat (**list species**)
Incidental habitat (**list species**)
No usable habitat

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): Tribal staff, MNHP data

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

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

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.): AA is within documented nest territory

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]):
X observations of abundant wildlife #s or high species diversity (during any period)
X abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
X presence of extremely limiting habitat features not available in the surrounding area
X 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			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	**E**	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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: Birds, amphibians, beaver dam observed by Herrera and Tribal staff. MNHP data

14**D**. **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 mark ___ **NA** and proceed to 14E.)

Type of Fishery: Cold Water (**CW**)_X__ 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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: Bull trout critical habitat in Swiftcurrent Creek - USFWS data.

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?* __X__ *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? ___ *If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: 0.9H **Comments:** Dam built by Corps of Engineers at culvert inlet is a passage barrier. Flow in the stream at outlet is restricted by this dam - very little flow. Unknown status of stream beyond the right of way.

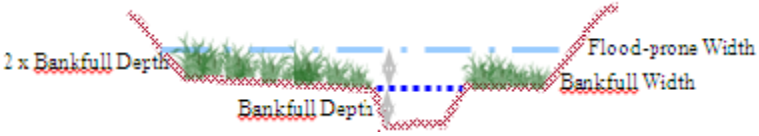
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark __X__ **NA** and proceed to 14F.)

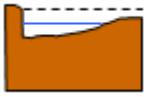
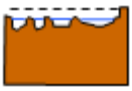
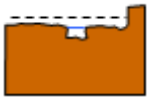
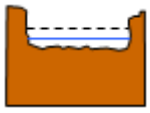
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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, mark **X** **NA** 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: Most of the wetland is protected by intact buffer.

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, mark **X** **NA** 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? **X** *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 1.0H **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
X 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

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

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

Comments: Beaver ponds are rare in the watershed.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) **_X_** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	**.1M**	.05L

Comments: The beaver pond is an important cultural site for the Blackfeet tribe. Tribal permit required for non-tribal members.

General Site Notes

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

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	H	1.0	1	26.00	*
B. MT Natural Heritage Program Species Habitat	H	0.9	1	23.40	
C. General Wildlife Habitat	E	1.0	1	26.00	*
D. General Fish Habitat	H	0.9	1.0	23.40	
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	1.0	1.0	26.00	*
G. Sediment/Nutrient/Toxicant Removal	NA				
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	1.0	1	26.00	
J. Groundwater Discharge/Recharge	H	1.0	1.0	26.00	
K. Uniqueness	H	0.8	1	20.80	*
L. Recreation/Education Potential (bonus points)	M	0.10	NA	2.60	
Totals:		7.70	8.0	200.20	
Percent of Possible Score			96%		

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
_X_ 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**
_X_ 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**
_X_ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
_X_ Score of .9 or 1 functional point for General Fish Habitat; **or**
_X_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
_X_ 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: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** MTGlacier 14(1) and MT NPS 14(1) Rehabilitation Many Glacier Road **2**. **MDT Project #:** **Control #:**

3. **Evaluation Date:** 8/30/2018 **4**. **Evaluator(s):** S. Wall, S. Petro **5**. **Wetlands/Site #(s):** G through Y, AA through DD, II through KK, NN, OO, QQ, TT through WW; YY; ZZ; and CCC

6. **Wetland Location(s): i**. **Legal:** T35N, R15W, 04; 03; T36N, R15W, 24; 25; 26
ii. Approx. Stationing or Mileposts:
iii. Watershed: 10010002 **Watershed Name, County:** St. Mary, Glacier

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

8. **Wetland size:** Min:0.01 acres, Max:0.02 acres, Avg:0.015 acres

9. **Assessment area (AA):** Min:0.01 acres, Max:0.02 acres, Avg:0.015

10. **Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	UB	I	SI	20
D	SS	I	SI	40
D	EM	I	SI	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)
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	**moderate disturbance**	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively	high disturbance	high disturbance	high disturbance

substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.			

Comments: (types of disturbance, intensity, season, etc.): Road runoff, cattle, noxious weeds

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Spotted knapweed, common toadflax, Canada thistle

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: These are ditch wetlands formed by runnoff from the adjacent hillslope that is impounded by the roadway fill. Some have outlets and culverts, some infiltrate with no surface outlet.

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)	L	NA	NA	NA

Comments: Scrub-shrub and emergent vegetation present.

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**)
Secondary habitat (**list species**) Grizzly, Canada lynx (D);
Incidental habitat (**list species**)
No usable habitat

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): Park and Herrera staff, MNHP records

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

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

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.): Herrera staff observations, MNHP data

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

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

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: Wildlife scat and tracks

14**D**. **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 mark _**X**_ **NA** 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					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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?* ____ *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? ____ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

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

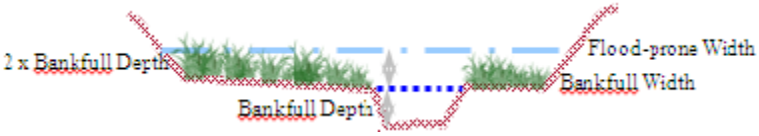
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark _**X**_ **NA** and proceed to 14F.)

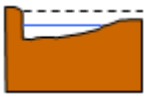
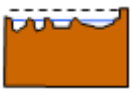
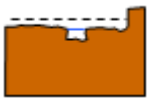
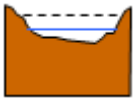
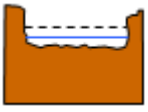
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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		
% of flooded wetland classified as forested and/or scrub/shrub	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.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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)? ____ **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, mark ___ **NA** 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		
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: Wetlands hold water during seasonal runoff.

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, mark ___ **NA** 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: Outlets are restricted by road berm and culverts.

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, mark _X_ **NA** 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? ___ *If yes, add 0.1 to the score in **ii** above.*

iv. Final Score and Rating: 0.5M **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
_X_ 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:

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

Criteria	**Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM***			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	**1H**	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Evidence of ponding

14K. Uniqueness:

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

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ____ (if 'Yes' continue with the evaluation; if 'No' then mark _X_ **NA** and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes
Roadside ditch wetland filter sediments and pollutants before they enter streams.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): G through Y, AA through DD, II through KK, NN, OO, QQ, TT through WW; YY; ZZ; and CCC

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	0.8	1		
B. MT Natural Heritage Program Species Habitat	M	0.6	1		
C. General Wildlife Habitat	M	0.7	1		
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	L	0.3	1.0		*
G. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0		*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.5	1		*
J. Groundwater Discharge/Recharge	H	1.0	1.0		*
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	NA		NA		
Totals:		5.10	8.0		
Percent of Possible Score			64%		

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)
__X__ "Low" rating for Uniqueness; **and**
__X__ 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: III

APPENDIX E

Photographs

Wetland Statement of Findings—Many Glacier Road Rehabilitation Project: Photographic Log

Photo Number	Photo Description
1	Swiftcurrent Creek Canyon at outlet of Swiftcurrent Lake
2	Swiftcurrent Creek downstream of Sherburne Dam
3	Apikuni Creek facing upstream from south of Many Glacier Road
4	Windy Creek facing upstream from Many Glacier Road
5	Confluence of Boulder Creek and Swiftcurrent Creek
6	S2 – Seasonal tributary to Swiftcurrent Creek
7	S5 – Perennial tributary to Apikuni Creek
8	S9 – Perennial tributary to Lake Sherburne
9	S10 – Seasonal tributary to Lake Sherburne
10	S19 – Seasonal tributary to Lake Sherburne
11	S21 – At entrance station facing downstream
12	S23 – Facing Many Glacier Road showing buried culvert on upstream side
13	S29 – Downstream side of seasonal tributary to Lake Sherburne
14	S31 – Joining Lake Sherburne, showing sparsely vegetated shoreline of the lake
15	S36 – Seasonal stream showing downstream side entering Lake Sherburne
16	S39 – Showing outlet of seasonal stream at Swiftcurrent Creek
17	S47 – Perennial tributary to Swiftcurrent Creek with small wetland fringe (Wetland PP)
18	S50 – Perennial tributary to Swiftcurrent Creek adjacent to Wetland AAA
19	Wetland A at Apikuni Flat
20	Wetland HH along Swiftcurrent Creek
21	Wetland LL scrub-shrub wetland dominated by willow and red-osier dogwood
22	Wetland J roadside swale
23	Wetland R roadside swale
24	Wetland DD roadside swale
25	Wetland KK roadside swale
26	Wetland C hillslope seep wetland
27	Wetland E with fen upslope from the road, outside project corridor
28	Wetland Z with visible seeps emerging from the hillside
29	Wetland RR ponded wetland north of Many Glacier Road
30	Wetland EEE North beaver pond
31	Wetland EEE South across Many Glacier Road from the beaver pond

1. Swiftcurrent Creek Canyon at outlet of Swiftcurrent Lake

2. Swiftcurrent Creek downstream of Sherburne Dam

3. Apikuni Creek facing upstream from south of Many Glacier Road

4. Windy Creek facing upstream from Many Glacier Road

5. Confluence of Boulder Creek and Swiftcurrent Creek

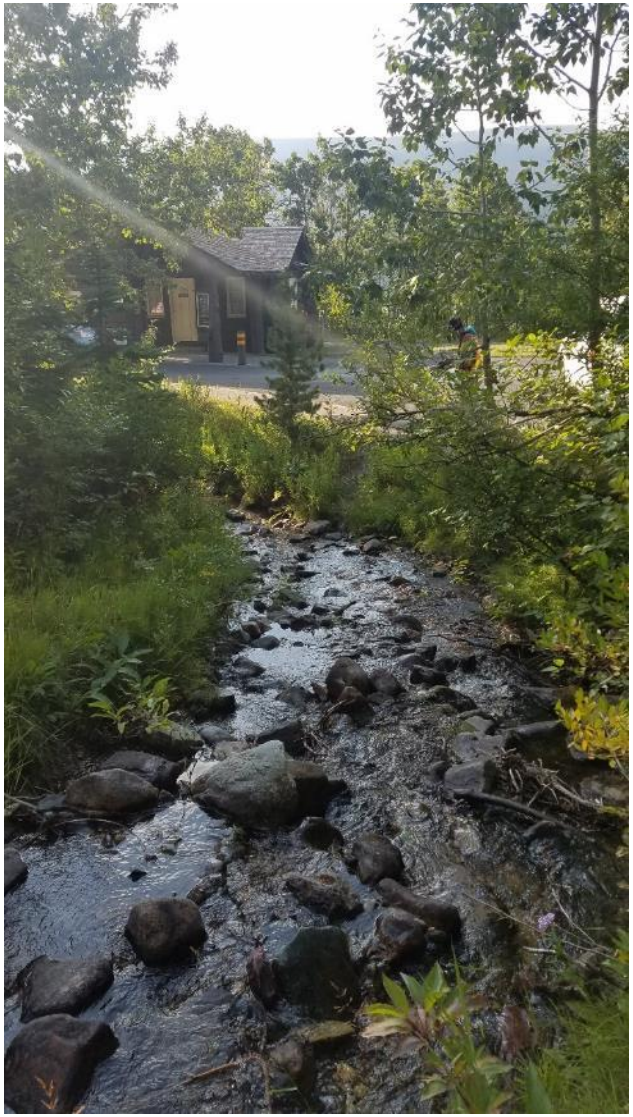
6. S2 – Seasonal tributary to Swiftcurrent Creek

7. S5 – Perennial tributary to Apikuni Creek

8. S9 – Perennial tributary to Lake Sherburne

9. S10 – Seasonal tributary to Lake Sherburne

10. S19 – Perennial tributary to Lake Sherburne



11. S21 – At entrance station facing downstream

12. S23 – Facing Many Glacier Road showing buried culvert on upstream side

13. S29 – Downstream side of seasonal tributary to Lake Sherburne

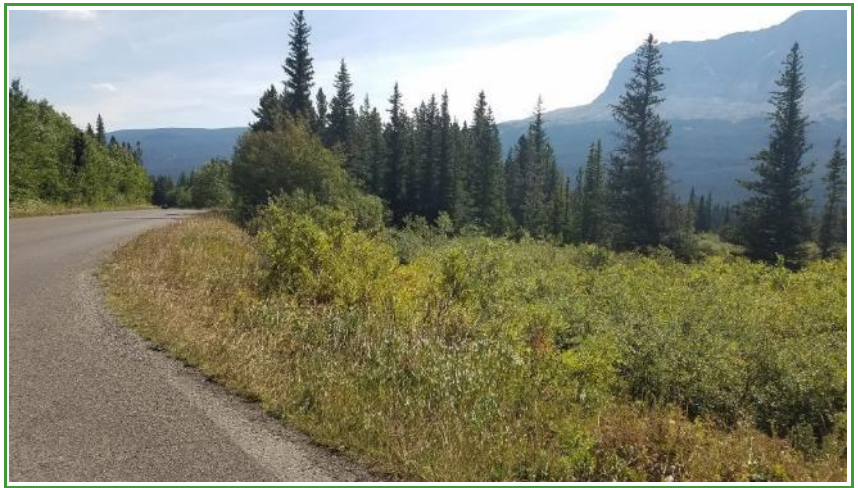
14. S31 – Entering Lake Sherburne, showing sparsely vegetated shoreline of the lake

15. S36 – Seasonal stream showing downstream side entering Lake Sherburne

16. S39 – Showing outlet of seasonal stream at Swiftcurrent Creek

17. S47 – Perennial tributary to Swiftcurrent Creek with small wetland fringe (Wetland PP)

18. S50 – Perennial tributary to Swiftcurrent Creek adjacent to Wetland AAA



19. Wetland A at Apikuni Flat

20. Wetland HH along Swiftcurrent Creek

21. Wetland LL scrub shrub wetland dominated by willow and red-osier dogwood

22. Wetland J roadside swale

23. Wetland R roadside swale

24. Wetland DD roadside swale

25. Wetland KK roadside swale

26. Wetland C hillslope seep wetland

27. Wetland E with fen upslope from the road, outside project corridor

28. Wetland Z with visible seeps emerging from the hillside

29. Wetland RR ponded wetland north of Many Glacier Road

30. Wetland EEE North beaver pond

31. Wetland EEE South across Many Glacier Road from the beaver pond