

*Moose-Wilson Road Realignment and
Separated Multiuse Pathway Project
PEPC ID 48252*

Wetland Statement of Findings



Recommended:

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Contents

1	List of Abbreviations	5
2	Introduction	5
3	Methods	12
4	Results	14
5	Summary of Project Alternatives	26
6	Impacts of the Preferred Alternative	27
7	Compensation/Mitigation.....	41
8	Conclusions.....	42
9	Preparer Qualifications.....	43
10	References.....	43

List of Figures

Figure 1. Vicinity Map for Moose-Wilson Road Realignment and Separated Multiuse Pathway project.....	8
Figure 2. Moose-Wilson Road Realignment and Separated Multiuse Pathway, Typical Sections (EIS p. 77).	10
Figure 3. Overview of Surface Waters and Wetlands in the Moose-Wilson Road Project Area. Detailed wetland maps are available in Figures 7 through 12.....	15
Figure 4. Overview of Surface Waters and Wetlands in the Moose-Wilson Road Project Area. Detailed wetland maps are available in Figures 7 through 12.....	16
Figure 5. Overview of Surface Waters, Wetlands, and compensation wetlands in the Moose-Wilson Road Project Area. Detailed wetland maps are available in Figures 7 through 12.....	17
Figure 6. Overview of Surface Waters and Wetlands in the Moose-Wilson Road Project Area. Detailed wetland maps are available in Figures 7 through 12.....	18
Figure 7. Moose-Wilson Road Project Proposed Wetland Impacts.....	29
Figure 8. Moose-Wilson Road Project Proposed Wetland Impacts.....	30
Figure 9. Moose-Wilson Road Project Proposed Wetland Impacts.....	31
Figure 10. Moose-Wilson Road Project Proposed Wetland Impacts	32
Figure 11. Moose-Wilson Road Project Proposed Wetland Impacts	33
Figure 12. Moose-Wilson Road Project Proposed Wetland Impacts	34
Figure 13. Moose-Wilson Road Project Proposed Wetland Impacts	35
Figure 14. Moose-Wilson Road Project Proposed Wetland Impacts	36

List of Tables

Table 1. Summary of vegetated wetlands in the Moose-Wilson Road Project Area.	19
Table 2. Summary of Streams (Unvegetated wetlands) in the Moose-Wilson Road Project Area.	20
Table 3. Moose-Wilson Road Potential NPS and Corps wetland jurisdictional status.....	20
Table 4. Moose-Wilson Road Proposed vegetated wetland impacts and Compensation Requirements.....	37
Table 5. Moose-Wilson Road Proposed Stream (unvegetated wetland) impacts and Functional Assessment Rating.	37
Table 6. Moose-Wilson Road Project, Impacts on wetland functions and values.	38

List of Attachments

Attachment A Aquatic Resources Inventory, Moose-Wilson Road, 2018
Attachment B Aquatic Resources Inventory, Moose-Wilson Road Realignment and Separated
Multiuse Pathway Project, 2026
Attachment C Wetland Compensation Plan

STATEMENT OF FINDINGS

1 LIST OF ABBREVIATIONS

Corps	U.S. Army Corps of Engineers
Corridor	Moose-Wilson Road Corridor
DO	Director's Order
E.O.	Executive Order
EIS	Environmental Impact Statement
GPS	Global positioning system
GRTE	Grand Teton National Park
HGM	Hydrogeomorphic
LSR	Laurance S. Rockefeller
MWAM	Montana Wetland Assessment Method
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OHWM	Ordinary high water mark
Park	Grand Teton National Park
PEM	Palustrine emergent
PFO	Palustrine forested
PSS	Palustrine scrub-shrub
ROD	Record of Decision
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WSOF	Wetland Statement of Findings

2 INTRODUCTION

The National Park Service (NPS) is proposing to Amend the 2026 Record of Decision (ROD) for the Moose-Wilson Corridor Environmental Impact Statement (EIS) to include elements of Alternative D. Relevant to this analysis is realignment of a 1.3-mile section of Moose-Wilson Road and development of a separated multiuse pathway parallel with the road from the Granite Entrance to the Teton Park Road in Grand Teton National Park (Park or GRTE).

This Wetland Statement of Findings (WSOF) was prepared to evaluate the impacts on wetlands for the Moose-Wilson Road Realignment and Separated Multiuse Pathway Project (project). The purpose of this WSOF is to comply with NPS wetland protection management procedures, which is required by Executive Order (E.O.) 11990, "Protection of Wetlands." NPS Director's Order (DO) #77-1: *Wetland Protection and Procedural Manual #77-1* (NPS 2016 provide NPS policies and procedures to comply with E.O. 11990).

This WSOF is being prepared because the project would adversely impact wetlands. A WSOF is recommended to be included with the ROD as part of the National Environmental Policy Act (NEPA) compliance process. A WSOF must document the impacts of the project on wetlands,

provide the rationale for identifying a preferred alternative that has adverse impacts on wetlands, and explain why no alternatives with less wetland impacts were practicable.

2.1 PROJECT DESCRIPTION/SETTING

The NPS is revisiting the 2016 ROD for the Moose-Wilson Road Comprehensive Corridor Management Plan (NPS 2016). The overarching purpose of the plan was to establish a long-term vision and comprehensive management strategies within the Moose-Wilson Road Corridor (corridor) to ensure the protection of Park natural and cultural resources and other important values. Key management strategies already implemented or in process from the selected alternative (Alternative C) of the ROD include:

- Realigning Moose-Wilson Road to improve wildlife habitat and address operational issues.
- Paving and narrowing an unpaved section of Moose-Wilson Road.
- Improving visitor safety by reducing the speed limit to 20 miles per hour.
- Relocating the Death Canyon Trailhead with expanded parking.

The NPS is proposing an amendment to the ROD to incorporate specific elements of Alternative D, while continuing to implement the selected alternative (Alternative C). The amended ROD will add realignment of approximately 1.3 miles of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction and construction of a separated multiuse pathway extending the length of the corridor for the project. These actions were previously analyzed under Alternative D. Road realignment east of the beaver ponds would allow removal of the existing road, realignment of the road east in the sagebrush flats, and restoration of wetland and wetland functions, habitat connectivity, and native vegetation. This restoration benefits wildlife that uses the corridor and reduces potential for human/wildlife conflicts and vehicle/wildlife collisions.

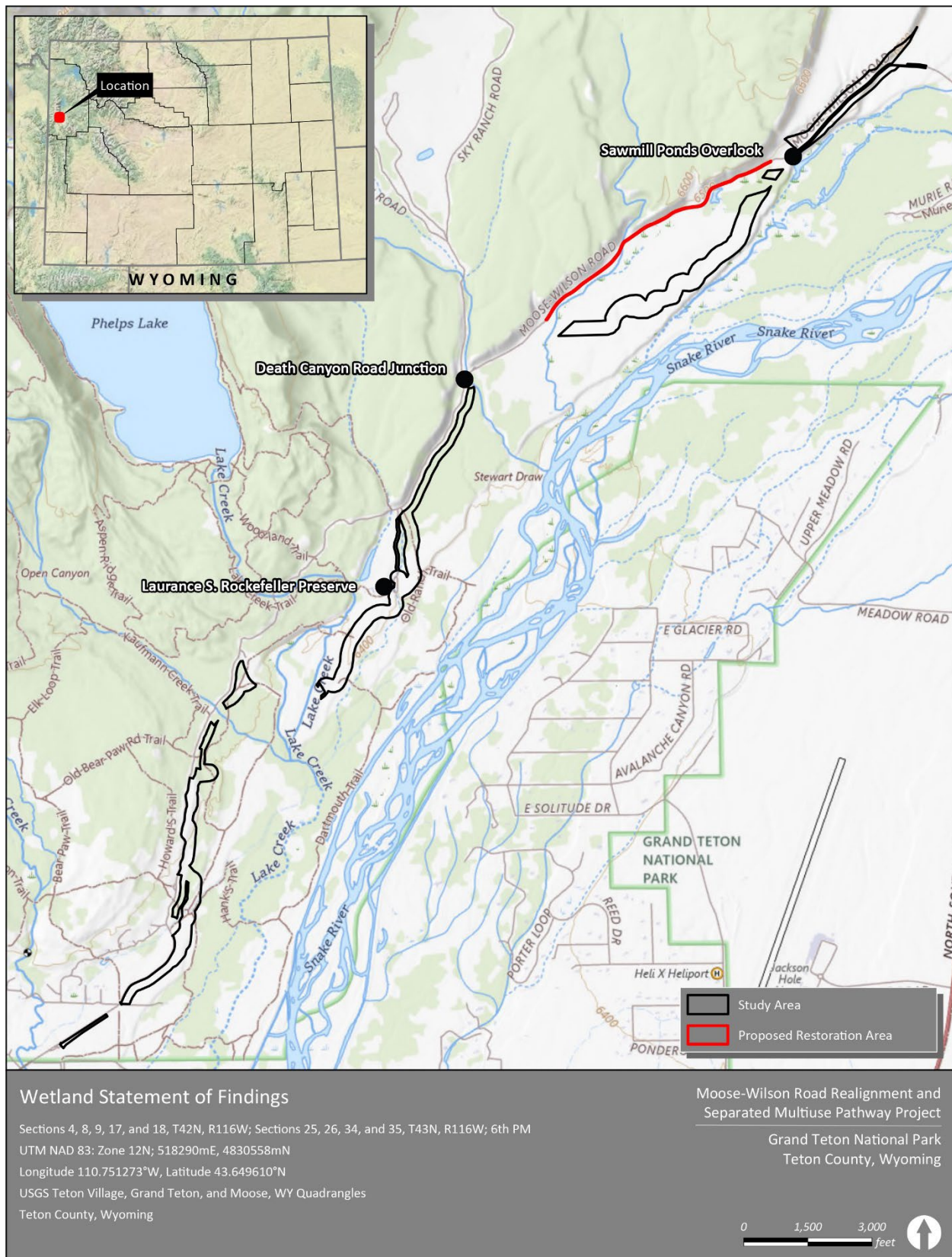
The project includes development of a multiuse pathway generally paralleling the corridor, with minor alignment adjustments to avoid sensitive vegetation and cultural resources, accommodate terrain features, and concentrate use in previously disturbed and existing developed areas. The pathway and road refinements are expected to minimize or benefit impacts on wetlands, wildlife habitat, soils, and vegetation, while improving visitor access and safety.

2.1.1 Project Area

Moose-Wilson Road extends for 7.1 miles through the southwest corner of GRTE. The corridor is bounded by the Teton Range to the west, the Snake River to the east, Teton Park Road to the north, and the Park's southern boundary. Moose-Wilson Road is the only vehicular access to several key destinations in the area, including the Death Canyon and Granite Canyon Trailheads, Laurance S. Rockefeller Preserve (LSR Preserve), White Grass Dude Ranch and Murie Ranch Historic Districts, and the Sawmill Ponds Overlook.

The Project Area for the Moose-Wilson Road realignment and the separated multiuse pathway is along and near Moose-Wilson Road between Teton Village and Moose, Wyoming. The Project Area focuses on the locations that require review to support the amended ROD. The Project Area is in Sections 4, 8, 9, 17, and 18, Township 42 North, Range 116 West and Sections 25, 26, 34, and 35, Township 43 North, Range 116 West of the 6th Principal Meridian in Teton

County, Wyoming (Figure 1). The UTM coordinates of the approximate center of the Project Area are NAD 83 518290mE, 4830558mN, Zone 12N. The longitude/latitude of the Project Area is 110.773287°W/43.834268°N. The elevation of the Project Area ranges from 6,340 to 6,510 feet above sea level.



USGS Topo: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information. Data refreshed October 27, 2025-v2.1
 USA_Topo_Maps: Copyright: © 2013 National Geographic Society, I-cubed

FIGURE 1. VICINITY MAP FOR MOOSE-WILSON ROAD REALIGNMENT AND SEPARATED MULTIUSE PATHWAY PROJECT.

2.1.2 Proposed Action

Detailed descriptions of Alternatives C and D are provided in the EIS. The amendment to the ROD would incorporate specific elements of Alternative D, while continuing to implement Alternative C. Portions of the amendment to the ROD that would affect wetlands include realignment of approximately 1.3 miles of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction and construction of a separated multiuse pathway extending the length of the corridor. The existing section of Moose-Wilson Road replaced by the 1.3-mile realignment would be removed and restored to natural conditions, allowing restoration of wetland functions for the wetland complex adjacent to the road, referred to in this WSOF as the Beaver Pond Wetland Complex.

Specific wetland acreages affected by the project cannot be discerned until detailed grading and construction plans are developed. Based on the description in the EIS (p. 376), impacts along the realigned road and multiuse pathway would occur in a corridor up to approximately 200 feet wide when combining the disturbance corridor of the road, pathway, and moderately disturbed offset area between these areas. Permanent impacts from the road and multiuse pathway would occur within a corridor about 150 feet wide. A spatial buffer between the road and multiuse pathway would vary in width. The general design of the multiuse pathway is shown on Figure 2 below and in the EIS (p. 77). The limits of disturbance for the multiuse pathway are estimated to be approximately 50 feet wide or less (EIS, p. 77).

2.1.2.1 Access, Staging, and Construction Equipment

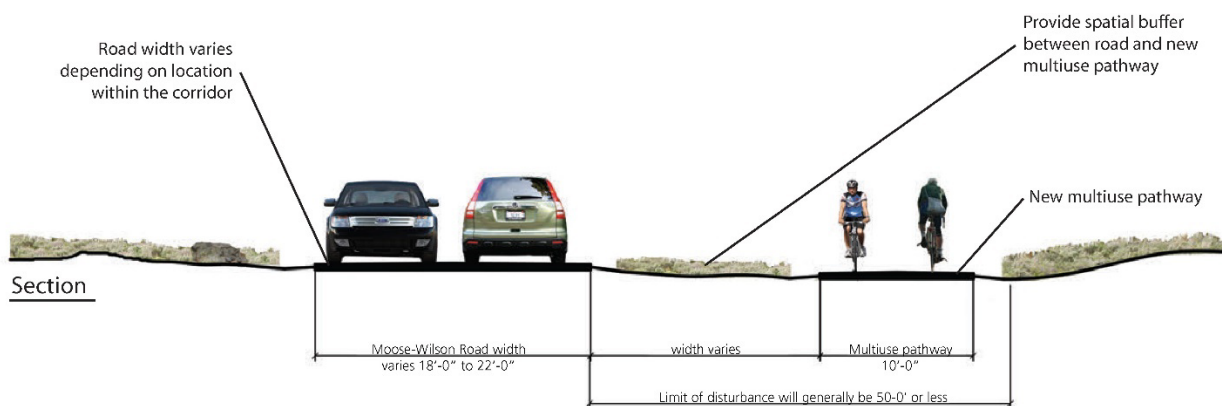
As described in the EIS (p. 135), construction staging would be confined to previously impacted areas. These areas could include larger parking areas within the corridor and other parking areas outside the corridor but within the Park boundary. Another possibility for staging areas is to use the sites of structures in the corridor slated for demolition. Before the sites are restored to natural conditions, they could be used for staging purposes.

2.1.2.2 Construction Schedule

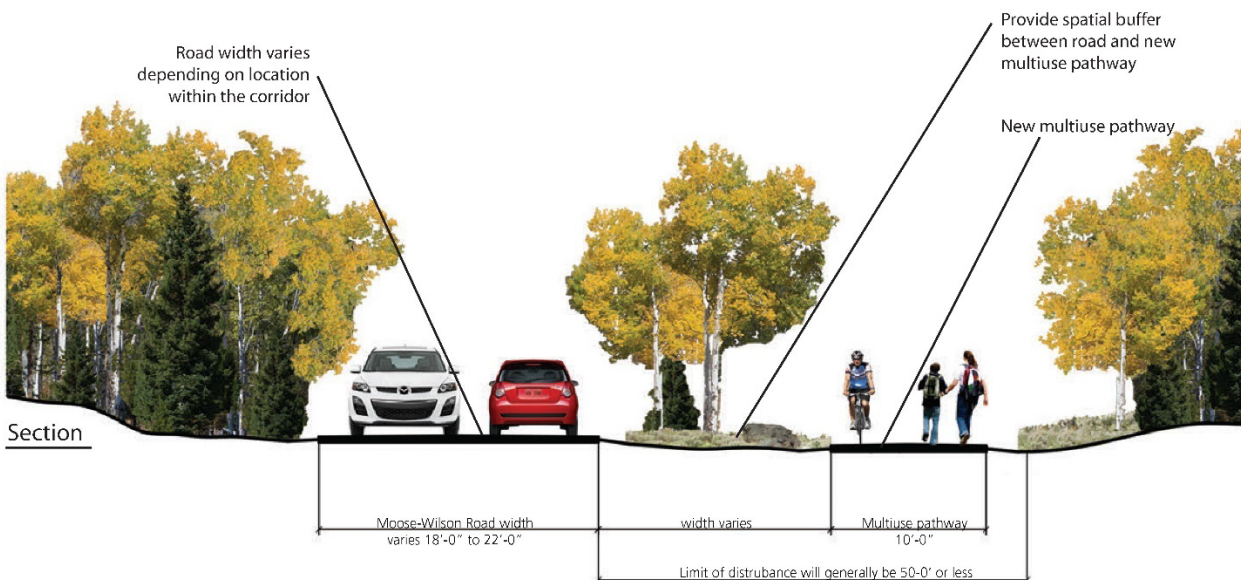
The anticipated construction time for all the work would be determined through a final contract but would fall within a typical construction season, usually between April to mid-November each year with winter work as weather allows, and in consideration of wildlife seasonal closures or mitigations. Contracting and design has not yet been initiated and therefore a specific annual and seasonal schedule for construction is as yet undefined.

Grand Teton National Park
Wyoming

National Park Service
U.S. Department of the Interior



Moose-Wilson Corridor Management Plan
Typical Multiuse Pathway in Sage Road Segments
Alternative D



Moose-Wilson Corridor Management Plan
Typical Multiuse Pathway in Forested Road Segments
Alternative D

FIGURE 2. MOOSE-WILSON ROAD REALIGNMENT AND SEPARATED MULTIUSE PATHWAY, TYPICAL SECTIONS (EIS P. 77).

2.1.3 Site Description

As described in the EIS (pp. 3-5), the corridor's natural communities include forests, sagebrush flats, wet meadows and wetlands, lakes, rivers, ponds, and associated diverse native plant communities, and fish and wildlife populations. Moose-Wilson Road extends northward from the terminus of Wyoming Route 390 at the Park's Granite Canyon Entrance to Teton Park Road at Moose. Moose-Wilson Road is typically open seasonally from May through October. Moose-Wilson Road is intended to function as a low-speed scenic park road that provides access into the park while preserving the corridor's natural, cultural, and historic character. The desired visitor experience emphasizes enjoying scenery, wildlife, and recreation in a manner that is compatible with protection of the corridor's exceptional ecological resources and historic landscape.

The dominant vegetation community includes sagebrush shrubland and aspen-conifer forest. Less prevalent, but still notable, vegetation communities in the Project Area include palustrine emergent (PEM), palustrine scrub shrub (PSS), and palustrine forested (PFO) wetlands, and grasslands. A brief description of the observed vegetation communities in the Project Area is provided below.

2.1.3.1 Sagebrush Shrubland

Sagebrush shrubland is the dominant habitat type observed throughout the Project Area. Vegetation in this community observed during the 2026 site visit was dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and little sagebrush (*Artemisia arbuscula*) with an understory of Wyeth biscuitroot (*Lomatium ambiguum*), garden sorrel (*Rumex acetosa*), bluegrasses (*Poa* spp.), smooth brome (*Bromus inermis*), and silvery lupine (*Lupinus argenteus*).

2.1.3.2 Aspen-Conifer Forest

An aspen-conifer forest complex occurs in the Project Area. Dominant tree species in this community included quaking aspen (*Populus tremuloides*), narrowleaf cottonwood (*Populus angustifolia*), and lodgepole pine (*Pinus contorta*). Dominant understory shrubs in the aspen-conifer forest community were western snowberry (*Symphoricarpos occidentalis*) and Woods' rose (*Rosa woodsii*). Common herbaceous and forb species in this community included blue wildrye (*Elymus glaucus*), smooth brome, Kentucky bluegrass (*Poa pratensis*), sticky geranium (*Geranium viscosissimum*), alsike clover (*Trifolium hybridum*), and western coneflower (*Rudbeckia occidentalis*).

2.1.3.3 Wetlands

Wetlands in the Project Area are described in *Section 4, Results* and are described in greater detail in Attachment A (*Aquatic Resources Inventory, Moose-Wilson Road*, 2018 delineation, ERO 2018) and Attachment B (*Aquatic Resources Inventory, Moose-Wilson Road Realignment and Separated Multiuse Pathway Project*, 2026 delineation, ERO 2026).

2.2 PROJECT PURPOSE

The overarching purpose of the Moose-Wilson Road Comprehensive Corridor Management Plan is to establish a long-term vision and comprehensive management strategies within the corridor of the Park to ensure the protection of significant national park system resources and

values. The purpose and need for the project are explained in greater detail in Chapter 1 of the EIS.

2.3 APPLICABLE NPS POLICY AND FEDERAL COMPLIANCE

This WSOE is required to comply with E.O. 11990. NPS DO #77-1 (2016) provide policies and procedures to comply with E.O. 11990. Compliance with other agency regulations will be completed as appropriate and separately from this WSOE; however, the mitigation measures set forth herein may be relied upon in fulfilling compliance with other applicable regulatory requirements.

3 METHODS

ERO conducted wetland delineations in the Project Area in 2018 and updated the wetland delineations in 2026, adding additional areas not covered by the 2018 delineation. The *Aquatic Resources Inventory, Moose-Wilson Road* (2018 delineation, ERO 2018) is attached as Attachment A. The *Aquatic Resources Inventory, Moose-Wilson Road Realignment and Separated Multiuse Pathway Project* (2026 delineation, ERO 2026) is attached as Attachment B. The 2026 delineation was conducted in the Project Area from June 15 through 18, 2026. The results of the 2018 and 2026 aquatic resources inventories are summarized below.

3.1 WETLAND DELINEATION METHODS

ERO reviewed National Wetlands Inventory maps; U.S. Geological Survey (USGS) topographic maps; U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) soil mapping; and aerial photographs of the wetlands in the Project Area before conducting fieldwork. During the 2026 site visit, ERO ecologists Marie Russo and Emma Clary visited the Project Area to map the boundaries of wetlands and other waters.

Wetlands were delineated using the methods for routine on-site wetland determinations in areas less than 5 acres as described in the *1987 Corps of Engineers [Corps] Wetlands Delineation Manual (Manual)*, and used methods in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (Regional Supplement)* and *NPS Procedural Manual #77-1: Wetland Protection* (Environmental Laboratory 1987; Corps 2010; NPS 2016). Wetlands were determined based on the presence of three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology. The Regional Supplement suggests placing sampling locations in plant communities, soil conditions, and hydrology conditions that are representative of the Project Area, and this recommendation was used to identify the sampling locations for collection of wetland and upland data.

The wetland indicator status for vegetation was based on the most current National Wetland Plant List (2022), and taxonomy was determined using *Flora of Colorado*, *Wetland Plants of the Northern Great Plains* and *Manual of Montana Vascular Plants* (Corps 2023; Ackerfield 2015; Chadde 2012; Lesica 2022). The authority for nomenclature for plant species was taken from *The PLANTS Database* (U.S. Department of Agriculture, Natural Resources Conservation Service 2026).

Routine wetland determination data forms were completed during the 2018 and 2026 wetland delineations and are included in Attachments A and B. The boundaries of identified wetlands and other waters were mapped using ESRI Field Maps with a Juniper Systems Geode external antennae using SBAS real-time corrections that is accurate to submeter. All global positioning

system (GPS) information was recorded as NAD 1983 UTM Zone 12 North coordinates. GPS data were incorporated using ESRI® ArcGIS Desktop software onto aerial photography at a scale of 1 inch equals 200 feet.

3.2 RIVERINE/STREAM DELINEATION

Perennial, intermittent, and ephemeral drainages with characteristics of a defined streambed, streambank, ordinary high water mark (OHWM), and other erosional features also were identified. The OHWM identifies the lateral jurisdictional limits of nonwetland waters of the U.S. Federal jurisdiction over nonwetland waters of the U.S. extends to the OHWM, defined in 33 Code of Federal Regulations 328.3 as “the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.” The Corps defines “stream bed” as “the substrate of the stream channel between the OHWMs.”

3.3 WETLAND FUNCTIONAL ASSESSMENT

Wetland functions were evaluated using the Montana Wetland Assessment Method (MWAM) (Berglund and McEldowney 2008). The MWAM uses a classification system that combines the U.S. Fish and Wildlife Service’s (USFWS) Cowardin classification system with a hydrogeomorphic (HGM) approach and provides a landscape context to the USFWS classification (Cowardin et al. 1979; Brinson 1993). The MWAM is a rapid functional assessment process designed primarily to address wetland resources associated with linear projects, such as highways and pipelines, although it can be applied to all types of projects. The MWAM is commonly used throughout the western United States and is accepted by the Corps. HGM classes found in Montana and Wyoming are mineral soil flats, organic soil flats, riverine, lacustrine fringe, slope, and depressional.

For each function and value, the MWAM provides a rating of low, moderate, high, exceptional, or not applicable based on observations and responses to questions. For each wetland, the MWAM scores each function or value on a scale of 0.1 (lowest) to 1.0 (highest) functional points. When all functional points are totaled, the maximum number of functional points is 12. Typically, wetlands that are larger and more diverse receive more points. Once the total functional points for wetlands are calculated, each wetland is assigned to one of the following four categories based on total functional points and other criteria described in the MWAM:

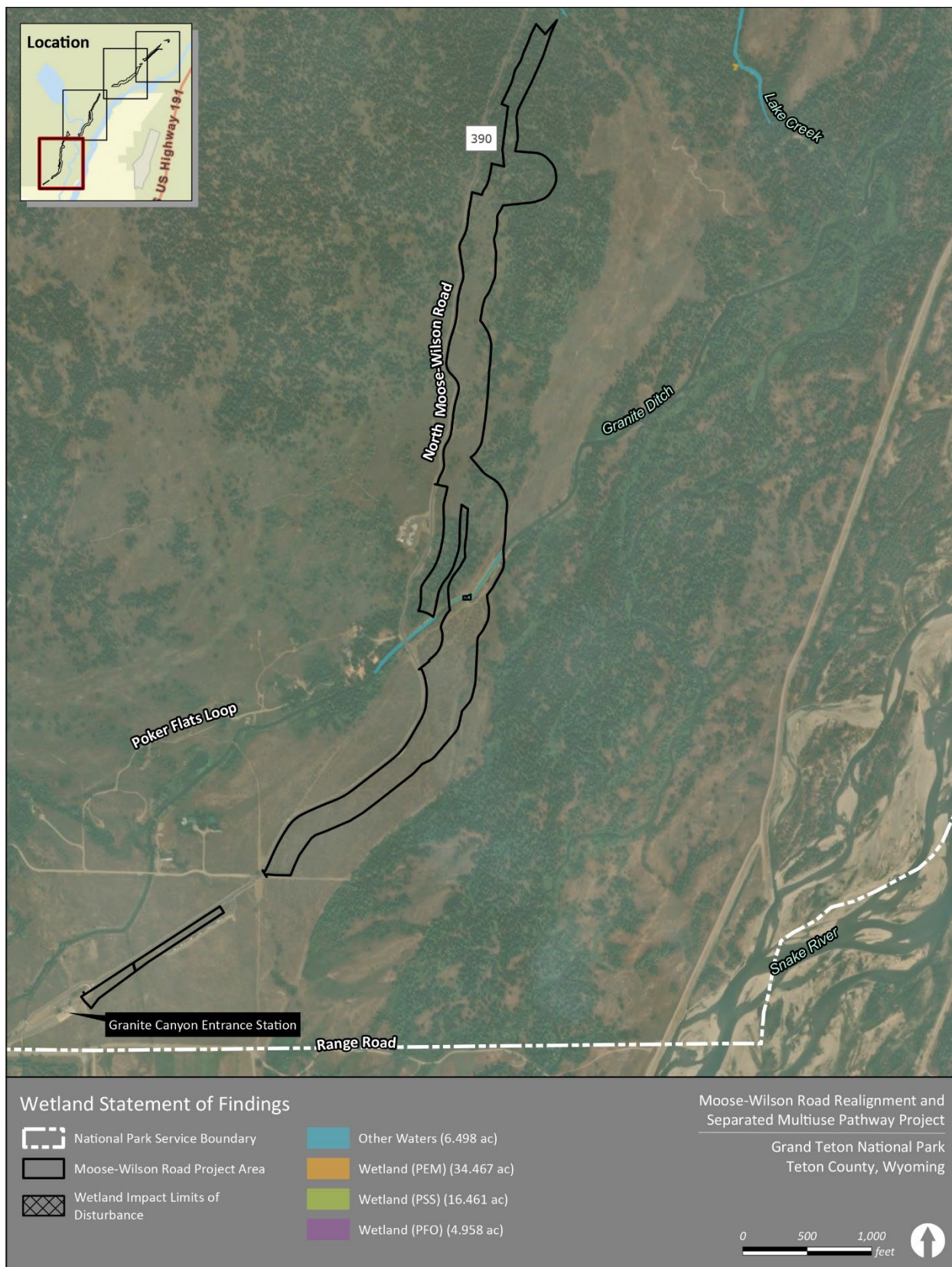
- **Category I:** Wetlands of exceptionally high quality that are generally rare. Category I wetlands can provide primary habitat for federally listed threatened or endangered species; represent a high-quality example of a rare wetland type; provide irreplaceable ecological functions (e.g., are not replaceable within a human lifetime, if at all); exhibit exceptionally high flood attenuation capability; or are assigned high ratings for most of the assessed functions and values, resulting in total actual functional points greater than 80 percent of the total possible functional points.
- **Category II:** Wetlands that are more common than those in Category I provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given area, or are assigned high ratings for many of the assessed functions and values, resulting the total actual functional points greater than 65 percent of the total possible functional points.

- **Category III:** Wetlands that are more common, generally less diverse, and often smaller and more isolated than those in Categories I and II. These wetlands can provide many functions and values, although they may not be assigned high ratings for as many parameters as Category I and II wetlands (30 percent to 65 percent of possible points).
- **Category IV:** Wetlands that are generally small, isolated, and lack vegetative diversity. These wetlands provide little in the way of wildlife habitat and are often directly or indirectly disturbed. Category IV wetlands rate low for uniqueness and production export/food chain support, and the total actual functional points are less than 30 percent of the total possible functional points.

Functional assessments were conducted for wetlands grouped based on location in the Project Area and either water source or wetland type. Wetlands in each group generally have similar plant communities, have similar hydrology, and provide similar functions as a whole.

4 RESULTS

ERO surveyed the Project Area for wetlands and other waters as described below. Data were collected from various locations in the Project Area to document the characteristics of uplands and wetlands and the transition areas between them. Under NPS DO #77-1, wetlands include both vegetated wetlands and other waters such as lakes, ponds, and streams, which are considered unvegetated wetlands (NPS 2016). Wetlands in the Project Area that have hydrophytic vegetation, hydric soil, and wetland hydrology are described as vegetated wetlands in this WSOE. Ponds and streams in the Project Area are described as unvegetated wetlands. Vegetated wetlands and streams in the Project Area are described below and are described in detail in Attachments A and B. A brief description of each wetland is provided in Table 1 and Table 2. Only wetlands potentially impacted by the project are included in Table 1 and Table 2. Figure 3 through Figure 6 show a summary of the wetlands in the Project Area.



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

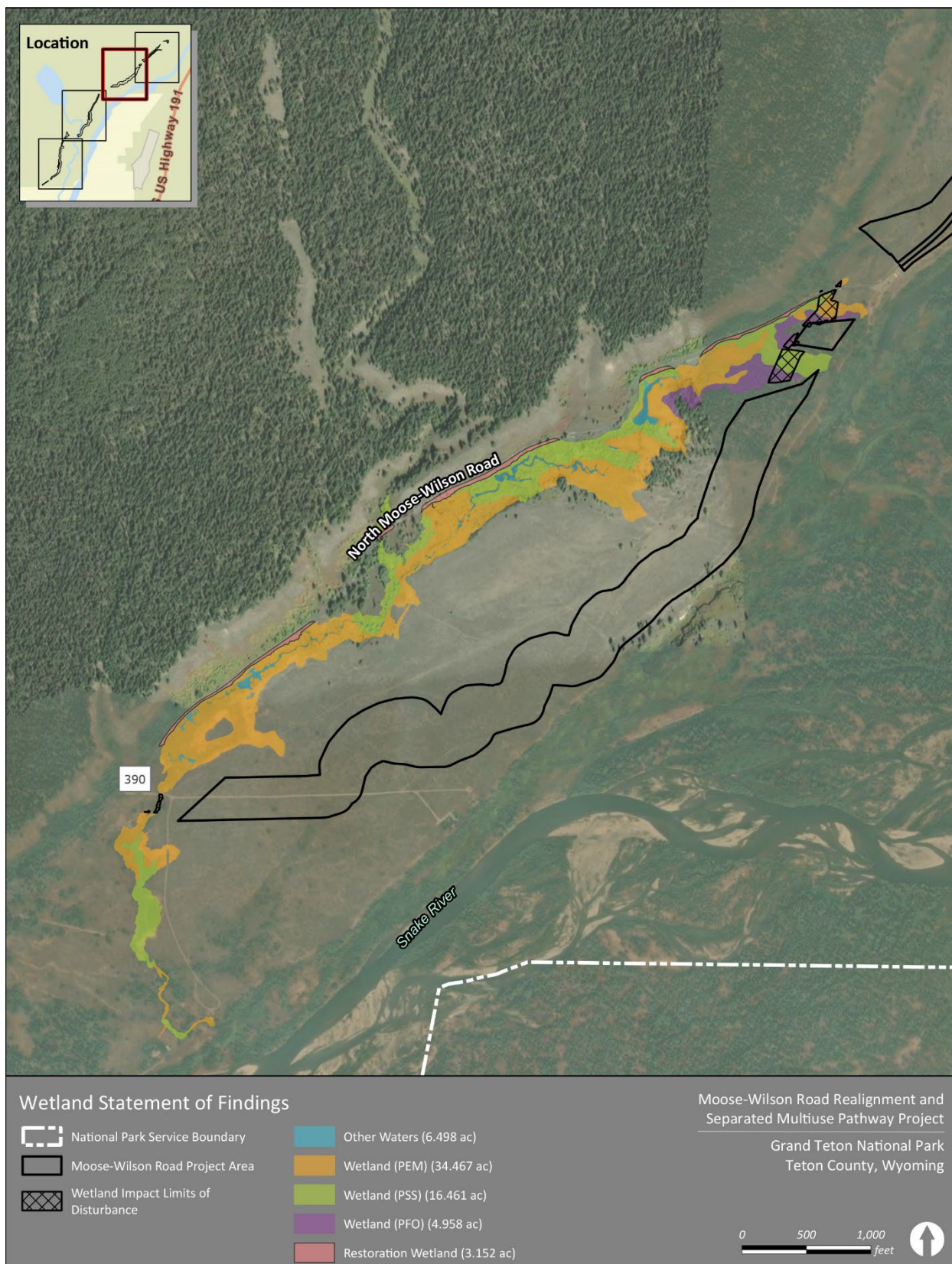
FIGURE 3. OVERVIEW OF SURFACE WATERS AND WETLANDS IN THE MOOSE-WILSON ROAD PROJECT AREA. DETAILED WETLAND MAPS ARE AVAILABLE IN FIGURES 7 THROUGH 12.



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

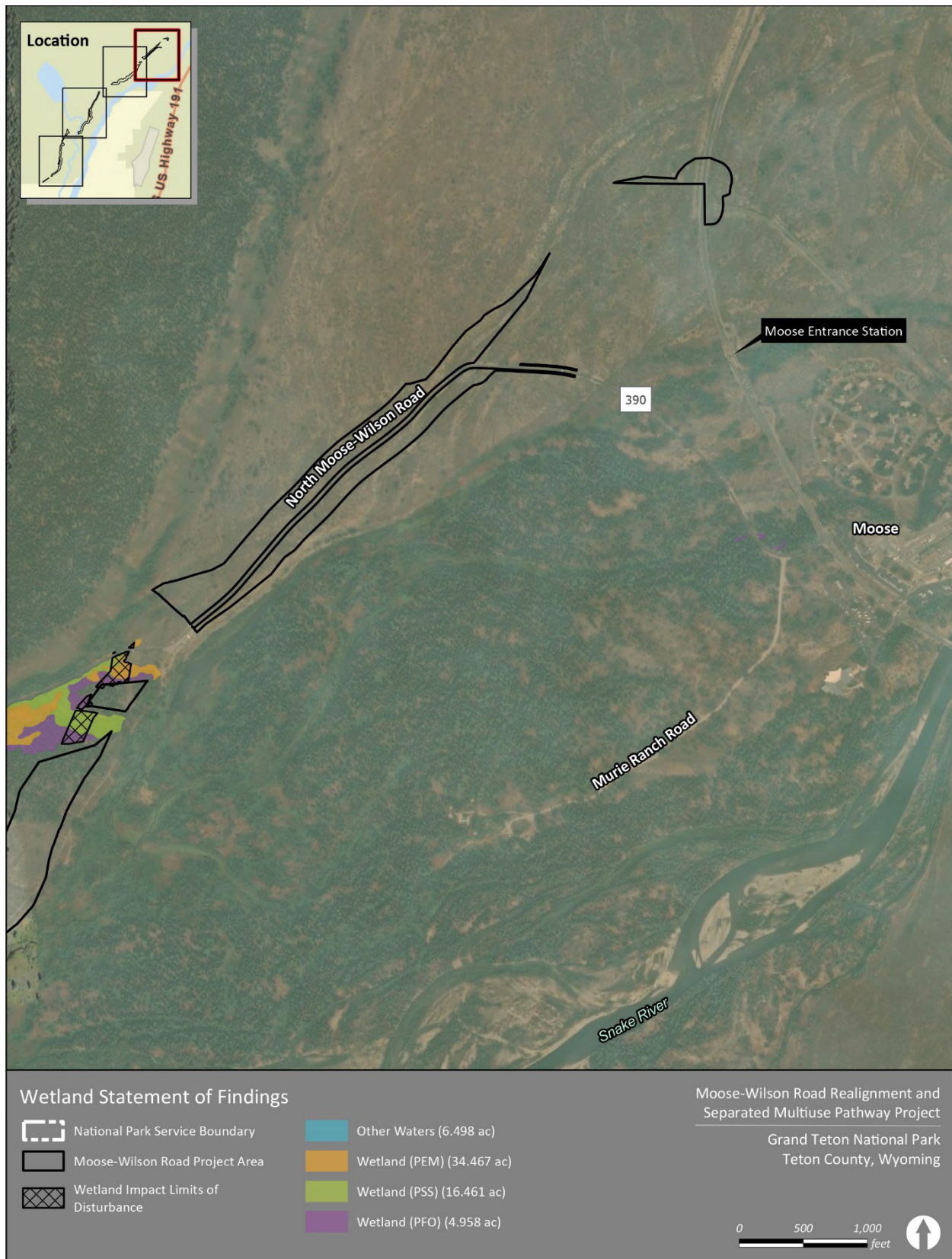
FIGURE 4. OVERVIEW OF SURFACE WATERS AND WETLANDS IN THE MOOSE-WILSON ROAD PROJECT AREA. DETAILED WETLAND MAPS ARE AVAILABLE IN FIGURES 7 THROUGH 12.



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

FIGURE 5. OVERVIEW OF SURFACE WATERS, WETLANDS, AND COMPENSATION WETLANDS IN THE MOOSE-WILSON ROAD PROJECT AREA. DETAILED WETLAND MAPS ARE AVAILABLE IN FIGURES 7 THROUGH 12.



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

FIGURE 6. OVERVIEW OF SURFACE WATERS AND WETLANDS IN THE MOOSE-WILSON ROAD PROJECT AREA. DETAILED WETLAND MAPS ARE AVAILABLE IN FIGURES 7 THROUGH 12.

TABLE 1. SUMMARY OF VEGETATED WETLANDS IN THE MOOSE-WILSON ROAD PROJECT AREA.

Feature Label	Cowardin Classification ¹	Location	Hydrology Source	Data Form ²	Functional Assessment Rating ³	MWAM Data Form ⁴	Photo ⁵
Beaver Pond Wetland Complex (including Wetlands E11, E12, and E14)	PEM, PFO, PSS	Large wetland complex between the Sawmill Ponds Overlook and Death Canyon Road Junction	Groundwater seepage	Attachment A: data point (DP)34, DP57, DP60	Category I	Attachment A: Wetland E	Attachment A: Photos 12-15
Wetland H	PEM	West side of Moose-Wilson Road, north end of Beaver Pond Wetland Complex	Groundwater seepage	Attachment A: DP62	Category II	Attachment A: Wetlands F, G, and H	Attachment A: Photo 19
Wetland G6	PEM	West side of Moose-Wilson Road, north end of Beaver Pond Wetland Complex	Groundwater seepage	Attachment A: DP36	Category II	Attachment A: Wetlands F, G, and H	Attachment A: Photo 18
Wetland E6	PEM	South end of the Beaver Pond Wetland Complex	Groundwater seepage	Attachment A: DP34, DP57, DP60	Category I	Attachment A: Wetland E	Attachment A: Photos 12-15
Wetland C4	PSS	Adjacent to Lake Creek	Surface flows from Lake Creek	Attachment A: DP12	Category II	Attachment A: Wetland C and OHWM 5	Attachment A: Photo 9
Wetland C3	PEM	Adjacent to Lake Creek	Surface flows from Lake Creek	Attachment A: DP12	Category II	Attachment A: Wetland C and OHWM 5	Attachment A: Photo 9
Wetland W1	PEM	Fringe along irrigation ditch	Ditch/diversion	Attachment A: DP1	Category IV	Attachment B: W1 and open water (OW)1	Attachment B: Photo 3
Wetland W2	PEM	Fringe along Granite Ditch	Ditch/diversion	Attachment A: DP1	Category II	Attachment B: W2 and OW2	Attachment B: Photo 4
Wetland W3	PEM	Near LSR Preserve Trailhead	Surface flow/snowmelt	Attachment B: DP3	Category II	Attachment B: PEM W3, PFO W4 and OW3	Attachment B: Photo 7
Wetland W4	PFO	Near LSR Preserve Trailhead	Surface flow/snowmelt	Attachment B: DP5	Category II	Attachment B: PEM W3, PFO W4 and OW3	Attachment B: Photos 5 and 6

¹PEM = palustrine emergent; PSS = palustrine scrub-shrub; PFO = palustrine forested.

²Routine wetland delineation forms found in Attachment A (ERO 2018, Appendix C) and in Attachment B (ERO 2026, Appendix D).

³Functional assessment rating based on the MWAM.

⁴MWAM forms found in Attachment A (ERO 2018, Appendix E) and in Attachment B (ERO 2026, Appendix E).

⁵Representative photos found in Attachment A (ERO 2018, Appendix D) and in Attachment B (ERO 2026, Appendix C).

TABLE 2. SUMMARY OF STREAMS (UNVEGETATED WETLANDS) IN THE MOOSE-WILSON ROAD PROJECT AREA.

Feature Label	Cowardin Classification ¹	Hydrology Source ²	Functional Assessment Rating ³	Photo ⁴
Kaufmann Creek (OHWM 4)	R3UB1	Surface flow/snowmelt	Category III	Attachment A: Photo 7
Lake Creek (OHWM 5)	R3UB1	Surface flow/snowmelt	Category II	Attachment A: Photos 8 and 9
Stewart Draw (OHWM 7)	R3UB1	Surface flow/snowmelt	Category II	Attachment A: Photo 10
Unnamed Irrigation Ditch (OW1)	R4SBC	Ditch/diversion	Category III	Attachment B: Photo 3
Granite Ditch (OW2)	R4SBCx	Ditch/diversion	Category III	Attachment B: Photo 4

¹R3UB1 = riverine upper perennial, unconsolidated bottom, cobble-gravel; R4SBC = riverine intermittent, streambed, seasonally flooded; R4SBCx = riverine intermittent, streambed, seasonally flooded, excavated.

²Based on field observations, desktop review of available data provided by the NPS, and review of aerial photography.

³Functional assessment rating based on the MWAM.

⁴Representative photos found in Attachment A (ERO 2018, Appendix D) and in Attachment B (ERO 2026, Appendix C).

TABLE 3. MOOSE-WILSON ROAD POTENTIAL NPS AND CORPS WETLAND JURISDICTIONAL STATUS.

Wetland ID	NPS Jurisdiction	Corps Jurisdiction ¹
Kaufmann Creek (OHWM 4)	Yes	Yes
Lake Creek (OHWM 5)	Yes	Yes
Stewart Draw (OHWM 7)	Yes	Yes
Unnamed Irrigation Ditch (OW1)	Yes	No
Granite Ditch (OW2)	Yes	Yes
Beaver Pond Wetland Complex	Yes	Yes
Wetland H	Yes	Yes
Wetland G6	Yes	Yes
Wetlands C3 and C4	Yes	Yes
Wetland W1	Yes	No
Wetland W2	Yes	Yes
Wetland W3	Yes	No
Wetland W4	Yes	No

¹Possible determination based on desktop review of surface connectivity to downstream waters. Only the Corps can make a final determination of waters under its jurisdiction.

4.1 STREAMS, LAKES, AND PONDS (UNVEGETATED WETLANDS)

Aquatic resources that would be directly affected by the project are described in greater detail below. Each of these resources is also described in Attachments A and B.

4.1.1 Kaufmann Creek (OHWM 4)

Kaufmann Creek (labeled as OHWM 4 in ERO 2018) originates west/upslope of Moose-Wilson Road and flows into Lake Creek east of the road. Lake Creek is a tributary stream of the Snake River. The Kaufmann Creek stream channel is approximately 5 to 10 feet wide in the wetland survey area with a water depth of 2 to 3 feet. The creek channel flows through a conifer forest and lacks wetland vegetation on the adjacent banks. The stream bottom consists of unconsolidated cobble-gravel (Attachment A: Photo 7).

4.1.1.1 Functional Assessment

Kaufmann Creek flows through dense conifer-dominated woodlands and generally lacks significant wetland vegetation on adjacent banks. It provides wildlife and fish habitat by offering

a perennial water source with adjacent vegetation cover. Though it lacks significant wetland vegetation, the creek flows through conifer forest, which may provide some nutrient input. Disturbances in the wetland survey area are minimal and limited to the road crossings. The overall possible score was 59 percent and, based on the possible score, the creek would be classified as Category III for a low score, low uniqueness, and low cover of wetland vegetation.

4.1.2 Lake Creek (OHWM 5)

Lake Creek (labeled as OHWM 5 in ERO 2018) traverses the center of the Project Area, east of Moose-Wilson Road and north and south of an unnamed dirt access road. Lake Creek originates at Phelps Lake west of the wetland survey area and flows southeast to the confluence with the Snake River. Within the wetland survey area, the creek flows through a wide complex of open water and PEM wetlands likely formed by beaver activity. The creek flows under a bridge in a defined channel spanning approximately 20 to 30 feet. Wetlands occur on the west and east banks of the creek and on a channel island downstream of the bridge crossing. Further downstream, the creek banks support sporadic patches of PEM wetland vegetation and dense hawthorn thickets. The creek channel is approximately 3 to 4 feet deep in the wetland survey area and consists of an unconsolidated cobble-gravel bottom (Attachment A: Photo 9).

4.1.2.1 Functional Assessment

Lake Creek and Wetland C were evaluated together using the MWAM based on their proximity and hydrology source. Lake Creek and its adjacent wetlands (Wetland C) provide important wildlife and fish habitat by offering a perennial water source with adjacent vegetation cover. The wetlands provide additional functions including bank stabilization and nutrient export. Disturbances in the wetland survey area are minimal and limited to the road crossing. Opportunities for improving habitat functions include increasing wetland cover and diversity, which are currently limited to the areas directly upstream and downstream of the Moose-Wilson Road crossing. The overall possible score was 67 percent and, based on the possible score, the wetlands would be classified as Category II for an overall score greater than 65 percent and a low rating for uniqueness.

4.1.3 Stewart Draw (OHWM 7)

Stewart Draw originates west/upslope of Moose-Wilson Road near Death Canyon and flows into the Snake River east of the road near Stewart Draw. Stewart Draw flows along Whitegrass Ranch Road and crosses under Moose-Wilson Road through a corrugated metal culvert. The creek channel is approximately 5 to 10 feet wide in the wetland survey area with a water depth of 2 to 3 feet. The creek channel flows through a conifer forest; wetlands occur as a narrow fringe along the creek banks and on low terraces. Several forested wetlands occur in depressional features adjacent to the creek. The creek bottom consists of unconsolidated cobble-gravel and would be classified as riverine under Cowardin et al. (1979) (Attachment A: Photo 10).

4.1.3.1 Functional Assessment

Stewart Draw and its adjacent wetlands provide important wildlife and fish habitat by offering a perennial water source with adjacent vegetation cover. Disturbances in the wetland survey area are primarily associated with Whitegrass Ranch Road, which parallels the creek and its adjacent wetlands. Wetlands occur along the creek on low terraces and in depressions above the creek terrace. The existing road and proposed actions to expand or alter Moose-Wilson Road may

limit opportunities for improving habitat functions. The overall possible score was 67 percent and, based on the possible score, the wetlands would be classified as Category II for an overall score greater than 65 percent and a low rating for uniqueness.

4.1.4 Unnamed Irrigation Ditch (OW1)

This manmade irrigation ditch crosses beneath Moose-Wilson Road through drainage culverts and is located near the south end of the wetland survey area. The ditch is approximately 3 to 4 feet wide with a water depth of 1 to 2 feet (ERO 2018). Water was flowing in the ditch during both the 2018 and 2026 site visits. The bottom substrate consists of an unconsolidated bottom of cobble-gravel. A narrow wetland fringe occurs along the adjacent banks (Wetland W1). The ditch originates west of Moose-Wilson Road and is fed by an unnamed canal. Desktop review of the National Hydrography Dataset (USGS 2026) and other available sources indicates that this ditch terminates in uplands rather than flowing into downstream waters.

4.1.4.1 Functional Assessment

Unnamed Irrigation Ditch (OW1) and associated wetlands have the potential to provide some limited habitat for wildlife by offering a water source and some wetland vegetation (ERO 2018). The ditch is unlikely to provide hydrological functions due to its small size and managed hydrology. The overall possible score was 48 percent. Although the wetlands are within habitat for documented threatened and endangered species, the actual ranking based on the possible score would be Category III due to a score below 50 percent, low uniqueness, and low cover of wetland vegetation.

4.1.5 Granite Ditch (OW2)

This irrigation ditch is formally known as Granite Creek Supplemental Ditch and occurs near the south end of the wetland survey area. This manmade ditch is approximately 10 to 15 feet wide with a water depth of approximately 8 to 10 feet. A narrow wetland fringe occurs along the adjacent banks (Wetland W2). The channel bottom consists of unconsolidated cobble-gravel. Granite Ditch has a continuous downstream surface connection to the Snake River, a known jurisdictional water of the U.S. and, therefore, would likely be considered jurisdictional by the Corps.

4.1.5.1 Functional Assessment

Granite Ditch has the potential to provide limited fish and wildlife habitat by offering a perennial water source. The ditch is entrenched; therefore, hydrology and nutrient export functions are generally low and are unlikely to be improved without restorative actions. The overall possible score was 56 percent and, based on the possible score, the ditch would be scored as Category III due to a low score, low uniqueness, and low cover of wetland vegetation.

4.2 VEGETATED WETLANDS

Wetlands mapped in the Project Area are described below. DPs were completed at each wetland feature to document wetland/upland boundaries. Data sheets and representative photos are provided in Attachments A and B (ERO 2018, ERO 2026).

4.2.1 Beaver Pond Wetland Complex (including Wetlands E6, E10, E11, E12, and E14)

The Beaver Pond Wetland Complex (Wetland E) includes the PEM, PSS, and PFO wetlands that are associated with a wetland complex situated east of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction (Figure 5, Figure 13, and Figure 14). The primary water source for Wetland E includes groundwater discharge and inflow; precipitation accumulation is a secondary source as well as subsurface seepage from an intermittent drainage (known as Wister Draw) to the north. The Beaver Pond Wetland Complex transitions into a channelized feature near its southern end; wetlands along the channel section are supported primarily by overbank flows from the channel. The flows from the Beaver Pond Wetland Complex eventually converge with the Snake River downstream and east of the Project Area.

PEM wetlands occur adjacent to and within the ponds and along the downstream channel of Wetland E. The dominant species in the PEM wetlands include Bebb's sedge (*Carex bebbii*), woolly sedge (*Carex pellita*), beaked sedge (*Carex utriculata*), Nebraska sedge (*Carex nebrascensis*), water sedge (*Carex aquatilis*), bluejoint (*Calamagrostis canadensis*), creeping bentgrass (*Agrostis stolonifera*), Kentucky bluegrass (*Poa pratensis*), reed canarygrass (*Phalaris arundinacea*), Timothy (*Phleum pratense*), American mannagrass (*Glyceria grandis*), nodding beggarticks (*Bidens cernua*), Baltic rush (*Juncus balticus*), swordleaf rush (*Juncus ensifolius*), large leaf avens (*Geum macrophyllum*), scouringrush horsetail (*Equisetum hyemale*), and smooth horsetail (*Equisetum laevigatum*).

PSS wetlands occur adjacent to the beaver ponds and PEM wetlands and on the downstream end of the channel. The dominant species in the PSS wetlands include Geyer's willow (*Salix geyeraina*), Booth's willow (*Salix boothii*), and Bebb's willow (*Salix bebbii*), with a herbaceous understory consisting of reed canarygrass (*Phalaris arundinacea*), bluejoint, Timothy, tufted hairgrass (*Deschampsia cespitosa*), American mannagrass, beaked sedge, woolly sedge, scouringrush horsetail, and smooth horsetail.

PFO wetlands occur near the northeast end of the Beaver Pond Wetland Complex, on the eastern margin. The PFO wetlands are dominated by an overstory of woodland species including lodgepole pine, Engelmann spruce (*Picea engelmannii*), black hawthorn (*Crataegus douglasii*), and quaking aspen (*Populus tremuloides*). The understory consists of shrub and herbaceous species including serviceberry (*Amelanchier alnifolia*), Timothy, creeping bentgrass, field horsetail (*Equisetum arvense*), and Kentucky bluegrass.

4.2.1.1 Functional Assessment

The Beaver Pond Wetland Complex is a groundwater-fed wetland complex and receives flows from the adjacent hillslope and from groundwater recharge. The Beaver Pond Wetland Complex consists of a diverse network of PEM, PSS, and PFO wetlands that provide significant and important habitat for fish and wildlife, including the federally threatened grizzly bear. Beaver activity has created long-term surface water as shallow ponds that provide a perennial water source for wildlife and contributes to high vegetation complexity and diversity. The Beaver Pond Wetland Complex provides a source of nutrient export, flood attenuation, and sediment capture. Disturbances in the wetland complex are limited to the adjacent Moose-Wilson Road, which restricts some water inflow from the adjacent hillslope and contributes

toxicants from over-road sheetflow. The overall possible score was 83 percent, and the wetlands were ranked as Category I for providing habitat for documented threatened and endangered species for an overall possible score greater than 80 percent.

4.2.2 Wetland H

Wetland H includes the PEM depressional wetland that is adjacent to Moose-Wilson Road and near the north end of the Beaver Pond Wetland Complex. The primary water source for Wetland H is groundwater discharge. The dominant species in the PEM wetland includes Timothy, creeping bentgrass, scouringrush horsetail, and woolly sedge. Wetland hydrology was indicated by saturation at the soil surface. Wetland soils were not evaluated due to sensitive cultural resources in the immediate vicinity; however, the underlying soils were mapped by the USDA, NRCS as Tineman-Bearmouth gravelly loams, a nonhydric soil type associated with mountain slopes (ERO 2018).

4.2.2.1 Functional Assessment

The primarily groundwater-fed Wetland H occurs on or at the toe of a hillslope and is supported by subsurface flows, small surface drainages, and surface seeps. The wetlands consist of PEM and PSS communities that provide habitat for wildlife, including the federally threatened grizzly bear. The wetlands provide a source of nutrient export, and the groundwater seeps contribute flows into the adjacent Beaver Pond Wetland Complex (Wetland E). Disturbances in Wetland H are limited to the adjacent Moose-Wilson Road, which constricts water outflow from the adjacent hillslope and contributes toxicants from over-road sheetflow. The overall possible score was 68 percent and, based on the possible score, the wetlands would be classified as Category II for an overall score greater than 65 percent and a low rating for uniqueness.

4.2.3 Wetland G6

Wetland G6 includes the PEM seep wetlands that occur on a steep hillslope adjacent to Moose-Wilson Road and west of the Beaver Pond Wetland Complex. The primary water source for Wetland G6 is groundwater discharge. The dominant species in the PEM wetlands include creeping bentgrass, Timothy, scouringrush horsetail, and swordleaf rush (*Juncus ensifolius*). Wetland hydrology was indicated by saturation at the soil surface. Wetland soils were not evaluated due to sensitive cultural resources in the immediate vicinity; however, the underlying soils were mapped by the USDA, NRCS as Sebud complex, a nonhydric soil type associated with mountain slopes (ERO 2018).

4.2.3.1 Functional Assessment

As described for Wetland H, this primarily groundwater-fed Wetland G6 occurs on or at the toe of a hillslope and is supported by subsurface flows, small surface drainages, and surface seeps. This wetland is rated the same as Wetland H. The overall possible score was 68 percent and, based on the possible score, the wetlands would be classified as Category II for an overall score greater than 65 percent and a low rating for uniqueness.

4.2.4 Wetlands Associated with Lake Creek (Wetlands C3 and C4)

Wetland C includes the PEM and PSS wetlands that occur along Lake Creek. The primary water source is overbank flows and subsurface seepage from Lake Creek. The dominant species in the PEM wetlands include reed canarygrass, Bebb's sedge, slenderbeak sedge (*Carex athrostachya*), beaked sedge, bluejoint, and tufted hairgrass. The dominant species in the PSS wetlands include Geyer's willow, Booth's willow, and reed canarygrass. Wetland hydrology was indicated by saturation at the soil surface or a shallow water table. Wetland soils were not readily apparent due to problematic soils. The underlying soils were mapped by the USDA, NRCS as nonhydric; however, based on the presence of wetland hydrology during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]), a predominance of wetland vegetation, and landscape position on low terraces along a perennial stream, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators.

4.2.4.1 Functional Assessment

See the discussion under *Section 4.1.2, Lake Creek (OHWM 5)*.

4.2.5 Wetland W1

Wetland W1 is a narrow fringe of wetland vegetation along the unnamed irrigation ditch (OW1). Dominant PEM vegetation observed includes, but is not limited to, beaked sedge, fowl bluegrass, and Nebraska sedge.

4.2.5.1 Functional Assessment

Overall, the Wetland W1 provides limited general wildlife habitat due to its small size and proximity to a major road, serving primarily as transient habitat for birds and other small wildlife. These wetlands provide high sediment and shoreline stabilization. Moderate functionality is provided by groundwater discharge and recharge, production export and food chain support, short- and long-term surface water storage, and sediment, nutrient, and toxicant removal. Flood attenuation and uniqueness are limited due to the wetland's small size and disturbed setting. The overall possible score was 57 percent, with the wetlands rating as Category IV.

4.2.6 Wetland W2

Wetland W2 is a narrow fringe of wetland vegetation along the Granite Ditch (OW2). Dominant PEM vegetation observed includes, but is not limited to, beaked sedge, fowl bluegrass, and Nebraska sedge.

4.2.6.1 Functional Assessment

Wetland W2 potentially provides suitable habitat for federally protected species, including grizzly bear, and provides excellent habitat for general wildlife species. These wetlands also offer high short- and long-term water storage, production export and food chain support, groundwater discharge and recharge, and recreation and education potential. Moderate functionality is provided by sediment, nutrient, and toxicant removal, high sediment and shoreline stabilization, and the uniqueness of the wetland type. Wetland W2 provides low flood attenuation due to its location on an excavated feature with steep banks and no established

floodplain connectivity. The overall possible score was 72 percent, with the wetland rating as Category II.

4.2.7 Wetland W3

Wetland W3 is a PEM wetland near the LSR Preserve Trailhead. Dominant PEM vegetation observed includes, but is not limited to, beaked sedge, fowl bluegrass, and Nebraska sedge. This wetland derives its hydrology from an intermittent stream that lack a continuous downstream surface connection to a known water of the U.S. Because these wetlands are not adjacent to or continuously connected with a jurisdictional water and instead are associated with isolated, nonjurisdictional drainage features, they would likely be considered nonjurisdictional by the Corps.

4.2.7.1 Functional Assessment

Wetland W3 potentially provides suitable habitat for federally protected species, including grizzly bear, and provides excellent habitat for general wildlife species. Moderate functionality is provided by short- and long-term surface water storage; sediment, nutrient, and toxicant removal; and the lack of uniqueness of the wetland type. These wetlands provide high short- and long-term surface water storage, sediment and shoreline stabilization, groundwater discharge and recharge, and uniqueness. Moderate functionality is provided by habitat for federally protected species, general wildlife habitat, flood attenuation, sediment, nutrient, and toxicant removal, and production export and food chain support. The overall possible score was 67 percent, with the wetlands rating as Category II.

4.2.8 Wetland W4

Wetland W4 is a PFO wetland near the LSR Preserve Trailhead. Wetland 4 is dominated by species including, but not limited to, gray alder (*Alnus incana*), fowl bluegrass (*Poa palustris*), orchardgrass (*Dactylis glomerata*), and lodgepole pine. These wetlands are associated with an intermittent stream that flows around the perimeter of the LSR Preserve, passes beneath several culverts, and serves as the primary hydrologic source.

4.2.8.1 Functional Assessment

Wetland W4 has the potential to provide habitat for threatened and endangered species, including grizzly bear. Overall, Wetland W4 provides limited general wildlife habitat value due to its location in a heavily developed and highly visited area of the Park. Moderate functionality is provided by short- and long-term surface water storage, sediment and shoreline stabilization, groundwater discharge and recharge, and the lack of uniqueness of the wetland type due to containing a sizeable PFO wetland. The overall possible score was 73 percent, with the wetlands rating as Category II.

5 SUMMARY OF PROJECT ALTERNATIVES

The EIS prepared for the project evaluated four alternatives, which are described in detail in the EIS and summarized below.

- Alternative A (No Action). The No Action Alternative is described in detail in the EIS (pp. 39–43) and would continue the management practices for Moose-Wilson Road

prior to development of the EIS. Under the No Action Alternative, the adverse effects of the existing road on the Beaver Pond Wetland Complex, which is the corridor's largest wetland complex, would continue. This alternative would result in the greatest adverse effects on wetlands of the alternatives considered.

- Alternative B. This alternative is described in detail in the EIS (pp. 45–49). Alternative B would realign the section of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction around the Beaver Pond Wetland Complex but would not include a new multiuse pathway. Under this alternative, rerouting the road around the Beaver Pond Wetland Complex and removing a segment of the road adjacent to the wetlands would allow restoration of wetland hydrology and functions.
- Alternative C. This alternative was the preferred alternative in the EIS, described in detail in the EIS (pp. 51–56). Alternative C would not realign the section of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction around the Beaver Pond Wetland Complex and would not include a new multiuse pathway. Under Alternative C, the adverse effects of the existing road on the corridor's largest wetland complex would continue.
- Alternative D. This alternative is described in detail in the EIS (pp. 59–63). Alternative D would realign the section of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction around the Beaver Pond Wetland Complex and would include construction of a new multiuse pathway in the road corridor. Under this alternative, rerouting the road around the wetland complex and removing a segment of the road adjacent to the wetlands would allow restoration of wetland hydrology and functions. This alternative would result in more wetland impacts than Alternative B, but would result in less wetland impacts than Alternatives A and C.

As previously described, the NPS is proposing an amendment to the ROD to incorporate specific elements (the realignment of Moose-Wilson Road and subsequent restoration of abandoned alignment between the Sawmill Ponds Overlook and Death Canyon Road Junction and multiuse trail) of Alternative D, while continuing to implement Alternative C.

6 IMPACTS OF THE PREFERRED ALTERNATIVE

6.1 WETLAND IMPACTS

As described under Alternative D in the EIS, the project would have both beneficial and adverse impacts on wetlands in the corridor. Realignment of Moose-Wilson Road between the Death Canyon Road Junction and Sawmill Ponds Overlook (and the restoration of the current road alignment) would create additional wetlands and would remove a major impediment to the natural hydrological conditions in this area of the corridor. The hydrological connectivity of the Beaver Ponds Wetland Complex with upstream drainages would be restored as a result of the realignment and additionally benefitted through the construction of appropriate drainage features. The Beaver Pond Wetland Complex would benefit from this realignment and subsequent restoration of the abandoned alignment. Realignment and restoration of the existing 1.3 miles of road would restore surface water and groundwater hydrological patterns and other natural processes that are integral to wetland function and condition, such as groundwater recharge/discharge, sediment/nutrient/toxicant retention, production export/food chain support, sediment/shoreline stabilization, fish habitat, wildlife habitat, and endangered species habitat. The water quality of the wetlands would also improve because much of this wetland complex would no longer be immediately downstream of Moose-Wilson Road and its

associated pollution and sediment-loading attributes. In addition, Moose-Wilson Road would no longer fragment the wetland habitat connectivity from the forested and montane habitat to the west.

The newly realigned section of the road and restoration of the abandoned alignment and the new multiuse pathway would directly impact wetlands through cut and fill activities. Specific wetland acreages affected by the project cannot be discerned until detailed grading and construction plans are developed but can be estimated. Wetland impacts were estimated conservatively based on preliminary plans. Proposed estimated impacts on vegetated wetlands are shown in Table 4. Proposed impacts on rivers and streams (unvegetated wetlands) are shown in Table 5. Proposed impacts are also shown on Figure 7 through Figure 14. The impacts shown represent a worst-case scenario and would be reduced and minimized to the greatest extent possible during later design process. Wetland impacts would not exceed the impacts presented in the tables and figures below.

Minor adverse impacts on wetlands would result from vehicle pollutants, alterations to local wetland hydrology, sediment loading from road/ditches, and human disturbances to wetland habitat. Although proposed bridges along the newly realigned segment of Moose-Wilson Road would maintain natural stream hydrology, the realignment would have long-term effects on local surface water and groundwater hydrology (such as converting sheetflow to channelized flow) in previously undisturbed areas to the east and could cause some alterations to wetland hydrology for downstream wetlands. Additionally, limited short-term adverse impacts on wetland hydrology, wetland water quality, and other wetland functions would result from construction activities related to the road realignment, primarily related to erosion/sedimentation and temporary alterations in local drainage patterns to accommodate construction activities.

Overall, the beneficial effects of the road realignment would outweigh adverse effects due to the importance of restoring hydrological connectivity and reducing fragmentation of the large wetland complex along Moose-Wilson Road. Given the importance of these natural system values, the proposed realignment would greatly benefit wetland functions and values. This has an added benefit to the wildlife that use this area.

6.1.1 Permanent Wetland Impacts

Based on the most conservative (maximum impact) estimate of construction disturbance the project would permanently degrade a total of 2.095 acres of wetlands. Permanent impacts on streams (unvegetated wetlands) would also occur from cut and fill associated with the new road alignment and multiuse pathway and would total up to approximately 0.077 acre (254.9 linear feet). Table 4 and Table 5 provide a summary of permanent impacts on wetlands. Table 4 also provides a summary of compensation requirements, which are explained in greater detail in *Section 7, Compensation/Mitigation* and in Appendix C.



World Imagery: Microsoft, Vantor
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

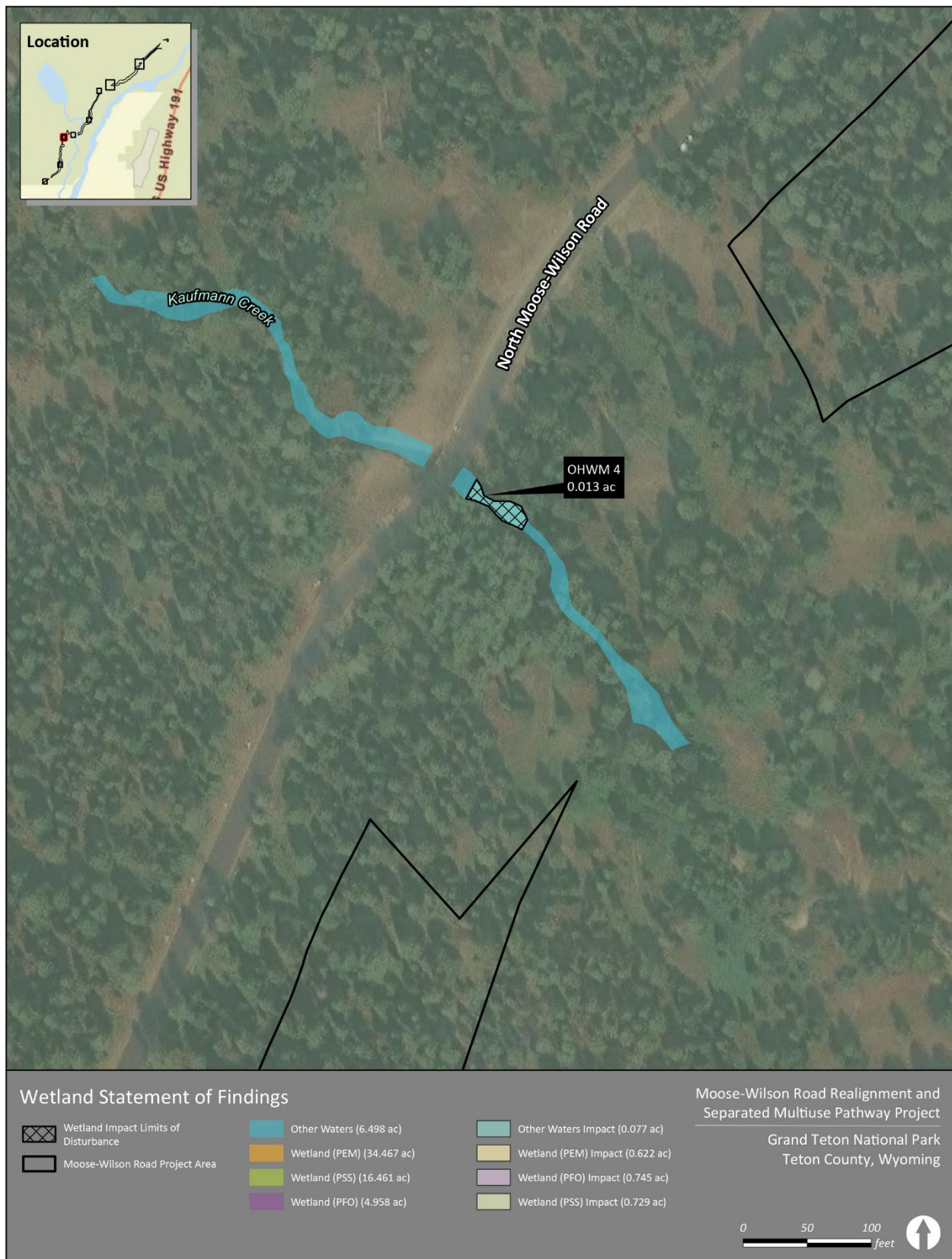
FIGURE 7. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Microsoft, Vantor

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

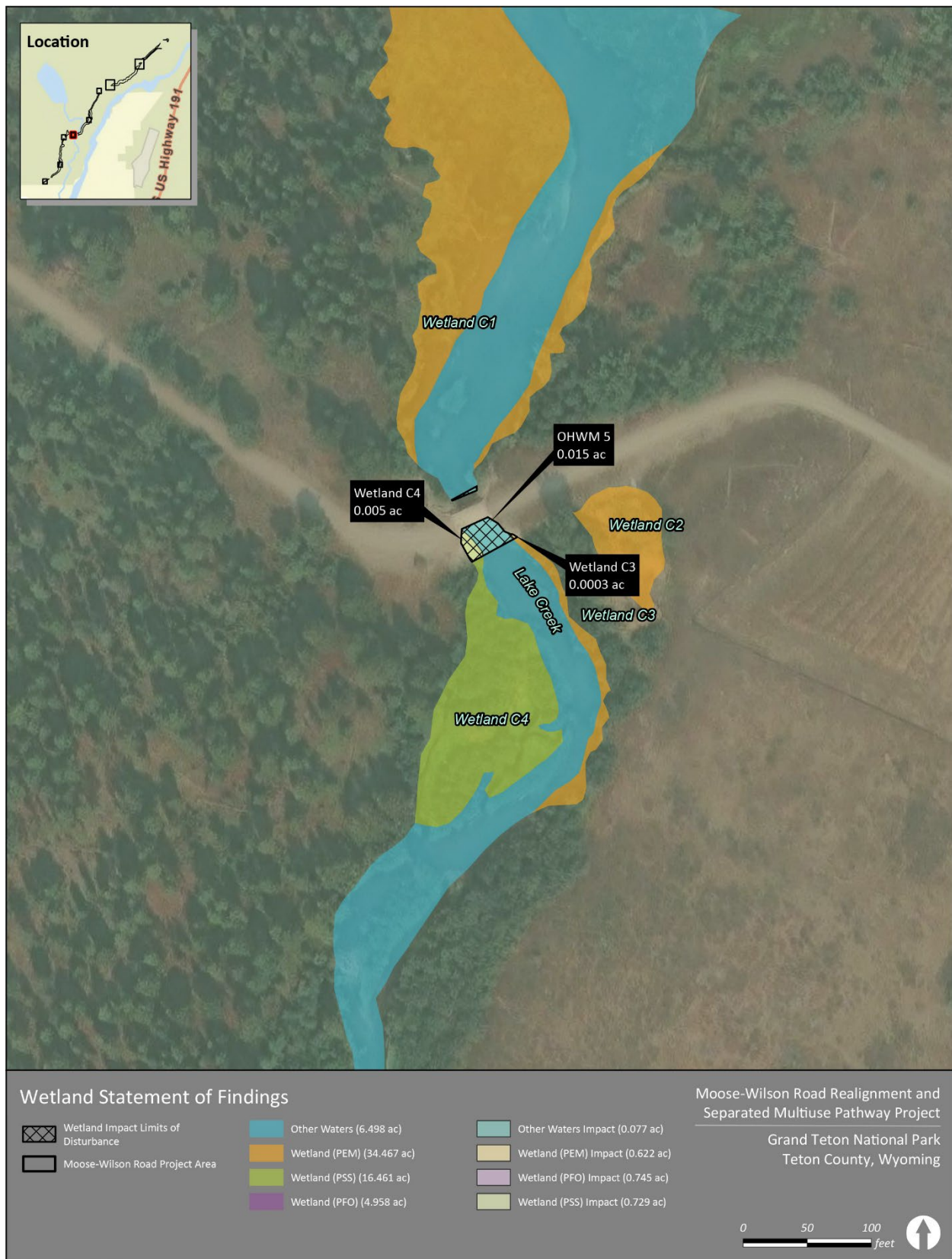
FIGURE 8. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Microsoft, Vantor

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

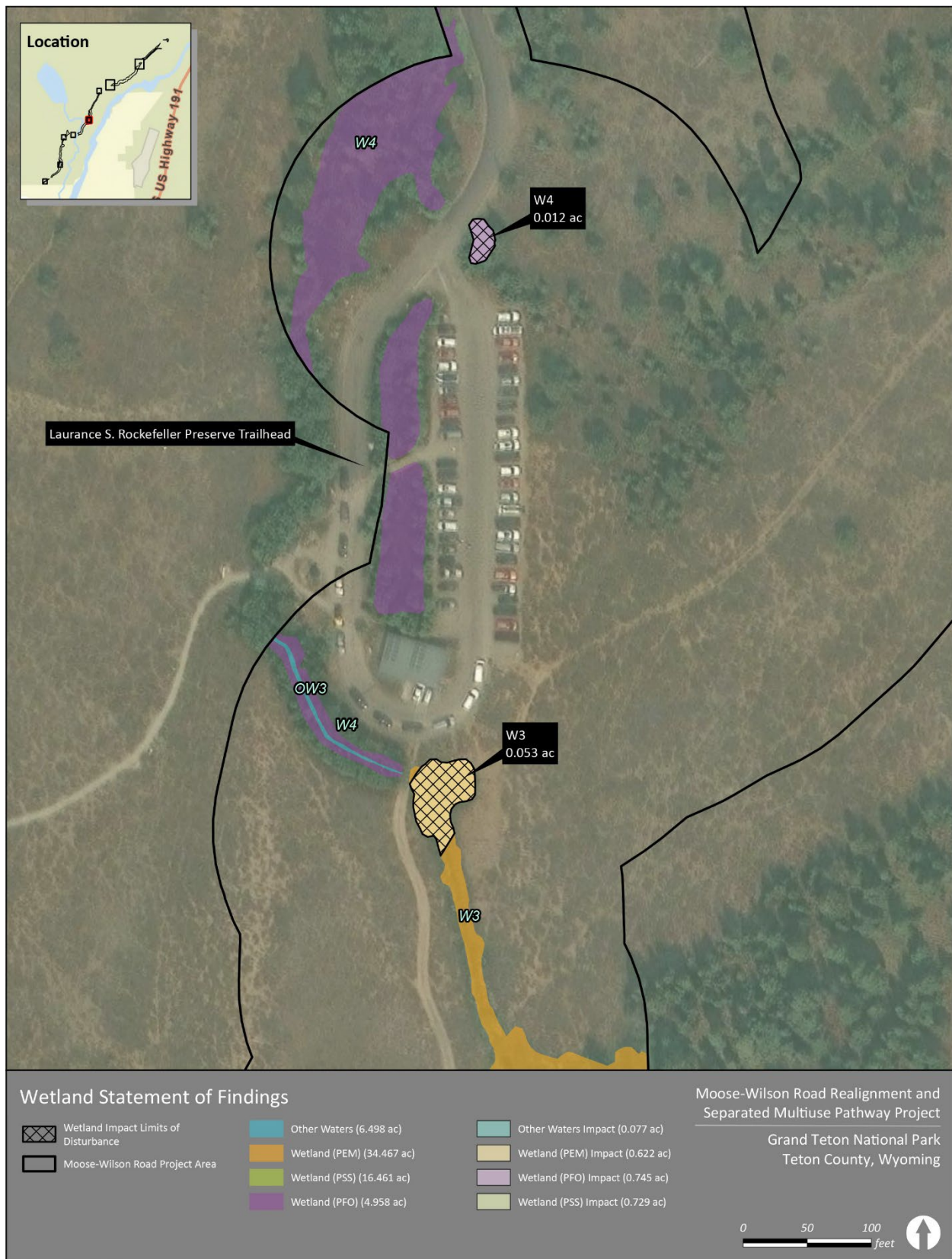
FIGURE 9. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Microsoft, Vantor

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

FIGURE 10. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Microsoft, Vantor

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

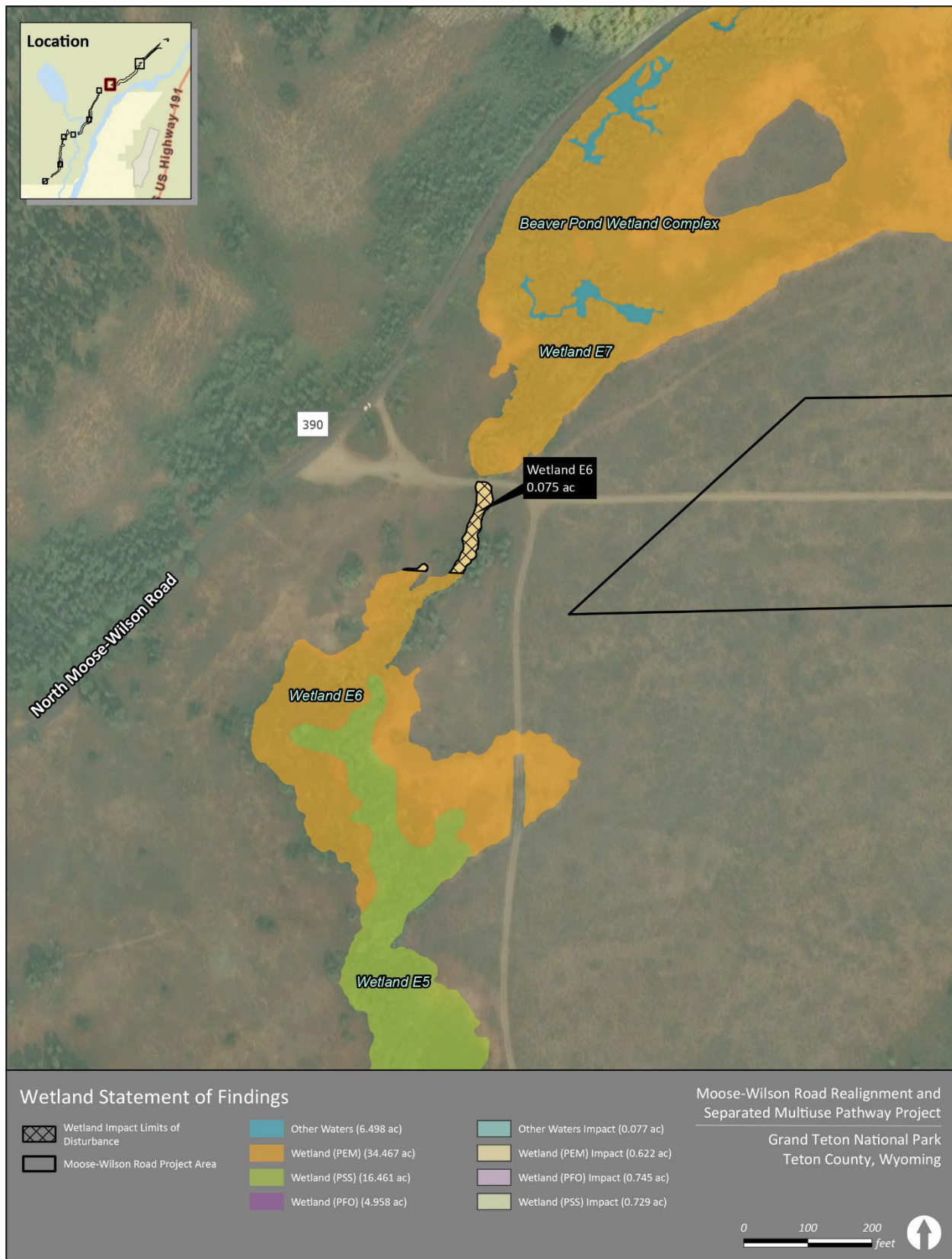
FIGURE 11. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Microsoft, Vantor

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

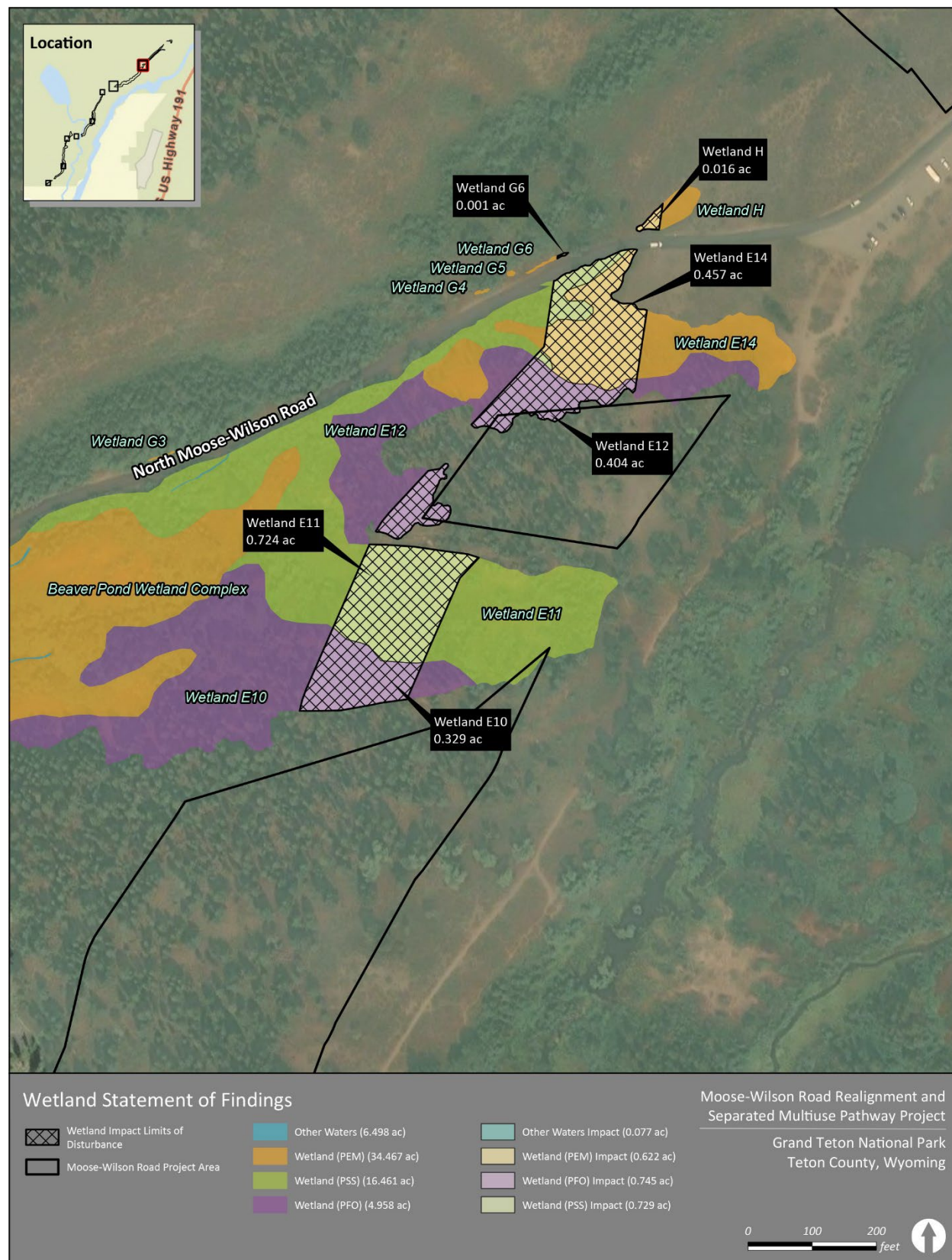
FIGURE 12. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

FIGURE 13. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

FIGURE 14. MOOSE-WILSON ROAD PROJECT PROPOSED WETLAND IMPACTS

TABLE 4. MOOSE-WILSON ROAD PROPOSED VEGETATED WETLAND IMPACTS AND COMPENSATION REQUIREMENTS.

Wetland ID	Cowardin Classification ¹	Permanent Impacts (acres)	MWAM Rating and Compensation Ratio	Compensation Wetland Needed (Acres)	Notes
Beaver Pond Wetland Complex	PFO	0.733	Category I (4:1)	2.932	Crossing of north end of beaver pond complex
Beaver Pond Wetland Complex	PSS	0.724	Category I (4:1)	2.896	Crossing of north end of beaver pond complex
Beaver Pond Wetland Complex	PEM	0.457	Category I (4:1)	1.828	Crossing of north end of beaver pond complex
Wetland H	PEM	0.016	Category II (3:1)	0.048	West side of road, north end of Beaver Pond Wetland Complex
Wetland G6	PEM	0.001	Category II (3:1)	0.003	West side of road, north end of Beaver Pond Wetland Complex
Wetland E6	PEM	0.075	Category I (4:1)	0.3	South end of Beaver Pond Wetland Complex
Wetland C4	PSS	0.005	Category II (3:1)	0.015	Adjacent to Lake Creek
Wetland C3	PEM	0.0003	Category II (3:1)	0.0009	Adjacent to Lake Creek
Wetland W1	PEM	0.007	Category IV (1:1)	0.007	Adjacent to unnamed irrigation ditch
Wetland W2	PEM	0.012	Category II (3:1)	0.036	Adjacent to Granite Creek
Wetland W3	PEM	0.053	Category II (3:1)	0.159	Near LSR Preserve Trailhead
Wetland W4	PFO	0.012	Category II (3:1)	0.036	Near LSR Preserve Trailhead
Total		2.095		8.261	

¹PEM = palustrine emergent; PSS = palustrine scrub-shrub; PFO = palustrine forested.

TABLE 5. MOOSE-WILSON ROAD PROPOSED STREAM (UNVEGETATED WETLAND) IMPACTS AND FUNCTIONAL ASSESSMENT RATING.

Wetland ID	Cowardin Classification ¹	Permanent Impacts (acres)	Permanent Impacts (linear feet)	Functional Assessment Rating	Notes
Kaufmann Creek (OHWM 4)	R3UB1	0.013	49.6	III	Crossing of Kaufmann Creek
Lake Creek (OHWM 5)	R3UB1	0.015	27.2	II	Crossing of Lake Creek
Stewart Draw (OHWM 7)	R3UB1	0.013	57.7	II	Crossing of Stewart Draw
Unnamed Ditch (OW1)	R4SBC	0.004	61.8	III	Crossing of Unnamed Ditch
Granite Ditch (OW2)	R4SBCx	0.031	58.6	III	Crossing of Granite Ditch
Total		0.077	254.9		

¹R3UB1 = riverine upper perennial, unconsolidated bottom, cobble-gravel; R4SBC = riverine intermittent, streambed, seasonally flooded; R4SBCx = riverine intermittent, streambed, seasonally flooded, excavated.

6.1.2 Temporary Wetland Impacts

Realignment of a section of Moose-Wilson Road and construction of a new multiuse pathway would result in temporary impacts on wetlands; however, because wetland impacts will not be known until later in the design phase, all wetland impacts are conservatively considered permanent for the purposes of this WSOE. Restoration of temporary impacts would occur in place and in-kind and would be quantified during a later design phase.

6.1.3 Impacts on Wetland Functions and Values

As previously described, wetland functions and values were evaluated using the MWAM and are summarized below. The following functions and values were evaluated: groundwater recharge/discharge, sediment/nutrient/toxicant retention, production export/food chain support, sediment/shoreline stabilization, fish habitat, wildlife habitat, endangered species habitat, recreation/education potential, and uniqueness. Wetland functions and values and impacts on functions and values are presented in Table 6.

TABLE 6. MOOSE-WILSON ROAD PROJECT, IMPACTS ON WETLAND FUNCTIONS AND VALUES.

Wetland Function or Value	Description	Summary of Impacts
Groundwater Recharge/ Discharge	Groundwater recharge is the movement of surface water (usually downward), whereas groundwater discharge is defined as the movement of groundwater into surface water (usually laterally or upward). Evaluation of this function includes observations of springs and seeps and the presence of inlets and outlets. Groundwater discharge and recharge occurs in seep-supported wetlands in the Project Area. The groundwater-fed wetland complex adjacent to Moose-Wilson Road receives flows from the adjacent hillslope and from groundwater recharge. Wetlands in the Project Area were rated moderate to high for this function (ERO 2018, ERO 2026).	Realigning a section of Moose-Wilson Road adjacent to the Beaver Pond Wetland Complex, and subsequent restoration of wetlands within the previous road alignment, would result in substantial benefits to this function by restoring the hydrological connection between the wetland and its water source. This action project would restore groundwater flow patterns east of the existing road alignment. This would result in substantial long-term beneficial impacts on groundwater recharge and discharge. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from construction of the new road alignment and multiuse trail would have an adverse effect on groundwater recharge and discharge, but this impact would be mitigated by restoring and enhancing wetlands and implementing the additional mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.
Sediment/ Nutrient/ Toxicant Retention	Sediment/nutrient/toxicant retention is the ability of an area to retain sediments and retain and remove toxicants and nutrients. Assessment of this function is based on the site's proximity to sediment/nutrient/toxicant sources, transport potential of these constituents to the area via surface water, potential for the site to detain the constituents to the area via surface water, and the potential of the site to filter or process (uptake) the constituents. Wetlands in the Project Area have the potential to retain sediment and toxicants in runoff from nearby roads. Wetlands in the Project Area were rated moderate for this function (ERO 2018, ERO 2026).	Realigning a section of the road adjacent to the Beaver Pond Wetland Complex, and subsequent restoration of wetlands within the previous road alignment, would result in substantial benefits to this function by removing the road as a source of sediment and toxicants flowing into the wetlands. This would result in substantial long-term beneficial impacts on this function. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from the new road alignment and multiuse trail would have an adverse effect on this function, but this impact would be mitigated by restoring and enhancing wetlands and implementing the additional mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.

Wetland Function or Value	Description	Summary of Impacts
Production Export/Food Chain Support	Production export/food chain support is the potential of an area to produce and export food/nutrients for living organisms. Production export typically refers to the flushing of organic material from the wetland to downstream habitats or adjacent deeper waters (Adamus et al. 1991). Wetlands in the Project Area were rated moderate to high for this function (ERO 2018, ERO 2026).	Realigning a section of the road adjacent to the Beaver Pond Wetland Complex, and subsequent restoration of wetlands within the previous road alignment, would result in indirect benefits to this function by removing the road as a source of sediment and toxicants flowing into the wetlands and by removing the fragmentation of this wetland by the existing road alignment. This would result in substantial long-term beneficial impacts on this function. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from the construction of the new road alignment and multiuse trail would have an adverse effect on this function, but this impact would be mitigated by restoring and enhancing wetlands and implementing the additional mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.
Sediment/Shoreline Stabilization	Sediment/shoreline stabilization is the ability of an area to dissipate flow or wave energy to reduce shoreline erosion. This function only applies if the area occurs on or in the banks of a river, stream, or other natural or man-made drainage or on the shoreline of a standing water body subject to wave action. Wetlands in the Project Area were rated moderate to high for this function (ERO 2018, ERO 2026).	Proposed bridges along the newly realigned segment of the road would maintain natural stream hydrology. Current sediment and shoreline stabilization conditions would be maintained. Short-term impacts on sedimentation could occur during construction, but long-term impacts on this function are expected to be neutral.
Fish Habitat	This function is assessed based on the effectiveness of seasonal and permanent water bodies associated with the wetland for fish habitat. The beaver ponds in the large wetland complex and the streams in the Project Area are likely occupied by native fish species, and the associated wetlands were rated moderate for this function (ERO 2018, ERO 2026).	Realigning a section of the road adjacent to the Beaver Pond Wetland Complex, and subsequent restoration of wetlands within the previous road alignment, would result in benefits to this function by removing the road as a source of sediment and toxicants flowing into the wetlands, which would improve water quality for fish. Removing the existing section of the road would also benefit this function by reducing the fragmentation of this wetland by the existing road alignment. This would result in substantial long-term beneficial impacts on this function. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from construction of the realigned road and new multiuse pathway would have an adverse effect on fish habitat, but this impact would be mitigated by restoring and enhancing wetlands and implementing the additional mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.

Wetland Function or Value	Description	Summary of Impacts
Wildlife Habitat	Wildlife habitat is assessed based on the effectiveness of the wetlands to provide habitat for both resident and migrating wildlife species typically associated with wetlands. Wetland and riparian areas are among the most biologically diverse habitat types. The wetlands and riparian areas in the Project Area provide habitat to multiple wildlife species and provide a water source for larger mammals. The groundwater-fed wetland complex adjacent to the road consists of a diverse network of PEM, PSS, and PFO wetlands that provide important habitat for wildlife. Beaver activity has created long-term surface water as shallow ponds that provide a perennial water source for wildlife. Wetlands in the Project Area were rated moderate to high for this function (ERO 2018, ERO 2026).	Realigning a section of the road adjacent to the Beaver Pond Wetland Complex, and subsequent restoration of wetlands within the current road alignment, would result in benefits to this function by removing the road as a source of sediment and toxicants flowing into the wetlands, which would improve water quality. Removing the existing section of the road would also benefit wildlife habitat by reducing the fragmentation of this wetland by the existing road alignment and improving connectivity between the wetlands and the montane forest habitat to the west. This would result in substantial long-term beneficial impacts on this function. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from the realigned road and new multiuse pathway would have an adverse effect on wildlife, but this impact would be mitigated by restoring and enhancing wetlands and implementing the additional mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.
Endangered Species Habitat	Endangered species habitat relates to the effectiveness of the wetland and associated water bodies to support threatened and endangered species. Grizzly bears are known to occur in the Project Area and Canada lynx have the potential to occur in the Project Area. Wetlands in the Project Area were rated moderate to high for this function (ERO 2018, ERO 2026). Additional information about endangered species habitat is presented in the EIS (pp. 187–196) under “Federally Listed and Candidate Wildlife Species.”	The benefits described above for wildlife habitat would also apply to endangered species habitat. Removing the existing section of the road adjacent to the wetland complex would benefit grizzly bears by reducing the fragmentation of the wetlands by the existing road alignment and improving connectivity between the wetlands and the montane forest habitat to the west. This would result in substantial long-term beneficial impacts on this function. The realignment would also reduce the risk of human-grizzly bear interactions by eliminating and restoring a section of road that currently bisects high-use areas for bears (near wetlands and shrub/berry habitat), which is a high visitor use area frequented by wildlife viewers and photographers due to easy access along the road. The permanent loss of 254.9 linear feet of streambed and 2.095 acres of vegetated wetlands from the road realignment and new multiuse trail would not be expected to affect grizzly bears and would be mitigated by implementing the mitigation measures as described below in <i>Section 7, Compensation/Mitigation</i>.
Recreation/Educational Potential	Recreation potential is assessed based on the potential of an area to support recreational activities. Educational potential is the potential of an area to support educational activities or scientific research. The wetlands in the Project Area contribute to the recreational experience of visitors driving along the road. Wetlands in the Project Area were rated high for this function (ERO 2018, ERO 2026).	Heavy use of the Project Area for recreation would continue after realignment of the road and construction of the multiuse pathway. Construction of the multiuse pathway would improve access to the Project Area for visitors, which could have both beneficial and adverse effects on the visitor experience, as described in the EIS (pp. 554–581) under Visitor Use and Experience.

Wetland Function or Value	Description	Summary of Impacts
Uniqueness	Uniqueness is assessed based on the general uniqueness of an area relative to the abundance of similar sites occurring in the same major watershed basin, the replacement potential and habitat diversity of an area, and the degree of human disturbance in the area. Wetlands in the Project Area were rated low to moderate for this function (ERO 2018, ERO 2026).	Wetlands in the Project Area were not rated highly for uniqueness. However, realigning the section of the road adjacent to the large wetland complex, and subsequent restoration of wetlands within the current road alignment, would result in benefits to the most important and valuable wetland complex in the Project Area.

6.2 JUSTIFICATION FOR THE USE OF WETLANDS

The impacts on wetlands are justified because impacts are unavoidable; none of the other alternatives proposed in the EIS would eliminate impacts on wetlands. Impacts of the alternatives are summarized in the EIS in Table 9 (pp. 157–158). Realigning Moose-Wilson Road around the largest and most sensitive wetland complex in the Project Area would eliminate existing impacts on wetlands and allow restoration of wetland hydrology and wetland functions and values by removing the existing road segment adjacent to the wetlands. Other beneficial effects would include improved wetland water quality and improved habitat connectivity between the large Beaver Pond Wetland Complex and the forest habitat to the west. Construction of the multiuse pathway would result in adverse effects such as an increase in hydrological disturbance from the multiuse pathway and localized wetland impacts and loss associated with the road realignment and pathway. These adverse impacts would not be significant due to the relatively localized nature of the effects on wetlands. Wetland impacts would be avoided and minimized to the greatest extent practicable during the detailed design phase, while also considering constructability and road alignment issues.

7 COMPENSATION/MITIGATION

7.1 AVOIDANCE AND MINIMIZATION MEASURES

The NPS followed the sequence of avoiding, minimizing, and compensating for wetland impacts. Impacts on wetlands would be avoided in selected locations by realigning Moose-Wilson Road and constructing the new multiuse pathway outside of wetlands to the greatest extent possible during project design. During the design process, when complete avoidance is not possible, soil and vegetation removal for cut/fill slopes and grading would be limited to the smallest area possible. Impacts on existing wetlands outside of the construction area would be avoided by restricting ground disturbance outside of construction limits. No construction materials would be stockpiled in wetland areas. Best Management Practices and Mitigation Measures are described in detail in the EIS (pp. 103–121). In addition to the measures listed in the EIS, the NPS would adhere to the conditions of any Clean Water Act Section 404 and Section 401 Permits to minimize potential impacts on streams and wetlands.

7.2 IMPACT COMPENSATION

Approximately 0.077 acre (254.9 linear feet) of streambed and 2.095 acres of vegetated wetlands would be permanently filled by road realignment and construction of the multiuse pathway. Compensatory mitigation is required for permanent impacts on wetlands, in accordance with NPS DO #77-1.

The NPS is proposing to provide wetland compensation by restoring wetlands at a ratio of 4:1 for Category I wetland impacts, 3:1 for Category II, 2:1 for Category III, and 1:1 for Category IV. Stream impacts will be mitigated at 1:1. Wetland enhancement will require a 10:1 ratio. Using these mitigation ratios, 8.261 acres of compensation will be required for impacts on vegetated wetlands (Table 4).

Compensation for permanent impacts on wetlands would be accomplished by restoring wetlands through removal of a section of the current Moose-Wilson Road alignment. A *Wetland Compensation Plan* has been prepared, which shows areas that are available for restoration (Attachment C). Attachment C contains information on wetland compensation and location maps of the proposed compensation sites.

The *Wetland Compensation Plan* (Attachment C) identifies up to 11.52 acres of potential wetland compensation credit compared with 0.077 acre of unvegetated wetlands/streambed and 8.261 acres of wetland compensatory mitigation that would be required. Adequate mitigation sites are available to provide compensation for impacts on both vegetated and unvegetated wetlands. The NPS, with coordination and input from the Corps, will identify selected areas for compensation at the 70 percent design stage.

7.3 PERFORMANCE STANDARDS AND MONITORING

Ecological performance standards based on the MWAM (Berglund and McEldowney 2008) would be used to track the success of wetland compensation. Preliminary performance standards and monitoring plans are provided in the *Wetland Compensation Plan* (Attachment C). Performance standards and monitoring will be developed in detail in cooperation with Park staff, the NPS Wetlands Program, and the Corps later in the design and permitting process.

7.4 FUNDING SOURCE FOR COMPENSATORY MITIGATION

The cost of compensatory mitigation will be factored into the construction cost of the project and is consistent with DO #77-1, Section 5.2.3.

8 CONCLUSIONS

The project would permanently impact 2.095 acres of vegetated wetlands from placement of fill for the Moose-Wilson Road realignment and from construction of a new multiuse pathway. Permanent impacts on 0.077 acre (254.9) linear feet of streambed (unvegetated wetlands) would also result from the project. Specific wetland acreages affected by the project cannot be discerned until detailed grading and construction plans are developed. The impacts described in this WSOF represent a worst-case scenario and will be reduced and minimized to the greatest extent possible during later design process.

The total acreage of permanent wetland impacts would be offset through compensatory mitigation by restoring wetlands through removal of an existing section of Moose-Wilson Road, as described in the *Wetland Compensation Plan* (Attachment C). Up to 3.36 acres of potential mitigation credit has been identified in the *Wetland Compensation Plan*.

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ATTACHMENT A AQUATIC RESOURCES INVENTORY, MOOSE-WILSON ROAD, 2018

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ATTACHMENT B AQUATIC RESOURCES INVENTORY, MOOSE-WILSON ROAD REALIGNMENT AND
SEPARATED MULTIUSE PATHWAY PROJECT, 2026

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ATTACHMENT C WETLAND COMPENSATION PLAN

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**AQUATIC RESOURCES INVENTORY
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING**

Prepared for—

National Park Service
Department of the Interior

Prepared by—

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November 2018

ERO Project #10315
NPS Document #GRTE-136-149293

Summary

ERO Resources Corporation (ERO), under contract to the National Park Service (NPS), conducted an aquatic resources inventory (wetland delineation) in support of proposed improvements to Moose-Wilson Road in Grand Teton National Park, Teton County, Wyoming. Jurisdictional wetlands were identified using criteria established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers (Corps) 2010). Wetlands delineated were characterized by a dominance of hydrophytic vegetation, the presence of hydric soil indicators, and the evidence or presence of wetland hydrology. Wetlands were also classified under the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) following NPS guidelines. Field surveys identified 11 vegetated wetlands (Wetlands A through K) and 7 areas (unvegetated wetlands or other waters, ordinary high water mark (OHWM) 1 through 7) that qualified as wetlands under NPS guidelines but not under Corps guidelines. The wetlands and other waters delineated account for 59.45 acres of vegetated wetlands, 3.82 acres of unvegetated wetlands, and 7,544 linear feet of stream channel.

CONTENTS

Summary	i
Background	1
Ecological Setting	1
Proposed Project Description	5
Methods	6
Wetland Survey Area Description.....	6
Wetland Delineation	6
Cowardin Classification	8
Wetland Functional Assessment	8
Assessment of Potential Jurisdictional Status	10
Results	10
Uplands	12
Wetlands and Other Waters.....	31
Other Waters	31
Wetlands	34
Conclusions and Recommendations	40
Wetlands and Other Waters.....	40
References	41

TABLES

Table 1. Summary of vegetated wetlands in the wetland survey area.....	10
Table 2. Unvegetated wetlands/other waters in the wetland survey area.....	12

FIGURES

Figure 1. Vicinity Map
Figure 2. Map Index
Figure 3a. Existing Conditions
Figure 3b. Existing Conditions
Figure 3c. Existing Conditions
Figure 3d. Existing Conditions
Figure 3e. Existing Conditions
Figure 3f. Existing Conditions
Figure 3g. Existing Conditions
Figure 3h. Existing Conditions
Figure 3i. Existing Conditions

Figure 3j. Existing Conditions
Figure 3k. Existing Conditions
Figure 3l. Existing Conditions
Figure 3m. Existing Conditions
Figure 3n. Existing Conditions
Figure 3o. Existing Conditions
Figure 3p. Existing Conditions
Figure 3q. Existing Conditions

APPENDICES

Appendix A Soil Maps
Appendix B Plant Species List
Appendix C Data Forms – Routine Wetland Determination
Appendix D Photos
Appendix E Functional Assessment Forms

**AQUATIC RESOURCES INVENTORY
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING**

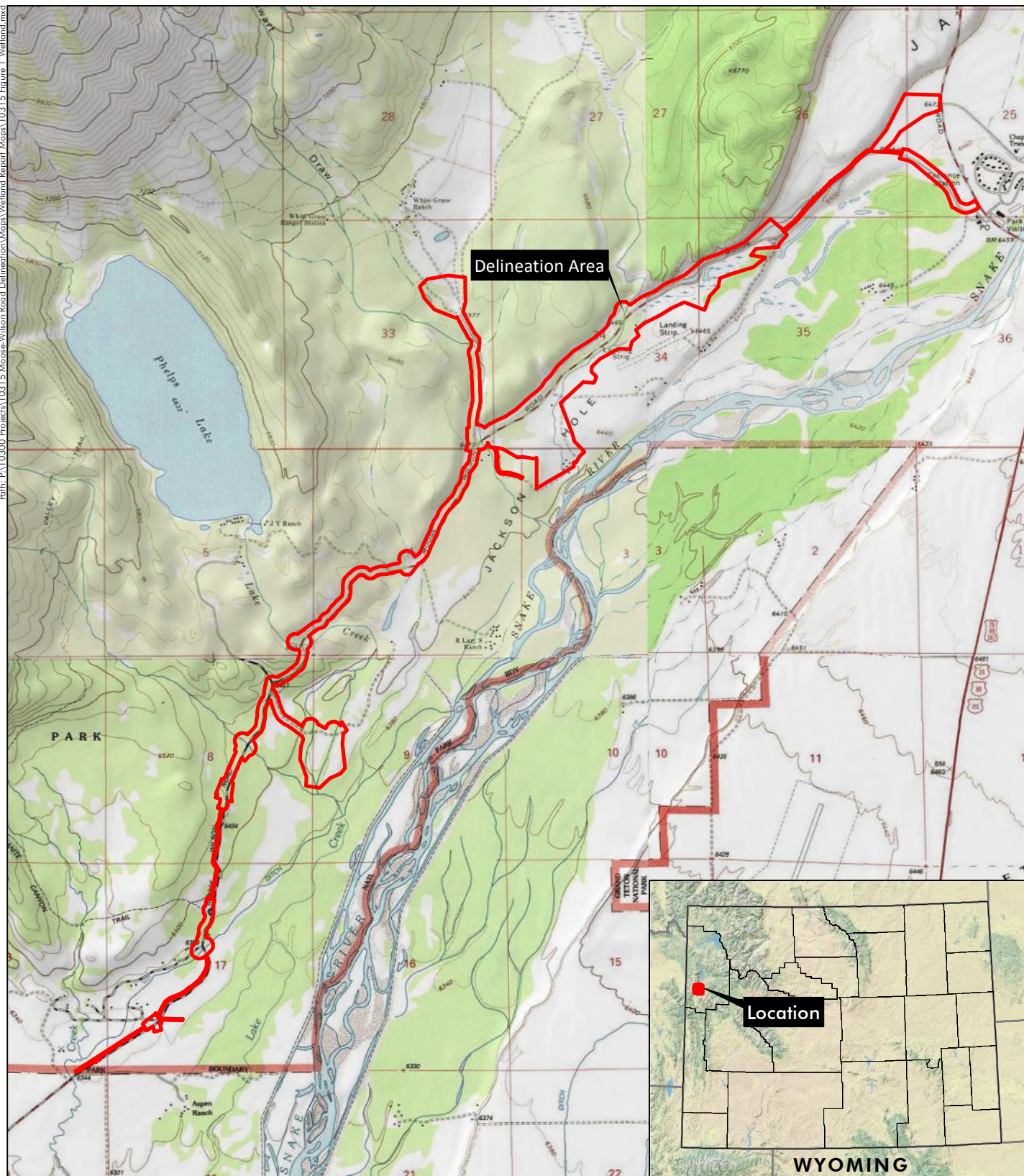
NOVEMBER 2018

Background

ERO Resources Corporation (ERO), under contract to the National Park Service (NPS), conducted an aquatic resources inventory (wetland delineation) in support of proposed improvements to Moose-Wilson Road in Grand Teton National Park (Park), Teton County, Wyoming (project area; Figure 1), from August 20 through August 25, 2018 (2018 site visit). As part of compliance for the proposed improvements, wetland functions were assessed to help evaluate the project's potential impacts on wetlands and to determine appropriate compensation for unavoidable wetland impacts as required by the U.S. Army Corps of Engineers (Corps) for Section 404 permits and by the NPS for compliance with Director's Order #77-1 (DO 77-1): Wetland Protection (NPS 2016).

Ecological Setting

Moose-Wilson Road is at an elevation of approximately 6,400 feet in the southwest corner of the Park and is generally east of the Teton Range, west of the Snake River, south of Teton Park Road, and north of the Park's southern boundary (Figure 1). The natural surface water hydrology of the area consists of several water bodies and features within the Snake River watershed that are all tributary to the Snake River to the east. The surface water features include several perennial and intermittent streams, wetland complexes, and beaver ponds. The average annual flow of the Snake River at Moose (from the late 1980s to the present) is 2,869 cubic feet per second. Recorded daily flows range from 600 to 24,500 cubic feet per second (U.S. Geological Survey (USGS) 2010; NPS 2012). The area is characterized by a continental climate with long cold winters and a short growing season. More than half of the precipitation occurs as snow that accumulates in a seasonal snowpack between October and April.



Wetland Delineation, Moose-Wilson Road – Grand Teton National Park
Teton County, Wyoming
Sections 25, 26, and 33-35, T43N, R116W; Sections 3-5, 8, 9, and 17-19, T42N, R116W; 6th PM
UTM NAD 83: Zone 12N; 521887mE, 4834009mN
Longitude, Latitude: 110.728562°N, 43.65876°W
USGS Moose, WY Quadrangle
Teton County, Wyoming



Figure 1
Vicinity Map

Prepared for: National Park Service
File: 10315 Figure 1 Wetland.mxd [dlH]
October 3, 2018

ERO
ERO Resources Corp.

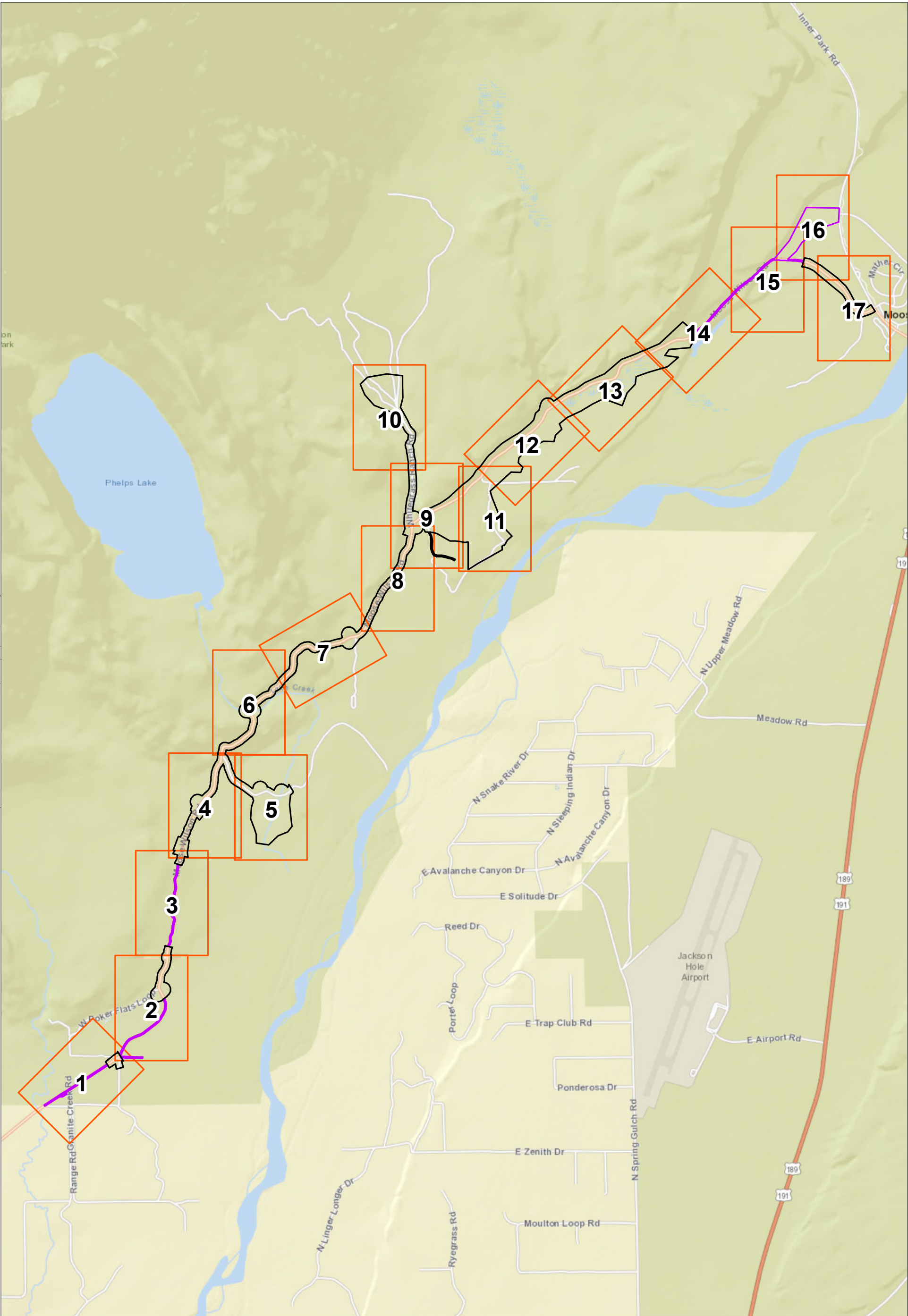
Soils in the valley floor that comprise the lower elevations of the Park, including most of the area along Moose-Wilson Road, generally developed from porous quartzite sand and gravel deposited by glacial melt water. The U.S. Department of Agriculture, National Resources Conservation Service (USDA, NRCS) mapped five primary soil series types (with multiple subseries) in the project area (USDA, NRCS 2018) (Figure 2; Appendix A). The soils in the southern portion of the project area include Greyback-Charlos complex, Tineman gravelly loam/Tineman association, and Taglake-Sebud association/Sebud-complex. Greyback-Charlos complex soils are deep somewhat excessively drained soils formed of alluvium and are not on the national hydric soils list (USDA, NRCS 2015a). Tineman gravelly loam and Tineman association soils are very deep well-drained soils that formed in gravelly alluvium and glacial till; they are not listed on the on the national hydric soils list (USDA, NRCS 2015a). Taglake-Sebud series soils are deep well-drained soils that formed in glacial till and are not on the national hydric soils list (USDA, NRCS 2015a).

The central portion of the project area is mapped as Tineman association, Tineman gravelly loam, Tetonville-Wilsonville fine sandy loams, and Taglake-Sebud association. The Tetonville-Wilsonville fine sandy loams are somewhat poorly drained soils formed in alluvium derived from igneous, metamorphic, and sedimentary rock; they are on the national list of hydric soils (USDA, NRCS 2015a).

The northern portion of the project area is mapped as Tetonville-Wilsonville fine sandy loams, Taglake-Sebud association, Tineman gravelly loam, Cryaquolls-Cryofibrist complex, and Tineman-Bearmouth gravelly loams. The Cryaquolls-Cryofibrist complex soils are poorly drained soils formed in alluvium from igneous, metamorphic, and sedimentary rock. The Tetonville-Wilsonville fine sandy loams and the Cryaquolls-Cryofibrist complex soils are on the national list of hydric soils; the other soils in the project area are not (USDA, NRCS 2015a).

Lodgepole pine (*Pinus contorta*) forest is the most common vegetation type along Moose-Wilson Road (Photo 1). During the 2018 site visit, dominant tree species included subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), lodgepole pine, and stands of quaking aspen (*Populus tremuloides*). Dominant understory shrubs within the conifer forest community included chokecherry (*Prunus virginiana*), twinberry (*Lonicera involucrata*), and serviceberry (*Amelanchier alnifolia*). Common shrubs of low stature included mountain snowberry (*Symphoricarpos oreophilus*), Oregon grape (*Mahonia repens*), and white spirea (*Spirea betulifolia*). Dominant herbaceous species included blue wild rye (*Elymus glaucus*), Hood's sedge (*Carex hoodii*), smooth brome (*Bromus inermis*), Canada bluegrass (*Poa compressa*), Pipsissewa (*Chimaphila umbellata*), sticky geranium (*Geranium vicosissimum*), white clover (*Trifolium repens*), northern bedstraw (*Galum boreale*), western meadowrue (*Thalictrum occidentale*), Virginia strawberry (*Fragaria virginiana*), and Oregon boxleaf (*Paxistima myrsinites*).

Path: P:\10300 Projects\10315 Moose-Wilson Road Delineation\Maps\Wetland Report Maps\10315 Figure 2 Wetland.mxd



Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

Wetland Potential (Survey Area)

- Likely
- Unlikely

Figure 2
Map Index

Image Source: USDA FSA, 2017

Prepared for: National Park Service
File: 10315 Figure 2 Wetland.mxd (GS)
October 3, 2018



Sagebrush shrublands occur at the northern and southern ends of the project area (Photo 2). Vegetation within this community is dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), mountain snowberry, and Oregon grape. Dominant grass species included Kentucky bluegrass (*Poa pratensis*), Canada bluegrass, junegrass (*Koeleria macranthra*), and Idaho fescue (*Festuca idahoensis*). Common forbs within this community included sulphur-flower buckwheat (*Eriogonum umbellatum*), common yampah (*Perideridia gairdneri*), yellow alyssum (*Alyssum alyssoides*), white sagebrush (*Artemisia ludoviciana*), littleleaf pussytoes (*Antennaria microphylla*), arrowleaf balsamroot (*Balsamorhiza sagittata*), mule-ears (*Wyethia amplexicaulis*), lupine (*Lupinus* spp.), and common yarrow (*Achillea millefolium*).

In areas where drainages cross the project area and soil moisture is higher, narrowleaf cottonwood (*Populus angustifolia*) trees and gray alder (*Alnus incana*) shrubs were common. In areas where steep slopes abutted the road, the vegetation was dominated by dense stands of chokecherry, buffaloberry (*Shepherdia canadensis*), cerro hawthorn (*Crataegus erythropoda*), black hawthorn (*Crataegus douglasii*), and alderleaf buckthorn (*Rhamnus alnifolia*) (Photo 3).

Extensive areas of wetlands are also present along Moose-Wilson Road, including an extensive complex of wetlands and beaver ponds east of the road near the north end of the project area. Vegetated wetlands along the road are classified as palustrine forested, palustrine scrub-shrub, and palustrine emergent. Unvegetated wetlands classified as open water features also occur at several locations in the project area; these include perennial streams and ditches with a permanently flooded water regime. Beaver ponds occur within the larger wetland complex and were classified as emergent wetlands based on the presence of rooted vegetation with a shallow permanent to intermittently flooded water regime. Many of these wetlands have been created or modified by ongoing beaver activity. These wetlands are described in detail in the *Results* section of this report. A list of plant species identified in the project area is provided in Appendix B.

Proposed Project Description

Moose-Wilson Road is generally located near the southern end of the Park, north of Teton Village and south of Moose, and west of the Snake River (Figure 1). The NPS is proposing to:

- Reconstruct and pave the existing unpaved portion of Moose-Wilson Road, while retaining the approximate current alignment;
- Repair and resurface existing paved portions of the road; realign the northernmost segment of Moose-Wilson Road to address wildlife habitat connectivity and operational issues;

- Remove the 0.6-mile section of road between Murie Ranch Road and the base of the hill near Sawmill Ponds and restore the abandoned road alignment to natural conditions;
- Construct a new road segment to intersect with Teton Park Road at its junction with the Chapel of the Transfiguration Road;
- Reconstruct the 1.8-mile segment of the road between the Sawmill Ponds Overlook and the Death Canyon Road Junction with some minor realignments to improve wetland functions, correct drainage issues, and improve road conditions; install officially designated turnouts along the road; and
- Construct improvements at the Death Canyon trailhead, including removing a section of road past the new trailhead.

Methods

Wetland Survey Area Description

ERO delineated wetlands and other waters within an area along Moose-Wilson Road that includes a variable width buffer that was provided by the NPS (wetland survey area). The wetland survey area is shown on Figure 1 and Figure 2. The wetland delineation data sheets are provided in Appendix C, and representative site images are provided in Appendix D.

Wetland Delineation

ERO reviewed National Wetland Inventory maps, USGS topographic maps, USDA, NRCS soil mapping, and aerial photographs (Figure 2) of the wetland survey area before conducting fieldwork. ERO also reviewed a previous wetland delineation report conducted in 2012 within a portion of the wetland survey area (Northwind Resource Consulting 2012). During the 2018 site visit, ERO ecologists Steve Butler, Esa Crumb, Tony Romano, and Matt Boyer visited the wetland survey area to map the boundaries of wetlands and other waters. The weather during fieldwork varied from sunny and clear to overcast with rain.

Wetlands were delineated using methods outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010), and *NPS Procedural Manual #77-1: Wetland Protection* (NPS 2016). Wetlands were determined based on the presence of three wetland indicators: hydrophytic vegetation, wetland hydrology, and hydric soils.

Wetland indicator status for vegetation (Appendix A) was based on the most current National Wetland Plant List (Lichvar et al. 2016). The authority for nomenclature for plant species was taken from The PLANTS Database (USDA, NRCS 2015b). Soil data were collected at representative observation points for each vegetation community; soil data were not collected for all wetland polygons. In addition, soil data were not collected for the wetlands just south of the Sawmill Ponds overlook, within an area the NPS established as a “no dig zone” because of the potential presence of buried cultural resources. A Munsell soil color chart was used to determine soil color. In many cases, wetlands in the wetland survey area did not have typical hydric soil indicators. In addition, cobbles or large rocks were sometimes encountered several inches below the surface, which restricted the depth of soil pits. At sites where wetland vegetation and hydrology indicators were present, but hydric soil indicators were lacking, ERO used the methods described in the regional supplement for *Difficult Wetland Situations in the Western Mountains, Valleys, and Coasts – Problematic Soils* for soils that lack indicators (Corps 2010). In certain instances, soils that are ponded for periods sufficient to support wetland vegetation and, therefore, exhibit wetland hydrology may lack wetland soil indicators. These instances may include soils that are naturally low in iron or manganese, coarse-textured soils on vegetated sand or gravel bars, or soils in recently formed wetlands. Soils along streams in the wetland survey area often did not have indicators of hydric soils, but were considered hydric based on a combination of factors such as prevalence of wetland vegetation, evidence of wetland hydrology, and landscape position on a low floodplain terrace or within a wetland fringe on the edge of a perennial stream.

In addition to problematic soil conditions, ERO frequently encountered wetland habitats that did not exhibit clear indicators of hydrology. ERO reviewed the recommended procedure in the regional supplement for *Difficult Wetland Situations in the Western Mountains, Valleys, and Coasts – Wetlands that Periodically Lack Indicators of Wetland Hydrology* (Corps 2010). Frequently, ERO was able to ascertain if wetland hydrology may be present during the growing season based on the landscape position. The wetland delineation also took into account that surveys were performed during the dry season and during a period with below normal rainfall. The week of August 21, 2018 and preceding weeks were abnormally dry in Teton County and surrounding areas, defined by the U.S. Drought Monitor as “areas showing dryness but not yet in drought, or areas recovering from drought” (U.S. Drought Monitor 2018).

Wetland determination data forms were completed at 72 sample points (Appendix B). ERO mapped wetland boundaries and data point locations using Trimble GeoExplorer 6000 Global Positioning System (GPS) units. In some instances, due to dense canopy cover, the GPS accuracy was compromised. In such cases, ERO noted the position of water and wetland features on maps and used infrared imagery to correct GPS locations. ERO also used high-resolution aerial imagery to digitize the boundaries of waters when GPS data were less accurate or when the boundaries of waters were not easily accessible in the field for mapping. The GPS data were differentially corrected to

achieve submeter accuracy. All differential correction was completed using Trimble Pathfinder Office 5.4 software. All GPS information was recorded as NAD 1983 UTM Zone 12 North coordinates. The GPS data were incorporated onto aerial photography at a scale of 1-inch equals 200 feet. Photos of representative wetlands are in Appendix C.

Cowardin Classification

Classification of wetland or deep-water system, subsystem, class, and subclass were based on Cowardin et al. (1979). The Cowardin classification uses a hierarchical structure of systems, subsystems, and classes to classify both wetlands and deepwater habitats. Wetlands with persistent vegetation are classified in the Cowardin system as palustrine, which typically includes wetlands referred to as marshes, fens, wet meadows, and sloughs. The palustrine system also includes small, shallow, permanent, or intermittent water bodies such as ponds. Palustrine wetlands may be situated shoreward of lakes and river channels, on river floodplains, in isolated catchments, or on slopes (Cowardin et al. 1979). Under the palustrine system, wetlands are classified as emergent (erect, rooted, herbaceous, and usually perennial hydrophytes that remain standing until at least the next growing season); scrub-shrub (woody vegetation less than 20 feet tall); or forested (woody vegetation 20 feet or taller).

The riverine system includes wetlands and deepwater habitats contained within a channel, with the exception of wetlands dominated by trees, shrubs, and emergent vegetation. The riverine system usually contains flowing water and is bounded on the landward side by uplands, channel banks, or other wetlands. Within the riverine system, wetlands are divided into the tidal, lower perennial (low gradient and slow water), upper perennial (high gradient and fast water), and intermittent subsystems. Within these subsystems, riverine wetlands are further classified as unconsolidated bottom, aquatic bed, streambed, rocky shore, unconsolidated shore, and emergent wetland (nonpersistent).

The lacustrine system includes wetlands and deepwater habitats that are situated in a topographic depression or a dammed river channel; lack trees, shrubs, persistent emergents, emergent mosses, or lichens with greater than 30% areal coverage; and have a total area exceeding 20 acres. Wetland and deepwater habitats totaling less than 20 acres are also included in the lacustrine system if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet at low water.

Wetland Functional Assessment

ERO evaluated wetland functions using the Montana Wetland Assessment Method (MWAM) (Berglund and McEldowney 2008). The MWAM uses a classification system that combines the U.S. Fish and Wildlife Service's (USFWS) Cowardin classification system (Cowardin et al. 1979) with a hydrogeomorphic (HGM) approach (Brinson

1993) and provides a landscape context to the USFWS classification. The MWAM is a rapid functional assessment process designed primarily to address wetland resources associated with linear projects such as highways and pipelines, although it can be applied to all types of projects. The MWAM is commonly used throughout the western United States and is accepted by the Corps. HGM classes found in Wyoming are mineral soil flats, organic soil flats, riverine, lacustrine fringe, slope, and depressional. The Cowardin classification is discussed above.

For each function and value, the MWAM provides a rating of low, moderate, high, exceptional, or not applicable based on observations and responses to questions. For each wetland, the MWAM scores each function or value on a scale of 0.1 (lowest) to 1.0 (highest) functional points. When all functional points are totaled, the maximum number of functional points is 12. Typically, wetlands that are larger and more diverse receive more points. Once the total functional points for wetlands are calculated, each wetland is assigned to one of four categories described in the MWAM. Wetlands are assigned to one of the following categories based on total functional points and other criteria described in the MWAM:

- **Category I:** Wetlands of exceptionally high quality that are generally rare. Category I wetlands can provide primary habitat for federally listed threatened or endangered species; represent a high-quality example of a rare wetland type; provide irreplaceable ecological functions (e.g., are not replaceable within a human lifetime, if at all); exhibit exceptionally high flood attenuation capability; or are assigned high ratings for most of the assessed functions and values resulting in the total actual functional points greater than 80% of the total possible functional points.
- **Category II:** Wetlands that are more common than those in Category I, provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given area, or are assigned high ratings for many of the assessed functions and values resulting in the total actual functional points greater than 65% of the total possible functional points.
- **Category III:** Wetlands that are more common, generally less diverse, and often smaller and more isolated than those in Categories I and II. These wetlands can provide many functions and values, although they may not be assigned high ratings for as many parameters as Category I and II wetlands (30 to 65% of possible points).
- **Category IV:** Wetlands that are generally small, isolated, and lack vegetative diversity. These wetlands provide little in the way of wildlife habitat and are often directly or indirectly disturbed. Category IV wetlands rate low for uniqueness, production export/food chain support, and the total actual functional points are less than 30% of the total possible functional points.

Functional assessments were conducted for wetlands grouped based on location along the road and either water source or wetland type. Wetlands in each group generally have similar plant communities, similar hydrology, and provide similar functions on a whole. The following groupings were used for the MWAM assessments within the wetland survey area: (1) Wetland A (OHWM 1) and Wetland B (OHWM 2) – are associated with unnamed constructed drainage ditches near the south end of the wetland survey area; (2) OHWM 3 – an unnamed canal near the south end of the wetland survey area with limited wetland vegetation; (3) OHWM 4 and OHWM 6 – an unnamed drainage (OHWM 4) and a section of Lake Creek with limited adjacent wetland vegetation; (4) Wetland C (OHWM 5) – a section of Lake Creek with adjacent wetlands; (5) Wetland D (OHWM 7) – an unnamed creek along Whitegrass Ranch Road and adjacent forested wetlands; (6) Wetland E – a large beaver pond complex, also known as the Sawmill Ponds, near the north end of the wetland survey area; (7) Wetlands F, G, and H – slope wetlands on the hillslope adjacent to Moose-Wilson Road fed by groundwater seeps; and (8) Wetlands I, J, and K – depressional wetlands near the north end of the wetland survey area. Functional assessment data forms are in Appendix E.

Assessment of Potential Jurisdictional Status

ERO reviewed the proximity and potential surface water connection of wetlands and other waters to known jurisdictional waters of the U.S. using aerial photo interpretation. The volume, duration, and frequency of flow in the wetlands were not determined during the 2018 site visit. Wetlands or waters that have a surface water connection to the Snake River or its tributaries are potential jurisdictional waters.

Results

Wetlands and other waters in the wetland survey area are described below and are shown in Figures 3a through 3q. Commonly occurring plant species in the wetland survey area are shown in Appendix B. Wetland delineation data sheets are provided in Appendix C, and representative site images are provided in Appendix D. Acreages and type of each wetland and other water are provided in Table 1 and Table 2.

Table 1. Summary of vegetated wetlands in the wetland survey area.

Feature Label	Cowardin Classification ¹	Acres within Survey Area	Hydrology Source ²	Longitude	Latitude
Wetland A1	PEM1	0.003	Surface flow from unnamed ditch (OHWM 1)	-110.8047387	43.59665935
Wetland A2	PEM1	0.012	Surface flow from unnamed ditch (OHWM 1)	-110.8047499	43.59633795
Wetland B1	PEM1	0.002	Surface flow from unnamed ditch (OHWM 2)	-110.8015438	43.59818915

AQUATIC RESOURCES INVENTORY
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK, TETON COUNTY, WYOMING

Feature Label	Cowardin Classification ¹	Acres within Survey Area	Hydrology Source ²	Longitude	Latitude
Wetland B2	PEM1	0.001	Surface flow from unnamed ditch (OHWM 2)	-110.8014739	43.5979667
Wetland C1	PEM1	0.732	Surface flow from Lake Creek (OHWM 5)	-110.783293	43.62049424
Wetland C2	PEM1	0.096	Surface flow from Lake Creek (OHWM 5)	-110.7828378	43.61967348
Wetland C3	PEM1	0.043	Surface flow from Lake Creek (OHWM 5)	-110.7829922	43.61935095
Wetland C4	PSS1	0.288	Surface flow from Lake Creek (OHWM 5)	-110.7832531	43.61930417
Wetland C5	PEM1	0.036	Surface flow from Lake Creek (OHWM 5)	-110.7837367	43.61705259
Wetland D1	PFO4	0.033	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7663303	43.6400756
Wetland D2	PFO4	0.011	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7670473	43.64108348
Wetland D3	PFO4	0.003	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.76723	43.64141858
Wetland D4	PFO4	0.001	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668587	43.64227556
Wetland D5	PFO4	0.005	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668507	43.64254507
Wetland D6	PFO4	0.001	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668619	43.6427953
Wetland D7	PFO4	0.002	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7669019	43.64297749
Wetland D8	PFO4	0.001	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7667714	43.64309084
Wetland D9	PFO4	0.008	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7669006	43.64339627
Wetland D10	PFO4	0.005	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668269	43.64387994
Wetland D11	PFO4	0.053	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7669226	43.64431047
Wetland D12	PFO4	0.003	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668681	43.64471484
Wetland D13	PFO4	0.001	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7667137	43.64478914
Wetland D14	PFO4	0.003	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668066	43.64496676
Wetland D15	PFO4	0.002	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7668652	43.64495751
Wetland D16	PFO4	0.049	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7669265	43.6455877
Wetland D17	PFO4	0.007	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7666761	43.64526025
Wetland D18	PFO4	0.060	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7669809	43.64581789
Wetland D19	PFO4	0.020	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7672983	43.64605492
Wetland D20	PFO4	0.015	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.767523	43.64632765
Wetland E1	PEM1	0.150	Surface flow from unnamed creek (OHWM 7) and groundwater seepage	-110.7580183	43.63840856
Wetland E2	PSS1	0.222	Groundwater seepage	-110.7588983	43.63824914
Wetland E3	PEM1	0.029	Groundwater seepage	-110.7592443	43.63824285
Wetland E4	PEM1	0.266	Groundwater seepage	-110.7592497	43.63910508
Wetland E5	PSS1	2.747	Groundwater seepage	-110.7597915	43.64091132
Wetland E6	PEM1	2.160	Groundwater seepage	-110.7598081	43.64218384
Wetland E7	PEM1	16.826	Groundwater seepage	-110.7552652	43.64609169
Wetland E8	PSS1	11.900	Groundwater seepage	-110.7487223	43.64983161
Wetland E9	PEM1	12.270	Groundwater seepage	-110.7448627	43.65100326
Wetland E10	PFO4	2.606	Groundwater seepage	-110.7425105	43.65201474

AQUATIC RESOURCES INVENTORY
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK, TETON COUNTY, WYOMING

Feature Label	Cowardin Classification ¹	Acres within Survey Area	Hydrology Source ²	Longitude	Latitude
Wetland E11	PSS1	3.180	Groundwater seepage	-110.7409341	43.65278241
Wetland E12	PFO4	1.187	Groundwater seepage	-110.7403691	43.65321154
Wetland E13	PEM1	0.148	Groundwater seepage	-110.7404724	43.65345915
Wetland E14	PEM1	0.892	Groundwater seepage	-110.7393688	43.65359818
Wetland F	PSS1	0.551	Groundwater seepage	-110.7526866	43.64914398
Wetland G1	PEM1	0.002	Groundwater seepage	-110.7442015	43.65248829
Wetland G2	PEM1	0.008	Groundwater seepage	-110.7438853	43.65257766
Wetland G3	PEM1	0.003	Groundwater seepage	-110.7422279	43.65310451
Wetland G4	PEM1	0.003	Groundwater seepage	-110.740338	43.65380385
Wetland G5	PEM1	0.002	Groundwater seepage	-110.7401655	43.65388132
Wetland G6	PEM1	0.006	Groundwater seepage	-110.7399566	43.65392674
Wetland H	PEM1	0.075	Groundwater seepage	-110.7392094	43.65415262
Wetland I	PFO4	0.045	Surface flows from precipitation	-110.7213596	43.65636397
Wetland J	PFO4	0.042	Surface flows from precipitation	-110.7207456	43.65641474
Wetland K	PFO4	0.051	Surface flows from precipitation	-110.7202012	43.65618903
	PEM1 subtotal	36.371			
	PSS1 subtotal	18.865			
	PFO4 subtotal	4.213			
	Total	59.449			

¹PEM1 = palustrine emergent persistent; PSS1 = palustrine scrub-shrub broad-leaved deciduous; PFO4 = palustrine forested needle-leaved evergreen.

²Based on topographic position observed in the field and review of aerial photography.

Table 2. Unvegetated wetlands/other waters in the wetland survey area.

Feature Label	Cowardin Classification ¹	Area (acres) ²	Length (feet) ³	Hydrology Source ⁴	Longitude	Latitude
OHWM 1 Unnamed Ditch	R4UB1	0.019	223.7	Ditch/diversion	110.8047427	43.59648092
OHWM 2 Unnamed Ditch	R4UB1	0.008	139.4	Ditch/diversion	110.8015064	43.59806842
OHWM 3 Granite Creek Ditch	R5UB1	0.375	654.7	Ditch/diversion	110.7935328	43.60477384
OHWM 4 Unnamed Creek	R3UB1	0.185	634.8	Surface flow/snowmelt	110.7894772	43.61870788
OHWM 5 Lake Creek	R3UB1	1.914	2,101.1	Surface flow/snowmelt	110.7832208	43.61903395
OHWM 6 Lake Creek	R3UB1	0.483	771.6	Surface flow/snowmelt	110.7841596	43.62615465
OHWM 7 Unnamed Creek	R3UB1	0.831	3,019.2	Surface flow/snowmelt	110.7668129	43.64280793
	Total	3.815	7,544.5			

¹R3UB1 = riverine upper perennial, unconsolidated bottom, cobble-gravel; R4UB1 riverine intermittent, unconsolidated bottom, cobble-gravel; R5UB1 riverine unknown perennial, unconsolidated bottom, cobble-gravel.

²Area within the wetland survey area.

³Length within the wetland survey area.

⁴Based on topographic position observed in the field and review of aerial photography.

Uplands

Uplands dominate the wetland survey area and include the shrubland communities documented at the north and south ends of the wetland survey area, the lodgepole pine woodlands, high terraces above creeks and drainages, and on steep hillslopes. Upland vegetation in the wetland survey area is generally coniferous forest dominated by

lodgepole pine and upland shrub community dominated by sagebrush. Other tree species present in the coniferous forest include Engelmann spruce, subalpine fir, aspen, and limber pine (*Pinus flexilis*). Common species in the forest understory include Oregon grape, mountain snowberry, Virginia strawberry, western meadowrue, blue wild rye, fringed brome, and Hood's sedge. The upland shrubland community is dominated by sagebrush including big mountain sagebrush and little sagebrush, as well as other shrubs including antelope bitterbrush, mountain snowberry, Oregon grape, and serviceberry. Typical uplands in the wetland survey area are shown in Photos 1 and 2.



Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---------------------------------|---|
| Park Boundary | Wetlands by Cowardin Type and Waters |
| Wetland Survey Area | Emergent Wetland (PEM) |
| Proposed Roadway Clearing Limit | Forested Wetland (PFO) |
| Data Point | Scrub-Shrub Wetland (PSS) |
| | Ordinary High Water Mark (OHWM) |

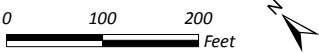
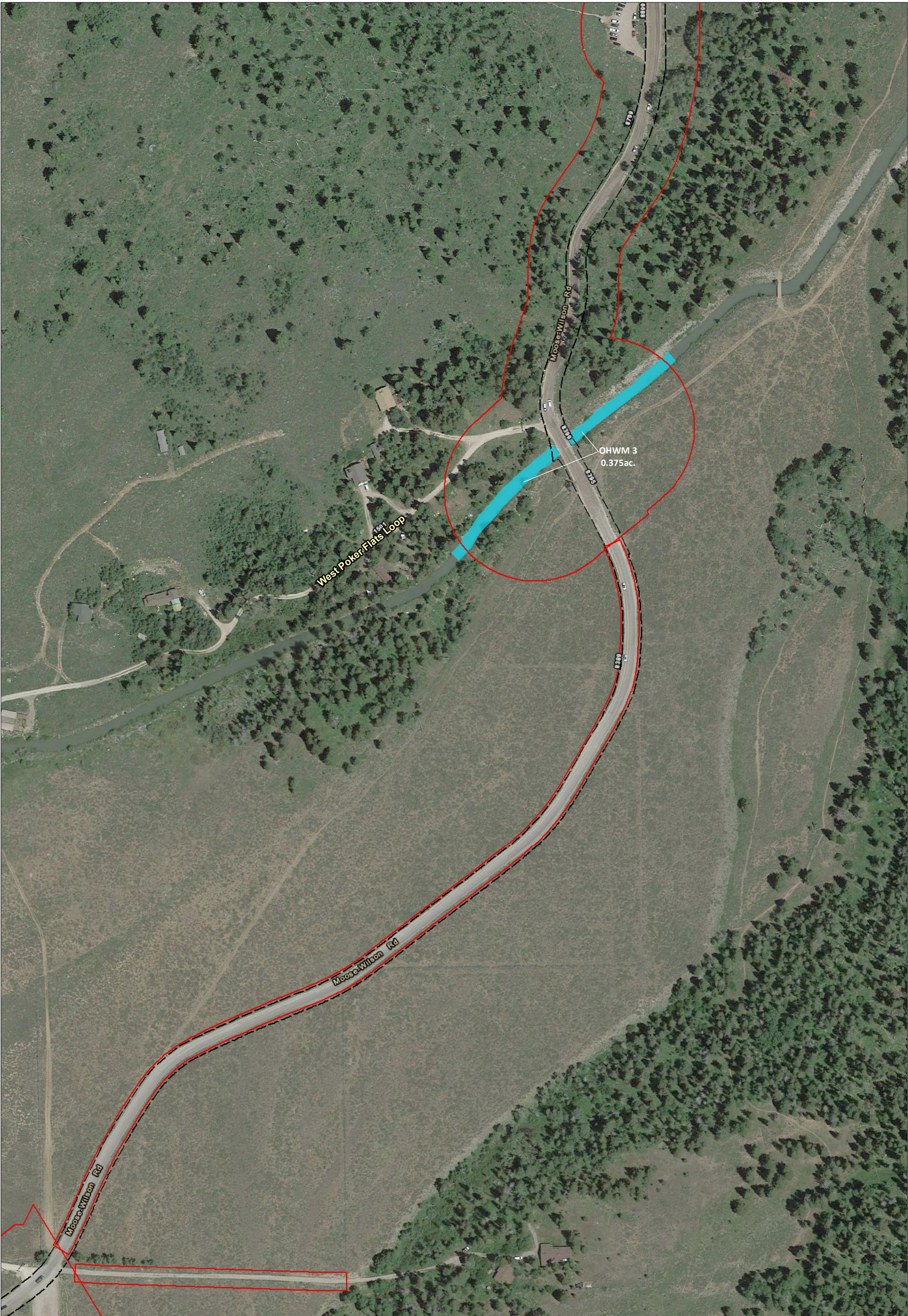


Figure 3a
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

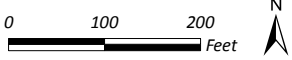


Figure 3b
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

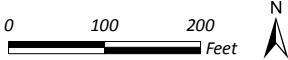


Figure 3c
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3c Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

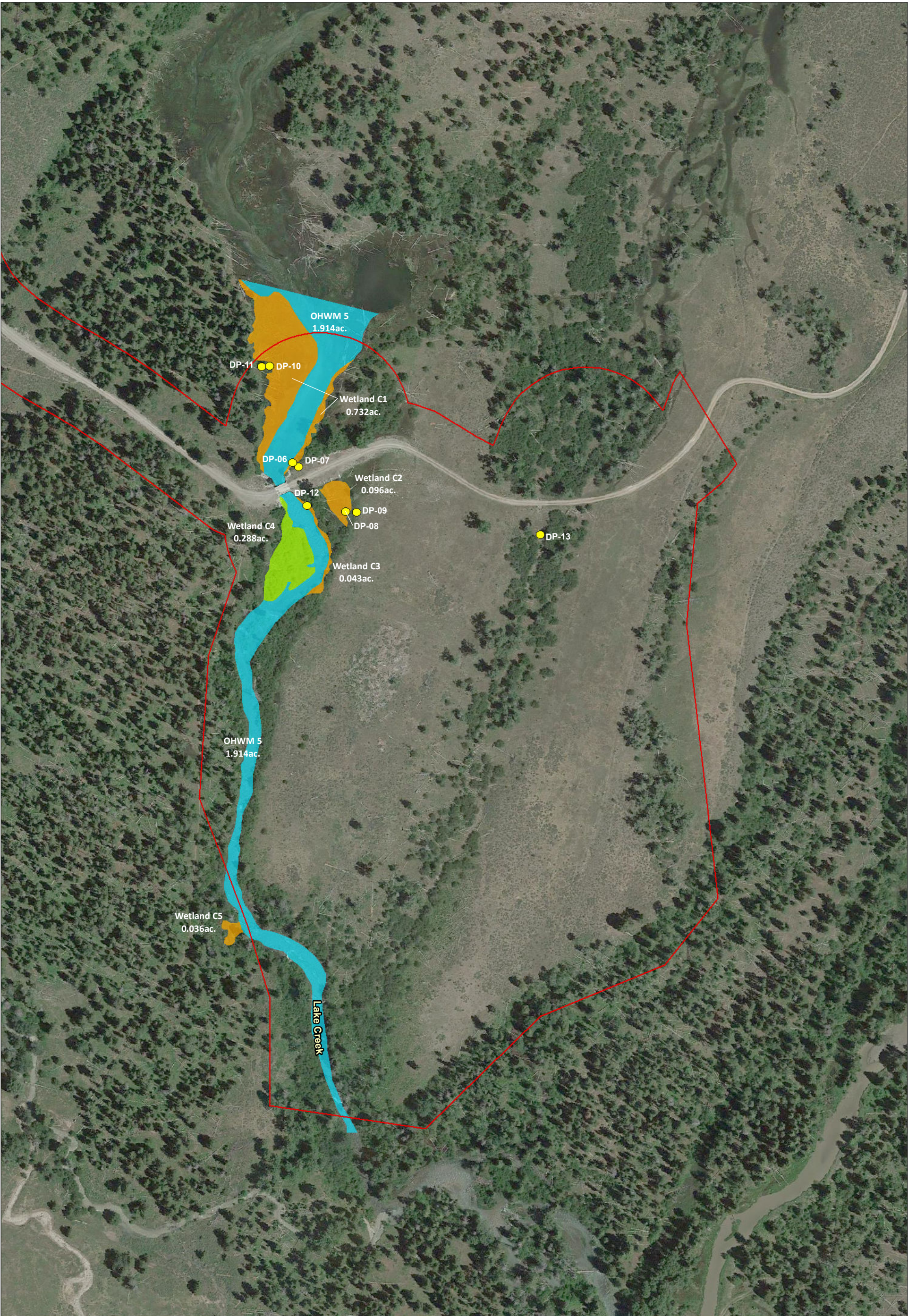


Figure 3d
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

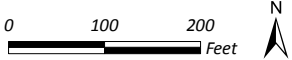


Figure 3e
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



Path: P:\10300 Projects\10315 Moose-Wilson Road Delineation\Maps\Wetland Report Maps\10315 Figure 3 Wetland.mxd



Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

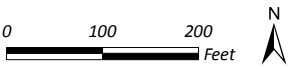


Figure 3f
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

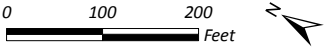


Figure 3g
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

-  Park Boundary

 Wetland Survey Area

 Proposed Roadway Clearing Limit

 Data Point
- Wetlands by Cowardin Type and Waters**

 Emergent Wetland (PEM)

 Forested Wetland (PFO)

 Scrub-Shrub Wetland (PSS)

 Ordinary High Water Mark (OHWM)

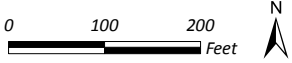
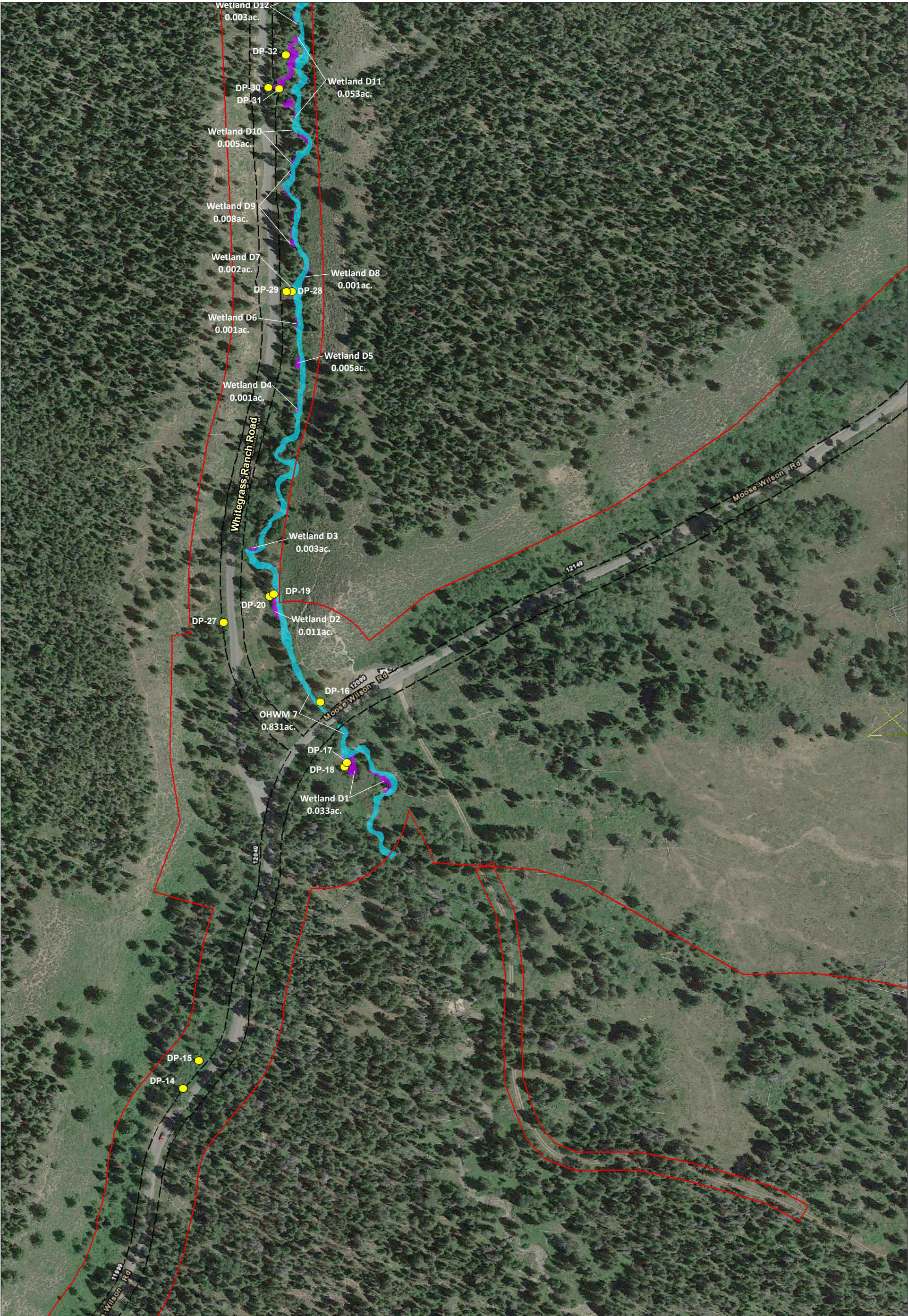


Figure 3h
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

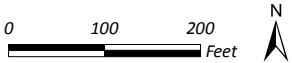


Figure 3i
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

-  Park Boundary

 Wetland Survey Area

 Proposed Roadway Clearing Limit

 Data Point
- Wetlands by Cowardin Type and Waters**

 Emergent Wetland (PEM)

 Forested Wetland (PFO)

 Scrub-Shrub Wetland (PSS)

 Ordinary High Water Mark (OHWM)

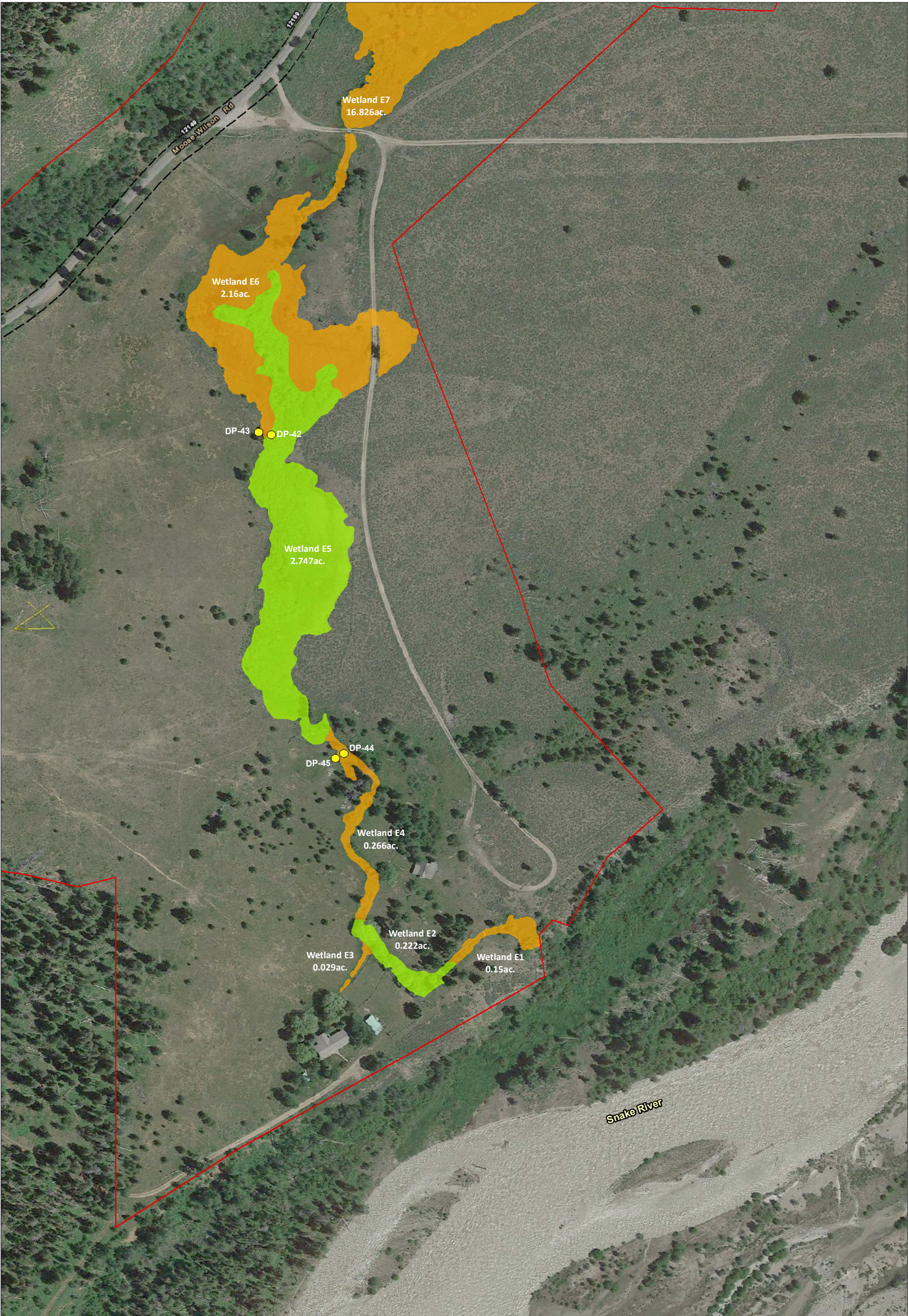


Figure 3j
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

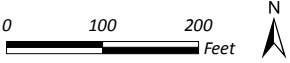
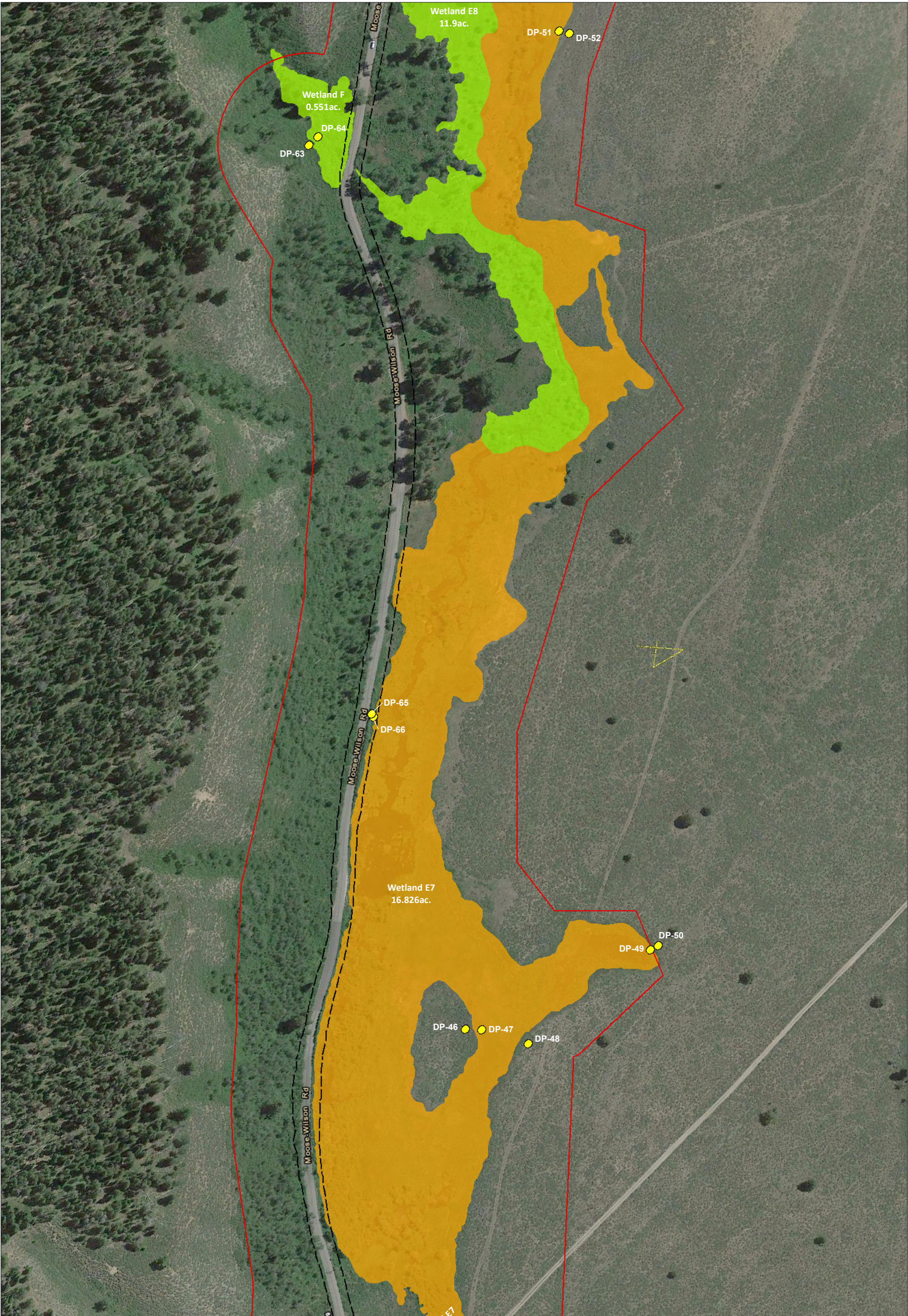


Figure 3k
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

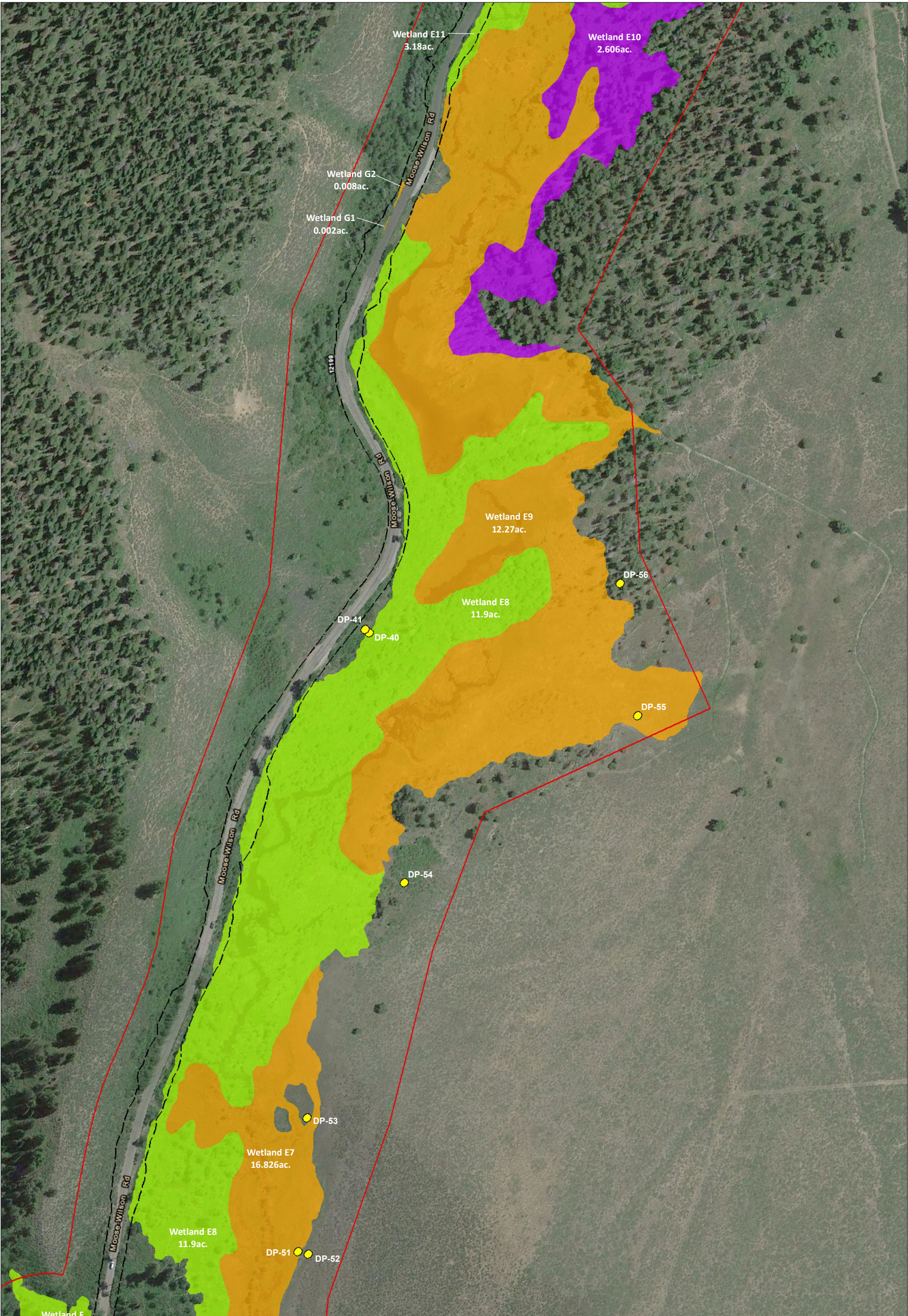


Figure 31
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

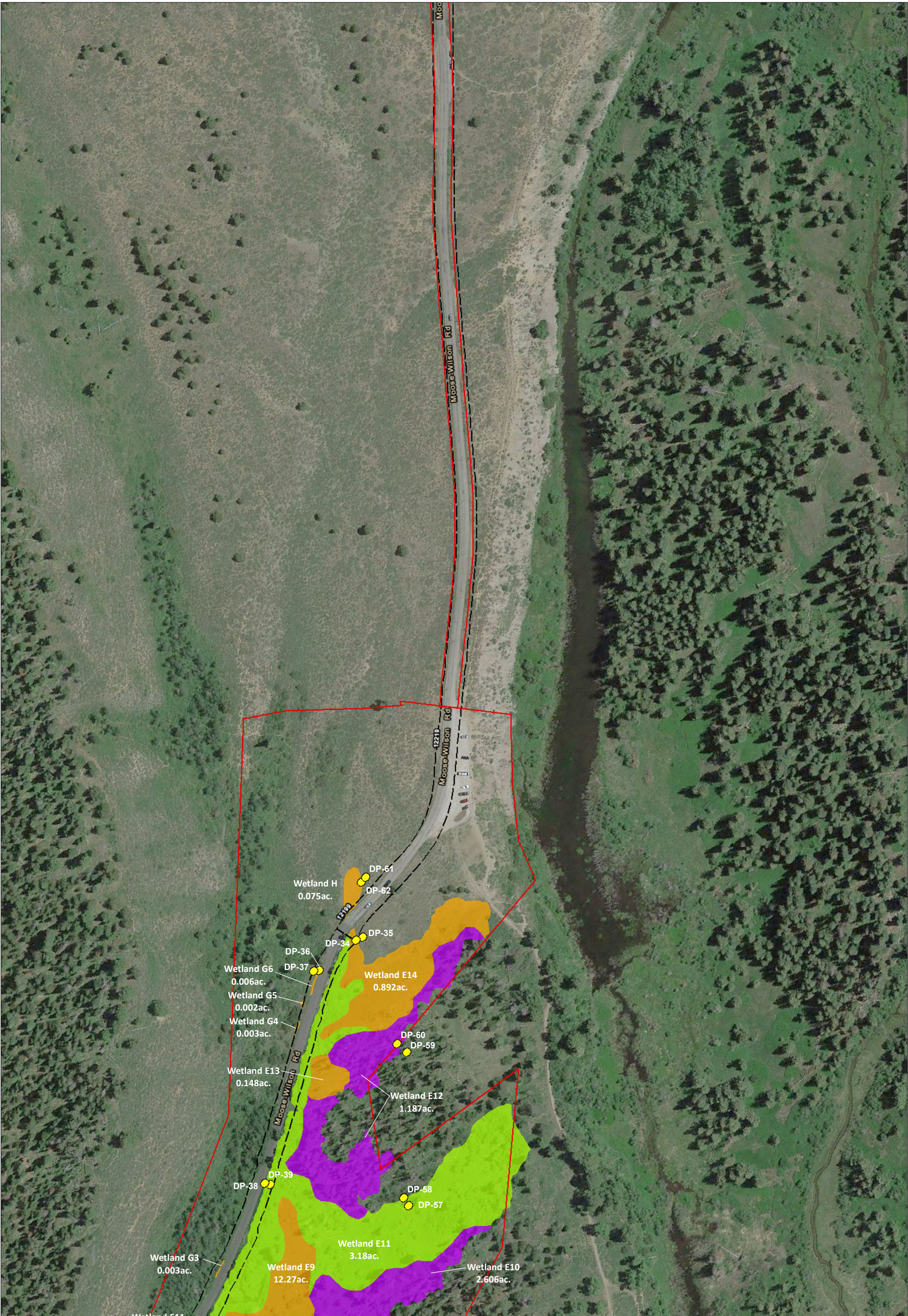


Figure 3m
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dIH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)



Figure 3n
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

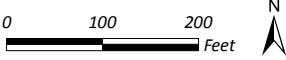
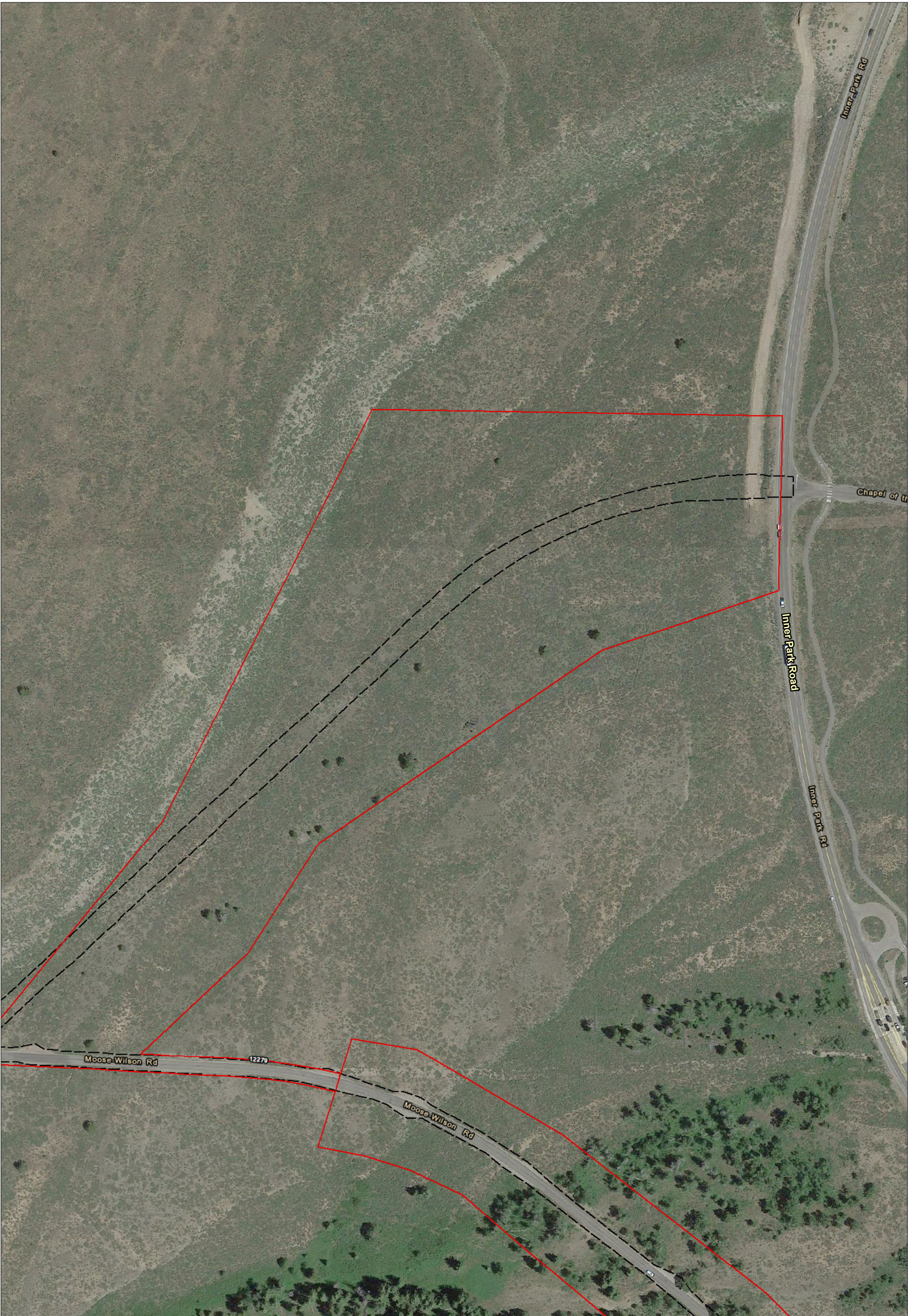


Figure 3o
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



Path: P:\10300\Projects\10315 Moose-Wilson Road Delineation\Maps\Wetland Report Maps\10315 Figure 3 Wetland.mxd



Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit
- Data Point

- Wetlands by Cowardin Type and Waters**
- Emergent Wetland (PEM)
 - Forested Wetland (PFO)
 - Scrub-Shrub Wetland (PSS)
 - Ordinary High Water Mark (OHWM)

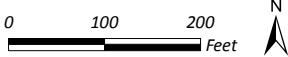
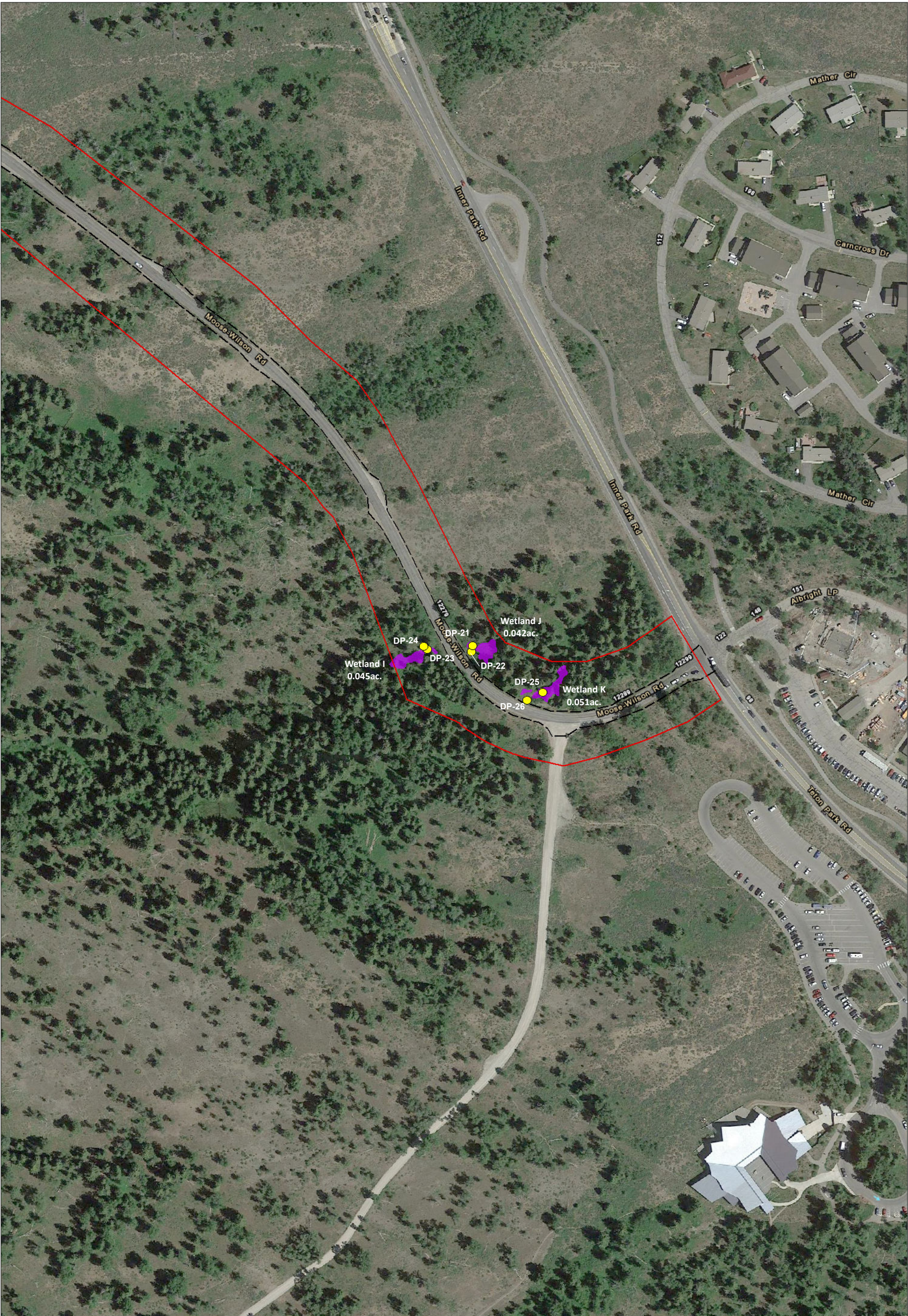


Figure 3p
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---------------------------------|---|
| Park Boundary | Wetlands by Cowardin Type and Waters |
| Wetland Survey Area | Emergent Wetland (PEM) |
| Proposed Roadway Clearing Limit | Forested Wetland (PFO) |
| Data Point | Scrub-Shrub Wetland (PSS) |
| | Ordinary High Water Mark (OHWM) |

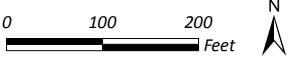


Figure 3q
Existing Conditions

Prepared for: National Park Service
File: 10315 Figure 3 Wetland.mxd [dlH]
November 7, 2018



Wetlands and Other Waters

Wetlands and other waters in the wetland survey area are described below. Tables 1 and 2 summarize the wetlands and list each wetland name and its wetland type. Wetlands are shown on Figures 3a through 3q.

Other Waters

OHEM 1 and OHEM 2

OHEM 1 and OHEM 2 are associated with unnamed ditches that cross beneath Moose-Wilson Road through drainage culverts and are located near the south end of the wetland survey area (Photos 4 and 5). The ditches are approximately 3 to 4 feet wide with a water depth of 1 to 2 feet. Water was flowing in both ditches during the 2018 site visit. The bottom substrate consists of an unconsolidated bottom of cobble-gravel. A narrow wetland fringe occurs along the adjacent banks (Wetland A and Wetland B). The ditches originate west of Moose-Wilson Road and are fed by an unnamed canal (OHEM 3).

Jurisdictional Status

OHEM 1 terminates east of Moose-Wilson Road and flows into Granite Creek, a tributary of the Snake River; OHEM 2 intercepts several irrigation ditches to the southeast, which ultimately flow into an unnamed tributary creek of the Snake River. Because both ditches have surface connections to the Snake River, a known water of the U.S., they would likely be considered jurisdictional.

Functional Assessment

OHEM 1/Wetland A and OHEM 2/Wetland B were evaluated jointly using the MWAM. The unnamed ditches and associated wetlands have the potential to provide some limited habitat for wildlife by offering a water source and some wetland vegetation. The channels are unlikely to provide hydrological functions due to their small size and managed hydrology. The overall percent of possible score was 48%. Although the wetlands are within habitat for documented threatened and endangered (T&E) species, the actual ranking based on the percent possible score would be category III due to a score below 50%, low uniqueness, and low cover of wetland vegetation.

OHEM-3

OHEM 3, Granite Creek Supplemental Ditch, occurs near the south end of the wetland survey area. The permanent waters of OHEM 3 cross beneath a bridge overpass on Moose-Wilson Road. The canal is approximately 10 to 15 feet wide with a water depth of approximately 8 to 10 feet. The adjacent side slopes are steep and are generally devoid of wetland vegetation; the channel bottom consists of unconsolidated cobble-gravel (Photo 6).

Jurisdictional Status

The Granite Creek Ditch originates northeast of the wetland survey area and is fed by the Snake River; flows trend toward the southwest and outlets into Granite Creek. Because the Granite Creek Ditch has a surface connection to a known water of the U.S. (the Snake River), it would likely be considered jurisdictional.

Functional Assessment

OHWM 3 has the potential to provide limited fish and wildlife habitat by offering a perennial water source. The canal lacks wetland vegetation and is entrenched; therefore, hydrology and nutrient export functions are generally low and are unlikely to be improved without restorative actions. The overall percent of possible score was 56% and the wetlands were ranked as category I for providing habitat for documented T&E species; however, based on the percent possible score, it would be scored as category III due to a low score, low uniqueness, and low cover of wetland vegetation.

OHWM 4 Unnamed Creek and OHWM 6 Lake Creek

OHWM 4 is an unnamed creek that originates west/upslope of Moose-Wilson Road and flows into Lake Creek east of the road. Lake Creek is a tributary stream of the Snake River. The OHWM 4 stream channel is approximately 5 to 10 feet wide within the wetland survey area with a water depth of 2 to 3 feet. The creek channel flows through a conifer forest and lacks wetland vegetation on the adjacent banks. The stream bottom consists of unconsolidated cobble-gravel (Photo 7).

OHWM 6 is a section of Lake Creek that flows under Moose-Wilson Road near the center of the wetland survey area. This section of the creek is an approximately 20- to 30-foot-wide channel with steep/rocky banks that mostly lack wetland vegetation. Small patches of wetland vegetation occur on low terraces in and adjacent to the creek. The creek flows through a dense conifer forest and contains large rocks and boulders within the channel (Photo 8).

Jurisdictional Status

Because the creeks flow into a tributary of a known water of the U.S. (the Snake River), they would likely be considered jurisdictional.

Functional Assessment

OHWM 4 (unnamed creek) and OHWM 6 (Lake Creek) were evaluated together using the MWAM based on their general locations (crossing under Moose-Wilson Road) and similar structure and associated vegetation communities. Both creeks flow through dense conifer-dominated woodlands and generally lack significant wetland vegetation on adjacent banks. The creeks provide wildlife and fish habitat by offering a perennial water source with adjacent vegetation cover. Though the creeks lack significant wetland vegetation, they flow through conifer forest, which may provide some nutrient input; disturbances in the wetland survey area are minimal and limited to the road crossings. The overall percent of possible score was 59% and based on the percent possible score,

the wetlands would be classified as category III for a low score, low uniqueness, and low cover of wetland vegetation.

OHEM 5 Lake Creek

OHEM 5 is a section of Lake Creek that traverses the center of the wetland survey area, east of Moose-Wilson Road and north and south of an unnamed dirt access road. Lake Creek originates at Phelps Lake west of the wetland survey area and flows southeast to the confluence with the Snake River. Within the wetland survey area, the creek flows through a wide complex of open water and emergent wetlands likely formed by beaver activity. The creek flows under a bridge in a defined channel spanning about 20 to 30 feet. Wetlands occur on the west and east banks and on a channel island downstream of the bridge crossing. Further downstream, the creek banks support sporadic patches of emergent wetland vegetation and dense hawthorn thickets. The creek channel is approximately 3 to 4 feet deep and consists of an unconsolidated cobble-gravel bottom (Photo 9).

Jurisdictional Status

Because Lake Creek flows into a tributary of a known water of the U.S. (the Snake River), it would likely be considered jurisdictional.

Functional Assessment

OHEM 5/Wetland C were evaluated together using the MWAM based on their proximity and hydrology source. OHEM 5 and its adjacent wetlands (Wetland C) provide important wildlife and fish habitat by offering a perennial water source with adjacent vegetation cover. The wetlands provide additional functions including bank stabilization and nutrient export. Disturbances in the wetland survey area are minimal and limited to the road crossing. Opportunities for improving habitat functions include increasing wetland cover and diversity, which is currently limited to the areas directly upstream and downstream of the road crossing. The overall percent of possible score was 67% and based on the percent possible score, the wetlands would be classified as category II for an overall percent score greater than 65% and a low rating for uniqueness.

OHEM 7 Unnamed Creek

OHEM 7 is an unnamed creek that originates west/upslope of Moose-Wilson Road near Death Canyon and flows into the Snake River east of the road near Stewart Draw. The OHEM 7 stream flows along Whitegrass Ranch Road and crosses under Moose-Wilson Road through a corrugated metal culvert. The creek channel is approximately 5 to 10 feet wide within the wetland survey area with a water depth of 2 to 3 feet. The creek channel flows through a conifer forest; wetlands occur as a narrow fringe along the creek banks and on low terraces. Several forested wetlands occur in depressional features adjacent to the creek. The stream bottom consists of unconsolidated cobble-gravel and would be classified as riverine under Cowardin et al. (1979) (Photo 10).

Jurisdictional Status

Because the creek flows into a tributary of a known water of the U.S. (the Snake River), it would likely be considered jurisdictional.

Functional Assessment

OHWM 7/Wetland D were evaluated together using the MWAM based on their proximity and hydrology source. OHWM 7 and its adjacent wetlands (Wetland D) provide important wildlife and fish habitat by offering a perennial water source with adjacent vegetation cover. Disturbances in the wetland survey area are primarily associated with Whitegrass Ranch Road, which parallels the creek and its adjacent wetlands. Wetlands occur along the creek on low terraces and in depressions above the creek terrace. The existing road and proposed actions to expand or alter the road may limit opportunities for improving habitat functions. The overall percent of possible score was 67% and based on the percent possible score, the wetlands would be classified as category II for an overall percent score greater than 65% and a low rating for uniqueness.

Wetlands

Wetland A and Wetland B – Palustrine Emergent (PEM)

Wetland A and Wetland B are palustrine emergent (PEM) wetlands under Cowardin et al. (1979), which occur as fringes along the unnamed ditches (OHWM 1 and OHWM 2) near the south end of the wetland survey area (Figure 3a; Photos 1 and 2). The primary water source is surface flows from the ditch waters. The dominant species in the wetlands include creeping bentgrass (*Agrostis stolonifera* - Facultative [FAC]), beaked sedge (*Carex utriculata* - Obligate [OBL]), woolly sedge (*Carex pellita* - OBL), Bebb's sedge (*Carex bebbii* - OBL), Timothy (*Phleum pratense* - FAC), and large leaf avens (*Geum macrophyllum* - FAC). Sporadic trees and shrubs occur along the ditches and adjacent to the wetlands including narrowleaf cottonwood (Facultative Wetland [FACW]) and gray alder (FACW).

The change in vegetation between the upland and wetland plant communities is distinct and relatively abrupt. Wetland hydrology was indicated by saturation at the soil surface. Wetland soils were not readily apparent due to problematic soils. The underlying soils were mapped by the USDA, NRCS (2015a) as nonhydric; however, based on the presence of wetland hydrology indicators during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]) and a dominance of wetland vegetation, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators (see DP-01 in Appendix C).

Jurisdictional Status

Because Wetlands A and B are associated with ditches that ultimately flow into the Snake River, a known water of the U.S., they would likely be considered jurisdictional.

Functional Assessment

See the discussion under OHWM 1 and OHWM 2 above.

Wetland C –PEM and Palustrine Scrub-Shrub (PSS)

Wetland C includes the PEM and PSS wetlands that occur along OHWM 5 (Lake Creek) (Figure 3e; Photo 9). The primary water source is overbank flows and subsurface seepage from Lake Creek. The dominant species in the emergent wetlands include reed canarygrass (*Phalaris arundinacea* - FACW), Bebb's sedge, slenderbeak sedge (*Carex athrostachya* - FACW), beaked sedge, bluejoint (*Calamagrostis canadensis* - FACW), and tufted hairgrass (*Deschampsia cespitosa* - FACW) (see DP-6 and DP-10 in Appendix C). The dominant species in the scrub-shrub wetlands include Geyer's willow (*Salix geyeriana* - FACW), Booth's willow (*Salix boothii* - FACW), and reed canarygrass. Wetland hydrology was indicated by saturation at the soil surface or a shallow water table. Wetland soils were not readily apparent due to problematic soils. The underlying soils were mapped by the USDA, NRCS (2015a) as nonhydric; however, based on the presence of wetland hydrology during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]), a predominance of wetland vegetation, and landscape position on low terraces along a perennial stream, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators.

Jurisdictional Status

Because Wetland C is associated with Lake Creek, which ultimately flows into the Snake River, a known water of the U.S., it would likely be considered jurisdictional.

Functional Assessment

See the discussion under OHWM 5 above.

Wetland D – Palustrine Forested (PFO)

Wetland D includes the PFO wetlands that occur along and adjacent to OHWM 7 (unnamed creek) (Figures 3i and 3j; Photos 10 and 11). The primary water source is overbank flows and subsurface seepage from the unnamed creek. Forested wetlands occur as narrow fringes and wetland terraces along the creek, and depressional features, under conifer-dominated woodlands. The dominant species in the forested wetlands include reed canarygrass, American mannagrass (*Glyceria grandis* - OBL), creeping bentgrass, beaked sedge, tall fringed bluebells (*Mertensia ciliata* - FACW), clasping twistedstalk (*Streptopus amplexifolius* - FAC), wild mint (*Mentha arvensis* - FACW), bluejoint, twolope larkspur (*Delphinium nuttalianum* - FAC), western coneflower (*Rudbeckia occidentalis* - FAC), and dwarf red raspberry (*Rubus pubescens* - FAC) (see DP-17, DP-19, DP-31, DP-69, and DP-70 in Appendix C). Sporadic stands of willows occur along the creek and within the forested wetlands. Wetland hydrology was indicated by saturation at the soil surface or a shallow water table. Wetland soils were not readily apparent due to problematic soils. The underlying soils were mapped by the USDA, NRCS (2015a) as nonhydric; however, based on the presence of hydrology

during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]), a predominance of wetland vegetation, and landscape position on low terraces along a perennial stream, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators.

Jurisdictional Status

Because Wetland D is associated with a tributary creek of the Snake River, a known water of the U.S., it would likely be considered jurisdictional.

Functional Assessment

See the discussion under OHWM 7 above.

Wetland E –PEM, PSS, and PFO

Wetland E includes the PEM, PSS, and PFO wetlands that are associated with a large beaver pond complex (commonly referenced as the Sawmill Ponds) situated east of Moose-Wilson Road near the north end of the wetland survey area (Figures 3k through 3m; Photos 12 through 15). The primary water source includes groundwater discharge and inflow; precipitation accumulation is a secondary source as well as subsurface seepage from an intermittent drainage (known as Wister Draw) to the north. The beaver pond complex transitions into a channelized feature near the southern end of the wetland complex; wetlands along the channel section are supported primarily by overbank flows from the channel. The flows from the Wetland E complex eventually converge with the Snake River downstream and east of the wetland survey area.

Emergent wetlands occur adjacent to and within the ponds and along the downstream channel. The ponds were classified as emergent wetlands based on the surface area (less than 8 hectares), lack of bedrock shore, depth (less than 2 meters), and freshwater system (salinity less than 0.5%) (Cowardin et al. 1979) (Photo 12). The dominant species in the emergent wetlands include Bebb's sedge, woolly sedge, beaked sedge, Nebraska sedge (*Carex nebrascensis* - OBL), water sedge (*Carex aquatilis* - OBL), bluejoint, creeping bentgrass, Kentucky bluegrass (FAC), reed canarygrass, Timothy, American mannagrass, nodding beggarticks (*Bidens cernua* - OBL), Baltic rush (*Juncus balticus* - FACW), swordleaf rush (*Juncus ensifolius* - FACW), large leaf avens, scouringrush horsetail (*Equisetum hyemale* - FACW), and smooth horsetail (*Equisetum laevigatum* - FACW) (Photo 13) (see DP-34, DP-44, DP-49, DP-51, DP-55, DP-61, and DP-66 in Appendix C).

Scrub-shrub wetlands occur adjacent to the ponds and emergent wetlands and on the downstream end of the channel (Photo 14). The dominant species in the scrub-shrub wetlands include Geyer's willow, Booth's willow (FACW), and Bebb willow (*Salix bebbii* - FACW), with a herbaceous understory consisting of reed canarygrass, bluejoint, Timothy, tufted hairgrass, American mannagrass, beaked sedge, woolly sedge,

scouringrush horsetail, and smooth horsetail (see DP-39, DP-40, and DP-57 in Appendix C).

Forested wetlands occur near the northeast end of the wetland complex, on the eastern margin (Figures 3m and 3n; Photo 15). The forested wetlands are dominated by an overstory of woodland species including lodgepole pine (FAC), Engelmann spruce (FAC), black hawthorn (FAC), and quaking aspen (FACU). The understory consists of shrub and herbaceous species including serviceberry (FACU), Timothy, creeping bentgrass, field horsetail (*Equisetum arvense* - FAC), and Kentucky bluegrass (see DP-60 in Appendix C).

Wetland hydrology was indicated by saturation at the soil surface and a shallow water table. Soils within the Wetland E complex are primarily mapped as hydric (Tetonville-Wilson fine sandy loams and Cryaquolls); however, based on the presence of hydrology during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]) and a dominance of wetland vegetation, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators (Photos 16 and 17).

Jurisdictional Status

Because Wetland E is associated with Lake Creek, which ultimately flows into the Snake River, a known water of the U.S., the wetland would likely be considered jurisdictional.

Functional Assessment

The wetland communities within Wetland E were evaluated together using the MWAM based on their proximity and hydrology source. The groundwater-fed wetland complex receives flows from the adjacent hillslope and from groundwater recharge. The Wetland E complex consists of a diverse network of emergent, scrub-shrub, and forested wetlands that provide significant and important habitat for fish and wildlife, including the federally threatened grizzly bear. Beaver activity has created long-term surface water as shallow ponds that provide a perennial water source for wildlife and contributes to high vegetation complexity and diversity. Wetland E complex provides a source of nutrient export, flood attenuation, and sediment capture. Disturbances within the wetland complex are limited to the adjacent Moose-Wilson Road, which restricts some water inflow from the adjacent hillslope and contributes toxicants from over-road sheet flow. Restorative measures could include providing additional opportunities for water inflow through subsurface culverts, which would reduce toxicant inputs and reduce inflow constrictions. The overall percent of possible score was 83%, and the wetlands were ranked as category I for providing habitat for documented T&E species and for an overall percent possible score greater than 80%.

Wetlands F, G, and H –PSS and PEM

Wetland F supports a PSS wetland community and is situated west of Wetland E and Moose-Wilson Road. The primary water source is groundwater discharge and surface

flows from a narrow drainage. The dominant species in the scrub-shrub wetland is Geyer's willow. Understory species include cow parsnip (*Heracleum maximum* - FAC), western coneflower, stinging nettle (*Urtica dioica* - FAC), and Nuttall's larkspur (*Delphinium nuttallianum* - FAC). Wetland hydrology was indicated by geomorphic position and the FAC-Neutral test; the wetland is positioned within a hillslope drainage fed by groundwater seepage. Wetland soils were not readily apparent due to problematic soils. The underlying soils were mapped by the USDA, NRCS (2015a) as nonhydric; however, based on the presence of wetland hydrology indicators during the growing season (see problematic hydric soils in the *Western Mountains, Valleys, and Coasts Regional Supplement* [Corps 2010]) and a predominance of wetland vegetation, the soils were assumed hydric and were noted to be problematic due to a lack of obvious indicators (see DP-64 in Appendix C).

Wetland G includes the PEM seep wetlands that occur on a steep hillslope adjacent to Moose-Wilson Road and west of the Wetland E complex (Figures 3m and 3n; Photo 18). The primary water source is groundwater discharge. The dominant species in the emergent wetlands include creeping bentgrass, Timothy, scouringrush horsetail, and swordleaf rush. Wetland hydrology was indicated by saturation at the soil surface. Wetland soils were not evaluated due to sensitive cultural resources in the immediate vicinity; however, the underlying soils were mapped by the USDA, NRCS (2015a) as Sebud complex, a nonhydric soil type associated with mountain slopes (see DP-37 in Appendix C).

Wetland H includes the PEM depressional wetland that is adjacent to Moose-Wilson Road and near the north end of the Wetland E complex (Figure 3n; Photo 19). The primary water source is groundwater discharge. The dominant species in the emergent wetland includes Timothy, creeping bentgrass, scouringrush horsetail, and woolly sedge (see DP-66 in Appendix C). Wetland hydrology was indicated by saturation at the soil surface. Wetland soils were not evaluated due to sensitive cultural resources in the immediate vicinity; however, the underlying soils were mapped by the USDA, NRCS (2015a) as Tineman-Bearmouth gravelly loams, a nonhydric soil type associated with mountain slopes (see DP-62 in Appendix C).

Jurisdictional Status

Because the wetlands are adjacent to Wetland E, which has a surface connection with the Snake River, a known water of the U.S., they would likely be considered jurisdictional.

Functional Assessment

The wetland communities within Wetlands F, G, and H were evaluated together using the MWAM based on their proximity and common hydrology source. The primarily groundwater-fed wetlands occur on or at the toe of a hillslope and are supported by subsurface flows, small surface drainages, and surface seeps. The wetlands consist of emergent and scrub-shrub communities that provide habitat for wildlife, including the

federally threatened grizzly bear. The wetlands provide a source of nutrient export, and the groundwater seeps contribute flows into the adjacent wetland complex (Wetland E). Disturbances within the wetlands are limited to the adjacent Moose-Wilson Road, which constricts water outflow from the adjacent hillslope and contributes toxicants from over-road sheet flow. Restorative measures could include providing additional opportunities for water outflow through subsurface culverts, which would reduce toxicant inputs and reduce outflow constrictions. The overall percent of possible score was 68% and based on the percent possible score, the wetlands would be classified as category II for an overall percent score greater than 65% and a low rating for uniqueness.

Wetlands I, J, and K – PFO

Wetlands I, J, and K include the PFO wetlands adjacent to Moose-Wilson Road at the north end of the wetland survey area (Figure 3q; Photos 20 and 21). The primary water source is groundwater discharge. The dominant species in the overstory include lodgepole pine, quaking aspen, subalpine fir (FACU), and Engelmann spruce. Understory vegetation includes bluejoint, American mannagrass, beaked sedge, creeping bentgrass, and woolly sedge. Sporadic Geyer's willows occur along Wetland J. Wetland hydrology was indicated by saturation at the soil surface, geomorphic conditions, and the FAC-Neutral test. Due to dry season/drought conditions, active signs of wetland hydrology including saturated conditions or a water table within 12 inches of the soil surface were not always present at groundwater-fed/slope wetlands. In such cases, ERO used procedures described in the *Western Mountains, Valleys, and Coasts Regional Supplement* for problematic hydrology (Corps 2010) to make hydrology determinations, which included verifying the landscape position could promote wetland hydrology (i.e., concave surface) and noting that the 2018 site visit occurred during the dry season and during a drought year. Wetland soils at Wetlands I, J, and K were described as mucky mineral soils (S1) with cobbles (see DP-21, DP-23, and DP-25 in Appendix C).

Jurisdictional Status

Wetlands I, J, and K are not directly associated with a drainage or waterbody and may be influenced hydrologically by the adjacent roadbed (Moose-Wilson Road), which may serve as a berm that impounds water. These wetlands may be considered isolated and may be jurisdictional.

Functional Assessment

The wetland communities within Wetlands I, J, and K were evaluated together using the MWAM based on their proximity and common hydrology source. The wetlands are contained within depressions and are believed to be primarily supported by surface flows due to precipitation and storm runoff from the adjacent road. The wetlands consist of emergent vegetation beneath a conifer-dominated forested canopy and provide foraging habitat for wildlife. Disturbances within the wetlands are associated with Moose-Wilson Road, which may act as a berm that impounds water and

contributes toxicants from stormwater inflows. Enhancement opportunities may be limited due to the potentially artificial hydrology sources supporting the wetlands. The overall percent of possible score was 60% and based on the percent possible score, the wetlands would be classified as category III or IV for an overall percent score less than 65% and a low overall area of wetland cover.

Conclusions and Recommendations

Wetlands and Other Waters

The wetlands and other waters delineated account for 59.45 acres of vegetated wetlands, 3.82 acres of unvegetated wetlands, and 7,544 linear feet of stream channel (Figures 3a through 3q). A total of 72 wetland data points were evaluated within the Wetland Survey Area. At all wetland data points ERO documented a predominance of wetland vegetation (greater than 50% cover). Indicators of hydric soils and hydrology were less apparent within the delineated wetlands. The 2018 field surveys were conducted during the dry season and during a drought year; therefore, ERO used methods described in the regional supplement (Corps 2010) and 1987 manual (Environmental Laboratory) for problematic hydrology. Indicators of hydric soils were not always encountered within the delineated wetlands; in such cases, ERO reviewed the NRCS soil mapping (USDA NRCS 2015) and utilized the methods described in the regional supplement (Corps 2010) and 1987 manual (Corps) for problematic soils. ERO mapped aquatic resources using the classifications described by Cowardin et al. (1979).

ERO evaluated wetland functions using the Montana Wetland Assessment Method (MWAM), the forms are provided in Appendix E. The MWAM assigns points to a variety of functions of wetlands as applicable. An overall percent score is calculated by dividing the assigned points by the overall allowable functional points. The overall percentage is then evaluated in conjunction with other criteria to rank each wetland by category, including documented occurrences of threatened or endangered species. ERO categorized wetlands based on the overall percent score; in general, the wetlands associated with drainages were categorized as category III or IV due to low overall cover and thus reduced functions. The beaver pond complex (Wetland E) scored as a category I wetland based on the relative rating of multiple functions including short/long term surface water, nutrient/toxicant removal, food chain support, and groundwater export.

The proposed Moose-Wilson Road project is anticipated to cause direct and permanent impacts on wetlands within the wetland survey area. Due to the nature of the project which may include road widening, realignment, and rehabilitation and the proximity of the existing road corridor aquatic resources, efforts to avoid impacts on wetlands may not be possible. ERO recommends that where possible, road widening and realignment should be implemented in non-wetland habitats. In areas where widening or

realignment is needed and would result in wetland impacts, ERO recommends that the project design integrate infrastructure to allow hydrological connectivity between adjacent wetland features. This could include placement of drainage culverts or bridge crossings. Such measures would be beneficial for the section of road that crosses through and adjacent to Wetland E, Wetland F, Wetland G, and Wetland H.

References

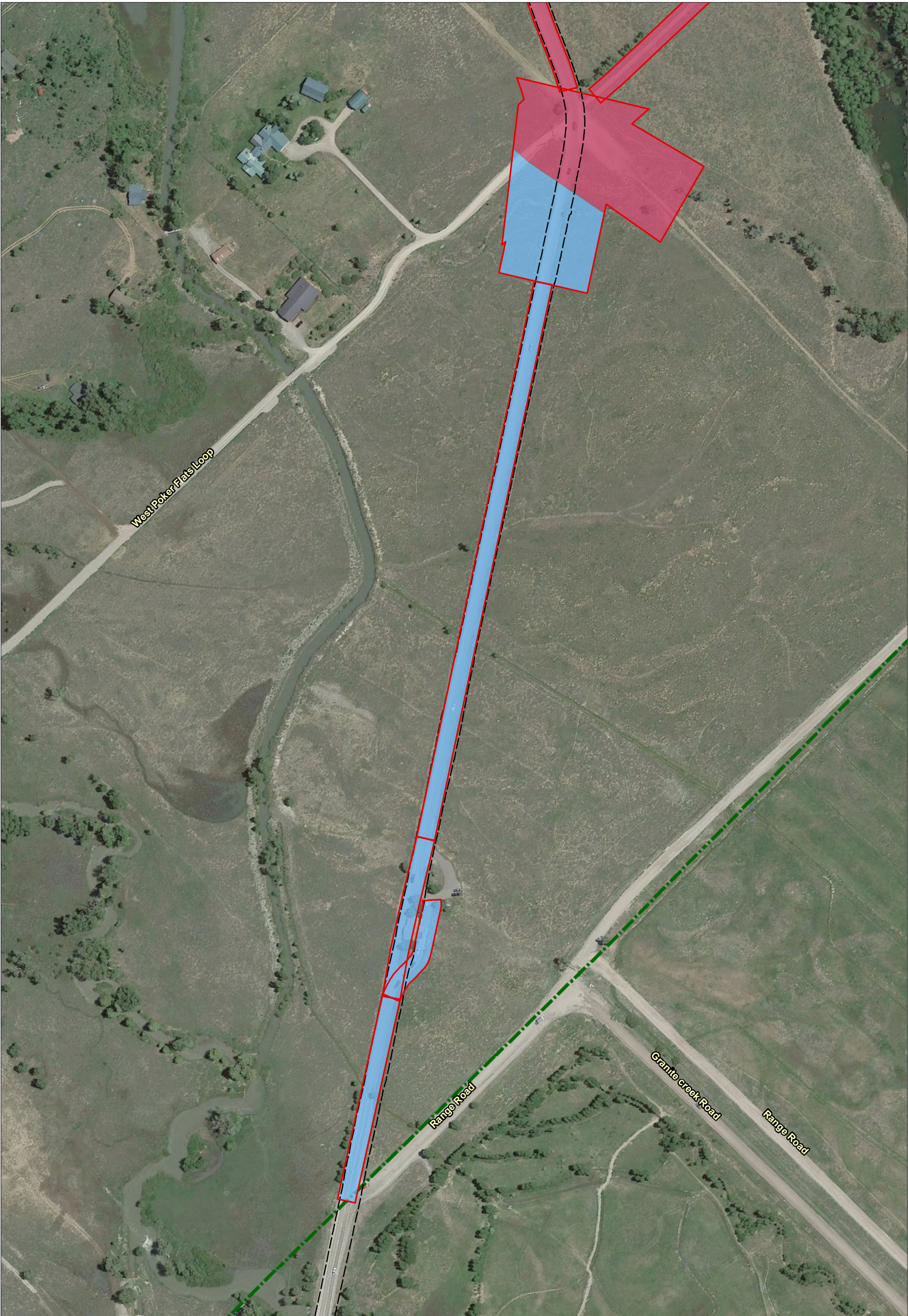
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APPENDIX A

SOIL MAPS

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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

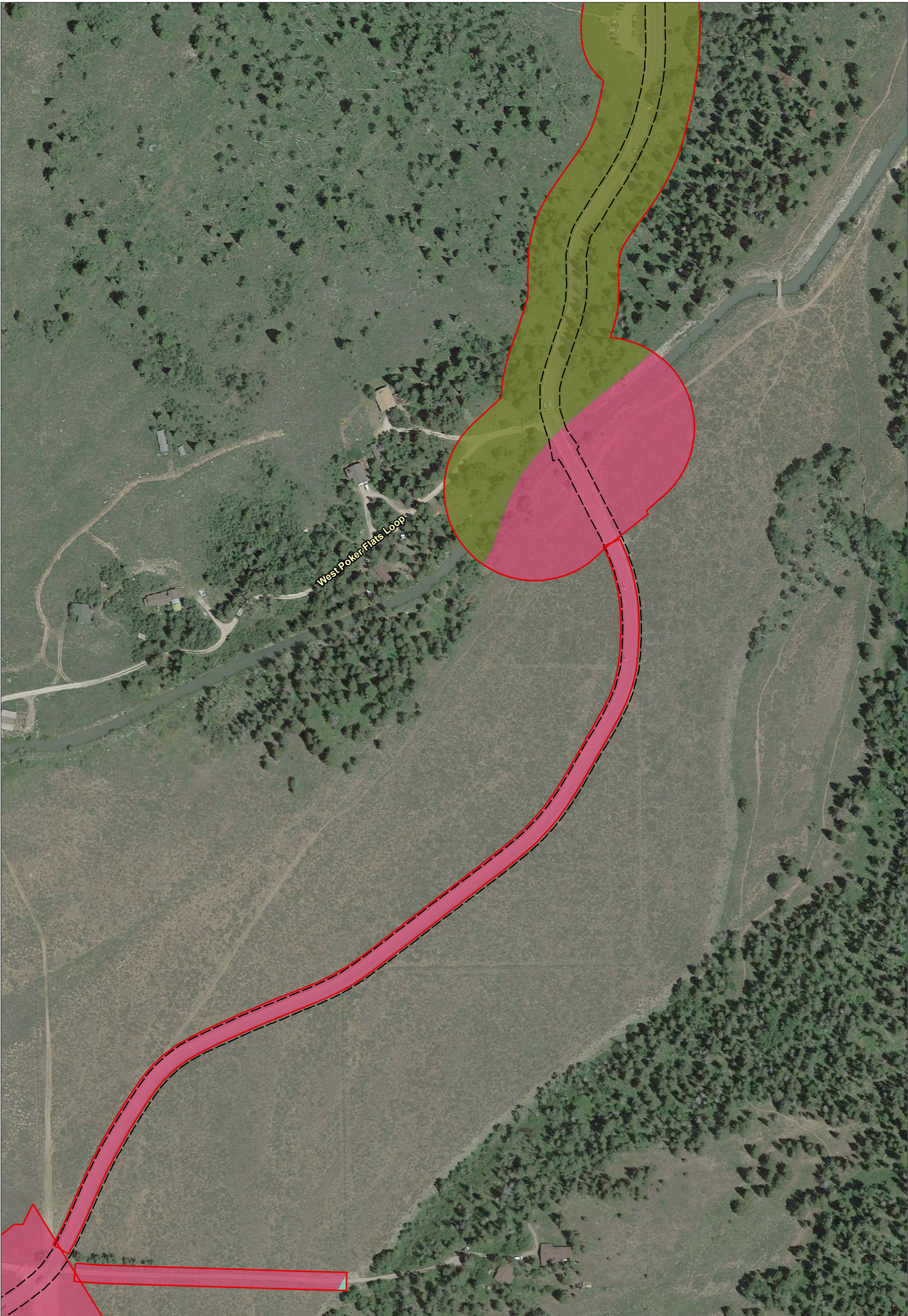
- | | |
|---|--|
|  Park Boundary |  Greyback-Charlos complex |
|  Wetland Survey Area |  Tineman gravelly loam |
|  Proposed Roadway Clearing Limit | |

Figure 1
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
File: 10315 Soils Appendix 1-17.mxd (6/10/18)
October 5, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association * |
|  Wetland Survey Area |  Tetonville-Wilsonville fine sandy loams |
|  Proposed Roadway Clearing Limit |  Tineman gravelly loam |

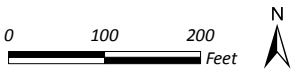


Figure 2
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
File: 10315 Soils Appendix 1-17.mxd (g
October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

-  Park Boundary
-  Wetland Survey Area
-  Proposed Roadway Clearing Limit
-  Taglake-Sebud association *

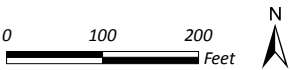


Figure 3
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association * |
|  Wetland Survey Area |  Tineman association * |
|  Proposed Roadway Clearing Limit |  Tineman gravelly loam |

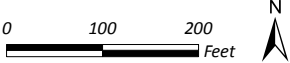


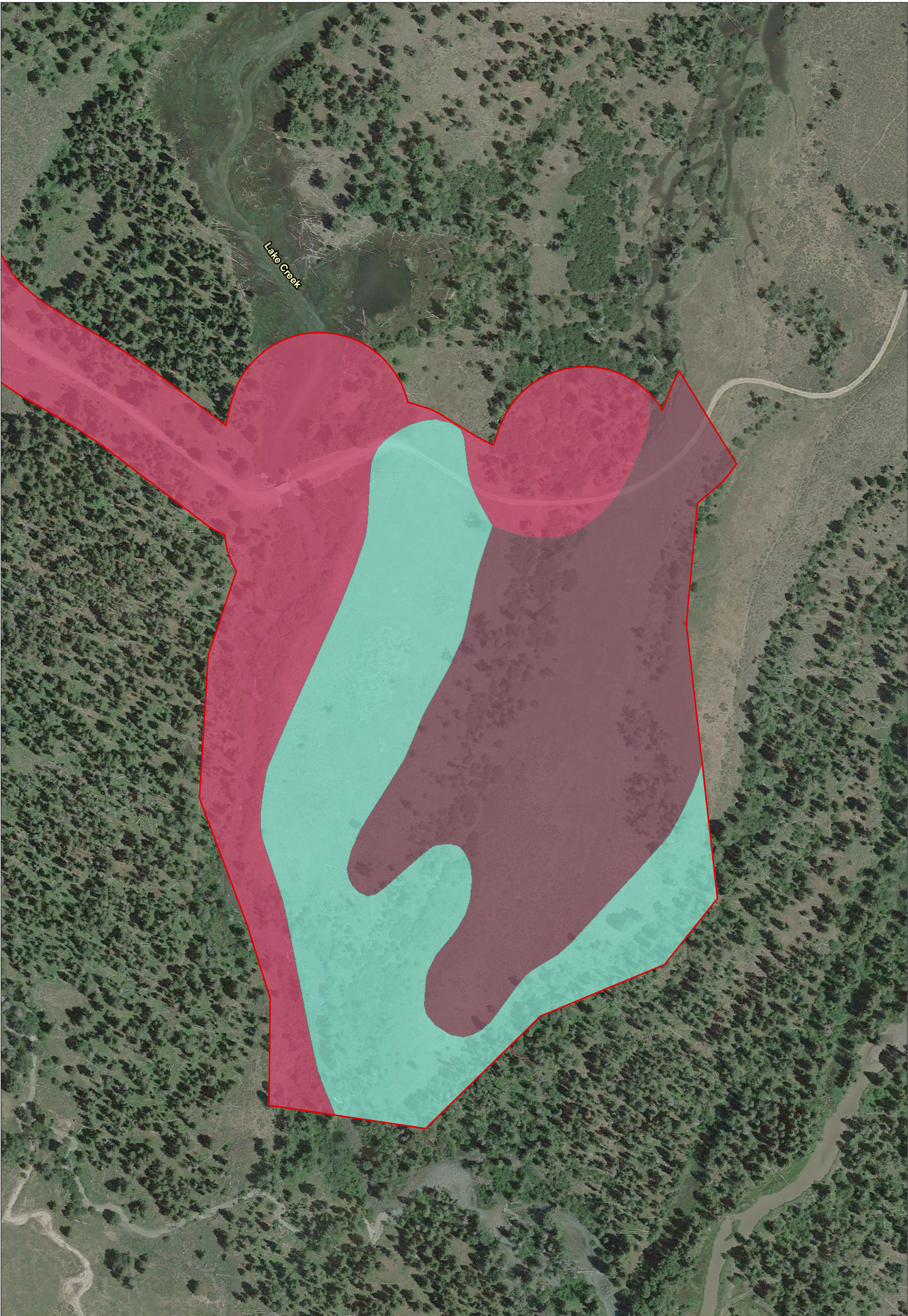
Figure 4
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Tetonville-Wilsonville fine sandy loams |
|  Wetland Survey Area |  Tineman association * |
|  Proposed Roadway Clearing Limit |  Tineman gravelly loam |

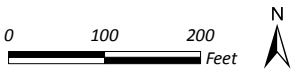


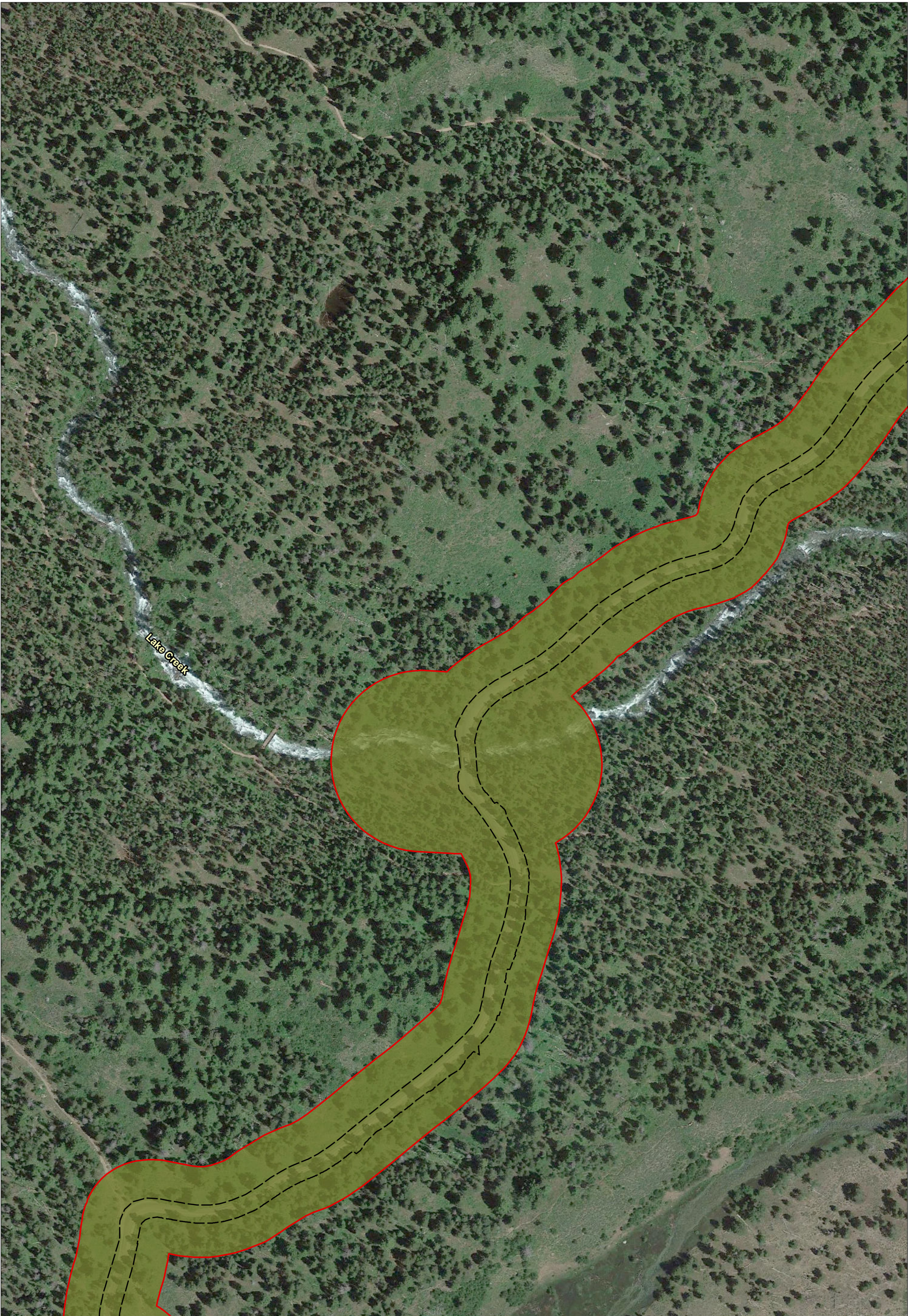
Figure 5
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

-  Park Boundary
-  Taglake-Sebud association *
-  Wetland Survey Area
-  Proposed Roadway Clearing Limit

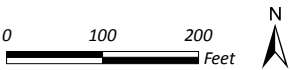


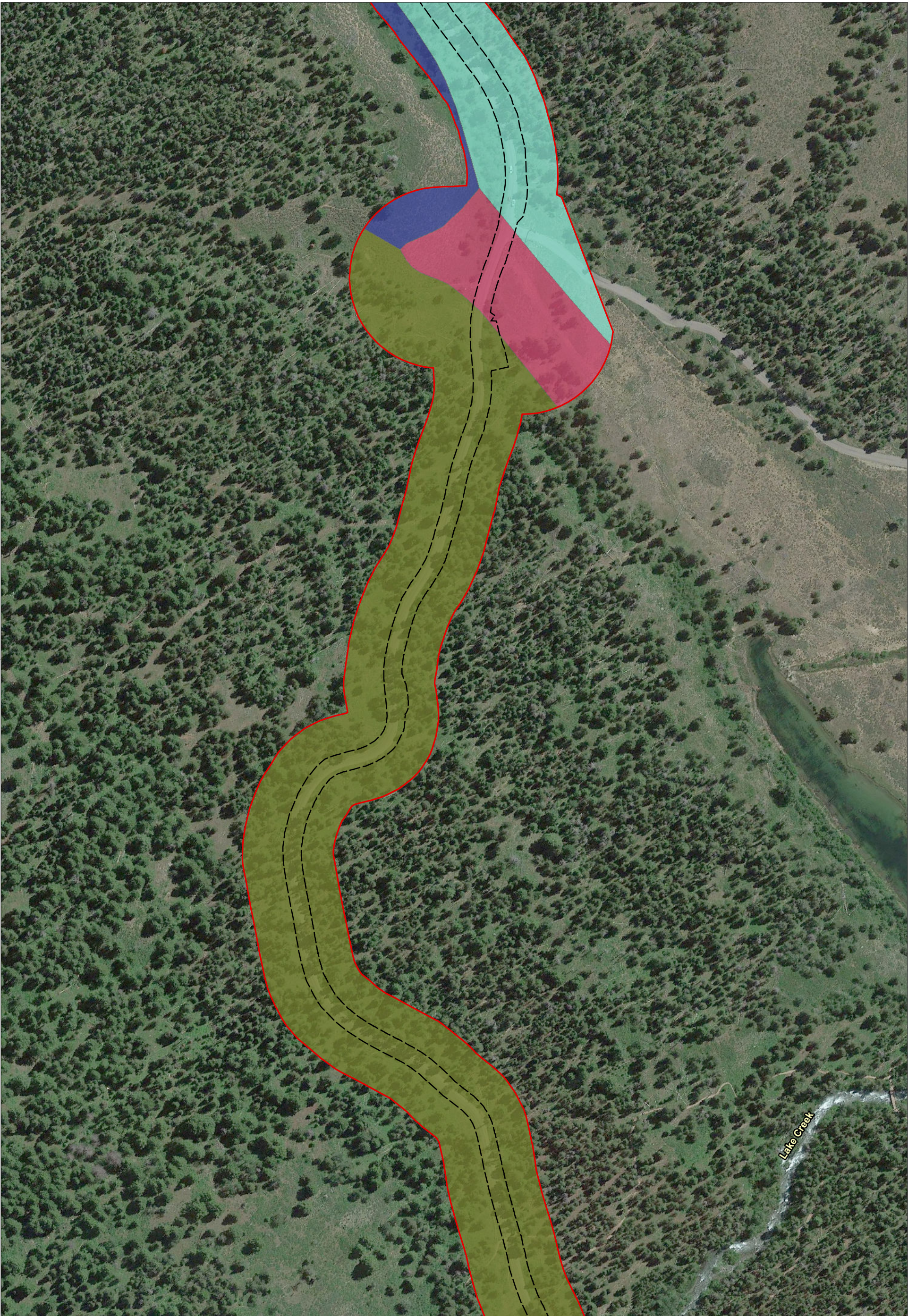
Figure 6
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association * |
|  Wetland Survey Area |  Taglake-Sebud association, steep * |
|  Proposed Roadway Clearing Limit |  Tetonville-Wilsonville fine sandy loams |
| |  Tineman gravelly loam |

0 100 200
Feet



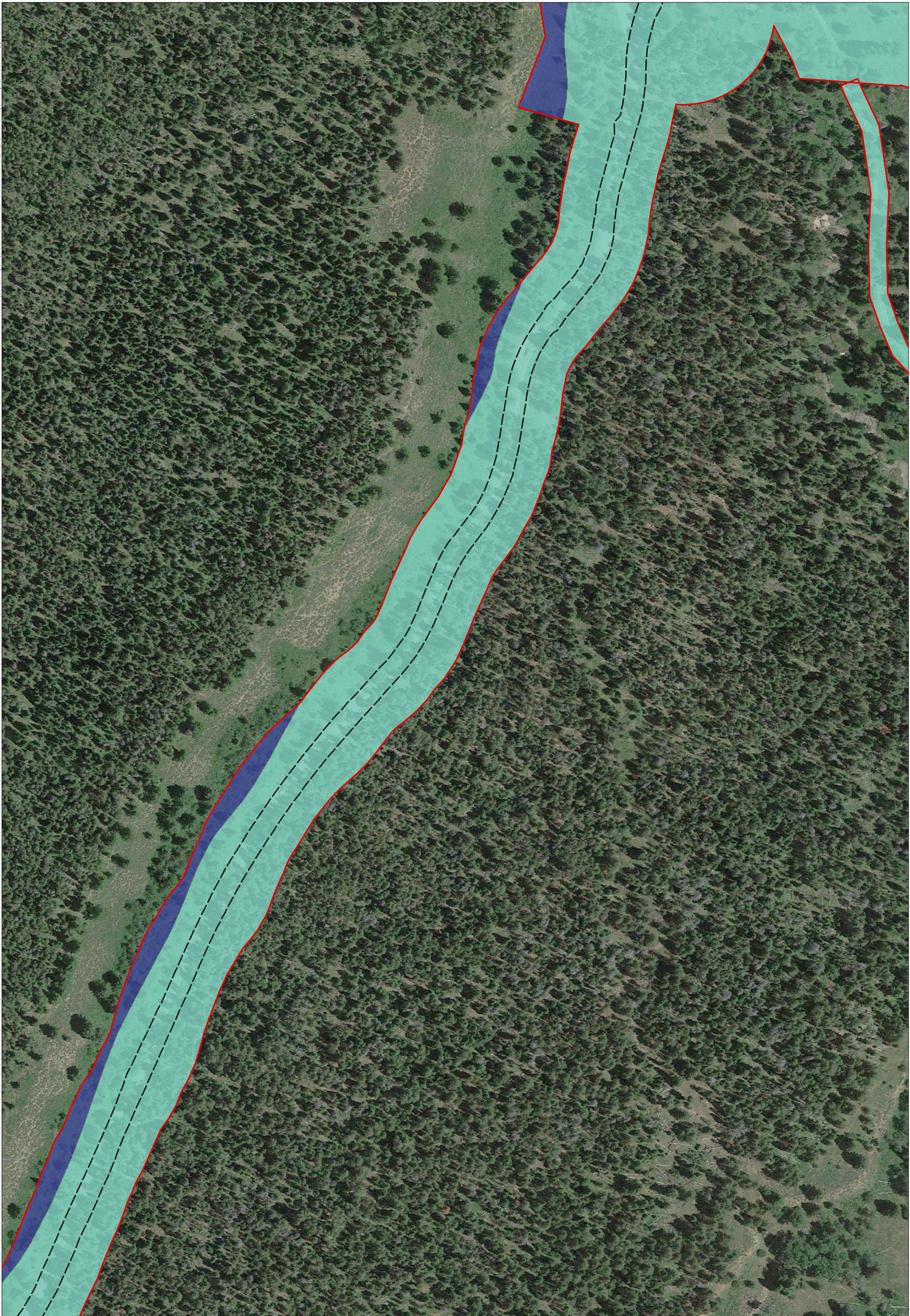
Figure 7
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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association, steep * |
|  Wetland Survey Area |  Tetonville-Wilsonville fine sandy loams |
|  Proposed Roadway Clearing Limit | |

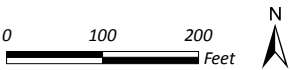


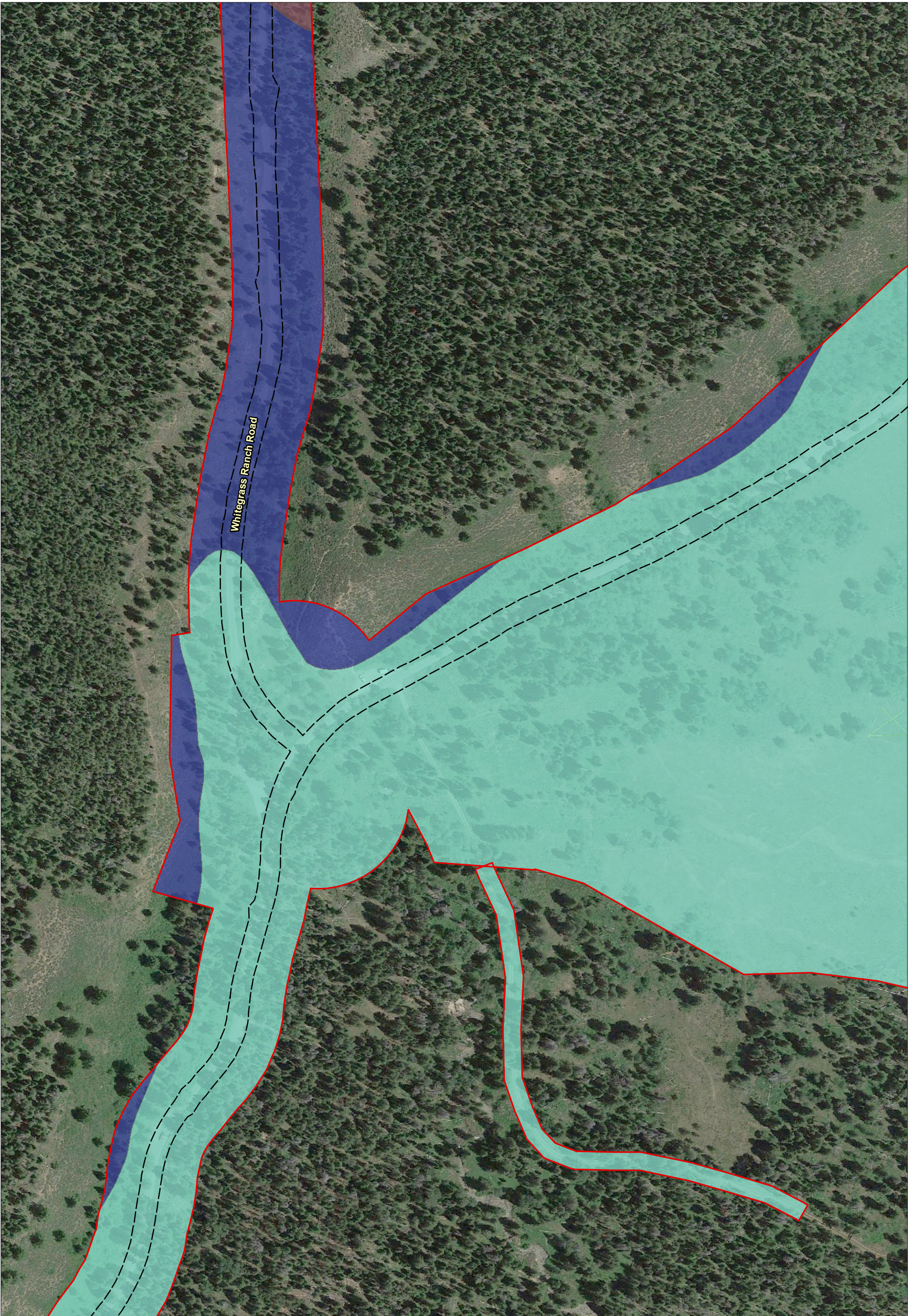
Figure 8
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association, steep * |
|  Wetland Survey Area |  Tetonville-Wilsonville fine sandy loams |
|  Proposed Roadway Clearing Limit |  Tineman association * |

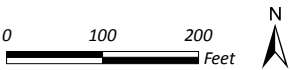
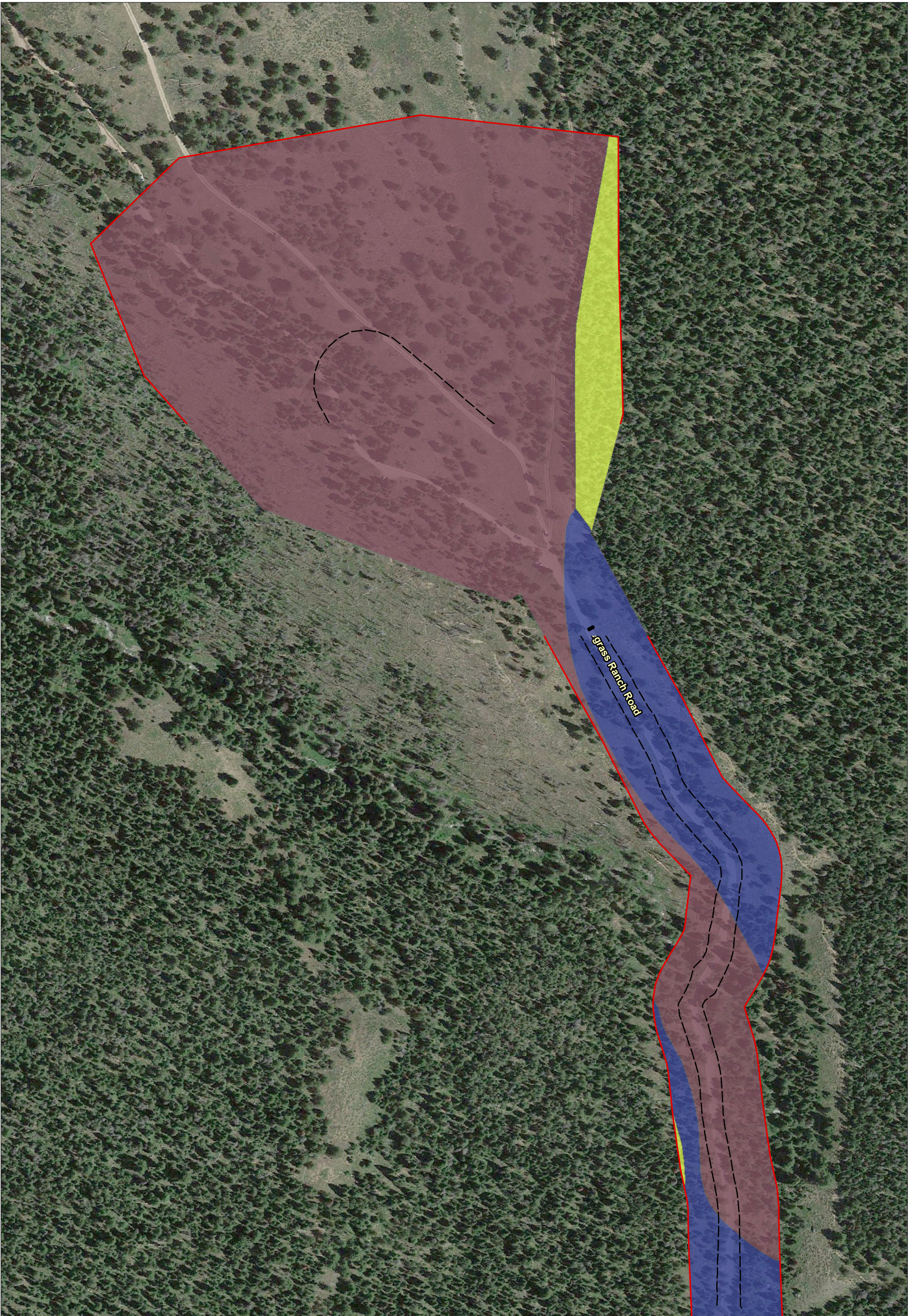


Figure 9
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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October 5, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Taglake-Sebud association, steep * |
|  Wetland Survey Area |  Tineman association * |
|  Proposed Roadway Clearing Limit |  Turnerville silt loam, 0 to 30 percent slopes * |

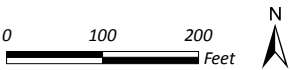


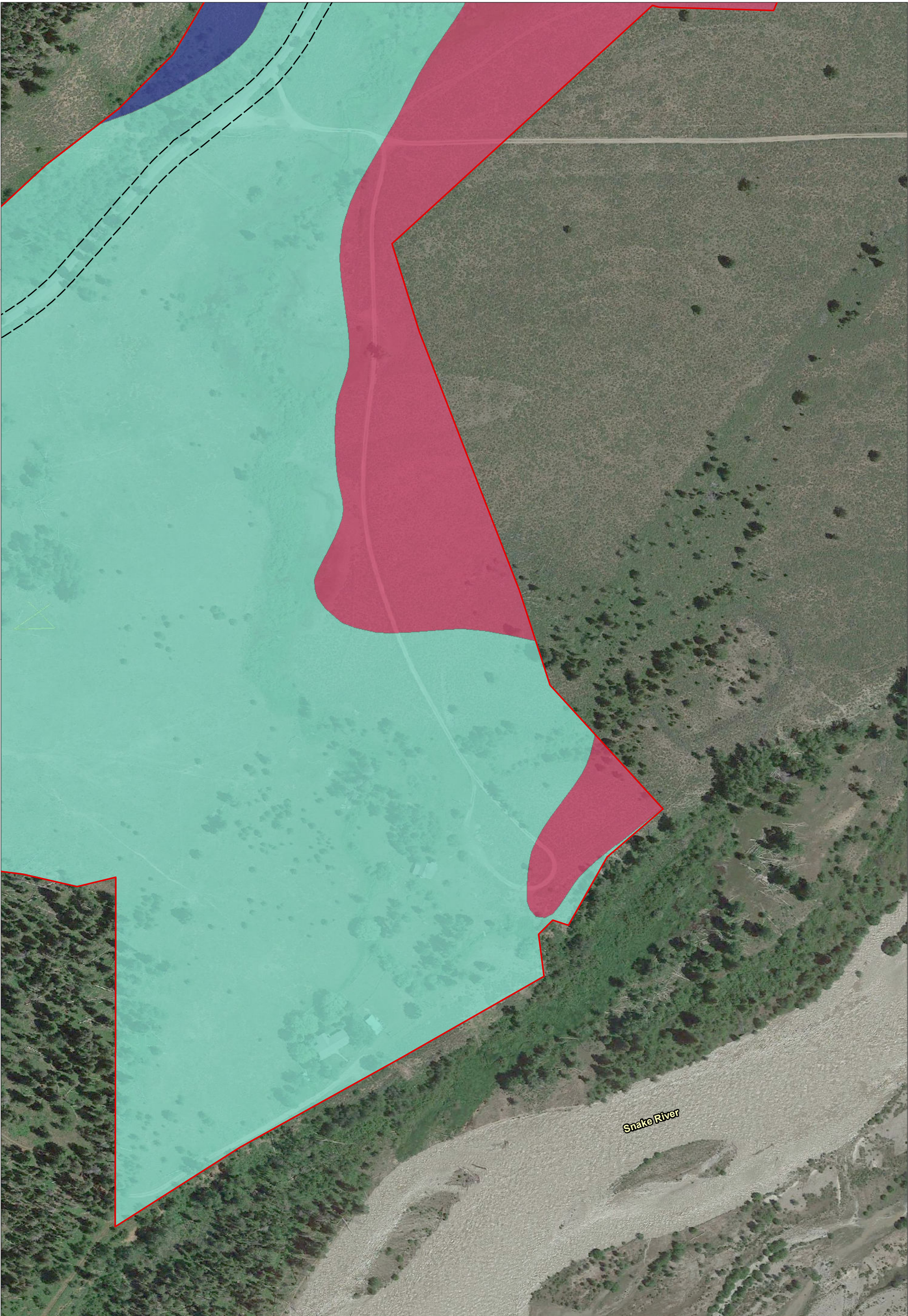
Figure 10
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Image Source: USDA FSA, 2017

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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---------------------------------|---|
| Park Boundary | Taglake-Sebud association, steep * |
| Wetland Survey Area | Tetonville-Wilsonville fine sandy loams |
| Proposed Roadway Clearing Limit | Tineman gravelly loam |

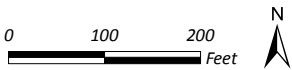


Figure 11
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Cryaquolls-Cryofibrists complex * |
|  Wetland Survey Area |  Taglake-Sebud association, steep * |
|  Proposed Roadway Clearing Limit |  Tetonville-Wilsonville fine sandy loams |
| |  Tineman gravelly loam |

0 100 200
Feet



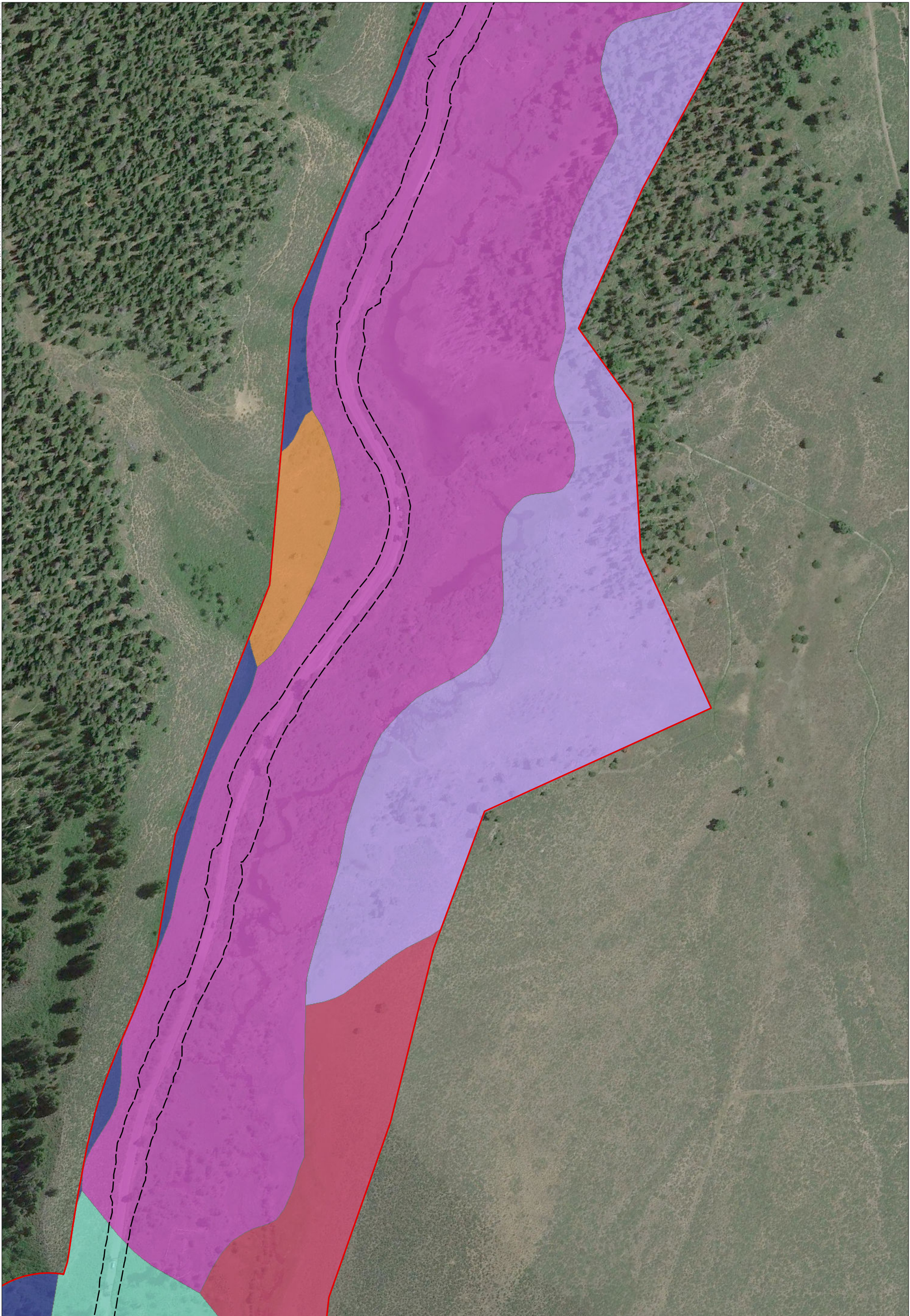
Figure 12
Soils

Image Source: USDA FSA, 2017

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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- Park Boundary
- Wetland Survey Area
- Proposed Roadway Clearing Limit

- Cryaquolls-Cryofibrists complex *
- Sebud complex, 10 to 20 percent slopes *
- Taglake-Sebud association, steep *
- Tetonville-Wilsonville fine sandy loams
- Tineman gravelly loam
- Tineman gravelly loam, wet

0 100 200
Feet

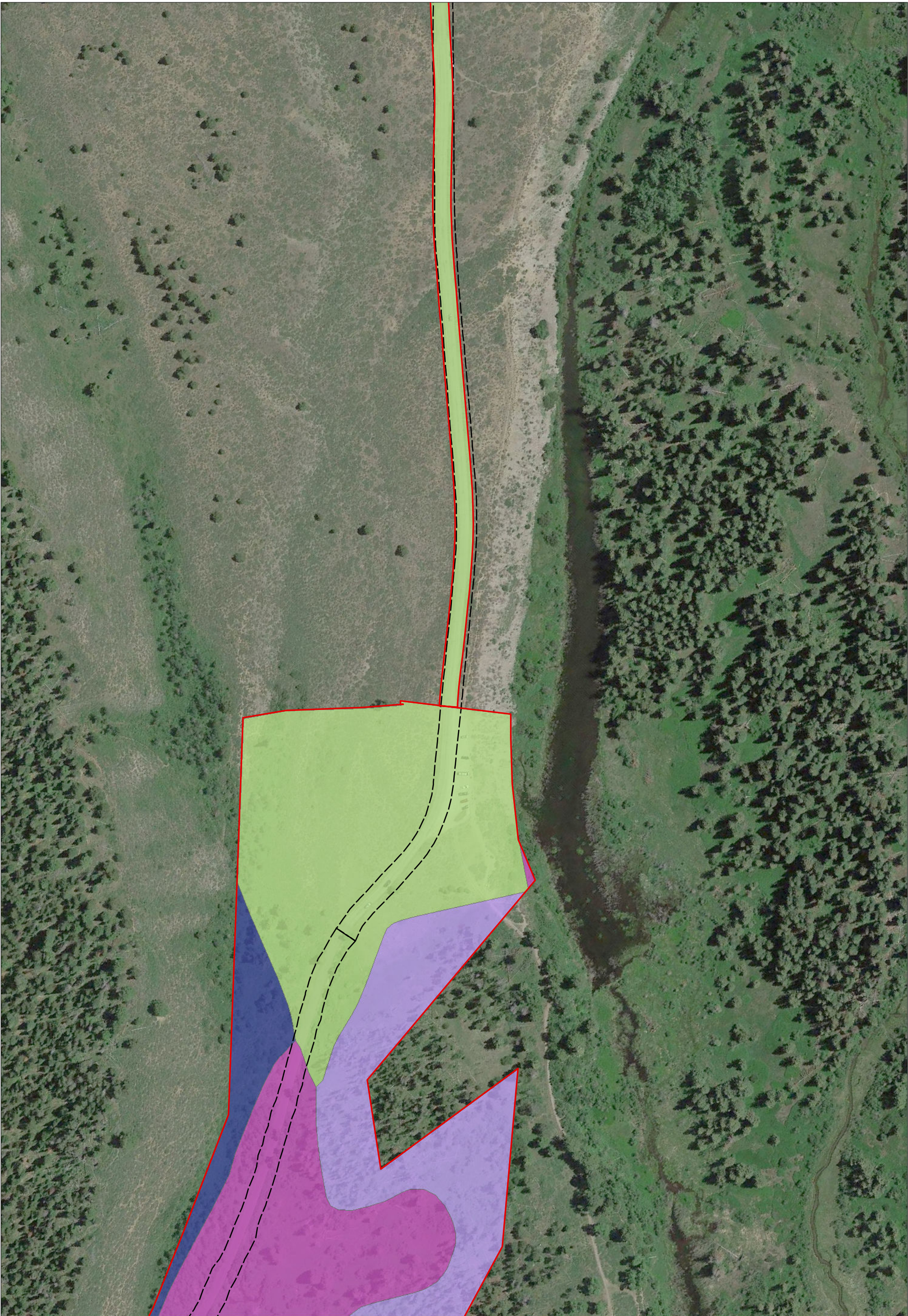


Figure 13
Soils

Image Source: USDA FSA, 2017

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October 5, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Cryaquolls-Cryofibrists complex * |
|  Wetland Survey Area |  Taglake-Sebud association, steep * |
|  Proposed Roadway Clearing Limit |  Tineman gravelly loam, wet |
| |  Tineman-Bearmouth gravelly loams, 0 to 3 percent slopes |

0 100 200
Feet

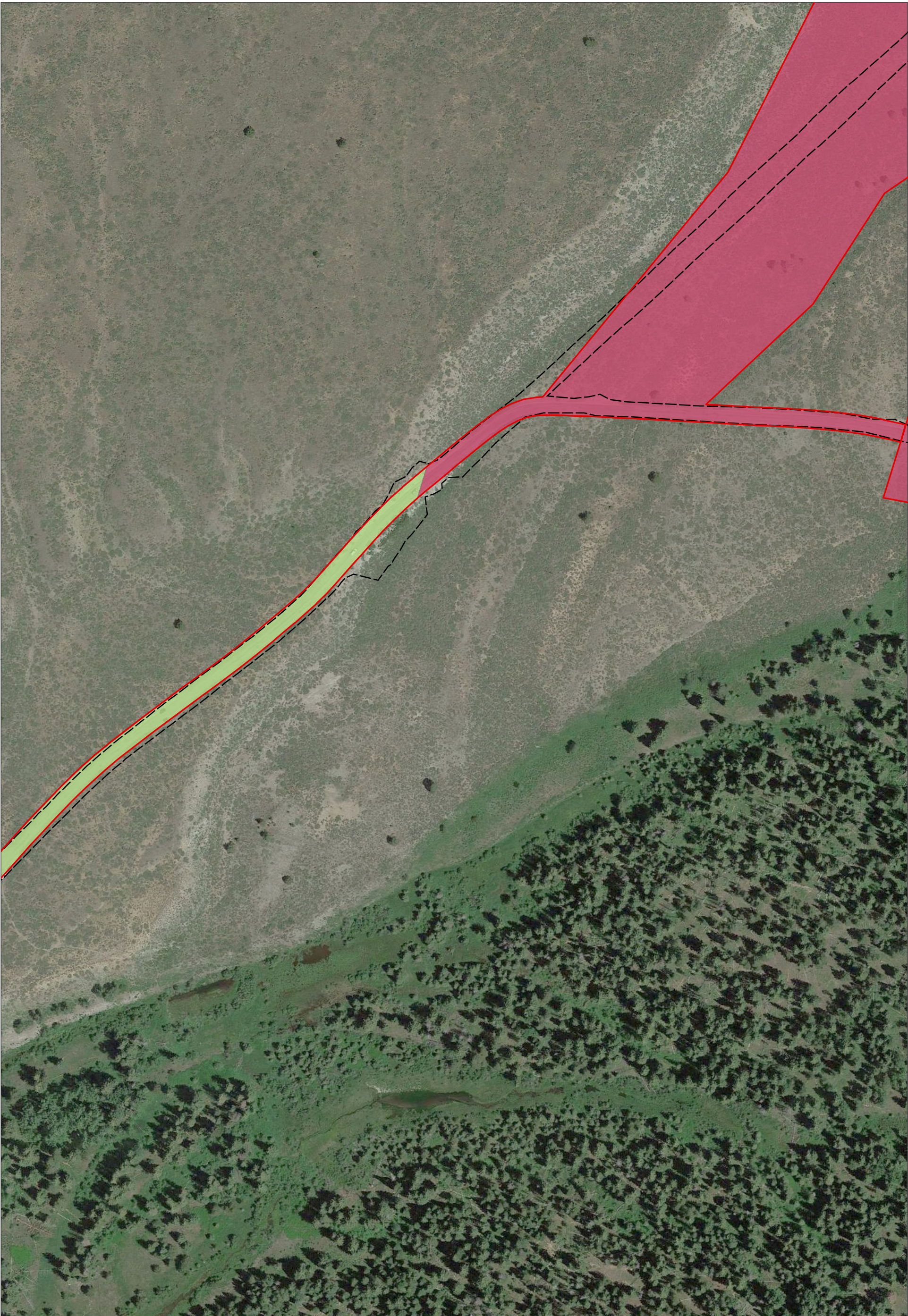


Figure 14
Soils

Image Source: USDA FSA, 2017

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October 5, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Tineman gravelly loam |
|  Wetland Survey Area |  Tineman-Bearmouth gravelly loams, 0 to 3 percent slopes |
|  Proposed Roadway Clearing Limit | |

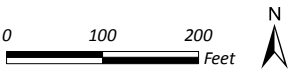
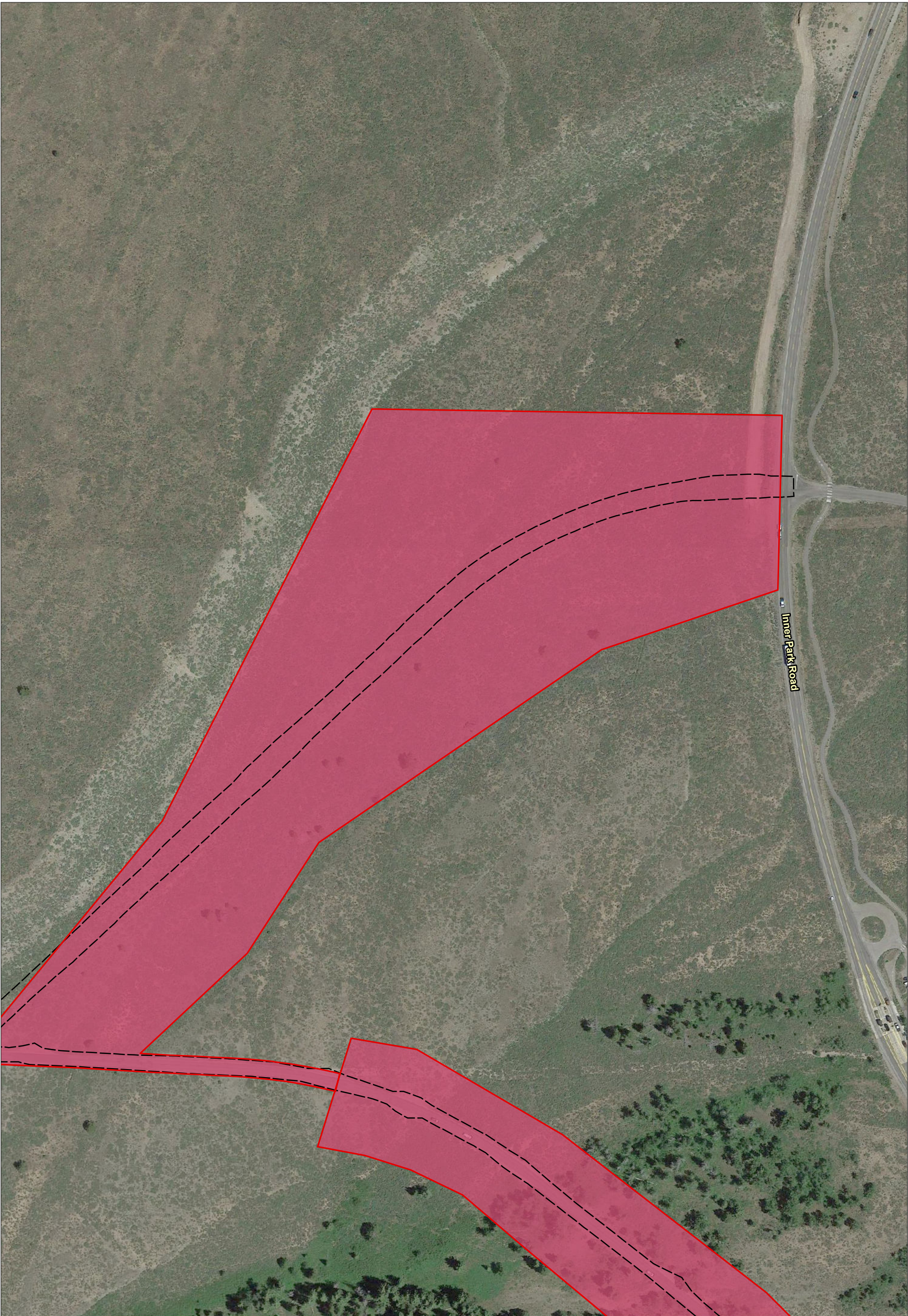


Figure 15
Soils

Image Source: USDA FSA, 2017

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October 5, 2018





Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

-  Park Boundary
-  Tineman gravelly loam
-  Wetland Survey Area
-  Proposed Roadway Clearing Limit

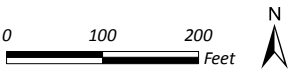


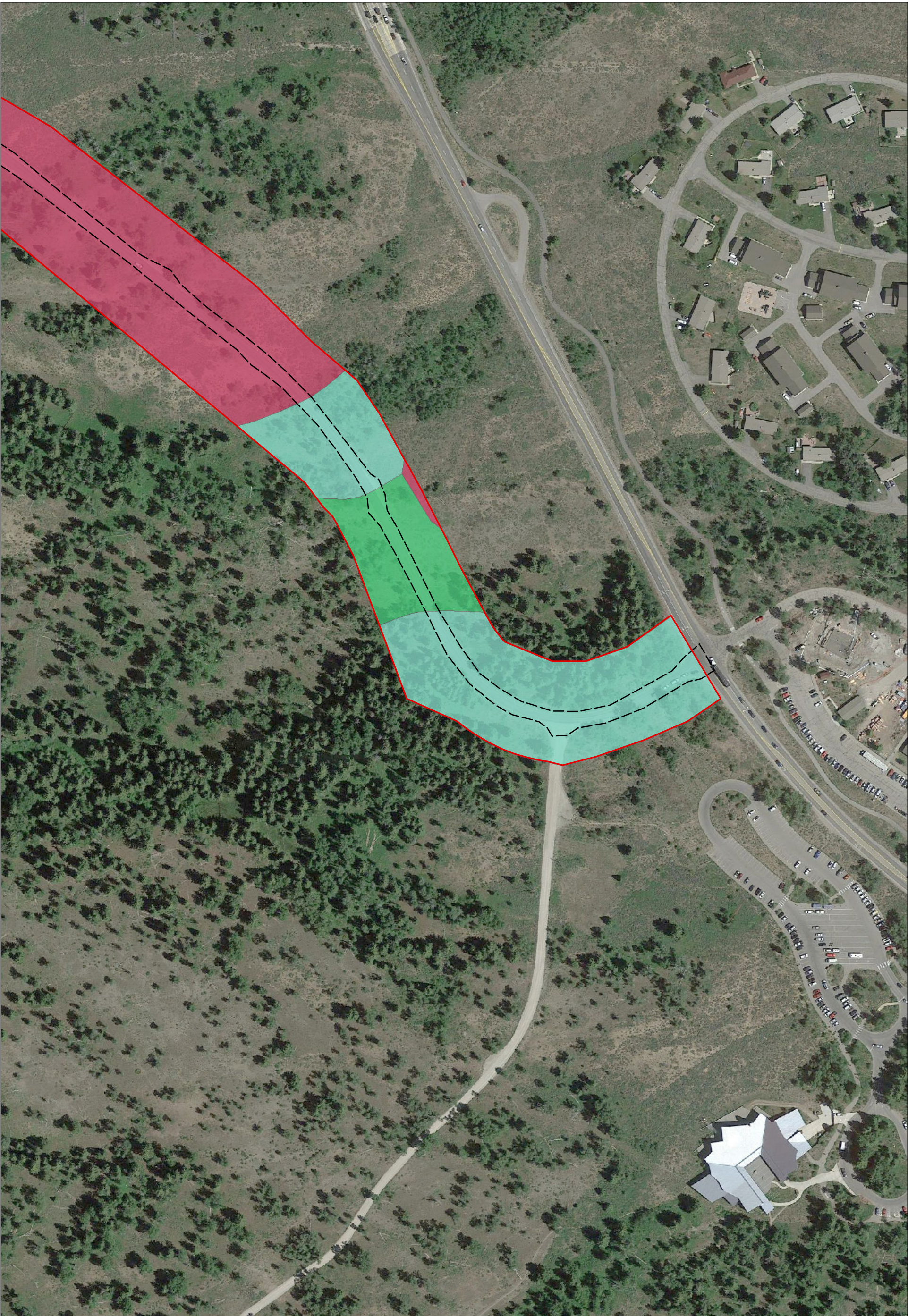
Figure 16
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
File: 10315 Soils Appendix 1-17.mxd (c)
October 5, 2018



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Wetland Delineation, Moose -Wilson Road – Grand Teton National Park
Teton County, Wyoming

- | | |
|---|---|
|  Park Boundary |  Tetonville complex |
|  Wetland Survey Area |  Tetonville-Wilsonville fine sandy loams |
|  Proposed Roadway Clearing Limit |  Tineman gravelly loam |

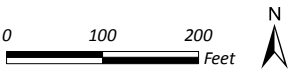


Figure 17
Soils

Image Source: USDA FSA, 2017

Prepared for: National Park Service
File: 10315 Soils Appendix 1-17.mxd (6/10/18)
October 5, 2018



APPENDIX B
PLANT SPECIES LIST

Appendix B. List of Plant Species Observed in the Survey Area

Scientific Name	Common Name	LIFEFORM	Status	Wetland Indicator
<i>Abies lasiocarpa</i>	Subalpine fir	T	Native	FACU
<i>Picea engelmannii</i>	Engelman spruce	T	Native	FAC
<i>Picea pungens</i>	Blue spruce	T	Native	FAC
<i>Pinus contorta</i>	Lodgepole pine	T	Native	FAC
<i>Pinus flexilis</i>	Limber pine	T	Native	UPL
<i>Populus angustifolia</i>	Narrowleaf cottonwood	T	Native	FACW
<i>Populus tremuloides</i>	Quaking aspen	T	Native	FACU
<i>Pseudotsuga menziesii</i>	Douglas fir	T	Native	FACU
<i>Acer glabrum</i>	Rocky mountain maple	S	Native	FACU
<i>Alnus incana</i>	Gray alder	S	Native	FACW
<i>Amelanchier alnifolia</i>	Serviceberry	S	Native	FACU
<i>Artemisia arbuscula</i>	Little sagebrush	S	Native	UPL
<i>Artemisia cana</i>	Silver sagebrush	S	Native	FACU
<i>Artemisia tridentata</i> var. <i>vaseyana</i>	Mountain big sagebrush	S	Native	UPL
<i>Chrysothamnus viscidiflorus</i>	Yellow rabbitbrush	S	Native	UPL
<i>Cornus sericea</i>	redosier dogwood	S	Native	UPL
<i>Crataegus erythropoda</i>	Cerro hawthorn	S	Native	FACU
<i>Crataegus douglasii</i>	Black hawthorn	S	Native	FAC
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	S	Native	UPL
<i>Juniperus communis</i>	Common juniper	S	Native	UPL
<i>Lonicera involucrata</i>	Twinberry	S	Native	FAC
<i>Mahonia repens</i>	Oregon grape	S	Native	UPL
<i>Prunus virginiana</i>	Chokecherry	S	Native	FACU
<i>Purshia tridentata</i>	Antelope bitterbrush	S	Native	UPL
<i>Rhamnus alnifolia</i>	alderleaf buckthorn	S	Native	FACW
<i>Ribes inerme</i>	Whitestem gooseberry	S	Native	FAC
<i>Rosa woodsii</i>	Wood's rose	S	Native	FACU
<i>Rubus idaeus</i>	American red raspberry	S	Native	FACU
<i>Rubus parviflorus</i>	Thimbleberry	S	Native	FACU
<i>Rubus pubescens</i>	Dwarf red blackberry	S	Native	FAC
<i>Salix bebbiana</i>	Bebb willow	S	Native	FACW
<i>Salix boothii</i>	Booth's willow	S	Native	FACW
<i>Salix geyeriana</i>	Geyer willow	S	Native	FACW
<i>Shepherdia canadensis</i>	Russet buffaloberry	S	Native	UPL
<i>Sorbus scopulina</i>	Mountain ash	S	Native	FACU
<i>Spiraea betulifolia</i>	White spirea	S	Native	FACU
<i>Symphoricarpos albus</i>	Common snowberry	S	Native	FACU
<i>Symphoricarpos occidentalis</i>	Western snowberry	S	Native	FAC
<i>Symphoricarpos oreophilus</i>	Mountain snowberry	S	Native	UPL
<i>Agropyron cristatum</i>	Crested wheatgrass	G	Introduced	UPL
<i>Agrostis stolonifera</i>	Creeping bentgrass	G	Introduced	FAC
<i>Alopecurus</i> sp.	Foxtail grass species	G	Native	NI
<i>Bromus arvensis</i>	Field brome	G	Introduced	UPL
<i>Bromus ciliatus</i>	Fringed brome	G	Native	FAC
<i>Bromus inermis</i>	Smooth brome	G	Introduced	UPL
<i>Bromus tectorum</i>	Downy brome	G	Introduced	UPL
<i>Calamagrostis canadensis</i>	Bluejoint	G	Native	FACW
<i>Carex aquatilis</i>	Water sdge	G	Native	OBL
<i>Carex athrostachya</i>	Slenderbeak sedge	G	Native	FACW
<i>Carex bebbii</i>	Bebb's sedge	G	Native	OBL
<i>Carex hoodii</i>	Hood's sedge	G	Native	FACU
<i>Carex microptera</i>	Smallwing sedge	G	Native	FACU
<i>Carex nebrascensis</i>	Nebraska sedge	G	Native	OBL
<i>Carex pellita</i>	Woolly sedge	G	Native	OBL

Appendix B. List of Plant Species Observed in the Survey Area

Scientific Name	Common Name	LIFEFORM	Status	Wetland Indicator
<i>Carex praegracilis</i>	Clustered field sedge	G	Native	FACW
<i>Carex utriculata</i>	Northwest Territory sedge	G	Native	OBL
<i>Carex vesicaria</i>	Blister sedge	G	Native	OBL
<i>Dactylis glomerata</i>	Orchardgrass	G	Introduced	FACU
<i>Danthonia intermedia</i>	Timber oatgrass	G	Native	FACU
<i>Danthonia unispicata</i>	Onespike danthonia	G	Native	UPL
<i>Deschampsia cespitosa</i>	Tufted hairgrass	G	Native	FACW
<i>Eleocharis palustris</i>	Common spikerush	G	Native	OBL
<i>Elymus canadensis</i>	Canada wildrye	G	Native	FAC
<i>Elymus elymoides</i>	Squirreltail	G	Native	FACU
<i>Elymus glaucus</i>	Blue wildrye	G	Native	FACU
<i>Elymus lanceolatus</i>	Thickspike wheatgrass	G	Native	FACU
<i>Elymus repens</i>	Quackgrass	G	Introduced	FAC
<i>Elymus trachycaulus</i>	Slender wheatgrass	G	Native	FAC
<i>Festuca idahoensis</i>	Idaho fescue	G	Native	FACU
<i>Glyceria grandis</i>	American mannagrass	G	Native	OBL
<i>Hesperostipa comata</i>	Needle and thread	G	Native	UPL
<i>Hordeum brachyantherum</i>	Meadow barley	G	Native	FACW
<i>Hordeum jubatum</i>	Foxtail barley	G	Native	FAC
<i>Juncus balticus</i>	Baltic rush	G	Native	FACW
<i>Juncus ensifolius</i>	Swordleaf rush	G	Native	FACW
<i>Juncus mertensianus</i>	Merten's rush	G	Native	OBL
<i>Juncus nevadensis</i>	Sierra rush	G	Native	FACW
<i>Koeleria macrantha</i>	Junegrass	G	Native	UPL
<i>Leymus cinereus</i>	Basin wildrye	G	Native	FAC
<i>Nassella viridula</i>	Green needlegrass	G	Native	UPL
<i>Pascopyrum smithii</i>	Western wheatgrass	G	Native	FACU
<i>Phalaris arundinacea</i>	Reed canarygrass	G	Introduced	FACW
<i>Phleum pratense</i>	Timothy	G	Introduced	FAC
<i>Poa bulbosa</i>	Bulbous bluegrass	G	Introduced	FACU
<i>Poa compressa</i>	Canada bluegrass	G	Introduced	FACU
<i>Poa pratensis</i>	Kentucky bluegrass	G	Introduced	FAC
<i>Poa secunda</i>	Sandberg bluegrass	G	Native	FACU
<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	G	Native	UPL
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	G	Native	OBL
<i>Typha angustifolia</i>	Narrowleaf cattail	G	Native	OBL
<i>Achillea millefolium</i>	Common yarrow	F	Native	FACU
<i>Aconitum columbianum</i>	Monkshood	F	Native	FACW
<i>Agastache urticifolia</i>	Nettleleaf giant hyssop	F	Native	FACU
<i>Agoseris glauca</i>	Pale agoseris	F	Native	FAC
<i>Alyssum alyssoides</i>	Alyssum alyssoides	F	Introduced	UPL
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	F	Native	FACU
<i>Anaphalis margaritacea</i>	Western pearly everlasting	F	Native	FACU
<i>Androsace septentrionalis</i>	Rockjasmine	F	Native	FACU
<i>Angelica arguta</i>	Lyall's angelica	F	Native	FACW
<i>Agoseris aurantiaca</i>	Orange Agoseris	F	Native	FACU
<i>Antennaria corymbosa</i>	Flat-top pussytoes	F	Native	FAC
<i>Antennaria luzuloides</i>	Rush pussytoes	F	Native	UPL
<i>Antennaria microphylla</i>	Littleleaf pussytoes	F	Native	UPL
<i>Arnica cordifolia</i>	Heartleaf arnica	F	Native	UPL
<i>Artemisia dracunculus</i>	Tarragon	F	Native	UPL
<i>Artemisia ludoviciana</i>	White sagebrush	F	Native	FACU
<i>Balsamorhiza sagittata</i>	Arrowleaf balsamroot	F	Native	UPL
<i>Bassia scoparia</i>	Kochia	F	Introduced	FAC

Appendix B. List of Plant Species Observed in the Survey Area

Scientific Name	Common Name	LIFEFORM	Status	Wetland Indicator
<i>Bidens cernua</i>	Nodding beggarticks	F	Native	OBL
<i>Campanula rotundifolia</i>	Bluebell bellflower	F	Native	FACU
<i>Carduus nutans</i>	Musk thistle	F	Noxious	UPL
<i>Castilleja sp.</i>	Paintbrush species	F	Native	NI
<i>Castilleja angustifolia</i>	Northwestern indian paintbrush	F	Native	UPL
<i>Centaurea stoebe ssp. micranthos</i>	Spotted knapweed	F	Noxious	UPL
<i>Chamerion angustifolium</i>	Fireweed	F	Native	FACU
<i>Cicuta douglasii</i>	Western waterhemlock	F	Native	OBL
<i>Cirsium arvense</i>	Canada thistle	F	Noxious	FAC
<i>Cirsium foliosum</i>	Elk thistle	F	Native	FAC
<i>Chimaphila umbellata</i>	Pipsissewa	F	Native	UPL
<i>Comandra umbellata</i>	Bastard toadflax	F	Native	FACU
<i>Coreopsis lanceolata</i>	Lanceleaf tickseed	F	Native	UPL
<i>Cynoglossum officinale</i>	Houndstongue	F	Noxious	FACU
<i>Delphinium nuttallianum</i>	Twolobe larkspur	F	Native	FAC
<i>Descurainia richardsonii</i>	Mountain tansymustard	F	Native	UPL
<i>Disporum trachycarpum</i>	Roughfruit fairybells	F	Native	FACU
<i>Epilobium ciliatum</i>	Fringed willowherb	F	Native	FACW
<i>Equisetum arvense</i>	Field horsetail	F	Native	FAC
<i>Equisetum hyemale</i>	Scouringrush horsetail	F	Native	FACW
<i>Equisetum laevigatum</i>	Smooth horsetail	F	Native	FACW
<i>Erigeron sp.</i>	<i>Erigeron</i> species	F	Native	NI
<i>Erigeron speciosus</i>	Aspen fleabane	F	Native	UPL
<i>Eriogonum umbellatum</i>	Sulphur-flower buckwheat	F	Native	UPL
<i>Euthamia occidentalis</i>	Western goldentop	F	Native	FACW
<i>Fragaria virginiana</i>	Virginia strawberry	F	Native	FACU
<i>Galium boreale</i>	Northern bedstraw	F	Native	FACU
<i>Galium bifolium</i>	Twinleaf bedstraw	F	Native	NI
<i>Galium septentrionale</i>	Northern bedstraw	F	Native	FACU
<i>Geranium richardsonii</i>	Richardson's geranium	F	Native	FAC
<i>Geranium viscosissimum</i>	Sticky geranium	F	Native	FACU
<i>Geum macrophyllum</i>	Largeleaf avens	F	Native	FAC
<i>Glycyrrhiza lepidota</i>	American licorice	F	Native	FAC
<i>Hackelia micrantha</i>	Jessica sticktight	F	Native	FACU
<i>Helianthus nuttallii</i>	Nuttall's sunflower	F	Native	FACW
<i>Heracleum maximum</i>	Common cowparsnip	F	Native	FAC
<i>Heuchera sp.</i>	<i>Heuchera</i> species	F	Native	NI
<i>Hypericum perforatum</i>	Common St. Johnswort	F	Noxious	FACU
<i>Ipomopsis aggregata</i>	Scarlet gilia	F	Native	UPL
<i>Latua serriola</i>	Prickly lettuce	F	Introduced	FACU
<i>Lemna sp.</i>	Duckweed species	F	Native	OBL
<i>Linaria vulgaris</i>	Yellow toadflax	F	Noxious	UPL
<i>Linum lewisii</i>	Lewis flax	F	Native	UPL
<i>Lupinus argenteus</i>	Silvery lupine	F	Native	UPL
<i>Lupinus sericeus</i>	Silky lupine	F	Native	UPL
<i>Macheraanthera canescens</i>	Hoary tansyaster	F	Native	FAC
<i>Maianthemum racemosum</i>	Feathery false lily of the valley	F	Native	FAC
<i>Maianthemum stellatum</i>	Starry false lily of the valley	F	Native	FAC
<i>Matricaria discoidea</i>	Disc mayweed	F	Introduced	FACU
<i>Melilotus officinalis</i>	Sweetclover	F	Introduced	FACU
<i>Mentha arvensis var. canadensis</i>	Wild mint	F	Native	FACW
<i>Mertensia ciliata</i>	Tall fringed bluebells	F	Native	FACW
<i>Mimulus guttatus</i>	Seep monkeyflower	F	Native	OBL
<i>Orthilia secunda</i>	Sidebells wintergreen	F	Native	FACU

Appendix B. List of Plant Species Observed in the Survey Area

Scientific Name	Common Name	LIFEFORM	Status	Wetland Indicator
<i>Orthocarpus luteus</i>	Yellow owl's-clover	F	Native	FACU
<i>Osmorhiza berteroi</i>	Sweetcicely	F	Native	FACU
<i>Paxistima myrsinites</i>	Oregon boxleaf	F	Native	FACU
<i>Penstemon</i> sp.	Penstemon species	F	Native	NI
<i>Perideridia gairdneri</i>	Gardner's yampah	F	Native	FAC
<i>Plantago eriopoda</i>	Redwood plantain	F	Native	FACW
<i>Plantago lanceolata</i>	Narrowleaf plantain	F	Introduced	FACU
<i>Polygonum douglasii</i>	Douglas' knotweed	F	Native	FACU
<i>Potentilla gracilis</i>	Slender cinquefoil	F	Native	FAC
<i>Potentilla recta</i>	Sulphur cinquefoil	F	Introduced	UPL
<i>Phlox</i> sp.	Phlox	F	Introduced	NI
<i>Prunella vulgaris</i>	Common selfheal	F	Native	FACU
<i>Pterospora andromeda</i>	Woodland pinedrops	F	Native	UPL
<i>Rudbeckia occidentalis</i>	Western coneflower	F	Native	FAC
<i>Rumex acetosella</i>	Common sheep sorrel	F	Introduced	FACU
<i>Rumex crispus</i>	Curly dock	F	Introduced	FAC
<i>Sedum lanceolatum</i>	Spearleaf stonecrop	F	Native	UPL
<i>Senecio triangularis</i>	Arrowleaf ragwort	F	Native	FACW
<i>Solidago canadensis</i>	Canada goldenrod	F	Native	FACU
<i>Streptopus amplexifolius</i>	Clasping twistedstalk	F		FAC
<i>Symphyotrichum ascendens</i>	Western aster	F	Native	FACU
<i>Taraxacum officinale</i>	Common dandelion	F	Introduced	FACU
<i>Thalictrum dasycarpum</i>	Purple meadow-rue	F	Native	FACW
<i>Thalictrum occidentale</i>	Western meadow-rue	F	Native	FACU
<i>Thlaspi arvense</i>	Field pennycress	F	Introduced	UPL
<i>Tragopogon porrifolius</i>	Salsify	F	Introduced	UPL
<i>Tragopogon dubius</i>	Yellow salsify	F	Introduced	UPL
<i>Trifolium hybridum</i>	Alsike clover	F	Introduced	FAC
<i>Trifolium repens</i>	White clover	F	Introduced	FAC
<i>Triteleia grandiflora</i>	Largeflower Tritelia	F	Native	UPL
<i>Urtica dioica</i>	Stinging nettle	F	Native	FAC
<i>Verbascum thapsus</i>	Common mullein	F	Introduced	FACU
<i>Veronica anagallis-aquatica</i>	Water speedwell	F	Native	OBL
<i>Helioeris multiflora</i> var. <i>multiflora</i>	Showy goldeneye	F	Native	UPL
<i>Wyethia amplexicaulis</i>	Mule-ears	F	Native	FACU

T = tree, S = shrub, G = graminoid, F = forb

Obligate (OBL) – plants that always occur in standing water or in saturated soils; facultative wet (FACW) – plants that nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in nonwetlands; facultative (FAC) – plants that occur in a variety of habitats, including wetland and mesic to xeric nonwetland habitats, but commonly occur in standing water or saturated soils; facultative upland (FACU) – plants that typically occur in xeric or mesic nonwetland habitats but may frequently occur in standing water or saturated soils; and upland (UPL) – plants that almost never occur in water or saturated soils. (Source: Lichvar et al. 2016).

APPENDIX C
DATA FORMS – ROUTINE WETLAND DETERMINATION

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/20/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP1
 Investigator(s): E. Crumb, M. Boyer Section, Township, Range: Section 18, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.59638636 Long: -110.804753 Datum: NAD 83
 Soil Map Unit Name: Greyback-Charlos complex NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes ☒ No _____	
Wetland Hydrology Present? Yes ☒ No _____	
Remarks: Wetland terrace along ditch.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>3</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
<u>3</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. _____	_____	_____	_____	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5' x 5'</u>)				Column Totals: _____ (A) _____ (B)
1. <u>Geum macrophyllum</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = _____
2. <u>Agrostis stolonifera</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	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.
3. <u>Carex pellita</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>65</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP1

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☒ No ☐ Depth (inches): 0 (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/20/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP2
Investigator(s): E. Crumb, M. Boyer Section, Township, Range: Section 18, 42 North, 116W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0.5
Subregion (LRR): E Lat: 43.59638388 Long: -110.8047289 Datum: NAD 83
Soil Map Unit Name: Greyback-Charlos complex 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland pair to DP-1.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				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.
1. <u>Artemisia arbuscula</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Bromus inermis</u>	<u>65</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Erigeron speciosus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2						SL	Dry.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

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

Restrictive Layer (if present):

Type: Rock
Depth (inches): 3"

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Rocky, cobbles common

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☐ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-20-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP3
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 17, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0.5
 Subregion (LRR): E Lat: _____ Long: _____ Datum: NAD 83
 Soil Map Unit Name: Greyback-Charlos complex NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Swale just downstream from culvert, south of intersection with West Poker Flats Loop.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 x 10 ft</u>)				
1. <u>Artemisia tridentata</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 x 5 ft</u>)				
1. <u>Bromus inermis</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>70</u>				Hydrophytic Vegetation Present? Yes _____ No ☒
Remarks:				

SOIL

Sampling Point: DP3

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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 soils were sampled. Assumed upland due to vegetation. Mapped as non-hydric

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-20-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP4
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 17, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0.0
 Subregion (LRR): E Lat: 43.59953712 Long: -110.7984561 Datum: NAD 83
 Soil Map Unit Name: Greyback-Charlos complex NWI classification: N/A

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 _____	Hydic Soil Present? Yes _____ No ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Wetland Hydrology Present? Yes _____ No ☒		
Remarks: Swale west of culvert under Moose-Wilson Road		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Crataegus erythropoda</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Phleum pratense</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Geranium richardsonii</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
3. <u>Agrostis stolonifera</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Heracleum maximum</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u>Elymus glaucus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6. <u>Solidago canadensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
7. <u>Rudbeckia occidentalis</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
8. <u>Taraxacum officinale</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>26</u>				
Remarks:				

SOIL

Sampling Point: DP4

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

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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/20/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP5
 Investigator(s): E. Crumb, M. Boyer Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): E Lat: 43.61913291 Long: -110.7899921 Datum: NAD 83
 Soil Map Unit Name: Tineman association NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Wetland fringe along unnamed drainage.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1. <u>Picea engelmannii</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Pinus contorta</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<u>11</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Populus tremuloides</u> (seedling)	<u>6</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Crataegus douglasii</u> (seedling)	<u>2</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<u>8</u>	= Total Cover	
Herb Stratum (Plot size: <u>5' x 5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Calamagrostis canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rudbeckia occidentalis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Elymus glaucus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. <u>Conium maculatum</u>	<u>7</u>	<u>N</u>	<u>FAC</u>	
5. <u>Euthamia occidentalis</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
6. <u>Geranium sp.</u>	<u>2</u>	<u>N</u>	<u>NI</u>	
7. <u>Bromus ciliatus</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
8. <u>Geum macrophyllum</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
		<u>60</u>	= Total Cover	
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		_____	= Total Cover	
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 3/2						SiSaLo	
11-14	10YR 3/2						SiSaLo	Moist.

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Soils not mapped as hydric, problematic soils, assumed based on vegetation and hydrology

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 14"
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor), saturation at 14" during the dry-season, marginal hydrology

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP6
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.61986489 Long: -110.7831704 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam 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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upper slope above DP-7	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____	<u>10</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Crataegus erythropoda</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	<u>10</u>	<u>= Total Cover</u>		
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Plantago eriopoda</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Elymus trachycaulus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Lactuca serriola</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>32</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/4	100					SL	Sandy/pebbly loam.

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators. Rock and cobble at 5".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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?	Yes _____ No ☒	Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. On bank above wetland fringe. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP7
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): bank slope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.61989297 Long: -110.7832223 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: R3UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Toe of bank slope, upstream of small bridge and dirt road		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____	<u>10</u>	_____	_____	Prevalence Index worksheet:
<u>10</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				Total % Cover of: _____ Multiply by: _____
1. <u>Crataegus erythropoda</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	<u>10</u>	_____	_____	UPL species _____ x 5 = _____
<u>10</u> = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: <u>5' x 5'</u>)				Prevalence Index = B/A = _____
1. <u>Agrostis stolonifera</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	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.
2. <u>Carex bebbii</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Carex athrostachya</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5. <u>Juncus arcticus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>80</u> = Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: Narrow fringe along edge of stream.				

SOIL

Sampling Point: DP7

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)			
☐ 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 along 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)	☐ 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 ☒ Water Table Present? Yes ☐ No ☒ Saturation Present? Yes ☐ No ☒ (includes capillary fringe) Depth (inches): _____ Depth (inches): _____ Depth (inches): _____			Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Location at transition to uplands. Abnormally dry conditions in the project area (US drought monitor).			

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP8
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 9, 42 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0.0
 Subregion (LRR): E Lat: 43.6195956438 Long: -110.782777028 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: R3UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Side drainage, south of culverts and dirt road south of LRP.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Agrostis stolonifera</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Elymus glaucus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. <u>Plantago lanceolata</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
6. <u>Alopecurus sp.</u>	<u>1</u>	<u>N</u>	<u>NI</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>18</u>				
Remarks: Dense stand of reed cararygrass. DP is on edge of wetland.				

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2						SaLo	cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :	
☐ Histosol (A1)	☐ Sandy Redox (S5)		☐ 2 cm Muck (A10)	
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)		☐ Red Parent Material (TF2)	
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)		☐ Very Shallow Dark Surface (TF12)	
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)		☒ Other (Explain in Remarks)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)			
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)			
☐ Sandy Mucky Mineral (S1)	☐ Depleted Dark Surface (F7)			
☐ Sandy Gleyed Matrix (S4)	☐ Redox Depressions (F8)			

³Indicators 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: Rock refusal at 7". Problematic soils: strong hydrophytic vegetation and hydrology indicators. Water clearly ponds here.	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☒ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☒ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☐ Depth (inches): _____ Water Table Present? Yes ☐ No ☐ Depth (inches): _____ Saturation Present? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Overflow drainage from stream. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP9
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 9, 42 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): <0.1
 Subregion (LRR): E Lat: 43.6195891735 Long: -110.782687091 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland pair, south of dirt road, south of LRP.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				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.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Bromus inermis</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Elymus glaucus</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Poa pratensis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. <u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. <u>Carduus nutans</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>33</u>				
Remarks: Upland				

SOIL

Sampling Point: DP9

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ 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 along 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)	☐ 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? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP10
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): E Lat: 43.62047916 Long: -110.7834077 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: R3UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Low terrace / gentle slope on edge of stream, upstream from small bridge.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1. <u>Pinus flexilis</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<u>10</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Calamagrostis canadensis</u>	<u>45</u>	<u>Y</u>	<u>FACW</u>	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.
2. <u>Cirsium arvense</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Phalaris arundinacea</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Carex utriculata</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>	
5. <u>Deschampsia caespitosa</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
		<u>95</u>	= Total Cover	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
2. _____	_____	_____	_____	
		_____	= Total Cover	
% Bare Ground in Herb Stratum _____				
Remarks: Edge of wetland complex along stream.				

SOIL

Sampling Point: DP10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100					SaLo	
7-12	10YR 3/2	90	7.5YR 4/6	10	C	M	CLo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Damp at 5". Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP11
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): meadow Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.62047381 Long: -110.7834771 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Meadow above stream - Upland pair		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Pinus flexilis</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Symphoricarpos albus</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Amelanchier alnifolia</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Phleum pratense</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Poa secunda</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>55</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					SaLo	Highly organic
6-16	10YR 3/2	99	10YR 5/6	1	C	M		

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators. Faint redox, appeared remnant, not distinct and prominent.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP12
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 5
 Subregion (LRR): E Lat: 43.6196319132 Long: -110.783102955 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Terrace next to stream, south of bridge under dirt road		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species <u>65</u></td> <td>x 2 = <u>130</u></td> </tr> <tr> <td>FAC species <u>1</u></td> <td>x 3 = <u>3</u></td> </tr> <tr> <td>FACU species <u>62</u></td> <td>x 4 = <u>248</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>138</u> (A)</td> <td><u>391</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.83</u>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>65</u>	x 2 = <u>130</u>	FAC species <u>1</u>	x 3 = <u>3</u>	FACU species <u>62</u>	x 4 = <u>248</u>	UPL species _____	x 5 = _____	Column Totals: <u>138</u> (A)	<u>391</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>10</u>	x 1 = <u>10</u>																	
FACW species <u>65</u>	x 2 = <u>130</u>																	
FAC species <u>1</u>	x 3 = <u>3</u>																	
FACU species <u>62</u>	x 4 = <u>248</u>																	
UPL species _____	x 5 = _____																	
Column Totals: <u>138</u> (A)	<u>391</u> (B)																	
Sapling/Shrub Stratum (Plot size: 10 ft radius)																		
1. <u>Crataegus erythropoda</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
_____ = Total Cover																		
Herb Stratum (Plot size: 5 ft radius)				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.														
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>															
2. <u>Eleocharis palustris</u>	<u>5</u>	<u>N</u>	<u>OBL</u>															
3. <u>Carex utriculata</u>	<u>2</u>	<u>N</u>	<u>OBL</u>															
4. <u>Carex aquatilis</u>	<u>3</u>	<u>N</u>	<u>OBL</u>															
5. <u>Cynoglossum officinale</u>	<u>2</u>	<u>N</u>	<u>FACU</u>															
6. <u>Heracleum maximum</u>	<u>1</u>	<u>N</u>	<u>FAC</u>															
7. <u>Calamagrostis canadensis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
_____ = Total Cover																		
Woody Vine Stratum (Plot size: _____)																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
_____ = Total Cover																		
% Bare Ground in Herb Stratum <u>22</u>																		
Remarks: Data point is edge of stream, Carex is mostly in fringe along edge of water.																		

SOIL

Sampling Point: DP12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2						SiLo	cobbles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

³Indicators 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:

Soils are problematic - assumed hydric due to vegetation, hydrology indicators, and landscape position on floodplain terrace with cobbly soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Moist throughout not saturated 12 inches water table. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP13
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6194543751 Long: -110.781157765 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: 50 ft south from culvert outlet, on relict channel		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
1. <u>Populus tremuloides</u>	<u>3</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Populus angustifolia</u>	<u>3</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>6</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Crataegus erythropoda</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Mahonia repens</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa compressa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>80</u>				
Remarks: Upland				

SOIL

Sampling Point: DP13

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Cobbles on surface. Did not dig soil pit at this location due to lack of wetland vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

Saturation Present:
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators observed. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP14
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 4, 42 North, 116W
 Landform (hillslope, terrace, etc.): culvert Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.63815082 Long: -110.7678257 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: R3UBH

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 ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: Data point in swale above culvert, west of road			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Populus angustifolia</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>9</u> (B)
3. <u>Populus tremuloides</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
	<u>55</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				Total % Cover of: _____ Multiply by: _____
1. <u>Amelanchier alnifolia</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
	<u>20</u>	= Total Cover		Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: <u>5' x 5'</u>)				Prevalence Index = B/A = _____
1. <u>Rudbeckia occidentalis</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	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.
2. <u>Aconitum columbianum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>Urtica dioica</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Elymus glaucus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Galium bifolium</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	
6. <u>Bromus ciliatus</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. <u>Solidago canadensis</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>70</u>	= Total Cover		Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks: Shrubby area in swale above culvert. Lacks wetland vegetation.				

SOIL

Sampling Point: DP14

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

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

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators 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:

Did not dig soil pit at this location. See nearby soil pit - DP 16, which was not hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No observed indicators other than location in swale near culvert. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 15
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 4, 42 North, 116W
 Landform (hillslope, terrace, etc.): channel relic Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): E Lat: 43.6383196082 Long: -110.767695415 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Swale upstream from culvert, west side of road		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Picea pungens</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Populus tremuloides</u>	<u>6</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>8</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>) 1. <u>Symphoricarpos albus</u> <u>5</u> <u>N</u> <u>FACU</u> 2. <u>Salix geyeriana</u> <u>70</u> <u>Y</u> <u>FACW</u> 3. _____ 4. _____ 5. _____				
<u>75</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>) 1. <u>Galium boreale</u> <u>40</u> <u>Y</u> <u>FACU</u> 2. <u>Bromus inermis</u> <u>10</u> <u>N</u> <u>UPL</u> 3. <u>Thalictrum occidentale</u> <u>10</u> <u>N</u> <u>FACU</u> 4. <u>Calamagrostis canadensis</u> <u>5</u> <u>N</u> <u>FACW</u> 5. <u>Heracleum maximum</u> <u>3</u> <u>N</u> <u>FAC</u> 6. <u>Poa secunda</u> <u>5</u> <u>N</u> <u>FACU</u> 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				
<u>73</u> = Total Cover				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.
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>27</u>				
Remarks: Contains one large clump of willows, otherwise lacks wetland vegetation.				

SOIL

Sampling Point: DP 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/3	100					SiSaLo	Cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) ☐ Histosol (A1) ☐ Sandy Redox (S5) ☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6) ☐ Black Histic (A3) ☐ Loamy Mucky Mineral (F1) (except MLRA 1) ☐ Hydrogen Sulfide (A4) ☐ Loamy Gleyed Matrix (F2) ☐ Depleted Below Dark Surface (A11) ☐ Depleted Matrix (F3) ☐ Thick Dark Surface (A12) ☐ Redox Dark Surface (F6) ☐ Sandy Mucky Mineral (S1) ☐ Depleted Dark Surface (F7) ☐ Sandy Gleyed Matrix (S4) ☐ Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: ☐ 2 cm Muck (A10) ☐ Red Parent Material (TF2) ☐ Very Shallow Dark Surface (TF12) ☐ Other (Explain in Remarks) ³Indicators 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:
 Dry, no indicators. Cobble encountered at 12 in.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ 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 along 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)	☐ 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? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Soil pit was dry. No indicators other than position in swale above culvert. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP16
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.6404900168 Long: -110.766673276 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Terrace above stream, upstream of culvert at intersection of Moose-Wilson and Whitegrass Ranch roads.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>43</u> (A/B)
1. <u>Pinus contorta</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Populus tremuloides</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
10 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Amelanchier alnifolia</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	
2. <u>Prunus virginiana</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	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.
3. <u>Symphoricarpos albus</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Salix geyeriana</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
90 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Delphinium nuttallianum</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
2. <u>Heracleum maximum</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Solidago canadensis</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	
4. <u>Bromus ciliatus</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Chamaenerion angustifolium</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
6. <u>Galium boreale</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
7. <u>Elymus glaucus</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
21 = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
% Bare Ground in Herb Stratum <u>22</u>				
Remarks:				
1-3' wide fringe of Calamagrostis and Delphinium along edge of Salix geyeriana				

SOIL

Sampling Point: DP16

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2						SiSaLo	rocks and cobbles

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Could not dig past 12" due to cobbles. On hydric soils list, but lacks wetland hydrology, hydric soil, or wetland vegetation indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators 6" water in stream nearby. DP is on terrace above channel. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP17
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64012521 Long: -110.7664525 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: R3UBH

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Wetland terrace above channel. south of intersection of Moose-Wilson and Whitegrass Ranch roads.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. <u>Abies lasiocarpa</u> 5 Y FACU 2. _____ 3. _____ 4. _____ 5. _____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Carex aquatilis</u> 15 Y OBL 2. <u>Calamagrostis canadensis</u> 10 Y FACW 3. <u>Mentha arvensis</u> 25 Y FACW 4. <u>Mimulus guttatus</u> 2 N OBL 5. <u>Juncus ensifolius</u> 5 N FACW 6. <u>Agrostis stolonifera</u> 10 Y FAC 7. <u>Phleum pratense</u> 5 N FAC 8. <u>Thalictrum dasycarpum</u> 3 N FACW 9. <u>Glyceria grandis</u> 10 Y OBL 10. <u>Juncus nevadensis</u> 1 N FACW 11. _____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				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 _____

SOIL

Sampling Point: DP17

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2						LoSa	
2-4	10YR 3/1						SaLo	
4-12	10YR 3/2						LoSand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

³Indicators 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 redox, but saturated at surface, assumed soils are hydric based on landscape position on stream terrace combined with wetland vegetation and hydrology indicators. Soil is on hydric soils list. Cobbles encountered at 12 in.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 0 inches

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Saturated surface. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP18
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64009882 Long: -110.7664745 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Sandy terrace from sloughed bank, transitional vegetation		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Calamagrostis canadensis</u> 10 Y FACW 2. <u>Elymus glaucus</u> 35 Y FACU 3. <u>Phleum pratense</u> 10 Y FAC 4. <u>Geum macrophyllum</u> 3 N FAC 5. <u>Mertensia ciliata</u> 2 N FACW 6. <u>Agoseris aurantiaca</u> 1 N FACU 7. <u>Anaphalis margaritacea</u> 10 Y FACU 8. _____ 9. _____ 10. _____ 11. _____ 71 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				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.
Remarks:				Hydrophytic Vegetation Present? Yes _____ No ☒

SOIL

Sampling Point: DP18

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

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

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:
Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP19
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64114672 Long: -110.7670589 Datum: NAD 83
 Soil Map Unit Name: Taglake-Sebud association, steep NWI classification: R3UBH

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Wetland terrace above stream, east of Whitegrass Ranch Road.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>Pinus contorta</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. <u>Salix geyeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
	<u>50</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Calamagrostis canadensis</u>	<u>65</u>	<u>Y</u>	<u>FACW</u>	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.
2. <u>Agrostis stolonifera</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>80</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
2. _____	_____	_____	_____	
	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2						LoSa	

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

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

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

Indicators for Problematic Hydric Soils³:

☐	2 cm Muck (A10)
☐	Red Parent Material (TF2)
☐	Very Shallow Dark Surface (TF12)
☒	Other (Explain in Remarks)

³Indicators 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:

Problematic soils. Soils assumed to be hydric based on surface saturation, wetland vegetation indicators, and landscape position on stream terrace.
Cobbles encountered at 12 in.

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (2 or more required)	
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 along 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)	
			☐ 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? Yes ☒ No ☐ Depth (inches): 0" (includes capillary fringe)			Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: Saturated at surface. Abnormally dry conditions in the project area (US drought monitor).				

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP20
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
Landform (hillslope, terrace, etc.): meadow Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): E Lat: 43.64113259 Long: -110.767094 Datum: NAD 83
Soil Map Unit Name: Taglake-Sebud association, steep 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland meadow. East of Whitegrass Ranch Road.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. <u>Symphoricarpos occidentalis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Remarks:
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
5 = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Eriogonum umbellatum</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Phleum pratense</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
3. <u>Poa secunda</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Perideridia gairdneri</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u>Erigeron sp.</u>	<u>3</u>	<u>N</u>	<u>NI</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
36 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

SOIL

Sampling Point: DP20

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

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

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators. Cobbles encountered at 6 in.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP21
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 25, 43 North, 116W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1%
Subregion (LRR): E Lat: 43.65643736 Long: -110.7208452 Datum: NAD 83
Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 _____	Hydic Soil Present? Yes ☒ No _____	Wetland Hydrology Present? Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Remarks: Wetland depression upstream of culvert, just west of Moose Junction intersection.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Salix geyeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Phalaris arundinacea</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
2. <u>Agrostis stolonifera</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Carex utriculata</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Equisetum hyemale</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Carex pellita</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	
6. <u>Mentha arvensis var canadensis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks:				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 _____

SOIL

Sampling Point: DP21

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100						Cobbles at 8"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Soils moist.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 0"
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Saturation present at soil surface, but recent rain. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP22
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 25,
 Landform (hillslope, terrace, etc.): slope of depression Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.6564008 Long: -110.7208526 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland slope. Just west of Moose Junction on north side of road.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 0 = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Equisetum arvense</u> 20 Y FAC 2. <u>Epilobium ciliatum</u> 3 N FACW 3. <u>Festuca idahoensis</u> 20 Y FACU 4. <u>Phleum pratense</u> 15 Y FAC 5. <u>Tragopogon porrifolius</u> 2 N UPL 6. <u>Carex praegracilis</u> 1 N FACW 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 61 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover % Bare Ground in Herb Stratum _____				
Remarks: Passes dominance test, but wetland soils and hydrology are not present.				

SOIL

Sampling Point: DP22

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators. On slope above wetland depression. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP23
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 25,
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1%
 Subregion (LRR): E Lat: 43.65641841 Long: -110.721221 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Forested wetland depression just west of Moose Junction on south side of road. Drought conditions.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies lasiocarpa</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Populus tremuloides</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
	<u>25</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				Total % Cover of: _____ Multiply by: _____
1. _____	_____	_____	_____	OBL species <u>20</u> x 1 = <u>20</u>
2. _____	_____	_____	_____	FACW species <u>35</u> x 2 = <u>70</u>
3. _____	_____	_____	_____	FAC species <u>3</u> x 3 = <u>9</u>
4. _____	_____	_____	_____	FACU species <u>40</u> x 4 = <u>160</u>
5. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
	_____	= Total Cover		Column Totals: <u>98</u> (A) <u>259</u> (B)
Herb Stratum (Plot size: <u>5' x 5'</u>)				Prevalence Index = B/A = <u>2.64</u>
1. <u>Calamagrostis canadensis</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	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.
2. <u>Glyceria grandis</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Solidago canadensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Elymus glaucus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. <u>Cirsium arvense</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>73</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks: Trees on margins of wetland.				

SOIL

Sampling Point: DP23

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☒ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Moist, but recent precipitation. Abnormally dry conditions in the project area (US drought monitor). Depressional feature.		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/21/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP24
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 25, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.65643645 Long: -110.721251 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland slope wetland above depression. Just west of Moose Junction. Paired upland point with DP 24.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____	<u>15</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				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.
1. <u>Symphoricarpos occidentalis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Mahonia repens</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____	<u>25</u>	= Total Cover		
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Cirsium arvense</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Galium septentrionale</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____	<u>10</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: Coniferous forest community				

SOIL

Sampling Point: DP24

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1						SiLo	w/ cobbles at 10"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/22/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP25
 Investigator(s): E. Crumb, S. Butler Section, Township, Range: Section 25, 43 North, 116W
 Landform (hillslope, terrace, etc.): forested Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): E Lat: 43.65615615 Long: -110.7202609 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Pinus contorta</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
2. <u>Picea engelmannii</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Populus tremuloides</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. <u>Crataegus sp.</u>	<u>2</u>	<u>N</u>		
		<u>29</u>	= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____				
		<u>0</u>	= Total Cover	
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Carex utriculata</u> 2. <u>Agrostis stolonifera</u> 3. <u>Mentha arvensis var. canadensis</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				
		<u>95</u>	= Total Cover	
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover % Bare Ground in Herb Stratum _____				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.
Remarks:				

SOIL

Sampling Point: DP26

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1						Mucky mineral.	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Cobbles present at 8"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? | Yes ☒ No ☐ | Depth (inches): Surface. |

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: _____
 Applicant/Owner: National Park Service State: WY Sampling Point: DP26
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 25, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2%
 Subregion (LRR): E Lat: 43.65610897 Long: -110.7203926 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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: Upland slope above depression.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30' x 30'</u>) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">Absolute % Cover</th> <th style="width: 10%; text-align: center;">Dominant Species?</th> <th style="width: 20%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Abies lasiocarpa</u></td> <td style="text-align: center;">10</td> <td style="text-align: center;">Y</td> <td style="text-align: center;">FACU</td> </tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">10</td> <td colspan="2" style="text-align: center;">= Total Cover</td> </tr> </tbody> </table> <u>Sapling/Shrub Stratum</u> (Plot size: <u>15' x 15'</u>) <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">0</td> <td colspan="2" style="text-align: center;">= Total Cover</td> </tr> </tbody> </table> <u>Herb Stratum</u> (Plot size: <u>5' x 5'</u>) <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>1. <u>Danthonia intermedia</u></td><td style="text-align: center;">20</td><td style="text-align: center;">Y</td><td style="text-align: center;">FACU</td></tr> <tr><td>2. <u>Poa secunda</u></td><td style="text-align: center;">20</td><td style="text-align: center;">Y</td><td style="text-align: center;">FACU</td></tr> <tr><td>3. <u>Carduus nutans</u></td><td style="text-align: center;">3</td><td style="text-align: center;">N</td><td style="text-align: center;">UPL</td></tr> <tr><td>4. <u>Tragopogon dubius</u></td><td style="text-align: center;">1</td><td style="text-align: center;">N</td><td style="text-align: center;">UPL</td></tr> <tr><td>5. <u>Lactuca serriola</u></td><td style="text-align: center;">3</td><td style="text-align: center;">N</td><td style="text-align: center;">FACU</td></tr> <tr><td>6. _____</td><td></td><td></td><td></td></tr> <tr><td>7. _____</td><td></td><td></td><td></td></tr> <tr><td>8. _____</td><td></td><td></td><td></td></tr> <tr><td>9. _____</td><td></td><td></td><td></td></tr> <tr><td>10. _____</td><td></td><td></td><td></td></tr> <tr><td>11. _____</td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">47</td> <td colspan="2" style="text-align: center;">= Total Cover</td> </tr> </tbody> </table> <u>Woody Vine Stratum</u> (Plot size: _____) <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr> <td></td> <td></td> <td colspan="2" style="text-align: center;">= Total Cover</td> </tr> </tbody> </table> % Bare Ground in Herb Stratum _____		Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Abies lasiocarpa</u>	10	Y	FACU	2. _____				3. _____				4. _____					10	= Total Cover		1. _____				2. _____				3. _____				4. _____				5. _____					0	= Total Cover		1. <u>Danthonia intermedia</u>	20	Y	FACU	2. <u>Poa secunda</u>	20	Y	FACU	3. <u>Carduus nutans</u>	3	N	UPL	4. <u>Tragopogon dubius</u>	1	N	UPL	5. <u>Lactuca serriola</u>	3	N	FACU	6. _____				7. _____				8. _____				9. _____				10. _____				11. _____					47	= Total Cover		1. _____				2. _____						= Total Cover		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table> Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0¹ ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants¹ ___ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	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SOIL

Sampling Point: DP26

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Rock/cobble at 4". On road embankment. No indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 27
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.640973151 Long: -110.76747597 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Isolated willow clump west of Whitegrass Ranch Road	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Pinus contorta</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Picea pungens</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Picea engelmannii</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>	
4. _____	<u>10</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Amelanchier alnifolia</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
2. <u>Salix geyeriana</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Prunus virginiana</u>	<u>4</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Calamagrostis canadensis</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Elymus trachycaulus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Thalictrum occidentale</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Mentha arvensis var. canadensis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Heracleum maximum</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
6. <u>Leymus cinereus</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. <u>Carduus nutans</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	
8. <u>Achillea millefolium</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
9. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>22</u>				
Remarks: Wetland vegetation is transitioning, soils and hydrology were not documented as hydric				

SOIL

Sampling Point: DP 27

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

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

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Very clearly upland soil, based on bright chroma value, not considered a problematic soil, mapped as hydric and not indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators Abnormally dry conditions in the project area (US drought monitor). High above adjacent creek water table and not within floodplain.

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 28
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.642974736 Long: -110.766901898 Datum: NAD 83
 Soil Map Unit Name: Taglake-Sebud association, steep NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Wetland fringe on high bank terrace, east of Whitegrass Ranch Road			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Pinus contorta</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
2. <u>Populus angustifolia</u>	<u>8</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>Picea pungens</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. <u>Picea engelmannii</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
	<u>23</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix geyeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Salix sp.</u>	<u>8</u>	<u>Y</u>	<u>FACW</u>	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species <u>91</u> x 2 = <u>182</u>
4. _____	_____	_____	_____	FAC species <u>33</u> x 3 = <u>99</u>
5. _____	_____	_____	_____	FACU species <u>12</u> x 4 = <u>48</u>
	<u>18</u>	= Total Cover		UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: <u>136</u> (A) <u>329</u> (B)
1. <u>Calamagrostis canadensis</u>	<u>65</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.42</u>
2. <u>Rudbeckia occidentalis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	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.
3. <u>Solidago canadensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Delphinium nuttallianum</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
5. <u>Geranium viscosissimum</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
6. <u>Hordeum jubatum</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. <u>Bromus ciliatus</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>95</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____	= Total Cover		
% Bare Ground in Herb Stratum <u>5</u>				
Remarks: Wetland vegetation is only predominant in a narrow fringe at the stream edge.				

SOIL

Sampling Point: DP 28

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|--|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☒ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Problematic hydric soil lacking obvious indicators. Hydrophytic vegetation and wetland hydrology are present. Data point is on low terrace adjacent to flowing stream, in fringe of wetland vegetation next to the stream. Mapped as a non-hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No

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

Remarks:

Surface water present in stream a few feet away. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 29
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6429753859 Long: -110.766945359 Datum: NAD 83
 Soil Map Unit Name: Taglake-Sebud association, steep NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland pair to DP 32 - on floodplain terrace east of Whitegrass Ranch Road	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
1. <u>Pinus contorta</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Populus tremuloides</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Picea engelmannii</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
	<u>19</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Populus tremuloides</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>2</u>	= Total Cover		
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Eriogonum umbellatum</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	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.
2. <u>Aster sp.</u>	<u>4</u>	<u>N</u>	_____	
3. <u>Danthonia intermedia</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Elymus glaucus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5. <u>Potentilla recta</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>52</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
2. _____	_____	_____	_____	
	_____	= Total Cover		
% Bare Ground in Herb Stratum <u>48</u>				
Remarks: Riparian plant community along stream.				

SOIL

Sampling Point: DP 29

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					SiSaLo	organic
3-14	10YR 3/3	100					SiSaLo	cobble

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators. Cobble encountered at 14 in.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators other than location on terrace. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-22-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP30
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6442133161 Long: -110.767091724 Datum: NAD 83
 Soil Map Unit Name: Taglake-Sebud association, steep * NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____	<u>30</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Amelanchier alnifolia</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rubus parviflorus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____	<u>25</u>	= Total Cover		
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Thalictrum occidentale</u>	<u>1</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	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.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____	<u>1</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>99</u>				
Remarks:				

SOIL

Sampling Point: DP30

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Cobble at surface.

No soil pit due to lack of wetland vegetation indicators. Mapped as non-hydric

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP31
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 8, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.6404900168 Long: -110.766673276 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Whitegrass Ranch Road east side forested area	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. <u>Pinus contorta</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Abies lasiocarpa</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
			<u>40</u> = Total Cover	
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Alnus incana</u>	<u>3</u>	<u>N</u>	<u>FACW</u>	
2. <u>Rubus parviflorus</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	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.
3. <u>Symphoricarpos albus</u>	<u>6</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			<u>17</u> = Total Cover	
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Delphinium nuttallianum</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
2. <u>Calamagrostis canadensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Mertensia ciliata</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Bromus inermis</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
5. <u>Thalictrum occidentale</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
6. <u>Galium boreale</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	
7. <u>Erigeron speciosus</u>	<u>8</u>	<u>Y</u>	<u>UPL</u>	
8. <u>Rudbeckia occidentalis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
9. <u>Maianthemum racemosum</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
11. _____	_____	_____	_____	
			<u>74</u> = Total Cover	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			_____ = Total Cover	
% Bare Ground in Herb Stratum <u>30</u>				
Remarks:				

SOIL

Sampling Point: DP31

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: terrace above channel. Abnormally dry conditions in the project area (US drought monitor), topography/geomorphic position indicative of forested wetland area.		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-22-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP32
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6444093148 Long: -110.766946459 Datum: NAD 83
 Soil Map Unit Name: Taglake-Sebud association, steep NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Whitegrass Ranch Road forested area			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	<u>10</u>	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>85</u> x 2 = <u>170</u> FAC species <u>6</u> x 3 = <u>18</u> FACU species <u>14</u> x 4 = <u>56</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>112</u> (A) <u>271</u> (B) Prevalence Index = B/A = <u>2.42</u>
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Pinus contorta</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
2. <u>Rubus parviflorus</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	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.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Senecio triangularis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
2. <u>Calamagrostis canadensis</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Heracleum maximum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes ☒ No _____
4. <u>Rudbeckia occidentalis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u>Thalictrum occidentale</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
6. <u>Deschampsia caespitosa</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
7. <u>Cicuta douglasii</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	Hydrophytic Vegetation Present? Yes ☒ No _____
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
% Bare Ground in Herb Stratum <u>1</u>				
Remarks: Forested wetland				

SOIL

Sampling Point: DP32

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
☐ Histosol (A1) ☐ Sandy Redox (S5)
☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6)
☐ Black Histic (A3) ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Hydrogen Sulfide (A4) ☐ Loamy Gleyed Matrix (F2)
☐ Depleted Below Dark Surface (A11) ☐ Depleted Matrix (F3)
☐ Thick Dark Surface (A12) ☐ Redox Dark Surface (F6)
☐ Sandy Mucky Mineral (S1) ☐ Depleted Dark Surface (F7)
☐ Sandy Gleyed Matrix (S4) ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators 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:
 Problematic hydric soils, no indicators. Hydric soils based on geographic position and prevalence of hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☐ Depth (inches): _____ Water Table Present? Yes ☐ No ☐ Depth (inches): _____ Saturation Present? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology assumed based on geographic position, delineation conducted during the dry season. Abnormally dry conditions in the project area (US drought monitor)		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-22-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP33
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6447885763 Long: -110.766878307 Datum: NAD 83
 Soil Map Unit Name: Tineman association NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Low area in side channel, edge of wetland near Whitegrass Ranch Road east side			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				Total % Cover of: _____ Multiply by: _____
1. <u>Rubus pubescens</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
_____	<u>5</u>	_____	_____	Column Totals: _____ (A) _____ (B)
= Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5 ft radius</u>)				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.
1. <u>Erigeron speciosus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
2. <u>Hypericum perforatum</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Agrostis stolonifera</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Anaphalis margaritacea</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____	<u>40</u>	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>60</u>				
Remarks:				

SOIL

Sampling Point: DP33

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☒ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☒ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☐ Depth (inches): _____ Water Table Present? Yes ☐ No ☐ Depth (inches): _____ Saturation Present? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-21-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP34
 Investigator(s): S. Butler, E. Crumb Section, Township, Range: Section 35, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5
 Subregion (LRR): E Lat: 43.6539194 Long: -110.7394841 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams, 0 to 3 percent slopes NWI classification: N/A

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 ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐		
Wetland Hydrology Present?	Yes ☒ No ☐		
Remarks: No dig area. Wetland below culvert in Sawmill ponds area. East of Moose Wilson Road.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: <u>5 x 5</u>) 1. <u>Phleum pratense</u> 5 N FAC 2. <u>Agrostis stolonifera</u> 25 Y FAC 3. <u>Carex vesicaria</u> 15 N OBL 4. <u>Carex utriculata</u> 30 Y OBL 5. <u>Equisetum hyemale</u> 5 N FACW 6. <u>Trifolium repens</u> 10 N FAC 7. <u>Poa pratensis</u> 10 N FAC 8. _____ 9. _____ 10. _____ 11. _____ 100 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: Point at edge of wetland. Center of wetland is mostly C. utriculata.				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 ☐

SOIL

Sampling Point: DP34

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

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

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators 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. No dig area due to cultural resources. Hydric soils assumed based on the dominance of wetland species and similarity to other areas with hydric soils in the project area. Not on hydric soils list.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Data point is on edge of wetland. Saturated soils and shallow (6") standing water at surface in center of wetland. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP35
 Investigator(s): S. Butler, E. Crumb Section, Township, Range: Sect. 35, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.65390524 Long: -110.739429 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams, 0 to 3 percent slopes NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland?	Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☐ No ☒		
Remarks: Upland paired point, in transitional area slightly higher			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>1</u></td> <td>x 2 = <u>2</u></td> </tr> <tr> <td>FAC species <u>72</u></td> <td>x 3 = <u>216</u></td> </tr> <tr> <td>FACU species <u>3</u></td> <td>x 4 = <u>12</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>76</u> (A)</td> <td><u>230</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.02</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>1</u>	x 2 = <u>2</u>	FAC species <u>72</u>	x 3 = <u>216</u>	FACU species <u>3</u>	x 4 = <u>12</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>76</u> (A)	<u>230</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>1</u>	x 2 = <u>2</u>																	
FAC species <u>72</u>	x 3 = <u>216</u>																	
FACU species <u>3</u>	x 4 = <u>12</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>76</u> (A)	<u>230</u> (B)																	
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover																		
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Poa pratensis</u> 40 Y FAC 2. <u>Agrostis stolonifera</u> 5 N FAC 3. <u>Phleum pratense</u> 20 Y FAC 4. <u>Danthonia intermedia</u> 5 N FACU 5. <u>Achillea millefolium</u> 2 N FACU 6. <u>Equisetum hyemale</u> 1 N FACW 7. <u>Taraxacum officinale</u> 1 N FACU 8. <u>Tragopogon dubius</u> 1 N UPL 9. <u>Trifolium repens</u> 1 N FAC 10. _____ 11. _____ 76 = Total Cover																		
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover % Bare Ground in Herb Stratum <u>24</u>																		
Remarks: Data point was at the edge of the wetland - transitional area. Very marginal wetland vegetation.																		

SOIL

Sampling Point: DP35

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)		
☐ 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 along 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)	☐ 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? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) Wetland Hydrology Present? Yes ☐ No ☒		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
Data point was at the edge of the wetland - transitional area - no hydrology indicators. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP36
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): seep Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6539471097 Long: -110.739881661 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Seep on west side of Moose Wilson Road. South of Sawmill Ponds parking area.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Agrostis stolonifera</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Phleum pratense</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
3. <u>Equisetum hyemale</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
4. <u>Trifolium sp.</u>	<u>5</u>	<u>N</u>	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Remarks:				

SOIL

Sampling Point: DP36

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ 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 along 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)	☐ 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? Yes ☒ No ☐ Depth (inches): 0 (includes capillary fringe)		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Active seep with water seeping from ground surface and flowing onto the road. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP37
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6539684387 Long: -110.739915966 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: Slope/road cut west of Moose Wilson Road. South of Sawmill parking lot. Upland paired point			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Symphoricarpos albus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Prunus virginiana</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Mahonia repens</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Danthonia intermedia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes _____ No ☒
3. <u>Erigeron speciosus</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				Hydrophytic Vegetation Present? Yes _____ No ☒
Remarks: Dense stands of shrubs				

SOIL

Sampling Point: DP40

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ 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 along 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)	☐ 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? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Just outside of seep area. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP38
 Investigator(s): S. Butler, E. Crumb Section, Township, Range: Sect. 35, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <0.5
 Subregion (LRR): E Lat: 43.65324718 Long: -110.7414319 Datum: NAD 83
 Soil Map Unit Name: Cryaquolls-Cryofibrists complex NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: PSS/emergent wetland adjacent to road.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' X 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>2</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' X 15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Salix geyeriana</u>	<u>65</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Crataegus douglasii</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. <u>Populus tremuloides</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
<u>72</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Delphinium nuttallianum</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rudbeckia occidentalis</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
3. <u>Calamagrostis canadensis</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Solidago canadensis</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
5. <u>Equisetum arvense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
6. <u>Heracleum maximum</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. <u>Senecio triangularis</u>	<u>1</u>	<u>N</u>	<u>FACW</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>69</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>31</u>				
Remarks: Data point is on edge of wetland near toe of road embankment.				

SOIL

Sampling Point: DP38

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					SCI	Moist
12-16	10YR 4/2	100					Clay	Cobbles, saturated

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Very Shallow Dark Surface (TF12)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Other (Explain in Remarks)
☒ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Mucky Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy Gleyed Matrix (S4)	☐ Redox Depressions (F8)	

³Indicators 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:

On hydric soils list.

HYDROLOGY

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 12"
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 39
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.6532743514 Long: -110.74145938 Datum: NAD 83
 Soil Map Unit Name: Cryaquolls-Cryofibrists complex NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland pair to DP 41 east of Moose-Wilson Road, adjacent to road	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
1. <u>Populus tremuloides</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>2</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Populus tremuloides</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rosa woodsii</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	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.
<u>13</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Bromus inermis</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Phleum pratense</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Cirsium arvense</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes _____ No ☒
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>77</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>23</u>				
Remarks: Roadside with upland vegetation				

SOIL

Sampling Point: DP 39

[illegible]

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 along 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 (2 or more 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? Yes ☐ No ☒ Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes ☐ No ☒		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 40
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): toe of slope/terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.6508189711 Long: -110.746710152 Datum: NAD 83
 Soil Map Unit Name: Cryaquolls-Cryofibrists complex NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Palustrine emergent and scrub/shrub wetland east of Moose-Wilson Road		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
2 = Total Cover				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.
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Salix geyeriana</u>	10	Y	FACW	
2. <u>Alnus incana</u>	3	Y	FACW	
3. <u>Populus tremuloides</u>	2	N	FACU	
4. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
5. _____	_____	_____	_____	
15 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Phleum pratense</u>	20	Y	FAC	
2. <u>Agrostis stolonifera</u>	20	Y	FAC	Remarks: Palustrine emergent and scrub/shrub wetland
3. <u>Carex utriculata</u>	15	N	OBL	
4. <u>Calamagrostis canadensis</u>	20	Y	FACW	
5. <u>Equisetum arvense</u>	10	N	FAC	
6. <u>Juncus ensifolius</u>	10	N	FACW	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
95 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				

SOIL

Sampling Point: DP 40

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	100					CILo	Cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Could not dig deeper due to cobble. On hydric soils list. Hydrogen sulfide smell.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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): 8
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Saturated at surface, strong hydrology indicators. Hydrology may be influenced beaver activity. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 41
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): E Lat: 43.6508508795 Long: -110.746715584 Datum: NAD 83
 Soil Map Unit Name: Cryaquolls-Cryofibrists complex NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: Upland east of Moose Wilson Road			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			<u>2</u> = Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Symphoricarpos albus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Mahonia repens</u>	<u>8</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Populus tremuloides</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
			<u>30</u> = Total Cover	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.
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Poa pratensis</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Danthonia intermedia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Equisetum arvense</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
4. <u>Achillea millefolium</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes _____ No ☒
5. <u>Polygonum sp.</u>	<u>5</u>	<u>N</u>	_____	
6. <u>Aster sp.</u>	<u>8</u>	<u>N</u>	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
			<u>43</u> = Total Cover	Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			_____ = Total Cover	
% Bare Ground in Herb Stratum <u>57</u>				
Remarks: Upland pair to DP 43				

SOIL

Sampling Point: DP 41

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					SaLo	Cobble

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Rock and cobbles at 8"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 42
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.641448053 Long: -110.759961237 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: PSSC

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 ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐		
Wetland Hydrology Present?	Yes ☒ No ☐		
Remarks: Shrub wetland south of dirt road leading east from Moose-Wilson Road			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)
1. <u>Populus tremuloides</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>5</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Crataegus erythropoda</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Salix geyeriana</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Ribes inerme</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. <u>Lonicera involucrata</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	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.
5. _____	_____	_____	_____	
<u>68</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Calamagrostis canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Phleum pratense</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes ☒ No ☐
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>55</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>45</u>				
Remarks: Palustrine scrub-shrub wetland				

SOIL

Sampling Point: DP 42

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			Wetland Hydrology Indicators	
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
☒ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)		
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)		
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)		
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)		
☐ Sediment Deposits (B2)	☒ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)		
☐ Drift Deposits (B3)	☒ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)		
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)		
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)		
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)		
☐ Inundation Visible on Aerial Imagery (B7)				
☐ Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present?	Yes ☒ No ☐	Depth (inches): 0.5	Wetland Hydrology Present? Yes ☒ No ☐	
Water Table Present?	Yes ☐ No ☐	Depth (inches):		
Saturation Present?	Yes ☒ No ☐	Depth (inches): 0		
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				
Wetlands appear to have expanded recently due to beaver activity.				

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
Applicant/Owner: National Park Service State: WY Sampling Point: DP 44
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 3, 42 North, 116W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): E Lat: 43.6395168098 Long: -110.759363966 Datum: NAD 83
Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes ☒ No _____	
Wetland Hydrology Present? Yes ☒ No _____	
Remarks: Terrace adjacent to stream	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
1. <u>Populus tremuloides</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Pinus contorta</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>8</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	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.
2. <u>Carex utriculata</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Glyceria grandis</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:				

SOIL

Sampling Point: DP 44

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2	95	7.5YR 5/6	5	C	PL	SaLo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Rock/cobble at 5"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 45
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 3, 42 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6394903552 Long: -110.759432686 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland pair		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
1. <u>Populus tremuloides</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Pinus contorta</u>	<u>6</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
8 = Total Cover				
Sapling/Shrub Stratum (Plot size: 10 ft radius) 1. <u>Artemisia tridentata</u> <u>3</u> <u>Y</u> <u>UPL</u>				
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	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.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
3 = Total Cover				
Herb Stratum (Plot size: 5 ft radius) 1. <u>Bromus inermis</u> <u>60</u> <u>Y</u> <u>UPL</u>				
2. <u>Phleum pratense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes _____ No ☒
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
11. _____	_____	_____	_____	
70 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
% Bare Ground in Herb Stratum <u>30</u>				
Remarks: Smooth brome dominated upland				

SOIL

Sampling Point: DP 45

[illegible]

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 along 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 (2 or more 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? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) Wetland Hydrology Present? Yes ☐ No ☒		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 46
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): upland island Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.6446230774 Long: -110.757243444 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loams NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland island		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>35</u> x 5 = <u>175</u> Column Totals: <u>53</u> (A) <u>244</u> (B) Prevalence Index = B/A = <u>4.60</u>
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Artemisia tridentata</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				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.
1. <u>Erigeron speciosus</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Eriogonum umbellatum</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Phleum pratense</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
4. <u>Phlox sp.</u>	<u>3</u>	<u>N</u>	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>79</u>				
Remarks:				

SOIL

Sampling Point: DP 46

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 47
 Investigator(s): T. Romano, E. Crumb Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64637425 Long: -110.7559278 Datum: NAD83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				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.
1. <u>Phleum pratense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Agrostis stolonifera</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Juncus ensifolius</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4. <u>Carex pellita</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP47

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					SaLo	Lots of Cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

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

Restrictive Layer (if present):

Type: Cobble
Depth (inches): 6

Hydric Soil Present? Yes _____ No _____

Remarks:

Rock refusal at 6". Hydric mapped soils, strong vegetation and hydrology indicators, soils are assumed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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?	Yes _____ No _____	Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 48
 Investigator(s): T. Romano, E. Crumb Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64429034 Long: -110.7569599 Datum: NAD83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: _____

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>Artemisia tridentata var. vaseyana</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. <u>Eriogonum umbellatum</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Festuca idahoensis</u>	<u>3</u>		<u>FACU</u>	
3. <u>Phleum pratense</u>	<u>3</u>		<u>FAC</u>	
4. <u>Koeleria macrantha</u>	<u>2</u>		<u>UPL</u>	
5. <u>Danthonia intermedia</u>	<u>3</u>		<u>FACU</u>	
6. <u>Antennaria microphylla</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP48

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Soils are assumed based on dominance of upland vegetation

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 49
 Investigator(s): T. Romano, E. Crumb Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64416716 Long: -110.7556874 Datum: NAD83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: _____

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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Area previously delineated as "relic wetland"			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: _____) 1. <u>Carex utriculata</u> 50 Y OBL 2. <u>Carex bebbiana</u> 10 OBL 3. <u>Bidens cernua</u> 10 OBL 4. <u>Agrostis stolonifera</u> 10 FAC 5. <u>Rumex crispus</u> 8 FAC 6. <u>Phalaris arundinacea</u> 5 FACW 7. <u>Phleum pratense</u> 3 FAC 8. <u>Epilobium ciliatum</u> 3 FACW 9. _____ 10. _____ 11. _____ _____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>1</u>				
Remarks:				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 _____

SOIL

Sampling Point: DP49

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 3/2	100					Clay Loam	cobbles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

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

Restrictive Layer (if present):

Type: Cobble
Depth (inches): 14

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Soils mapped as hydric by NRCS, assumed based on hydrophytic vegetation dominance. Problematic soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☐ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Adjacent area is ponded

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 50
 Investigator(s): T. Romano, E. Crumb Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64416716 Long: -110.7556874 Datum: NAD83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: _____

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland pair		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>Artemisia tridentata var. vaseyana</u>	<u>Y</u>	<u>35</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Poa secunda</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Eriogonum umbellatum</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Lupinus argenteus</u>	<u>2</u>	_____	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				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.
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>38</u> _____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Remarks:				

SOIL

Sampling Point: DP50

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	100					sandy Clay Loam	cobbles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

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

Restrictive Layer (if present):

Type: Cobble
Depth (inches): 9

Hydric Soil Present? Yes _____ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/24/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP51
 Investigator(s): E. Crumb, T. Romano Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64922058 Long: -110.7515935 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Emergent wetland margin		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Carex aquatilis</u> 55 Y OBL 2. <u>Carex utriculata</u> 25 Y OBL 3. <u>Agrostis stolonifera</u> 10 N FAC 4. <u>Poa pratensis</u> 5 N FAC 5. <u>Phalaris arundinacea</u> 3 N FACW 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 98 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>2</u>				
Remarks:				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 _____

SOIL

Sampling Point: DP51

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Problematic hydric soils, no indicators. On hydric soils list. Hydric soils based on soil saturation and prevalence of hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 4'

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/24/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP52
 Investigator(s): E. Crumb, T. Romano Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64842882 Long: -110.7507441 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Terrace above wetland, upland pair to DP-55.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Artemisia arbuscula</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Achillea millefolium</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
2. <u>Festuca idahoensis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Poa pratensis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. <u>Polygonum douglasii</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Linaria vulgaris</u>	<u>8</u>	<u>N</u>	<u>UPL</u>	
6. <u>Lactuca seriola</u>	<u>1</u>	<u>N</u>	<u>NI</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				Hydrophytic Vegetation Present? Yes _____ No ☒

SOIL

Sampling Point: DP52

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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 indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP53
 Investigator(s): A. Romano, E. Crumb Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64901603 Long: -110.7499485 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland inclusion		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
_____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Achillea millefolium</u>	<u>8</u>	<u>N</u>	<u>FACU</u>	
2. <u>Linaria vulgaris</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Poa pratensis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Polygonum douglasii</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>52</u>				
Remarks:				

SOIL

Sampling Point: DP53

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	100					SiSaLo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

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

Restrictive Layer (if present):

Type: Cobbles
Depth (inches): 9 inches

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Layer of cobbles, starting at 9"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/24/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP54
 Investigator(s): E. Crumb, T. Romano Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.64959916 Long: -110.7479858 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam, wet 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Terrace adjacent to floodplain willow shrub area with upland understory.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				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.
1. <u>Salix drummondiana</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Artemisia arbuscula</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5' x 5'</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. <u>Achillea sp.</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
2. <u>Polygonum douglasii</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Perideridia gairdneri</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Eriogonum umbellatum</u>	<u>8</u>	<u>Y</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP54

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ 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 along 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)	☐ 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? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No hydrology. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/24/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP55
Investigator(s): E. Crumb, T. Romano Section, Township, Range: Section 35, 43 North, 116W
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): E Lat: 43.64931165 Long: -110.7456232 Datum: NAD 83
Soil Map Unit Name: Tineman gravelly loam, wet NWI classification: PABG

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
Herb Stratum (Plot size: <u>5' x 5'</u>)			
1. <u>Poa pratensis</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>
2. <u>Agrostis stolonifera</u>	<u>15</u>	<u>N</u>	<u>FAC</u>
3. <u>Juncus balticus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
4. <u>Rumex sp.</u>	<u>5</u>	<u>N</u>	<u>NI</u>
5. <u>Carex athrostachya</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
6. <u>Carex nebrascensis</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = Total Cover			
% Bare Ground in Herb Stratum _____			
Remarks:			

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 (A/B)
Prevalence Index worksheet:
Total % Cover of: _____ Multiply by: _____
OBL species _____ x 1 = _____
FACW species _____ x 2 = _____
FAC species _____ x 3 = _____
FACU species _____ x 4 = _____
UPL species _____ x 5 = _____
Column Totals: _____ (A) _____ (B)
Prevalence Index = B/A = _____
Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0¹
____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants¹
____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Hydrophytic Vegetation Present? Yes ☒ No _____

SOIL

Sampling Point: DP55

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1						LoCI	
7-16	10YR 4/1						LoCI	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 assumed, based on soil saturation and presence of high water table.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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): 10"

Saturation Present? Yes ☒ No ☐ Depth (inches): 0"

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-24-18
 Applicant/Owner: National Parks Service State: WY Sampling Point: DP56
 Investigator(s): E. Crumb, T. Romano Section, Township, Range: Sect. 35, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.64995318 Long: -110.7449449 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam, wet NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland?	Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☒ No ☐		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
1. <u>Pinus contorta</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	<u>30</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Crataegus erythropda</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rosa woodsii</u>	<u>3</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Pinus contorta</u>	<u>2</u>	_____	<u>FAC</u>	
4. <u>Amelanchier alnifolia</u>	<u>2</u>	_____	<u>FACU</u>	
5. _____	<u>12</u>	<u>= Total Cover</u>		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.
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Elymus glaucus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Poa pratensis</u>	<u>5</u>	_____	<u>FAC</u>	
3. <u>Geranium richardsonii</u>	<u>5</u>	_____	<u>FAC</u>	
4. <u>Antennaria microphylla</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>40</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☐ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>60</u>				
Remarks:				

SOIL

Sampling Point: DP56

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2	100					Clay	
7-16	10YR 4/2	100					Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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): -7

Saturation Present? Yes ☒ No _____ Depth (inches): -6

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP57
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
Landform (hillslope, terrace, etc.): meadow Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): E Lat: 43.65256101 Long: -110.7407435 Datum: NAD 83
Soil Map Unit Name: Cryaquolls-Cryofibrists complex NWI classification: PSSC

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 _____	Hydic Soil Present? Yes ☒ No _____	Wetland Hydrology Present? Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Remarks: Wetland meadow. Eastern edge of wetland east of Moose-Wilson Road.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
0 = Total Cover			
Herb Stratum (Plot size: <u>5' x 5'</u>)			
1. <u>Rudbeckia occidentalis</u>	<u>1</u>	<u>N</u>	<u>FAC</u>
2. <u>Phleum pratense</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
3. <u>Bromus ciliatus</u>	<u>2</u>	<u>N</u>	<u>FAC</u>
4. <u>Carex pellita</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>
5. <u>Calamagrostis canadensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
6. <u>Agrostis stolonifera</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
7. <u>Carex utriculata</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
68 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = Total Cover			
% Bare Ground in Herb Stratum _____			
Remarks:			

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 (A/B)

Prevalence Index worksheet:
Total % Cover of: _____ Multiply by: _____
OBL species _____ x 1 = _____
FACW species _____ x 2 = _____
FAC species _____ x 3 = _____
FACU species _____ x 4 = _____
UPL species _____ x 5 = _____
Column Totals: _____ (A) _____ (B)
Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0¹
____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants¹
____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No _____

SOIL

Sampling Point: DP57

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1						SaLo	
6-16	10YR 2/1						CI Lo	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

³Indicators 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:

Problematic hydric soils, no indicators. On hydric soils list. Hydric soils based on soil saturation and prevalence of hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 6"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP58
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.65261473 Long: -110.740728 Datum: NAD 83
 Soil Map Unit Name: Cryaquolls-Cryofibrists complex 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 ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: Upland topographically positioned above the adjacent depressed wet meadows on a berm. 3 ft higher than wetland margin.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
1. <u>Crataegus douglasii</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	<u>35</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Symphoricarpos albus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	<u>10</u>	<u>= Total Cover</u>		
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Poa secunda</u>	<u>65</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Phleum pratense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Galium septentrionale</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
4. <u>Equisetum arvense</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
5. <u>Perideridia gairdneri</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
6. <u>Elymus glaucus</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
7. <u>Carex hoodii</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>89</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____ <u>= Total Cover</u>				
Remarks:				

SOIL

Sampling Point: DP58

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					SaLo	Cobble at 6 in.

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP59
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
Landform (hillslope, terrace, etc.): berm Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): E Lat: 43.65322355 Long: -110.7398492 Datum: NAD 83
Soil Map Unit Name: Tineman gravelly loam, wet 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland berm near surrounding wetlands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
1. <u>Populus tremuloides</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Pinus contorta</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>25</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Populus tremuloides</u> (saplings)	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Amelanchier alnifolia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>35</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				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.
1. <u>Phleum pratense</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Perideridia gairneri</u>	<u>10</u>	<u>N</u>	<u>NI</u>	
3. <u>Elymus glaucus</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Achillea millefolium</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>62</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>38</u>				
Remarks:				

SOIL

Sampling Point: DP59

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100					SaLo	

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators. Cobble encountered at 7 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP60
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): E Lat: 43.65330092 Long: -110.7398558 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams, 0 to 3 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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Forested wetland			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. <u>Pinus contorta</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	<u>30</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Amelanchiar alnifolia</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rosa woodsii</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	<u>20</u>	<u>= Total Cover</u>		
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Phleum pratense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Agrostis stolonifera</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Deschampsia cespitosa</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Trifolium repens</u>	<u>5</u>	_____	<u>FAC</u>	
5. <u>Juncus balticus</u>	<u>2</u>	_____	<u>FACW</u>	
6. <u>Elymus canadensis</u>	<u>2</u>	_____	<u>FAC</u>	
7. <u>Equisetum arvense</u>	<u>5</u>	_____	<u>FAC</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>69</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>31</u>	<u>= Total Cover</u>			
Remarks: Sagebrush shrubland				

SOIL

Sampling Point: DP60

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2	100					Sandy Loam	
5-8	10YR 6/2	100					SiSandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Very Shallow Dark Surface (TF12)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Other (Explain in Remarks)
☒ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Mucky Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy Gleyed Matrix (S4)	☐ Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: Cobble

Depth (inches): Surface.

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

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

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

Secondary Indicators (2 or more 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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No obvious indicators, however, vegetation present and documented soils, in topographic area that could support wetlands, dry season. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP61
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): E Lat: 43.65414612 Long: -110.7390547 Datum: NAD 83
Soil Map Unit Name: Tineman-Bearmouth gravelly loams, 0 to 3 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland roadside slope. Upland pair. Southwest of Sawmill parking area.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Artemisia tridentata</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Equisetum laevigatum</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: Sagebrush shrubland				

SOIL

Sampling Point: DP61

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if present):

Type: Cobble

Depth (inches): Surface.

Hydric Soil Present? Yes _____ No ☒

Remarks:

No dig area -- cobble at the surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP62
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 35, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope depression Local relief (concave, convex, none): none Slope (%): 1-2%
 Subregion (LRR): E Lat: 43.65414298 Long: -110.739112 Datum: NAD 83
 Soil Map Unit Name: Tineman-Bearmouth gravelly loams, 0 to 3 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 _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: Roadside slope wetland depression above surface water.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				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.
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Phleum pratense</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Agrostis stolonifera</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Equisetum laevigatum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Carex pellita</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP62

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

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

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators 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 soils assumed based on presence of surface water and prevalence of hydrophytic vegetation. Did not dig soil pit because of "No dig area" for cultural resources.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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): _____

Saturation Present? Yes _____ No ☒ Depth (inches): _____

Saturation Present:
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-18
Applicant/Owner: National Park Service State: WY Sampling Point: DP63
Investigator(s): M. Boyers, S. Butler Section, Township, Range: Sect. 34, 423N, 116 W
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 5-10%
Subregion (LRR): E43.64416716 Lat: 43.64416716 Long: -110.7556874 Datum: NAD 83
Soil Map Unit Name: Tineman gravelly loam NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland point	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Prunus virginiana</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Salix geyeriana</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Symphoricarpos albus</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Mahonia repens</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
5. _____	_____	_____	_____	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.
80 = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Erigeron speciosus</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Carduus nutans</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Taraxacum officinale</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Elymus glaucus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes _____ No ☒
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
25 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>75</u>				
Remarks:				

SOIL

Sampling Point: DP63

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Mucky Mineral (S1) ☐ Sandy Gleyed Matrix (S4) ☐ Sandy Redox (S5) ☐ Stripped Matrix (S6) ☐ Loamy Mucky Mineral (F1) (except MLRA 1) ☐ Loamy Gleyed Matrix (F2) ☐ Depleted Matrix (F3) ☐ Redox Dark Surface (F6) ☐ Depleted Dark Surface (F7) ☐ Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: ☐ 2 cm Muck (A10) ☐ Red Parent Material (TF2) ☐ Very Shallow Dark Surface (TF12) ☒ Other (Explain in Remarks)
---	--

³Indicators 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. Upland vegetation. Non hydric soils assumed.	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators apparent. On hillside. Abnormally dry conditions in the project area (US drought monitor).		

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-2018
 Applicant/Owner: National Park Service State: WY Sampling Point: DP 64
 Investigator(s): S. Butler, M. Boyer Section, Township, Range: Section 34, 43 North, 116W
 Landform (hillslope, terrace, etc.): swale on slope Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): E Lat: 43.64906785 Long: -110.7528308 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: West side of road above culvert - willow wetland		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Salix geyeriana</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft radius</u>)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. <u>Rudbeckia occidentalis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Heracleum maximum</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Delphinium nuttallianum</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
4. <u>Urtica dioica</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
5. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP 64

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					SiSaLo	Lots of cobbles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators 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:**

Could not dig past 8" due to rock/cobble.
 Problematic soils - on hydric soils list and wetland vegetation and hydrology are present.

HYDROLOGY

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

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

Secondary Indicators (2 or more 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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

In a swale above culvert under Moose-Wilson Road. Flowing water present nearby - seep flowing down hillside. Data point is about 10 feet from flowing water, flowing down hillside into culvert. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP65
 Investigator(s): S. Butler, E. Crumb Section, Township, Range: Sect. 34, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.64454911 Long: -110.7571515 Datum: NAD 83
 Soil Map Unit Name: Tineman gravelly loam NWI classification: N/A

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 ☒	Is the Sampled Area within a Wetland?	Yes _____	No ☒
Hydric Soil Present?	Yes _____	No ☒			
Wetland Hydrology Present?	Yes _____	No ☒			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>45</u> x 5 = <u>225</u> Column Totals: <u>100</u> (A) <u>425</u> (B) Prevalence Index = B/A = <u>4.25</u>
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Prunus virginiana</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Symphoricarpos albus</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Amelanchier alnifolia</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Bromus inermis</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Urtica dioica</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. <u>Solidago canadensis</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Tragopogon dubius</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Remarks:				

SOIL

Sampling Point: DP65

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

³Indicators 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:

Dry

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

Saturation Present:
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8-23-18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP66
 Investigator(s): S. Butler, E. Crumb Section, Township, Range: Sect. 34, 43 N, 116 W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.64635213 Long: -110.755937 Datum: NAD 83
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A

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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15' X 15'</u>)				
1. <u>Salix geyeriana</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Phalaris arundinacea</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Deschampsia caespitosa</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	Hydrophytic Vegetation Present? Yes ☒ No _____
3. <u>Carex utriculata</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Glyceria grandis</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. <u>Carex bebbii</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>35</u>				
Remarks:				

SOIL

Sampling Point: DP66

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	100					SaCILo	Cobbles
14-18	10YR 2/2	100					SaCl	Cobbles

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

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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:

Problematic soils, mapped as hydric, hydrophytic vegetation present and indicators of hydrology

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP67
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64628512 Long: -110.7673902 Datum: NAD 83
 Soil Map Unit Name: Tineman association NWI classification: R5UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Forested wetland. Whitegrass Ranch Road, roadside swale.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Salix geyeriana</u>	<u>65</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Pinus contorta</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>85</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	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.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Lonicera involucrata</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Urtica dioica</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. <u>Aconitum columbianum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4. <u>Calamagrostis canadensis</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
5. <u>Heracleum maximum</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP67

[illegible]

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 along 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 (2 or more 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) <tr> <td colspan="3"> Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) Wetland Hydrology Present? Yes ☒ No ☐ <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: </td> </tr> <tr> <td colspan="3"> Remarks: Abnormally dry conditions in the project area (US drought monitor). </td> </tr> </td></tr>			Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) Wetland Hydrology Present? Yes ☒ No ☐ <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: </td> </tr> <tr> <td colspan="3"> Remarks: Abnormally dry conditions in the project area (US drought monitor). </td> </tr>			Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			Remarks: Abnormally dry conditions in the project area (US drought monitor).		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) Wetland Hydrology Present? Yes ☒ No ☐ <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: </td> </tr> <tr> <td colspan="3"> Remarks: Abnormally dry conditions in the project area (US drought monitor). </td> </tr>			Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			Remarks: Abnormally dry conditions in the project area (US drought monitor).					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:											
Remarks: Abnormally dry conditions in the project area (US drought monitor).											

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP68
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2%
 Subregion (LRR): E Lat: 43.64620405 Long: -110.7674624 Datum: NAD 83
 Soil Map Unit Name: Tineman association 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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: Upland slope above drainage, upslope of wetland. Upland pair. Just downstream of culvert under Whitegrass Ranch Road.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Pinus contorta</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>30</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				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.
1. <u>Pinus contorta (sapling)</u>	<u>55</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>55</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Phleum pratense</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Lactuca serriola</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
3. <u>Campanula rotundifolia</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
4. <u>Chamaenerion angustifolium</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>37</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP68

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 8"

Hydric Soil Present? Yes _____ No ☒

Remarks:

No indicators, mapped as a non-hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____

Saturation Present:
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
Applicant/Owner: National Park Service State: WY Sampling Point: DP69
Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): E Lat: 43.64622024 Long: -110.7672279 Datum: NAD 83
Soil Map Unit Name: Tineman association NWI classification: R5UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Wetland terrace, forested. East side of Whitegrass Ranch Road.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>87.5</u> (A/B)
1. <u>Pinus contorta</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>30</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Salix geyeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Alnus incana</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Lonicera involucrata</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rubus pubescens</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Bromus ciliatus</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. <u>Calamagrostis canadensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
5. <u>Juncus mertensianus</u>	<u>3</u>	<u>N</u>	<u>OBL</u>	
6. <u>Mertensia ciliata</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
7. <u>Rudbeckia occidentalis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
8. <u>Agrostis stolonifera</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>93</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: Forested wetland				

SOIL

Sampling Point: DP69

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/4	99	7.5YR 6/6	1			Sand	
8-12	10YR 3/2						SaLo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 12"

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Problematic hydric soils. Not on hydric soils list. Hydric soils assumed based on hydrology indicators, prevalence of hydrophytic vegetation, landscape position on terrace next to stream.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 8"
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP70
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): meadow Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64623339 Long: -110.7671872 Datum: NAD 83
 Soil Map Unit Name: Tineman association 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland forest above stream, just east of Whitegrass Ranch Road. Upland pair		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Populus tremuloides</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Pinus contorta</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
	<u>40</u>	<u>= Total Cover</u>		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	<u>= Total Cover</u>		
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Calamagrostis canadensis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	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.
2. <u>Solidago canadensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Thalictrum occidentale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. <u>Chamaenerion angustifolium</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
5. <u>Galium boreale</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
6. <u>Achillea millefolium</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>50</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
2. _____	_____	_____	_____	
	_____	<u>= Total Cover</u>		
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP70

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

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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- | |
|---|
| ☐ 2 cm Muck (A10) |
| ☐ Red Parent Material (TF2) |
| ☐ Very Shallow Dark Surface (TF12) |
| ☐ Other (Explain in Remarks) |

³Indicators 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 indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

No indicators. Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP71
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): bank Local relief (concave, convex, none): none Slope (%): 5-10%
 Subregion (LRR): E Lat: 43.64573816 Long: -110.7669197 Datum: NAD 83
 Soil Map Unit Name: Tineman association NWI classification: R5UBH

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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: Wetland on stream-side bank, east of Whitegrass Ranch Road.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Alnus incana</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>60</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)				
1. <u>Symphoricarpos occidentalis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	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.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>5</u> = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>)				
1. <u>Glyceria grandis</u>	<u>45</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Aconitum columbianum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Senecio triangularis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4. <u>Deschampsia caespitosa</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Arnica cordifolia</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	
6. <u>Lonicera involucrata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>73</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: DP71

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2						Lo	
4-8	10YR 3/3						Sand	
8-10	10YR 3/2						Lo	
10-16	10YR 3/3						Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

³Indicators 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 redox. Problematic soils. Hydric soils assumed based on saturation at soil surface, prevalence of hydrophytic vegetation, and location on edge of stream.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more 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? Yes ☒ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Saturated 0-16". Abnormally dry conditions in the project area (US drought monitor).

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

Project/Site: GTNP Moose-Wilson Road City/County: Teton County Sampling Date: 8/23/18
 Applicant/Owner: National Park Service State: WY Sampling Point: DP72
 Investigator(s): A. Romano, E. Crumb, M. Boyer, S. Butler Section, Township, Range: Section 33, 43 North, 116W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): E Lat: 43.64575001 Long: -110.7668892 Datum: NAD 83
 Soil Map Unit Name: Tineman association NWI classification: _____

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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: Upland slope above terrace, east of Whitegrass Ranch Road. upland pair with		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
1. <u>Abies lasiocarpa</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Pinus contorta</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
40 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>) 1. <u>Spiraea betulifolia</u> <u>3</u> <u>N</u> <u>FACU</u> 2. <u>Symphoricarpos occidentalis</u> <u>15</u> <u>Y</u> <u>FAC</u> 3. _____ 4. _____ 5. _____				
18 = Total Cover				
Herb Stratum (Plot size: <u>5' x 5'</u>) 1. <u>Lonicera involucrata</u> <u>3</u> <u>N</u> <u>FAC</u> 2. <u>Chamaenerion angustifolium</u> <u>5</u> <u>Y</u> <u>FACU</u> 3. <u>Galium boreale</u> <u>10</u> <u>Y</u> <u>FACU</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				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.
18 = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ Remarks: Coniferous forest.				Hydrophytic Vegetation Present? Yes _____ No ☒

SOIL

Sampling Point: DP72

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators. Abnormally dry conditions in the project area (US drought monitor).		

APPENDIX D

PHOTOS

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 1 - A representative section of lodgepole pine forest along Moose-Wilson Road in the project area. View to the northeast. Photo taken on August 21, 2018.



Photo 2 - Overview of sagebrush shrubland in the northern section of the project area. View to the northwest. Photo taken August 22, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 3 - A representative section of the choke cherry and hawthorn shrub communities in the project area. View to the northeast. Photo taken August 23, 2018.



Photo 4 - Overview of Ordinary High Water Mark 1 and Wetland A. View to the south. Photo taken on August 20, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 5 - Overview of Ordinary High Water Mark 2 and Wetland B. View to the north. Photo taken on August 20, 2018.



Photo 6 - Overview of Ordinary High Water Mark 3. View to the southwest. Photo taken on August 20, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 7 - Overview of Ordinary High Water Mark 4. View to the northwest. Photo taken on August 20, 2018.



Photo 8 - Overview of Ordinary High Water Mark 6 along Lake Creek. View to the west. Photo taken on August 20, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 9 - Overview of Ordinary High Water Mark 5 and Wetland C. View to the north. Photo taken on August 21, 2018.



Photo 10 - Overview of Ordinary High Water Mark 7 and Wetland D. View to the northwest. Photo taken on August 22, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 11 - A section of forested Wetland D along an unnamed creek. View to the north. Photo taken on August 22, 2018



Photo 12 - A pond in the Wetland E complex in the project area. View to the south. Photo taken August 23, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 13 - Emergent vegetation in the Wetland E complex. View to the northwest. Photo taken on August 24, 2018.



Photo 14 - Scrub shrub wetland vegetation in the Wetland E complex. View to the northeast. Photo taken on August 23, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 15 - Forested wetland vegetation in the Wetland E complex. View to the east. Photo taken on August 24, 2018.



Photo 16 - A representative upland soil pit in the project area. Photo taken August 24, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 17 - A representative problematic wetland soil pit in the project area. Photo taken August 24, 2018.



Photo 18 - Overview of Wetland G along Moose-Wilson Road. View to the northeast. Photo taken on August 23, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 19 - Overview of Wetland H in a depression near Moose-Wilson Road in the project area. View to the southeast. Photo taken on August 23, 2018.



Photo 20 - Overview of forested Wetland I along Moose-Wilson Road in the project area. View to the north. Photo taken on August 21, 2018.

PHOTO LOG
MOOSE-WILSON ROAD
GRAND TETON NATIONAL PARK
TETON COUNTY, WYOMING
AUGUST 20, 21, 22, 23 AND 24, 2018



Photo 21 - Overview of forested Wetland J near Moose-Wilson Road in the project area. View to the northeast.
Photo taken on August 21, 2018.

APPENDIX E
FUNCTIONAL ASSESSMENT FORMS

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road 2. MDT Project Control

3. Evaluation 8/24/18 4. Evaluator E.Crumb, S. Butler 5. Wetlands/Site # OHWM-3

6. Wetland Location(s): i. T43N,R116W,34

ii. Approx. Stationing or Mileposts:

iii. 17040101 Watershed Name, Snake River headwaters, Teton County

7. a. Evaluating ERO Resources

b. Purpose of

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

8. Wetland 0.376 acres (measured)

9. Assessment area 0.376 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	UB	A	PP	100

Abbreviation (see manual for definitions)

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

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

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

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 <=	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.):

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

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Constructed canal and tributary of the Snake River

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

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	L	NA	NA	NA

Comments: No vegetated classes

SECTION PERTAINING to FUNCTIONS & VALUES

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 grizzly bear(D)
 Secondary habitat (list species) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (list
 Secondary habitat (list species) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☐ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) **Use the CW or WW guidelines in the user manual to complete the**

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a.**

iii. Final Score and 0.4M **Comments:**

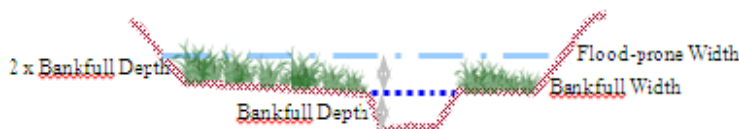
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded in-channel or overbank flow, mark X **NA** and proceed to 14F.)

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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

0.60M

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1	0.38	*
B. MT Natural Heritage Program Species	M	0.60	1	0.23	*
C. General Wildlife Habitat	M	0.70	1	0.26	*
D. General Fish Habitat	M	0.40	1	0.15	*
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water	NA				
G. Sediment/Nutrient/Toxicant Removal	NA				
H. Sediment/Shoreline Stabilization	L	0.30	1	0.11	
I. Production Export/Food Chain Support	M	0.60	1	0.23	
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1	0.11	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		3.90	7.00	1.47	
Percent of Possible Score			56%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road **2. MDT Project** **Control**
3. Evaluation 8/24/18 **4. Evaluator** E.Crumb, S. Butler **5. Wetlands/Site #** OHWM-6
6. Wetland Location(s): i. T43N,R116E,34
 ii. **Approx. Stationing or Mileposts:**
 iii. 17040101 **Watershed Name,** Snake River headwaters, Teton County

7. a. Evaluating ERO Resources **8. Wetland** Min: 0.186 acres, Max: 0.483 acres, Avg: 0.300 acres (estimated)
b. Purpose of
 1. ___ Wetlands potentially affected by MDT project
 2. ___ Mitigation wetlands; pre-construction
 3. ___ Mitigation wetlands; post-construction
 4. X Other: Wetlands potentially affected by project
9. Assessment area Min: 0.186 acres, Max: 0.483 acres, Avg: 0.300 acres (estimated)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	UB	NA	PP	100

Abbreviation

(see manual for definitions)

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

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:

COMMON

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

(use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

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

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

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Unnamed drainage (OWHM-4) and Lake Creek (OHWM-6) and surrounding conifer woodlands; sporadic patches of wetland vegetation

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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** grizzly bear(D)
 Secondary habitat (**list species**) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (**list**
 Secondary habitat (**list species**) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☒ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a**.

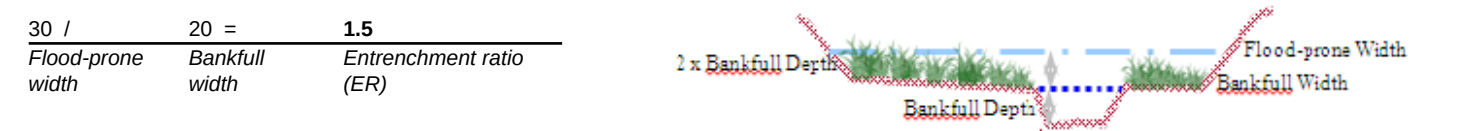
iii. Final Score and 0.5M **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded 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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

0.90H

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments Nearby wetlands/adjacent seeps or drainages not apparent

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.60	1		
C. General Wildlife Habitat	H	0.90	1		*
D. General Fish Habitat	M	0.50	1		*
E. Flood Attenuation	M	0.40	1		
F. Short and Long Term Surface Water	NA				
G. Sediment/Nutrient/Toxicant Removal	M	0.40	1		*
H. Sediment/Shoreline Stabilization	L	0.30	1		
I. Production Export/Food Chain Support	H	0.90	1		
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1		
L. Recreation/Education Potential (bonus points)	NA				
Totals:		5.30	9.00		
Percent of Possible Score			59%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project	Moose-Wilson Road	2. MDT Project	Control
3. Evaluation	8/24/18	4. Evaluator	E.Crumb, S. Butler
		5. Wetlands/Site #	Wetlands A and B
6. Wetland Location(s): i.	T43N,R116W,34 ;T43N,R116W,34		
ii. Approx. Stationing or Mileposts:			
iii.	17040101	Watershed Name,	Snake River headwaters, Teton County
7. a. Evaluating	ERO Resources		
b. Purpose of			
1.	☐ Wetlands potentially affected by MDT project		
2.	☐ Mitigation wetlands; pre-construction		
3.	☐ Mitigation wetlands; post-construction		
4.	☒ Other: Wetlands potentially affected by project		
8. Wetland	Min: 0.010 acres, Max: 0.003 acres, Avg: 0.010 acres (estimated)		
9. Assessment area	Min: 0.100 acres, Max: 0.100 acres, Avg: 0.100 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	SI	50
R	UB	A	SI	50

Abbreviation

(see manual for definitions)

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

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:

COMMON

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

(use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

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

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

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Constructed drainage ditch in open dry rangeland

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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** Grizzly Bear(D)
 Secondary habitat (**list species**) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (**list**
 Secondary habitat (**list species**) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☐ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a**.

iii. Final Score and 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 in-channel or overbank flow, mark **NA** and proceed to 14F.)

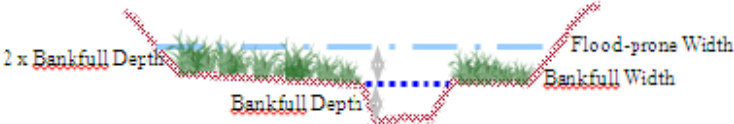
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

10 feet / 5 = 2

Flood-prone widthBankfull widthEntrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, 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	>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 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. (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			
% cover of wetland vegetation in	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted	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 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	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	.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

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

0.60M

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments No other wetlands or drainages in the nearby vicinity, created waterway

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.50	1		
C. General Wildlife Habitat	M	0.70	1		*
D. General Fish Habitat	NA				
E. Flood Attenuation	M	0.40	1		
F. Short and Long Term Surface Water	L	0.20	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.40	1		*
H. Sediment/Shoreline Stabilization	L	0.20	1		
I. Production Export/Food Chain Support	M	0.60	1		*
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1		
L. Recreation/Education Potential (bonus points)	NA				
Totals:		4.30	9.00		
Percent of Possible Score			48%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road **2. MDT Project** **Control**
3. Evaluation 8/24/18 **4. Evaluator** E.Crumb, S. Butler **5. Wetlands/Site #** Wetland C and OHWM5
6. Wetland Location(s): i. T43N,R116W,34
 ii. **Approx. Stationing or Mileposts:**
 iii. 17040101 **Watershed Name,** Snake River headwaters, Teton County

7. a. Evaluating ERO Resources **8. Wetland** Min: 0.288 acres, Max: 1.190 acres, Avg: 0.400 acres (estimated)
b. Purpose of
 1. ___ Wetlands potentially affected by MDT project
 2. ___ Mitigation wetlands; pre-construction
 3. ___ Mitigation wetlands; post-construction
 4. X Other: Wetlands potentially affected by project
9. Assessment area Min: 0.288 acres, Max: 1.190 acres, Avg: 0.400 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	25
R	SS	NA	PP	10
R	UB	NA	PP	65

Abbreviation

(see manual for definitions)

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

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:

COMMON

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

(use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

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

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

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Lake Creek and adjacent wetlands

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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** grizzly bear(D)
 Secondary habitat (**list species**) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (**list**
 Secondary habitat (**list species**) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☒ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) **Use the CW or WW guidelines in the user manual to complete the**

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a.**

iii. Final Score and 0.5M **Comments:**

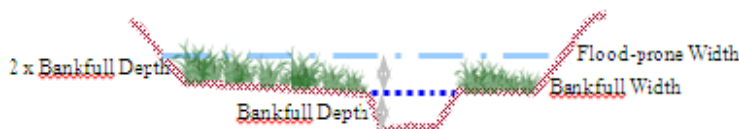
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded in-channel or overbank flow, mark **NA** and proceed to 14F.)

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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

40 / 20 = 2
Flood-prone width Bankfull width Entrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, 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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

1.00H

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments Other waterbodies/wetlands not in immediate area

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.60	1		
C. General Wildlife Habitat	H	0.90	1		*
D. General Fish Habitat	M	0.50	1		*
E. Flood Attenuation	M	0.70	1		*
F. Short and Long Term Surface Water	M	0.40	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.60	1		
H. Sediment/Shoreline Stabilization	M	0.70	1		
I. Production Export/Food Chain Support	H	1.00	1		
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1		
L. Recreation/Education Potential (bonus points)	NA				
Totals:		6.70	10.00		
Percent of Possible Score			67%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road **2. MDT Project** **Control**
3. Evaluation 8/24/18 **4. Evaluator** E.Crumb, S. Butler **5. Wetlands/Site #** Wetland D and OHWM7
6. Wetland Location(s): i. T43N,R116W,34
 ii. **Approx. Stationing or Mileposts:**
 iii. 17040101 **Watershed Name,** Snake River headwaters, Teton County

7. a. Evaluating ERO Resources **8. Wetland** Min: 0.280 acres, Max: 0.830 acres, Avg: 0.500 acres (estimated)
b. Purpose of
 1. ___ Wetlands potentially affected by MDT project
 2. ___ Mitigation wetlands; pre-construction
 3. ___ Mitigation wetlands; post-construction
 4. X Other: Wetlands potentially affected by project
9. Assessment area Min: 0.280 acres, Max: 0.830 acres, Avg: 0.500 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	20
S	FO	NA	SI	10
R	UB	NA	PP	70

Abbreviation

(see manual for definitions)

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

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:

COMMON

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

(use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

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

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

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Creek and adjacent conifer woodlands, forested wetlands

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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 grizzly bear(D)
 Secondary habitat (list species) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (list
 Secondary habitat (list species) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☒ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a**.

iii. Final Score and 0.5M **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded 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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

15 /

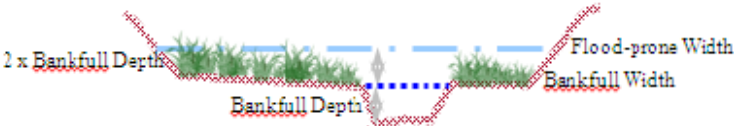
Flood-prone width

10 =

Bankfull width

1.5

Entrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

0.90H

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments no wetlands or drainages near or adjacent to AA wetlands/stream

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.60	1		
C. General Wildlife Habitat	H	0.90	1		*
D. General Fish Habitat	M	0.50	1		*
E. Flood Attenuation	M	0.70	1		
F. Short and Long Term Surface Water	NA				
G. Sediment/Nutrient/Toxicant Removal	M	0.40	1		*
H. Sediment/Shoreline Stabilization	M	0.70	1		
I. Production Export/Food Chain Support	H	0.90	1		
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1		
L. Recreation/Education Potential (bonus points)	NA				
Totals:		6.00	9.00		
Percent of Possible Score			67%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road 2. MDT Project Control

3. Evaluation 8/24/18 4. Evaluator E.Crumb, S. Butler 5. Wetlands/Site # Wetland E

6. Wetland Location(s): i. T43N,R116W,34

ii. Approx. Stationing or Mileposts:

iii. 17040101 Watershed Name, Snake River headwaters, Teton County

7. a. Evaluating ERO Resources 8. Wetland 54.600 acres (estimated)

b. Purpose of

1. ___ Wetlands potentially affected by MDT project

2. ___ Mitigation wetlands; pre-construction

3. ___ Mitigation wetlands; post-construction

4. X Other: Wetlands potentially affected by project

9. Assessment area 54.600 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	SI	60
S	FO	NA	SI	10
S	SS	NA	SI	30

Abbreviation (see manual for definitions)

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

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

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

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 <=	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.):

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

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Large beaver pond complex fed by groundwater and adjacent seeps

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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 grizzly bear(D)
 Secondary habitat (list species) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (list
 Secondary habitat (list species) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☒ 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 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	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

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

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is “correctable” such that the AA 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 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 Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the

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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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 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. - comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a**.

iii. Final Score and 0.4M **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded 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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

50 /

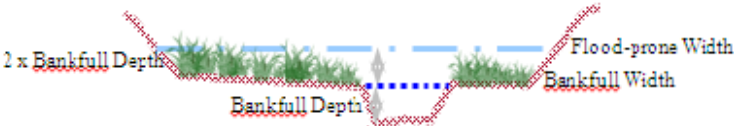
20 =

2.5

Flood-prone width

Bankfull width

Entrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched	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 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, 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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

1.00H

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR

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	1.00	1	54.60	*
B. MT Natural Heritage Program Species	M	0.60	1	32.76	*
C. General Wildlife Habitat	H	0.90	1	49.14	*
D. General Fish Habitat	M	0.40	1	21.84	
E. Flood Attenuation	H	0.90	1	49.14	*
F. Short and Long Term Surface Water	H	1.00	1	54.60	
G. Sediment/Nutrient/Toxicant Removal	H	1.00	1	54.60	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	H	1.00	1	54.60	
J. Groundwater Discharge/Recharge	H	1.00	1	54.60	
K. Uniqueness	M	0.50	1	27.30	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		8.30	10.00	453.18	
Percent of Possible Score			83%		

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

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road **2. MDT Project** **Control**
3. Evaluation 8/24/18 **4. Evaluator** E.Crumb, S. Butler **5. Wetlands/Site #** Wetland F, Wetland G, and Wetland H
6. Wetland Location(s): i. T43N,R116W,34
 ii. **Approx. Stationing or Mileposts:**
 iii. 17040101 **Watershed Name,** Snake River headwaters, Teton County

7. a. Evaluating ERO Resources **8. Wetland** Min: 0.003 acres, Max: 0.550 acres, Avg: 0.200 acres (estimated)
b. Purpose of
 1. ☐ Wetlands potentially affected by MDT project
 2. ☐ Mitigation wetlands; pre-construction
 3. ☐ Mitigation wetlands; post-construction
 4. ☒ Other: Wetlands potentially affected by project
9. Assessment area Min: 0.003 acres, Max: 0.550 acres, Avg: 0.200 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	SI	30
S	SS	NA	SI	70

Abbreviation

(see manual for definitions)

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

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:

COMMON

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

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

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

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

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Slope and seep wetlands on slope above Moose-Wilson Road

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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** Grizzly bear(D)
 Secondary habitat (**list species**) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

- Primary or critical habitat (**list**
 Secondary habitat (**list species**) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☐ 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 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	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

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

Comments

Type of	Cold Water (CW) X	Warm Water (WW)	Use the CW or WW guidelines in the user manual to complete the
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<i>Duration of surface water in AA</i>	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
<i>Aquatic hiding / resting / escape cover</i>	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
<i>Thermal cover optimal / suboptimal</i>	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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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

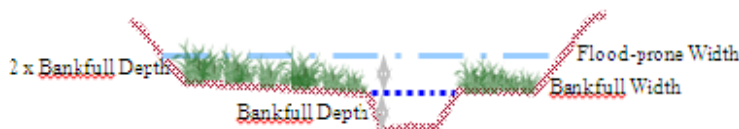
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- comments) for native fish or introduced game fish? ____ If yes, add 0.1 to the adjusted score in i or **ii**a.

iii. Final Score and	NA	Comments:
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14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded in-channel or overbank flow, mark **X NA** and proceed to 14F.)

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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

I	$=$	
<i>Flood-prone width</i>	<i>Bankfull width</i>	<i>Entrenchment ratio (ER)</i>



Slightly Entrenched ER = >2.2			Moderately Entrenched	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
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, surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **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	>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 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. (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					
	% cover of wetland vegetation in		>= 70%		< 70%		>= 70%		< 70%	
	Evidence of flooding / ponding in		Yes	No	Yes	No	Yes	No	Yes	No
	AA contains no or restricted		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 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	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	.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

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

0.60M

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.60	1		*
C. General Wildlife Habitat	H	0.90	1		*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water	NA				
G. Sediment/Nutrient/Toxicant Removal	NA				
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.60	1		
J. Groundwater Discharge/Recharge	M	0.70	1		*
K. Uniqueness	L	0.30	1		*
L. Recreation/Education Potential (bonus points)	NA				*
Totals:		4.10	6.00		
Percent of Possible Score			68%		

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

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

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

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

OVERALL ANALYSIS AREA

I

MDT Montana Wetland Assessment Form (revised March

1. Project Moose-Wilson Road **2. MDT Project** **Control**
3. Evaluation 8/24/18 **4. Evaluator** E.Crumb, S. Butler **5. Wetlands/Site #** Wetland H, Wetland I, and Wetland J
6. Wetland Location(s): i. T43N,R116W,34
 ii. **Approx. Stationing or Mileposts:**
 iii. 17040101 **Watershed Name,** Snake River headwaters, Teton County

7. a. Evaluating ERO Resources **8. Wetland** Min: 0.042 acres, Max: 0.050 acres, Avg: 0.045 acres (estimated)
b. Purpose of
 1. ☐ Wetlands potentially affected by MDT project
 2. ☐ Mitigation wetlands; pre-construction
 3. ☐ Mitigation wetlands; post-construction
 4. ☒ Other: Wetlands potentially affected by project
9. Assessment area Min: 0.042 acres, Max: 0.050 acres, Avg: 0.045 acres (estimated)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	FO	I	TE	100

Abbreviation

(see manual for definitions)

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

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:

RARE

(of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

12. General condition of

i.

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

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

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

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Depressional wetlands adjacent to Moose-Wilson Road

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

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	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES

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** Grizzly Bear(D)
 Secondary habitat (**list species**) Canada lynx(S)
 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	.8H	.7H	.3L	.1L	0L

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

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

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

Primary or critical habitat (**list**
 Secondary habitat (**list species**) Multiple(S)
 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	.7H	.6H	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7H	.6H	.5H	.2L	.1L	0L

Sources for documented use (e.g. observations, records,

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,
☐ presence of extremely limiting habitat features not available in the surrounding
☐ 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 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	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

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

Comments

Type of	Cold Water (CW) X	Warm Water (WW)	Use the CW or WW guidelines in the user manual to complete the
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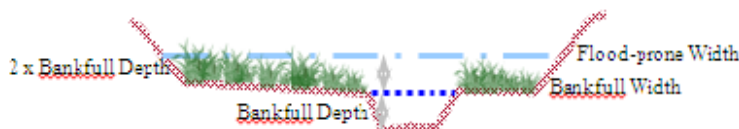
<i>Duration of surface water in AA</i>	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
<i>Aquatic hiding / resting / escape cover</i>	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
<i>Thermal cover optimal / suboptimal</i>	O	S	O	S	O	S	O	S	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	.2L
FWP Tier II or Native Game fish	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game	.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

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

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

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	75%	25-	<25%	75%	25-	<25%	75%	25-	<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

I	$=$	
Flood-prone width	Bankfull width	Entrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched	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
						

3

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **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].)

<i>Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic</i>	>5 acre feet			1.1 to 5 acre feet			<=1 acre foot		
<i>Duration of surface water at wetlands within the AA</i>	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 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. (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])

<i>Sediment, nutrient, and toxicant input levels within AA</i>	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				
<i>% cover of wetland vegetation in</i>	>= 70%		< 70%		>= 70%		< 70%		
<i>Evidence of flooding / ponding in</i>	Yes	No	Yes	No	Yes	No	Yes	No	
AA contains no or restricted	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 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)

<i>% Cover of wetland streambank or shoreline by species with stability ratings of >=6 (see</i>	<i>Duration of surface water adjacent to rooted vegetation</i>		
	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	.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

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 **0.30L** **Comments:**

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments Believed to be primarily from surface water collection, no nearby wetlands/drainages

14K.

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

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	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	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

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 ☐ Educational/scientific ☐ Consumptive ☐ Non-consumptive
☐ 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	.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	.1M	.05L

Comments

General Site Notes

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	1.00	1		*
B. MT Natural Heritage Program Species	M	0.60	1		*
C. General Wildlife Habitat	M	0.70	1		*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water	NA				
G. Sediment/Nutrient/Toxicant Removal	NA				*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	L	0.30	1		
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	M	0.40	1		
L. Recreation/Education Potential (bonus points)	NA				
Totals:		3.00	5.00		
Percent of Possible Score			60%		

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

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

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

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

OVERALL ANALYSIS AREA

I

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse
Pathway Project
Grand Teton National Park
Teton County, Wyoming

Prepared for—

National Park Service
United States Department of the Interior

July 17, 2026

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Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Contents

Introduction.....	1
Project Description	3
Study Area Location.....	3
Background.....	3
Ecological Setting.....	3
Study Area Description	4
<i>Sagebrush Shrubland</i>	9
<i>Aspen-Conifer Forest</i>	9
<i>Wetlands</i>	9
Methods	9
Wetland Study Area.....	9
Wetland Delineation	10
Wetland Classification	11
Wetland Functional Assessment.....	12
Jurisdictional Assessment	13
Results.....	14
Streams	14
<i>Intermittent Streams (OW1, OW2, and OW3)</i>	15
Wetlands.....	15
<i>PEM Wetlands (W1, W2, and W3)</i>	15
<i>PFO Wetlands (W4)</i>	16
MWAM Functional Assessment.....	16
<i>W1 (PEM) and OW1 – Moose Wilson Road near the Granite Canyon Entrance Station</i>	16
<i>W2 (PEM) and OW2 (Granite Ditch) – Moose Wilson Road near Granite Canyon Trailhead</i>	17
<i>W3 (PEM), W4 (PFO), and OW3 – Laurance S. Rockefeller Preserve</i>	17
Assessment of Potential Corps Jurisdictional Status.....	18
<i>Intermittent Streams (OW1, OW2, and OW3)</i>	18
<i>Wetlands (W1 through W4)</i>	18
Conclusions	18
References.....	19

Figures

Figure 1. Vicinity Map.....	2
Figure 2a. Wetlands and Waters.	5
Figure 2b. Wetlands and Waters.....	6
Figure 2c. Wetlands and Waters.	7
Figure 2d. Wetlands and Waters.....	8

Tables

Table 1. Waters and potential wetland area locations, size, Cowardin classification, and HGM.....	14
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Appendices

Appendix A Soil Map

Appendix B Plant Species List

Appendix C Photo Log

Appendix D Routine Wetland Determination Data Forms

Appendix E Montana Wetland Assessment Method Forms

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse
Pathway Project
Grand Teton National Park
Teton County, Wyoming

July 17, 2026

Introduction

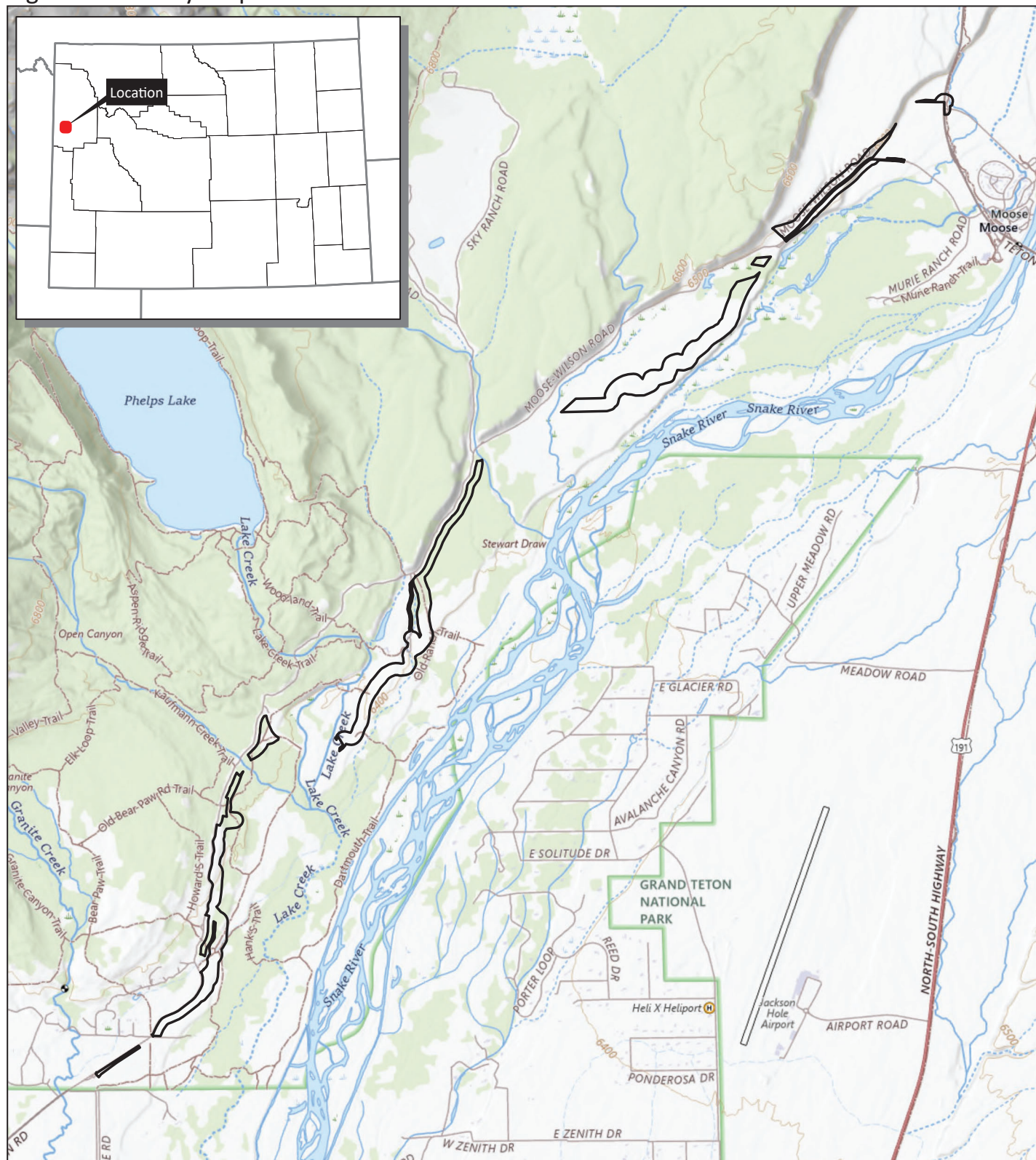
Grand Teton National Park (Park) is proposing to realign approximately 1.3 miles of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction and to construct a separated multiuse pathway extending the length of the Moose-Wilson Road Corridor (project).

ERO Resources Corporation (ERO), under contract to the National Park Service (NPS), conducted a wetland delineation in support of the proposed project in the Park, Teton County, Wyoming (Figure 1; study area) from June 15 through June 19, 2026 (2026 site visit).

During the 2026 site visit, ERO conducted a jurisdictional wetland delineation of the study area using criteria established in the U.S. Army Corps of Engineers (Corps) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010) to identify the location and extents of wetlands and other hydrologic features in the study area. Wetlands were also classified under the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) following NPS guidelines. ERO used the Montana Wetland Assessment Method (MWAM) to determine the baseline function and value of the wetlands delineated in the study area.

The jurisdictional wetland delineation identifies and documents wetlands and other aquatic features with enough detail for submission to the Corps for Clean Water Act (CWA) Section 404 permitting and to ensure NPS compliance with Director's Order (DO) #77-1: *Wetland Protection* (NPS 2025).

Figure 1. Vicinity Map



Aquatic Resources Inventory

Sections 4, 8, 9, 17, and 18, T42N, R116W; Sections 25, 26, 34, and 35, T43N, R116W; 6th PM

UTM NAD 83: Zone 12N; 518290mE, 4830558mN

Longitude 110.751273°W, Latitude 43.649610°N

USGS Teton Village, Grand Teton, and Moose, WY Quadrangles

Teton County, Wyoming

Study Area

Moose-Wilson Road Realignment and Separated Multiuse Pathway Project

Grand Teton National Park
Teton County, Wyoming

0 1,750 3,500
feet



Project Description

The study area encompasses Moose-Wilson Road and its corridor as well as the proposed realignment corridor (Figure 1). The Park is proposing an amendment to the 2016 Moose-Wilson Road Corridor Final Environmental Impact Statement Record of Decision (ROD) to incorporate specific elements of Alternative D, while continuing to implement the selected alternative (Alternative C). The amendment to the ROD would specifically authorize realignment of approximately 1.3 miles of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction and construction of a separated multiuse pathway extending the length of the Moose-Wilson Road Corridor. These actions refine previously analyzed Alternative D components to further reduce environmental impacts. Road realignment east of the beaver ponds associated with Sawmill Ponds would allow removal of the existing road and restoration of wetland functions, habitat connectivity, and native vegetation, benefiting wildlife that use the corridor and reducing vehicle/wildlife conflict risk.

The project includes development of a multiuse pathway generally paralleling the corridor, with minor alignment adjustments to avoid sensitive vegetation, accommodate terrain, and concentrate use in previously disturbed and existing developed areas. The pathway and road refinements are expected to minimize impacts on wetlands, wildlife habitat, soils, and vegetation, while improving visitor access and safety.

Study Area Location

The study area is along and near Moose-Wilson Road between Teton Village and Moose and includes the Moose-Wilson Road realignment and the separated multiuse pathway alignment locations (Figure 1). This study area was developed by NPS. The study area is 195 acres and focuses on the locations requiring review to support the Park's amendment to the ROD.

The study area is in Sections 4, 8, 9, 17, and 18, Township 42 North, Range 116 West and Sections 25, 26, 34, and 35, Township 43 North, Range 116 West of the 6th Principal Meridian in Teton County, Wyoming (Figure 1). The UTM coordinates of the approximate center of the study area are NAD 83 518290mE, 4830558mN, Zone 12N. The longitude/latitude of the study area is 110.773287°W/43.834268°N. The elevation of the study area ranges from 6,340 to 6,510 feet above sea level.

Background

Ecological Setting

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has mapped the study area within the Central Rocky Mountains Major Land Resource Area

(MLRA), which contains numerous national forests and lakes (USDA, NRCS 2022). The climate of the area typically consists of dry summers, except for brief, but intense, convective thunderstorms that occur during most afternoons in the mountains. Most of the precipitation during fall, winter, and spring is snow (USDA, NRCS 2022). The average annual precipitation is 25 to 60 inches, but can be up to 121 inches at higher elevations (USDA, NRCS 2022). This MLRA supports coniferous forests, with ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), Douglas-fir (*Pseudotsuga menziesii*), subalpine fir (*Abies lasiocarpa*), and spruce (*Picea* spp.) forests being the most common. Alpine grasses, forbs, shrubs, and scattered stands of subalpine fir, spruce, and whitebark pine (*Pinus albicaulis*) occur at higher elevations (USDA, NRCS 2022).

Additionally, the natural surface water hydrology of the area consists of several water bodies and features that are tributaries to the Snake River in the Greys-Hoback Watershed (HUC8 17040103) and Snake Headwaters Watershed (HUC8 17040101). The surface water features include several perennial and intermittent streams, wetland complexes, and beaver ponds. The average annual flow of the Snake River at Moose (from 2016 through 2025) is 2,607 cubic feet per second (USGS, n.d.). According to U.S. Geological Survey (USGS) records, daily flows range from 600 to 216,400 cubic feet per second (USGS, n.d.). The area is characterized by a continental climate with long cold winters and a short growing season. More than half of the precipitation occurs as snow that accumulates in a seasonal snowpack between October and April.

Study Area Description

The topography of the study area contains gentle slopes from the southwest rising toward the northeast. The USDA, NRCS mapping of the study area identifies 10 soil units (USDA, NRCS 2026b) (Appendix A). Soils in the study area consist of alluvium derived from igneous, metamorphic, and sedimentary rock and/or glaciofluvial deposits derived from igneous, metamorphic, and sedimentary rock, till, gravelly glaciofluvial sand, and gravelly glaciofluvial deposits (USDA, NRCS 2026b). Cryaquolls-Cryofibrists complex, Tetonville complex, and Tetonville-Wilsonville fine sandy loams are identified on the hydric soils list (USDA, NRCS 2024).

The dominant vegetation community observed in the study area during the 2026 site visit includes sagebrush shrubland and aspen-conifer forest. Less prevalent, but still notable, vegetation communities include palustrine emergent (PEM) and forested (PFO) wetlands and grasslands. A brief description of the observed vegetation communities in the study area is provided below. A list of plant species identified in the study area during the 2026 site visit is provided in Appendix B. Photo points of the study area are shown on Figure 2a through Figure 2d, and photographs of the study area are in Appendix C.

Figure 2a. Wetlands and Waters

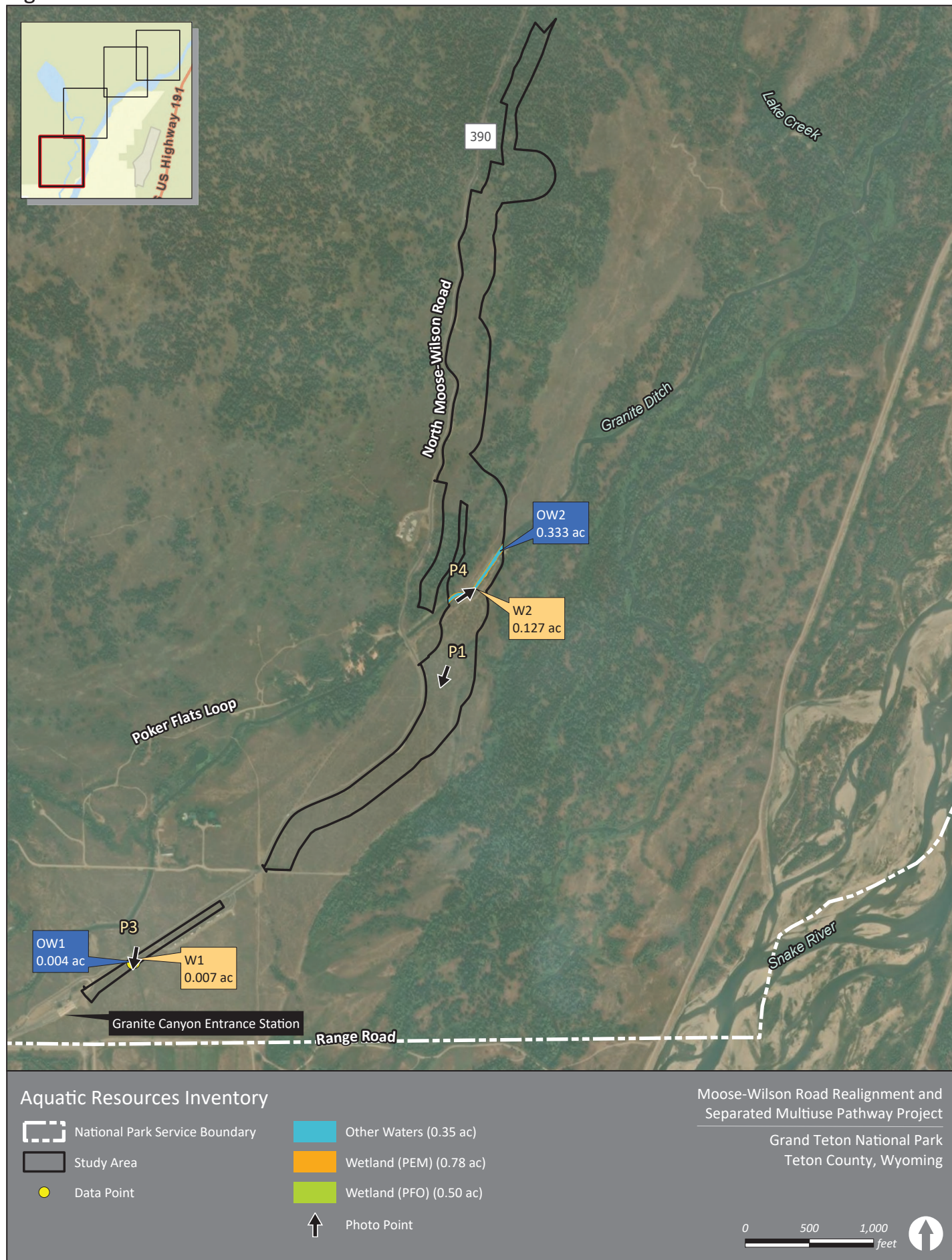


Figure 2b. Wetlands and Waters

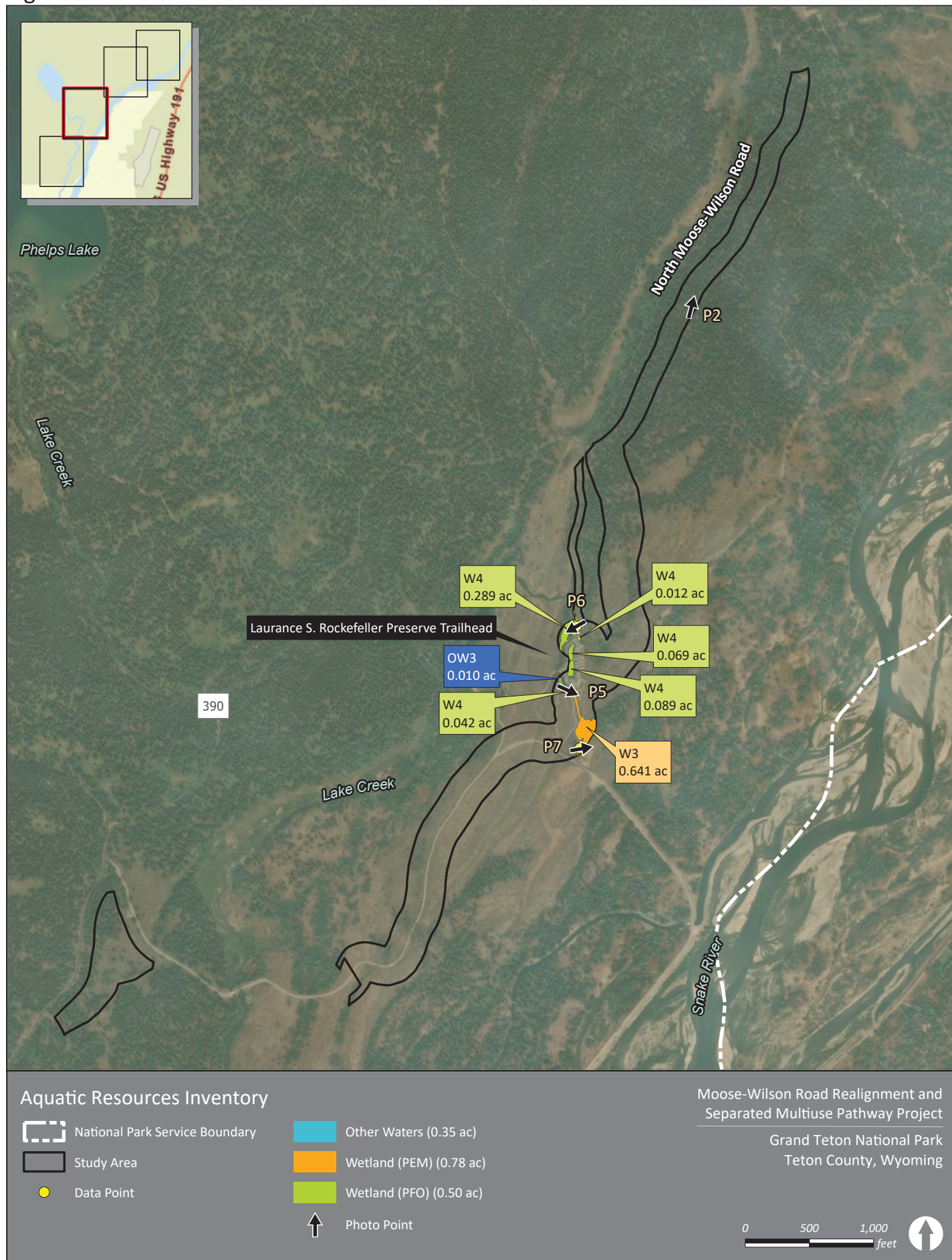


Figure 2c. Wetlands and Waters

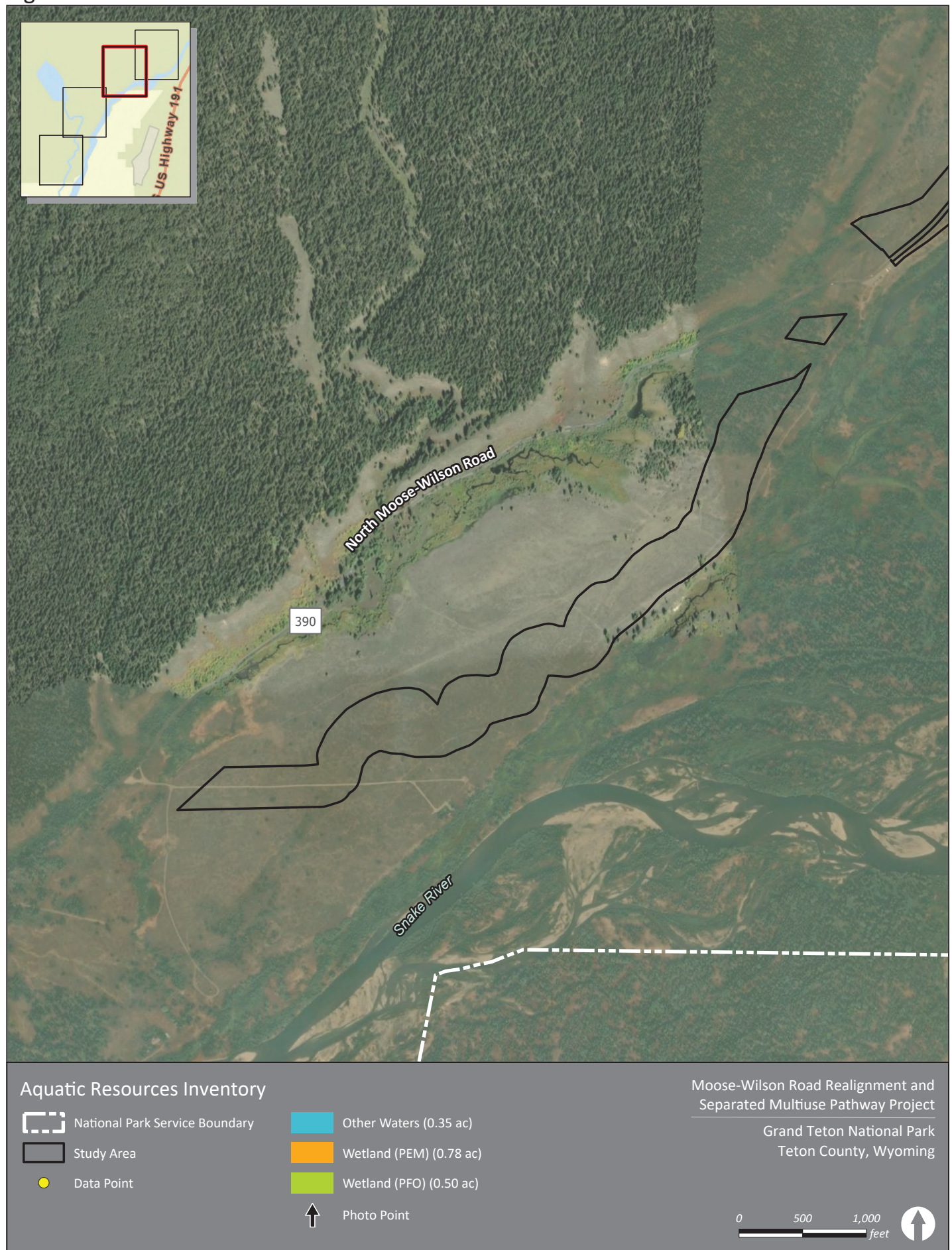
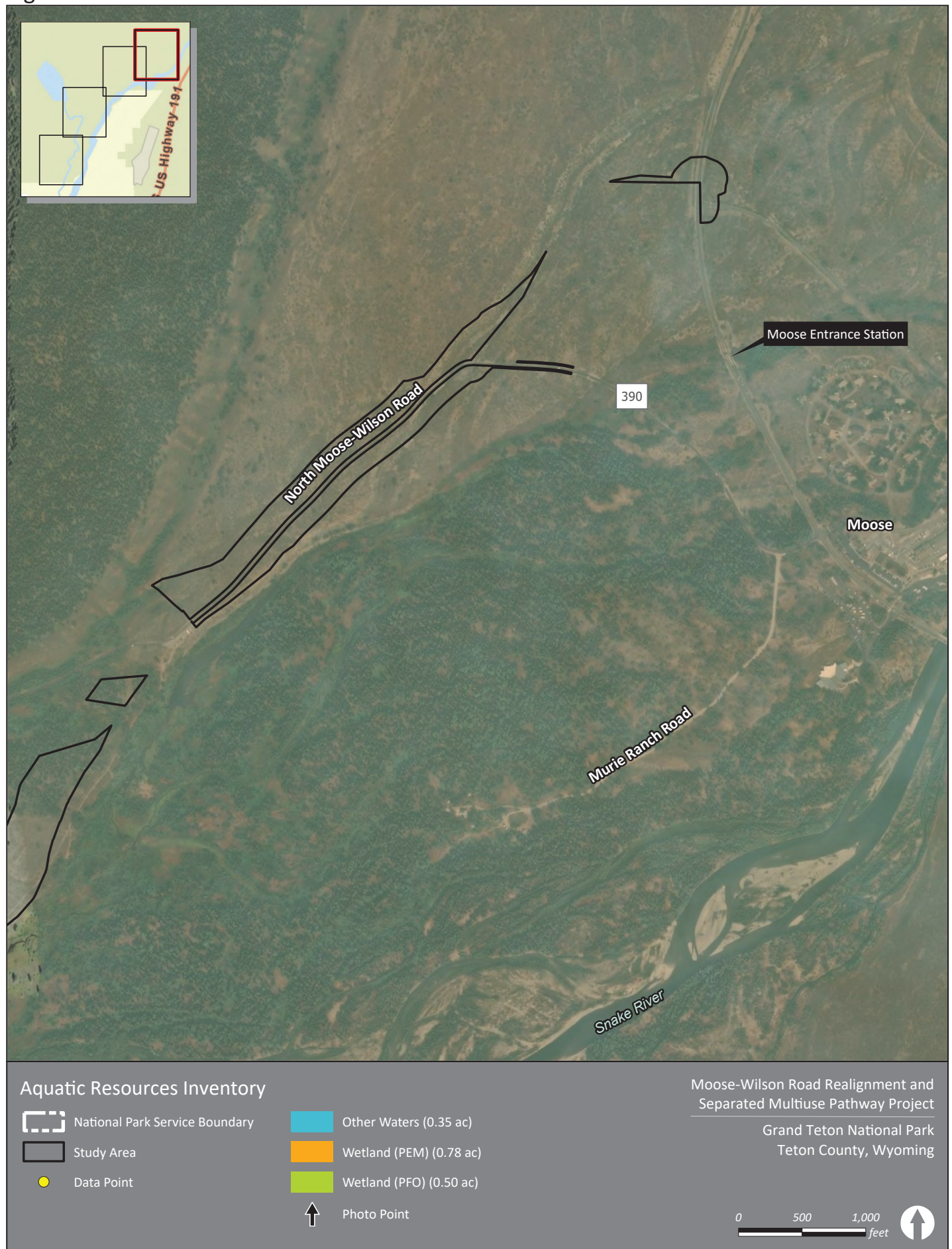


Figure 2d. Wetlands and Waters



Wetland Survey Point GPS:
 World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
 World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Sagebrush Shrubland

Sagebrush shrubland was the dominant habitat type observed throughout the study area during the 2026 site visit (Photo 1). The vegetation in this community observed during the 2026 site visit was dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and little sagebrush (*Artemisia arbuscula*) with an understory of Wyeth biscuitroot (*Lomatium ambiguum*), garden sorrel (*Rumex acetosa*), bluegrasses (*Poa* spp.), smooth brome (*Bromus inermis*), and silvery lupine (*Lupinus argenteus*).

Aspen-Conifer Forest

Aspen-conifer forest complexes are present in the remaining upland in portions of the study area (Photo 2; Figure 2a through Figure 2d). Dominant tree species in this community included quaking aspen (*Populus tremuloides*), narrowleaf cottonwood (*Populus angustifolia*), and lodgepole pine. Dominant understory shrubs in the aspen-conifer forest community were western snowberry (*Symphoricarpos occidentalis*) and Woods' rose (*Rosa woodsii*). Common herbaceous and forb species in this community included blue wildrye (*Elymus glaucus*), smooth brome, Kentucky bluegrass (*Poa pratensis*), sticky geranium (*Geranium viscosissimum*), alsike clover (*Trifolium hybridum*), and western coneflower (*Rudbeckia occidentalis*).

Wetlands

A small portion of the study area contains wetlands that were divided into PEM and PFO wetland classifications. Species commonly observed in these wetlands during the 2026 site visit included beaked sedge (*Carex utriculata*), American mannagrass (*Glyceria grandis*), Nebraska sedge (*Carex nebrascensis*), Timothy (*Phleum pratense*), Bebb's willow (*Salix bebbiana*), broadleaf cattail (*Typha latifolia*), and gray alder (*Alnus incana*).

Methods

Wetland Study Area

ERO conducted a jurisdictional wetland delineation in the study area defined by the NPS. The study area is shown on Figure 1 and Figure 2a through Figure 2d. The routine wetland determination data forms are provided in Appendix D. In 2018, ERO conducted a wetland delineation in areas adjacent to the 2026 study area. Data from the 2018 delineation are not included in this report and are instead presented in the previous ERO report (ERO 2018).

Wetland Delineation

ERO reviewed U.S. Fish and Wildlife Service (Service) National Wetlands Inventory (NWI) maps; USGS topographic maps; USDA, NRCS soil mapping; and aerial photographs of the study area before conducting fieldwork (USDA, NRCS 2026b; Service 2026; USGS 2026).

During the 2026 site visit, ERO biologists Marie Russo (Professional Wetland Scientist) and Emma Clary and cultural resource specialist Michelle Dinkel visited the study area to map the boundaries of wetlands and other waters. The weather during fieldwork was sunny and clear throughout the entirety of the survey days.

Wetlands were delineated using the methods for routine on-site wetland determinations in areas less than 5 acres as described in the *1987 Corps of Engineers Wetlands Delineation Manual (Manual)*, and used methods in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (Regional Supplement)* and *NPS Procedural Manual #77-1: Wetland Protection* (Environmental Laboratory 1987; Corps 2010; NPS 2025). Wetlands were determined based on the presence of three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology. The regional supplement suggests placing sampling locations in plant communities, soils conditions, and hydrology conditions that are representative of the project area and this recommendation was used to identify the sampling locations for collection of wetland and upland data.

Perennial, intermittent, and ephemeral drainages with characteristics of a defined streambed, streambank, ordinary high water mark (OHWM), and other erosional features also were identified. The OHWM identifies the lateral jurisdictional limits of nonwetland waters of the U.S. (WOTUS). Federal jurisdiction over nonwetland WOTUS extends to the OHWM, defined in 33 Code of Federal Regulations 328.3 as “the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.” The Corps defines “stream bed” as “the substrate of the stream channel between the OHWMs.”

The wetland indicator status for vegetation (Appendix B) was based on the most current National Wetland Plant List, and taxonomy was determined using *Flora of Colorado*, *Wetland Plants of the Northern Great Plains*, and *Manual of Montana Vascular Plants* (Corps 2023; Ackerfield 2015; Chadde 2012; Lesica 2022). The authority for nomenclature for plant species was taken from *The PLANTS Database* (USDA, NRCS 2026a).

Routine wetland determination data forms were completed at six data points (Appendix D). The boundaries of identified wetlands and other waters were mapped using ESRI Field Maps with a Juniper Systems Geode external antennae using SBAS real-time corrections that are accurate to

submeter. All global positioning system (GPS) information was recorded as NAD 1983 UTM Zone 12 North coordinates. GPS data were incorporated using ESRI® ArcGIS Desktop software onto aerial photography at a scale of 1 inch equaling 200 feet.

Wetland Classification

Potential wetlands were classified according to the Service Cowardin classification system (Cowardin et al. 1979) combined with a hydrogeomorphic (HGM) approach (Brinson 1993). The HGM approach assesses the chemical, physical, and biological functions of wetlands based on geomorphic setting, water source, and hydrodynamics. HGM classes found in Wyoming are mineral soil flats, organic soil flats, riverine, lacustrine fringe, slope, and depressional. The Cowardin classification uses a hierarchical structure of systems, subsystems, and classes to classify both wetlands and deepwater habitats. Wetlands with persistent or nonpersistent vegetation are classified in the Cowardin system as palustrine, which typically includes wetlands referred to as marshes, fens, wet meadows, and sloughs. The palustrine system also includes small, shallow, permanent, and intermittent water bodies such as ponds. Palustrine wetlands may be situated shoreward of lakes and river channels, on river floodplains, in isolated catchments, or on slopes (Cowardin et al. 1979). Under the palustrine system, wetlands are classified as emergent (PEM; erect, rooted, herbaceous, and usually perennial hydrophytes that remain standing until at least the next growing season); scrub-shrub (woody vegetation less than 20 feet tall); or forested (PFO; woody vegetation 20 feet or taller). In wetlands where more than one wetland type occurs, the wetland type of the largest area is used. For example, an area that is predominantly PEM wetlands but also contains a small amount of PFO wetlands (less than 25 percent total cover) would be categorized as PEM wetlands. Because of the limited occurrence of the smaller sized wetland types within the potential larger wetland polygons, these areas were not separated out within the delineated polygons.

The Cowardin riverine system includes wetlands and deepwater habitats contained within a channel, with the exception of wetlands dominated by trees, shrubs, and emergent vegetation. The riverine system usually contains flowing water and is bounded on the landward side by uplands, channel banks, or other wetlands. Within the riverine system, wetlands are divided into the tidal (R1), lower perennial (low gradient and slow water; R2); upper perennial (high gradient and fast water; R3); and intermittent (R4) subsystems. Within these subsystems, riverine wetlands are further classified as unconsolidated bottom (UB), aquatic bed (AB), streambed (SB), rocky shore (RS), unconsolidated shore (US), and emergent wetland (nonpersistent [EM]). During the wetland delineation, ERO classified the wetlands as PEM and PFO, and classified streams as R4SBC and R4SBCx subsystems.

Wetland Functional Assessment

ERO evaluated wetland functions using the MWAM (Berglund and McEldowney 2008). The MWAM uses a classification system that combines the Service's Cowardin classification system with a HGM approach and provides a landscape context to the Service's classification (Cowardin et al. 1979; Brinson 1993). The MWAM is a rapid functional assessment process designed primarily to address wetland resources associated with linear projects such as highways and pipelines, although it can be applied to all types of projects. The MWAM is commonly used throughout the western United States and is accepted by the Corps. HGM classes found in Montana and Wyoming are mineral soil flats, organic soil flats, riverine, lacustrine fringe, slope, and depressional. The Cowardin classification and HGM approach are discussed above.

For each function and value, the MWAM provides a rating of low, moderate, high, exceptional, or not applicable based on observations and responses to questions. For each wetland, the MWAM scores each function or value on a scale of 0.1 (lowest) to 1.0 (highest) functional points. When all functional points are totaled, the maximum number of functional points is 12. Typically, wetlands that are larger and more diverse receive more points. Once the total functional points for wetlands are calculated, each wetland is assigned to one of the following four categories based on total functional points and other criteria described in the MWAM:

- **Category I:** Wetlands of exceptionally high quality that are generally rare. Category I wetlands can provide primary habitat for federally listed threatened or endangered species; represent a high-quality example of a rare wetland type; provide irreplaceable ecological functions (e.g., are not replaceable within a human lifetime, if at all); exhibit exceptionally high flood attenuation capability; or are assigned high ratings for most of the assessed functions and values resulting in the total actual functional points greater than 80 percent of the total possible functional points.
- **Category II:** Wetlands that are more common than those in Category I, provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given area, or are assigned high ratings for many of the assessed functions and values resulting in the total actual functional points greater than 65 percent of the total possible functional points.
- **Category III:** Wetlands that are more common, generally less diverse, and often smaller and more isolated than those in Categories I and II. These wetlands can provide many functions and values, although they may not be assigned high ratings for as many parameters as those in Categories I and II (30 percent to 65 percent of possible points).
- **Category IV:** Wetlands that are generally small, isolated, and lack vegetative diversity. These wetlands provide little in the way of wildlife habitat and are often directly or indirectly disturbed. Category IV wetlands rate low for uniqueness and production export/food chain support, and the total actual functional points are less than 30 percent of the total possible functional points.

Functional assessments were conducted following the 2026 site visit for wetlands grouped based on HGM and either water source or wetland type. Wetlands in each group generally have similar plant communities, have similar hydrology, and provide similar functions. The following groupings were used for the MWAM assessments in the wetland study area: PEM grouping: W1, W2, and W3; and PFO grouping: W4. Functional assessment data forms are in Appendix E.

Jurisdictional Assessment

The CWA protects the chemical, physical, and biological quality of WOTUS. The Corps' Regulatory Program administers and enforces Section 404 of the CWA. Under Section 404, a Corps permit is required for the discharge of dredged or fill material into wetlands and other WOTUS (streams, ponds, and other water bodies). Since the regulatory program was initiated, the definition of WOTUS has changed frequently due to United States Supreme Court (Supreme Court) decisions and new rules proposed by presidential administrations. On August 29, 2023, the U.S. Environmental Protection Agency (EPA) and Corps announced a final rule amending the 2023 definition of "waters of the U.S." to conform with the Supreme Court ruling under *Sackett v. EPA*, No. 21-454 (amended rule). The amended rule reduces the jurisdiction of the CWA over wetlands adjacent to bodies of water that do not have a continuous surface connection to other known WOTUS, as well as streams that do not have continuous flowing or relatively permanent water. The amended rule removes the "significant nexus" standard that was created under *Rapanos v. United States*, removes interstate wetlands from the definition of WOTUS, and revises the definition of "adjacent" to mean "having a continuous surface connection." Wetlands that do not have a contiguous surface connection to a jurisdictional traditionally navigable water or tributary are no longer jurisdictional, as well as ephemeral streams that do not have relatively permanent water. On November 25, 2025, the EPA and Corps announced a proposed rule to revise the definition of WOTUS (Corps and EPA 2025). The proposed rule codifies the requirements of *Sackett vs. EPA* and represents the Corps' and EPA's attempt to create a clearer, more durable regulatory definition of WOTUS that removes the "significant nexus" test and provides definition of key terms including "relatively permanent," "continuous surface connection," and "tributary." While ERO may provide its opinion on the likely jurisdictional status of the potential wetlands and waters, only the Corps can make the final determination of jurisdiction based on the current rulings. Wetlands and waters that are not under the Corps' jurisdiction will still be protected under DO #77-1 (NPS 2025).

As requested by the NPS, ERO reviewed the proximity and potential surface water connection of potential wetlands to known jurisdictional WOTUS using the National Hydrography Dataset (NHD), aerial photo interpretation, and information from the wetland delineation (USGS 2025; Google, Inc. 2025). Additionally, Wyoming Climate Data were reviewed to determine if the region was experiencing wet, normal, or dry precipitation conditions (AgACIS, n.d.-a, n.d.-c).

This information was used to provide a preliminary assessment of likely jurisdictional status for each wetland and water in the study area. Using the amended rule (described above), wetlands that do not have a contiguous surface connection to a jurisdictional traditionally navigable water or tributary, and ephemeral streams that do not have relatively permanent water, are nonjurisdictional. Wetlands that have a contiguous surface water connection and waters that have relatively permanent water and a contiguous surface connection to the Snake River (a known jurisdictional water) are likely jurisdictional.

Results

Table 1 provides a summary of the mapped waters and wetlands in the study area, including Cowardin classification and HGM for each water and wetland. Approximately 0.35 acre of stream channel (other waters [OW]) and 1.28 acres of wetlands (W) occur in the study area, totaling 1.63 acres delineated during the 2026 site visit (Figure 2a through Figure 2d). The Wyoming Climate Data indicated that the region was experiencing normal precipitation conditions during the 2026 site visit (AgACIS, n.d.-b). Wetlands and other waters found in the study area during the 2026 site visit are described below.

Table 1. Waters and potential wetland area locations, size, Cowardin classification, and HGM.

Water/Wetland ID ¹	Feature Size (acre)	Cowardin Classification ²	HGM	Corps Regulatory Jurisdiction	NPS DO #77-1 Compliance Jurisdiction
OW1	0.004	R4SBC	-	No	Yes
OW2 (Granite Ditch)	0.333	R4SBCx	-	No	Yes
OW3	0.010	R4SBC	-	No	Yes
Total OW	0.35				
W1	0.007	PEM	Riverine	No	Yes
W2	0.127	PEM	Riverine	Yes	Yes
W3	0.641	PEM	Riverine	No	Yes
W4	0.501	PFO	Riverine	No	Yes
Total W	1.28				

¹OW = other water; W = wetland.

²R4SBC = riverine intermittent streambed seasonally flooded; R4SBCx = riverine intermittent streambed seasonally flooded excavated; PFO = palustrine forested; PEM = palustrine emergent.

Streams

The study area is within Hydrologic Unit Code 12 Lake Creek (170401030501). ERO mapped a total of approximately 0.35 acre of stream channel during the 2026 site visit. The National Drought Monitor indicated that the region was experiencing moderate drought conditions during the 2026 site visit (National Drought Mitigation Center 2026). While these conditions may have reduced surface water presence at the time of the investigation, sufficient hydrologic, geomorphic, and vegetation indicators were present to support determinations of whether

stream conditions were indicative of ephemeral, intermittent, or perennial flow. Ephemeral streams typically only flow following precipitation, while intermittent streams flow seasonally when upstream waters and groundwater are flowing with precipitation providing supplemental inputs (EPA 2025). Intermittent streams may not have flowing water during dry periods. Perennial streams have year-round flowing water and are supported by upstream waters and groundwater with precipitation providing supplemental inputs. Perennial streams may not have flowing water during extremely dry seasons (EPA 2025).

Intermittent Streams (OW1, OW2, and OW3)

A total of 0.35 acre of intermittent streams were identified during the 2026 site visit. OW1, OW2, and OW3 were field identified as intermittent streams (Photo 3 through Photo 5). USGS Grand Teton and Teton Village, Wyoming topographic quadrangle maps differ from field observations, depicting OW1 as absent, OW2 as perennial, and OW3 as intermittent (USGS 2021b, 2021a). On the NWI, OW1 and OW3 are classified as R4SBC (riverine intermittent streambed seasonally flooded), while OW2 is classified as R4SBCx, indicating an excavated intermittent streambed consistent with a seasonally flooded ditch. During the 2026 site visit, the entire mapped OW1, OW2 and OW3 areas had flowing water (Photo 6; Figure 2a through Figure 2d).

Wetlands

The USGS Grand Teton and Teton Village, Wyoming topographic quadrangle maps show some of the wetlands in the study area (USGS 2021b, 2021a). The 2026 site visit identified 1.28 acres of wetlands, which were categorized as PFO and PEM wetlands. The following method was applied to determine the dominant wetland type. An area was classified as a PFO wetland if the tree hydrophytic stratum was at least 30 percent of the total cover. An area was categorized as a PEM wetland if the herbaceous stratum had a minimum total cover of 5 percent.

PEM Wetlands (W1, W2, and W3)

PEM wetlands (W1, W2, and W3) were identified throughout the study area and totaled 0.775 acre (Figure 2a through Figure 2d).

Vegetation

The dominant emergent vegetation observed in the PEM wetlands during the 2026 site visit included beaked sedge (obligate wetland [OBL]), Nebraska sedge (OBL), fowl bluegrass (*Poa palustris* - facultative [FAC]), and Nebraska sedge (OBL) (Photo 7). Indicators of hydrophytic vegetation were met by passing the dominance test.

Hydrology

Wetland hydrology indicators observed in the PEM wetlands included oxidized rhizospheres along living roots, saturation visible on aerial imagery, geomorphic position, and a positive FAC-neutral test.

Soils

Soils in the PEM wetlands had matrix colors of 10YR 3/1, 10YR 2/1, and 10YR 2/2, often with redoximorphic colors of 7.5YR 4/6 or 5YR 4/6 and had textures of sandy clay loam, clay loam, and organic matter. Hydric soils indicators met included redox dark surface and depleted matrix.

PFO Wetlands (W4)

PFO wetlands (W4) are primarily located around the Laurance S. Rockefeller Preserve and totaled 0.501 acre (Figure 2a through Figure 2d).

Vegetation

The PFO wetlands were dominated by species including gray alder (facultative wetland [FACW]), (Photo 6; Figure 2a through Figure 2d), fowl bluegrass, orchardgrass (*Dactylis glomerata* - facultative upland [FACU]), and lodgepole pine. Indicators of hydrophytic vegetation were met by passing the dominance test.

Hydrology

Wetland hydrology indicators observed in the PFO wetlands during the 2026 site visit included surface water, high water table, saturation, geomorphic position, and saturation visible on aerial imagery.

Soils

Soils in the PFO wetlands had a matrix color of 10YR 3/2. A rock layer was encountered at approximately 2 inches, preventing observation of redoximorphic features. Hydric soils were inferred based on other wetland indicators and a distinct wetland–upland boundary.

MWAM Functional Assessment

The MWAM Functional Assessment was completed for each wetland delineated in the study area and the results are discussed below.

W1 (PEM) and OW1 – Moose Wilson Road near the Granite Canyon Entrance Station

W1 and OW1 were evaluated based on their functionality and separation from other delineated features. W1 is a PEM wetland located near the Granite Canyon Entrance Station and occurs as

fringes along an intermittent stream (OW1). The area has moderate potential to provide habitat for grizzly bear and yellow-billed cuckoo (Service 2026a). Overall, W1 and OW1 provide moderate general wildlife habitat due to their small size and proximity to a major road, serving primarily as transient habitat for birds and other small wildlife. This wetland provides high sediment and shoreline stabilization and recreation and education potential. Moderate functionality is provided by short- and long-term surface water storage, sediment, nutrient, and toxicant removal, production export and food chain support, and groundwater discharge and recharge. Flood attenuation and uniqueness are limited due to the wetland's small size and disturbed setting. The overall possible score was 57 percent, with the wetland rating as Category IV. Additional details can be found on the MWAM form in Appendix E.

W2 (PEM) and OW2 (Granite Ditch) – Moose Wilson Road near Granite Canyon Trailhead

W2 and OW2 were evaluated individually based on their functionality and separation from other delineated features. W2 is a PEM wetland located near the Granite Canyon Trailhead and occurs as a fringe along OW2. The area has moderate potential to provide habitat for grizzly bear and yellow-billed cuckoo (Service 2026) and provides high general wildlife habitat. W2 and OW2 also offer high short- and long-term water storage, production export and food chain support, groundwater discharge and recharge, and recreation and education potential. Moderate functionality is provided by sediment, nutrient, and toxicant removal, high sediment and shoreline stabilization, and the uniqueness of the wetland type. W2 and OW2 provide low flood attenuation due to OW2 being an excavated feature with steep banks and no established floodplain connectivity. The overall possible score was 72 percent, with the wetland rating as Category II. Additional details can be found on the MWAM form in Appendix E.

W3 (PEM), W4 (PFO), and OW3 – Laurance S. Rockefeller Preserve

W3, W4, and OW3 were evaluated together based on their functionality and hydrologic connection. W3 is a PEM wetland and W4 is a PFO wetland surrounding the Laurance S. Rockefeller Preserve. OW3 is an intermittent stream that flows through a portion of W4 and around the perimeter of the preserve and passes beneath several culverts. OW3 is the primary hydrology source for W3 and W4. The area has moderate potential to provide habitat for grizzly bear and yellow-billed cuckoo (Service 2026). Overall, W3, W4, and OW3 provide moderate general wildlife habitat value due to their location within a heavily developed and highly visited area of the park. Moderate functionality is provided by flood attenuation, sediment, nutrient, and toxicant removal, and production export/food chain support. High functionality is provided by short- and long-term surface water storage, sediment and shoreline stabilization, groundwater discharge and recharge, the uniqueness of the wetland type, due to containing a sizeable PFO wetland, and recreation and education potential. The overall possible score was 73 percent, with the wetlands rating as Category II. Additional details can be found on the MWAM form in Appendix E.

Assessment of Potential Corps Jurisdictional Status

All features identified during the 2026 site visit would be regulated by the NPS under DO #77-1 (NPS 2025). To assess the features for potential Corps jurisdiction, ERO reviewed the proximity and potential surface water connection of wetlands and other waters to known jurisdictional WOTUS using aerial photo interpretation.

Intermittent Streams (OW1, OW2, and OW3)

Although OW2 has a continuous downstream surface connection to the Snake River, a known jurisdictional WOTUS, it would likely be considered nonjurisdictional because it is a man-made feature excavated in uplands that would likely revert to uplands if all irrigation water ceased. In contrast, OW1 and OW3 do not have surface connections to any known WOTUS. Desktop review of the NHD (USGS 2026) and other available sources indicates that both features terminate in uplands rather than flowing into downstream waters. Accordingly, OW1 and OW3 are also likely nonjurisdictional.

Wetlands (W1 through W4)

W1, W3, and W4 derive their hydrology from intermittent streams that lack a continuous downstream surface connection to a known WOTUS. Because these wetlands are not adjacent to or continuously connected with a jurisdictional water and instead are associated with isolated, nonjurisdictional drainage features, they are likely considered nonjurisdictional.

W2 consists of wetlands that fringe OW2, which is likely nonjurisdictional because it is a man-made feature excavated in uplands. It is likely that if all irrigation water ceased, the channel and wetland fringe would revert to uplands. Therefore, W2 is also likely nonjurisdictional.

Conclusions

ERO delineated a total of 0.35 acre of stream channel (intermittent OWs) and a total of 1.28 acres of palustrine (PEM and PFO) wetlands during the 2026 site visit. Based on a combination of desktop analysis and field survey, all 0.35 acre of stream channel and 1.28 acres of wetlands fall under the regulatory jurisdiction of the NPS wetlands program. Based on the current interpretation of the present WOTUS rule, it is likely that none of the stream channel or wetlands fall under the regulatory jurisdiction of the Corps. Based on the functional assessment, W1 and OW1 are Category IV wetlands and W2, W3, W4, OW2, and OW3 are Category II wetlands.

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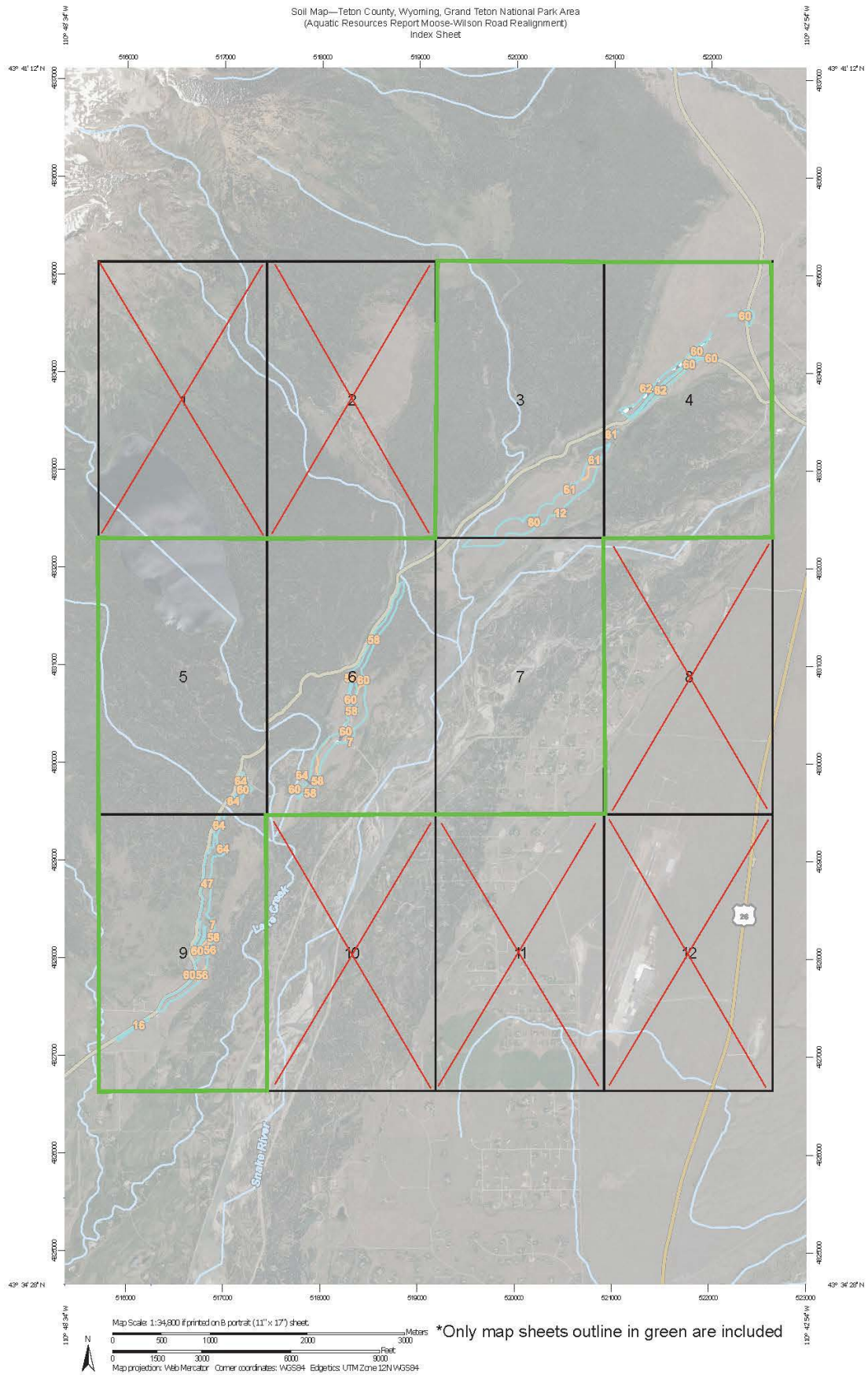
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Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Appendix A Soil Map

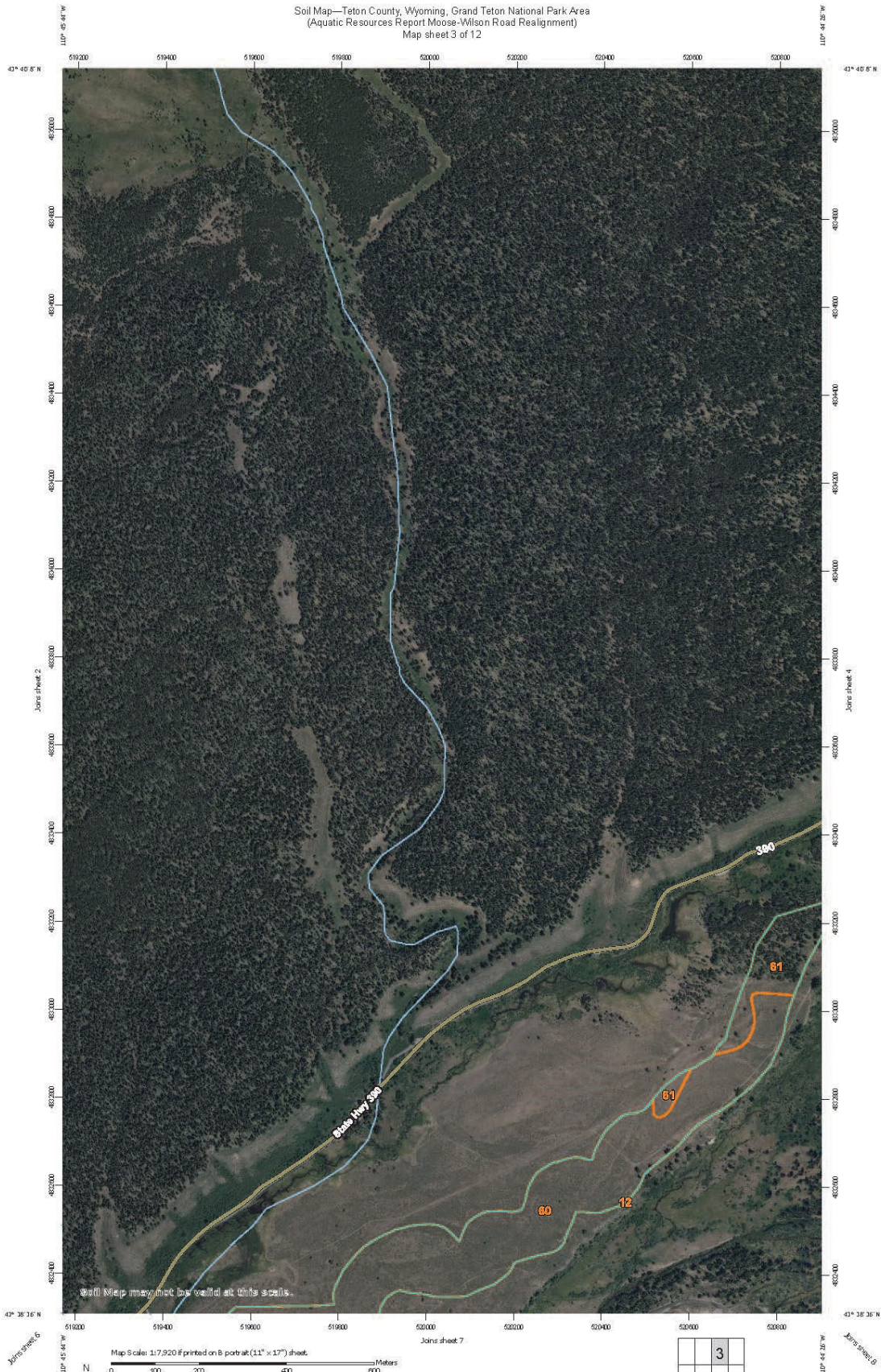
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Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

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Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Index Sheet



Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 3 of 12



Soil Map may not be valid at this scale.



Map Scale: 1:7,920 if printed on 8.5" x 11" sheet.
0 100 200 400 600 Meters
0 300 600 900 1200 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edgetics: UTM Zone 12N WGS84



Natural Resources
Conservation Service

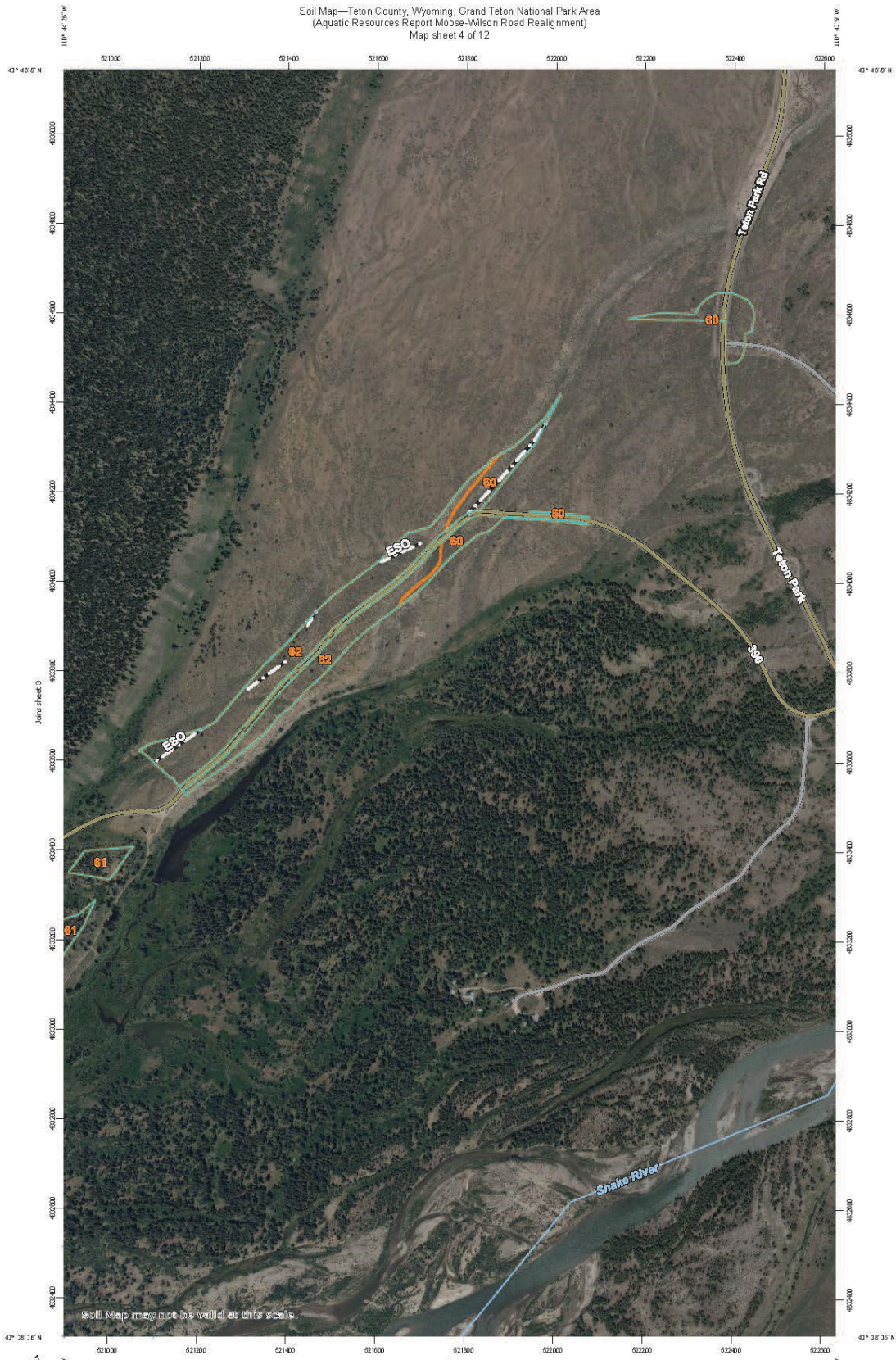
Web Soil Survey
National Cooperative Soil Survey

		3	

Map Sheet Location

6/12/2026
Page 4 of 15

Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 4 of 12



Map Scale: 1:7,920 if printed on 8.5" x 11" sheet.
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Map projection: Web Mercator Corner coordinates: WGS84 Edgepoints: UTM Zone 12N WGS84

			4

Map Sheet Location

USDA Natural Resources Conservation Service

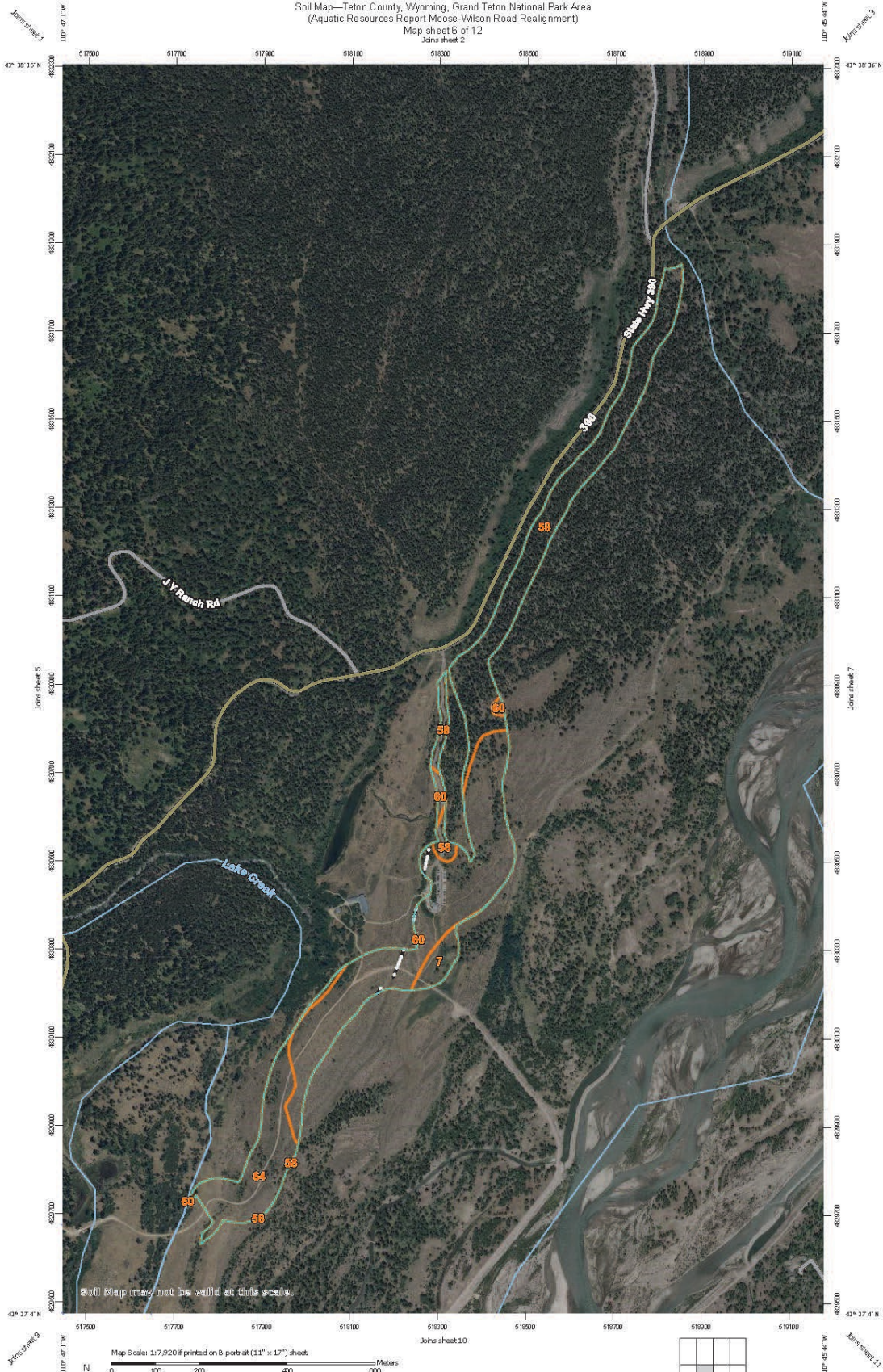
Web Soil Survey National Cooperative Soil Survey

6/12/2026
Page 5 of 15

Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 5 of 12
Joins sheet 1



Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 6 of 12
Joins sheet 2



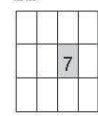
Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 7 of 12
Joins sheet 3



Soil Map may not be valid at this scale.

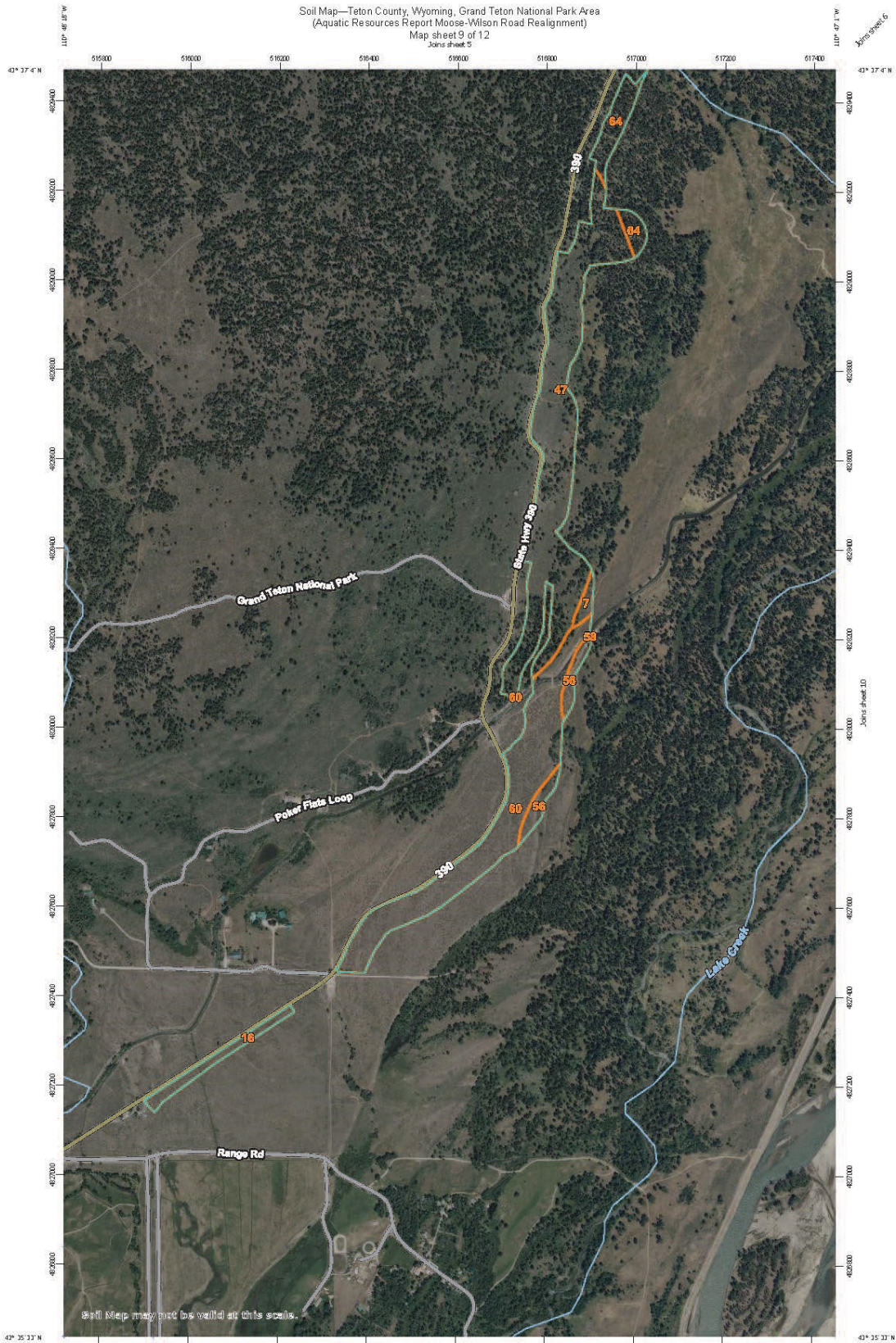


Map Scale: 1:7,920 if printed on 8.5" x 11" sheet.
0 100 200 400 600 Meters
0 300 600 900 1200 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge: UTM Zone 12N WGS84



Map Sheet Location

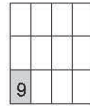
Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)
Map sheet 9 of 12
Join sheet 5



Map Scale: 1:7,920 if printed on 8.5" x 11" sheet.
0 100 200 400 600 Meters
0 300 600 1200 2400 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edgepoints: UTM Zone 12N WGS84

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey



Map Sheet Location

Soil Map—Teton County, Wyoming, Grand Teton National Park Area
(Aquatic Resources Report Moose-Wilson Road Realignment)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Teton County, Wyoming, Grand Teton National Park Area

Survey Area Data: Version 20, Sep 4, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 16, 2021—Jun 22, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Charlos loam	2.5	1.3%
12	Cryaquolls-Cryofibrists complex *	0.0	0.0%
16	Greyback-Charlos complex	1.9	1.0%
47	Taglake-Sebud association *	23.9	12.4%
56	Tetonville complex	2.1	1.1%
58	Tetonville-Wilsonville fine sandy loams	18.0	9.4%
60	Tineman gravelly loam	98.7	51.3%
61	Tineman gravelly loam, wet	10.6	5.5%
62	Tineman-Bearmouth gravelly loams, 0 to 3 percent slopes	19.5	10.1%
64	Tineman association *	15.0	7.8%
Totals for Area of Interest		192.3	100.0%

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Appendix B Plant Species List

Scientific Name	Common Name	Life Form [†]	Status	Wetland Indicator ^{**}
<i>Achillea millefolium</i>	Common yarrow	F	Native	FACU
<i>Agrostis gigantea</i>	Black bent	G	Introduced	FAC
<i>Alnus incana</i>	Gray alder	T/S	Native	FACW
<i>Antennaria umbrinella</i>	Umbel pussytoes	F	Native	UPL
<i>Arctostaphylos uva-ursi</i>	Bearberry	S	Native	UPL
<i>Arnica cordifolia</i>	Heartleaf arnica	F	Native	FACU
<i>Artemisia tridentata</i> var. <i>vaseyana</i>	Mountain big sagebrush	S	Native	UPL
<i>Balsamorhiza sagittata</i>	Arrowleaf balsamroot	F	Native	UPL
<i>Bromus inermis</i>	Smooth brome	G	Introduced	UPL
<i>Calamagrostis canadensis</i>	Bluejoint	G	Native	FACW
<i>Campanula rotundifolia</i>	Bluebell bellflower	F	Native	FACU
<i>Carduus nutans</i>	Musk thistle	F	Noxious	UPL
<i>Carex aquatilis</i>	Water sedge	G	Native	OBL
<i>Carex nebrascensis</i>	Nebraska sedge	G	Native	OBL
<i>Carex pellita</i>	Woolly sedge	G	Native	OBL
<i>Carex utriculata</i>	Beaked sedge	G	Native	OBL
<i>Castilleja miniata</i>	Giant red Indian paintbrush	F	Native	FACW
<i>Cirsium arvense</i>	Canada thistle	F	Noxious	FAC
<i>Collomia linearis</i>	Tiny trumpet	F	Native	UPL
<i>Dactylis glomerata</i>	Orchardgrass	G	Introduced	FACU
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil	S	Native	FAC
<i>Elaeagnus commutata</i>	American silverberry	T	Native	FAC
<i>Eleocharis palustris</i>	Common spikerush	G	Native	OBL
<i>Equisetum arvense</i>	Field horsetail	F	Native	FAC
<i>Equisetum laevigatum</i>	Smooth scouring rush	F	Native	FACW
<i>Eremogone congesta</i>	Ballhead sandwort	F	Native	UPL
<i>Eriogonum umbellatum</i>	Sulphur-flower buckwheat	F	Native	UPL
<i>Fragaria virginiana</i>	Virginia strawberry	F	Native	FACU
<i>Frasera speciosa</i>	Monument flower	F	Native	UPL
<i>Geranium viscosissimum</i>	Sticky geranium	F	Native	FACU
<i>Geum aleppicum</i>	Yellow avens	F	Native	FACW
<i>Geum macrophyllum</i>	Large-leaf avens	F	Native	FAC
<i>Glyceria grandis</i>	American mannagrass	G	Native	OBL
<i>Hesperostipa comata</i>	Needle and thread	G	Native	UPL
<i>Ipomopsis aggregata</i>	Scarlet gilia	F	Native	UPL
<i>Juncus balticus</i>	Baltic rush	G	Native	FACW
<i>Juncus ensifolius</i>	Swordleaf rush	G	Native	FACW
<i>Juniperus communis</i>	Common juniper	S	Native	FACU
<i>Lactuca serriola</i>	Prickly lettuce	F	Introduced	FACU
<i>Lomatium ambiguum</i>	Wyeth biscuitroot	F	Native	UPL
<i>Lonicera involucrata</i>	Twinberry	S	Native	FAC
<i>Lupinus argenteus</i>	Silvery lupine	F	Native	UPL
<i>Mahonia repens</i>	Creeping Oregon grape	S	Native	UPL
<i>Medicago lupulina</i>	Black medic	F	Introduced	FACU
<i>Melilotus officinalis</i>	Sweetclover	F	Introduced	FACU
<i>Mentha arvensis</i>	American wild mint	F	Native	FACW
<i>Pascopyrum smithii</i>	Western wheatgrass	G	Native	FACU
<i>Penstemon cyananthus</i>	Wasatch penstemon	F	Native	UPL
<i>Phalaris arundinacea</i>	Reed canarygrass	G	Introduced	FACW
<i>Phleum pratense</i>	Timothy	G	Introduced	FAC
<i>Picea engelmannii</i>	Engelmann spruce	T	Native	FAC
<i>Picea pungens</i>	Blue spruce	T/S	Native	FAC
<i>Pinus contorta</i>	Lodgepole pine	T	Native	FAC
<i>Platanthera huronensis</i>	Huron green orchid	F	Native	OBL
<i>Poa compressa</i>	Canada bluegrass	G	Introduced	FACU
<i>Poa palustris</i>	Fowl bluegrass	G	Native	FAC

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Scientific Name	Common Name	Life Form*	Status	Wetland Indicator**
<i>Populus angustifolia</i>	Narrowleaf cottonwood	T/S	Native	FACW
<i>Populus tremuloides</i>	Quaking aspen	T	Native	FACU
<i>Potentilla gracilis</i>	Graceful cinquefoil	F	Native	FAC
<i>Prunus virginiana</i>	Chokecherry	S	Native	FACU
<i>Pseudotsuga menziesii</i>	Douglas-fir	T	Native	FACU
<i>Purshia tridentata</i>	Antelope bitterbrush	S	Native	UPL
<i>Ranunculus inamoenus</i>	Graceful buttercup	F	Native	FACW
<i>Ribes inerme</i>	Whitestem gooseberry	S	Native	FACU
<i>Rosa woodsii</i>	Woods' rose	S	Native	FACU
<i>Rumex acetosella</i>	Common sheep sorrel	F	Introduced	FACU
<i>Salix boothii</i>	Booth's willow	S	Native	FACW
<i>Salix exigua</i>	Narrowleaf willow	S	Native	FACW
<i>Salix geyeriana</i>	Geyer's willow	S	Native	FACW
<i>Salix monticola</i>	Mountain willow	S	Native	FACW
<i>Salix planifolia</i>	Tealeaf willow	S	Native	FACW
<i>Sedum lanceolatum</i>	Spearleaf stonecrop	F	Native	UPL
<i>Shepherdia canadensis</i>	Russet buffaloberry	S	Native	UPL
<i>Solidago canadensis</i>	Canada goldenrod	F	Native	FACU
<i>Solidago gigantea</i>	Late goldenrod	F	Native	FACW
<i>Symphoricarpos oreophilus</i>	Mountain snowberry	S	Native	FACU
<i>Tragopogon dubius</i>	Yellow salsify	F	Introduced	UPL
<i>Trifolium hybridum</i>	Alsike clover	F	Introduced	FAC
<i>Trifolium pratense</i>	Red clover	F	Introduced	FACU
<i>Trifolium repens</i>	White clover	F	Introduced	FAC
<i>Tripleurospermum inodorum</i>	Scentless chamomile	F	Introduced	FACU
<i>Typha latifolia</i>	Broadleaf cattail	G	Native	OBL

*F = Forb; G = Graminoid; S = Shrub; T = Tree.

**Facultative Wetland (FACW)—Estimated 67%–99% probability of occurrence in wetlands.

Facultative (FAC)—Equally likely to occur in wetlands and nonwetlands (34%–66% probability).

Facultative Upland (FACU)—67%–99% probability in nonwetlands, 1%–33% in wetlands.

Upland (UPL)—>99% probability in nonwetlands in this region.

NI—No Indicator or no information available.

Source: Corps 2020.

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Appendix C Photo Log

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

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PHOTO LOG
MOOSE-WILSON ROAD REALIGNMENT AND SEPARATED MULTIUSE PATHWAY PROJECT
JUNE 15-17, 2026



Photo 1 - Sagebrush shrubland vegetation community. View is southwest.



Photo 2 - Aspen-conifer forest vegetation community. View is northeast.

PHOTO LOG
MOOSE-WILSON ROAD REALIGNMENT AND SEPARATED MULTIUSE PATHWAY PROJECT
JUNE 15-17, 2026



Photo 3 - Intermittent stream, OW1, flowing through the project area. View is southwest.



Photo 4 - Granite Ditch (OW2), flowing through the project area. View is northeast.

PHOTO LOG
MOOSE-WILSON ROAD REALIGNMENT AND SEPARATED MULTIUSE PATHWAY PROJECT
JUNE 15-17, 2026



Photo 5 - Intermittent stream, OW3, flowing through the project area. View is southeast.



Photo 6 - Representative view of the palustrine forested wetland sampled at Data Point 5 (DP5). View is southwest.

Photo Log
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
June 15-17, 2026



Photo 7 - Representative view of the palustrine emergent wetland sampled at Data Point 3 (DP3). View is northeast.

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Appendix D Routine Wetland Determination Data Forms

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/15/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP1
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S17 T42N R116W
 Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR): E Lat: 43.59788264 Long: -110.80145777 Datum: NAD
 Soil Map Unit Name: Greyback-Charlos complex 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 ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present? Yes ☒ No ☐	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: Wetland fringe along stream	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>10</u>) 1. <u>Salix monticola</u> <u>15</u> <u>Y</u> <u>OBL</u> 2. _____ 3. _____ 4. _____ 5. _____ <u>15</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>5</u>) 1. <u>Poa palustris</u> <u>28</u> <u>Y</u> <u>FAC</u> 2. <u>Taraxacum officinale</u> <u>2</u> <u>N</u> <u>FACU</u> 3. <u>Carex scirpoidea</u> <u>15</u> <u>N</u> <u>FAC</u> 4. <u>Mantha arvensis</u> <u>2</u> <u>N</u> <u>FACW</u> 5. <u>Solidago gigantea</u> <u>8</u> <u>N</u> <u>FACW</u> 6. <u>Carex utriculata</u> <u>45</u> <u>Y</u> <u>OBL</u> 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ <u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>5</u>) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

Hydrophytic Vegetation Present? Yes ☒ No ☐

Sampling Point: DP1

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/15/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP2
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S17 T42N R116W
 Landform (hillslope, terrace, etc.): Sagebrush shrubland Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): E Lat: 43.597866 Long: -110.801535 Datum: NAD
 Soil Map Unit Name: Greyback-Charlos complex NWI classification: N/A
 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present? Yes _____ No ☒	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>10</u>)				
1. <u>Artemisia tridentata</u>	<u>55</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>_____</u> = Total Cover				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) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Smooth brome</u>	<u>85</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Achillea millefolium</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
3. <u>Aster sp.</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>90</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: <u>5</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				Remarks:
% Bare Ground in Herb Stratum <u>10</u>				

Sampling Point: DP2

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/16/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP3
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S9 T42N R116W
 Landform (hillslope, terrace, etc.): Cattail marsh Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): E Lat: 43.62491523 Long: -110.77297115 Datum: NAD
 Soil Map Unit Name: Charlos loam 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 ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present? Yes ☒ No ☐	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: Depressional marshy wetland at stream terminus	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ 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.
1. <u>Pinus contorta</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10</u>)				
1. <u>Salix boothii</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Carex nebrascensis</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Carex utriculata</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Typha latifolia</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>5</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes ☒ No ☐				
Remarks:				

Sampling Point: DP3

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/16/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP4
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S9 T42N R116W
 Landform (hillslope, terrace, etc.): Upland field Local relief (concave, convex, none): None Slope (%): _____
 Subregion (LRR): E Lat: 43.62492625 Long: -110.77306052 Datum: NAD
 Soil Map Unit Name: Charlos loam NWI classification: N/A
 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: Uplands between marsh and sagebrush shrubland	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Pinus contorta</u>	<u>17</u>	<u>Y</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>17</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>52</u> x 3 = <u>156</u> FACU species <u>21</u> x 4 = <u>84</u> UPL species <u>14</u> x 5 = <u>70</u> Column Totals: <u>112</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.125</u>
1. <u>Artemisia tridentata</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Salix boothii</u>	<u>3</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>13</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				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) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Taraxacum officinale</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	
2. <u>Achillea millefolium</u>	<u>16</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Carduus nutans</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. <u>Poa palustris</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Potentilla recta</u>	<u>4</u>	<u>N</u>	<u>UPL</u>	
6. <u>Solidago gigantea</u>	<u>12</u>	<u>N</u>	<u>FACW</u>	
7. <u>Carex utriculata</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>89</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>11</u>				
Remarks:				

Sampling Point: DP4

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/16/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP5
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S4 T42N R116W
 Landform (hillslope, terrace, etc.): Forested wetland along stream Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.62750622 Long: -110.77321434 Datum: NAD
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams 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 ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present? Yes ☒ No ☐	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: Forested wetland along stream	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
1. <u>Alnus incana</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Pinus contorta</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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.
= Total Cover <u>45</u>				
Sapling/Shrub Stratum (Plot size: <u>10</u>)				Hydrophytic Vegetation Present? Yes ☒ No ☐
1. <u>Rosa woodsii</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Remarks:
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover <u>3</u>				
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Poa palustris</u>	<u>33</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Fragaria virginiana</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	
4. <u>Carex hoodii</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5. <u>Dactylis glomerata</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover <u>100</u>				
Woody Vine Stratum (Plot size: <u>5</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u>				

Sampling Point: DP5

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: GRTE Moose-Wilson Road City/County: Jackson, Teton County Sampling Date: 6/16/2026
 Applicant/Owner: National Park Service State: WY Sampling Point: DP6
 Investigator(s): E. Clary, KM. Russo Section, Township, Range: S4 T42N R116W
 Landform (hillslope, terrace, etc.): Upland field between wetland and road Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): E Lat: 43.62752888 Long: -110.77315752 Datum: NAD
 Soil Map Unit Name: Tetonville-Wilsonville fine sandy loams NWI classification: N/A
 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: Uplands between stream/riparian area and road	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Pinus contorta</u>	<u>12</u>	<u>Y</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____		<u>12</u>	= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>34</u> x 3 = <u>102</u> FACU species <u>19</u> x 4 = <u>76</u> UPL species <u>59</u> x 5 = <u>295</u> Column Totals: <u>112</u> (A) <u>473</u> (B) Prevalence Index = B/A = <u>4.2</u>
Sapling/Shrub Stratum (Plot size: <u>10</u>)				
1. <u>Pinus contorta</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____		<u>5</u>	= Total Cover	
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Phleum pratense</u>	<u>17</u>	<u>Y</u>	<u>FAC</u>	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) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Bromus inermis</u>	<u>45</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Carex hoodii</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	
4. <u>Hieracium cynoglossoides</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	
5. <u>Achillea millefolium</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
6. <u>Tragopogon dubius</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
7. <u>Lamium purpureum</u>	<u>4</u>	<u>N</u>	<u>UPL</u>	
8. <u>Rumex acetosella</u>	<u>12</u>	<u>N</u>	<u>FACU</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____		<u>95</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>5</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☐ No ☒
2. _____	_____	_____	_____	
_____		<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>5</u>				
Remarks:				

Sampling Point: DP6

HYDROLOGY

US Army Corps of Engineers

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

Appendix E Montana Wetland Assessment Method Forms

Aquatic Resources Inventory
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park
Teton County, Wyoming

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MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Moose-Wilson Road Realignment and Separated Multiuse Pathway Project 2. **MDT Project #:** _____ **Control #:** _____

3. **Evaluation Date:** Mo. 6 Day 14 Yr. 2026 4. **Evaluator(s):** Marie Russo/Emma Clary 5. **Wetlands/Site #(s):** PEM W1 & OW1

6. **Wetland Location(s):** i. -Legal: T 42 N or S; R 116 E or W; S 17;

ii. **Approx. Stationing or Mileposts:** Along Moose-Wilson Road near Granite Canyon Entrance Station

iii. **Watershed:** 1704010301 (HUC 10)

Watershed Name, County: Snake River-Fall Creek, Teton County

7. a. **Evaluating Agency:** ERO Resources Corporation;

8. **Wetland size: (total acres)** 0.011 (measured)

b. **Purpose of Evaluation:**

1. ☐ Wetlands potentially affected by MDT project

2. ☐ Mitigation wetlands; pre-construction

3. ☐ Mitigation wetlands; post-construction

4. ☒ Other Wetlands potentially affected by project

9. **Assessment area (AA): (acres, 1.94 acres (measured))**

see instructions on determining AA

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	E	SI	0.4%
R	UB	E	SI	0.2%

Abbreviations: (see manual for definitions)

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

Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)

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

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

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

(Circle one)

Unknown

Rare

Common

Abundant

12. **General condition of AA:**

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

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is $\leq 5\%$.	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 $\leq 30\%$.	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 $\leq 15\%$.	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 $\leq 30\%$.	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.): Access road and horse trailer parking lot in and adjacent to AA.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Low occurrences of nonnative, invasives species.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** AA is along Moose-Wilson Road and near to Granite Canyon Entrance Station. Minimal road development is present and habitat is dominated by sagebrush shrublands.

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 $\geq 90\%$ 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 bear (S), Yellow-billed cuckoo (S)

Incidental habitat (list species) _____

No usable habitat American wolverine (S), Canada lynx (S)

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

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

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

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

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

Primary or critical habitat (list species) _____

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.): Species list was not provided and therefore cannot be evaluated.

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
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:

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

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

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

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
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? **Y N** If yes, reduce score in i above by 0.1: _____

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

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

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

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched B stream type			Entrenched-A, F, G stream types		
% 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.



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Y N** **Comments:** Less than 10 acres of wetland in AA.

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

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

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

Comments: _____

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

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

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

Comments:

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

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

% Cover of <u>wetland</u> 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
NA	H	M	L

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

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

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

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

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

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	7M	.4M	.1L
Insufficient Data/Information	N/A			

<i>Replacement potential</i>	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		
<i>Estimated relative abundance (#11)</i>	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

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

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): PEM W1 & OW1

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	M	0.7	1		*
B. MT Natural Heritage Program Species Habitat	N/A				
C. General Wildlife Habitat	M	0.5	1		
D. General Fish Habitat	N/A				
E. Flood Attenuation	L	0.1	1		
F. Short and Long Term Surface Water Storage	M	0.6	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.6	1		
H. Sediment/Shoreline Stabilization	H	0.9	1		*
I. Production Export/Food Chain Support	M	0.6	1		
J. Groundwater Discharge/Recharge	M	0.7	1		*
K. Uniqueness	L	0.3	1		
L. Recreation/Education Potential (bonus points)	H	0.2	0		*
Totals:		5.2	9		
Percent of Possible Score			57%		

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

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

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

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

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

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

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

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

I II III **IV**

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Moose-Wilson Road Realignment and Separated Multiuse Pathway Project 2. **MDT Project #:** _____ **Control #:** _____

3. **Evaluation Date:** Mo. 6 Day 14 Yr. 2026 4. **Evaluator(s):** Marie Russo/Emma Clary 5. **Wetlands/Site #(s):** PEM W2 & OW2

6. **Wetland Location(s):** i. -Legal: T 42 N or S: R 116 E or W: S 17:

ii. **Approx. Stationing or Mileposts:** Along Moose-Wilson Road near the Granite Canyon Entrance Station

iii. **Watershed:** 1704010301 (HUC 10)

Watershed Name, County: Snake River-Fall Creek, Teton County

7. a. **Evaluating Agency:** ERO Resources Corporation;

8. **Wetland size:** (total acres) 0.46 (measured)

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 project

9. **Assessment area (AA):** (acres, 45.68 acres (measured)
see instructions on determining AA)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	E	PP	0.3%
R	UB	E	PP	0.7%

Abbreviations: (see manual for definitions)

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

Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)

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

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

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

(Circle one)

Unknown

Rare

Common

Abundant

12. **General condition of AA:**

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 $\leq$ 5%.	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 $\leq$ 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 $\leq$ 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 $\leq$ 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.): Development in AA limited to social trails, noxious weeds present but minimal, adjacent development limited to Moose-Wilson Road, a few residences, and trailhead access with parking.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Low occurrences of nonnative, invasives species.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** AA is along Moose-Wilson Road and near Granite Canyon Trailhead. Minimal road development is present and habitat is dominated by sagebrush shrublands with some pine-aspen woodland.

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
$\geq$ 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 $\geq$ 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 bear (S), Yellow-billed cuckoo (S)

Incidental habitat (list species) _____

No usable habitat American wolverine (S), Canada lynx (S)

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

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

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

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

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

Primary or critical habitat (list species) _____

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.): *Species list was not provided and therefore cannot be evaluated.*

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
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:

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

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

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

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
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? **Y N** If yes, reduce score in i above by 0.1: _____

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

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

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

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched B stream type			Entrenched-A, F, G stream types		
% 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.



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Y N** **Comments:** Less than 10 acres of wetlands in AA.

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

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

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

Comments: _____

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

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

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

Comments:

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

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
NA	H	M	L

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

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

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

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

iv. **Final Score and Rating:** **0.9H** **Comments:** _____

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

14K. Uniqueness:

<i>Replacement potential</i>	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		
<i>Estimated relative abundance (#11)</i>	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

14L. Recreation/Education Potential: (affords bonus points if AA provides recreation or education opportunity)

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

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

[illegible]

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): PEM W2 & OW2

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	M	0.7	1		
B. MT Natural Heritage Program Species Habitat	N/A				
C. General Wildlife Habitat	H	0.9	1		*
D. General Fish Habitat	N/A				
E. Flood Attenuation	L	0.2	1		
F. Short and Long Term Surface Water Storage	H	0.8	1		*
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	M	0.7	1		
I. Production Export/Food Chain Support	H	0.9	1		*
J. Groundwater Discharge/Recharge	H	1	1		*
K. Uniqueness	M	0.4	1		
L. Recreation/Education Potential (bonus points)	H	0.2	0		
Totals:		6.5	9		
Percent of Possible Score			72%		

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

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

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

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

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

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

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

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

I

II

III

IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Moose-Wilson Road Realignment and Separated Multiuse Pathway Project 2. **MDT Project #:** _____ **Control #:** _____

3. **Evaluation Date:** Mo. 6 Day 15 Yr. 2026 4. **Evaluator(s):** Marie Russo/Emma Clary 5. **Wetlands/Site #(s):** PEM W3, PFO W4 & OW3

6. **Wetland Location(s):** i. -Legal: T 42 N or S; R 116 E or W; S 4 & 9;

ii. **Approx. Stationing or Mileposts:** Along Moose-Wilson Road and around the Laurance S. Rockefeller Preserve

iii. **Watershed:** 1704010301 (HUC 10)

Watershed Name, County: Snake River-Fall Creek, Teton County

7. a. **Evaluating Agency:** ERO Resources Corporation;

8. **Wetland size:** (total acres) 1.15 (measured)

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 project

9. **Assessment area (AA):** (acres, 53.14 acres (measured))

see instructions on determining AA

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	UB		PP	0.02%
R	EM		PP	1.21%
R	FO		PP	0.94%

Abbreviations: (see manual for definitions)

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

Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)

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

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

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

(Circle one)

Unknown

Rare

Common

Abundant

12. **General condition of AA:**

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

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is $\leq$ 5%.	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 $\leq$ 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 $\leq$ 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 $\leq$ 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.): Access roads, Laurance S. Rockefeller Preserve, Moose-Wilson Road in and adjacent to AA.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Limited occurrences of nonnative, invasives species.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** AA is along a levee-access road and around the Laurance S Rockefeller Preserve. Minimal road development is present and habitat is dominated by sagebrush shrublands and pine-aspen woodlands.

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
$\geq$ 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 $\geq$ 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 bear (S), Yellow-billed cuckoo (S)

Incidental habitat (list species) _____

No usable habitat American wolverine (S), Canada lynx (S)

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

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

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

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

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

Primary or critical habitat (list species) _____

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.): Species list was not provided and therefore cannot be evaluated.

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
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:

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

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

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

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
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? **Y N** If yes, reduce score in i above by 0.1: _____

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

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

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

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

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched B stream type			Entrenched-A, F, G stream types		
% 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.



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Y N** **Comments:** _____

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

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

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

Comments: _____

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

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

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

Comments:

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

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

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

Comments:

14I. Production Export/Food Chain Support:

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

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

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

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

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

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

iv. **Final Score and Rating:** **.07M** **Comments:**

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

i. Discharge Indicators

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

ii. Recharge Indicators

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

	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

14K. Uniqueness:

<i>Replacement potential</i>	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		
<i>Estimated relative abundance (#11)</i>	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

14L. Recreation/Education Potential: (affords bonus points if AA provides recreation or education opportunity)

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: Grand Teton National Park

[illegible]

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): PEM W3, PFO W4, & OW3

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	M	0.7	1		
B. MT Natural Heritage Program Species Habitat	N/A				
C. General Wildlife Habitat	M	0.7	1		
D. General Fish Habitat	N/A				
E. Flood Attenuation	M	0.7	1		
F. Short and Long Term Surface Water Storage	H	0.8	1		*
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1		
H. Sediment/Shoreline Stabilization	H	1	1		*
I. Production Export/Food Chain Support	M	0.7	1		
J. Groundwater Discharge/Recharge	H	1	1		*
K. Uniqueness	H	0.8	1		*
L. Recreation/Education Potential (bonus points)	H	0.2	0		
Totals:		4.5	9		
Percent of Possible Score			73%		

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

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

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

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

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

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

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

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

I

II

III

IV

Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse
Pathway Project
Grand Teton National Park
Teton County, Wyoming

Prepared for—

National Park Service
United States Department of the Interior

Prepared by—

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July 31, 2026

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Contents

Introduction.....	1
Wetland Restoration and Enhancement	4
Proposed Compensation.....	4
Conceptual Design	5
Revegetation	6
Mitigations	6
Moose-Wilson Road Restoration Area.....	7
<i>Existing Conditions</i>	7
<i>Proposed Restoration Action</i>	12
Lower Willow Flats Restoration Area.....	14
Willow Flats Wagon Road	16
Willow Flats Ditches 1 and 2	18
Emma Matilda Ditches 1, 2, and 3	21
Performance Standards, Monitoring, and Maintenance Requirements.....	25
Anticipated Schedule.....	25
Funding Source for Compensatory Mitigation	25
Summary and Next Steps	25
References.....	26

Figures

Figure 1. Moose-Wilson Road Restoration Areas for Wetland Compensation Plan.....	2
Figure 2. Additional Restoration Areas at Emma Matilda Ditches 1 through 3, Willow Flats Ditches 1 and 2, Willow Flats Wagon Road, and Lower Willow Flats for the Wetland Compensation Plan	3
Figure 3a. Proposed Restoration and Enhancement Areas along Moose-Wilson Road	8
Figure 3b. Proposed Restoration and Enhancement Areas along Moose-Wilson Road....	9
Figure 4. Conceptual Representation of General Grading (Red Line) Following the Removal of the Road Surface and Underlying Fill (Adapted from Figure 23 in the Moose-Wilson Corridor Design Guidelines Report [NPS 2021])	13
Figure 5. Proposed Restoration and Enhancement at Lower Willow Flats	15
Figure 6. Proposed Restoration and Enhancement at Willow Flats Wagon Road	17
Figure 7. Proposed Restoration and Enhancement at Willow Flats Ditch 1	19
Figure 8. Proposed Restoration and Enhancement at Willow Flats Ditch 2	20
Figure 9. Proposed Restoration and Enhancement at Emma Matilda 1	22
Figure 10. Proposed Restoration and Enhancement at Emma Matilda 2	23
Figure 11. Proposed Restoration and Enhancement at Emma Matilda 3	24

Tables

Table 1. Summary of Conceptual Restoration and Potential Mitigation Acreage	5
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Appendices

Appendix A. Preliminary Woody Plant List for Plantings in the Proposed Restoration Areas

Appendix B. Cross-Sections of Existing Road, Berm, and Existing Wetland

**Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse
Pathway Project
Grand Teton National Park
Teton County, Wyoming

July 31, 2026**

Introduction

This Wetland Compensation Plan (plan) describes the conceptual design approach for the proposed wetland restoration to mitigate for permanent wetland impacts resulting from the Moose-Wilson Road Realignment and Separated Multiuse Pathway Project (project). Grand Teton National Park (Park) is proposing to realign a portion of Moose-Wilson Road between the Sawmill Ponds Overlook and Death Canyon Road Junction and construct a separated multiuse pathway extending the length of the Moose-Wilson Road Corridor. The Park continues to implement Alternative C as described in the 2016 Final Environmental Impact Statement and selected in the 2016 Record of Decision. While implementation of actions in Alternative C is ongoing, the Park is amending the selected action to incorporate elements of Alternative D. Specifically, the Park is incorporating a separated multiuse pathway extending the length of the Moose-Wilson Road Corridor and realignment of a segment of Moose-Wilson Road, with a parallel pathway, between Sawmill Ponds and Death Canyon Road, previously analyzed in Alternative D, with minor refinements to the pathway and road alignments to further mitigate resource impacts. Proposed restoration to compensate for permanent wetland impacts as a result of the project are proposed along Moose-Wilson Road (Figure 1) and at smaller sites near Emma Matilda Lake including Lower Willow Flats, Willow Flats Wagon Road, Willow Flats Ditches 1 and 2, and Emma Matilda Ditches 1 through 3 (Figure 2).

Roadway realignment would allow for the removal of the existing Moose-Wilson Road from the Sawmill Ponds Overlook to the Whitmer Access Road Junction. Road deconstruction would restore natural groundwater flow from the surrounding hillslope to the wetland complex that borders Moose-Wilson Road. Restoration of wetland functions, habitat connectivity, and native vegetation would additionally benefit wildlife that use the Moose-Wilson Road Corridor and reduce vehicle-wildlife conflict risk. Filling in of Emma Matilda Ditches 1 through 3 and Willow Flats Ditches 1 and 2 is proposed to restoration natural hydrology. At Lower Willow Flats, fill in the wetland would be removed and the area revegetated while at Willow Flats Wagon Road both fill and a culvert would be removed to restore hydrology and wetlands.

Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park Teton County, Wyoming

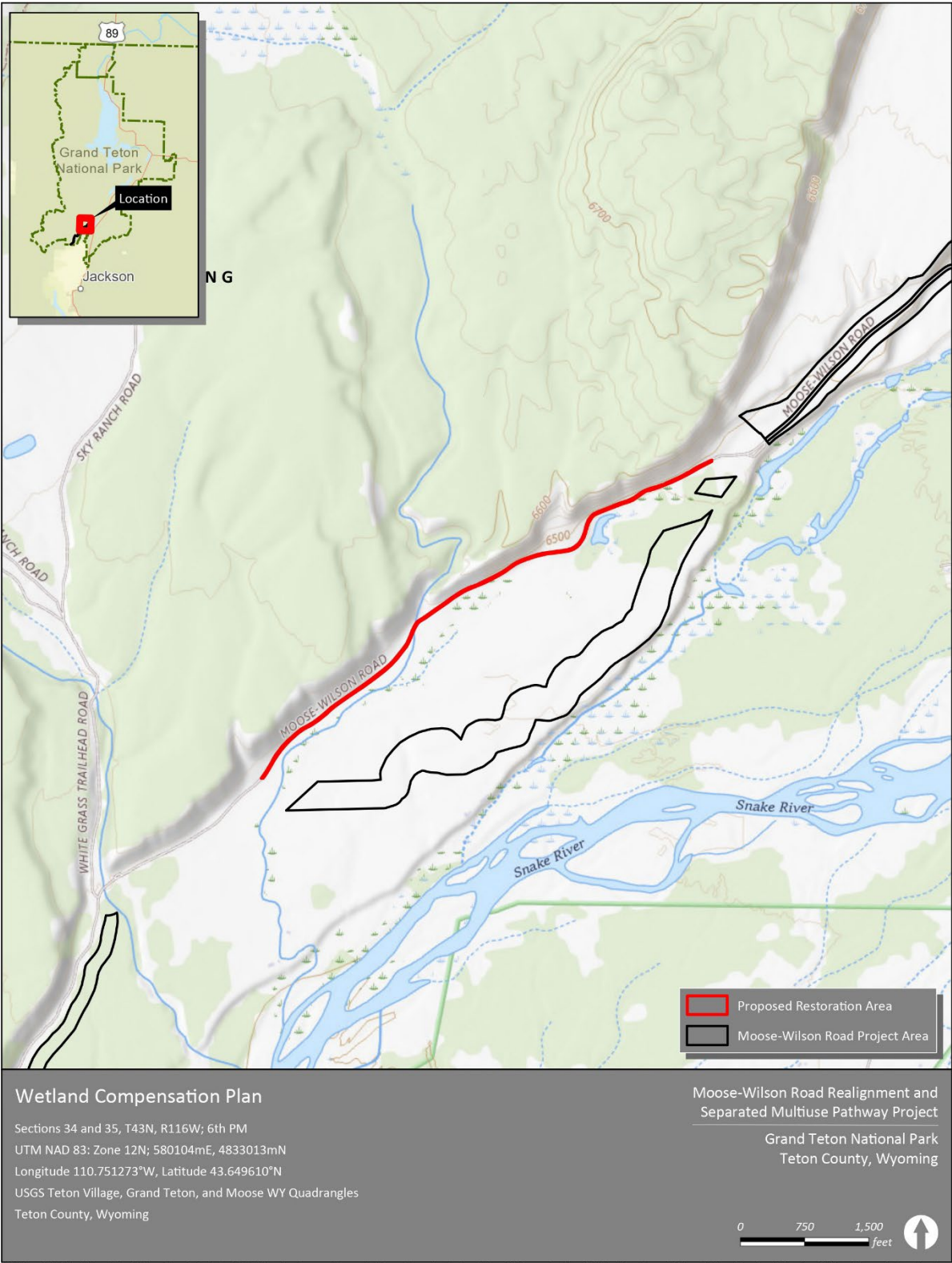


Figure 1. Moose-Wilson Road Restoration Areas for Wetland Compensation Plan

Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park Teton County, Wyoming

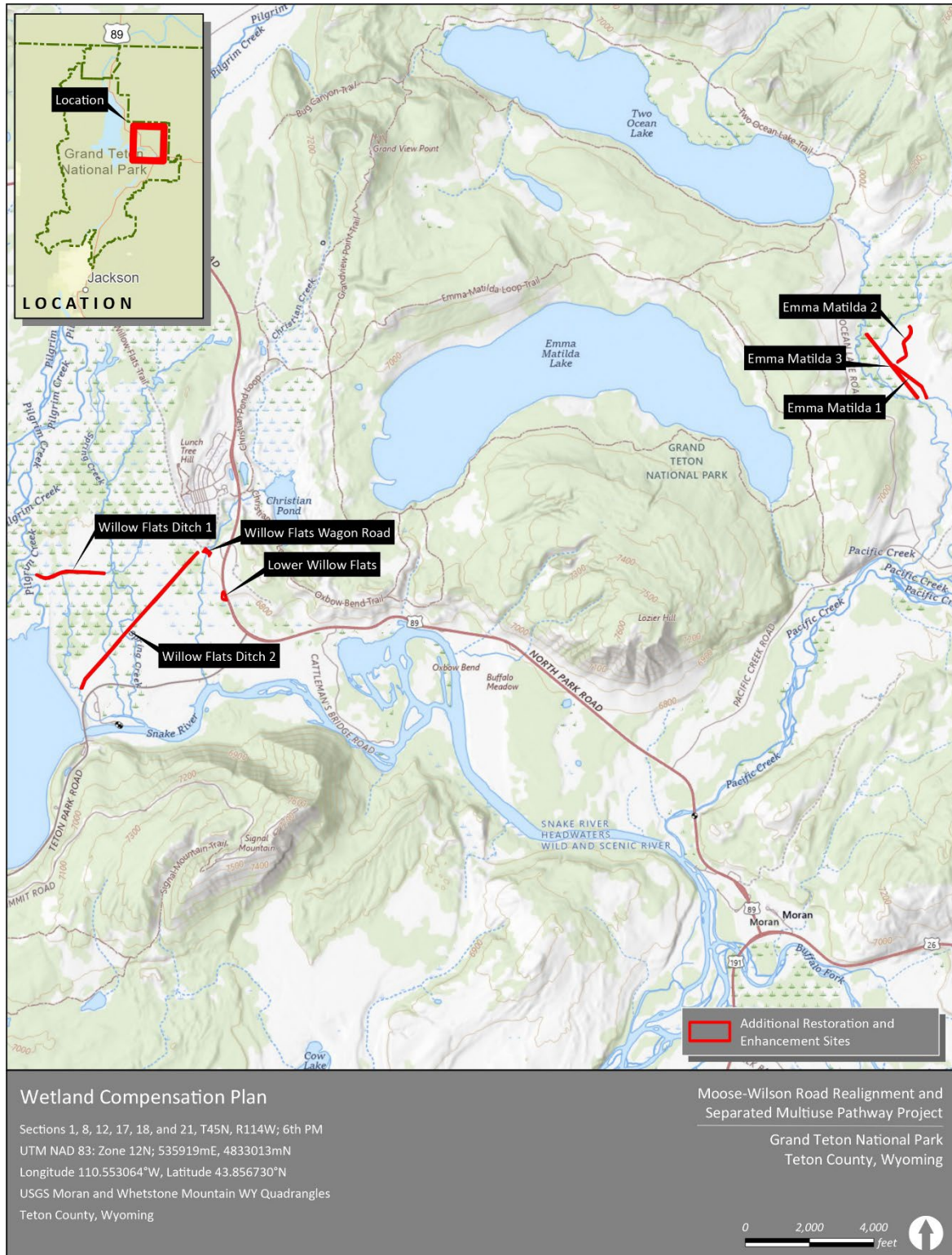


Figure 2. Additional Restoration Areas at Emma Matilda Ditches 1 through 3, Willow Flats Ditches 1 and 2, Willow Flats Wagon Road, and Lower Willow Flats for the Wetland Compensation Plan

The design concept presented in this plan serves as the first step of a collaborative design process to restore wetlands at various sites throughout the Park and is intended to support the Wetland Statement of Findings (WSOF). The design concept was developed in compliance with the NPS's goal for "no net loss of wetlands" as found in the NPS Director's Order #77-1 (DO #77-1; NPS 2016b). The DO gives high priority to removing damaging facilities, structures, or activities and restoring preexisting wetland habitats and processes. The goal for the proposed restoration areas is to restore wetland ecological processes, mainly alteration of hydrology, to the extent practicable.

Wetland Restoration and Enhancement

In compliance with the Clean Water Act and DO #77-1 (NPS 2016b), compensatory mitigation is required for permanent impacts on wetlands and other waters. The NPS limits compensation primarily as restoration of natural wetland functions in degraded or former natural wetland habitats on NPS-managed lands. Wetlands cannot be created where they did not previously exist.

Wetland enhancement refers to a modification to hydrologic conditions, vegetation communities, or other habitat components of an existing wetland in favor of a specific wetland function or value (Natural Resources Conservation Service [NRCS] 2007). The wetland functions and values considered in the development of this plan were taken from the Montana Wetland Assessment Method (MWAM) (Berglund and McEldowney 2008). Functions are self-sustaining properties of a wetland ecosystem related to ecological significance and include groundwater recharge/discharge, sediment/nutrient/toxicant retention, production export/food chain support, sediment/shoreline stabilization, fish habitat, wildlife habitat, endangered species habitat, recreation/education potential, and uniqueness. Values are benefits derived from functions and are based on human judgment of the worth or importance of those functions.

Proposed Compensation

ERO Resources Corporation (ERO) investigated the main proposed restoration area during field surveys on June 15 through 18, 2026, which included the 1.3-mile section of Moose-Wilson Road proposed for removal (Figure 1). Additional restoration areas at Lower Willow Flats, Willow Flats Wagon Road, Willow Flats Ditches 1 and 2, and Emma Matilda Ditches 1 through 3 were reviewed using aerial imagery and discussed with Park staff (Figure 2).

The conceptual mitigation presented in this plan identified up to 11.518 acres of wetland restoration mitigation (Table 1). Overall, the project requires approximately 8.261 acres of wetland compensation (WSOF Table 4). Preliminary design estimates up to 11.061 acres in potential mitigation credit as wetland restoration and 0.4572 acre as wetland enhancement (Table 1). Groundwater data from monitoring wells were not available for this plan, and a conservative estimate of restored wetland acres was calculated. Areas not expected to be

wetlands following road deconstruction along Moose-Wilson Road, Lower Willow Flats, Willow Flats Ditch 2, and Emma Matilda Ditches 1, 2, and 3 are included as wetland enhancement (Table 1). Mitigation acreages would be adjusted as design progresses.

Table 1. Summary of Conceptual Restoration and Potential Mitigation Acreage

Restoration Area Name	Restoration Type	Potential Restoration Acreage	Ratio*	Net Credit Acres
Moose-Wilson Road	Wetland Restoration	2.304	1:1	2.34
Lower Willow Flats	Wetland Restoration	0.452	1:1	0.452
Willow Flats Wagon Road	Wetland Restoration	0.386	1:1	0.386
Willow Flats Ditch 1	Wetland Restoration	1.372	1:1	1.372
Willow Flats Ditch 2	Wetland Restoration	4.085	1:1	4.085
Emma Matilda Ditch 1	Wetland Restoration	0.608	1:1	0.608
Emma Matilda Ditch 3	Wetland Restoration	1.818	1:1	1.818
			Total Wetland Restoration	11.061
Moose-Wilson Road	Wetland Enhancement	3.152	10:1	0.3152
Lower Willow Flats	Wetland Enhancement	0.083	10:1	0.0083
Willow Flats Ditch 2	Wetland Enhancement	NA	NA	
Emma Matilda Ditch 1	Wetland Enhancement	0.193	10:1	0.0193
Emma Matilda Ditch 2	Wetland Enhancement	0.751	10:1	0.0751
Emma Matilda Ditch 3	Wetland Enhancement	0.393	10:1	0.0393
			Total Wetland Enhancement	0.4572

**Based on the MWAM Category of permanently impacted wetlands, the total required compensation acreage was calculated to be 8.261 acres (WSOF Table 4). Wetland restoration acreage assumes a 1:1 replacement to meet the total required compensation following the correction based on MWAM functional category. Wetland enhancement acres ratios are assumed to be calculated at a 10:1 ratio.*

The conceptual design presented in this plan was developed based on aquatic resources delineations and field surveys in 2018 and 2026 (ERO 2018, ERO 2026), review of light detection and ranging (LiDAR) data, and desktop review of historical aerials and topographic mapping. Existing site conditions, proposed restoration activities, and recommendations for additional data collection are discussed in the following sections.

Conceptual Design

The following sections describe the existing conditions and proposed conceptual mitigation design for the proposed restoration areas. The following activities are common to all mitigation areas and share the intention of minimizing adverse impacts on natural vegetation, soils, and adjacent waterways:

- Prior to starting construction activities, mark the limits of construction, access routes, and storage locations for equipment and materials with stakes.
- Use equipment and construction methods that would minimize compaction of upland vegetation and soil/topsoil stockpiles, and equipment/material storage locations.
- Through coordination and concurrence with a Park vegetation ecologist/botanist, reestablish native vegetation with plant materials sourced from the Park to the extent practicable (on-site/neighboring locations) or other approved sources.

- Require all equipment to be cleaned prior to mobilization to prevent invasive and nondesirable species introductions. Control invasive plants prior to and a minimum of five years post-construction.
- Monitor mitigation areas yearly for at least five years. Identify and implement additional restoration work if goals are not met.

Revegetation

Proposed wetland restoration and wetland enhancement areas would be seeded with an appropriate native seed mix following subsurface soil decompaction, topsoil placement, and topsoil seedbed preparation. The seed mix should include wetland and riparian species to cover the extent of hydrological conditions that may be present in the proposed restoration areas. Shrub and tree planting is recommended to establish similar wetland types compared to the surrounding wetlands (palustrine emergent [PEM], palustrine scrub-shrub [PSS], and palustrine forested [PFO]). Where feasible, native plants would be salvaged in disturbance areas to be transplanted at the restoration areas. Willow stake installation is recommended in areas with adequate hydrology to promote rapid native vegetation cover to out-compete nonnative species. Additional riparian plantings would also help to stabilize slopes along upland edges. Noxious weeds should be treated for several years following construction in the proposed restoration area. A preliminary list of appropriate species for planting can be found in Appendix A. Park vegetation biologists would refine this species list for grow out.

Restoration activities may temporarily disturb existing upland vegetation adjacent to the proposed restoration areas. Areas of temporary disturbance would follow best management practices for topsoil decompaction, ripping, and seedbed preparation. Disturbed upland areas would be reseeded with genetically appropriate plant material and managed for invasive plants following revegetation. Park staff would determine any rare plant areas and potential areas for plant salvage and conduct pre- and post-monitoring of nonnative plants in the proposed restoration area. All disturbed areas replanted with native vegetation and planting efforts would mimic natural spacing, abundance, and diversity of native plant species. Restored areas would not use irrigation, except possibly during plant establishment.

Mitigations

Any off-site topsoil would be required to be certified free of undesirable plant species not consistent with restoration objectives and should be tested to determine adequate levels of organic matter and nutrients. Limits of construction would be clearly marked to prevent impacts on native vegetation and wetlands outside of the approved construction area. No additional acreage would be damaged or graded without prior approval of the project team. If any berry-producing shrubs are removed during construction, they would be replanted.

Moose-Wilson Road Restoration Area

Existing Conditions

The proposed restoration area consists of a portion of Moose-Wilson Road (Figure 1, Figure 3a, and Figure 3b). Moose-Wilson Road was originally built as a primitive wagon road in the 1890s to serve incoming settlers (NPS 2021). Since 1929 and the Park's creation, the majority of the road has been paved, and numerous realignments have occurred since the road's initial establishment. Additional improvements, including culverts, were installed along the road in the 1950s. The winding road provides exceptional scenery and wildlife viewing opportunities in the relatively undeveloped southern portion of the Park. Currently, the road is approximately 20 feet wide, although its width varies between 18 and 22 feet. Soil types along the proposed road removal and in the proposed restoration area include Tetonville-Wilsonville fine sandy loams and Cryaquolls-Cryofibrists complex (NRCS 2012).

The proposed restoration area consists of a portion of Moose-Wilson Road north of a large wetland complex with PEM, PSS, and PFO wetlands (Figure 3a and Figure 3b; Cowardin 1979). Vegetation in the wetland complex is dominated by common beaked sedge (*Carex utriculata*), various other sedges (*Carex* spp.), Bebb's willow (*Salix bebbiana*), Canada bluejoint (*Calamagrostis canadensis*), and fowl mannagrass (*Glyceria striata*). Aspen (*Populus tremuloides*) occurs on the wetland margins along with grey alder (*Alnus incana*) and lodgepole pine (*Pinus contorta*). Large bodies of open water occur throughout the wetland complex, and an extensive amount of beaver activity was observed during the 2018 and 2026 field surveys (Photo 1).

Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park Teton County, Wyoming

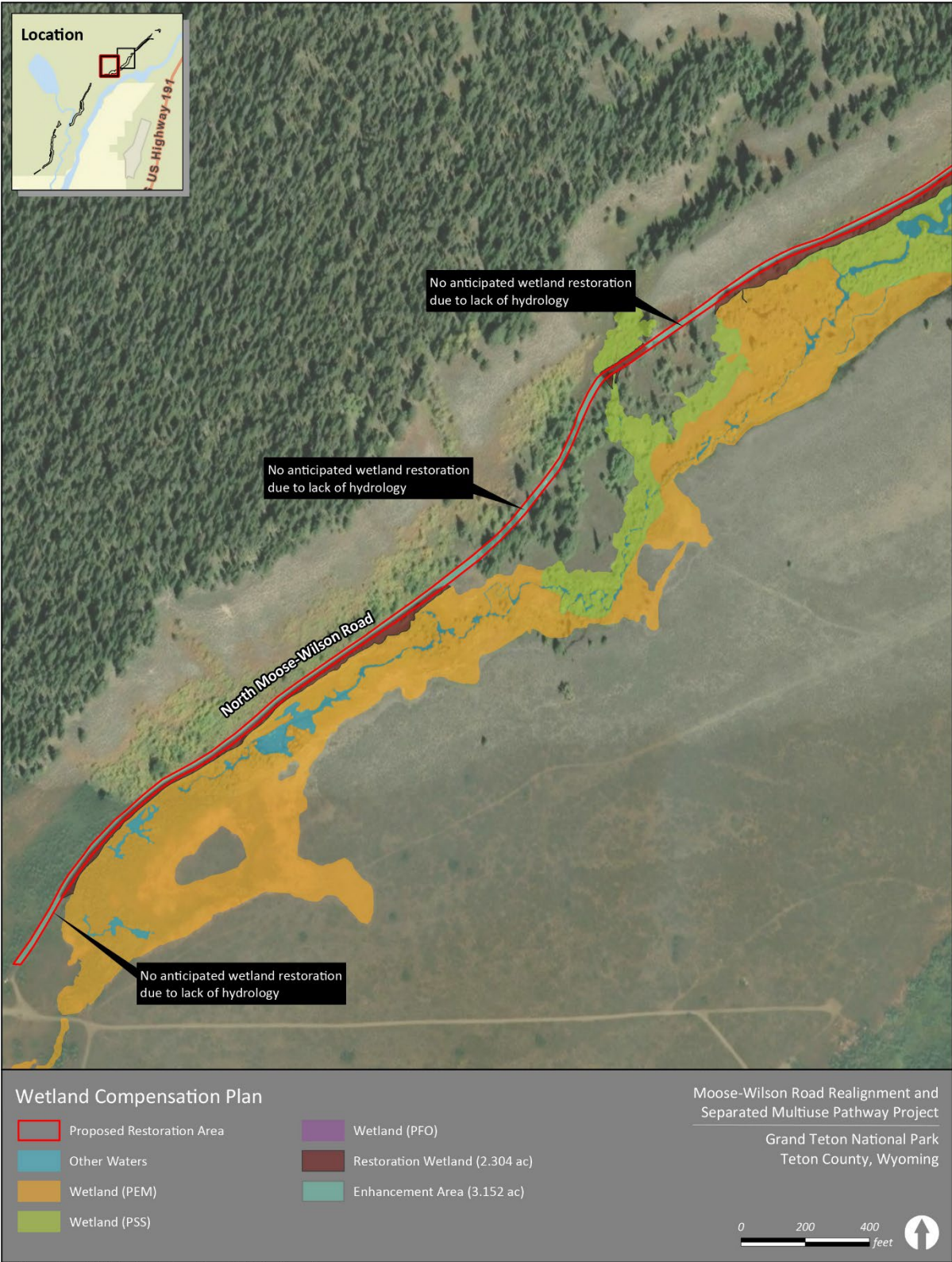
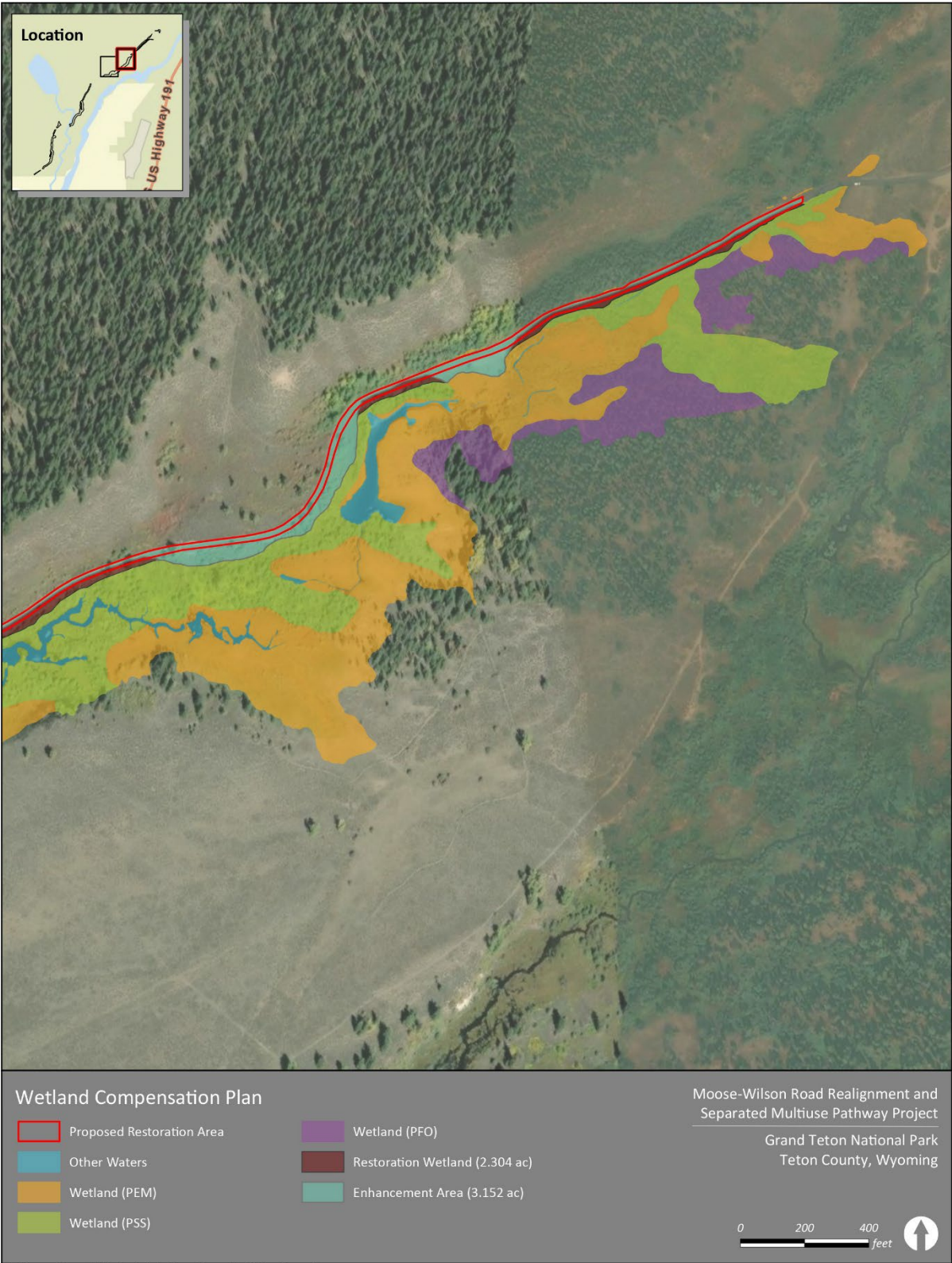


Figure 3a. Proposed Restoration and Enhancement Areas along Moose-Wilson Road

Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park Teton County, Wyoming



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 3b. Proposed Restoration and Enhancement Areas along Moose-Wilson Road

Photo 1. Open water in the wetland complex south of Moose-Wilson Road adjacent to the proposed restoration area. View is to the south.



Hydrology in the wetland complex is supported by groundwater seepage from the adjacent hillslope to the north. Field observations, review of historical vegetation imagery, and reports from the NPS indicate significant groundwater seepage in the wetland complex. Due to large puddles and water ponding on the road surface from groundwater seepage, recent efforts were made to install three drainage structures to improve groundwater flow between the hillslope and the wetland complex (NPS 2021). Evidence of groundwater seepage suggests that the wetland complex extended to the edge of the hillslope prior to the construction of Moose-Wilson Road. Currently, the wetland complex abuts the road and road berm throughout much of the proposed restoration area (Photo 2; Figure 3a and Figure 3b). However, some areas south of the road were not mapped as wetlands during the 2018 and 2026 field surveys (Figure 3a and Figure 3b) with vegetation characterized by aspen, chokecherry (*Prunus virginiana*), lodgepole pine, and a mesic herbaceous understory.

Photo 2. Wetland adjacent to Moose-Wilson Road in the proposed restoration area. View is to the west.



The surrounding upland is dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and little sagebrush (*Artemisia arbuscula*) with an understory of Wyeth biscuitroot (*Lomatium ambiguum*), garden sorrel (*Rumex acetosa*), bluegrasses (*Poa* spp.), smooth brome (*Bromus inermis*), and silvery lupine (*Lupinus argenteus*). Patches of woody vegetation north of Moose-Wilson Road also occur and are dominated by quaking aspen (*Populus tremuloides*), narrowleaf cottonwood (*Populus angustifolia*), rose (*Rosa* spp.), and lodgepole pine (Photo 3).

Photo 3. Woody upland vegetation north of the proposed restoration area. View is to the northeast.



Wildlife use in the wetland complex and surrounding landscape is high. Beaver activity was documented throughout the wetland complex south of the road in addition to mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis nelsoni*), and moose (*Alces americanus*). ERO noted areas with noxious weeds including Canada thistle (*Cirsium arvense*) and houndstongue (*Cynoglossum officinale*). Other nonnative species observed in the vicinity of the wetland complex included yellow salsify (*Tragopogon dubious*) and Timothy grass (*Phleum pratensis*).

Proposed Restoration Action

Deconstruction of the proposed project portion of Moose-Wilson Road is anticipated to restore hydrologic connectivity between the northern hillslope and the southern wetland complex. With the removal of the Moose-Wilson Road surface and excavation of existing road berms, wetland vegetation and functions are anticipated to be restored along a portion of Moose-Wilson Road (Figure 4).

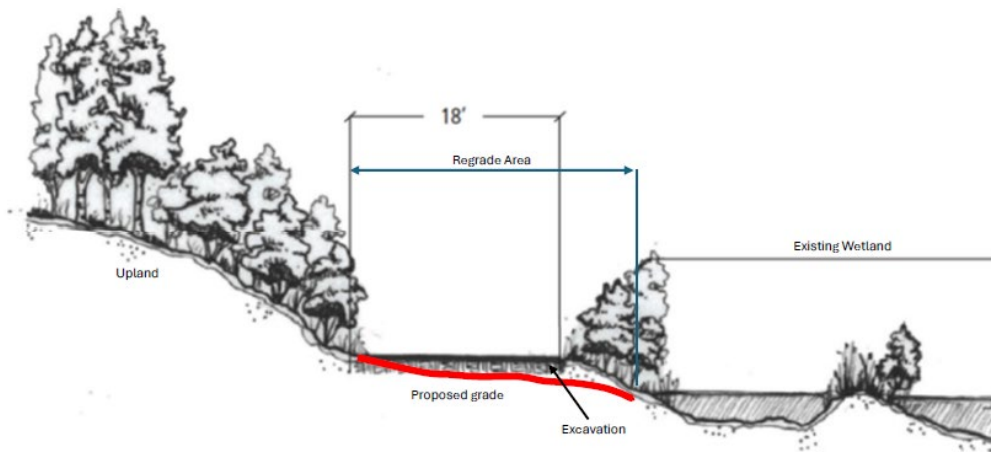


Figure 4. Conceptual Representation of General Grading (Red Line) Following the Removal of the Road Surface and Underlying Fill (Adapted from Figure 23 in the Moose-Wilson Corridor Design Guidelines Report [NPS 2021])

Deconstruction of Moose-Wilson Road includes the removal of 2 to 3 inches of asphalt; base materials of gravel and sand, where present (U.S. Department of Transportation 2023); and any existing culverts. Removed material would be disposed of off-site. Disturbed areas from asphalt removal and excavation should be graded to tie into the elevation of the adjacent wetland complex. Due to the presence of steeper slopes north of the road, it is not anticipated that the complete footprint of the road can be restored to wetlands. Grading a slope shallower than 1:3 is proposed to avoid hillslope destabilization and erosion.

ERO reviewed topography at five preliminary cross-sections along the proposed road removal (Appendix B). At Cross-Sections 1 and 2, Moose-Wilson Road is approximately 1.6 feet above the edge of the wetland (Appendix B). Minor grading in this area along the wetland complex boundary following road removal would likely expand the wetland complex boundary (Figure 3a and Figure 3b; Appendix B). The road is approximately 5 to 9 feet above the mapped wetland complex boundary at Cross-Sections 3, 4, and 5. Additional grading may be needed in the vicinity of Cross-Section 3 to lower the ground surface to establish wetlands. In the vicinity of Cross-Sections 4 and 5, large road berms extend south of the road. Extensive grading would be required in these areas and, as such, the areas are considered wetland enhancement in the preliminary design.

In the approximate middle of the proposed restoration area, the road does not border the wetland complex, apart from crossing an unnamed drainage with a small amount of wetlands on either side of the road (Figure 3a and Figure 3b). Areas along the portion of the road that does not border the wetland complex are preliminarily designated as wetland enhancement areas. Additional information on groundwater depth would help in determining if adequate hydrology occurs in these areas to support wetlands post-road removal.

Due to the presence of steeper slopes north of Moose-Wilson Road (Appendix B), it is not anticipated that the complete footprint of the road can be restored to wetlands. In areas bordering the wetland complex, approximately half of the existing road footprint is anticipated to have adequate hydrology to support wetland vegetation (Figure 3a and Figure 3b). However, grading the existing narrow road berm on the south side of the road is proposed to expand wetland areas and restore natural functioning in some areas (Figure 3a and Figure 3b). If hydrology is not present to support wetlands in higher graded areas, these areas would be considered wetland enhancement.

Use of wetland topsoil from permanently disturbed areas of the new road alignment is recommended for the proposed restoration area; however, additional imported topsoil would likely be required. If timing allows, stripped wetland soil from disturbed areas should be immediately transferred to the restoration area; however, if stockpiled, the duration should not exceed 30 days and stockpile handling would be minimized to limit the depletion of soil structure and organic matter, microorganisms, seed bank, and other biochemical properties (Valliere et al. 2022). Wetland topsoil, upland topsoil, and subsoils should be stockpiled separately to preserve appropriate seed banks and soil properties. Topsoil stockpiles should not exceed 7 feet high (Maryland Department of the Environment 2013). For long periods of storage, stockpiles should be seeded with a sterile cover crop or native seed mix to support soil biota (Valliere et al. 2022). Topsoil placed in restoration and enhancement areas should be tested for compaction and refusal of equipment (e.g., soil probe, auger, or shovel) (Maryland Department of the Environment 2013).

At least 6 inches of topsoil should be placed on top of subsurface soils following excavation and grading in the proposed restoration area. Construction is recommended to take place when groundwater in wetlands are the lowest to reduce compaction and overall soil disturbance.

Mapped wetlands along the proposed project portion of Moose-Wilson Road would be avoided and not impacted during construction, and activities would minimize unnecessary additional impacts on surrounding upland vegetation communities.

Lower Willow Flats Restoration Area

A road pull-out along US Highway 191 previously resulted in the placement of fill on the border of a wetland complex (Figure 5). Hydrology of the previously existing wetland was altered and there was a shift in plant community composition and loss of wetland vegetation. Restoration activities would remove the fill and lower the topographic surface in the restoration area to support wetlands. The restoration area would be revegetated with native species. Approximately 0.452 acre would be wetland restoration and 0.083 acre would be wetland enhancement (Figure 5).



World Imagery: Microsoft, Vantor
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 5. Proposed Restoration and Enhancement at Lower Willow Flats

Willow Flats Wagon Road

Previous construction resulted in the placement of fill across Christian Creek to create a dirt road crossing. Restoration activities would remove previously existing fill and a culvert. The restoration area at Willow Flats Wagon Road would be graded to restore wetlands along the creek and restore natural hydrology. Approximately 0.386 acre would be wetland restoration (Figure 6).

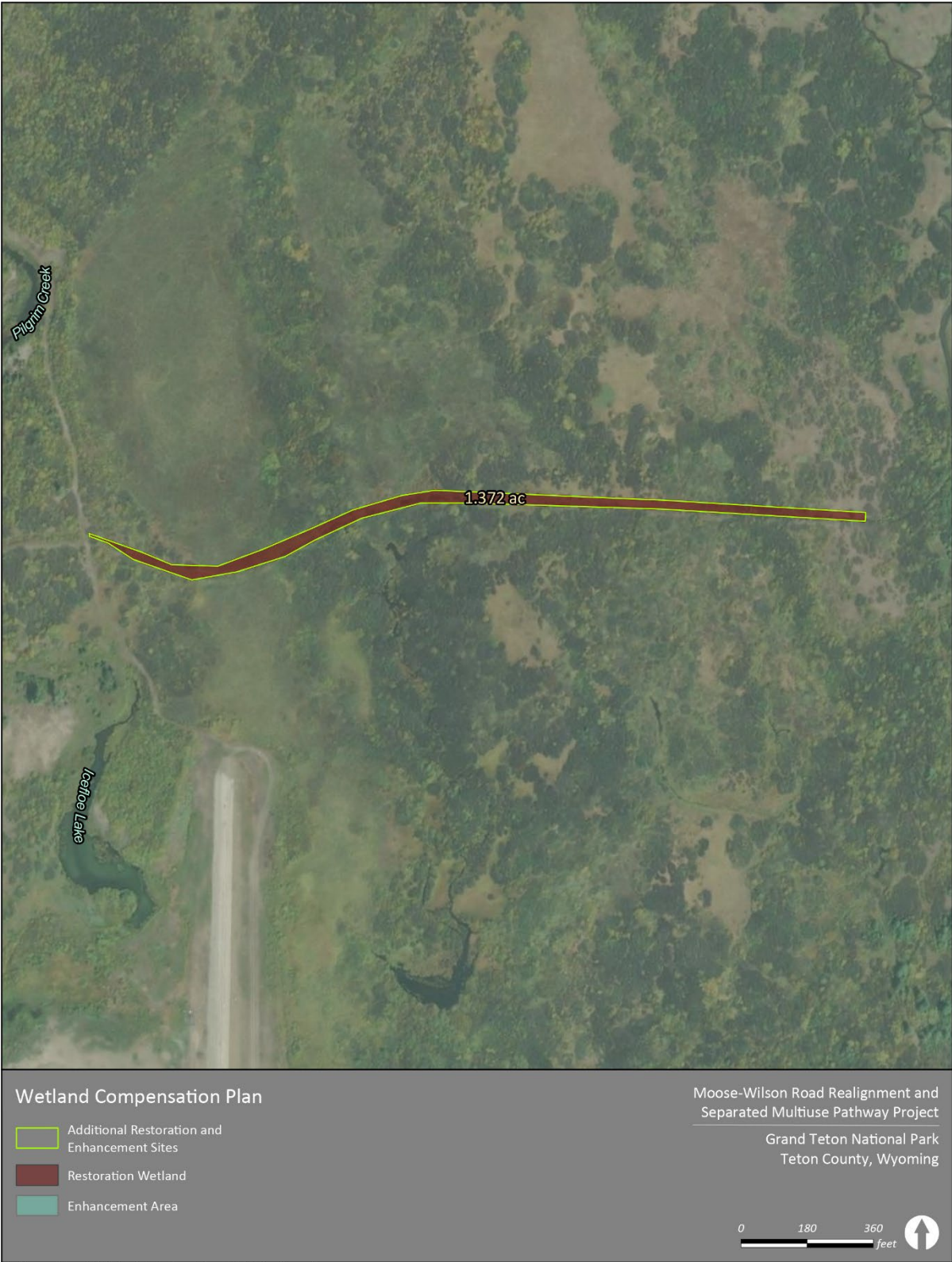


World Imagery: Microsoft, Vantor
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 6. Proposed Restoration and Enhancement at Willow Flats Wagon Road

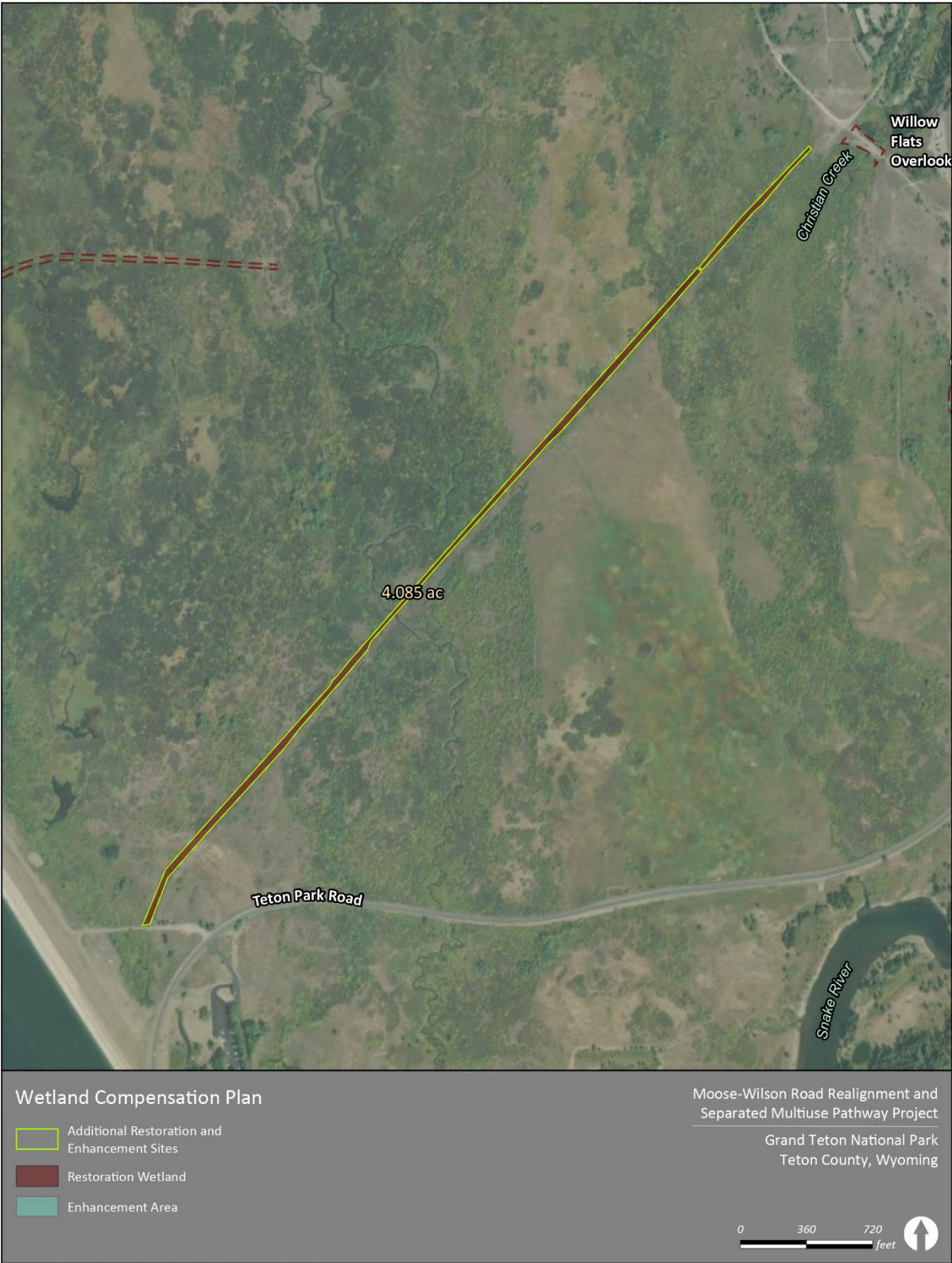
Willow Flats Ditches 1 and 2

Sections of a large wetland complex west of US Highway 191 were previously ditched, affecting hydrology and natural wetland processes. Ditch 1 and Ditch 2 in Willow Flats would be filled in and planted with bare root woody plant cuttings to facilitate wetland establishment and restoration to a PSS wetland type. Approximately 5.457 acres would be wetland restoration (Figure 7 and Figure 8).



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 7. Proposed Restoration and Enhancement at Willow Flats Ditch 1



World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
World Street Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 8. Proposed Restoration and Enhancement at Willow Flats Ditch 2

Emma Matilda Ditches 1, 2, and 3

East of Emma Matilda Lake three connected ditches were previously installed, which directly affected hydrology and existing wetlands. Restoration activities would fill in the ditches, and the ditches would be planted with bare root woody cuttings to restore ditched areas to PSS wetlands. Approximately 2.426 acres would be wetland restoration and 1.337 acre would be wetland enhancement (Figure 9 through Figure 11).



Figure 9. Proposed Restoration and Enhancement at Emma Matilda 1



Figure 10. Proposed Restoration and Enhancement at Emma Matilda 2



Figure 11. Proposed Restoration and Enhancement at Emma Matilda 3

Performance Standards, Monitoring, and Maintenance Requirements

Ecological performance standards based on the MWAM (Berglund and McEldowney 2008) would be used to track the success of wetland compensation. Depending on the final selected restoration area, the restored or enhanced functions would include groundwater recharge/discharge, sediment/nutrient/toxicant retention, production export/food chain support, sediment/shoreline stabilization, fish habitat, wildlife habitat, endangered species habitat, recreation/education potential, and uniqueness. Performance standards and monitoring would be developed in detail in cooperation with Park staff, the NPS Wetlands Program, and the Corps later in the design and permitting process. Annual monitoring of the mitigation areas would be completed by trained Park staff. Mitigation areas would be monitored and corrective action would be taken when appropriate. Post-construction and monitoring would follow requirements established during the permitting process with the Corps, typically over a five-year period. Vegetation monitoring plots would be used to identify invasive species and evaluate their presence and extent. If it is determined through the monitoring plots that the vegetative cover contains more than 2 percent of high-priority invasive species, then corrective actions would be required. Additionally, the entire project area would be surveyed for invasive species by ocular assessment. If populations of high-priority invasive species are identified, then corrective actions would be required. Locations of the populations would be mapped and monitored in subsequent years.

Anticipated Schedule

At this time, no funding has been allocated for implementation steps; therefore, no schedule for project or compensation work is available. The Park's intent is to have any compensation occur concurrently with project implementation.

Funding Source for Compensatory Mitigation

The cost of compensatory mitigation will be factored into the construction costs of the project and is consistent with DO #77-1, Section 5.2.3.

Summary and Next Steps

Realignment of Moose-Wilson Road is anticipated to permanently impact approximately 2.095 acres of wetlands from placement of fill with 8.261 acres of mitigation credits required. The total acreage of permanent wetland impacts would be offset through compensatory mitigation by restoring wetlands through the removal of a portion of Moose-Wilson Road. Up to 11.518 acres of potential mitigation credits have been identified; however, these numbers are preliminary estimates and ERO recommends early coordination with the Corps Wyoming Regulatory Office.

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Wetland Compensation Plan
Moose-Wilson Road Realignment and Separated Multiuse Pathway Project
Grand Teton National Park Teton County, WyomingTeton County, Wyoming

Appendix A. Preliminary Woody Plant List for Plantings in the Proposed Restoration Areas

Preliminary Plant List

Plant Species	Vegetation Type	Wetland Indicator*	Plant Material Type
<i>Amelanchier alnifolia</i>	Shrub	FACU	Container
<i>Betula occidentalis</i>	Tree	FACW	Container
<i>Crataegus douglasii</i>	Shrub	FAC	Container
<i>Lonicera involucrata</i>	Shrub	FAC	Container
<i>Populus balsamifera</i>	Tree	FAC	Container
<i>Prunus virginiana</i>	Shrub	FACU	Container
<i>Rosa acicularis</i>	Shrub	FACU	Container
<i>Symphoricarpos albus</i>	Shrub	FACU	Container
<i>Salix bebbiana</i>	Shrub	FACW	Field collected stake

*FACU = Facultative Upland; FACW = Facultative Wetland; FAC = Facultative.

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Appendix B. Cross-Sections of Existing Road, Berm, and Existing Wetland

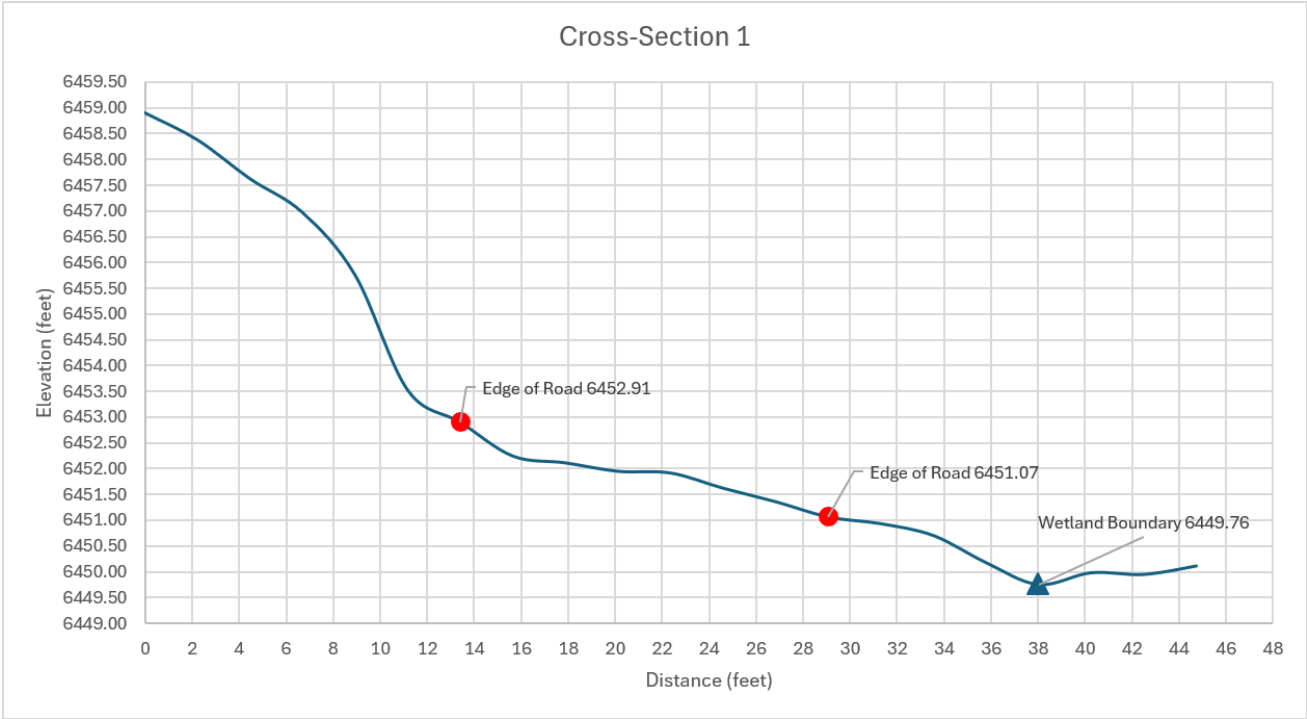


Figure B-1. Cross-Section 1 of the existing road and wetland complex boundary. See Figure B-6 for an overview of the cross-section location.



Photo B-1. Existing road and wetland complex boundary in the vicinity of Cross-Section 1, view is to the southwest.



Figure B-2. Cross-Section 2 of the existing road and wetland complex boundary. See Figure B-6 for an overview of the cross-section location.



Photo B-2. Existing road and wetland complex boundary in the vicinity of Cross-Section 2, view is to the northeast.



Figure B-3. Cross-Section 3 of the existing road and wetland complex boundary. See Figure B-6 for an overview of the cross-section location.



Photo B-3. Existing road and wetland complex boundary in the vicinity of Cross-Section 3, view is to the northeast.

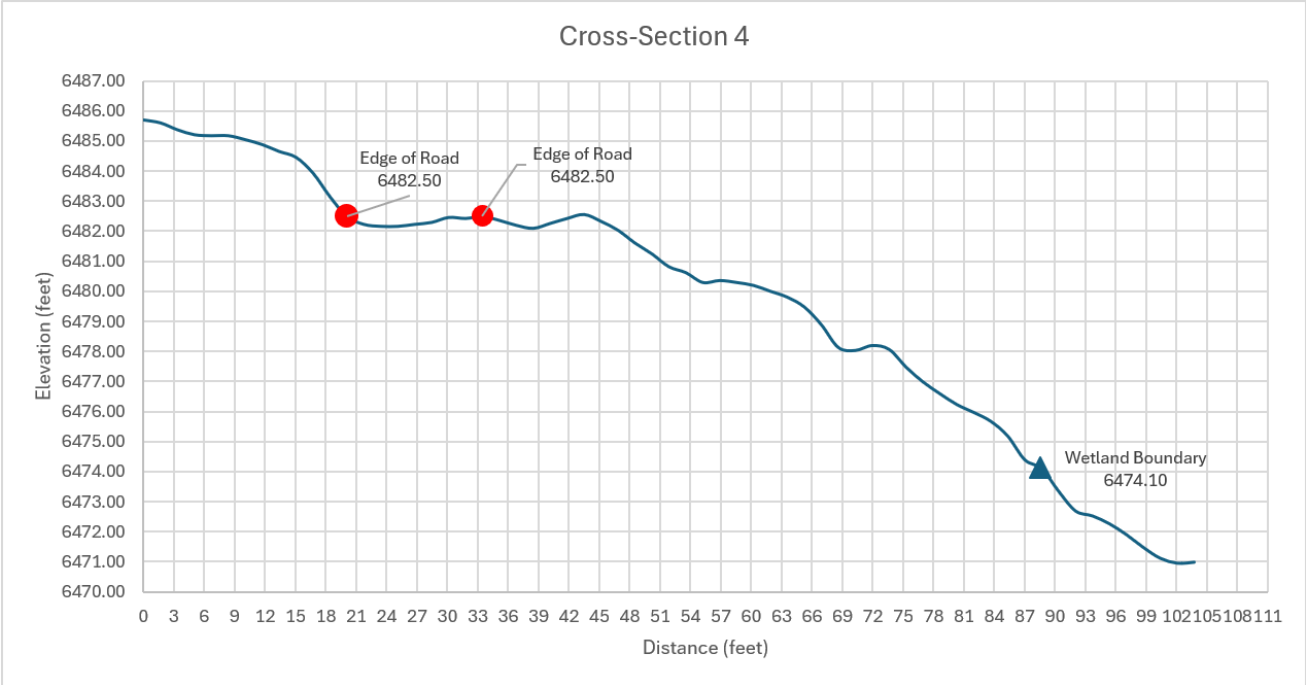


Figure B-4. Cross-Section 4 of the existing road and wetland complex boundary. See Figure B-6 for an overview of the cross-section location.



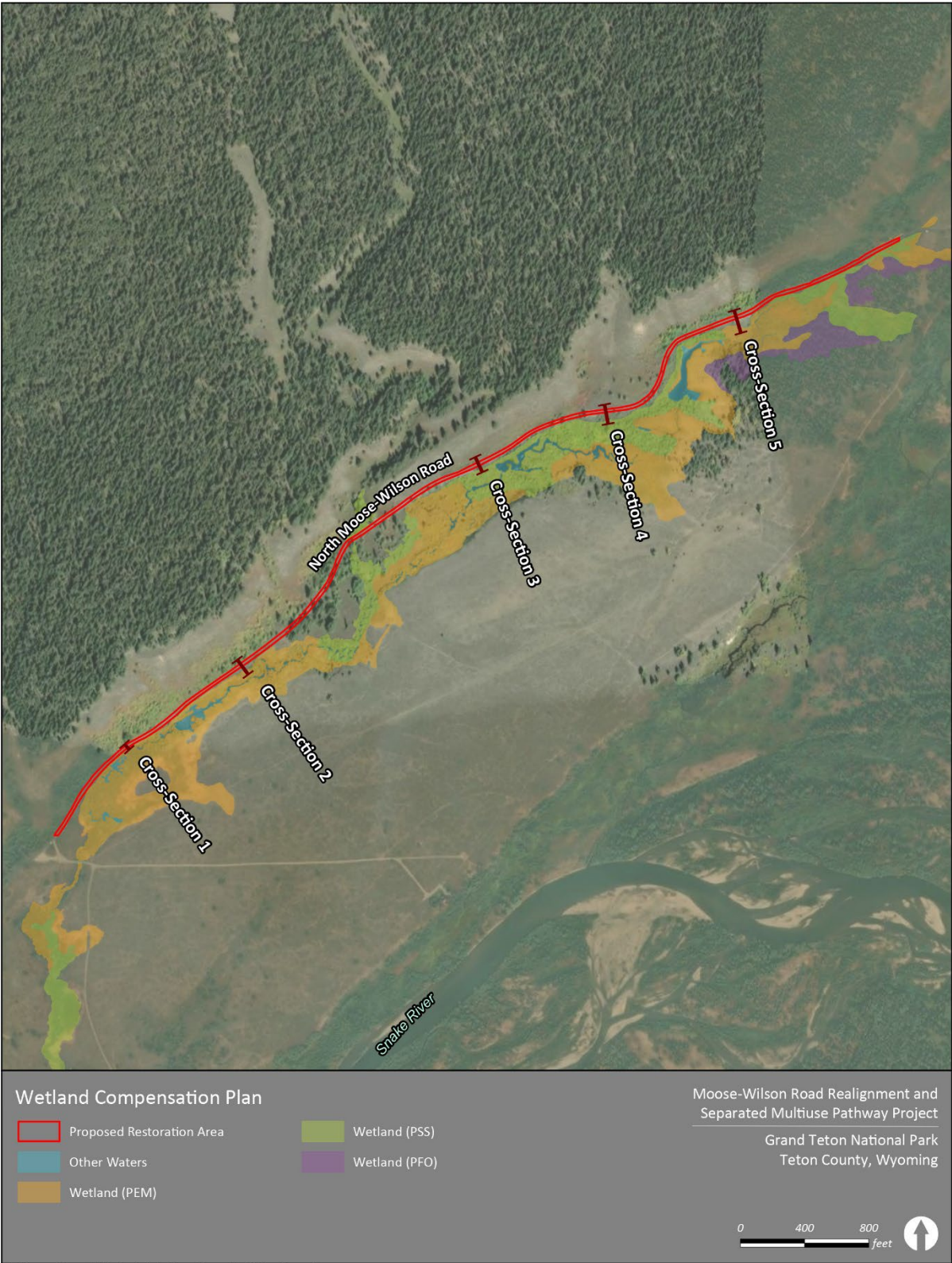
Photo B-4. Existing road and wetland complex boundary in the vicinity of Cross-Section 4, view is to the northeast.



Figure B-5. Cross-Section 5 of the existing road and wetland complex boundary. See Figure B-6 for an overview of the cross-section location.



Photo B-5. Existing road and wetland complex boundary in the vicinity of Cross-Section 5, view is to the south.



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Figure B-6. Existing road and wetland cross-sections.